Why the Tobin Tax Can Be Stabilizing

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The tax proposed by the Nobel laureate Yale economist James Tobin (1974, 1978, 1994, 1996)[1] on international currency transactions has the unique distinction of having attracted the ire of a power no less than the U.S. Congress. Introduced by Bob Dole and three other politicians, the "Prohibition on United Nations Taxation Act of 1996" aimed at preventing UN officials and agencies from developing or promoting the Tobin tax or any other international taxation scheme under a different name.[2] Leaving aside the irony of a country with the greatest arrears in its dues to the UN, telling the international body what it should and should not do, what made the Tobin tax such an unwelcome proposal to the U.S. Congress was, as Raffer (1998) argues, its potential to bolster national autonomy and distribute the tax burden more equally around the globe. Both ran "counter to current tide of liberalization, globalization, and tax reductions for the well-off" (p. 530).

Tobin's main reason for proposing his tax was of course more technical in nature. His main concern was to curb currency speculation, which he thought was responsible for the much greater frequency of exchange rate crises around the world since the trend of capital liberalization took hold. In much of the academic criticism on the Tobin tax, the debate concentrated on its feasibility and the "distorting" effects it would have as any tax does on private decisions.[3] Some also cautioned against its potential to detract attention from discussions of more far reaching solutions to the problem of international financial volatility (Taylor and Eatwell 2000, p. 93). But, few if any other than Davidson (1997, 1998) have questioned - on Keynesian grounds - that in theory such a transaction tax would dampen financial volatility and curb "excessive" speculation. In Davidson's view, such a transactions tax would have, if anything, the effect of increasing volatility rather than dampening it. The issue is clearly important because if a case cannot be made that the Tobin tax is stabilizing then much of the rest of the discussion on it is probably moot.

In his criticism of the proposed tax, Davidson stresses that the main function of financial markets is to provide *liquidity*, and, as such, a thick market with "greater ease of exit" for holders of securities is likely to be more stable than a thin one, all else being the same.[4] He thus argues that trying to reduce the volume of transactions by raising transaction costs is no remedy for market volatility. While Davidson is right to argue that excessive *volume* of transactions in itself is not a source of market *volatility per se*, he is wrong to conclude that a Tobin tax would have no stabilizing effect. What makes such a tax potentially stabilizing is its negative impact on the *speed* of reaction of market traders to price changes. To the extent they cause traders in financial markets to *delay* their decisions, a few "grains of sand in the wheels of international finance" can indeed be *stabilizing*. Whether they would be sufficient on their own or need boulders to prevent speculative attacks on currencies is a different matter.[5]

Davidson's argument is based on the assumption that levying a transaction tax raises the "cost of reversing decisions" to

traders in financial markets and thus has the effect of increasing the "risk premium." A higher risk premium, in turn, implies greater volatility since prices of financial assets have to fall (rise) in the downturn (upturn) relatively more before traders are willing to buy (sell) in view of the higher risk. Though this argument is just not correct if the said tax is perceived to have an impact on the market-wide "systematic" risk, the issue of the determinants of risk premium, especially in foreign exchange markets, is sufficiently complex to warrant a separate discussion. Thus, except for a brief comment at the end, in what is to follow I confine my attention to showing how a transaction tax of the type proposed by Tobin can be stabilizing through its impact on the market *speed* of adjustment, independently of the volume of transactions. Because the issue of using a transaction tax to dampen the destabilizing effects of speculation is in principle the same in securities and currency markets with liberalized capital movements, the unique features of the latter can be ignored at the general level the question is posed below.

From the point of view of orthodox theory of finance, with a given information set, the prevailing asset prices must be the best estimates of "true" values. If securities are thought to be undervalued, then speculators would continue to buy them until their prices are bid up to a level that is no longer considered low. Likewise, if securities are thought to be overvalued, again, arbitrage would bring their value down to a level consistent with what is considered to be their "true" value. Indeed, if the *market* consists of smart traders who know (or have a good idea about) what the future price is and a group of misinformed noise traders who buy when prices are rising and sell when they are falling, then speculation clearly is stabilizing. When the asset price in question rises above the expected future price, speculators would sell and when the present price falls they would buy. Thus, by exploiting the risk free arbitrage opportunities the noise traders create, speculators would bring the actual price into conformity with the expected future price, which is equal to its true value.

Expressed mathematically, this implies that, upon displacement, the change of price is a function of the difference between actual spot price and the expected future price:

$$\frac{dP}{dt} = j(\overline{P}_e - P) \quad , (1)$$

where, $\overline{P}_e$ is the future expected price which is assumed to be constant, and j is the adjustment coefficient indicating the speed with which traders act. When

$$P > \overline{P}_e \quad \text{then} \quad \frac{dP}{dt} < 0$$

and $P < \overline{P}_e$ then $\frac{dP}{dt} > 0$

This implies that the time path of the spot price, given by,

$$P(t) = P(0)e^{-jt} + \overline{P} \quad ,$$

is always stable since the stability condition $j > 0$ is always satisfied by definition.

However, in the real world, the deviation of actual prices from levels that are thought to be their true values seldom creates *riskless* arbitrage opportunities even when speculators know with certainty what the "true" value is. With a finite time horizon, a speculator who sells overvalued assets short can find that by the time s/he is supposed to liquidate his/her position the true value increases due to some unexpected event, or, that the price might be even more overpriced. Because the speculators would be making losses in both cases, the fear of loss would limit the initial positions they take and thus prevent them from driving the price towards to its true value. Clearly, if we drop the assumption that speculators know what the true value is, the risk of loss they face is even higher, and the compensatory shift in demand smaller.

One reason why economists had so little interest in noise trading in financial markets until recently was because of Friedman's (1953) influential argument that noise traders' impact on the market had to be insignificant since they would be losing their money to smart traders and thus cease to be influential. The following rise of "efficient market hypothesis" in the 1960s seems to have bolstered Friedman's intuition by giving credence to the idea that actual prices must be the best

estimates of true values. However, in light of the recent powerful backlash against the "efficient market hypothesis" in the finance literature, Friedman's contention now appears far from persuasive, if it ever was.[6] Successful speculators it turns out themselves act like noise traders; in the short run they feed the bubble rather than help deflate it (de Long *et al.* 1990).[7]

All this, of course, is quite consistent with Keynes' well-known "beauty contest" analogy which stresses that traders' decisions are informed by what they think the average opinion about average opinion is. This means that *noise* (Black 1986), just as much as information about fundamentals, move prices, and thus the resale price is intractably uncertain. As Kaldor so succinctly put it back in 1939, building on Keynes' analysis, the crucial issue in assessing stability in an environment characterized by uncertainty about true value and future resale price is the elasticity of future price expectations with respect to present price changes. In other words, whether speculation is stabilizing or not depends on the extent to which traders' expectations with regard to the future price varies proportionally more or less than the present price change. A simple way in which this can be expressed is as follows:

$$P^e = \overline{P} + \sigma \frac{dP}{dt}, \quad (2)$$

where P^e is the expected future price, $\overline{P}$ is what the true value is believed to be and is constant, and σ is positive and the coefficient of elasticity for expected future price with respect to the actual price change.

Plugging (2) in (1) gives:

$$\frac{dP}{dt} = j[\overline{P} + \sigma \frac{dP}{dt} - P],$$

and rearranging we get;

$$\frac{dP}{dt} + \frac{j}{1 - \sigma j} P = \frac{j}{1 - \sigma j} \overline{P}$$

which, in turn yields the following time path of price;

$$P(t) = [P(0) - \overline{P}]e^{-\frac{j}{1-\sigma j}t} + \overline{P}$$

While the particular solution is still the same ($\overline{P}$), the stability condition now becomes: $\sigma < \frac{1}{j}$, showing that stability depends on both the elasticity of expectations and the speed of reaction.

In his discussion, Kaldor (1939) focused on less than unitary elasticity of expectations ($\sigma < 1$) as the main condition of stability. However, the above formulation shows that the speed of reaction also matters, and that Kaldor's result is consistent with the assumption of an instantaneous reaction speed, ($j = 1$). With a given elasticity of expectations of future price, a smaller value of j, indicating a slower reaction speed on the part of traders, increases, *ceteris paribus*, the possibility of stability. Thus, if a transaction tax indeed has the effect of delaying the decisions of traders in the face of asset price changes, such that j is lowered to a point where it becomes $j < \frac{1}{\sigma}$ when it was not before, then *ceteris paribus* the Tobin tax is stabilizing.

Moreover, the Tobin tax can also have a stabilizing effect on account of lowering the elasticity of expectations, σ, as argued by Arestis and Sawyer (1997, p. 760).[9] It is plausible that market perception of systematic risk and thus the risk premium is reduced by the onset of the transaction tax itself - a possibility that undercuts Davidson's very intuition.[10] As Mehra and Prescott (1985) argue, the higher risk premium and thus the higher *equity premium* in the stock market reflect the greater unpredictability of trader *sentiment* about stocks in relation to other assets such as bonds. Thus, even though it increases transaction costs and might reduce the liquidity of the market, the Tobin tax could very well have the

net effect of lowering the risk premium by diminishing the traders' perception of the unpredictability of trader sentiment in currency markets. This might have been the main reason why Keynes himself thought that a transaction tax in the stock market, though it would reduce liquidity, could still "mitigate the predominance of speculation over enterprise."[11]

While what is argued here says nothing on whether the Tobin tax would be sufficient to prevent speculative attacks on currency or the abrupt changes of market sentiment Keynes had talked about, it is meant to help clarify the principle reason why such a tax can have a stabilizing influence in the first place.

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NOTES

1. See also, Eichengreen, Tobin and Wyplosz (1995).
2. Though most UN officials would be reluctant to acknowledge it in public, but attest to it in private, this unilateral "prohibition" on the UN had been amazingly effective in bringing to an abrupt halt any discussion of the Tobin tax in the world body. UN folklore has it that the copies of a particular book, edited by some UN officials, on the Tobin tax that had just been shipped from the printer at the time the U.S. "threw its weight around" were just left unopened in their boxes at many of the UN agencies.
3. See, Haq *et al.* (1996) comprising a comprehensive set of papers on, mainly for and some against, the Tobin tax. Also, see Griffith-Jones*et al.* (2001) and Griffith-Jones (1998) on the increasing volatility of international short-term capital movements that raised interest in the Tobin tax in the first place.
4. See also Bernstein (1998) for a lucid statement of the view of financial markets that underlies Davidson's argument. For some background on Keynes' views on the desirability of a transaction tax to curb speculation, see Raines and Leathers (2000, Chp. 5) and Dimand and Dore (2000).
5. The discussion here also does not address Davidson's unsubstantiated assertion that the Tobin tax would hinder international trade in real goods and services.

6. As it is well known "the efficient market hypothesis" goes back to Samuelson's (1965) "proof" that in a market that is *efficient* in appropriating all available information stock prices should exhibit a random walk, and Fama's (1965) "demonstration" that the stock market almost actually does. But, it turns out neither proposition is valid. Empirically, it is shown that stock prices do not exhibit random walk, and theoretically it is argued that *unforeseeable* prices are neither necessary nor sufficient for *rationally* determined stock prices. See, among others, Shleifer and Summers (1990), Shleifer (2000), Lo and MacKinlay (2002), Bossaerts (2002) and Schiller (2000).

7. Interestingly, this is exactly how the famous speculator George Soros (1987) describes what a successful speculative strategy entails: jumping on the bandwagon of noise traders and knowing when to get off while the rest rides on. In the earlier literature on noise trading, the risk aversion on the part of rational traders prevents them from eliminating noise driven price movements.

8. See also Hicks (1946, pp. 205-6).

9. See also Palley (1999).

10. The fact that one can theoretically think of better institutional arrangement that can better achieve this result is yet again a different issue.

11. "It is usually agreed that casinos should, in the public interest, be inaccessible and expensive. And perhaps the same is true of Stock Exchanges. That the sins of the London Stock Exchange are less than those of Wall Street may be due, not so much to differences of national character, as to the fact that to the average Englishman Throgmorton Street is, compared with Wall Street to the average American, inaccessible and very expensive. The jobber's "turn", the high brokerage charges and the heavy transfer tax payable to the Exchequer, which attend dealings on the London Stock Exchange, sufficiently diminish the liquidity of the market (although the practice of the fortnightly accounts operates the other way) to rule out a large proportion of the transactions characteristic of Wall Street. The introduction of a substantial Government transfer tax on all transactions might prove the most serviceable reform available, with a view to mitigating the predominance of speculation over enterprise in the United States" (1936, pp. 159-160).