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# Financial Transaction Tax Contributes to More Sustainability in Financial Markets

Dorothea Schäfer

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#### IMPRESSUM

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# **Financial transaction tax contributes to more sustainability in financial markets**

**Dorothea Schäfer<sup>1</sup>**

## **Abstract**

We argue that a financial transaction tax complements financial market regulation. With the tax, governments have an additional instrument at hand to influence trading activity. FTT aims to reduce regulatory arbitrage, flash trading, overactive portfolio management, excessive leverage and speculative transactions of financial institutions. The focus clearly addresses these classes of activities that have contributed to the financial crisis. However, if contrary to expectations harmful transactions will not be curbed, FTT generates at least large tax revenues that can contribute to cover the costs of the financial crisis. The trend towards centralized clearing and depositories makes tax evasion more difficult than it was in the past. Tax avoidance is, of course, never completely avoidable. Therefore the effect of the tax should be monitored closely so that governments can react quickly if tax loopholes and tax-induced geographical relocation plans of financial institutions come to light.

JEL: G20, G24, G28

Keywords: financial stability, transaction tax, public good, central depository

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## **1 Introduction: The paradigm of efficient financial markets is dead**

Two scientific opinions dominated the attitude of economists towards financial markets in the years prior to the financial crisis. First it was thought that findings from the Arrow-Debreu world applied: financial innovation would make the financial markets more complete as well as fostering better management and distribution of risk. Second, financial markets in which large volumes are traded in high frequency were considered as highly liquid and, therefore, would show a strong tendency towards efficient price formation (e.g. European Central Bank 2004).

Against the background of these prevailing paradigms opponents of the FTT typically require from proponents to demonstrate that excessive trading activities are actually the cause of sharp price fluctuations and of deviations of market prices from fundamental values. However, proving that excessive trading activity causes inefficient pricing is rather difficult. The “right” price is hardly determinable. Likewise, there is a lack of robust evidence on the relationship between transaction volume/turnover rate and price fluctuations as well as between transaction volume/turnover ratio and the deviation of prices from the level that is justified by fundamentals (e.g. Schulmeister et al 2011).

Is the lack of such evidence justification enough to reject FTT? The on-going financial and economic crisis teaches a different lesson. Prior to the crisis markets were flooded with new products. The crisis brought to light that, instead of making the market more complete, many of the most innovative products simply channelled funds into opaque assets with hard to monitor risk. When this erroneous trend eventually became clear in 2007 the U.S. housing price bubble burst. In the aftermath of this shock, dramatic reductions in the prices of various other securities occurred.

Bubbles are a longer-term deviation of the actual price from the “right” price, that is, the price justified by fundamentals. Because of this failed pricing substantial amounts of risk were shifted from financial market participants onto taxpayers. Moreover, the explosion in trading volume is associated with increasingly shorter cycles of boom and bust in financial markets. Therefore, the fact that the current crisis came into existence speaks clearly against the paradigm of efficient price formation in highly liquid financial markets. If markets do not work efficiently anyway, one can hardly claim that financial transaction taxes would destroy efficient pricing.

The financial crisis has also shown that stability in the financial markets is a public good. Banks and other market participants can neither be excluded from using financial stability nor

is there rivalry in the “consumption” of the good as long as stability is there. Financial markets driven by self-interested parties tend to overuse financial stability and are unable to provide stability by themselves. Only the state can provide financial stability. Trading can be interpreted as using the public good “financial markets’ stability”. Against this background FTT is a mean to prevent over-usage and to contribute to the financing of the public good.

## **2 Financial and Real Economy are decoupling**

Since 2000 the volume of financial transactions has exploded. Two sources contributed to this development. First, financial innovation produced huge numbers of new products, which then flooded easily accessible financial markets. Second, turnover rates increased and holding periods for financial instruments decreased dramatically.

Currency trading is among the most active segments in financial markets. According to the Bank for International Settlements, average daily turnover in foreign exchange markets (spot and derivatives trading) of the 53 economically most important countries grew between 2007 and 2010 by about 20 per cent to \$4 trillion per day (Bank for International settlement 2010, King and Rime 2010).<sup>2</sup> The daily turnover amounts to about \$1,000 trillion of trading volume per year given that 250 trading days per year are assumed. This volume is more than 15 times the global domestic product of more than \$63 trillions.

In the current financial and economic crisis, the ratio of foreign exchange transactions to Gross Domestic Product did not decrease. This phenomenon stands in clear contrast to the situation at the beginning of the 21<sup>st</sup> century when the dot-com crisis unfolded. Remarkably, however, the volume of financial transactions in which customers outside the financial sector were involved declined. The decline suggests that during the crisis the demand for hedging of foreign trade activities rather decreased. The development of the ratio of foreign exchange transactions to foreign trade volume supports this hypothesis (see Figure 1b).

Figure 1 a and b (here)

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<sup>2</sup> The BIS survey (triennial survey) about average daily turnovers is collected every three years: 1998, 2001, 2004, 2007 and 2010. It is carried out in April and covers about 97 per cent of the total derivatives trading in the participating economies.

According to the Bank for International Settlements, the growth in Foreign Exchange (FX) trading in the three-year period between 2007 and 2010 came mainly from high-frequency traders, smaller banks trading as clients of the biggest FX dealers and retail investors trading online. The heavy investment of large banks in proprietary trading reinforced the trend to higher concentration in FX trading (King and Rime 2010).

Over the Counter (OTC) derivatives are another rapidly expanding market segment. OTC derivatives grew in 2011 to reach a two-digit multiple of the gross domestic product of the G10 plus Switzerland's GDP.<sup>3</sup> Since 2000, the outstanding notional value of OTC derivatives has increased sevenfold. In 2007 trading in derivatives at exchanges was 18-times higher than in 1990. After a short stagnation, the trading volume again grew substantially in 2011. A sharp reduction in transaction costs to about one tenth of the level of the 1980s (Matheson 2011), increasingly shorter holding periods and the huge amounts of new products are responsible for these developments. Derivative trading permits a much lower initial capital investment than trading in normal assets. However, derivatives are associated with high leverage. Therefore, liquidity and default risks increase when derivative trading expands.

Figure 2 a and b (here)

The financial transaction tax aims at reducing the number of transactions in order to bring financial market activity more in line with the level of activity in the real economy. The tax is charged if, and only if, trade in financial assets occurs. If trading activity is low, the amount of tax collected will also be low. The tax will unambiguously have a progressive impact since financial assets are held disproportionately often by the upper income classes.

### **3 Tax burden is high if, and only if, trade activity is high**

The base of the financial transaction tax is the nominal value of the traded security. According to the EU Commission (2011)'s proposal a tax rate of 0.1 per cent will be imposed on the buyer and the seller of the security. The rate for a trade in derivatives is 0.01 per cent of the value of the underlying asset for each contracting party. Because of this comparatively low tax rates, a high tax burden can only materialize with frequent trading. Consider, for example,

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<sup>3</sup> The ten are Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States.

a rather passive and a rather active fund manager. Let us assume an identical portfolio of 12 equity securities at a price of 100€ per asset. The fairly passive manager trades 25 per cent of the portfolio once a year while the active management sells the complete portfolio and buys a new one twice a year. Thus, the active manager shows an eight-fold higher trading activity. Accordingly, the passive manager owes the tax authorities only sixty cents (0.05 per cent of the value of the portfolio). In contrast, the burden for the highly active manager amounts to 4.8 Euro (0.4 per cent of total portfolio value).

The effect of turnover frequency on the tax burden becomes even clearer if we track the performance of a portfolio in which 100 Euro are invested every month over 40 years. The sales charge is assumed to be five per cent of the monthly savings. In addition, the managing fund would charge a management fee of 1.2 per cent of the portfolio value per year. Let the annual return of the portfolio be five per cent. The FTT of 0.1 per cent will be collected when the fund manager buys and also, when the manager sells securities. Therefore, a transaction with a value of 100 Euro (purchase and sale of shares) results in a tax of twenty cents.

Consider first the final value of the portfolio after 40 years if there would be neither initial charges, nor administrative costs or FTT. This benchmark value without any costs is slightly lower than 150,000 Euros (see Figure 3 a). If sales charge and annual administration are taken into account, the final value is reduced by more than 45,000 Euro. Let us now assume that the trading activity is high and the portfolio manager turns over the entire portfolio twice a year. In this case, the final tax burden adds up to around 10,000 Euro over 40 years. The gross amount of FTT-value after 40 years would even be higher. Fortunately, however, the taxation saves the investor parts of the administrative cost by dampening the value expansion of the portfolio. These saved costs are responsible for the lower net tax burden.

Figure 3 a and b (here)

The situation is different when the fund manager trades less often. Let us assume that only a quarter of the total portfolio will be replaced each year by new securities. In this case the final value of the tax after 40 years amounts to around 1400€ (Figure 3 b). The notional value of the tax paid over the years is even lower (around 800€) since the final value accounts for interest rate effects. The burden is thus only a small fraction of the fees that the fund charges. Accordingly the tax has only a tiny impact on the value path of the portfolio (Figure 3 a).



The lesson to learn from this example is the following. After implementation of FTT, savers for retirement should select the fund with the lowest total costs (sales charge plus management fee plus financial transaction tax). Intense competition would require fund providers to carry the burden of the FTT. That is, the tax would simply reduce the fund's fees. Fund providers would then have a vested interest to keep turnover rate small. Most likely, FTT will induce lower trading activity and extended holding periods within the fund industry.<sup>4</sup>

#### **4 FTT may contribute to crisis prevention**

Prior to financial crisis, special purpose vehicles (SPV) used to buy simple housing loans, tranch these loans and rate the tranches. The loans were the underlying assets for differently rated bonds that the SPV then issued, so-called mortgage backed securities (MBS). Another SPV would then buy certain tranches of MBS, apply the same technique, and transform MBS into another bond class, so-called Collateral Debt Obligation (CDO). In the next step CDOs would be used to underlay another bond issue called *CDOs squared* and finally these *CDOs squared* would back a bond issue called *CDO cubed*. Such derivative cascades were common before the outbreak of the US-subprime crisis. The cascade made the identification of the original borrower extremely difficult and, in the case of default, rendered an orderly credit restructuring impossible. The confusion about original borrowers and the complexity of securities contributed heavily to the rapid collapse of the CDO market after 2007 (Schäfer and Zimmermann 2009).

A cascade of new products derived from standard financial instruments multiplies trading activities. In a world with FTT, however, each step of the cascade would be subject to the tax and also the subsequent trade of the new instruments. The more derivatives financial institutions construct and trade the higher would be the tax burden in the system. Consequently, it can be expected that such or similar financial innovations would lose appeal with the introduction of a FTT.

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<sup>4</sup> In Great Britain the problem of overactive trading by institutional investors was recognized recently when the interim report of the Kay review of UK equity markets and long-term decision-making was published. The reports states, "short-termism in equity markets is likely to have its roots in the short-term investment horizon of many institutional shareholders. The investment strategy of a significant proportion of fund managers is oriented towards share trading rather than long-term company ownership." See Kay (2012).

Speculation with derivatives like naked short selling and credit default swaps also tends to grow explosively as the cost of entry into the market is very low for a large financial institute. In times of crisis the European stock exchange supervisory ESMA is allowed to temporarily ban naked short selling and trade in naked credit default swaps. But an FTT would permanently decrease the attractiveness of market entry with such instruments and thus dampen the overall activity of financial institutions in this segment.

A dampening effect of the FTT can be also expected in financial transactions that are made solely for regulatory reasons. For example, financial institutions with large balance sheet amounts but a too low capital basis may have an incentive to use Sale and Repurchase Agreements (REPOS) for window dressing. A REPO is a sale of an asset combined with a simultaneous repurchase agreement. This property makes it suitable for short-term outsourcing of balance sheet items. With the REPO the balance sheet looks smaller on a specific date as it actually is and the leverage ratio appears higher. Prior to bankruptcy the U.S. investment bank Lehman Brothers has taken advantage of REPO transactions on a regular basis to reduce their balance sheet. By 2015, when Basel III will require the publication of the leverage ratio and a shortfall in achieving the interim three-per cent threshold could result in a loss of trust, there will be an incentive for European banks too to carry out such operations. FTT makes such window dressing more expensive and therefore less attractive.

Another example of a regulatory-motivated and, from a stability point of view, undesirable activity is the outsourcing of assets into the shadow banking system, for example by establishing a formally independent special purpose vehicle or a hedge fund. If outsourcing occurs previously internal transactions become trading between independent units. FTT would punish outsourcing and reward internalizing transactions. This effect would contribute to combat the shadow banking system.

## **5 FTT curbs high frequency trading**

Up to the 70s of last century the holding period of U.S. stocks was about seven years on average. Then a radical shortening took place. In 2000, the average holding period was already less than two years. In 2007, it had fallen to only seven months. A similar development occurred in the United Kingdom. The average duration of equity holdings decreased from around 5 years in the mid-1960s to around 2 years in the 1980s and then to

just over a year by the turn of the century. By 2007, it had decreased to 7 ½ months (Haldane 2010).

High-frequency traders (HFT) are said to be responsible to a large extent for the recent acceleration of turnover rates and the increasingly shorter average holding periods of securities. HFT is a form of computerized automatic trading controlled by algorithms. The Chicago Federal Reserve Bank estimates that high frequency traders execute about 70 per cent of the US-Stock trading (Federal Reserve Bank of Chicago 2010). For Europe, the market share of HFT is estimated between 30 and 40 per cent (Schulmeister 2011).

The trading strategies are manifold. Often high frequency traders simply jump on observed trading patterns. Therefore regulators have a suspicion that HFT is strengthening negative herding behaviour and is contributing to the formation of bubbles in the financial markets.<sup>5</sup> Other automatic trading programs allow for “cream skimming” by analysing incoming buy and sell orders in a fraction of a second and then immediately place orders that exploit the observed price patterns. For example, imagine that a pension fund places a limit order for purchasing a large amount of one particular stock. When the HFT-computer has detected the limit price the program accepts all incoming selling orders below that price and hands it for the limit price over to the pension fund. By holding the demanded shares only a tiny fraction of a second the HFT is able to “skim the cream”.

Historically exchanges made this form of arbitrage even easier by allowing high-frequency traders to front-run other market participants and gain insight into orders before everyone else could see it (flash trading). HFT systems sometimes also fake orders to find out what price other dealers are ready to pay. Many of these tentative orders are cancelled again immediately after having been placed. It is estimated that between 80 and 90 per cent of orders in high-frequency trading are cancelled. If the trading partners’ willingness to pay is known, the maximum possible surplus can be acquired. Although the profit from one transaction may be extremely small, the possibility to execute thousands of such transactions within a fraction of a second facilitates the generation of huge surpluses at the expense of other market participants, like pension funds.

Tiny gains per transaction unit make high-frequency trading sensitive to an increase in transaction costs. Therefore, a FTT will presumably make trading volume fall. The proposal

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<sup>5</sup> [www.zerohedge.com/article/scientific-proof-high-frequency-trading-induces-adverse-changes-market-microstructure-and-dy](http://www.zerohedge.com/article/scientific-proof-high-frequency-trading-induces-adverse-changes-market-microstructure-and-dy) .

by the European Commission provides even for an FTT on transactions that are later cancelled or corrected. In the US, the Securities and Exchange Commission (SEC) plans a comparable action. Among other options, SEC considers to curb high-frequency traders' big influence on stock trading by charging fees for the huge number of buy and sell orders that are later cancelled (Wall Street Journal 2012).

## **6 Financial transaction taxes are nothing unusual**

Currently more than a dozen nations have some sort of a financial transaction tax. Even the British Treasury charges a Stamp Duty Tax. In the Eurozone, Finland, Greece and Italy, for example, collect taxes for some transactions on exchanges. However, the United States will object to such a tax and Great Britain will most likely also refuse to accept the EU proposal (EU Commission 2011). Thus, to date, there is no chance that FTT will be adopted worldwide. This fact raises the problem of tax avoidance by geographic relocation.

Until now, the possibility of tax evasion is still the most popular argument against implementation of an FTT. However, experience with the stock transfer tax in Sweden on the one hand and the British Stamp Duty Tax, on the other, shows that the risk of tax evasion depends heavily on how FTT is designed.

### ***The source principle of the Stamp Duty Tax in the UK ...***

The revenue from Stamp Duty Tax amounts to four billion Euros per year. 90 per cent of the revenue comes from the British Stamp Duty Reserve Tax, which covers electronic trade (EU Commission 2010). The tax is due when a security issued in the UK is traded. The tax rate is 0.5 per cent of the market price of the security. The rate is about twice as much as the average cost of transaction in UK and is fairly high also compared to the 0.2 per cent in the EU Commission (2011)'s proposal. Derivatives are not subject to the tax. The tax does not apply to shares of companies, which are listed on stock exchanges in Great Britain, but have their headquarters abroad. Additionally, there are a number of exemptions. For example, transactions of brokers who buy shares for the purpose of providing liquidity in the market are exempt from the tax. According to estimates, only 20 per cent of trading on the London Stock Exchange is covered by the tax (Matheson 2011).

A central feature of the British stamp duty tax prevents a substantial geographical shift of trading activity. The tax follows the source principle. That is, it applies to trading in securities of companies that have their seat in Great Britain, or whose parent company is based in the UK, regardless of whether those shares are bought or sold in London, Frankfurt,

Paris or New York. Settlement is efficiently done by CREST, a central securities depository for the UK. Since 2002, CREST is part of Euroclear group in which over 2000 financial institutions from more than 90 countries are members.<sup>6</sup> The tax is collected automatically by CREST when the security is traded. Tax evasion does not seem to be a noticeable problem. This observation contradicts the repeatedly expressed concern that an isolated introduction of FTT in the Eurozone or in a single country is unenforceable.

*... versus exchange residence principle in Sweden*

Sweden introduced 1984 a tax of 0.5 per cent on the purchase or sale of securities. The Swedish tax authorities levied all transactions that were executed at home. Because of its binding on trading on domestic exchanges, the tax was relatively easy to avoid. Traders had only to move their activities to foreign exchanges. Accordingly, immediately after introduction the tax, revenue began to fall. By 1990 about 50 per cent of the trading at Swedish exchanges had moved to the UK. In 1991, in the midst of the Nordic financial crisis, the Swedish government abolished the tax. With the ebbing of the financial crisis, trade volume in Sweden grew significantly.

*EU Commission's directive: residence principle for buyer and seller*

The Directive of the European Commission proposes the home country principle to keep tax evasion to a minimum. Each transaction is taxed in which either the buyer or the seller has its residence within the region where the law applies. If one contracting party is based outside the tax zone, the party inside will be held jointly liable. In case the external contractor is unwilling to pay his/her share, the tax burden for the insider will double. Both contracting parties would have to move into a region where the law is not valid if they want to circumvent the FTT.

The reason behind the burden sharing between buyer and seller is the distribution of revenues proportionally if contractors are from different countries. Imposing 0.1 per cent of the price of the security on each side avoids the immediate transfer of tax revenues to either the home country of the buyer (if the home country of the seller would collect the complete tax) or the seller (if the home country of the buyer would collect it all).

In many of the transactions that are subject to taxation according to the EU directive (for example, derivative trading and securitization) large international banks are buyers and sellers. Such banks could set up easily subsidiaries in countries outside the law and let these

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<sup>6</sup> [www.euroclear.com](http://www.euroclear.com) .

subsidiaries perform the trading for it. To address this problem, the tax liability should be linked to the residence of the parent company. Most likely financial innovations will also be employed for circumventing FTT. However, tax-induced financial innovation is likely to play only a minor role, if any new product would be taxed unless the innovator could prove that the product does not fall under the law.

## **7 Transaction tax under the EU proposal is preferable to the British stamp duty tax**

The European Commission proposes that trading in financial instruments including that in derivatives and structured bonds are subject to taxation. Cancelled buy and sell orders will also be taxed. Transactions in the primary market, such as the purchase and sale of shares by individuals will be exempt, as well as lending and borrowing activities of households and enterprises, and transactions of banks with the ECB.

The intention behind these exceptions is to ensure that funding of business transactions and investment activity as well as financing of private households is not adversely affected by the tax. This is justified as the tax's objective is primarily to curb trading activity between financial institutions. However, the exclusion of non-derivative foreign exchange trading deserves criticism. The strong expansion in recent years and the decoupling of foreign exchange transactions and foreign trade (Figure 1b) suggest that governments should have an instrument that allows influencing trading activity in this area. Despite these exceptions, the approach of the EU Commission is much broader than the UK stamp duty, which applies basically only to corporate shares and bonds. Consequently, the EU directive increases the probability of capturing the true drivers of exploding trading volumes in recent decades, and to curb destabilising market activities such as regulatory arbitrage, flash trading, overactive portfolio management and all kinds of highly leveraged and purely speculative trading.

## **8 Central depository systems counteract tax avoidance**

Most of the existing financial transaction taxes apply to securities that are traded on official exchanges. However, the bulk of trading in financial markets is over-the-counter (OTC). This shadow trade lacks transparency, similar to shadow banks. Contract terms and prices are usually private knowledge of the contracting parties. Accordingly, an FTT could be difficult to enforce in the OTC segment. However, central clearinghouses and a general registration requirement for the OTC transactions will increase transparency, and thus improve the basis for tax collection. The settlement of the British stamp duty tax within CREST has already

proven that central depository systems allow effective tax collection. The “Dodd-Frank Wall Street Reform and Consumer Protection Act“ includes extensive clearing and reporting requirements for OTC derivatives. In the EU, there are plans for standardization of derivatives and OTC transactions and for processing it through a central counterparty. Governments could also consider imposing a higher tax rate on OTC trading to create an incentive for the use of central clearing and depository systems.

## 9 Conclusion

The duration and severity of the financial crisis and, in particular, its dramatic resurgence in 2011 shows that self-interested parties in financial markets tend to overuse the public good financial stability. This fact justifies testing new tools that promise improvement of the situation and complement the regulatory steps undertaken in recent years. The introduction of an FTT, as proposed by the EU Commission, will increase transaction costs and offers the prospect of slowing down the mutually reinforcing and strengthening trend of more and more derivative products and shorter holding periods. It can therefore make an important contribution to stop the decoupling of financial markets from the real economy. Moreover, with the FTT, policy maker gain an additional instrument for governing financial markets that is complementary to regulating financial markets but easier to adjust.

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**Appendix**

Figure 1a

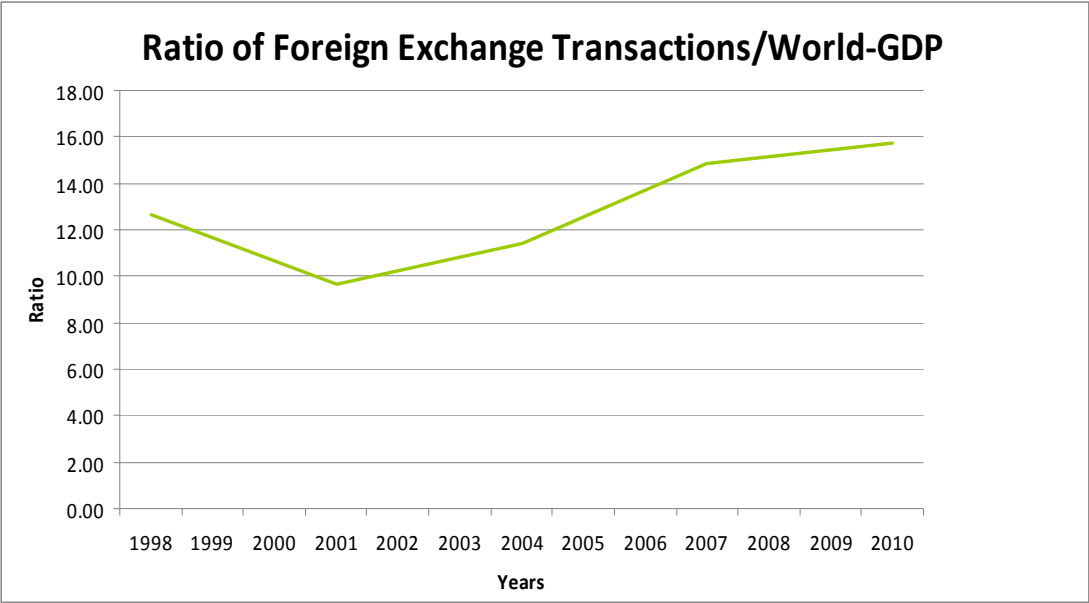
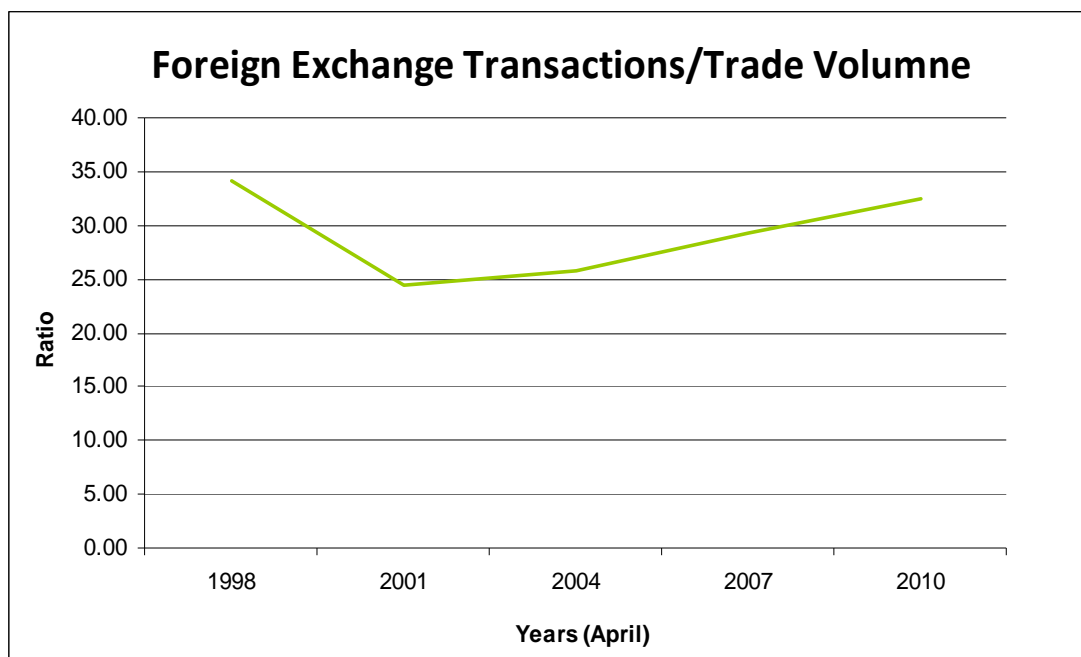




Figure 1b



Source: Bank for International Settlements (BIS), World Bank, WHO, own calculations

Figure 2a

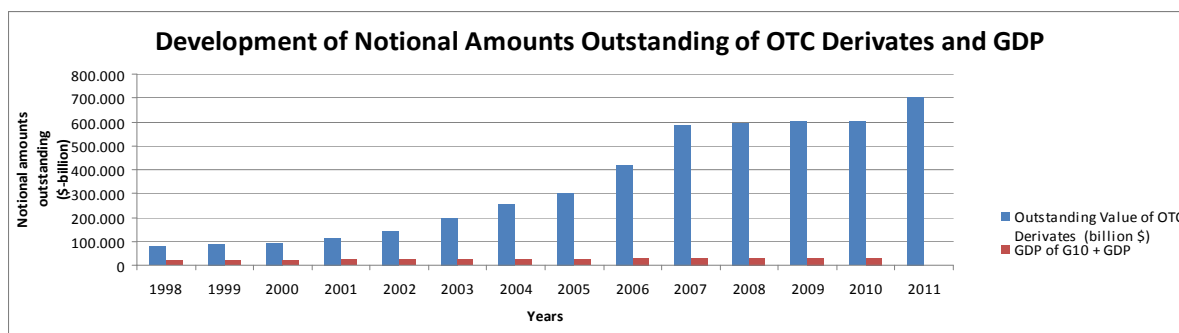
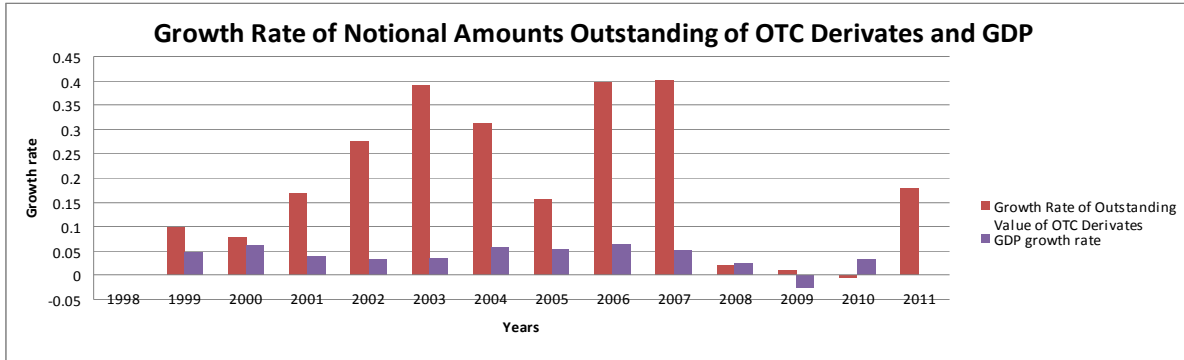


Figure 2b



Source: Bank for International Settlements (BIS), OECD, own calculations

Figure 3a

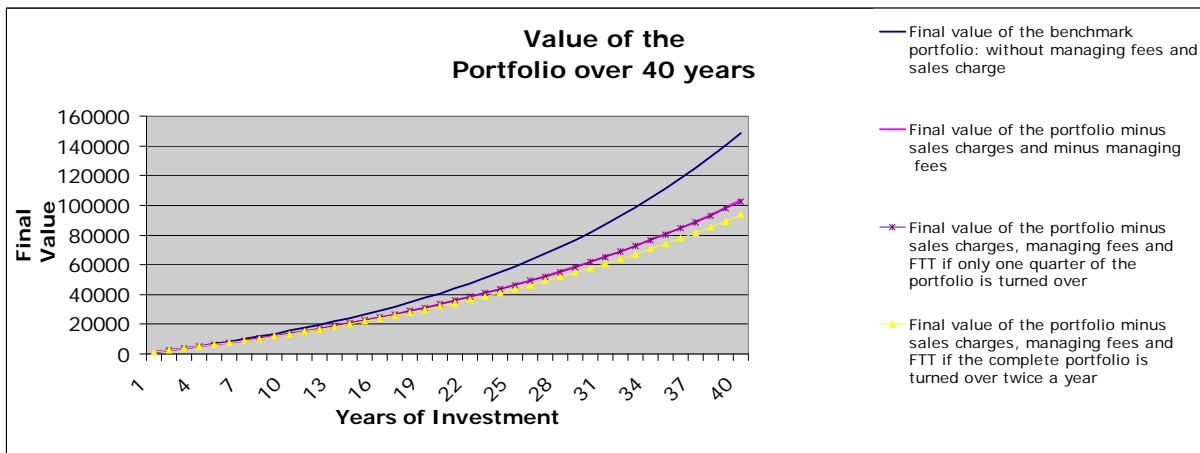
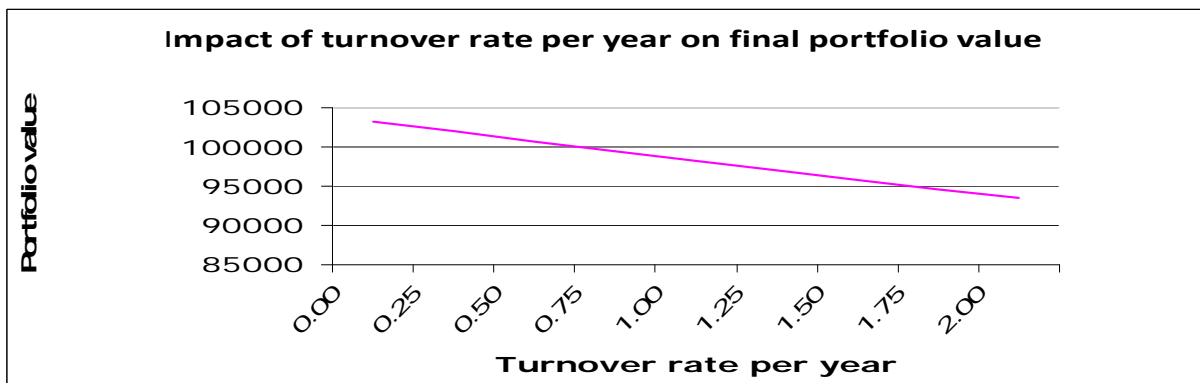


Figure 3b



Source: Own calculations