Should EU implement its present proposal of a financial transaction tax?

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Abstract: This paper study the possibility of implementing a financial transaction tax within the European Union, as a possibility to discourage future financial bubbles and force more fundamental values within the financial market. It is found, after reviewing current research; covering volatility, market volume and speculation, and empirical evidence, that a financial transaction tax fulfill the purpose of creating a more efficient financial system in the case of European Union.
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Introduction
As early as 1936 Keynes describes that speculation in the financial market can create financial bubbles. Since then the market capitalization has grown dramatically and recent trends show that cross country investments increases, according to Diana Farrell et al (2008).

As a result of the increased market capitalization and the interweaved financial markets, the world is more exposed to financial bubbles, as they will spread to a larger degree, which the recent financial crisis illustrated. Therefore voices have been raised on how the world can deal with this increased risk and still maintain a working financial system that focus on its main purpose, namely provide liquidity for investments. This paper will analyse the suggestion of a financial transaction tax (FTT) as a possible solution to this problem in the specific case of European Union (EU).

The following questions will be reviewed: Is speculation in financial markets a problem? Could a financial transaction tax be the solution to reduce speculation? What would be the plausible outcome from implementing such a tax within the European Union?

The first section will describe current available theories on financial transaction tax and speculation. Section two will look at the empirical evidence from different countries that have/had variations of a FTT. The third section will summarize the present proposal of a FTT from the EU directive. The analysis, section four, will compare the present proposal from EU with current theories and empirical evidence. Lastly, section five, will conclude the paper.

Theoretical framework
This section will start with theories concerning the effects from a tax wedge in a market. After the fundamental elements are set the paper will go on with describing speculation in financial markets and later observing theories on the possible implications and reactions from applying a FTT in a country in order to minimize speculative behaviour.

This paper will analyse the plausible outcome from an implementation of a financial transaction tax. In order to correctly examine this case we start with the basics concerning what happens when a tax is implemented.

Natural equilibrium in a market is found were demand and supply meets and both buyer and supplier agrees on a price and a quantity. This case is the most effective with no economic efficiency losses; The model assumes perfect competition and perfect information. When a
tax is enforced the cost for the supplier increases, which means the supplied quantity decreases and the price increases. In this case a deadweight loss is created, see figure 1, a deadweight loss is a loss in economic efficiency (Michael Parkin, 2011).

Figure 1

(Figure 1 own illustration)

\[
\text{Deadweight loss} = \frac{(P2 - P3) \times (Q1 - Q2)}{2}
\]

\[
\text{Tax revenue} = (P2 - P3) \times Q2
\]

In order for a tax to be a reliable alternative, the revenue must be greater than the deadweight loss.

\[\text{Tax Revenue} > \text{Deadweight loss}\]

How large revenue and deadweight loss will be depends on the elasticity of demand and supply. The more inelastic either demand or supply are the smaller the deadweight loss, in the extreme case when demand or supply are totally inelastic is there no deadweight loss.

With the previous aspect a tax should not be implemented, as a deadweight loss is created, but today’s financial markets experience volatility, which is not a problem if it is based on fundamental values, but speculation in financial markets can drive the market price away from the fundamental values. These price differences in the market due to speculation creates inefficiencies, otherwise stated a deadweight loss. Volatility alone creates uncertainty and therefore the risk in financial markets increase, as the risk increase investors will demand a
higher return and which will follow by a lower quantity of financial funds and a higher price, which creates inefficiencies and investments will decrease (Michael Parkin, 2011).

Figure 2

(Figure 2: own illustration; straight line = fundamental values, cyclical line = market value due to speculation)

The question is if the deadweight loss from the financial transaction tax is smaller or larger than the deadweight loss from mispricing and speculation. The paper will now continue to review research concerning speculation and the effects of a financial transaction tax.

Fernando Fernández-Rodríguez et al (2002) tries to explain the sources of volatility and speculative bubbles in financial markets. They found that the market consist of two types of investors; fundamentalists and chartists. Fundamentalist make their investment decisions on rational expectations concerning fundamental values, in contrast to chartists that make decisions based on historic prices and trends. The author’s results show that if chartist behaviour is dominant in the market, it will make prices fluctuate around fundamental equilibrium, in other words high volatility, and automatically create speculative financial bubbles.

Kenneth A Froot et al (1992) found that speculation for short-term profits creates information inefficiencies. The reason is that short-term traders chose to trade on information that does not completely rely on fundamental values. If the market consists of a large part of short-term speculative traders, prices will on the market reflect information that is not attached to fundamental values. Furthermore this inefficiency in information creates misallocation of assets and additionally it can also create incentives for managers to apply strategies that satisfy short-term goals in order to please short-term investors, which also leads to a welfare loss for society in the long run.
A tax on financial transactions as long been discussed by scientists as a method to curb speculation within the financial markets, in order to stabilize and avoid excessive volatility. John, M. Keynes (1936) was the first to introduce the concept in the general theory on employment, interest and money. There he describes that influences from speculation on the equity exchange market in New York are enormous. By speculation Keynes (1936) describes traders who invest with regards to the psychology of the market, instead of the fundamental values of enterprises. This is not a problem as long as the majority of the markets traders are making investment on primarily fundamental values. However if the market consists of a larger portion speculative traders, real values will differ a great deal from the market values, which will create a movement from fundamental investment decisions towards making expectations on what they think the average opinion on the average opinion will be, and then make investment decisions based on those expectations. The problem arises when the market is heavily influenced on these speculations, which can create bubbles with no underlying real values. Keynes (1936) was comparing this behaviour of the New York stock exchange to the same behaviour you will see in casinos, but in difference to casinos this gambling behaviour at the stock exchange is not very expensive; therefore he suggests a substantial government transfer tax on all transactions, in order to constrain traders from gambling excessively on short-term profits.

Later James Tobin (1978) expands this idea into more particularly the market for international exchange of currencies. He argued that speculation in exchange rates creates huge movements on the market, which will interfere with a country’s own economic situation, for example balance of payments, official assets and debt will change a great deal, and unfortunately the governments own monetary and fiscal policy have little to counterattack these rapid changes. Therefore his proposal is to “throw some sand in the wheels of our excessively efficient international money markets”, thus a tax on transactions between different currencies. According to James Tobin (1978), speculation will force the market toward its equilibrium, and traders will make a profit on condition that the market adjusts. However nobody knows the market equilibrium and thus traders will base their speculation on expectations. The impact of the tax will be great on short-term transactions and will lower the opportunity for short-run profit. Furthermore it will create incentives to invest with a greater focus on long-term investments were the tax will have little impact. According to James Tobin (1978) a plausible reaction to this tax will be a lower volatility on the foreign
exchange market, which will create a higher stability in the world and therefore a more efficient markets.

Summers and Summers (1989) describes that the financial markets main objectives are to provide liquidity of capital and facilitates the possibility to spread risks. In order for this to work, prices must represent by real values, which are based on economic fundamentals. As the technology moves forward, trading in securities becomes easier which, according to Summers and Summers (1989), creates more speculation in prices. Furthermore disproportionate speculation will create higher volatility and higher risk; they therefore suggest a financial transaction tax to discourage speculation. The operation of the tax will create some negative effects on the market. First of all the liquidity of the market will fall and the supply of funds decreases, this will effect investment negatively. However this decrease in liquidity will only be a direct effect of the decrease in speculations. The biggest suppliers of US-capital are long-term investors, which is not effected as tough of this tax. Therefore the decrease in liquidity will not effect the long-term investments. The authors also states that the energy and time, traders spend searching for information that will effect the market prices before other traders, concerning hours or days, in order to make short-term profit are adding to the volatility in the market, and are effecting the society negatively. They imply that a financial transaction tax will force traders to use their energy to a greater extent on the analysis of fundamental economic values for more long-term investments, as a reaction from lower profitability on short-term investments.

Stiglitz (1989) also agrees with Summers and Summers (1989) but focus more on the search for economic rent by traders. Stiglitz (1989) also find that traders who lay all their resources and energy on finding information before others in order to make a profit when the market adjust to the information, exists. This behaviour, according to the author, have no social benefit for the society, as a matter of his opinion this actually has an opportunity cost as this effort could be used better in activities that creates social value. Stiglitz (1989) argues that a small tax on financial transaction will force traders towards more long-term investing horizon, which will create real value. The explanation is that investors who trade very frequently and with a short-term objective will have a very high tax burden, compared to long-term, less frequent traders. The volatility on the market, according to the author, results from changing expectations, and because variations in expectations change repeatedly and frequently, the volatility of the market will be high. Stiglitz (1989) describes that a transaction tax may
reduce volatility, because small changes in expectations within the tax bracket will not generate any trade, therefore he states that volatility as a result could decrease. As a complement he express that this tax could generate huge amount of revenue to the government.

Ross (1989) has a different view of the possible outcome from implementing a financial transaction tax. He states that as price volatility may decrease but it is not very likely to disappear, but instead transfer the activity to other financial instruments which are more difficult to impose this tax. He also describe that the wasteful rent seeking behaviour are not very likely to reduce since the profitability for such information will still exceed the costs of the transaction tax, thus traders will still trade on “insider” information. Instead he argues that the tax will lower liquidity in the market and therefore enterprises will be required to have larger inventory holdings, which creates an inefficient market. In his ending remarks he states that even thou there are some beneficial effects, it do not make it sufficient from other points of view.

Subrahmanyam (1998) tries to analyse what will happened to market equilibrium when a financial transaction tax is enforced. His analysis concludes that the market liquidity will decrease and informed trader will trade at a quantity equals to the monopolistic quantity. The reason is that the tax will hinder informed traders to realize their profit in a timely matter as the price goes up. Thus they will scale back their trades and effect the liquidity of the market. He also finds that a financial transaction tax can move focus of traders from short-term towards more long-term investment horizons. Thus will reduce the wasteful economic rent search and market prices would therefore represent more fundamental economic values. He also concludes that these positive effects will be more likely in large, competitive markets. Furthermore the possible side effects will be greater in the opposite case.

Palley (1999) further analyses the matter of speculation in the financial markets. He defines a noise trader as an investor who trade on the basis of inaccurate knowledge about project returns. His research states that if the market has a large share of noise investors and large external negative costs, a Tobin tax is recommended to curb the negative effects, but the tax can also have a negative effect on the fundamental investors, as a result of higher cash-out costs, which can force an investor to stay with a bad investment. Larger share of noise traders also demands a higher Tobin tax rate in order to discourage them from trade. If the definition of a noise trader is changed towards an investor who trade on market signals, then the Tobin
tax would have to be applied on these signals, in order to have the desired effect. Another possibility is that the definition of a noise trader can be changed to an investor who has a shorter time-horizon for investments. In that case the Tobin tax should be time sensitive. The author describe that a Tobin tax can raise the economic efficiency of the financial markets by reducing inefficient behaviour as speculation creates.

Westerhoff and Dieci (2006) present a model which has two different financial markets and shows what would happen when a tax is imposed in one market and later in both. Their results conclude that a financial tax in market one will crowed out the speculators and they will move to the other market, which is not taxed. The first market will be less volatile and to a greater extent represent the real values of the market. The second market would get destabilized by the greater amount of speculators. If both markets enforce a uniformed tax, according to the authors, both markets would get stabilized. Furthermore investors will focus more on fundamental data. The market volume and liquidity will fall in both markets as speculators move away, however this have no unbearable effect because the market is now more economically effective and more stabilized, which will create a better outcome in the long-run, according to the authors.

Erturk (2006) analyses the statement if a Tobin tax could have a stabilizing effect by reducing speculations in the exchange market. He concludes that a change in market volume has no real effects on its volatility, if the market is reasonably large. Therefore the expected decrease in market volume, from enforcing a Tobin tax, will not have any real influence on market volatility. However a Tobin tax will influence traders’ speed of reaction and thus stabilizing the market.

Hanke et al (2010) do a similar experiment as Ertutk (2006), were two markets are used and the effects of a Tobin tax are analysed. As previous theoretical studies, Hanke et al (2010) also conclude that market volume will fall when a tax is introduced, but to a much smaller degree when all markets are taxed. So the decrease in volume is dependent on how large the market is and the number of tax heavens available. The authors discuss that the movement of market volume towards tax heavens combined with lower frequency of trading in the home market, will result in much lower tax revenue than politicians normally expect. Their experiment also shows that when the tax is introduced in a large market, volatility will decrease. However in a small market volatility will increase after introduction. The reason is based on liquidity; a large market has liquidity even after being taxed but a small market does
not, which makes it harder for buyers and sellers to find each other, thus increase volatility. Furthermore the experiment conclude that imposing a Tobin tax in both markets has no effect on effectiveness in both markets, however if only one market enforce a Tobin tax, the ineffectiveness of that specific market will raise significantly. The results also show that short-term speculators will move from the taxed market towards the untaxed market in order to avoid tax.

The current available theories conclude that financial markets contain undesirable speculative behaviour that creates financial bubbles and inefficiencies in information. Furthermore, this negative speculative behaviour creates high volatility in the market which negatively affect liquidity, as the risk increases with higher volatility. The research above also finds that a financial transaction tax can crowed out negative speculative behaviour as the cost for such behaviour increases. However it is important to recognise that if the market volume is too small to begin with, the liquidity of the market will be effected which instead creates higher volatility. One other important aspect is the degree of untaxed substitutes and untaxed markets available, as a high degree will create large capital movements as the tax is implemented and market volume will decrease more than expected.

**Empirical studies**

In this section we will look at empirical studies conducted in United Kingdom, Sweden and some Asian markets.

**United Kingdom**

United Kingdom has since 1808 implemented a stamp duty on purchases of equity in British companies. The tax is triggered in transaction of common stock and convertible bonds in both the primary and secondary market. The UK government has experimented with different rates, beginning at 2 % in 1808, decreased in 1963 to 1 %, increased to 2 % in 1974, decreased in 1984 to 1 % and then decreased to its current rate of 0.5 % in 1986. Saporta and Kan (1997) have analysed the volatility of the UK equity market with a stamp duty tax. Their estimations show that a change in stamp duty in UK has no significant effect on market volatility. Jackson and O’Donnell (1985) found that long term elasticity of trading volume, for the British market, to be between -0.9 and -1.7, over the time period 1964 – 1984.
Sweden
Sweden implemented a transaction tax on a wide range of securities in 1984, a round-trip tax of 1%. Before 1984 Sweden did not have a financial transaction tax and therefore it makes a good foundation when trying to understand and describe the implementations of such a tax. The underlying arguments from politicians in favour of the tax was not to reduce financial volatility, as described in the above reviewed research papers as a possible outcome, but instead was the result of pressure from labour unions related to fairness issues. The tax was increased in 1986 to a 2% round-trip tax. When the tax was introduced trading volume on the exchange dropped by 60% on the 11 most traded share classes, which migrated to London in order to avoid taxes, according to John Y. Campbell and Kenneth A. Froot (1994), did trading in financial instruments that was harder to impose the tax increase. Such instruments were, for example, VRNs (variable-rate notes) and FRAs (forward-rate agreements). Furthermore, Umlauf (1992) describes that, this decrease represents about 30% of the total trading volume in Stockholm, which decreased even further to 50% by 1990, according to Umlauf (1992). Lindgren and Westlund (1990) estimated long term turnover elasticity for the Swedish market to be between, -0.85 and -1.35. Ericsson and Lindgren (1992) later compare the results to international panel data; they found the elasticity to be between -1.2 and -1.5. Tobin (1978) argues that a transaction tax should reduce the volatility of the market but when looking at the case of Sweden, Umlauf (1992) found that the volatility increased as the market volume decreased. He also found that as the trade volume decreased the tax revenue from capital gains also decreased. In other words the revenue from the new transaction tax was lower than expected, and the tax benefit was consequently much lower than previously expected. The financial institution in Sweden had estimated that the tax revenue to 1 500 million SEK but the realized revenue averaged 50 million SEK. The financial tax was therefore eliminated in 1992.

Hong Kong, Japan, Korea and Taiwan
Shing-yang Hu (1998) has analysed the Asian markets; Hong Kong, Japan, Korea and Taiwan which contain a large sample of transaction tax changes involving data from 1975 - 1994. The author analyses changes in volatility between high tax periods compared with low tax periods in order to find significant differences for the four countries. He could not find any significant changes in volatility or turnover when looking at the all markets as a whole, but if only Taiwan the results showed that market turnover significantly decreased three out of four tax changes. However the market volatility experienced no significant differences
between the situations, although on average the volatility was found higher in high tax periods. Taiwan is a good case to analyse because they have a very high turnover in the market, 1991-1995 the turnover was 255 % compared the turnover for US markets was 70 %. Taiwan also had a very large share of individual trading which makes it good to analyse noise trading. Furthermore, a study of changes in market turnover with different taxes is not significant within the dataset, but there is a tendency for the turnover to be lower during high tax periods.

Shing-yang Hu (1998) also looks at changes in idiosyncratic volatility and turnover, in order to differentiate noise traders from other investors, for Hong Kong, Japan, Korea and Taiwan. According to the author, noise traders have small portfolios compared with large and slow investors, therefore small firm portfolio (noise traders) matched with market data, the results shows that volatility could be lower within high tax periods and therefore suggest that a high financial transaction tax could reduce volatility. Within the large firm portfolio a similar drop in volatility is found but not significant. The author is warning not to draw to strong conclusions due to too small sample size in these two groups. However, no significant changes are found when looking at the idiosyncratic turnover in the two cases. To sum up Sing-yang Hu (1998) founds no significantly important indicators that volatility or turnover will change with different transaction taxes. However compared with Umlauf (1993) who found a large decrease in market volume in Sweden, which could be explained by lower barriers for capital migration in Sweden’s case compared with Asia, therefore the differences in market volume in this study is probably understated and consequently free capital movements is a requirement for a better analysis from volume changes.

**China**

Shenzhen in China introduced a trial with financial transaction taxes on July 1, 1990 of 0.3 % on all publicly traded stocks and by November 21, 1992, the tax was introduced nationwide by the State Bureau of Taxation and the State Commission of System Reform. Later the tax was increased from 0.3 % to 0.5 % in May 10, 1997. The main objective for the tax was to reduce speculative trading in equity. The trading in shares is divided into two different classes of stock, A and B. Class A stock can only be traded by domestic individuals and institutions. However class B stock can be traded by foreigners as well as natives. The study by Baltagi, et al., (2006) analysing differences between 0.3 % and 0.5 % tax within Shanghai stock exchange and Shenzhen stock exchange. Data for their study is collected in between Nov 11, 1996 to Nov 10, 1997 in order to include the shift in May 10, 1997 in China. Trading
volume and volatility will only be analysed using class A stock, the justification is that class B only contribute with about 1% of the total trading volume in China during this time period. Thus to get sufficient and reliable data they use only class A stock in their research. Their result shows that trading volume will decrease with an average of 33% on both Shanghai and Shenzhen exchange when the tax increase is implemented and it is significant at a 5% level. A 2/3 increase in tax rate converts to a decrease of 1/3 in trading volume and furthermore the tax base as a revenue stream will also decrease. Baltagi, et al., (2006) argues that this decrease in trading volume is less than comparable examples like Umlauf (1993) results from Sweden. The authors explain this difference as that China has few close substitutes for stock and investment in foreign stock is very difficult for Chinese investors, therefore is capital migration more difficult in China during this time. The data also shows strong evidence that the market gets more volatile after the tax is increased, which goes against the original idea behind the tax and it discourages investors to take action on mispricing in stock, this creates a less efficient market.

**Empirical evidence of long run elasticity of market volume**

John Y. Campbell and Kenneth A. Froot (1994) found that the estimations of elasticity performed by Lindgren and Westlund (1990), Ericsson and Lindgren (1992) and Jackson and O’Donnell (1985) all use different models and basic assumptions, and therefore states that these results should be treated with caution. Furthermore, John Y. Campbell and Kenneth A. Froot, (1994), found more reasons for their statement, first all the models include very long time lags and many regressors with small sample sizes. Second, the difficulty to estimate accurate transaction costs. Third, the effect of a transaction tax is highly influenced by the number of untaxed financial substitutes. These reasons, according to John Y. Campbell and Kenneth A. Froot (1994), conclude that the uncertainties in the previously named elasticity estimates are too great in order to make to reliable calculations of the effect of an exogenous transaction tax.

**Summation of empirical evidence**

Empirical evidence from Sweden and Asia show a large decrease in market volume due to the introduction of financial transaction tax, which would indicate that the financial market has an elasticity greater than (-)1 for long run market volume. The empirical studies also describe how volatility increases after the tax is introduced for all markets examined except England, which showed no change in volatility. It also demonstrates that the degree of close
substitutes matters, because in markets with close untaxed substitutes market volume will decrease more.

**Present proposal from the EU-commission**

The recent financial crises have induced governments thought out Europe to reinforce the banking sectors liquidity, and as a natural reaction the governments wants the sector to pay for their own costs. The EU commission (2011) argues that the financial sector had a major role on the recent financial crisis and the costs are mainly paid by citizens throughout increase taxes. Today the financial sector is under taxed because of its crucial importance in providing liquidity and hence investments, but according to the directive costs of providing this service exceed e its benefits. The most attractive proposal is a financial transaction tax, mainly because its easiness of implementation

The European Parliament and the Council has three main objectives with imposing the tax:

- Ensuring a contribution of the financial sector to public finances
- Limiting the undesirable market behaviour and thereby stabilising the markets
- Avoiding distortions on the internal market

Mobility and low transaction tax make it easy for capital to migrate towards non-taxed countries, thus all EU-member states must comply and enforce the proposed tax to make it work accurately and preferably cooperation on G-20 level, the main objective being to create a single market. The present proposal is to implement a tax that is high enough to comply with the directives objectives but not too high to reduce incentives to capital relocation within the EU. The current proposed rates should not be lower than 0.1% for financial transaction other than derivates and 0.01% for derivatives but not higher than 0.5 % to reduce the risk of migrating capital.

The tax will cover capital market, money-market instruments, units or shares of collective investment undertakings and derivatives agreements. The tax will be controlled by financial institutions that carry out taxable financial transactions. Financial transactions were at least one part is a member state of EU, will execute a transaction tax.

The directive estimates that the introduction of a financial transaction tax will generate approximately 57 billion EUR per year in revenue, (EU directive (2011)) , which will be used collectively to cope with future financial crises. The introduction of the tax will raise
administrative costs for EU as a whole but, according to the directive, these costs will small compared to the revenue and also because the simplicity to implement the system.

Analysis
The analysis will consist of two parts; first a general discussion of the main concepts; speculation, volatility and market volume. Second part will be a cost-benefit analysis for EU concerning the implementation of a FTT.

Discussion
The discussion will focus on the plausible outcome from implementing a FTT in all EU member states, reflecting current research, and if the goals with this tax will be achieved. The first goal is to generate government revenue, which depend on how the market will react on this tax, in other words how large decrease in market volume can be expected. The second is to curb speculation and thus stabilizing the market, which will most easily be illustrated by market volatility and thirdly force investors to make investment decisions on fundamental values to avoid future financial crises. Each subcategory will be further examined below.

Speculation
As Keynes (1936) described that the New York stock exchange was during those days highly influenced by speculators that invested with the market psychology instead of fundamental values. The world’s financial markets have since then grown rapidly and combined with very low transaction costs, creates large proportions of speculators. Fernando Fernández-Rodríguez et al (2002) found that this speculation in prices which are based on trends and past prices, and not fundamental values, creates self-sustained financial bubbles. Kenneth A Froot et al (1992) also found that short-term speculation creates misallocation of assets, which equals to a dead weight loss of welfare. According to Stiglitz (1989), Summers and Summers (1989) and Palley (1999) a FTT will force investors to have a longer investment horizon, as a result investors must focus on more fundamental values and thus not as much time will be spent on economic rent seeking. Crowding out speculation will create a more stabilized market that reflects fundamental values. Experimental research, Westerhoff and Dieci (2006) and Hanke et al (2010), shows that speculators within the market decrease as a FTT is implemented, and speculators move to untaxed markets. Empirically is it more difficult to see if speculations decrease with a higher tax, therefore researchers look at volatility as a measurement as the level of speculation.
Volatility
The second objective in the EU directive is to stabilize the market, lowering the volatility, which also means lowering speculation. Westerhoff and Dieci (2006), Erturk (2006) and Hanke et al (2010) all finds that the volatility in the market will decrease as a FTT is implemented, in the case of a large financial market. Reasons for this change is that speculators are crowded out as described earlier and therefore the market gets less sensitive over short-term shocks. The empirical evidence, Umlauf (1993) and Baltagi, et al., (2006), shows increased volatility after implementation, one explanation, for the case of Sweden, is the size of the market. Sweden is a small financial market and when market volume decrease, cause a longer time period for buyers and sellers to find each other, thus a higher volatility. China experienced the same results, but to a lower degree since they have capital flow restrictions. When Saporta and Kan (1997) analyse United Kingdom and they found no change in volatility as the stamp duty was changed. Hu (1998) could not find any significant changes between high and low tax periods for Hong Kong, Japan, Korea or Taiwan. These empirical studies comply with Hanke et al (2010) conclusions that a decrease in market volume in large market has no effect on the liquidity and thus volatility should be unchanged. However implementation of a FTT in large markets could decrease volatility as speculators is crowded out and prices reflect more fundamental values. The present proposal from EU is focusing on that EU must be treated as one single market and as a result maintain market liquidity even after implementing a FTT.

Market volume and turnover
Both empirical and theoretical research concludes that market volume and turnover will decrease as a FTT is implemented. Umlauf (1993) saw a decrease of 50 % by 1990 in the Swedish market as a FTT was introduced and Baltagi et al (2006) saw similar results in China. According to Westerhoff and Dieci (2006) this decrease in market volume is only a result of decrease of speculation. Keynes (1936) describes that the main purpose of the financial markets is to provide liquidity for the market, in order to generate more investments and higher growth. A FTT will lower market volume and turnover, thus also affect investments negatively. One of the EU directives goals is to generate government revenue and therefore is it very important to calculate the expected decline in market volume. Hanke et al (2010) found that market volume decreases less in large markets than in small markets, and also that the availability of untaxed markets plays a vital part. The empirical research from Sweden and China, which are small financial actors in the world market, suggest that all of Europe, in
order to represent a large financial market, must comply with the FTT in order for its success but most preferably all world financial markets. John Y. Campbell and Kenneth A. Froot (1994) argue that current research about the elasticity in market volume is too uncertain to be useful in estimations. As a result it is very hard to estimate how the market will react to such a tax. Calculations on Sweden and UK financial markets estimate the elasticity to be between -0.85 and -1.7. Furthermore, these results vary over a big gap and cannot give a clear picture of the outcome. Because if the elasticity is greater than (-)1 it means that a tax will lower market volume with a bigger portion than the effect the tax has on trading costs, and if below (-)1 the market are not as price sensitive.

According to the discussion above, a financial transaction tax will fulfil the three main goals set up by the EU’s directive, which are; reduce speculative behaviour, force prices in financial markets to represent more fundamental values and lastly, it will raise revenue from the financial sector to help avoid future crises.

Cost-Benefit Analysis
This further analysis will be conducted using a cost-benefit analysis, trying to estimate different costs and possible benefits from implementing a FTT within EU. It is assumed in this analysis that EU is a large financial market with sufficient liquidity.

Costs
- Implementing a FTT within EU will raise administrative costs and also have an initial cost for implementation.
- A FTT will cause market inefficiency as the tax will interfere with market equilibrium and create a deadweight loss for the economy.
- Market liquidity could decrease as market volume decreases.
- Capital migrate to untaxed financial instruments and markets
- Lower tax revenue from capital gains

Benefits
- The tax will lower short-term speculation and thus stabilizing the financial markets.
- Future speculative financial bubbles will be less plausible by reducing speculative behaviour and force more fundamental valuations of financial assets.
- A FTT will raise a significant amount of revenue to EU, approximately 57 billion EUR.
Implementation of a financial transaction tax will raise administrative cost for EU but because transactions today are made electronically and automatically operated by computers, it makes administrative cost very low. Unfortunately the EU directive (2011) have not made any calculations on these potential administrative costs, but they argue that the cost will be very small as a result of the easiness of implementation in the existing financial system. The EU directive (2011) also states that the initial cost will be small, referring to the same arguments as with the administrative costs. However, the EU directive (2011) did make an approximation of the revenue stream to 57 billion EUR, which should be treated very critically because both empirical evidence and theoretical theories show that the revenue depends on how the market volume react on the tax, the elasticity of the long run market volume. If there are close untaxed financial substitutes or many untaxed markets available, then it could be expected that a large part of the capital will migrate. This should be cautiously reviewed before a financial tax could be implemented, in order to make correct calculation of the financial outcome. At this moment it is very hard to calculate the expected deadweight loss, from a FTT, because there is not sufficient research on the elasticity of demand and supply on financial markets in combination with high mobility of capital. Actually the elasticity could change dramatically depending on which market being taxed. Problems are also found when trying to estimate current deadweight loss due to speculative behaviour in financial markets, this because the difficulty to separate short-run speculative behaviour, which is trading based on psychological values and trends, from long-run speculative behaviour, which is based on fundamental values of assets that drive prices towards its natural equilibrium. The recent financial crisis testified how short-term speculative behaviour in the financial market will spread around the world and affected different markets outside the financial sector. Recent trends also show that financial markets get even more integrated with each other over time, and could in the future create even deeper crises. When it comes to the benefit of reducing short-term speculation, which will force investors to focus more on fundamental values and long-term objectives, then the outcome should be better working financial markets. Since the financial market get more stabilized and reduces financial risk and furthermore hence investments. Because of the difficulties mentioned above the analysis will be a relative comparison between the deadweight losses in a taxed market compared with the current untaxed market. In the EU directive (2011) its states that EU should be treated as a single market, in order to reduce capital movements and constitute a large market volume s providing enough liquidity even
after a tax is implemented. Exactly how this single market is going to work is still not stated and should therefore be treated with caution. So if the European market could be treated as a working single market, financial substitutes are reduced or taxed and the administrative costs are kept low. Under these assumptions the preferable solution is to introduce the taxation. The reasons is that the market would follow its fundamental objective with lower risk of future financial bubbles.

**Conclusion**

After reviewing available theoretical papers and empirical evidence this paper conclude that a financial transaction tax could be a solution to control financial markets, with the assumption that the EU financial market is a sufficiently large. The reason is that the benefits are greater than the costs, which means that even though a FTT will impact on the natural market equilibrium, it improves the functioning of the financial markets compared to the current speculative financial markets, and therefore a net welfare gain is expected.

The results and analysis is based on the assumption that EU constitutes a large financial market and therefore can maintain its liquidity even after a tax is implemented. This assumption is very vague because there is not any empirical evidence that this is correct, but the results from England (Saporta and Kan 1997) suggest that it is likely that EU can be treated as a large financial market. Therefore is it essential that an implementation only should be done if all of EU’s member states are onboard. It is very critical that EU is treated as a single market, otherwise smaller financial market will experience higher volatility and high capital movements as empirical evidence suggests.

In order to reduce possible negative side effects, EU should wait until the economy has recovered, because implementation of a FTT will decrease market volume and could have an effect on market liquidity, furthermore it could decrease investments, however if the assumption stands it is very unlikely. These results should be treated very critically because it is based on theory with no empirical evidence that it will give the expected results on the European level, but based on what we know, EU and the world should implement a type of FTT to discourage speculation and instead urge more fundamental investors to create a correctly priced financial markets, in order to avoid future financial bubbles and reinforce the fundamental principle of financial market, explicitly provide liquidity and encourage investments for future growth.
Further research
EU must conduct more research on how the single market would work in order to guarantee that capital movements will be kept at its optimal level. More accurate and precise estimates on the long run elasticity on market volume within the EU, are also welcome in order to get a clear idea how EU market volume would be affected. An estimate of optimal liquidity level for a market should also be researched, to get an idea how large a market has to be to work as intended even with a financial transaction tax.

Reference List

Book reference

Journal Articles
Fernando Fernández-Rodríguez, María-Dolores García-Artiles, Juan Manuel Martín-González, 2002, A model of speculative behavior with a strange attractor, Applied Mathematical Finance, 9, pp 143-161
Empirical articles

Badi H. Baltagi, Bong Li, Qi Li, (2006), Transaction tax and stock market behavior: evidence from an emerging market, Empirical Economics 31, pp 393 - 408


EU documents

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