



Written Testimony for hearing on Financial Transaction Taxes at the German Bundestag 17th May 2010

FTTs: Prudential, Regulatory, Information and Fiscal Tools of the Future

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Key Points in the Testimony

Financial Transaction Taxes need to be looked at not as a single flat rate of tax but as a highly flexible set of policy tools comprising variable taxes that can help fulfil several regulatory objectives, improve the functioning of financial markets, and raise substantial fiscal revenues in a highly progressive way.

Furthermore, FTTs are cheap and easy to implement and have become even more so with pending regulatory changes such as centralized clearing for derivatives. They can be implemented unilaterally at the level of each country, within the Euro zone or the EU. Moreover, they are difficult to avoid and are a natural complement to bank levies, given that they tackle different aspects of financial market dysfunction. As such, a financial transaction tax regime can be used to:

- Generate transaction level information and audit trails to facilitate regulation and reduce tax evasion and tax avoidance
- Improve regulation as a macro-prudential tool where rates can be increased for market segments that show signs of overheating
- Minimise the systemic threat posed by high frequency trading
- Improve financial market functioning by reducing churning, excessive short-termism and spurious liquidity.
- Generate substantial sums of additional revenue in a way that is cheap to collect, difficult to avoid and has a highly progressive incidence
- Penalize financial transactions that increase systemic risk through complexity, opacity or introducing excessive interconnectedness
- Complement bank levies where FTTs can play a complementary role for equivalent market based transactions so credit intermediation does not migrate away excessively from banks to the shadow banking system

Background

The financial crisis has left world leaders grappling with a number of interconnected yet distinct problems.

1. How to make the financial sector pay its 'fair' share of the costs it has imposed on the rest of the economy in this crisis.
2. How to minimise the likelihood of future crises
3. How to ensure that we are better prepared in the event of another crisis and are able to minimise both the real economic costs and taxpayer liabilities.
4. How to align financial sector behaviour with better, more sustainable long term outcomes for the real economy.
5. How to mobilize substantial funds for urgent global needs such as funding development and tackling climate change.

As discussed in this testimony and in other Re-Define publications, Financial Transaction Taxes are a good tool that can help meet all of these objectives to a substantial degree.

A Transaction Tax Regime, not a Single Financial Transaction Tax

We work with Finance Ministries, Regulators, Central Banks, Tax Authorities, Trade Unions and NGOs, so have a much broader and better informed perspective on the debates surrounding financial transaction taxes, financial regulation, revenue shortfalls and development needs.

That is why we have argued for a more sophisticated differentiated financial transaction tax regimeⁱ. Re-Define has proposed that financial transaction taxes should be treated as a portfolio of sophisticated regulatory tools that can be customized to fulfill several objectives. While revenue mobilization is one of the main goals, improving the functioning of financial markets is an equally if not more important objective that needs to be pursued.

Re-Define suggests that a financial transaction tax regime with variable and differentiated rates can be used to raise substantial revenue, tackle short-termism in the financial markets, penalize contribution to systemic risk, help tackle tax evasion and be used as a prudential tool to cool down overheating markets. These proposals are discussed in more detail in a subsequent section of this paper.

A differentiated regime is already applied in some form in a few countries. Taiwan, for example, applies a sophisticated system of differentiated rates of taxation on shares (0.3%), bonds (0.1%), futures (between 0.0000125% and 0.06% depending on the kind of contract) and options (between 0.1% and 0.6%). Finland, Italy and Malta have a transaction tax regime in place but exempt securities traded on stock

exchanges. Such a tax therefore penalizes the opacity that comes with transactions that are over the counter and encourages more securities to be traded on exchanges.

Improving Market Behaviour

While the revenue motive for introducing FTTs is a strong one, we believe that there is an even stronger case to be made to introduce Financial Transaction Taxes for Prudential and Regulatory motives. In this section we briefly lay out our reasons for this opinion.

“Financial institutions naturally concentrate on developing products that they can make money from. The products they make most money from are those that trade extensively. Consequently, the financial system is biased to excessive trading, churning and volatility.” – Avinash Persaud, Chairman Intelligence Capital Writing in the Financial Times

“It is almost certain that there is some level of trading activity that is not economically optimal, beyond what is optimal, and if we impose on that a relatively small tax we can be confident that at very least we will gather some money in way that is not harmful, because even if it somewhat reduces the trading activity, if we believed the trading activity was too much in the first place then we have not done harmⁱⁱ.” – Lord Adair Turner, Chairman Financial Services Authority, in conversation with Re-Define

Reducing Churning

Retail and institutional investors pay billions of dollars of excessive brokerage fees and charges which are the direct result of brokers directing client money into more volatile securities since these are likely to be traded more often and thus generate a greater fee for brokers and an excessive amount of trading in securities in order to maximize fee generation even when the fundamentals do not justify such tradingⁱⁱⁱ.

Even a small financial transaction tax would penalize churning and thus help cut down waste and some of the rent-seeking activities in the financial markets.

Tackling Excessive Short-Termism

Lord Myners, a former fund manager and present City Minister, has said that he fears companies could become “playthings” of speculators because of super-fast automatic share trading. He said that such practices risked destroying the relationship between an investor and a company. He also said that “the fact that people can own shares for nano-seconds seems completely divorced from the concept of a joint stock company”. – BBC Interview with Lord Myners^{iv}

He succinctly captures what is an increasing problem in capital markets: their role as information markets, providers of capital and overseers of investments is being undermined by an ever-shrinking investment horizon and corresponding increase in the volume of transactions. It is estimated, for example, that automated and high frequency trading now accounts for as much as 70% of the trading volume in US equities.

The excessive volatility that results from an increasingly short-term focus in the market and the growing dominance of technically driven traders over those who trade on the basis of economic fundamentals

means that both long-term investors as well as corporations that raise capital in the markets lose out. Long-term investors can lose substantial sums of money because of the higher volatility of the securities they invest in and also lose billions in trading costs due to having to trade more frequently in response to greater volatility than they otherwise would. Users of capital markets can lose out because the market signals they receive, which influence their investment decisions, are based less and less on economic fundamentals and driven increasingly by technical trading strategies.

Everyone agrees that even a small tax would penalize short term transactions over longer term ones. At a 0.01% rate those trading 100 times a day will end up with a tax rate of 240%/year and those that hold on to their stocks for 5 years will pay 0.002%. It also penalizes technical trading over fundamental trading.

In September 2009, the widely respected Aspen institute in the United States released “Overcoming Short-termism”, a policy document urging the government to address the issue. One of the report’s central proposals is to levy an excise tax on financial transactions. Warren Buffet, the legendary investor, John Bogle, the founder of the Vanguard group of investment companies and James Wolfensohn, the ex-president of the World Bank were some of the prominent signatories of this call’.

Financial transaction taxes increase transaction costs on short-term trading and so penalize those with excessively short-term investment horizons. Their introduction could significantly improve the functioning of financial markets by reducing the churning, excessively short-term focus, excessive volumes and volatility in these markets. This is also likely to significantly increase the informational efficiency of financial markets. FTTs have the potential to generate billions of dollars in cost savings and efficiency gains, which would be additional to revenue raised by the tax itself. As suggested by the Aspen institute, an FTT will create an incentive for more stable, long-term investments^{vi}.

The IMF, in its evaluation of various forms of capital controls, has concluded that financial transaction taxes levied on foreign exchange inflows helped countries such as Chile lengthen the profile of investments converting some would be short term investors into longer term investors^{vii}.

Reducing Excessive Volatility, Market Overheating and Spurious Liquidity

Excessive volatility

Another disturbing trend in financial markets is their increasing volatility. While new information on companies or relevant macroeconomic variables emerges rather infrequently, market prices are highly volatile and transactions far more frequent than can be justified by reaction to new information alone. A Financial Times report registered 90 trades and 72 price changes in the stock of Vodafone in less than a minute on a typical day^{viii}.

In surveys of traders in foreign exchange markets, two thirds of them say that for time horizons of up to six months, economic fundamentals are not the most important determinant of trading prices. Instead they point to speculation, herding and 'technical trading'^{ix}.

Let us say there is a change in economic fundamentals that justifies a change in the price of a security from 100 to 101. If there is extensive short term trading, this might involve fifty intermediate steps, but in a market where short term trading is less this might only involve two steps. In conventional measures of volatility which look at transaction to transaction price change the second market may appear to be more volatile. This may explain why financial transaction taxes sometimes increase short term volatility in empirical models used by academics. But this is not a true measure of volatility from the perspective of long term investors. They are penalized when momentum driven trading overshoots and is likely to result in larger amplitudes of long term price swings.

By penalizing purely momentum based trading strategies, financial transaction taxes have the potential to improve the information efficiency of markets reduce volatility from the perspective of long term investors.

Market overheating

In technical trading 'the trend is one's friend' - traders buy when the price of the security is going up and sell when the price is falling, based on certain market patterns^x. Most algorithmic trading (high frequency trading) also follows similar patterns. Taken together these practices amplify the 'noise element' of financial markets and by relying primarily on the actions of other market actors and price moves as an information source, can seriously reduce the informational efficiency of financial markets. Such behavior exaggerates price swings, results in markets overshooting, can significantly increase market volatility and eventually amplifies boom-bust patterns observed in financial markets.

We also know now that 'animal spirits' can drive people into speculative manias when particular markets become overheated and lose touch with economic fundamentals. The stock market during the dot com bubble was one such example. In more recent months, the Chinese housing market is seen to have become overheated. Similar overheating in the real estate market in the US and the UK led to the financial crisis.

The Chinese government has used its stock transaction tax as a prudential tool to cool overheating markets when it sees that they are being dominated by speculators^{xi}. In May 2007, for example, it tripled the rate of the tax in a bid to cool the market and inject a dose of rationality before even more speculators could pile in. The idea of having a circuit breaker like two tier tax to curb speculative excesses in overheated markets was first proposed by Paul Spahn^{xii}, a German Academic and extended in a study for the Co-operative Bank^{xiii}.

Having a variable financial transaction tax where rates can be raised if markets get overheated or speculative excesses build up can serve as a very useful market specific prudential tool in the hands of regulators.

False liquidity

Turnover across all financial markets has grown by leaps and bounds in the past few decades. Currency market turnover for example rose from about \$4 trillion in the 70s to \$40 trillion in the 80s to more than \$500 trillion now. Turnover in equity markets registered a seven fold increase between 1993 and 2005 to about \$51 trillion and the wealth held in the global bond market is more than \$60 trillion now with turnover being higher. The notional value of OTC credit default swaps, just a single kind of derivative, rose to more than \$60 trillion from almost nothing a decade ago^{xiv}.

It is also well-understood now that this rapid rise in turnover is not unambiguously positive. Those who insisted that this rise in turnover was an indication of higher liquidity have been proven wrong by the financial crisis. Liquidity comes from having a diversity of participants and views in the financial markets with the volume of trades being far less important. The liquidity that existed in financial markets disappeared exactly when it was most required.

Discussions on liquidity of financial markets are often confused because in most instances liquidity is equated to the volume of transactions. This is wrong. True liquidity in a market comes from diversity of opinion and the number of transactions during times of easy credit is a very poor measure of this. In fact, as became clear in the current crisis, markets which appear to be liquid, i.e. have a large number of transactions, may turn illiquid in a very short time as soon as a disturbance hits the financial sector. This phenomenon was observed across a number of markets during the current financial crisis. In a sense, there is an illusion of liquidity in the markets during peacetime but this liquidity is only skin deep and is not driven by fundamental factors. This lulls market players into a false sense of security and they keep too few reserves and margins of capital and liquidity due to this illusionary liquidity.

It is far better to have lower transaction volumes which provide more robust liquidity. Imposing financial transaction taxes will help remove the superfluous transactions from the market which serve no economic purpose and will ensure that the transactions that remain are driven more by fundamental economic motives.

Tackling the Systemic Threat Posed by High Frequency Trading

More than 60% of the trading in US equity markets, for example, now comes from the so called algorithmic trading or high frequency trading where computers, not humans drive trading decisions and the typical transaction time is measured in microseconds not days.

This raises four concerns:

- 1) Most of these algorithms are based on the 'the trend is your friend' principle of technical trading which makes the market more procyclical and amplifies price movements and short term volatility
- 2) The trading done in microseconds clearly cannot be responding to changes in economic fundamentals so can overwhelm the 'information discovery' role of markets. A recent test reported 90 trades and 72 changes to the price of Vodafone shares in the space of a minute on a typical day with most transactions generated by automatic algorithms
- 3) Such 'automated' trading can pose serious systemic risk. This occurred in August 2007 when unanticipated market movements caused several of these algorithms to malfunction and lead to widespread market stress and a near meltdown. Goldman Sachs called it a '25 standard deviation event' which in probability terms is likely to happen only once over several lifetimes of the universe. Last week, driven by these same 'malfunctioning' algorithms the DJIA fell 800 points in 15 minutes
- 4) The growth in the business being generated for exchanges and trading platforms by high frequency trading has led to several of them offering 'co-location' facilities to such hedge funds allowing them access to price movements before the rest of the market can see them violating a basic principle of fair markets. It also has resulted in special 'pricing deals' that might come at the cost of higher costs payable by other investors.

Even in the presence of a small transaction tax, automated computer trading based on mechanistic rules which sometimes buys and sells the same security hundreds of times a day would become untenable. Given the risk such trading poses to the financial system as highlighted by its total breakdown in August 2007 and then in May 2010 that would be no bad thing. A reduction in trading patterns which threaten financial stability without delivering much in the form of social benefits would reduce the likelihood of financial crisis.

Tackling Problematic Derivatives & Structured Products and Reducing Tax Evasion

The proliferation of derivative securities such as credit default swaps and structured financial products such as collateralized debt obligations contributed significantly to the financial crisis. Bilaterally negotiated over the counter derivative securities had an outstanding value of more than \$600trillion in 2009, about ten times world GDP^{xv}.

Opacity

These derivatives transactions were opaque and did not lend themselves to being monitored by regulators or counterparties who simply did not have information needed to gauge the risks inherent in derivative exposures. This allowed a significant amount of risk to be built up in the financial system away from the prying eyes of regulators so helped bring the financial crisis about. Also, the lack of knowledge about third party derivative exposure of their counterparties led financial institutions to withhold funds from each other once the crisis had been triggered and led to the seizing up of inter-bank markets and an amplification of the initial financial shock.

The new regulatory discussions around shifting derivative transactions on exchange and to centralized counterparties will reduce some of this opacity but exemptions are already being built in for certain derivative transactions.

Imposing financial transaction taxes on all derivative transactions could significantly enhance both the incentive for authorities as well as give them the means to make sure that all they have knowledge of and can track all derivative transactions without exception. This oversight of transactions will also apply to any other financial markets that are taxed.

The Indian Banking Cash Transactions Tax (BCTT) of 2005-9, imposed at a rate of 0.1% on *cash* withdrawals from banks, was said by the Finance Minister to have “served a very useful purpose in enlarging the information system of the Income Tax Department.^{xvi}” The Brazilian CPMF was also reported by the Economist to have generated very useful information that helped the Brazilian authority crack down on tax evasion^{xvii}. Another aspect is that a financial transaction tax could be used to penalize non-cooperative jurisdictions and tax havens, by penalizing transactions with such jurisdictions at higher rates.

“...about the informational role of this [the financial transaction tax]; you’re absolutely right, some of the things we are doing to require greater use of central counterparty clearing and trade depositories and clear post-trade disclosure, in and of themselves both help a tax regime to be enforceable, but also the very process of enforcing a taxable regime... one of the reasons why we actually know quite clearly many of our carbon emissions is precisely because we tax certain activities^{xviii}.” — Lord Adair Turner, Chairman Financial Services Authority, in conversation with Re-Define

In summary, financial transaction taxes on derivative and other financial markets can help regulators and tax authorities through their 'informational' role by providing a mechanism and incentive for authorities to keep track of relevant financial transactions and the actors engaging in them.

A recent comment by Andrew Shang, chief adviser to the China Banking Regulatory Commission proposing the introduction of a zero rated foreign exchange transactions in order to help identify who was speculating in the foreign exchange markets further emphasizes the informational potential of financial transaction taxes^{xix}.

Leverage

Over the counter derivative securities required only small margins and collateral so allowed financial institutions to build up significant leverage which, as we have discussed, poses a serious threat to financial stability. In as much as a third of OTC derivatives, there was no requirement of margining whatsoever so institutions were allowed to build up leverage for free without any safety cushion. Excessive leverage was a major cause of the financial crisis.

Taxing derivative transactions can help penalize excessive leverage especially if the rates are set in a way that penalizes derivative transactions that create more leverage than those that do not.

Interconnectedness

Another feature of OTC derivatives is that they increase the degree of interconnectedness between financial institutions by building up interlocking liabilities. The excessive interconnectedness of institutions such as Lehman Brothers and AIG through the derivative market led to problems faced by these institutions to pose serious systemic risk through the possibility of inflicting domino losses on their many counterparties. The term too-interconnected-to-fail was coined in this crisis and refers to the excessive institutional interconnectedness through OTC derivative markets.

Even as derivative reforms are being enacted to push more transactions on to exchanges and on to centralized counter parties, it is already clear that not all of the OTC transactions will be eliminated. This means that the remaining over the counter derivative transactions will continue to generate excess interconnectedness amongst financial institutions and contribute to systemic risk. That is why it would be good to penalize such OTC derivative transactions by levying higher rates of financial transaction taxes.

Complexity

Banks resorted to issuing increasingly complex securities such as collateralized debt obligations and collateralized debt obligations squared (CDO squared) in a bid to maximise profit margins. Higher complexity can drive greater profit margins since it reinforces the difference in understanding and information that naturally exists between buyers and sellers. The Bank of England has highlighted that an investor wanting to understand CDO squared fully would have needed to go through 18 billion pages of documents. The sale of complex derivatives to unsophisticated retail investors as well as several

municipal and city authorities in countries such as Italy was also driven by a desire to maximise profitability. When the crisis first erupted, the uncertainty associated with the true and fair value of complex structured finance products and derivatives significantly amplified the effects of the initial shock

Since complexity contributes to systemic risk, it would be prudent to penalize such a contribution by levying higher rates of transaction taxes for more complex derivatives and structured products.

Note: *For all derivative and structured finance products a tax could be levied either in the form of a transaction tax or in the form of a one-time financial issuance tax in the case of less traded securities. In both cases, the effect in terms of penalizing behaviour that contributes to excessive systemic risk would be similar for financial products that are not frequently traded.*

In summary, implementing a differentiated financial transaction tax regime with different rates on different markets (with the possibility of changing the rate of taxation) can:

1) Raise substantial revenue 2) have a highly progressive tax incidence – i.e. falling predominantly on hedge funds, investment banks and other parts of the shadow banking system 3) tackle short-termism in the financial markets 4) reduce excessive speculation 5) penalize opacity 6) penalize complexity 7) be used as a countercyclical instrument to cool down overheating markets 8) promote true market liquidity 9) help tackle tax evasion, and 10) promote better monitoring of systemic risk.

How to design a good financial transaction tax regime?

An effective transaction tax regime would seek to fulfil as many of the following goals as possible:

- Raise significant revenue in the most progressive way possible
- Improve market behaviour by penalizing churning and excessive short termism and discouraging excessive speculation
- Penalize systemic risk through imposing higher rates of taxation on opaque, complex, highly leveraged and excessively interconnected segments of the market
- Contribute to a better monitoring of systemic risk and tackling tax evasion through generating useful transaction level information
- Serve as a good prudential tool through changing rates of taxation in response to market developments such as overheating.

To achieve this, such a tax should 1) have a relatively low rate 2) apply across as many financial markets and jurisdictions as possible 3) arise at the point that a financial transaction is agreed 4) be levied electronically in a way that minimises avoidance – at the point of settlement or on exchanges 5) apply in the first instance to all market actors, with possible refunds for small investors and/or governments 6) have a differentiated rate across markets so as to penalize socially useless transactions and those that contribute to systemic risk through complexity or opacity 7) have a variable rate so that it can be flexibly used as a prudential tool

The rate of tax should depend on public policy views on the importance and usefulness of the market; prevailing average transaction costs; levels of profitability in the market; the profile of market participants and the contribution to systemic risk for example through complexity, leverage or opacity.

The Tax should be applied Universally, but can be Implemented at a National or Regional level

As discussed in previous sections, a well-designed financial transaction tax regime can generate information on financial transactions. This information, as in the case of the Indian bank tax as well as the Brazilian CPMF discussed in previous sections, can be very useful for fiscal authorities to help crack down on tax evasion. This is all the much more important at fiscally stressed times such as the ones we are entering. Another possible fiscal use for financial transaction taxes is to use them to target financial transactions with tax havens and other non-cooperative jurisdictions.

A second use for the information that will be generated by even a zero rated tax is for regulators to get a complete picture of where the financial exposures and risks lie. If even a zero rated tax regime had been in place before the crisis hit, regulators would not have been in complete dark about which financial institution was carrying which risks and who the counterparties to the various institutions were. This information can also be used, as suggested by Andrew Shang of the Chinese Banking Regulatory

Authority, to help identify speculators or institutions that are contributing excessively to systemic risk through their actions.

Unlike what detractors say, substantial financial transaction tax regimes can be introduced at either the national or the regional level especially within the European Union. This aspect is treated in more detail in a forthcoming Re-Define publication.

The Tax should be applied as a Stamp Duty

A stamp duty, historically, is a charge payable to government authorities in order to record a change in the ownership of an asset. Whether the tax regime we are discussing applies transaction taxes or issuance taxes, we strongly believe that these should legally be treated as a stamp duty. This would imply that the tax liability would arise at the time of issue or trade and that the legal ownership of an asset by a financial institution would only be recognized provided it has paid the applicable stamp duty or in case of zero rated transactions duly filed the required (electronic) reports.

For intra-day transactions, the stamp duty would need to be accrued in a way that is cumulated at the end of each day and transferred into the relevant escrow account along with detailed information on all transactions. Random audits can be arranged to ensure that such information is indeed being kept and reported and any missing part of the audit trail would potentially invalidate any legal ownership claims on the financial instrument.

The Tax should Penalize Contribution to Systemic Risk

The financial transaction tax regime should be designed in such a way that between two similar financial instruments those that are more opaque, complex or incorporate higher effective leverage should be taxed at higher rates in order to penalize their higher contribution to systemic risk. So higher tax rates should apply to complex over the counter derivatives and to highly complex structured products.

The Tax Should Penalize Excessive Short-Termism and Churning

By its very nature, a transaction tax is designed to penalize churning and excessive short termism. For example, at a 0.01% rate those trading 100 times a day will end up with a tax rate of 240%/year and those that hold on to their securities for 5 years will pay 0.002%/year. The effect of the tax will be felt most strongly by high frequency trading shops where computer algorithms have replaced human traders and the effect of the tax on long term investors would be negligible.

A financial transaction tax would also penalize churning whereby those unscrupulous asset managers and brokers who engage in it will be penalized relative to others who don't. This will hurt their bottom line if they carry the tax burden and make them uncompetitive vis a vis other asset managers who don't churn if they try and pass on the additional costs to their customers.

The Tax should serve a Prudential Role

Asset markets of all kinds are prone to overheating and the financial sector as a whole goes through booms where risks get built up and busts where risks manifest themselves. We believe that the financial transaction tax regime provides an excellent prudential tool to deal with both particular product markets overheating as well as market wide asset booms and bubbles. If, for instance, a particular market segment such as the stock market starts to show signs of excessive speculative activity and overheating or starts reaching bubble like valuations, the prudential authorities can either gradually or suddenly increase the level of transaction taxes in that market. This would not only change the risk/reward ratio of market participants jolting the market into more sustainable valuations but will also send a clear signal that the current state of the market is untenable. These effects would reinforce each other and the incipient problems in the market segment can be dealt with efficiently.

A broader range of financial markets can be targeted with a gradual increase in financial transaction taxes if there are signs of a market wide unsustainable boom developing.

The taxes should be levied in a way that their final incidence is most progressive

Policy makers can make sure that the final incidence of the tax is most progressive and is borne to the greatest extent by actors within the industry by

- Levying a higher tax on market segments where hedge funds and investment banks are the main actors
- Increasing competition in the financial services industry. For example, high barriers to entry and low competition are one reason that investment banks are able to earn excessively high profits
- Introducing restrictions on employee compensation in the financial services industry which would increase the amount of revenue available to absorb the additional costs of the tax
- Tougher controls on excessive charges for end users
- Using an exemption and refund regime that reduces the burden of the tax for certain segments such as pensioners

Why Taxing Financial Transactions can make for Good Tax Policy

In tax policy, a good tax is usually defined in accordance with the following principle of Equity, Simplicity and Efficiency. The FTT passes all of these tests with flying colours. It also has several other highly attractive features.

Equity

Imposing FTTs will mean that there will be a fairer burden sharing of the costs of the crisis. Recovering the costs of the crisis from the sector that caused is the only equitable option and all other possibilities of imposing the burden on non financial sectors or consumers are highly inequitable.

In addition to this, FTTs are vertically equitable (in the sense that they impose a higher burden on those with a higher capacity to pay) because 1) the financial sector has been amongst the most profitable 2) financial sector actors have been and continue to be very well compensated 3) the richer segments of society use the financial sector disproportionately more than those at the poorer end of the spectrum 4) the financial sector has been one of the prime users of tax arbitrage meaning that it has paid less than its 'fair' share of tax contributions.

More than 25% of financial assets in the United States, for example, are owned by the top 1% richest population. Before the crisis hit, hedge funds were believed to be responsible for as much as 50% of trading volume in certain markets. The FTT is likely to have a highly progressive incidence.

FTTs are also horizontally equitable when the rate of the tax is applied uniformly across a particular financial market and produces nearly equivalent tax burdens across financial products that are close substitutes.

Simplicity

Taxation is notorious for being hugely complex. Income tax, VAT and corporate tax legislation runs into thousands of pages and is replete with exemptions, exceptions loopholes and ambiguities. The cost collecting and enforcing these is large. In the UK it costs about 1.2 pence to collect every pound of the income tax. Tax legislation is getting increasingly complex by the day.

Financial transaction taxes, which will be imposed, calculated and collected electronically, are amongst the simplest of taxes to understand and implement. In the UK for example, it costs less than 0.02 pence to collect every pound of the Stamp Duty Reserve Tax. This is more than 50 times cheaper than collecting an equivalent amount of revenue through the income tax. No market participant has ever criticized the Stamp Duty for being complex, a criticism levelled all the time against corporate and personal income taxes. The pages of tax law devoted to the Stamp Duty pale in significance to the reams of pages devoted to other kinds of taxation.

Efficiency

A tax is efficient if it raises a certain unit of revenue with the minimum possible distortion. All taxes are distortionary to some extent so the benchmark that the efficiency of the FTT should be measured against is whether raising money through the FTT would be less distortionary than raising a similar amount of money through other taxes.

Increasing VAT reduces consumption and increasing income taxes directly harms growth and income generation. On the other hand, the relationship between financial transactions and real productivity and growth is much more tenuous. In fact some of the financial transactions have been shown to be actively harmful for the real economy by imposing externalities. So taxing financial transactions is in principle better than taxing consumption or income.

Another criteria for efficiency is to have as low a rate and as broad a base as possible. The FTT achieves is very successful on this criteria too.

Cheap and Easy to Collect

As an increasing number of financial transactions are done electronically and even OTC derivatives and currency transactions move towards electronic settlement, financial transaction taxes are becoming cheaper and easier to collect. All that is really needed is the addition of a line of software code to existing messaging and settlement systems. INTL, a UK brokerage which pioneered a financial transaction tax on currencies reported that all it took them was 'adding a line of software code'.

Difficult to Evade and Avoid

Because financial transactions leave an electronic trail and/or are settled at a central clearing centre, financial transaction taxes are next to impossible to avoid. The other reason they are difficult to avoid is that they are collected automatically either at the point of the initiation of the transaction or at the point of their settlement. While there have been some fears of transactions moving offshore to avoid unilaterally implemented taxes, these are exaggerated. In fact, in Brazil, the information generated by the financial transaction tax was successfully used to reduce the evasion of other taxes. This evasion reducing effect could be easily replicated in other countries.

The recent international moves to expand the perimeter of regulation bring derivative trading on exchange; introduce centralized clearing parties and institute a register of financial transactions will make it next to impossible to avoid FTTs.

No Tangible Impact on Market Liquidity and Efficiency

Despite the fact that such taxes are often labelled as market unfriendly the wide variety of successful FTT regimes that operate around the world show that they are easy for markets to bear especially when the rates are low. Low rates also mean that few financial transactions undertaken for economic reasons would be effected. For example, at rates of a basis point or less these taxes are below the radar screen of most traders.

Compared to the transaction costs that arise from 1) brokerage fee 2) exchange fee 3) short term volatility of prices 4) market movement in response to transactions etc, the levels of taxation we propose remain negligible. In most instances, levying such taxes would take transaction costs back to the level they were at 3-4 years back at which point no one accused the financial markets of 'being distorted'.

In actual fact, by reducing the proportion of noise traders in the financial markets they are applied to, FTTs have the potential of increasing the information efficiency of financial markets.

Turnover in financial markets is a poor measure of liquidity. True liquidity comes from a diversity of opinion not the number of transactions in a market. As the crisis evidenced, turnover in markets that were supposedly highly liquid collapsed just when liquidity was most needed. Imposing FTTs can help separate 'true liquidity' from 'illusionary liquidity' and thus make the markets function more accurately reflecting true risk and return and return and avoid 'nasty surprises'.

Potentially Market Stabilizing

Being a turnover tax, the FTT will penalize shorter term trading and have hardly any impact on those with a longer term investment horizon. Consider a stock transaction tax of 0.2% for instance. A trader with a daily investment horizon would on average trade once a day and end up paying a $200 \times 0.2\% / 2 = 20\%$ (he only pays half and there are 200 trading days in a year) effective tax rate. A pension fund with a five year horizon, on the other hand, will end up paying only 0.02% or 1000th the rate of the daily trader.

This would discourage the kind of very short term (computer run) financial transactions that destabilized the markets in 2007 and leave the longer investment horizon investors unaffected. Hence FTTs are likely to have a market stabilizing impact. Differential taxation of systemically risky products such as complex derivatives is also likely to enhance the stabilizing impact of FTTs

The Response to the Crisis has made it Much Easier to Impose FTTs

In the aftermath of the collapse of Herstatt Bank in 1974 regulators started looking for ways of reducing settlement risk in currency markets. This search ended with the establishment of the Continuous Settlement Bank which allows for the real time gross settlement of currency transactions. This system has proven its worth by being a sea of stability in otherwise stressed financial markets during the current financial crisis. As a consequence, regulators are in the process of pushing and increasing variety of financial transactions in the direction of increased on exchange trading as well as centralized clearing and settlement. Even for OTC derivatives where this may not be possible there will be a regulatory requirement to register all transactions with the regulators.

The electronic nature of financial transactions, the mandatory audit trail, the centralized clearing and settlement and the mandated reporting and recording of transactions will all make it much easier and cheaper to implement transaction taxes in most if not all financial. The expansion of the boundary of

regulation to new institutions, markets and jurisdictions will make it even harder engage in already difficult evasion.

Financial transaction taxes are taxes of the future and the financial crisis presents both several reasons as well as several opportunities for a rapid expansion in the implementation of these taxes across an increasing number of financial markets.

Financial Transaction Taxes and Bank Levies: Complements not Substitutes

	Financial Transaction Tax	Bank Levies
What is Taxed	The sale and purchase of financial securities	Non deposit based funding for financial institutons
Size of Tax Base	Very Very Large > \$3500 trillion	Large > \$100 trillion
Rate of Tax	Very very low (from 0.005% upwards)	Very low (from 0.15% upwards)
Spatial Variability	Significantly different accross diferent financial markets and instruments	Different according to funding type and country
Temporal Variability	Can be adjusted to prevent asset market overheating	Should be increased in booms
Initial Incidence of Tax	Primarily Hedge Funds and Investment Banks and some Asset Managers	Commerical Banks and Investment Banks
Impact on Behaviour	Less Short Termism, Less Churning, More Simplicity, Less OTC	Less Maturity Mismatch so Lower Systemic Risk
Use as a Prudential Tool	Tax Complexity and Opacity and Change Rate of Overheating Markets	Change Rate with Increasing Systemic Risk
Tax Base	\$3,850 trillion	\$100 trillion
Asset or Liabilities	Asset Side	Liability Side
Revenue Estimates	\$200 bn - \$300bn	\$75bn - \$110bn
Scope of Coverage	Shadow banking system, banking system and asset managers	Credit Institutions
Final Expected Incidence	Mosty Hedge Fund and Investment Bank Employees and Clients	Mostly Commercial Bank Employees and Customers

Bank levies and Financial Transaction Taxes have often been portrayed in the ongoing international discussions as substitutes i.e. you can do one or the other. This could not be further from the truth.

Bank levies and FTTs are good complements, as the above table, which is taken from our forthcoming publication on the issue, shows. They target different tax bases, address different aspects of systemically risky behaviour and can work as complements between the bank and market led intermediation of credit and banks and shadow banks.

In fact, bank levies, if applied alone can lead to a migration of activity to the shadow banking system and increase systemic risk. Moreover, it can severely disadvantage retail and SME customers who will need to pay a higher cost of credit compared to large corporations which can access credit through the bond markets.

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