

---

MENDELU Working Papers  
in Business and Economics  
16/2011

Taxing the financial sector in the European Union

Danuše Nerudová

**MENDELU Working Papers in Business and Economics**

Research Centre

Faculty of Business and Economics

Mendel University in Brno

Zemědělská 1, 613 00 Brno

Czech Republic

<http://vyzc.pef.mendelu.cz/en>

+420 545 132 605

**Citation**

Nerudová, D. (2011). Taxing the financial sector in the European Union. *MENDELU Working Papers in Business and Economics 16/2011*. Mendel University in Brno. Cited from:  
<http://vyzc.pef.mendelu.cz/cz/publ/papers>

## **Abstract**

Danuše Nerudová: **Taxing the financial sector in the European Union**

The recent financial crises has revealed the need to improve and ensure the stability of the financial sector to reduce negative externalities, to ensure fair and substantial contribution of the financial sector to the public finances and the need to consolidate public finance. The aim of the paper is to discuss the possibility of the financial sector taxation and to suggest the possible candidate suitable for the implementation on the EU level. Financial transaction tax represents the tool suitable mainly on global level, for only in that case enables to generate sufficient financial resources. From EU point of view is considered as less suitable, for it bears the risk of reallocation. Therefore the introduction of financial activities tax on EU level is considered as a better solution for the financial sector taxation in the EU, for financial sector is exempted from value added tax. However, the approval of directive in the area of taxation requires unanimity of all EU member states, which means that final solution will be also political question.

## **Key words**

financial transaction tax, financial activities tax, tax base, crises, financial sector

**JEL:** H25

## **Contacts**

Danuše Nerudová, Department of Accounting and Taxation, FBE Mendel University, Zemedelska 1, 613 00 Brno, Czech Republic, e-mail: d.nerudova@seznam.cz.

## **1. Introduction**

At present, EU Member States are facing huge challenges in their effort to consolidate public finances. The financial crisis required many governments to provide huge support to the financial sector in the form of protection schemes, capital providing, guarantees, supports by central banks or expanded the insurance of the deposits. When this crisis broke out into the economic crises, governments started to provide stimulus packages to support the economy, but also to avoid dramatic social consequences. For several EU Member States with deficits of public finances above 7 % and state debt above 80 %, in connection with increased bond yields spreads, the economic crisis broke out to a debt crisis. According to IMF, gross direct support for the financial sector has amounted to 3.5 % of GDP in G-20 countries. The above described public interventions had significant budgetary consequences, which will be felt in following years.

Due to this fact, the activities of the financial sector have been intensely scrutinised in the aftermath of the financial crises. Even though there is a consensus that the insufficient taxation of the financial sector and its activity did not play a substantial role in the formation of the crisis, there is continuous discussion whether the insufficient taxation and control could be detrimental to the stability. As a result, financial sector is perceived as bearing the responsibility for the extent of the crises.

The significant impacts of the public interventions into the state budgets has forced the governments to research the possibilities, how the tax policy can contribute not only to the stabilization of the financial sector, but also how can contribute to the restoration of the sources, which were invested in order to stabilize the financial sector. There are two basic possibilities in that connection. Firstly, current taxation systems can be researched to answer the question whether they contribute to the economic growth and job creation, whether they raise enough revenues and whether they contribute to general social and economic objectives. I.e. the solution can be found within the currently applied taxation systems. However, secondly, innovative sources for financing supplementary public expenditures can be found. I.e. new taxes, objects of taxation and tax bases can be found. Financial sector can represent one of the possible candidates.

The attention to the changes in the taxation policy has resulted into the discussion on various actions on the global fields in last two years. There have been two major international forums – European Union and G20, where the topic was discussed and it is clearly visible that the states are searching for an innovative source to finance supplementary public expenditures and the great deal of attention is paid to the possibilities of taxation of financial sector. Both of the forums have publicly presented the possible tools of financial sector taxation under consideration and have expressed its policy in that area.

The extent of the financial crises has forced some of the state to introduce measures immediately, without waiting on the actions coordinated either on EU level or global level. United Kingdom has introduced temporary “Bank Payroll Tax”, which expired on April 5, 2010. The tax was levied in the rate of 50 % on all bonus payments in the excess of 25,000 GBP and during being in the force has raised 2 billion GBP. France has also levied similar tax. It applied to all bonuses paid during the accounting period of 2009. It was levied also in the rate of 50 % and during being in the force has raised 360 million EUR. The government of United States has proposed a financial responsibility fee to repay the intervention costs.

## **2. Results and Discussion**

To support the recovery from the financial crisis, introduction of the new tax has two roles. Firstly, it should help to raise the revenues to recover the direct financial costs of the crises. Secondly, it should help to finance any future support required by facilitating an effective resolution scheme. Taxation of financial sector can be a complement to the financial sector regulation. Since regulatory measures can never eliminate all risk of financial stability, there will always be the risk that member states will need to intervene again in the future to stabilize the financial system. This will inevitably be connected with the costs, which could be covered by the revenues from the establishment of taxation of financial sector.

In connection with the above mentioned facts, there can be identified three main aims, which should be met by the introduction of the tax on financial sector. As mentions Meussen (2011), taxation of financial sector should enhance the efficiency and the stability of the financial markets, reduce the excessive risk-taking producing negative externalities for the rest of the economy and volatility of the financial markets. Secondly, there are clear evidences that the financial sector was rapidly growing in last twenty years generated huge profits, therefore it should fairly and substantially contribute to the public finances. And last, financial sector is considered as having the responsibility for the extent of the financial crises, therefore it should contribute to the fiscal consolidation in aftermath of the crises through the new taxes.

At present, European Commission is researching mainly two different shapes of taxes, which could be imposed on the financial sector – Financial Transaction Tax (hereinafter as FTT)<sup>1</sup> and Financial Activities Tax (hereinafter as FAT). Even though FAT was originally discussed on global level at International Monetary Fund, it has replaced FTT in consideration of the European Commission. There are also other forms of taxation of the financial sector, which were discussed on the global level, but have been rejected by the European Commission as instruments for taxation of financial

---

<sup>1</sup> Sometimes also referred to as Robin Hood Tax.

sector on EU level. First of them represents bonus tax in the form of surcharge levied on the bonuses paid to employees in financial sector above set threshold. Second rejected form of taxation was corporate income tax surcharge for the financial sector. Finally, also a Currency Transaction Levy based on FTT principles, but targeting currency conversions has been rejected. The chapter is aimed at two possible shapes of taxation of the financial sector in the European Union FTA and FTT and the discussion of the consequences and impacts of their possible introduction on the EU level.

## **2.1 Financial Transaction Tax**

The idea of taxing the financial transaction has firstly been presented by James Tobin in 1978. In the frame of his famous method “throwing sand into the wheels” he suggested the introduction of the international tax on spot currency conversions, proportionally to the size of the transaction. In his proposal on International Monetary Reform he suggested that *“...it would be an internationally agreed uniform tax, administered by each government over its own jurisdiction. Britain, for example, would be responsible for taxing all inter-currency transactions in Eurocurrency banks and brokers located in London, even when sterling was not involved. The tax proceeds could appropriately be paid into the IMF or World Bank. The tax would apply to all purchases of financial instruments denominated in another currency—from currency and coin to equity securities. It would have to apply, I think, to all payments in one currency for goods, services, and real assets sold by a resident of another currency area. I don't intend to add even a small barrier to trade. But I see offhand no other way to prevent financial transactions disguised as trade...”*.

It is necessary to mention, that first concepts of financial transaction tax can be found already in the work of Keynes (1936), where he suggested that financial transaction tax should be levied on all transactions on US stock markets, for according to him an excessive speculation by uninformed financial traders has increased the volatility. According to his opinion the introduction of substantial government transaction tax could help to mitigate the predominance of the speculations over the US enterprises. He mentions that *“...speculators may do no harm as bubbles on a steady stream of enterprise. But the situation is serious when enterprise becomes the bubble on a whirlpool of speculation...”*.

The concept of Tobin tax was also considered lately, even before the broke out of the financial crises by Spahn (1995). His variation to Tobin tax is sometimes called as Spahn tax. He suggested applying a two-tier rate structure of the tax. It should consist of low-rate financial transaction tax and exchange surcharge at prohibitive rate. This prohibitive rate would be applied only in cases of speculative attacks. According to him, the exchange rate would move freely within the set band without transactions being taxed. Only transactions carried out at exchange rates outside the set

band would become the subject to tax. This mechanism should according the author automatically induce stabilizing behaviour of market participants.

Looking on the financial transaction tax from the perspective of the tax theory, there can be identified several possible forms. First variation of financial transaction tax represents the security transaction tax (hereinafter as STT), which is levied on trades of all, or either selected types of securities (i.e. equity, debt and derivatives). Under STT securities can be taxed directly when originally issued (than it is similar to capital levy) or on the market trades. Based on that, STT can either be levied in the form of a flat fee per trade or ad valorem from the market value of the securities. From the tax theory point of view, the second alternative variant of FTT represent currency transaction tax<sup>2</sup> (hereinafter as CTT), which is levied on foreign exchange transactions and sometimes also on its derivatives as swaps, currency futures, etc. Registration tax or capital levy is usually described in the tax theory as another form of FTT. This type of tax is usually levied on the increase in a business capital in the form of capital contributions, loans or issuance of stock and bonds. Registration tax or capital levy is usually imposed on all forms of business capital. Sometimes it can be limited only on the selected type of the capital (i.e. equity or debt). Some states levy registration tax or capital levy only on some selected forms of business (e.g. partnerships). Bank transaction tax<sup>3</sup> represents other form of FTT and it is levied on the deposits and withdrawals from the bank accounts, usually ad valorem as a percentage from the deposited (withdrawn) amount. Some countries also levy insurance premium taxes which are applied to compensate the under taxation of insurance sector caused by the exemption from VAT. Finally, real estate transaction tax is also considered as FTT by the tax theory. It is usually levied in the form of tax on the value of land when sold. Real estate transaction tax is quite common type of tax introduced in number of states. Due to the fact, that at present, the two most seriously considered variants of taxation of financial sector in the EU represents FTA and FTT in the form of security transaction tax, the paper is aimed on those two forms.

### **2.1.1 Present situation in taxation of financial transactions in the EU**

Before the research and the discussion of possible application of FTT on EU level, it is necessary to conduct a research on the present situation of taxation of financial transaction in the individual EU Member States. The research was aimed at three possible forms of FTT, which can be found in some of EU member states – capital levy (registration tax), transfer tax and stamp duty. The results of the research are summarized in following tables.

---

<sup>2</sup> Usually mentioned as Tobin tax in the tax theory.

<sup>3</sup> Sometimes called also a bank credit or debit tax.

**Tab I: Capital levy (registration tax) in the European Union**

Capital levy (registration tax) in the European Union		
State	tax base	tax rate
Austria	contribution of capital to an Austrian company	1 %
Belgium	-	-
Bulgaria	-	-
Czech Republic	-	-
Cyprus	authorized share capital and on the issue price of the shares	102.52 EUR plus 0,6% on the nominal value of the share capital; 17.09 EUR allotment fees for the issue of the shares
Denmark	-	-
Estonia	-	-
Finland	-	-
France	increase in capital	500 EUR
Germany	-	-
Greece	increase in a company capital*; profit-sharing loans and loans used for a capital increase; the contribution of assets or working capital by a non-resident company to its branch in Greece, both on formation and during operation	1 %
Hungary	-	-
Ireland	-	-
Italy	contributions of cash and assets in exchange of shares	168 EUR (7 % in case of immovable property)
Latvia	-	-
Lithuania	-	-
Luxembourg	-	-
Malta	-	-
Netherlands	-	-
Poland	initial capital contribution to a newly registered company and on the transfer of an effective place of management or registered office from a non-EU country to Poland	0.5 %
Portugal	**	**
Slovak Republic	-	-
Slovenia	-	-
Spain	qualifying capital redemptions, liquidations and immigration of companies to Spain	1 %
Sweden	-	-
United Kingdom	-	-

\* – unless the increase is the result of the compulsory revaluation of immovable property or of the capitalization of profits, reserves or provisions other than the share premium reserve

\*\* – applied in the form of stamp duty

– tax is not levied in the member state

Source: IBFD research platform and Database Taxes in Europe

As can be seen from the above stated table, seven Member States apply capital levy or registration tax on increase in company capital. The tax rate is usually set ad valorem with the rate varying from 0.5 % to 1%. Some of the Member States apply flat rate of the tax. Cyprus represents the only EU



Member State applying combined tax rate comprising of the specific tax rate and tax rate ad valorem.

Following table represents the application of transfer taxes on financial transaction within the European Union.

**Tab II: Transfer tax in the European Union**

Transfer tax in the European Union		
State	tax base	tax rate
Austria	-	-
Belgium	the transfer of shares, bonds and other securities, whether traded on the Stock Exchange or not; not applied to securities issued upon formation of a company or an investment fund	1.7 EUR per thousand euro worth of securities, with a maximum of 500 EUR
Bulgaria	*	*
Cyprus	imposed on transactions that take place in the Cyprus Stock Exchange or which are announced on the Stock Exchange	0.15 %
Czech Republic	-	-
Denmark	-	-
Estonia	-	-
Finland	transfers of securities not made through stock exchange**	1.6 %
France	shares; only if the transfer is made by written deed executed in France; transfer of shares in non-quoted SAs whose assets consist principally of immovable property and the transfer of shares in SARLs and interests or quotas in legal entities whose capital is not divided into shares (e.g. partnerships);	3 %, with the maximum of 5,000 EUR 5 %
Germany	-	-
Greece	the sale of shares listed on the Athens Stock Exchange or on any other recognized stock exchange in the world	0.20 %
Hungary	the acquisition of shares in real estate holding companies, provided that a result of the acquisition the ownership of the transferee reaches or exceeds 75 % of all outstanding shares	4 %
Ireland	-	-
Italy	-	-
Latvia	-	-
Lithuania	-	-
Luxembourg	-	-
Malta	-	-
Netherlands	the acquisition of shares in a real estate company (if the acquisition gives the acquirer at least one third of the subscribed capital)	6 %
Poland	the sale and exchange of shares, bonds and other securities if the underlying rights are exercised in Poland	1 %
Portugal	**	**
Slovak Republic	-	-
Slovenia	-	-
Spain	the transfer of unquoted shares of SAs and preemptive rights to subscription of such shares by the intervention of a notary or a stockbroker if the transfer leads to the acquisition of control over a non-listed company in which 50% or more of its assets consist of Spanish-situs immovable property	6 %
Sweden	-	-
United Kingdom	-	-

\* – the transfer of shares of a limited liability company and the transfer of an existing business incur a notary fee

\*\* – no transfer tax is due if shares of a foreign company are sold or if both the seller and the purchaser are non-residents; however, this exemption does not apply if one of the parties to the transfer is a Finnish branch of a foreign bank or a foreign investment company; the tax is always payable on transfers between non-residents if the transferred shares are shares in a Finnish housing or real estate company

Source: IBFD research platform and Database Taxes in Europe

As is shown on the above stated table, at present, there are nine Member States applying some form of taxation on financial transaction. The tax base is usually set either as the transfer of the shares on stock market, or on the contrary as in case of Finland, the transactions carried on outside the stock markets. Some of the Member States are also levying the tax on transfer of shares in special company vehicles (e.g. partnerships). The tax rate is usually set ad valorem and varies from 0.15% to 6 %. Belgium represents the only country levying the tax with the specific tax rate. Some of the Members States also set limitations on maximum amount of the tax levied onto the taxpayer.

The last table presents the application of the stamp duty in the financial sector in the European Union.

**Tab III. Stamp duty in the European Union**

Stamp duty in the European Union		
State	tax base	tax rate
Austria	-	-
Belgium	documents concerning bank transactions	0.15 %
Bulgaria	*	*
Czech Republic	administration fees are payable on certain services rendered by various government bodies	-
Cyprus	-	-
Denmark	-	-
Estonia	-	-
Finland	stamp duty is levied on certain documents and in connection with various legal transactions, such as promissory notes, bills of exchange and certain other certificates, and mortgage certificates	-
France	-	-
Germany	minor fees are due upon registration of transactions in the Commercial Register - this concerns mainly the formation of a company, a change in the capital and reorganizations	-
Greece	on various insurance transactions; on the issuance of loans between businesses or between individuals and companies and payment of interest on such loans (loans granted by banks operating in Greece or abroad and interest payments on such loans are exempt)	2.4 %
Hungary	-	-
Ireland	transfer of Irish real estate and on certain documents evidencing transfers of other forms of property	0 % - 9 %
Italy	-	-
Latvia	-	-
Lithuania	-	-
Luxembourg	-	-
Malta	transfer of marketable securities; transfer of marketable securities in a company if 75% or more of that company's assets consists of immovable property.	2%; 5%
Netherlands	-	-
Poland	initial capital contribution to a newly registered company and on the transfer of an effective place of management or registered office from a non-EU country to Poland	0.5 %
Portugal	the value of capital contributions to capital companies upon incorporation or any subsequent capital or equity increase. The duty is also levied on the transfer from a third state (except the European Union) to Portugal of the place of effective management and/or legal seat of a capital company with its legal seat and/or place of effective management in that third state**	0.4 %
Slovak Republic	-	-
Slovenia	-	-
Spain	qualifying capital redemptions, liquidations and immigration of companies to Spain	1 %
Sweden	-	-
United Kingdom	certain transfers of shares and securities	0.5 %

\* – in the form of notary fee

\*\* – There is also levied a levy on banking sector at the rate of 0.01% - 0.05% on the liabilities, reduced by Tier 1 and Tier 2.

Source: IBFD research platform and Database Taxes in Europe

As has proven the results of the research on stamp duties across the Europe, its levying in eleven Member States differs a lot. Stamp duty is usually levied on certain types of legal transactions, transfers of real estates or company registration. The duty is set ad valorem with the rate varying from 0.15% to 9%. Special type of stamp duty is levied on certain types of services rendered by government bodies in the Czech Republic.

### **2.1.2 Security transaction tax**

There can be found wide range of literature discussing STT. As one of the very first proponents is usually considered (Keynes, 1936) who mentioned that introduction of financial transaction tax could restrict the impacts of speculative bubbles. He was followed by Tobin (1978) who proposed to introduce one percent tax on all foreign exchange transactions levied internationally in order to limit cross-border flows of capital. Other opponents of FTT Stiglitz (1989) and Summers & Summers (1989) mentioned that FTT introduction would decrease short-term speculations.

There can also be found number of studies researching the impact of STT on volatility either employing theoretical models or empirical models. As mentions Westerhoff (2003), transaction tax can reduce volatility, by crowding out speculators, or according to Palley (1999) eliminate individual “noise” traders. On the other hand Erturk (2006) stipulate, that this would not have impact on volatility in case of sufficiently deep global markets.

The attention to the possible introduction of transaction taxes was also paid by behavioural economists. Theoretical models developed by Wei & Kim (1997) or Westerhoff & Dieci, (2004) has shown, that introduction of transaction tax can reduce the volatility on foreign exchange markets. Contrary, Lanne & Vesala (2010) argue that transaction tax is “..likely to amplify, not dampen volatility in foreign exchange markets..”. Mannaro, Marchesi and Setzu, (2008) have researched the possibility of the impact of Tobin tax on the volatility with the model of two artificial financial markets. The model have proved, that the increase in transaction costs connected with the introduction and levying the tax would lead to the reduction in market volume but not to decrease in the volatility. This was also proved by empirical study of Swedish stock market<sup>4</sup> by Umlauf (1993). His research has shown that the introduction of the security transaction tax in Sweden has lead to the decrease in turnover of the market (due to the migration of the traders to London), but not to the decrease in the volatility. Empirical evidence from Asia was brought by Hu (1998) who has

---

<sup>4</sup> In Sweden the government has introduced the security transaction tax for seven years (1980-1987).

researched 14 tax changes which occurred in Honk Kong, Japan, Taiwan and Korea between 1975-1994. The empirical analysis has revealed that “... *an increase in tax rate reduces the stock price but has no significant effect on market volatility and market turnover...*”. Very recently Liu & Zhu (2009) have researched the changes in Japanese stock market in 1999. They state, that “...*the finding that lower commission rates tend to increase market volatility suggests conversely that imposing higher transaction costs may still be a feasible policy tool for market regulators concerned about volatility. Yet, the different experience in Japan highlights the comment made by Umlauf (1993) that it is hazardous to generalize limited evidence when debating important policy issues such as the STT and brokerage commissions. Therefore, further evidence from other countries may be warranted to help generalize the policy and theoretical implications of the empirical findings.*”

On the other hand, opponents Schwert & Senguin (1993) or Habermeier & Kirilenko (2003) argue that the introduction would increase the cost of the capital for the companies and would result into the lower prices of assets. They also have expressed that the above mentioned could lead to the reduction of liquidity which could cause higher price volatility. Another negative effect which mentions (Matheson, 2010) in connection with the introduction of FTT is the possibility of tax evasion.

The discussion of the negative effects lead contemporary proponents to consider remarkably lower tax rates than originally proposed by Keynes or Tobin. Pollin et al. (2002), Spratt (2006), Kapoor et al. (2007) and Schulmester, Schratzenstaller and Picek (2008) suggest the tax rate as one-half basis point to avoid the decrease in liquidity and tax evasion in the form of driving the activity off-shore. The idea which can be clearly seen from the review of the literature in that field is that while at the beginning the imposition of the tax was understood as the regulation of the financial markets, in last few years it is considered mainly as the tool for raising of the revenue.

According the possible potential for revenue raising, the definition of the range of FTT tax base differs. At present, there are discussed two possible variants. Firstly, FTT could be levied on all stock, bond and derivative transactions traded on the registered financial markets, as well as on the instruments, which are traded on over-the-counter markets (OTC markets). FTT levied on such a broad range of transactions including OTC transactions covering also derivative transactions and foreign exchange spot transactions, is called as a broad based FTT (FTT1)<sup>5</sup>. Tax base in case of stocks and bonds would create the value of the transactions<sup>6</sup>. In case of derivatives, the construction of the tax base is more complicated, for the difference between the nominal value of the derivate and underlying value is huge, moreover, majority of derivatives contracts are not realized. Therefore the

---

<sup>5</sup> In terminology of European Commission.

<sup>6</sup> I. e. if the investor would buy 10 shares in the value of 500 EUR per share, the tax base would be 5000 EUR.

determination of the transaction value is very complex. In case that as the tax base would be set notional value of the derivate, it would resulted into the very large tax base, which means that also the payment of the tax would be high, mainly in comparison with the actual price paid for the contract. Even it could reduce the leverage contracts; on the other hand it would remarkably increase the costs of hedging for the companies. Moreover, it could also lead to double taxation in situations, when the option is executed and the underlying is traded on the spot market<sup>7</sup>. Alternatively, actual price of the derivate could be set as a tax base. The problem is that it is not possible for the derivatives of all types. Actual price as a tax base could be used only in case of the derivatives with premiums. In that case the imposition of the FTT would not be able to raise enough revenue, for the tax base would be very low.

Other possible variant of FTT represents a narrow based FTT (FTT2). Under that model, only stock and bond transactions would be covered into the tax base. In this case, it is easy to define tax base for the transactions, for the asset price is determined by the market at the time when the transaction is executed.

To sum up, there are two main problems with the introduction of FTT on EU level. Firstly, in order to achieve the substantial revenue, FTT would have to be levied as broad based FTT, i.e. covering also derivatives. Second problem is represented by the definition of the tax base in case of derivatives. This could be solved by the setting up the actual price of the derivate as the tax base, but this would resulted into the significant decrease of the tax base and therefore also tax revenue, which is in contradiction with one of the aims of FTT introduction – revenue raising.

### **2.1.3 Lessons from Sweden**

Sweden has introduced Tobin tax in the form of FTT in the rate of 0.5 % on the purchase or sale of an equity security in January 1984. Even the nominal tax rate was 0.5 %, in fact the transaction were underlying to the 1 % taxation (0.5 % when bought and another 0.5% when sold). The rate was doubled in January 1986, and in 1989 there was introduced another financial transaction tax in the rate of 0.002 % on fixed-income securities for security with maturity of 90 days or less.

Even the Swedish government expected revenues to amount to 1,500 Swedish kroner; in fact, they did not overreached 80 million. The introduction of the tax lead to the decrease of the prices on the stock exchange – on the day when the tax was announced, the average decrease in the price of the shares was 2.02 %, and further. The same scenario happened some years later, when the tax was doubled – prices have decreased by 1 %. As was already mentioned above and proved by the

---

<sup>7</sup> I.e. that firstly the derivate would be taxed by FTT and secondly, when the underlying assets would be taxed on the financial market it would be taxed again by FTT

empirical analysis of Umlauf (1993), the introduction of the tax also led to the reduction of the market volume and migration of the traders to overseas London, where such a tax was not in force.

It is also necessary to mention that the reduction in market volume was very dramatic. During the first week after the introduction of the tax the volume of trading with bonds fell by 85% and trading with futures fell by 98 %. The transaction tax on fixed-income securities was abolished in 1990, followed by the abolition of all the remaining transaction taxes in 1991. After the abolition of the transaction taxes, the trading volumes started to grow again.

#### **2.1.4 Lessons from United Kingdom**

The financial transaction tax on purchases of shares was introduced in 1963 in the form of Stamp Duty Reserve Tax (hereinafter as SDRT) in United Kingdom. Firstly, it was introduced in the rate of 2 %, which was finally decreased to the current level of 0.5 %. Jackson & O'Donnell (1985) have proved on empirical data that the reduction of the tax rate by 1% in 1984 has resulted in the increase of the equity turnover by 70%. Saporta & Kan (1997) have further proved that announcements of tax rate decreases in the period between 1974 and 1986 were followed by positive returns. They also admit that the results can be also influenced by other factors.

It is necessary to mention, that under UK tax law, all financial intermediaries, market makers and investment banks are exempted from the tax, which resulted in the fact that in 2005, more than 70 % of the total UK stock market volume remained untaxed<sup>8</sup>. Moreover, according to Bond, Hawkins and Klemm (2005) nearly 40 % of the tax revenues come from foreign residents, for the tax is levied with no respect *"...whether the transaction takes place in the UK or overseas, and whether either party is resident in UK or not."*

#### **2.1.5 Situation in non-EU countries**

There is also a number of countries outside the European Union applying FTT in the form of financial security tax. China, India, Indonesia, Italy, South Africa and South Korea apply financial security tax on secondary trading. It is applied in two forms – to shares traded on official exchanges or to shares traded on OTC markets. Brazil imposes FTT in the rate of 1.5% on equities of domestic company shares listed abroad. World financial centres as Hong-Kong, Singapore or Switzerland impose stock transaction tax in the amount of 10 – 30 basis points.

Some countries extend financial security tax also on derivatives<sup>9</sup>. The tax base differs in dependence on the type of the derivative. In case of futures, tax is imposed on the delivery price, while in case of

---

<sup>8</sup> Oxera, 2007.

<sup>9</sup> E.g. India.



options tax is imposed both on the premium and on the strike price. USA imposes non-tax charges in the form of levy on listed shares. Some states – e.g. Switzerland, Turkey, Russia or Brazil also applies capital levies on debt finance. Tax on foreign exchange is levied only in Brazil in the amount of 0.38 %.

### **2.1.6 Recent developments**

In last decades there is clearly seen the trend of the abolishment of FTT in states, where it has been applied. USA has eliminated stock transaction tax in 1966. Germany abolished stock transaction tax in 1991 and capital duty in 1992. France eliminated the stock transaction tax in 2009 and Italy eliminated its transaction duties dramatically in 2000. As was already mentioned above, Sweden has abolished financial transaction tax in 1991. Outside Europe the tax has been eliminated by Japan in 1999 and Australia in 2001.

Same trend can also be visible on the field of capital levies. The Directive of the European Council No. 85/303/EC has obliged the member states to reduce capital levies on to the 1% and prohibited transaction taxes on new share offerings in the interest of fostering the development of EU capital markets. In 2006 the European Commission has further recommended to abolish all capital duties by 2010 in order to promote the development of EU companies<sup>10</sup>.

As was already indicated above, the potential revenue from the financial transaction tax and its impact on the economic activities depends on the tax base definition as well as on the fact, whether the tax would be levied globally or at European or national level. As the proof of that are the lessons from Sweden, where due to the decrease in market volume caused by the introduction of FTT, the real revenues were significantly lower than the estimated ones. This situation was caused by the migration of the traders to the countries with more advantageous tax conditions, since the tax was introduced only in Sweden. Other countries were not levying FTT at all or the tax rate was significantly lower.

According the European Commission, it can be estimated that in the case of the introduction of the tax in the rate of 0.1 % the revenue of 60 bn. EUR could be reached<sup>11</sup>. Some authors as Schulmeister, Schratzenstaller and Picek (2008) mention, that the revenue could be even ten times higher in case of inclusion of derivatives into the tax base. They indeed point out, that the estimation can be distorted, for in practice there is big difference between expected and realized yield. Moreover, as was already mentioned above, the crucial role plays the definition of the tax base in case of derivatives, for there is usually big difference between the underlying value of the derivative and the

---

<sup>10</sup> IP/06/1673

<sup>11</sup> COM(2010) 549/5

market price of the contract. According to Schulmeister, Schratzenstaller and Picek (2008) if the tax would be levied on currency transactions only (in the form of Tobin tax) at the rate of 0.005 % the revenue would be 25 bn. EUR.

Financial transaction tax levied on the global level would generate revenues mainly in the very narrow group of states, where the big financial centers are situated. This disproportion would be further deepened by the inclusion of derivatives into the tax base. It would therefore be necessary to apply the tax globally, for the investors all around the world use those financial centers and therefore all the users of the financial centers participate on the tax revenue. Another reason for global application is that it would prevent the spillovers of the investments into the centers, where the tax would not be applied (e.g. tax havens)<sup>12</sup>. In that connection the introduction of financial transaction tax should be considered on EU level only.

It is also necessary to consider the tax incidence. Generally, it can be expected that the tax burden would be shifted partially from the bank shareholders, managers and market participants onto the final customer (i.e. citizens and business entities). The introduction of the tax would indirectly lead to the increase of the cost on capital not only for business entities but also for the national governments. Schwert & Seguin (1993) estimate, that the introduction of the tax in the rate of 0.5 % would lead to the increase of the costs on capital in the USA by 10–180 basis points.

An argument for the introduction of the financial transaction tax is that it could help to internationalize the negative externalities connected with the activity of the financial sector. Widely constructed tax base should help to stabilize the financial market by the decrease of the short-term speculative transactions. Nevertheless, it is necessary to take into consideration also other facts as that the imposition of the tax can decrease the liquidity or to increase the price volatility. It is also necessary to take into the consideration that the financial transaction tax is not imposed on the value added but on the gross value, therefore it has cumulative character. The assets traded more often will bear higher tax burden.

The tax should be levied only on the harmful or highly speculative transaction, which is not possible to realize in practice, for it is not possible to distinguish normal transactions from speculative transactions on the financial markets. Tax base constructed as too narrow could lead to the distortion of the financial transaction, for the spillover effect could arise – the interest for transactions subjected to the tax could be decreased, while the interest for the transactions not subjected to the tax could be increased.

---

<sup>12</sup> For details see Honohan & Yoder (2010).

## **2.2 Financial Activities Tax**

Financial Activities Tax (hereinafter as FAT) represents a number of possible taxes meant to tax sum of profits and remuneration in the financial sector. There are three different kinds of FAT which are discussed as a reaction on the financial crisis. First type of the tax (hereinafter as FAT1) intends to alleviate long-standing imperfections in the tax treatment of the financial sector (e.g. exemption from value added tax). It should serve as a substitute for VAT. Second type of the tax (hereinafter as FAT2) aims to tax economic rents generated in the financial sector. It should be levied on supernormal wages and profits. The last type of the tax (hereinafter as FAT3) is aimed to discourage risk taking. It should be levied in the form of the tax on very high rates of return.

As well as in case of FTT the main reasons for FAT introduction are to raise the additional revenue from the financial sector to repay the past or possible future bailouts. Secondly, to substitute VAT on financial services, for at present, they are exempted from VAT, and to compensate other forms of financial sector subsidization. Another specific aim of the FAT introduction is to limit the size of the financial sector, which is considered at present as excessive due to the implicit policy of “too big to fail”. Lastly, levying of FAT should induce changes in behavior. The aim is also to decrease the excessive risk taking.

Three possible alternatives of financial activities tax can be in that connection considered – addition method FAT, rent-taxing FAT and risk-taxing FAT.

### **2.2.1 Addition method FAT**

As was already mentioned above, financial sector is based on Art. 135 of EU VAT Directive exempted from VAT, for the nature of value added in many types of financial activities cause problems with VAT charging. There are no problems with charging VAT in case of financial services provided on fee-paying basis. The difficulties are arising in case of financial services, charged for in the margin on intermediation services. As mention Schenk & Zee (2001), even though the aggregate value added created by intermediation can be identified, proper VAT operation requires allocating the tax on margin between the two sides of the transaction. The exemption of financial services from VAT due to the above described difficulties leads to the situation, where final consumers consume too much of financial services, on the other hand, very little financial services are used as inputs to production (due to the fact that it is not possible for the business to recover the VAT on inputs). Another consequence is also too much self supply in the production of financial services. Therefore, as mentions Lockwood (2010), it would be desirable to tax financial services as other goods and services.

In the European Union, under VAT system, the business is allowed to recover VAT on input, while is obliged to charged the VAT on output. Net VAT due is then calculated as the difference between the VAT on output and VAT on input. As mentions Cnossen (2009) this base is equal to the sum of profits and wages, which suggests the alternative tax base. Based on that in case of FAT1 substituting VAT in financial sector, it is often referred to tax base set by addition method. Addition method FAT means the construction of broad tax base and to tax sum of wages and profits with the possibility of full expensing of investment but no deduction for financial costs. Such defined tax base would proxy value added. In some countries<sup>13</sup> the method represents type of tax used as a surcharge for the sectors, which are not subjected to value added tax.

There can already be found countries in the European Union, which are already applying FAT based on addition method. France has introduced in 1968 so called payroll tax, which has to be paid by employers, who are not subjected to value added tax, or which turnover was by more than 90% in the last year not subjected to value added tax. The main taxpayers of this tax are banks and insurance institutions. The tax base is defined as the gross remuneration before the deduction of insurance payments. The tax rate is set on 4.25 %. It can be deducted from the corporate income tax base or personal income tax base. The revenue in the 2008<sup>14</sup> from levying of this tax was 2.3 % GDP, which represents 36 bn. EUR.

Denmark has introduced in 1990 the obligation to tax wage expenses in case of companies, performing activities exempted from the value added tax (i.e. also financial services). In that case the tax base is defined as the sum of wage costs and taxable profit. The general tax rate is set on 3.08 %. The tax rate is in case of specific sectors increased – e.g. financial sector on 5.08 %. Based from the statistics in 2008<sup>15</sup> the revenue from the levying this type of tax was 0.26 % of GDP, which represents in absolute amount 650 mils EUR.

Italy has introduced in 1997 so called regional tax on production activities. It is applied on the taxpayers taking part in commercial activities. The tax base is defined as the amount of the net production, which represent the accounting profit plus remunerations. The tax rate is set on 3.90 %. In 2008<sup>16</sup> the revenue from the levying of the tax was 2.3 % GDP, which represents 36 bn. EUR.

The experiences with levying of addition method based tax on financial sector can also be found outside the EU. Canadian province Quebec is taxing financial institutions on an addition basis. They are taxed from the sum of local wages and paid up capital or premiums. Israel also applies kind of

---

<sup>13</sup> E.g. Denmark

<sup>14</sup> IMF, 2010.

<sup>15</sup> IMF, 2010.

<sup>16</sup> IMF, 2010.

tax, which is based on addition basis. The tax base is defined as the taxable income for company purposes plus wages paid.

### **2.2.2 Rent-taxing FAT**

As mentions Keen (2010), taxing rents in financial sector is attractive in connection with the costs of the financial crisis. There are empirical evidences, that profitability of the financial sector in comparison with other sectors was higher. Financial sector in UK according to Deveraux et al. (2004) has substantially increased during 1990s. Similarly, Johnson & Kwak (2009) states, that the profits of the financial sector have been tripled since 1980s in the United States. As the main factors of the high rents in the financial sector are usually considered on one hand the already mentioned “too big to fail” policy and on the other hand the informational advantages, which are relevant mainly in the present environment of very fast and complex financial information.

In that connection is necessary to mention that tax rent represent very efficient way of revenue collecting, mainly in closed economies, for the economic subjects have no possibility to change the behavior in connection with the tax introduction. The efficiency in collection is lower, as the economy is more opened and sources of rent are less tied to a particular location, for as mentions Keen, Krelove and Norregaard (2010), economics subjects have incentives to change their behavior. This would not apply when certain degree of international coordination (e.g. on tax bases or tax rates) would take place..

The considered Rent-taxing FAT would be designed to tax remuneration and cash-flow profit above a defined level of profit. The threshold for cash-flow profit would be set above the level of normal profit. This could be done through the application of Allowance for Corporate Equity (ACE), which allows the deduction of notional allowance for equity, or the definition of profit including both real and financial transactions (R+F base)<sup>17</sup>.

It is necessary to mention that while thinking about the introduction of rent-taxing FAT, there are issues, which is needed to be solved in that connection. Firstly, lower than “normal” profit means for rent-taxing FAT tax loss. How should be treated those losses? Secondly, what about group taxation regimes? How the system would be working in case of multinational financial institutions? There could arise double taxation issues as well as transfer pricing issues. And lastly, introduction of rent-taxing FAT would have to be accompanied by very specific tax avoidance legislation. How would be

---

<sup>17</sup> As mentions (OECD, 2007) there can be three different types of tax base – R-base, R+F base and S-base. Under R-base only real transactions are included in the corporate tax base. I.e. it is just difference between revenues and expenses, excluding financial transactions. R+F base includes real transactions and non-equity financial transactions. S-base includes net flow from corporation to shareholders (i.e. paid dividends plus purchase of shares minus the issue of new shares).

the tax interact with corporate income tax? As can be seen from the above described problems, there are still questions which are needed to be answered and solved by the European Commission when thinking about the rent-taxing FAT.

### **2.2.3 Risk-taxing FAT**

As was already mentioned above, there are empirical evidences about very high returns in financial sector in comparison with the returns in other sectors. One of the possible explanations for that fact represents excessive risk-taking. It is not very easy to identify, the level of “normal” profit and the profit, which was reached due to the excess risk-taking. Therefore as mentions Kose, John and Senbet (1991) one possible solution would be to tax high returns<sup>18</sup> (above normal returns) at a higher rate, while risk-taking FAT could serve as complement regulation to discourage excessive risk-taking in the financial sector. In taxation theory, when an activity is producing negative externalities, the remedy represents the taxation of such activity. When such a tax is equal to the negative externality it is referred to as Pigovian tax. Therefore taxing the excessive risk, which is producing the negative externality for other sectors of national economies, could be considered as a Pigovian tax.

Risk-taxing FAT as is considered by the European Commission should tax the excess return due to the unduly risky activities. The construction is similar to rent-taxing FAT – both exempt normal profits either automatically or by the application of the rate similar to the cost of debt financing (in case of ACE application). The difference is that in case of risk-taking FAT the threshold is in addition set at the level of excessive return to average equity. I.e. that theoretically part of the rents could not be taxed at all, if the return on equity would not exceed the set limit.

It is necessary to mention that while considering the risk-taxing FAT it is necessary to solve the problem of interaction with the regulation of the financial sector, for the incentives can be addressed through higher capital requirements or bank resolution mechanism.

## **2.3 Revenue modeling**

The difference between FTT and FAT lies mainly in the fact, that FAT can target specific activities of the financial sector, without any impact on the direct operations on the financial market. As have proved the experiences from Sweden and UK, the introduction of FTT on national level, not coordinated on the level of EU, may lead to the decrease in market volume and outflow of traders into the more advantageous taxation systems. On the contrary, FAT represents not transaction-based

---

<sup>18</sup> i.e. rent-taxing FAT

tax relying on items of the financial statements of financial institutions<sup>19</sup> (i.e. profit and remuneration from the profit and loss statement). Moreover, if it would be design as risk-taking FAT, it would discourage risk taking and designed as a rent-taxing, it would improve market efficiency.

The introduction of FAT should not have effects on the market structure, for it taxes profits of the financial institutions independently on the way how they are earned. It means that it does not discriminate certain financial products, nor is dependent on the level of the turnover. Moreover, any version of FAT could lead to the discrimination of financial institutions (subjected to tax) and quasi-financial institutions (not subjected to tax). Furthermore, FAT is imposed on the profits from net transactions therefore does not have cumulative character, in comparison with FTT which is levied on gross transactions, therefore does have cumulative character. It is also necessary to mention that also as in case of FTT, addition method FAT would lead to the shift of incidence onto the financial services, which in the situation when there is no possibility of business consumers to deduct the tax would partially lead to the shift on the users of the financial services.

The potential revenue from the introduction of FAT in any form would differ across countries depending on the size of financial sector, profitability and the wages. Tax base under addition method FAT ( $FAT_{TBA}$ ) would be set as follows:

$$FAT_{TBA} = RF_{TB} - FC + WC, \quad (1)$$

where  $RF_{TB}$  represents gross operating profits (R+F base – i.e. including non-equity financial transactions) in financial sector, FC represents gross capital formation (i.e. gross capital expenditures) in financial sector and WC represents wage costs in financial sector. The calculation of potential revenues in case of the introduction of addition method FAT in the rate of 5 % in selected EU countries is shown in table IV. The data were used from SourceOECD database<sup>20</sup>.

---

<sup>19</sup> FAT it not the same as bank levy, which is based on the idea that leverage should be taxed, for it is an indicator for the risk exposure of the institution.

<sup>20</sup> The data for the EU member states which are not mentioned in the Table III were unavailable either in SourceOECD database or Eurostat database.

**Tab IV: Potential revenues in case of addition method FAT in the rate of 5 % in selected EU member states**

Country	Gross operating profit in financial sector in % GDP	Capital formation in financial sector in % GDP	Wages in financial sector in % GDP	Tax base in % GDP	Calculated revenue in % GDP
Austria	2.1	0.8	2.7	4.0	<b>0.20</b>
Belgium	2.2	0.8	2.8	4.2	<b>0.21</b>
Denmark	1.8	0.4	2.5	4.0	<b>0.20</b>
Finland	1.1	0.3	1.2	1.9	<b>0.01</b>
France	1.4	0.8	2.7	3.3	<b>0.17</b>
Germany	1.5	0.3	2.3	3.6	<b>0.18</b>
Hungary	2.1	0.3	1.9	3.6	<b>0.18</b>
Ireland	5.9	0.6	3.2	8.4	<b>0.42</b>
Italy	1.7	0.4	2.3	3.6	<b>0.18</b>
Luxembourg	14.9	0.7	9.0	23.2	<b>1.16</b>
Netherlands	2.7	1.1	3.3	4.9	<b>0.25</b>
Portugal	3.8	1.6	2.6	4.8	<b>0.24</b>
Spain	2.1	0.7	2.1	3.5	<b>0.18</b>
Sweden	1.2	0.6	1.9	2.5	<b>0.13</b>
United Kingdom	2.8	0.7	3.9	6.1	<b>0.31</b>

Source: OECD and own calculations

### 3. Conclusion

The recent financial crises has revealed the need to improve and ensure the stability of the financial sector to reduce negative externalities, to ensure fair and substantial contribution of the financial sector to the public finances and the need to consolidate public finance. All those needs represent substantial arguments for the discussion about the introduction of financial sector taxation. This even more supported by the fact that under VAT regulation in the EU, financial services are exempted from VAT.

The aim of the European Commission in that context should be to ensure fair and balanced taxation of the financial sector and to decrease possible cross-border double taxation, which could arise in connection with the introduction of the new tax. It should also contribute to the better regulation.

The paper has researched two possible types of financial sector taxation – financial transaction tax and financial activities tax. FTT is the tool which is suitable for the application on the global level. Being applied globally (not only on the EU level), it could generate sufficient revenue. On the other hand, from the EU point of view FTT appears less suitable, for there are risks connected with the relocation and therefore undermining the ability of the tax to generate the sufficient income.



Therefore the introduction of FAT seems to be a better solution on the EU level. It would replace the taxation of financial sector which is currently exempted from VAT and could also raise substantial revenues, as was calculated in Table IV.

There are three possible variants of FAT, which can be introduced on EU level. Even though rent-taxing in combination with risk-taxing FAT represent the complex design, but would raise administration issues and would probably make the system more complicated. Introduction of rent/risk-taxing Fat on national level would lead to tax competition; therefore it would have to be coordinated on EU-level.

In some countries there have also been identified legal obstacles for FAT introduction. Not only is not clear the relationship between the tools for bank regulation and risk-taxing FAT, but in some countries, taxing the activities of financial sector is in conflict with constitutional rules.

From the reasons mentioned above, as the most pragmatic solution seems to represent addition-method FAT. Since it is an innovative approach to the financial sector taxation, there are no empirical evidences; therefore it opens the space for further research, mainly to answer the questions which were suggested above, which would be faced in case of the practical implementation on EU level.

## References

- Bond, S., Hawkins, S., M. and Klemm, A. (2005). Stamp Duty on Shares and Its Effect on Shares Prices. *Public Finance Analysis*. Vol. 61, No. 3, pp. 275-298.
- Cnossen, S. (2009). A VAT Primer for Lawyers, Economists, and Accountants. *Tax Notes International*, July 27, 2009, pp. 319-32
- COM(2010) 549/5
- Deveraux et al. (2004). Why has the UK Corporation Tax Raised So Much Revenue? *Fiscal Studies*, Vol. 25, No. 4, pp. 367-388.
- Erturk, K., 2006. On the Tobin Tax. *Review of Political Economy*. Vol. 18, No. 1, pp. 71-78.
- Habermeier, H. and Kirilenko, A. (2003). Securities Transaction Taxes and Financial Markets. In *Taxation of Financial Intermediation*, New York: Oxford University Press, pp. 325–44.
- Honohan, P. and Yoder S. (2010). Financial Transaction Tax: Panacea, Threat or Damp Squib? The World Bank. Working paper No. WPS5230.
- Hu, S. (1998). The effects of the stock transaction tax on the stock market: Experiences from Asian markets. *Pacific-Basin Finance Journal*, Vol. 6, No. 3/4, pp. 347-364.
- IMF (2010). A Fair and Substantial Contribution: A Framework for Taxation and Resolution to Improve Financial Stability. Draft report to the G20.
- IP/06/1673
- Johnson, S. and Kwak, J. (2010). *13 Bankers: The Wall Street Takeover and the Next Financial Meltdown*. New York: Phanteonbooks, 281 p.
- Kappor, S. et al. (2007). Taking the Next Step – Implementing a Currency Transaction Development Levy. RePEc Archive Paper 4054.
- Keen, M. (2010). The Taxation and Regulation of Financial Institutions. Mimeo, IMF.
- Keen, M., Krellove, R. and Norregaard, J. (2010). The Financial Activities Tax. The IMF Report to the G-20 and Background Material.
- Keynes, J. M. (1936). *General Theory of Employment, Interest Rates and Money*. New York: Harcourt Brace.
- Kose, J., John, T. and Senbet, L. (1991). Risk-Shifting Incentives of Depository Institutions: A New Perspective on Federal Deposit Insurance Reform. *Journal of Banking and Finance*, Vol. 15, pp. 895-915.
- Lanne, M. and Vesala, T. (2010). The effect of a transaction tax on exchange rate volatility. *International Journal of Finance & Economics*, Vol. 15, No. 2, pp. 123-133.
- Liu, S. and Zhu, Z. (2009). Transaction Costs and price Volatility: New Evidence from the Tokyo Stock Exchange. *Journal of Financial Services Research*. Vol. 36, No. 1, pp. 65-83.
- Lockwood, B. (2010). How Should Financial Intermediation Services be Taxed? CESifo Working paper No. 3226.
- Manaro, K., Marchesi, M. and Setzu, A. (2008). Using an artificial market for assessing the impact of tobin-like transaction taxes. *Journal of Economic Behavior & Organization*, Vol 67, No. 2, pp. 445-462.
- Matheson, T. (2010). Taxing Financial Transactions: Issues and Evidence. IMF Working Paper WP/10/xx.
- Meussen, G. T. K. (2011). A New Strategy for the European Union: FTT and FAT, Realistic or a Bridge too Far? *European Taxation*, Vol. 51, No. 2/3, pp. 101-104

- OECD (2007). *Fundamental Reform of Corporate Income Tax*, Paris.
- Palley, T. (1999). Speculation and Tobin Tax: why sand in the wheels can increase economic efficiency. *Journal of Economics*. Vol. 69, No. 2, pp. 113-126.
- Pollin, R. et al. (2002). *Securities Transaction Taxes for U.S. Financial Markets*. Political Economy Research Institute, Working Paper 20.
- Schenk, A. and Zee, H. (2001). Treating Financial Services under Value Added Tax: Conceptual issues and Country Practice. *Tax Note International*, No. 3309.
- Schulmeister, S., Schratzenstaller, M., Picek, O. (2008). *A general Financial Transaction Tax: Motives, Revenues, Feasibility and Effects*. Wifo Working Paper, Vienna.
- Schwert, G. W. and Senguin, P. (1993). Securities Transaction Taxes: an Overview of Costs, Benefits and Unresolved Questions. *Financial Analysts Journal*, Vol. 10, pp. 27–35.
- Spahn, P. B. (1995). *International Financial Flows and Transactions Taxes: Survey and Options*. IMF, Working paper No. WP/95/60.
- Spratt, S. (2006). *A sterling Solution: Implementing a Stamp Duty on Sterling to Finance International Development*. Stamp Out Poverty. London.
- Stiglitz, J. (1989). Using Tax Policy to Curb Speculative Short-Term Trading. *Journal of Financial Services Research*. Vol. 3(2–3), pp. 101–115.
- Summers, L. and Summers, V. (1989). When Financial Markets Work Too Well: A Cautious Case for a Securities Transaction Tax. *Journal of Financial Services Research*, Vol. 3, pp. 261–86.
- Tobin, J. (1978). A proposal for International Monetary Reform. *Eastern Economic Journal*. Vol. 4(3–4), pp. 153–159.
- Umlauf, S. (1993). Transaction taxes and the behavior of the Swedish stock market. *Journal of Financial Economics*. Vol 33, No. 2 pp. 227-240.
- Wei, S. and Kim, J. (1999). *The Big Players in the Foreign Exchange Market: Do They Trade on Information Noise?* Center for International Development at Harvard University, Working paper No. 5.
- Westerhoff, F. (2003). Heterogeneous traders and the Tobin Tax. *Journal of Evolutionary Economics*. Vol. 13, No. 1 pp. 53-70.
- Westerhoff, F. and Dieci, R. (2006). The effectiveness of Keynes-Tobin transaction taxes when heterogeneous agents can trade in different markets: A behavioral finance approach. *Journal of Economic Dynamics and Control*, Vol. 30, No. 2, pp. 293-322.