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Financial Transaction Tax: The Brexit – an Opportunity or Threat?¹

Veronika SOLILOVÁ* – Danuše NERUDOVÁ* – Marek LITZMAN**

Abstract

The European Union faces the biggest change in her history – Brexit. The United Kingdom is leaving the EU and therefore its integrated capital market. Never before in the history of the EU has a Member State left the club, therefore the reactions of the Internal Market, economies of the rest EU Member States, and financial markets are unpredictable. Since 2012, the Coalition of the Willing would like to implement the financial transaction tax (FTT) but currently they pause before the question of how the Brexit will change the potential FTT revenues of the Coalition of the Willing. Based on the research we can conclude that the Brexit will have a negative or positive impact on the potential FTT revenues with dependence on a relocation of financial markets outside of United Kingdom. Moreover, the FTT can be considered as a sustainability-oriented tax-based own resources for a reform of the EU budget.

Keywords: financial transaction tax, Brexit, Coalition of the Willing, EU

JEL Classification: H25, H61

Introduction

In 2012, eleven² Member States named as a Coalition of the Willing³ expressed the willingness to introduce Financial Transaction Tax (FTT) through enhanced cooperation based on the Treaty on the Functioning of the EU. Later,

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¹ This paper presents the results of research within the cross-disciplinary H2020 EU project Fair Tax No. 649, 439, *Revisioning the 'Fiscal EU': Fair, Sustainable, and Coordinated Tax and Social Policies*.

² Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia, Spain. Hereinafter EU-11.

on February 14, 2013, the Commission adopted the Proposal for a Council Directive implementing enhanced cooperation in the area of FTT together with the revised impact assessment. The discussion about the proposal since this time is focusing on the main elements of the tax, but the consensus has not yet been reached. However, it was agreed in Tallin on September 2017 that experts from the countries of the Coalition of the Willing should clarify (i) the effects of the FTT with the capital-funded pension systems, (ii) FTT revenues estimate and implementation costs, and (iii) scenario(s) in the relation to the Brexit. Since the introduction of the FTT proposal, a number of empirical studies estimated the FTT revenues. However, all FTT revenue estimates are performed with the inclusion of the London financial markets, which belong to the main financial markets in the EU and are considered as a financial centre⁴ in the 21st century. Thus, it is questionable how the Brexit, i.e. the United Kingdom leaving the EU and therefore its integrated capital market, will change the potential FTT revenues of the Coalition of the Willing. The budgetary consequences are considered as a one of the key element for the decision about the implementation of the FTT in the countries of the Coalition of the Willing and subsequently as an EU-wide general financial transactions tax stabilising financial markets in the EU.

The aim of this paper is to determine the revenue potential of the FTT for the “Coalition of the Willing” and the impact of the Brexit on those revenues.

The paper is divided into seven chapters. Chapter two focuses on the theoretical background, briefly summarises the current situation of financial sector taxation and needs for the taxation of financial transactions in the Europe after the financial crises. In chapter three, we discuss empirical estimates of the FTT revenues, which were performed in previous studies during the last two decades. Then, the methodology applied for the estimation of the potential FTT revenues for the “Coalition of the Willing” with aim to determine effects of the Brexit is explained. Chapter five presents the results of our research on the estimation of potential FTT revenues under different scenarios with the consideration of the relocation after the Brexit i.e. when a part of transactions from the London Stock Exchange and London Metal Exchange will relocate to the rest of EU; which are further discussed in the chapter on discussion. Further, the economic effects of the FTT implementation are also discussed here. Finally in the last chapter, the impact of the Brexit scenario on the FTT revenues is summarized with the policy recommendation.

³ Coalition of the Willing is currently represented by Austria, Belgium, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia and Spain, i.e. without Estonia, which decided to leave the Coalition in 2015.

⁴ London is the largest centre for derivatives markets, foreign exchange markets, issuance of international debt securities, international insurance and others through the London bullion market and London Metal Exchange and London Stock Exchange.

1. Theoretical Background

There is a long history of taxes on financial transactions in Europe.⁵ The debate on the introduction of a financial transactions tax (hereafter, FTT) was engaged both by Keynes (1936) and Tobin (1978). The renaissance of an FTT in modern history came after the economic and financial crisis in 2008, as the result of the actions taken by EU Member States to stabilize the financial sector. During the crisis, EU Member States supported the financial sector by EUR 4.6 trillion (i.e. 39% of EU-27 GDP in 2009). This situation led to the strong consensus not only on the level of the EU, but also on the level of international platforms as IMF and others, that the financial sector should contribute to the public finance and should repay the public sources invested during the crisis into the sector to stabilize it.

However, budgetary consequences were not the only drivers of the discussions; another driver of discussion was the argument of taxes in financial sector as the regulatory tools. As mentioned by Cannas et al. (2014) the financial sector is generally under-taxed mainly due to the fact that the banking sector is excluded from value added tax contrary to the other sectors of economy. Therefore the financial sector should take part in repaying large sums of money being invested into the financial sector during the crises.

In reaction to the financial crisis and weakened Internal Market, the European Commission introduced the proposal on taxation of financial sector either in the form of financial transaction tax, bonus tax or surcharge to the corporate income tax in finance sector or currency transaction tax. As a result of this wide discussion, the European Commission published the proposal on the Directive which introduced a common system of FTT in September 2011 with the aim: of preventing the fragmentation of the single market, distortions of competition caused by national financial transaction taxes, to ensure substantial contribution of financial sector to public finances and to discourage financial transactions not contributing to the efficiency of the financial markets. The draft of the Directive suggested the system of taxation covering all markets, all instruments and all financial sector actors – so called “triple A approach” based on the residence principle. The proposed tax rates were set on 0.01% of the notional value for derivatives transactions and 0.1% of the price for other transactions. However, the European Parliament and the European Economic Council during the consultations returned the FTT proposal back to the European Commission.

⁵ As a first levied financial transaction tax can be mentioned the British stamp duty enacted in 1694. Currently financial transactions tax (on shares, bonds, other securities), is levied in 13 Member States, namely Belgium, Ireland, Greece, France, Finland, Italy, Cyprus, Hungary, Malta, Netherlands, Poland, Portugal and United Kingdom.

Therefore, in 2012, a Coalition of the Willing expressed the willingness to introduce FTT through enhanced cooperation based on the Article 20 of the Treaty on the EU, and Articles 326 and 334 of the Treaty on the Functioning of the EU. In that context, it is necessary to highlight that the introduction of the tax through enhanced cooperation represents the first application of this system in the area of taxation, and has never been used before. The Coalition of the Willing would like to use the FTT revenues mainly for fiscal consolidation. For to this reason, France and Italy introduced their own national financial transaction taxes based on the FTT proposal – France⁶ in August 2012 and Italy⁷ in March 2013. This act opens the discussion about the implementation of a general financial transaction tax on an EU level. On February 14, 2013, the Commission adopted the Proposal for a Council Directive implementing enhanced cooperation in the area of FTT together with the revised impact assessment. The discussion about the proposal since this time is focusing on the main elements of the tax – principles for territorial application, the scope of the tax, the taxable amount, gross versus net taxation, transaction chain, market making, tax rates and the mechanism of tax collections. The consensus has not yet been reached. However, it was agreed in Tallin on September 2017 that experts from the countries of the Coalition of the Willing should clarify (i) the effects of the FTT with the capital-funded pension systems, (ii) FTT revenues estimate and implementation costs, and (iii) scenario(s) in the relation to the Brexit. Furthermore, the European Commission has to present a draft directive to the Ministry of Finance of the countries in the Coalition of the Willing.

Since the introduction of the FTT proposal, a number of empirical studies analysed the effects of FTTs on liquidity, trading volume, volatility, capital costs as well as the FTT revenues estimates. Although at the beginning the effort to impose the FTT was mainly in connection with the regulation of the financial

⁶ In France, the tax consists of three main elements. Firstly, the tax on transactions with shares of French listed companies with registered offices in France (only companies with market capitalization higher than EUR 1 bn. are subjected to tax) with no respect to the place, where they are traded. Secondly, tax on uncovered credit default swaps issued by the governments of EU Member States, purchased on the French market. The tax administration and recording is done similarly as in case of value added tax. And thirdly tax on cancelled orders. This type of tax is intended to discourage traders from high-frequency trading and is levied on all participants in the French market. In practice it applies on cases, where trading was done through high-frequency algorithm and the ratio of cancelled orders exceeded 80%.

⁷ In Italy, the FTT is levied on three types of transactions. The first taxable transaction covers all shares and other instruments of financial market issued by the companies who are a resident in Italy (there are some exemption). The second taxable transaction covers derivatives (since July 2013). The third taxable transaction covers, similarly as in case of France, cancelled orders if the ratio of cancelled or modified orders exceeds 60% in one trading day with aim to discourage traders from high-frequency trading.

markets and with ensuring the fair and substantial contribution of the financial sector for repaying of public finance invested into the sector during the crisis, it started to be considered also as an important source of tax revenues⁸ and as a potential candidate on new own resource to finance the EU budget. Mario Monti, coordinator of the High Level Group on Own Resources considers the FTT as one option for tax-based own resources, which could allow cutting national EU contributions and which could eliminate taxes harmful for sustainable growth (HLGOR, 2016).

However, all FTT revenue estimates are performed with the inclusion of the London financial markets, which belong to the main financial markets in the EU and are considered as a financial centre in the 21st century. Thus, it is questionable how the Brexit, i.e. the United Kingdom leaving the EU and therefore its integrated capital market, will change the potential FTT revenues of the Coalition of the Willing.

2. Existing Financial Transactions Tax Estimates in the EU

The first estimation of the FTT revenues in the European Union was performed by French Ministry of Finance (2000) (USD 22 bn., in 2000) and subsequently by Belgian Ministry of Finance (2001) (USD 9 – 39 bn., in 2001). Another estimate for EU level was performed by Spahn (2002) in the amount of USD 16.6 bn. at the rate of 0.01% and in the amount of USD 20.8 bn. with the combination of tax rates of 0.02% and 0.01%. The estimation was based on the concept of a Tobin tax levied on a yearly turnover of foreign exchange transaction based on data from Bank of International Settlements. Another estimate of USD 2.07 – 4.4 bn. was performed by Spratt (2005) for the potential implementation of stamp duty in the UK at the rate of 0.005% on sterling foreign transactions. Both mentioned estimates were made through static models using the annual turnover of financial transactions without taking into account any dynamic aspects. The first dynamic model for the estimation of the FTT revenue was introduced by Jetin and Denys (2005), who used fiscal evasion and fraud components, volume elasticity in dependence on the transactional costs as dynamic aspects affecting the FTT revenues. They estimated the FTT revenues in the amount of USD 6 – 10 bn. in case of 0.01% rate and in the amount of USD 10 – 38 bn. in case of 0.1% tax rate. The authors assumed the transaction costs in the amount of 0.02% and 0.1% and elasticity in the amount of –1,5. Moreover, they assumed a taxation of the financial transaction on both legs in the trade – i.e. on the side of buyer as well as on the side of sellers.

⁸ For more detail see section 3.

Based on similar assumptions (but with an expectation of the decrease in transaction volume instead of elasticity factor), Schulmeister, Schratzenstaller and Picek (2008) estimated the FTT revenues in the amount of USD 202 – 266 bn. on the global level and in the amount of USD 28 – 143 bn. on the European level in dependence on the tax rate. Subsequently, based on 2010 European data, Schulmeister (2011) estimated the FTT revenue in the amount of USD 310 bn., using the same methodology as Schulmeister, Schratzenstaller and Picek (2008) and the tax rate of 0.05%. In contrast, Schulmeister and Sokoll (2013) estimated the FTT revenues for EU-27 only in the amount of EUR 70.7 bn. and EUR 65.8 bn. for EU-11. As well as on previous research, the estimate was based on the methodology of Schulmeister, Schratzenstaller and Picek (2008), which was further developed by specific aspects.

According to the modified formula of Jetin and Denys (2005) – expecting elasticity to be 0.8, transaction costs 10% and tax rate without multiplying by two – McCulloch and Pacillo (2011) estimated the FTT revenues on the global level in the range of USD 147 – 577 bn. excluding OTC transactions, and in the range of USD 482 – 1.631 bn. including OTC transactions. In contrast, the European Commission (2011), based on 2010 data and similar assumptions (transaction costs of 0.06% of transaction volume for equity and bonds, 0.07% for OTC derivatives, of 0.03% for exchange derivatives and of 0.024% for FX Spot Market, elasticity between –2 and 0 and the value of evasion between 10% and 90% in dependence on the financial product) estimated the FTT revenues in the amount of EUR 57 bn. for EU-27. Further, approval of the possibility to adopt FTT through enhanced cooperation the European Commission (2013) introduced an estimate of the FTT revenues for EU-11 between EUR 30 and 35 bn. Last estimate of the FTT revenues for EU-11 was performed by Nerudova and Dvořakova (2014). They estimated the revenue in the range of EUR 24.9 – 28.3 bn. In comparison with the estimation conducted by the European Commission, they expect FTT revenues to be lower mainly due employment of different dataset with different assumption of elasticity (the value between –1.5 and 1.5). Moreover, as a proxy for the calculation of the FTT revenues for EU-11 served both GDP of EU-11 and value added of the financial sector of EU-11 before taxation. It is necessary to mention that none of the above presented studies comprised the expectation of either residence principle or issuance principle, newly incorporated in the proposal.

In that light, the last two studies by Naess-Schmidt, Hansen and Ringsted (2014) and Schäfer (2015) can be considered as the most comprehensive studies, as they cover residence and issuance principles. The first one estimates the FTT revenues only for Germany using the European Commission approach and its

modified version when the high frequency trading and dynamic and behavioural effects of the FTT zone and non-FTT zone were considered. Based on the European Commission approach (static) the estimation is in the amount of EUR 57.3 – 87.5 bn. In case of dynamic approach, the study estimated the FTT revenues for Germany in the range of EUR 17.6 – 33.4 bn. The second study by Schäfer (2015) estimated the FTT revenues in the amount of EUR 700 mil. – 44 bn. in dependence on the selected country, such as Germany, France, Italy and Austria. The lowest estimated revenues would be reached by Austria (EUR 700 mil. – 1.5 bn.) and the highest for Germany (EUR 18 – 44 bn.). The study employed the similar approach as the European Commission and also used various tax rates as Schulmeister and Sokoll (2013). In case of evasion and elasticity various scenarios such as moderate evasion in the amount of 50%, no evasion and evasion of 15% and 75% in dependence on financial product and further elasticity in the amount of –2, –1.5 and –1 were used. Similar approach was also used by Solilova, Nerudova and Dobranschi (2017) who estimate the FTT revenues for EU-11 (0.5 – 275.1 bn. EUR) and for EU-28 (1.7 – 503.4 bn.) dependence on the scenario applied.⁹

There is no doubt that the FTT revenues estimates depend on the design of the tax as highlighted by Hemmelgarn et al. (2015). Moreover, potential of the FTT revenues depends on the importance of financial markets covered into the FTT obligation, on the trading volume and the transaction values of trades performed through those financial markets. Therefore, it can be expected that the Brexit will affect the FTT revenues of the Coalition of the Willing as the London financial markets belong to the main financial markets in the EU and after the Brexit those markets will be out of the scope of FTT. Dealing with this issue will enrich the debate on whether the introduction of this tax is still actual and reasonable in case of the Coalition of the Willing and mainly in the situation of the Brexit.

3. Data and Methodology

The tax revenue generated by the FTT is extremely difficult to predict as it depends on different factors (parameters) entering into the calculation of the FTT revenues, which is complicated to estimate. The parameters affecting the result of estimates include the tax rate, tax base, exemptions, trading volume, volume elasticity in dependence on transactional costs or tax rate, transaction costs, or fiscal evasion and tax fraud.

⁹ Authors apply 3 different scenarios – a static scenario, a maximum evasion scenario and no-evasion scenario.

To estimate of the potential revenues from the FTT in the Coalition of the Willing and the research of the impact of the Brexit on the volume of tax revenues we created the dataset from:

- *the World Federation Exchanges (WFE)*, which includes annual transaction values of trades performed in the world, focusing only on the European Exchanges i.e. the transactions performed through EU financial markets in 2016 were considered for the purpose of our research, namely value of share trading, value of bond trading, ETFs and investment funds in case of equity transactions and currency options and futures, and commodities options and futures in case of derivatives transactions.

- *the Bank for International Settlements (April 2016¹⁰)* covering OTC transactions performed by the individual Member States representing the Coalition of the Willing.

The tax base of the EU financial markets as a whole was identified using a source principle. Under the source principle, the EU would have the right to tax all the financial transactions that are deemed to have taken place in the EU, regardless of the tax residence of the parties involved in the transactions – i.e. only the transactions taking place on EU territory would be taxable events.

To estimate the FTT revenues, the European Commission's formula was applied as follows:

$$R = \tau * V * (1 - E) * \left(1 + \frac{\tau}{c}\right)^\varepsilon \quad (1)$$

where

- R – represents the annual revenue,
- τ – represents the tax rate,
- V – represents the net turnovers,
- E – represents fiscal evasion,
- c – represents shared transaction cost,
- ε – represents tax elasticity.

As is obvious from the European Commission's formula, the estimation of the FTT revenues is based on assumptions of variables as tax rates, fiscal evasion and relocation, transaction costs and elasticities; and the determination of annual turnovers of financial transactions for the EU (i.e. tax bases resulting from the taxable events).

¹⁰ BIS Statistical Bulletin September 2017, last data from April 2016. To reach annual turnover, daily average volume of transactions was multiplied by sum of trading days in average i.e. by 242 days.

As a first assumption of the variable – *the tax rate* – was applied in accordance with the proposal of FTT directive, i.e. in the rate of 0.1% in case of the financial transactions other than those related to derivatives contracts or of 0.01% in case of financial transaction related to derivatives contracts and OTC transactions. The second one – *the relocation and fiscal evasion* – represent very important factors mainly in case of derivatives where there is the biggest risk of non-taxation. The estimation of the FTT revenues also considers the relocation and tax evasions effects in the range of 60 – 95% in case of derivatives and in the range of 5 – 25% in case of securities (see Table 1 below), i.e. each of relocation and tax evasion effects was considered separately and results are presented altogether with the rest of assumptions in the “maximum evasion scenario”.

Table 1
Overview of Variables Used for the Estimation of FTT Revenues

Financial instruments	Relocation and evasion rates	
Derivatives (in %)	95, 90, 85, 80, 75, 70, 65, 60, 0	
Securities (bonds and stocks) (in %)	0, 5, 10, 15, 20, 25	
Transaction costs		
Derivatives	0.3, 0.024, 0.7	Collins (2016); Schäfer (2015); Nerudova and Dvořakova (2014); Naess-Schmidt, Hansen and Ringsted (2014) and European Commission (2011)
	0.005, 0.003	Schulmeister, Schratzenstaller and Picek (2008)
	0.01	Burman et al. (2016); Schulmeister, Schratzenstaller and Picek (2008)
	0.013, 0.042	Pollin, Heintz and Herndon (2016)
	0.56	Pollin and Heintz (2011)
	0.002	Schulmeister, Schratzenstaller and Picek (2008)
Securities (bonds and stocks)	0.6	Collins (2016); Schäfer (2015); Nerudova and Dvořakova (2014); Naess-Schmidt, Hansen and Ringsted (2014) and European Commission (2011)
	0.12, 0.1	Burman et al. (2016); Schulmeister, Schratzenstaller and Picek (2008)
	0.2, 0.98, 0.032, 0.32	Pollin, Heintz and Herndon (2016),
	0.2, 0.3	Schulmeister, Schratzenstaller and Picek (2008)
	0.14, 0.08	Bivens and Blair (2016)
Elasticity		
Derivatives, securities (bonds and stocks)	–2, –1.5, –1, –0.5, 0, 0.5, 1, 1.5, 2	

Source: Solilova, Nerudova and Dobranschi (2017); own processing.

The assumptions in the paper are based on the impact assessment of the European Commission (2011) and on the research done by Coelho (2014), which assumed large avoidance responses of the market participants after the introduction of the FTT. However, in accordance to the MiFID regulation (Markets in Financial Instruments Directive) and EMIR regulation (European Market Infrastructure

Regulation) effecting since 2015, Coelho (2014) adds that significant geographic evasion seems implausible. Therefore, the research in this paper comprises also the variant of the zero fiscal evasion (see “no evasion scenario”). The third one – *transaction costs* – were estimated based on the last surveys performed in this area (for more details see Table 1), i.e. each value of transaction costs was considered separately. Finally, as a last one – *the elasticity* – is defined as the relative change in the transaction volume to a relative change in the tax rate, particularly the elasticity ranges from -2 to 2 , according to the type of product according to the European Commission (2011). However, in 2013 the European Commission assumed the elasticity between -1.5 and 1.5 , due to the fact that the FTT tax base is defined very broadly and also due to the newly defined issuance principle. Based on that, we considered during the estimation of the FTT revenues the elasticity in the value between -2 to 2 with 50 basis points of changes (for details see Table 1 below).

All of the above variables and their values were used in the different combinations for the estimations of the FTT revenues. Therefore the final results are presented as an average value determined from the range between first and third quartile i.e. 25 percentile and 75 percentile, eliminating outliers. Further, based on the applied methodology the final results are presented in three different scenarios:

- the first scenario named as “static scenario” neglects all potential market reactions initiated by implementing the FTT – i.e. elasticity, evasion and relocation effects are not taking into account.
- the second one named as “maximum evasion scenario” assumes the range of evasion 60 – 95% for derivatives and 5 – 25% for securities and takes into account other above explained variables.
- the third scenario named as “no evasion scenario” assumes no evasion on the markets at all, however, with the consideration of transaction costs and elasticities.

At this stage of the research/estimation, the FTT revenues were set at the EU level. Therefore to reach the estimations of FTT revenues for individual states, the final results for all three scenarios had to be split¹¹ between the states of the “Coalition of the Willing” in accordance with the volume of GDP¹² of individual countries.

The effects of the Brexit were analysed during the last stage of the research. To research the impact of the Brexit, our dataset covered the London Stock Exchange and London Metal Exchange for the first time of estimation of the FTT

¹¹ Only data from the WFE were split and data from the BIS covering the OTC transactions were gained for the researched countries separately.

¹² The supplementary data about volume of GDP were gained from the Eurostat database (2016: online data codes: `prc_ppp_ind`, `nama_10_pe` and `naida_10_pe`).

revenues (see Table 2) and for the second time of estimation of the FTT revenues those markets were eliminated (see Table 3). In addition, after the Brexit, we assumed that a part of financial transactions from the London Stock Exchange and London Metal Exchange will relocate to the rest of the EU financial markets, therefore the estimation of the FTT revenues after the Brexit also includes the assumption of 10% up to 50% relocation of future transactions resulting into the higher FTT revenues (i.e. each scenario was recalculated based on the values of relocated transactions).

4. Revenue Potential of FTT for the Coalition of the Willing

The process of estimations is following the European Commission approach, however, contrary to the European Commission three different scenarios – static scenario, maximum evasion scenario and no evasion scenario, and 10% up to 50% relocation of financial transactions or a part of financial market from the UK is considered after the Brexit. Furthermore, as the proxy for the calculation of the share of Coalition of Willing on the FTT revenues estimates served GDP of those countries (i.e. in 2016 the GDP in PPS – purchasing power standard of the Coalition of Willing was 62% of the EU-28 GDP).

Table 2

Estimation of Revenues from the FTT across Different Scenarios before the Brexit
(in mil. USD)

Tax rates for all scenarios		0.01% Derivatives and OTC, 0.1% Equity		
		Scenarios		
Country		Static	Max evasion	No evasion
AT	Austria	1 419.08	179.47	643.49
BE	Belgium	2 612.28	303.99	1 194.77
FR	France	13 837.89	1 608.69	6 328.35
DE	Germany	10 552.89	1 445.14	4 915.15
EL	Greece	190.28	50.62	98.65
IT	Italy	2 950.45	539.44	1 429.46
PT	Portugal	262.50	60.60	132.32
SI	Slovenia	30.90	10.64	17.00
SK	Slovakia	194.30	37.12	94.79
ES	Spain	3 080.77	480.14	1 458.68
Total		35 131.34	4 715.85	16 312.67

Source: Own compilation; WFE (2016); BIS (2017); Eurostat (2016).

To reach the aim of the paper, firstly, the FTT revenues before the Brexit and secondly the estimates of FTT revenues after the Brexit have to be determined. Table 2 presents the estimates of revenues from the FTT across three scenarios before the Brexit.

As is obvious the Static scenario would generate USD 35.1 bn. contrary to the scenario Max evasion with USD 4.7 bn. In the case of the No-evasion scenario, the estimates of FTT revenues would be more than USD 16.3 bn. The highest FTT revenues are allocated in France and Germany i.e. almost 70% of the overall FTT revenues. The lowest FTT revenues are allocated in Slovenia – USD 10 – 31 million. It is questionable whether the implementation of the FTT would raise sufficient tax revenues to cover tax administrative costs.

Table 3 presents the results of estimates of FTT revenues after the Brexit with the assumption that financial transactions or part of financial market from the UK will be relocated outside of the UK after the Brexit. In case of zero relocation, the total FTT revenues are estimated at USD 34.2 bn. (Static scenario) resulting in the negative impact of the Brexit on the FTT revenues for the Coalition of Willing, specifically a decrease by USD 841 mil. (by 2.4%) and by USD 537 mil. (by 3.3%) in case of No-evasion scenario.

However, if the relocation is taken into account, then the negative effect of the Brexit is turned in the positive effect, as in all assumed relocations (i.e. 10% up to 50%) the total FTT revenues for the Static scenario are estimated at more than USD 35 bn. (an increase by more than 12%), further the FTT revenues are increased by more than 22% in case of max evasion scenario and by more than 13% in case of no evasion scenario. The highest FTT revenues would be allocated in France and Germany (more than 66% of the overall FTT revenues), then in Spain, Italy and Belgium, and the lowest FTT revenues would be allocated in Slovenia, similarly as in the table 2 presenting the results before the Brexit.

In respect of individual results of countries of the Coalition of the Willing, the impact of the Brexit on the FTT revenues can be considered as insignificant. Moreover, it is necessary to mention that even though the Coalition of the Willing represents the economics which involve almost 62% of the European Union GDP, most of the countries from the Coalition are not considered to be the main financial centres, such as Slovenia, Slovakia, Portugal, Greece and others. Therefore, it is highly debatable whether these states may generate sufficient and expected revenue from financial transaction tax, if the FTT would be implemented without the coordination of all EU Member States. Moreover, economic impacts of the FTT implementation only by the Coalition of the Willing have to be taken into account, especially the risk of the relocation of financial transactions outside the taxable area i.e. outside the territories of the Coalition of the Willing. This situation can be presented by the max evasion scenario, when the estimates of the FTT revenues are between USD 4,245 mil. and 5,984 mil. in dependence on the value of relocations (see Table 3).

Table 3
Overall Results of Revenues from the FTT across Different Scenarios and Relocation after the Brexit (in mil. USD)

Scenarios Country	Static	Max Evasion	No Evasion	plus 10% relocation			plus 20% relocation		
				Static	Max Evasion	No Evasion	Static	Max Evasion	No Evasion
zero relocation									
AT	1 389.85	163.11	624.83	1 562.85	217.01	717.73	1 565.78	218.64	719.60
BE	2 577.15	284.34	1 172.36	2 785.04	349.10	1 283.99	2 788.55	351.07	1 286.23
FR	13 652.78	1 505.14	6 210.20	14 748.33	1 846.40	6 798.50	14 766.84	1 856.76	6 810.31
DE	10 284.07	1 294.76	4 743.58	11 875.05	1 790.35	5 597.92	11 901.93	1 805.39	5 615.07
EL	1 711.08	39.87	86.39	284.75	75.29	147.43	286.67	76.36	148.66
IT	2 796.12	453.11	1 330.97	3 709.45	737.62	1 821.42	3 724.89	746.25	1 831.27
PT	241.40	48.80	118.86	366.27	87.69	185.91	368.38	88.87	187.26
SI	26.36	8.10	14.11	53.18	16.45	28.51	53.64	16.71	28.80
SK	183.21	30.92	87.71	248.88	51.37	122.97	249.99	51.99	123.68
ES	2 968.23	417.19	1 386.86	3 634.25	624.65	1 744.50	3 645.51	630.95	1 751.69
Total	34 290.25	4 245.34	15 775.86	39 268.06	5 795.94	18 448.89	39 352.17	5 842.99	18 502.57
plus 30% relocation									
AT	1 568.70	220.28	721.46	1 571.62	249.05	748.25	1 574.55	223.55	725.20
BE	2 792.06	353.03	1 288.47	2 795.58	387.61	1 320.66	2 799.09	356.96	1 292.95
FR	14 785.35	1 867.11	6 822.13	14 803.86	2 049.33	6 991.77	14 822.37	1 887.82	6 845.75
DE	11 928.81	1 820.43	5 632.23	11 955.69	2 085.05	5 878.59	11 982.58	1 850.51	5 666.54
EL	288.59	77.43	149.89	290.51	96.34	167.49	292.44	79.58	152.34
IT	3 740.32	754.89	1 841.12	3 755.75	906.80	1 982.54	3 771.18	772.15	1 860.82
PT	370.49	90.05	188.61	372.60	110.82	207.94	374.71	92.42	191.30
SI	54.09	16.96	29.09	54.54	21.42	33.24	54.99	17.47	29.67
SK	251.10	52.61	124.39	252.21	63.54	134.56	253.32	53.86	125.81
ES	3 656.76	637.25	1 758.87	3 668.02	748.02	1 862.00	3 679.27	649.84	1 773.23
Total	39 436.28	5 890.05	18 556.25	39 520.39	6 717.99	19 327.05	39 604.50	5 984.15	18 663.61

Source: Own compilation; WIFE (2016); BIS (2017); Eurostat (2016).

Therefore, the debate about the implementation of the FTT in the countries of the Coalition of the Willing should lead to the discussion about an implementation of the EU-wide general financial transaction tax including the analysis of economic impacts after the Brexit.

5. Discussion of Economic Impacts of the FTT

In most EU Member States, the banking sector, as the one of the elements of the financial sector, has high economic importance. Moreover, any transactional tax implemented by the Coalition of Willing in their territories will affect not only the financial system in the countries of the Coalition or in EU-27, but also will have impacts on the wider economy, particularly due to the resident and issuance principles, connected extraterritorial effect and concentrated banking sector. One of the concerns is the potential harmful effect on economic growth. The European Commission (2013) estimates that the net effect of introducing FTT in the long run on the level of GDP would be in the range between -0.1 and 0.1 percentage points.

Commissioner Šemeta (2012) further states that all taxes have a negative impact on GDP when viewed in isolation (FTT in comparison with corporate income tax would have lower negative impact), however, whether the approximate timeframe for an impact of FTT on GDP is a period of 40 years, the annual impact would be “negligible,” about 0.01% per annum. However, Worstall (2011) argues that the loss in GDP as a result of the tax will be greater than the revenue raised due to the economic incidence which could fall on traders, on stock exchanges, on companies and governments through higher capital costs,¹³ on final consumers through higher prices of financial services, and on employees through lower average wages. Vella (2012) adds that companies usually don't bear a tax and pass it on to somebody, but it is difficult to say on whom exactly. Therefore, the probability exists that final consumers will be affected through lower interest rates or through higher borrowing costs. Moreover, end-consumers will be affected by the cascade effect¹⁴ of the FTT. As a result, the cost of hedging, the cost of capital and the price of finished goods will increase. However, Oxera (2011) highlights that the extent of the FTT incidence depends on the coverage of the tax, the nature of services' competition and price elasticities of demand and supply facing the companies.

¹³ Cost of capital is determined by the minimum rate of return demanded by the investors.

¹⁴ Originally explained by Sir James Mirrlees, Nobel Laureate. Cascade effect can cause some transactions being taxed at a higher effective rate, as overall amount of tax rate depends on the number of transaction required to complete the final transaction.

Amihud and Mendelson (1992), Kupiec (1996) and AIMA (2012) highlight another concern in the form of the reduction of the turnover and total value of transaction. The extent of the decrease depends on the trading volume elasticity that represents the expected percentage change in volume traded as a result of a percentage change in the tax rate. The lower elasticity can be reached by the broader bases and lower tax rates. Furthermore, higher transaction costs caused by the FTT are usually associated with lower trading volume. Lo, Mamaysky and Wang (2004) prove that even a small transaction cost significantly reduce trading volume. The Central Bank of Ireland (2012) states that the size of transaction costs depends on the market, trade size and on the fact whether trade takes place on-or-off exchange. Further, Bjursell, Wang and Yau (2012) and Wang and Yau (2000) add that the magnitude of the decline in the post-tax volume depends on the relative importance of the transaction tax to the total fixed cost and/or the elasticity of trading volume with respect to transaction costs on each transaction. However, the significant reduction of the turnover can be also caused by a trade migration, substitution of the product or a massive relocation of financial activity to the non-taxing or low-taxing jurisdictions, which decided to not introduce such a tax. Such relocation might even lead some products or markets to disappear in the medium and longer run, as has happened in the countries that have introduced a FTT in the past.¹⁵ Moreover, the secondary effect of the relocation represents inadequate tax revenue collection from the implementation of the FTT resulting into the failure to meet revenues expectations, as happened in the cases of Sweden,¹⁶ Italy¹⁷ and France.¹⁸ The risk of relocation depends mainly on both the geographic coverage of the tax and the scope of the tax (wide range of financial products and markets affected). Moreover, it

¹⁵ For example, in Sweden the levied security tax absolutely changed financial markets i.e. bond trading volume fell by about 85% during the first week of the imposition of the tax, trading in futures on bonds and bills fell by about 98% over the same period, and trade in options essentially disappeared. In UK the market responds to the introduction of the Stamp Duty tax was the substitution of equity trading for the trading in equity derivatives and trading in American Deposit Receipts. In Switzerland, after introduction of Stamp Duty in 1994, the mutual fund business relocated to Luxembourg, the Eurobond and equity businesses relocated to London. In Germany was similar situation. The study (Kupiec, White and Duffee, 1993) confirmed that 30% of trading in German government bonds, 50% of trading in other Deutsche Mark-denominated bonds and 80 – 90% of trading in floating rate Deutsche Mark-denominated bonds migrated to London. And in Brazil after introduction of Brazil FTT on all foreign portfolio investments, foreign investors reallocated capital to Brazil ADRs in New York.

¹⁶ In Sweden, the collected revenues were 0.37% (in 1984), 0.45% (in 1985), 0.96% (in 1986) of the total revenue for the corresponding years. After doubling the tax rates, the collected revenues reached 1.17% and 1.21% of the total revenue, for 1987 and 1988 respectively. Thus the expectations of the FTT revenues were not full filled and the net budget effect was close to zero. In 1991 (after 7 years) the FTT was abolished.

¹⁷ In Italy, the Government expected revenues to approximately EUR 1bn. for 2013, but the FTT imposed in 2012 raised just EUR 159 million.

depends on the existing business models and the ability to avoid the tax. In this context the European Commission (2013) states that the coordination in terms of products covered by the tax, geographic coverage as well as of applicable tax rate could reduce the incentives to relocate across jurisdictions. Thus, it is possible to say that the broader the geographic coverage of the FTT and the broader its scope, with the coordination among the participating Member States, shall decrease the relocation.

Another concern raised due to the implementation of the FTT is the loss of jobs. The introduction of FTT could in the long run result into a loss of jobs, with a detrimental impact on Member States if jobs are lost to other financial centres outside the EU. As mentioned by Solilova and Nerudova (2015) in respect of the global situation in the EU and from the long term point of view, negative employment effects are more likely to arise as percentage changes of the employment by NACE sector K (Financial and insurance activities) are almost at all cases declining as well as the amount of persons employed in this area. Further, Schwabish (2004) proved the cascade effect of the FTT, when the implementation of the FTT affects the financial sector in New York USD 2.5 billion in lost wages, costing 10,000 to 11,000 jobs, and job losses in other sectors with the overall impact of the FTT on employment losses in the amount of 23,000 to 33,000 jobs. However, the European Commission (2013) state that the potential labour market effect in financial centres depends on the business strategies of the institutions affected, for example in France¹⁹ the introduction of the FTT had the positive effect on the employment contrary to Italy.²⁰

In general, the proponents of an EU FTT argue that the tax would mainly reduce incentives for high frequency trading and short-term trading, which are considered to have a destabilising, harmful and speculative effect, furthermore the tax would make financial markets less volatile (Weldon, 2012; Westerhoff, 2003; Summers and Summers, 1989). In this context Palley (1999) adds that the FTT could eliminate noise traders and speculation trading. Stiglitz (1989) and Summers and Summers (1989) highlight that the FTT would also generate significant revenues with dependence on the design of tax and its administration. Moreover, Stiglitz (1989) adds that the FTT could increase overall efficiency of the economy and reduce the national deficit. In this context, Schratzenstaller

¹⁸ In France, the expectation about FTT revenues was about EUR 1.6 bn. annually, however, for the first year (2012) the French FTT generated a total of EUR 648 million. During 2015, the FTT tax raised something like EUR 800 million. The FTT revenues 'expectation was not yet reached after 5 year since 2012 when the FTT was implemented.

¹⁹ Although the total employment decreased from 26.965 to 26.955 million people in 2012, the employment by NACE K increased by 4,300 people, as well as its share on the total employment.

²⁰ The effect of the implementation of the FTT in Italy is 11,900 job lost from 2012 to 2013.

(2017) highlights that the EU Member States should seize the opportunity offered by the Brexit for a sustainability-oriented reform of the EU budget, where the FTT or common corporate (consolidated) tax base can play the key role.

Given the complexity of the issue, we highlight a coordinated implementation of the FTT in all EU Member States similarly as European Commission (2013) as it would bring higher effectiveness (i.e. higher tax revenues collection due to lower relocation/mobility of tax bases to non-taxed financial markets, lower or zero substitution of products due to a wide range of financial products and markets in its scope), would eliminate negative externalities having destabilising effects (such as highly speculative financial transactions, noise traders) and would improve the internal market (i.e. elimination of distortion due the abolishment or harmonization of current national FTT). Moreover, as mentioned by Mario Monti (HLGOR, 2016), the FTT can be considered as a suitable candidate for a reform of the EU system of own resources similarly as CCCTB based on the sustainability-oriented tax-based own resources (Schratzstaller et al., 2017; Solilova, Nerudova and Dobranschi, 2017; Solilova and Nerudova, 2018), and as adds Stiglitz (1989) the FTT can reduce the national deficit.

With respect to the estimates of the FTT revenues, it should be highlighted that it depends on many factors which are difficult to predict. Furthermore, the results are also affected by data source used for the estimations. Solilova, Nerudova and Dobranschi (2017) estimated the FTT revenues for EU-11 between USD 3,653 mil. and USD 5,956 mil. in dependence on the scenario applied (static, max evasion and no evasion scenario). In comparison, we estimate the FTT revenues between USD 4,715 mil. and USD 35,131 mil. before the Brexit and in case of the same scenarios applied. Our estimates are almost six times higher. After the Brexit, we estimate the FTT revenues between USD 4,245 mil. and USD 34,290 mil. without any relocation of financial transactions from the British financial markets. However, in case of the relocation, we estimate the FTT revenues between USD 5,795 mil. and 39,604 mil. with at least 12% increases of the estimates in comparison with the results without any relocation. Further, if we compare the results with the last study by Solilova, Nerudova and Dobranschi (2017), there are a few differences which effect the final estimation of the FTT revenues, such as different data source (we used WFE and BIS databases versus Eurostat), different period (we used 2016 versus 2012 – 2014), different approach (we used source principle versus source and issuance principles) and different equation for the estimation. Therefore the estimations of the FTT varies significantly, such as in case of Schäfer (2015) who estimated the FTT revenues for the individual countries (for example for Germany between EUR 18 and 44 bn.) or in case of Schulmeister and Sokoll (2013) who estimated the FTT revenues for the

EU-11 in the amount of EUR 56 bn. However, if the results are compared with the others studies (for example the estimation of the FTT revenues for EU-11 between EUR 30 and 35 bn. by the European Commission, 2013 or the estimation between EUR 24.9 and 28.3 bn. by Nerudova and Dvořakova, 2014) where the similar methodology was used (mainly the same data source and equation), we can conclude that there are insignificant differences and British financial markets out of scope the FTT would have marginal negative impact on the FTT revenues expectation in case of the Coalition of the Willing (see Table 2 and Table 3 above).

Therefore in the light of the Brexit, we can conclude that there is insignificant impact on the FTT revenues in the respect of individual country as the decreases are marginal (see Table 2 and Table 3). Further, the overall FTT revenues would decrease by 2.4% (in case of static scenario). However, most of the countries from the Coalition of the Willing are not considered to be the main financial centres, such as Slovenia, Slovakia, Portugal, Greece and others. Therefore, it is highly debatable whether these states may generate sufficient and expected revenue from FTT, which would exceed the compliance and administrative costs. Moreover, there is significant risk of relocation when a part of financial activity from the country where the FTT will be imposed will relocate to the non-taxing jurisdictions (this relocation can be considered as negative²¹ and can result in a non-fulfilment of the expectation of the FTT revenues and also in the market disappearance (see Table 3, max evasion scenario). Even that there can be a relocation of a part of financial transactions/activity from the British financial markets to the rest of the EU financial markets, which would bring at least 12% increases of the FTT revenues (this relocation can be considered as positive, see Table 3), it is questionable whether the FTT revenues will be sufficient at all and whether the implementation of the FTT in the Coalition of the Willing is still reasonable. Therefore, we can conclude that the Brexit is not threat but an opportunity to debate about an implementation of the EU-wide general financial transaction tax which can eliminate more effectively the negative effects of relocations.

Conclusion

There is no doubt about how important the London financial centre is for the EU financial markets. In our research we tried to answer the question, how the Brexit will change the potential FTT revenues in case of the Coalition of the Willing and whether the implementation of the FTT is reasonable. Based on our results we may conclude that the Brexit will change the map of financial transactions

²¹ See Table 3, max evasion scenario.

made by EU residents (individuals or legal person) and subsequently the potential FTT revenues generated through the FTT implemented in the Coalition of the Willing. Based on our estimates, the impact of the Brexit will be negative, but not so significantly as we expected, as the potential FTT revenues could decrease by USD 841 mil. (by 2.4%) in case of zero relocation of financial transactions/a part of financial market outside the UK. However, if the relocation is taken into account then the negative impact of the Brexit scenario would turn into the positive effect, specifically into at least 12% increases in the FTT revenues.

According to the taxation theory and based on empirical studies related to an estimation of FTT revenues, the FTT might raise substantial revenues. However, the real situation after the implementation of the FTT usually did not fulfil the expectation of the FTT revenues, mainly due to an underestimation of tax avoidance, a relocation effect and migration to non-taxed products. This is proved by the experiences of countries²² who introduced their own FTT. There is no doubt that the precise amount of the tax revenue is highly unpredictable and would depend on the tax base (a wide range of financial products and markets in its scope) and applied tax rates very much as well as on the design of the tax as highlighted by Hemmelgarn et al. (2015). The revenues are also crucially dependent upon the reaction of the market operators. In this context it is necessary to mention most of countries from the Coalition of Willing are not considered to be the main financial centres. Moreover, economic impacts of the FTT have to be taken into account. Therefore, it is highly debatable, whether these states may generate sufficient and expected revenue from financial transaction tax if the implementation of the FTT would not be coordinated through the European Commission in all EU Member States.

Therefore we would like to highlight that a coordinated implementation of the EU-wide general financial transaction tax would bring higher effectiveness, eliminate negative externalities and improve the internal market. Moreover, the FTT can be considered as a suitable candidate for a reform of the EU system of own resources based on the sustainability-oriented tax-based own resources (Schratzstaller et al., 2017; Solilova, Nerudova and Dobranschi, 2017). Thus the debate about the FTT should be relaunched in the area of the EU.

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²² Such as Sweden, Italy, France and others (see notes 14 – 16).

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