



A Financial Transaction Tax: Revenue Potential and Economic Impact

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Keynes proposed it. Oxfam is circulating a petition world-wide to garner support. Gordon Brown has urged its implementation. Bob Herbert has urged it in the New York Times. James Tobin called for it. The IMF Working Group of 20 is soliciting comments on it. And Larry Summers (with his wife) wrote an article advocating it. What is “it?” – a financial transaction tax (FTT), a tax on all financial transactions. In its broadest and most effective form, an FTT would be levied on all trades in three financial asset markets: equity, interest rate (debt), and currencies as well as the derivatives that are priced off the underlying markets for each asset class.

An FTT has multiple appeals. First, the revenue that could be generated is significant in terms of both the absolute dollar amount and in the context of the financial needs of the U.S. government as it responds to the ongoing economic crisis. Second, and equally important, an FTT would impact relatively few individuals and institutions with benefits potentially flowing to many. Finally, the political logic of an FTT – the dynamics of Wall Street vs Main Street – makes the tax a timely one that should have significant appeal in today’s political climate.

This paper focuses on the revenue raising potential and the economic impact of an FTT, including a brief discussion of some of the counter arguments that opponents can be expected to make. The paper concludes with a few comments on the political appeal of the tax.

A. How Much Revenue Could a Financial Transaction Tax Generate?

An effectively designed FTT must recognize not only the three financial asset classes but also the different **venues** for trading these assets and the **types of instruments** that are traded in each of these asset classes. Equity, interest rates, and currencies are traded both on and off exchanges, the latter normally referred to as the over-the-counter (OTC) market. In addition, in each asset class there are trades both of the underlying asset (“cash market”) and of instruments based on the underlying asset (“derivative market”), particularly futures and options. An effective FTT should cover **both** venues and **all** instruments in a manner that does not advantage one venue or instrument over others. Failure to do so may simply shift volume of trading between venues or instruments.

Much of the earlier work done by advocates of an FTT was based on data from the 1980s or 1990s.¹ Although the revenue raised from calculations using this data is significant, it misses the huge growth in trading of financial assets, both in the underlying cash markets and in derivative markets, that has occurred as financialization has proceeded apace in the

U.S. (and other) political economies during the last two decades. Thus, as argued below, the amount of revenue that can be raised has increased dramatically, both absolutely and as a percentage of GDP or federal government revenue.

1. Equity Markets

In 1998, the total value of stock trading on the New York Stock Exchange (NYSE) and the NASDAQ Stock market was \$13.1 trillion; in 2008 the traded value on these two markets, that together account for well over 90% of stock trading in the US, totaled \$64 trillion (domestic companies only), an almost five-fold increase in a ten years. The value of trading in currency and debt markets has increased at similar rates over the period of financialization in the U.S.

This five fold increase in equity trading value is not the result of an increase in the number or capitalization of stocks listed for trading. Instead, this increase primarily reflects a higher rate of trading, more activity among market participants. At year-end 1998, the total capitalization of the US equity market was \$13.4 trillion; at year-end 2008 US market capitalization was actually lower than in 1998: \$11.6 trillion. Even taking into account the 2008 market collapse and using year end 2007 data, total US market capitalization was \$19.7 trillion (and a little over \$15 trillion at year end 2009). Thus US equity market capitalization grew 49.2% in the 1998 – 2007 decade but traded value in the cash market jumped 245%. As an indicator of financialization within the U.S. political economy, this means that, on average, shares in the US stock market changed hands about once/year in 1998; in contrast, in 2007 shares changed hands about every 5 months and in 2008 the typical share change hands every two months. It is difficult to discern any significant benefits that have accrued to the US economy or to the average equity investor as a result of this increase in turnover rate.²

In 2008, an FTT of only 0.25% on cash market equity trading would have generated \$160 billion, one side only. Levied on both the buy and sell side it would have generated \$320 billion. Of course, as is apparent from the foregoing discussion, 2008 was an unusually active year for stock trading. The same FTT on the 2007 trading value would have raised \$261 billion (two sides).

As emphasized above, however, an effective FTT must be levied on all forms of equity trading. Thus, these numbers, as impressive as they may be, do not exhaust the revenue that could be generated from an equity market FTT. In addition to the \$64 trillion in equity trading that occurred in 2008, another \$54 trillion of equity notional value³ was traded in the S&P 500 Index Futures on the Chicago Mercantile Exchange (CME), \$49 trillion in 2007, and \$26 trillion in S&P 500 Index options on the Chicago Board Options Exchange (CBOE), \$25 trillion in 2007.⁴

The existence of multiple instruments for trading equities (and other financial assets) raises an important question: at what level should an FTT be set on the different products so that volume would not simply be shifted from one product to another? Identical FTT rates on cash and derivatives probably disadvantages the derivative market since these

products - futures and options - have expiration dates while actual (cash) equities can be held indefinitely. At the same time, however, because a cash portfolio of S&P 500 stocks can be easily replicated using derivatives and short term bills, exempting or under taxing derivatives would unfairly disadvantage the cash equity markets.

One method of approaching this issue is to consider the rate of share turnover in the cash equity market and apply this turnover rate to the predominant pattern of index futures and index options trading. During the past 5 years, the average share traded on US markets has changed hands every 4 months; however, excluding the exceptionally high turnover ratio of 2008, the average share changed hands every 6 months during the 2004 – 2009 period.⁵ Index futures and index options have limited life, and most of the trading (as much or more than 90%) is concentrated in the front month of the March/June/Sept/Dec cycle. Thus, replicating a cash stock portfolio in either of these derivative instruments would probably require rolling the position every 3 months (buying in the expiring futures or option contract and selling the next contract in the quarterly cycle).

If a participant in the cash equity market traded in and out of an equity portfolio every six months, they would incur the 0.5% FTT (round turn). Using futures or options (and short term bills) to replicate an equity portfolio would likely require trading every 3 months. Thus an FTT that would not advantage either cash or derivative trading could be set so that the FTT levy on the two futures round turns (four trades) would equal the FTT levy on the cash portfolio single round turn (two trades). Thus, to equalize the impact of an FTT across cash and derivative equity markets suggests a tax of 0.125/side for the index derivatives. An FTT set at this level would have generated \$68.3 billion from index futures trading in 2008 (\$62.4 billion in 2007).

Stock index options provide still another method of trading equity portfolios. Some analysts have suggested applying an FTT only to the premium for options.⁵ However, this approach would significantly advantage the index option product over either futures or cash equities. It is easy to use index options to replicate a cash portfolio by simply buying a call and selling a put. The premium paid for these two transactions would be only a small portion of the cost of executing the equivalent trade in the cash equity market and an FTT levied only on the premia would be considerably less than the 0.125% FTT on the equivalent index futures notional value. Further, index options, like index futures, are settled in cash with no exercise into the component stocks. Thus there is no additional transaction on which an FTT could be levied. Market participants could easily decide the use the option combination equivalent to the cash equity portfolio, avoiding most of the FTT levy on the latter. It is, therefore, more appropriate, and more likely to insure neutrality between the different instruments, to apply the FTT to notional value controlled as a result of the option transaction. Using the same FTT rate on index options as on index futures, 0.125% of the notional value, would have raised an additional \$44 billion in 2007 and \$40.2 billion in 2008.⁶

Taking the above calculations that cover only equity and equity derivative trading, an FTT would raise the amounts listed in the table below.

TABLE 1
EQUITY AND EQUITY DERIVATIVE TRADING: POTENTIAL FTT
REVENUES

Product	2007 Traded Value (USD trillions)	2008 Traded Value (USD trillions)	FTT Rate (per side)	Revenue Raised, 2007 (USD billions)	Revenue Raised, 2008 (USD Billions)
Cash Equity	\$52.30	\$64.10	0.0025	\$130.75	\$160.25
Index Futures	\$50.00	\$54.60	0.00125	\$ 62.40	\$ 68.30
Index Options	\$36.00	\$32.25	0.00125	\$ 44.80	\$ 40.25
Total, 1 side				\$236.95	\$268.80
Total, both sides				\$473.90	\$537.60

2. Currency Markets

Equity and equity derivative trading are only one of the three financial asset classes that would be taxed by an FTT. Currency and debt markets, both for cash and derivative trading would also be significant revenue sources for this tax. Unlike equity and equity derivative trading, most of the trading in currency and debt markets occurs away from exchanges and thus information on trading value and market participation is less readily available. However, the Bank for International Settlements (BIS) compiles a triennial report on the volume and value of spot (cash) currency trading and OTC trading of both currency and interest rate derivatives. This data allows us to develop estimates for the revenue potentially generated by an FTT.

The most recent BIS Triennial Report was issued in December 2007 and, as is the case for all of these reports, covers trading during the previous April. All major and most smaller central banks in the world provide data for the BIS report.⁷ In their 2007 survey, the BIS reported world-wide average daily value of currency trading to be \$3.2 trillion. The largest amount of trading was USD/EURO but USD/Pound and USD/Yen also accounted for significant trading.

By location, the center of trading was London, accounting for more than 35% of the total with NYC second at almost 17% and Tokyo a distant third at less than 7%. The first issue, then, in calculating the possible revenue from applying an FTT to currency trading is to determine the scope of what could be taxed by a single government entity such as the U.S. federal government.

At a minimum, an FTT could be applied to trades executed by entities located in the country levying the FTT. Thus a US FTT could cover the 17% of currency trading executed in NYC. In addition, an FTT could be levied on all trades executed by

subsidiaries of U.S. based financial institutions, raising the potential revenue sources significantly. The BIS does not break out currency trading by national origin of the executing entities; however, a conservative allocation of 25% of London currency trading to U.S. firms would raise the percent of trading subject to an FTT to at least 25%, or approximately \$800 billion/day. With a levy of only 0.01%/side, an FTT would generate \$80 billion/year, applied to both sides of the trade, assuming 250 trading days/year.

As was the case in equity trading, the cash currency markets account for only a portion of total currency trading. Trading in the OTC currency derivatives markets reached the level of \$2.3 trillion/day in the BIS survey while trading in exchange listed currency derivatives, most of which occurs on U.S. exchanges, totaled \$1.7 trillion/day in 2007 (\$2.4 trillion/day in 2008).⁸ Applying the same 0.01%/side FTT to these markets would generate another \$200 billion in a 250 trading day year.

The above estimations of FTT revenue from currency trading are based on a combination of geographical location and company nationality of the sales desks executing the trades. A different approach, and more in line with that first advocated by James Tobin, would levy an FTT on the basis of the currencies involved in the transaction. This would generate a larger amount for revenue the U.S. because the USD is by far the most frequent currency traded, represented on one leg of almost 90% of the transactions in the 2007 BIS survey. Applying the same FTT rate of 0.01%/side to 90% of the 2007 BIS reported trading value would generate approximately \$360 billion/year.

It may be objected that other countries are unlikely to cooperate in collecting an FTT for the US on currency trades where the sales desk executing the trade (the geographical basis use by the BIS) is not located in the U.S. However, the political dynamics of the FTT in the context of the 2008 financial crisis may open possibilities for cross border taxation that did not exist previously. For example, the head financial regulator in the U.K., Alistair Darling, has repeatedly called for an FTT. The U.S. would likely find a willing partner should we decide to pursue such a tax.

TABLE 2
CURRENCY AND CURRENCY DERIVATIVE TRADING: POTENTIAL FTT REVENUE

2007 BIS Data	Daily Traded Value, 2007	FTT Rate	Revenue/yr
Currency Traded Value (US share = 25%)	\$800 Billion	0.01%/side	\$40 billion
Currency Derivative Traded Value (US Share = 50%)	\$4 Trillion	0.01%/side	\$200 billion
TOTAL			\$240 billion
Dollar Derivative Traded Value (US share = 90%)	\$7.2 Trillion	0.01%/side	\$360 billion

3. Interest Rate Markets

Trading in interest rate products and the associated derivative markets has also grown significantly over the past two decades and, as was the case for currencies and equities, is not driven primarily by increased issuance of these products. As in the case for currencies, a large portion of this trading occurs in the OTC market although exchange listed interest rate products are significant in volume and value.

The table below summarizes the potential revenue raised from the FTT applied to both long dated and short dated interest rate derivatives in 2007 and 2008. The calculation for exchange listed derivatives uses only trading on the Chicago Mercantile Exchange (CME) Group, excluding trading on the London International Financial Futures Exchange and other European and Asian exchanges.

TABLE 3
INTEREST RATE AND INTEREST RATE DERIVATIVE TRADING:
POTENTIAL FTT REVENUE

	Daily Traded Value, 2007	Daily Traded Value, 2008	FTT Rate	Revenue Raised 2007	Revenue Raised 2008
Cash Bond Trading		\$1.0 trillion	0.02%/side		\$50 billion
OTC Debt Derivative Notional Value	\$1.7 trillion	NA	0.02%/side	\$85 billion	NA
Exchange Listed Short Dated Debt Derivative Notional Value	\$3.75 trillion	\$3.3 trillion	0.02%/side	\$187 billion	\$150 billion
Exchange Listed Long Dated Debt Derivative Notional Value	\$836 billion	\$845 billion	0.02%/side	\$41.8 billion	\$42.25 billion
TOTAL				\$313.8 billion	\$242.25 billion*

* excludes OTC debt derivative trading from lack of data

4. Summary: The Revenue Potential of a Financial Transaction Tax

The forging discussion presents an array of evidence from markets for three different financial assets. The overall conclusion is dramatic: an FTT levied at very modest levels and on markets for the both the cash asset and derivatives traded in the same asset could generate a very large amount of revenue. Even using the conservative figures from Tables 1- 3, the total revenue would have exceeded \$1 trillion in 2007. If the currency FTT were levied on all transactions that involved the USD on at least one leg, there would be an additional \$120 billion raised.

This calculation does, not of course, consider the possible impact of an FTT on the level of trading that occurs in these markets. As pointed out in the asset class discussion, some trading activity that occurs today would probably cease in the face of an FTT. This is not necessarily a negative outcome. A reduced level of trading in financial assets would also reduce the role of the financial sector in the U.S. and other political economies. The resulting rebalancing of economic activity may result in greater stability and less vulnerability to financial crises such as that of 2008. Of course, if the FTT had little or no impact on the level of financial trading, the revenue raised could go far towards

mitigating the economic impact of the periodic financial crises that have been a feature of the past three decades.

How much might the level of trading be reduced by an FTT? This is difficult question to answer but a very rough estimate may be drawn from trends in the equity market. Assuming that the average transaction cost/share declined by 50% between 1998 – 2008 while traded value increased 5 fold (see Table 1 above), the elasticity of demand for equity trading would be 10. This suggests that increasing the transaction cost/share under an FTT to the same 1998 level may result, in the extreme case, in a decline in value traded, and thus FTT revenue collected, of 50%.

However, a decline of 50% in trading value is highly unlikely. The proprietary trading that accounts for a significant share of total equity trading has not experienced the same percentage decline in transaction costs because it is internal to the broker dealer trading desk. However, based on the calculations in Table 1 above, even a 50% decline in equity trading would still generate well over \$200 billion/year in revenue in that asset class alone..

B. The Economic Logic of an FTT: Who Would Bear the Tax Burden?

For progressives, taxes are best levied when they meet two criteria: first, that they are progressive in impact and, second, that the tax discourages unproductive resource use and may even encourage a shift of resources to socially productive uses.⁸ A progressive tax raises disproportionately more revenue from those individuals or institutions that have more income and or wealth, while a tax that discourages unproductive resource use may encourage reallocation of resources such as labor and money to uses that are as or more productive as those to which the taxed individuals or institutions would otherwise apply them. An FTT meets both conditions.

1. The FTT is a Progressive Tax

A tax on the trading of financial assets will, obviously, be paid by those who trade such assets. Consider the most widely held of the three asset classes, equities and equity derivatives. While almost half of all households in the US own some stocks, the majority of these households own stocks indirectly, that is through a pooled investment of some type. This is commonly a mutual fund or a pension fund. The latter itself is usually invested in a series of mutual funds. Only slightly over 20% of US households own stock directly, and the bulk of this ownership is concentrated in a much smaller number of households. It is only among the top 10% of households by income that more than half report direct ownership of stocks. Only among this small group does the value of such holdings exceeds \$20,000/household.⁹ Therefore a tax on trading activity will fall heavily on this affluent 10% of all households. Of course, even in this case, if a household follows a buy and hold strategy, they will pay very little tax.

Households that own stock indirectly will pay the tax indirectly to the extent that the portfolio managers who invest their savings engage in trading activity. These households

can also exercise considerable control over the extent to which they pay the FTT by choosing funds that trade infrequently. Such funds also tend to be those that charge lower management fees, for example index funds that simply track a particular measure of the stock market such as the S&P 500. Since there is no evidence that increased trading by active managers outperforms index funds (although it does generate increased revenue to the active managers), any shift by households into such funds will certainly not depress their long run returns. It will probably actually improve them. A significant shift of savings out of the hands of active managers and into the hands of index fund managers would likely reduce the compensation of the former and diminish the flow of individuals into these highly paid jobs. However, any concerns about a possible resulting diminution of investment choice are unfounded. Currently there are more mutual funds than individual stocks listed on the NYSE. We could experience a considerable decline in the number of the former without imperiling individual choice of investment vehicles.

Some may argue that reducing the potential returns to individuals choosing to enter the financial sector will result in fewer highly educated and intelligent young people choosing financial careers. However, there is no evidence that such a decrease would have a negative impact on either the markets or the larger economy. In fact, it can be plausibly argued that fewer MBAs going into finance and more bright young people entering education, medicine, or research careers would be a net positive impact of an FTT. The cost of carrying the financial sector suggests the desirability of reducing the portion of our economy accounted for, and the share of our economic resources devoted to, these activities.

Aside from the relatively small percentage of households who own a significant amount of equities and are also active traders, who else would pay an FTT levied on equity and equity derivatives? There are two other categories of individuals and institutional traders that would be expected to bear most of the taxation: day traders and institutions such as hedge funds, proprietary trading desks at broker-dealers, and a large number of non-financial corporations who have borrowed to engage in financial activities that were frequently unrelated to their core business.¹¹

The percentage of trading accounted for by day traders is undoubtedly down from the glory years of the late 1990s but, at least for NASDAQ listed stocks, it is still quite significant. I wish no particular ill to day traders – indeed I have engaged in such activity myself - but I also do not see any compelling reason to believe that a decline in their number would be detrimental to our economic well being. Stock markets survived and thrived for centuries without relying on people investing for returns of less than 0.5% (the round turn impact of the proposed FTT) and I am confident they will continue to do so. Day traders who seek larger returns will undoubtedly continue their activities although at somewhat reduced levels of profitability.

In sum, the household and individual impact of an FTT would fall primarily on the upper end of the income and wealth distribution in the U.S. The tax is therefore progressive in impact and could act to redistribute income towards less affluent households by means of social and economic programs financed by the revenue generated.

2. The FTT is a Socially Productive Tax

The question of institutions such as hedge funds and proprietary trading desks is more interesting and goes directly to the question of productive and unproductive use of resources. The unprecedented increase in equity trading over the past 30 years is not primarily the result of increased activity by that small percentage of households with significant equity holdings or the emergence of day trading. Instead it is the result of (i) a shift in focus and activity of broker-dealers away from their brokerage function and towards their dealer function and (ii) the rapid growth in proprietary trading activity by components of the shadow banking sector, especially investment bank trading desks and hedge funds.

The case of broker-dealers is instructive, both assessing the growth in equity and equity derivative trading and because of the larger process of financialization that it illuminates. In 1975 proprietary trading and associated revenue accounted for less than 25% of NYSE member firm broker-dealer revenues, while commission revenues were 46% of revenues. Although a minority of all broker-dealers, the NYSE members are the largest broker-dealers and account for the bulk of all broker-dealer activity and revenues. By 2000 the proportion of NYSE broker-dealer revenues accounted for by trading and associated revenue was over 56%, and commission revenues represented slightly under 14% of NYSE broker-dealer revenues.¹¹ What was happening to NYSE member broker-dealers, and at other financial services firms, is a shift into trading and fee collection and a move away from the brokerage function. The increase in proprietary trading drove growth in stock trading, accounting for a significant portion of daily stock market activity. Within the broker-dealer category, the proprietary trading desks of major firms such as Goldman Sachs and Morgan Stanley (and others such as Bear Stearns and Lehman Brothers before their collapse) have dramatically increased their market activity and share of total equity trading.

Broker-dealers, then, would be among the entities that would pay the FTT. To the extent these firms are simply skimming a few cents/share, e.g., the flash trading that has been in the news lately, any loss of activity would be of no concern to other market participants since it would reduce trading that is of very questionable legality anyway and, again, activity without which stock markets survived and thrived for centuries. Other proprietary trading that seeks returns in excess of the 0.5% FTT should be only slightly affected. Further, as argued in the discussion of active and index portfolio managers, any diminution in the salaries of proprietary traders that reduces the flow of bright young people into these jobs is likely a plus for the economy as a whole.

The arguments that apply to broker-dealers also apply to hedge funds and other participants in the shadow banking sector that have contributed to the growth in equity and equity derivative trading. The same arguments also apply to the non-financial corporations that have sharply increased their participation in financial markets over the past two decades. If the trading activities of these entities are driven by small margin trades with returns less than the 0.5% FTT, there will be less trading. However, any loss

of this small profit margin (less than the FTT amount) trading is not a loss to the economic well being of the US economy or that of the vast majority of the US population.

The growth in proprietary trading activity among equity market participants is paralleled in the currency and debt markets. Currency trading has grown rapidly over the past several years. At the same time, however, as the market has gotten bigger it has also gotten narrower. Thus the number of banks that are major players has actually declined. For example, in the 1998 BIS survey, there were 20 US banks that accounted for 75% of currency trading in the US; in contrast, in 2007 a mere 10 banks accounted for 75% of US currency trading.¹² The impact of an FTT would therefore be felt primarily by a few very large banks. If the result were a diminished role in the industry for a few very large – too big too fail? – banks, the outcome would again be a net benefit, helping the U.S. political economy return to a more balanced structure.

As in the case of equity trading, very little of the activity in the currency and currency derivative markets is related to commercial enterprise. The BIS reports that over 75% of currency trades executed in April 2007 had a time duration of less than one week. Further, the entities that represented the bulk of trading activity were not commercial enterprises engaged in the import and export of goods or services. Instead it is again hedge funds, mutual funds, pension funds and insurance companies that have been the drivers of growth in the currency and currency derivatives markets. “Technical” trading now dominates these markets, much as it does in equity markets.¹³ As a result, turnover in the currency markets is almost 25 times the actual value of international trade.¹⁴

In sum, an FTT would not only be a progressive tax, it also has the potential to be socially beneficial. An effective FTT would generate a disproportionate share of revenue from affluent households, broker-dealers, large banks and participants in the shadow banking sector. These are precisely the entities that drove the U.S. and world economy close to total collapse in 2008 and that, absent far reaching reform, may do so again. In addition, an FTT is also a market driven tax, allowing the market to determine which trading activities should continue and which do meet some minimum test of profitability and should therefore cease.

3. Four Arguments Against an FTT

Although there will be very loud opposition to an FTT, it is important to realize that very little of this the activity that would be impacted has anything to do with generating new economic activity with long term growth potential or even with growing the GDP. Most of the trading that occurs in financial asset markets today is unconnected to actual commercial transactions between companies or to long term investment strategies. As James Tobin observed 25 years ago, “very little of the work of the securities industry, as gauged by the volume of market activity, has to do with the financing of real investment in any very direct way.”¹⁵ If some of this trading activity was to disappear because of a very small FTT and there were therefore fewer jobs for equity, currency, or bond traders, it is not at all clear that this would represent a net loss to society.

Of course, those engaged in trading financial assets as well as many economists who study financial markets will not agree with this conclusion. We cannot consider in depth all the arguments against an FTT that may be raised but will touch on only four here.¹⁶ The arguments advanced against an FTT generally follow one or more of the following lines of reasoning. First, many argue that an FTT, by increasing the costs of trading will reduce the level of market activity, lowering the level of liquidity thus increasing transaction costs and market volatility. According to this line of argument, everyone who invests in these markets, whether directly or indirectly, will suffer a loss of economic well being. Second, it is also argued that imposing an FTT will drive business to other venues that lack a tax.¹⁷ Closely related to the second argument is the claim that the tax is not enforceable, that the geographical mobility of trading in an electronic age makes tracking and collecting the tax impossible. Finally, opponents of an FTT have claimed that the tax would simply be passed on to bank and brokerage customers, with no effective impact on financial firms.

I do not believe that any of these arguments are born out by the weight of the evidence. More importantly, as argued above, any impact of an FTT that reduced the role of finance in the U.S. political economy, shifting resources into other uses, would be positive rather than negative. Following is a brief summary of the basis for this conclusion.

First, would an FTT reduce liquidity in the financial markets? As documented above, trading in financial assets has grown dramatically over the past few decades. Opponents of FTTs take the position that more trading is always better. If increased trading produces increased liquidity and lower volatility, it should surely have done so over the past two decades. However, there is no evidence that volatility has declined; in fact it may actually have increased as trading activity has grown – more trading may drive more herd behavior and actually increase market volatility. In this respect a study by French and Roll¹⁸ is quite suggestive. They compared equity market inter-day volatility in two different circumstances: first, from Tuesday – Thursday when the NYSE was open on the intervening Wednesday and from Tuesday – Thursday during the period when the NYSE was closed on the intervening Wednesday in order for the trade clearing process to catch up with volume. They found that volatility in the second instance was only half that of the former and concluded that trading itself may be a source of volatility. This conclusion is consistent with the notion that herd behavior dominates markets for financial assets, at least in the short run, and generates considerable volatility and resulting higher costs for investors.

More generally, during the 1970s and 1980s, financial economists judged the U.S. equity market and other markets for financial assets to be efficient when trading levels were less than a 25 percent of those that prevail today. It is, therefore, hard to imagine a convincing argument that a decrease in trading activity of even 50% would result in inefficient markets. Transaction costs would increase slightly with the FTT proposed in this paper. However, the actual costs would be less than those prevailing in the 1970s and 1980s, a time when financial economists judged the U.S. equity market to meet the requirements of an efficient market.

On the question of an FTT shifting business to other locations it is useful to consider the London Stock Market (LSE). For many years the LSE has functioned with stamp tax that is much like an FTT. The stamp tax has some flaws – for example it is not levied on derivatives but only on cash equities – but this unequal application across markets makes the case even more interesting. The LSE has been one of the largest equity markets in the world for decades and has not grown more slowly than other major markets. In fact, during the 1999 – 2009 period the LSE moved from 3rd place to 2nd place in the world equity tables. Clearly the stamp tax has not moved business to other trading centers. Further, an FTT on US stocks should be applied to a stock listed on a U.S. exchange rather than to the market on which the trade occurs (see discussion of enforcement below). It is also interesting and suggestive that the imposition of stamp tax on the cash equity market has not resulted in any shift of business to the derivative markets in London. Nonetheless, the logic of imposing an FTT across all related instruments is compelling in terms of assuring equal treatment for equivalent vehicles.

As Baker argues, to a large extent the question of enforcing an FTT is a question of political commitment to do so.¹⁹ However, there are differences in the level of potential difficulty in enforcement that reflect the different market structures for financial assets. The easiest area of enforcement would be on equity and equity derivative trading. All trades in U.S. listed equities are cleared through the Depository Trust and Clearing Corporation (DTCC). This central clearing point would facilitate levying of the FTT on all equity trades. A major advantage for market participants, and one that enhances the ease of trading, of the common clearing of U.S. listed issues through the DTCC is the fungibility of shares in the same issue without regard to the market on which the trade is executed. Thus, traders seeking to avoid the FTT would be very reluctant to clear outside of the system and the costs and effort to do so would likely be prohibitive. Equity derivatives also go into clearing systems located in the U.S. and linked to U.S. markets. All stock index and stock options are cleared through the Options Clearing Corporation and trades in the S&P 500 Index Futures are cleared at the Chicago Mercantile Exchange (CME). In this case also the cost and effort to circumvent these facilities in order to evade an FTT would be prohibitive.

Most currency trading, whether spot or derivative, is conducted away from centralized exchange markets (although trading in currency futures and currency futures options on the CME is significant). In this instance the issue is, to a large extent, the degree to which the government is interested in enforcing an FTT. As Baker argues, copyright enforcement faces many of the same problems as an FTT on currency trading but it is effective and provides a large amount of income to companies such as Microsoft. He also suggests a simple incentive scheme to ensure enforcement: whistle blowers, e.g. clerks in companies active in the currency market could be rewarded with a portion of the FTT levy recovered and the fines paid. This would provide both an incentive to these much lower paid employees and a deterrent to any trader or manager seeking to evade an FTT.

As detailed in Table 2 above, much of the trading in interest rate derivatives already occurs on centralized markets and is cleared through entities such as the CME's clearing house. In addition, the Fixed Income Clearing Corporation, an affiliate of the DTCC, clears much of the trading in U.S. government debt. In both cases therefore, a central clearing facility is already available to serve as the point of collection for an FTT.

A last point about tax avoidance is worth making. Of course there will be efforts on the part of some market participants to evade and FTT. That wealthy individuals and large financial (and other) institutions seek to evade taxes and are willing to violate the law in doing so is clear from the growing investigation into tax evasion among wealthy U.S. citizens using Swiss bank secrecy laws. Analogously, despite laws against murder and burglary, some individuals continue to engage in these activities and not all are caught. I am not aware that economists or others argue that, in light of such activity, we should repeal these laws.

The last argument, advanced more recently, is that an FTT would not be effective in taxing the financial sector because it would simply be passed on to customers. The first point to note in response is that the bulk of customer's trading in financial asset markets are themselves quite affluent and can easily afford any pass through, although they may also be effective in resisting this if they threaten to move their accounts. Secondly, since a large portion of the trading in all three markets is proprietary in nature, there is no customer – except the bank, hedge fund or non-financial corporation effecting the trade. Thus there is no one to pass the FTT though to.

C. Conclusion

In sum, I have made the following arguments concerning an FTT. First, an FTT should be designed to apply to all classes of financial assets and to apply across the range of products traded in financial asset markets. Second, a financial transaction tax has the potential for raising a significant amount of revenue. Third, at current trading levels an FTT could generate as much as \$1 trillion in revenue. Finally, equity and equity derivative trading, the most transparent markets and the easiest to tack, would generate the largest amount of revenue with spot currency and currency derivative markets the second largest source. Of course if trading were reduced because of such a tax, the revenue raising potential would also be reduced but would still appear to be significant.

An FTT is progressive in impact and would also have the potential to assist in restructuring the U.S. political economy away from an overdependence on finance and financial services. It is widely urged that such shift out of financial activities and a strengthening of manufacturing is a desirable goal but, to date, very little has been done along these lines.

Perhaps more important, however, is the political significance of an FTT. The tax could be cast in terms of Wall Street vs Main Street or it could be articulated as a matter of economic justice. In either case the financial sector would be called upon to return some of the assistance that was rendered to it during the melt down of 2008. This formulation

would have immense political appeal and, I think, help the U.S. break out of the politics-as-usual gridlock into which we have drifted after the initial enthusiasm of the Obama election and the sense that the times were right for change. As the earlier reference to Gordon Brown and Alistair Darling of the UK suggests, I believe that the political appeal of a well structured FTT would also likely transcend national borders.

In urging an FTT progressives should, I believe, tie the revenues to programs and policies that distribute benefits widely and would be seen to be such. For example, a significant portion of FTT revenues could be earmarked for a jobs program designed not simply to recover the over 8 million jobs lost since December 2007 but to expand access to good jobs across the U.S. labor force. Revenues from an FTT tied to a jobs program could also be the basis for an industrial policy that restructured the U.S. economy along the lines of sustained and sustainable growth that increases equality rather than inequality.²⁰ The possibilities are visionary in scope. What we need now is the political will to move forward.

1. See for example, Lawrence and Victoria Summers, “When Financial Markets work too Well: A Cautious Case for a Securities Transaction Tax,” *Journal of Financial Services Research*, 3:261-286 (1989) or Dean Baker, “The Benefits of a Financial Transactions Tax,” Center for Economic and Policy Research, Dec 2008. Both of these articles raise excellent points in their discussions of an FTT but both are based on data from a period in which financial markets were significantly smaller than today. In late 2009, Dean Baker, Robert Pollin, Travis McArthur & Matt Sherman have published an assessment of potential FTT revenue using recent market data: “The Potential Revenue from Financial Transaction Taxes,” PERI Working Paper #212.
2. Data in these two paragraphs are taken from the 1999 **Securities Industry Fact Book** and the **2008 Annual Report** of the World Federation of Exchanges (WFE).
3. In derivative trading, e.g. options or futures, notional value refers to the value of the underlying instrument represented by the derivatives contract. For example, if the S&P index is at 1000 and the futures contract is value at \$100 x the index, the notional value of each contract is \$100,000.
4. Data on notional value are taken from the World Federation of Exchanges **2009 Annual Report**. See www.world-exchanges.org.
5. Data on turnover and traded value are taken from relevant years of World Federation of Exchanges annual reports.
6. See Baker, 2008 for an example of the premia approach to applying an FTT to option trading. The premium based approach to an FTT may be more appropriate for options on individual stocks where exercise into the underlying equity is possible. Because the value of such trading is small relative to that for index options and futures we do not include an estimate of the additional revenue that could be raised from this source.
7. See BIS: **Triennial Central Bank Survey of Foreign Exchange and Derivative Market Activity in 2007 – Final Results**.
8. William Funk, “On and Over the Horizon: Emerging Issues in US. Taxation of Investments”, **Houston Business and Tax Journal**. Funk discusses FTTs on pp 40 – 44.
9. “Changes in U.S. Family Finances from 2004 to 2007: Evidence from the Survey of Consumer Finances,” Federal Reserve Bulletin, February 2009.
10. On non-financial corporations move into financial activities, see Robert Pollin and Dean Baker, “Public Investment Policy and U.S. Economic Renewal,” PERI Working Paper #211, esp. pp10 - 12.
11. Calculated from Securities Industry Association **Fact Books**, relevant year’s tables on the NYSE member firm revenues and expenses.
12. See BIS, op cit, p. 9.
13. See BIS, op cit, p. 6.
14. See BIS, op cit, p. 5.
15. James Tobin, “On the Efficiency of the Financial System,” Lloyds Bank review, July 1984
16. See Summers and Summers for a good treatment of many of the arguments against an FTT. I draw heavily on their discussion.

17. See for example, Habermeier and Kirilenko, “Securities Transaction Taxes and Financial Markets” in **Debating the Tobin Tax**, New Rules for Global Finance Coalition, Washington DC, 2003.
18. Kenneth French and Richard Roll, “Stock Return Variances: The Arrival of Information and the Reaction of Traders,” *Journal of Financial Economics*, 1987, pp.5 – 26, cited in Summers & Summers, op. cit.
19. Baker, “Tobin Taxes: Are they Enforceable?” in **Debating the Tobin Tax: New Rules for Global Finance**.
20. For one example of such a jobs program, see “A Permanent Jobs Program form the U.S: Economic Restructuring to meet Human Needs,” at www.cpegonline.org