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An E.U. financial transaction tax and the unintended consequences for risk management

The Journal of Financial Perspectives

EY Global Financial Services Institute

July 2014 | Volume 2 – Issue 2

EY

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Editorial

Executive summary

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Abstract

In the aftermath of the subprime crisis in the U.S. and the sovereign debt crisis in Europe, the opportunity for establishing a financial transaction tax (FTT) has become a topic of debate in the European Union. In this article, we survey the literature dealing with the possible theoretical and empirical implications of such a tax on market volatility. We then turn to the possible — and unintended — consequences of an FTT on savers and investors. We conclude that these consequences might outweigh the benefits of the FTT. More specifically, we find that an FTT is unlikely to meet its stated volatility control and revenue raising objectives, i.e., an FTT is unlikely to decrease volatility, and indeed, volatility might increase as markets became less liquid. It might raise very little revenue and could work to create more risk and deter long term investment.

And then there are serious unintended side effects to consider. Most importantly, for the financial security and safety of the whole financial system, an FTT might heavily penalize pension funds, as well as the banks in their liquidity management and risk management activities, to the detriment of a well-functioning financial system.

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1. Introduction

The merits of a financial transaction tax (FTT) have remained in the news as the E.U. debates proposals for such a tax. Interest during the last few years in an FTT for Europe appears partly motivated by the European sovereign debt crisis and the fiscal austerity that followed. Many political leaders, who were both upset by the market volatility and in need of finding new sources of revenue, found "speculators" in the financial markets to be suitable villains to blame.

This review of the issues and challenges associated with an FTT suggests among other things that:

- An FTT is not likely to decrease volatility, and indeed, volatility might increase as markets became less liquid.
- An FTT might raise very little revenue.
- An FTT could work to create more risk and deter long term investment.
- An FTT might heavily penalize pension funds, as well as the banks in their liquidity management and risk management activities, to the detriment of a well-functioning financial system.

The idea of this kind of tax had already been floated by John Maynard Keynes during the "Great Recession" [see Keynes (1936)] and was resurrected by James Tobin in his 1972 Janeway Lectures at Princeton. The future Nobel prize-winner economist suggested then it might be wise to introduce a tax on currency transactions in order to reduce the volatility that was surging after the demise of the Bretton Woods. Besides "throwing sand in the wheels of speculation" [Eichengreen et al. (1995)], such a tax, claimed Tobin, would increase social welfare as "vast resources of intelligence and enterprise are wasted in financial speculation, essentially playing zero-sum games" [Tobin (1991)].

Although economists' DNA is programed to be hostile to transaction taxes (since these lead to inefficiencies in the allocation of resources), many economists agreed with Tobin. For instance, Summers and Summers (1990) claim that a financial transactions tax could eliminate "wasteful trading "and "excessive financial engineering" and Greenwald and Stiglitz (1986) show that an FTT could be welfare-improving (in the Pareto sense) if markets are incomplete or if the information is imperfect.

Most proponents of FTT also agree that the tax should apply not only to spot transactions but also to derivative contracts, since these are close substitutes to spot positions taken in the underlying asset.

Not everyone agreed, however, with Keynes and Tobin. For instance, Friedman (1953) objected to the Keynes argument by saying that speculation could not be destabilizing in general since, if it were, speculators would, on average, lose money. Indeed, he claims: "People who argue that speculation is generally destabilizing seldom realize that this is equivalent to saying that speculators lose money, since speculation can be destabilizing in general only if speculators on the average sell when the currency is low in price and buy when it is high."

Other critics pointed out that although it might be deemed fair to tax "excessive" speculation, it is however practically impossible to distinguish speculators from "ordinary" portfolio managers and even relatively active commercial risk managers. As such, taxation would be blindly applied to all and hence lead to inefficiencies in the allocation of resources as well as to the potential for considerable unfairness against different types of hedgers, risk managers, and portfolio managers.

In this paper, and after examining the basic concepts and tenants in the European proposal as it stood in the summer of 2013, we briefly review the theoretical and empirical (respectively in section 3 and 4) literature surrounding the FTT, focusing essentially on the capacity of taxation to curb volatility and deter speculators from engaging in "wild" trading.

In section 5 we examine what could be the consequences of an FTT, expected and unintended, on some financial practices, such as asset management and risk management.

2. The scope of the European debate

The FTT debate continues to evolve. Over 2012, 2013, and into 2014, 11 member countries of the E.U. have engaged in a vigorous discussion aimed at applying a consistent and uniform FTT across France, Germany, Belgium, Spain, Italy, Portugal, Estonia, Austria, Greece, Slovakia and Slovenia.

Other countriesare either opposed to the measure (most notably the U.K. and Sweden) or have uncertainties about their position (Luxemburg and the Netherland, for instance).

While the breadth of the debate may have narrowed a little as political compromises have been discussed, the original scope of the debate [European Union (2013)] was quite large "covering transactions relating to all types of financial instruments as they are often close substitutes for each other."

Moreover, part of the desire was to apply an FTT to all transactions as long as at least one party to the transaction was established in the territory of a participating member state, irrespective of whether it is acting on its own account or on behalf of another entity. Under such a broad international reach, any of the following transactions would be subject to the tax: (a) the purchase and/or sale of a financial instrument before netting and settlement; (b) the transfer between entities of a group of the right to dispose of a financial instrument as owner or any operation implying the transfer of the risk associated with the financial ins trument; (c) the origination (or modification) of derivative products; (d) repos, reverse repos and securities lending operations; and (e) any exchange of financial instruments.

The initial E.U. Directive would not apply to certain activities, mainly: (a) primary market transactions (underwriting), (b) transactions with central banks of member states and the ECB, (c) transactions with the European Union, the European Investment Banks, the European Financial Stability Facility and the European Financial Mechanism, as well as certain other international organizations. Retail activities, such as mortgages, loans and consumer credits would remain outside the scope of the FTT. Ironically, when one refers to the original idea aired by James Tobin, the E.U. version of an FTT would not apply to currency transactions on the spot market (but derivatives on currencies would be subject to taxation).

While determining whether a financial institution is considered to be established in the territory of a participating member state required that a number of conditions were met, it essentially boiled down to whether the institution had been authorized by the authorities of a member state to act as such in respect to transactions covered by the Directive.

This included the existence of a registered office or a branch. It also included transaction where the institution is a party, in its own name or in the name of a third party, to a financial transaction with a counterparty established in a member state (residency principle) or in one of the financial instruments covered by the Directive (issuance principle).

The initial E.U. Directive defined financial institutions as investment firms, regulated markets, credit institutions, insurance and reinsurance undertakings, UCITS, pension funds, alternative investment funds and securitization special purpose vehicles. It did, however, exclude from its scope central counterparties, central securities depositaries and the member states themselves.

During the discussions, it was also suggested that member states should be allowed to set their own tax rates, but that it could not be lower than 0.1% for all transaction except derivative contracts, which would be taxed at a minimum rate of 0.01%. And, adding a bit complexity for less liquid securities, the tax rate would be the fair (market) value of the transaction, or the notional amount if the transaction is a derivative contract.

Several European countries have (or have had) some experience with different forms of FTT. For instance, the U.K., Belgium and Switzerland impose a stamp duty on equity transactions. Sweden had imposed a fully-fledged FTT (with a very high rate) in 1983 but abandoned the scheme in 1991 after most of the financial transactions had fled the country.

At any given time, the actual proposals would embrace the narrower constructs to achieve a compromise agreeable to all 11 countries participating in the discussions. But the political winds can, and do, shift, as so does the economic environment. And, as long as political populism perceives financial institutions as easy targets on which to blame market volatility, the likelihood of an E.U. FTT being adopted cannot be dismissed.

3. The theoretical impact of a FTT on volatility

The FTT has been thoroughly studied over the years. These studies have adopted different approaches, such as the tax being viewed as a surrogate taxation of capital income [Grandcolas (1986)], as a means of improving the efficiency of the financial

sector [Summers and Summers (1990)] or to eliminate the distortions against fixed capital formation [Tornell (1990)]. More recent studies [Lo (2009)] have focused on potential reforms following the financial crisis of 2007–08.

We shall narrow our focus here to only those studies that look at the impact of an FTT on volatility and liquidity and later examine the possible implications for risk management practices.

The classical financial literature can hardly explain excess liquidity or volatility since it assumes agents' rationality and efficient markets, which together lead to stable equilibrium. Consequently, and not surprisingly, to examine the impact of an FTT, most authors start with the assumption that some agents are irrational. These "noise" traders can be assimilated to "chartists" or plain retail investors who act irrationally or use irrelevant information to build their portfolios. Rational, or fundamentalist, traders try to arbitrage against such agents but cannot do so in a very efficient way as they are uncertain of the noisy traders' reactions.

In most of these models, the volatility of the market is driven by the ratio of noisy traders to rational agents and the degree to which the former are irrational.[2] In this context, some economists have tried to study how a transaction tax would affect the volatility of financial markets, and their findings, as we shall see in the brief review of the literature that follows, are rather inconclusive.

Hau (1998) developed one of the first such models, in which he considered a market where agents formed heterogeneous expectations. The introduction of an extra trader increases the depth and liquidity of the market but also adds noise and trading risk. In the absence of a tax, the equilibrium in this market is characterized by excessive market entry and "highly" volatile prices. The introduction of a tax would result in a reduction in both trading activity and price volatility.

[2] See Dow and Gordon (2006) for a review of the literature on noisy traders and Shleifer (2000) for an introduction to the theory of inefficient markets

Haberer (2004) looks at how a transaction tax would fare in a market where efficiency is measured as the market's capacity to absorb new information. In an inefficient market (i.e., one in which some traders form their expectations using "wrong" techniques), Haberer shows that at low levels of trading, increased liquidity reduces volatility, but that as trading picks up the uncertainty due to increasing speculation causes more volatility. Introducing a tax in such a market would increase volatility if trading was thin but would curb it once volumes increase, as it would reduce the incentive for speculative trading.

Shi and Xu (2009) look at a model where a transaction tax could change the proportion of noisy-to-rational traders on a market characterized by entry costs. In their model, the rational agents' expectation formation depends on the number of noisy traders. They show that in such a context three equilibria may arise. If the number of noisy and informed (rational) traders were the same, then the introduction of a tax would have no impact on volatility. On the other hand, if the ratio of noisy to rational agents is not equal to one, then the increased entry cost (due to the tax) will discourage rational agents from trading, which would cause volatility to increase as the proportion of noisy traders would increase. The third equilibrium would occur if the entry cost would be so high that it would discourage noisy traders from entering the market. In that case, levying a tax would have no effect on volatility.

Some economists also looked as to how the microstructure of the market could influence the effectiveness of an FTT. For instance, Pellizzari and Westerhoff (2009) show that in markets characterized by continuous double auction (which is the most common method used by modern markets to fix transaction prices) levying a tax would have positive, though small, impact on volatility, since it would reduce liquidity and hence increase the impact of an order on price variation. However, in a market operated by dealers and in which they are the providers of liquidity, a tax could decrease volatility by discouraging noisy trading.

The impact of an FTT has also been studied in the context of so-called zero-intelligence (ZI) models. This approach models individual agents who behave without strategy within a specific market mechanism so that the impact of the market characteristics might be isolated. By assuming that individuals behave randomly, the market mechanism can be observed independently of agent's specific strategies. As such, it is then possible to distinguish the driving forces of market mechanism from the agents' strategies. Using the ZI technique, Farmer et al. (2005) show that a given market may exhibit larger volatility if the ratio of market orders to limit orders increases. They explain this result by the fact that traders passing orders at market prices demand more liquidity than limit-order agents. If the ratio of market to limit orders increases the liquidity on the market will decrease, bringing about an increase in volatility.

Building on findings of Farmer et al., Ehrenstein et al. (2005) evaluate, within a ZI model, the impact of a Tobin tax on volatility and conclude that that it results in a decrease in volatility as long as the tax rate is not "too" high and does not significantly affect liquidity.

Their results are, however, contested by Mannaro et al. (2008), who find that if the tax is levied on a single market at a rate of less than 0.5%, volatility should increase if some noise traders are present in the market. They also conclude that if the traders can switch to another market, the taxed market would become more volatile than the untaxed one as the tax will reduce liquidity.

While necessarily incomplete, this brief sampling of the research on the theoretical impact of an FTT on market volatility demonstrates the lack of agreement within the economics profession. While a majority of models tend to suggest that such a tax would reduce market volatility, many others contend the contrary. Since the consensus among economist today is to say that many different heterogeneous agents coexist in the markets, or that many agents change their strategies through time (passing from rational behavior to noisy trading and vice-versa), it is to be feared that many of these models also coexist at the same time in financial markets. Consequently, we can only say that the economic literature is inconclusive as to the impact of an FTT on market volatility. Moreover, the studies that do suggest that an FTT might reduce volatility typically rely on a very unappealing set of critical assumptions, such as irrational traders willing to lose money consistently or noisy traders with no strategies and random processes, etc.

4. Empirical evidence

Empirical studies about the FTT have mainly three concerns. First, does such a tax affect volatility? Second, does it affect trading volume? And thirdly, does it have an impact on the price of securities themselves?

These studies, however, face at least three hurdles. First, while there are cases of FTT which have been observed in the past, it might be difficult to infer robust results from these very different cases, often with missing or incomplete data. Since such a tax would amount to an increase in transaction costs, however, one can look at the impact of transaction costs on volatility and liquidity to surmise how an FTT would fare in a financial market.

Second, it might be quite difficult to split transaction volumes into their "fundamental" and "noisy" components. As a consequence, it is practically impossible to determine how each of these components is affected by the tax.

The third problem concerns the ways prices are affected by the tax, since these prices will also be influenced by the way traders will react to the tax. Will they trade in assets that are close substitutes but that are not covered by the tax? How will they react to the drop in liquidity that should follow the FTT? etc..

It needs to be realized, therefore, that empirical studies will only shed partial and incomplete light on the problem. Most of the literature devoted to the analysis of transaction costs on trading report a positive correlation between the costs and volatility. Those studies mostly concern transaction costs on equity markets. Mulherin (1990) examines the evolution of transaction costs on the NYSE between 1897 and 1987 and concludes that if the imposition of a transaction tax does result in reduce trading, it will not mitigate volatility.

Jones and Seguin (1997) corroborate his findings, as do Atkins and Dyl (1997), who find that a tax would prevent stock prices from adjusting to new information instead of reducing short-term speculation. Liu and Zhu (2009) reach the same conclusion for the Japanese equity markets.

Aliber et al. (2003) examine how foreign exchange markets are affected by transaction costs for four currencies (D-Mark, GB pound, Yen and Swiss Franc) over the period 1977 to 1997. They found that, although transaction costs are quite small, an increase of 2bp in these costs leads to an increase of 0.5% in volatility.

We now turn our attention to articles studying equity returns in those countries that have imposed equity taxes. Umlauf (1993) studied the Swedish markets during the period 1980–87, which is before and after the imposition of a brokerage tax, and finds no sign of a decrease in volatility after the introduction of the tax. Saporta and Kan (1997) examine the impact of the U.K.'s stamp duty on volatility of stock prices and find no correlation there either. Hu (1998) examines the effects of transaction taxes on volatility in Japan, Hong-Kong, South Korea and Taiwan between 1975 and 1994 and does not find a statistically significant impact.

Looking at the impact of the tax on trading volumes, Umlauf (1993) reports that when the rate of the FTT in Sweden was increased from 1% to 2% in 1986, 60% of all the trading volume of the most actively traded Swedish stocks migrated abroad (mostly to London). Hu (1998), on the other hand, finds that in the 14 cases of tax changes in the Asian markets he examined, turnover was hardly affected by the change.

Finally, and with regards to the impact of the taxes on prices, Umlauf (1993) reports a drop of 2.2% on the day a 1% tax was introduced and a 0.8% drop when the tax was raised to 2%. Hu (1998) reports a drop of 0.6% in Hong-Kong and of 1.6% in Taiwan on the announcement date of the tax. Saporta and Kan (1997) find that on the day the U.K. stamp duty was increased from 1% to 2%, the market dropped by 3.3%. There is no mention of whether those price falls were compensated once the tax had come into effect and became part of business as usual.

From this brief review of the empirical evidence of the implications of an FTT, we find that the results concerning trading volumes and price levels are mixed and probably incomplete. A more important message from the empirical research is how little volatility seems to be affected by the introduction of a transaction tax. While typically left beyond the scope of these research studies, one may contemplate that market participants are essentially

attempting to manage the natural and manmade risks that arise from the interplay of the fundamentals of supply and demand as they react to changes in government policies and regulations. Hence, the view might be taken that the source of market volatility is only partly related to the mechanics of the marketplace.

5. (Unintended) consequences of an FTT

An FTT will have many consequences in terms of public finances, of income distribution (who will eventually pay the tax) and on the cost of capital. We shall focus here on the probable implications on some lines of financial activities, namely UCITS (and pension funds), risk management and liquidity management.

Before commenting on the impact of the FTT on these lines of activities, however, one should bear in mind that the nominal rate of the tax may not give an accurate indication of how much tax will eventually be paid. Indeed, as was noted in a publication from Clifford Chance (2011), the financial system is so complex nowadays that cascade effects will multiply the impact of the FTT. As will be demonstrated below, the sale of a security puts into motion a whole series of events involving numerous participants in the financial markets, the result of which might be that the tax may have to be paid at different stages of the process even if only one "effective" transaction was initiated.

Imagine that a pension fund wishes to sell a derivative through a regulated exchange. It will address itself through a broker, who in turn will execute the order and settle the transaction with the clearinghouse. Note that the central counterparty (CCP) is exempted from paying the tax. The buyer counterparty will in turn use the services of a broker, an exchange and a clearinghouse. All in all, the FTT may have to be paid as many as five times. This cascade effect may very well induce transactions to move away from regulated markets and back to the OTC markets, thereby increasing credit and settlement risk.

The FTT may, therefore, very well disincentive the use of CCPs, especially for derivative clearing, and as a consequence decrease the protection offered by regulated markets. Turning now to the impact of the FTT on asset management, the cost of the tax would depend on the turnover ratio of the UCIT (i.e., how fast the assets under management are replaced on average with other holdings in a given year). A recent study by EFAMA (2013)

tends to show that the average turnover of long-term investment UCITS (i.e., excluding money-market funds (MMFs)) is 0.9 and about 6.5 for MMFs.

MMFs would thus be severely hit by the FTT, since their clients use those funds on a continuous basis to invest and disinvest their cash. It appears that the average holding period of short-term MMFs is less than 60 days. This short holding period implies a high turnover of the assets, as a result of which the tax will have to be paid several times a year.

MMFs will be practically be doomed if the FTT were to be introduced, since the FTT would on average amount to 65bp per year. In the current low-rate environment, one should expect this industry to disappear if the FTT came into effect.

Also, note that many equity funds that are based on quantitative algorithms have a much higher ratio than 0.9, as they try to profit from small inefficiencies in the markets. One can only suppose that such funds will struggle to survive an FTT.

Many fixed-income funds make extensive use of derivative instruments either to manage their duration or to hedge credit exposures. Under an FTT scheme, these practices will be penalized and the return to the client will decrease.

One should also take into account the indirect effects of FTT, essentially an increase in spreads (see section 3 above). On top of this increase, one should also assume that stock and bond lending would probably become unprofitable, resulting in lower returns for the final investor. Indeed, levying the FTT on security lending will start a cascade effect, as the lending is most often followed by an onward sale of the borrowed securities. Once the borrower sells to another investor it will result in a double taxation, both on the sale and repurchase of the asset and then again when the borrower repurchases the securities in the market to meet their obligations toward the lender.

In view of these different impacts, one can expect that for a long-term investor, such as a pension fund, the expected costs — indirect and indirect — of the FTT would be in the range

of around 25bp, which once capitalized over 30 years would amount to afinal loss of about 7.7% .

Liquidity management will also become more expensive if FTT was levied. Indeed banks' liquidity management relies heavily on repo transactions. A repo is a secured lending/ deposit operation that allows the borrower to benefit from a low interest rate because of the collateral provided to the lender. The European Directive, in its proposed form, classifies a repo as a standard sale and repurchase of a bond, meaning that the tax would be levied twice.

This feature of FTT is completely at odds with the current — and recent — banking regulation that requires banks to hold more liquid assets or assets of such quality that they can be eligible for a repo operation. The adverse effect on liquidity will impact not only banks but also corporates that rely on banks for their own liquidity. The tax could, therefore, prevent corporates from efficiently accessing financial markets and funding, and the problem would probably be even more acute for SME's.

Turning now to the impact of the FTT on risk management in banks, it should be noted that the tax may dissuade banks from certain hedging activities as these may become too expensive. As such, the FTT will increase systemic risk in the financial sector. Let us look at a few examples of hedging activities that may become too expensive to carry out.

Certainly, all short-term activities will become heavily penalized since they have to be renewed frequently. Examples of such operations are FX swaps hedging money market operations whose maturity ranges from a few weeks to three months, leading to paying the tax at least four times a year and probably much more than that.

The same also holds true for forward rate agreements (FRAs), whose short leg usually has a maturity of a few weeks. Once again, the FTT will have to be paid several times a year. In the present extremely low interest rate environment, the cost of these hedges may become relatively quite expensive.

Even in the realm of risk management, hedging of plain vanilla instruments, such as a bond or a bond portfolio, may become very expensive. As we have seen, once a transaction is carried out on a regulated exchange or a CCP platform the number of operations increases with the number of intermediaries. So that, for instance, if a financial institution wants to buy an option to hedge itself against adverse movements in interest rates, it will have to follow the whole chain discussed above. If, on top of this, the cost of the option is to be paid with a repo operation, a risk manager may think twice before starting the operation or chose a less costly (and less efficient) hedging strategy.

All in all, if the tax applies to all types of operations and/or is high, banks will think twice before initiating some hedging activities. This could result in less hedging or in a less efficient hedging strategy. Taxing hedging operations goes clearly against the spirit of the current banking regulatory environment that aims to decrease the risk of financial institutions.

Finally, let us remark that the Basel regulations force banks to carry more capital if their operations are riskier. Banks will then have the choice to either take on more risk, because hedging becomes more expensive, and thus hold more capital or hedge at a higher cost with the same level of capital, and hence decrease their return on equity. Caught between a rock and a hard place, banks may very well choose to pass the entire burden of the tax to their clients, which is very far from the FTT's aim.

6. Conclusions

We have seen that the theoretical literature dealing with the Tobin tax does not yield a clear-cut view on whether levying such a tax will decrease volatility and speculative activities. Researchers that are willing to make critical assumptions about the irrationality of certain market participants are able to find the potential for some reduction in volatility. By contrast, many models founded on certain realistic conditions tend to suggest that the FTT could very well increase volatility.

Empirically, it appears that few attempts to impose a Tobin-like tax were successful. At best, a duty-stamp has been levied on equity trading for some time in many countries and does not seem to have stemmed speculation.

More confusingly, the tax could create more risk and deter long-term investment. We have mentioned that the tax, at least in its proposed form, would heavily penalize pension funds, a quite unacceptable result in western societies that have to cope with aging populations.

Banks will also be penalized in their liquidity management, as well as in their risk management activities. This puts them at odds with the current banking regulation that forces banks to hold a larger cushion of liquid assets and favors better risk management practices and a lower risk profile.

We may conclude that while many may have some sympathy for the Tobin tax, particularly governments in need of new revenue source, one should not ignore the side effects of an FTT. Governments should recognize that the direct, and especially the unintended indirect costs, may very well exceed any real benefits. Risk management practices may be altered in a way that is detrimental to the overall safety and security of the financial system. Moreover, any benefits are highly likely to be overestimated once market participants are faced with the reality of the tax and begin to alter their behavior in response to the new cost structure. The real question, therefore, may become whether an FTT is the best instrument to fight destabilizing and "excessive" speculation. And, that is assuming we can in fact define and measure "excessive" speculation in the first place.

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ISSN 2049-8640