

# Securities Transactions Taxes (STTs)

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# Global Empirical Findings

- ❖ STTs have negative effects on price discovery and market liquidity
- ❖ STTs adversely affect VOLATILITY of trading volumes: contra-effect
- ❖ STTs do not just throw sand in the wheels of finance (as intended?)
- ❖ They seize up the dealing engine that drives financial markets
- ❖ STTs reduce market efficiency and exacerbate asset price volatility
- ❖ Markets need broker-dealers for price discovery, liquidity, stability
- ❖ STTs adversely affect dealer ability to transform effective demand for securities into realised transactions by impeding inter-dealer trading that is so essential for 'inventory risk management'

## Global Empirical Findings (contd.)

- ❖ STTs do not reduce volatility caused by ‘noise’ or speculative day trading as is supposed or intended
- ❖ They add to volatility by introducing unnecessary frictions in price discovery and impeding inter-dealer trading markets and volumes
- ❖ STT friction on one asset class introduces distortions in pricing and price discovery of that and other assets (including derivatives)
- ❖ Trading volume migrates to other markets/assets not subject to STT
- ❖ Difficult (impossible?) to design non-discriminatory STT affecting asset portfolios equally, thus avoiding STT driven portfolio choices
- ❖ STT introduction in any country has always had a price-depressing impact at the time of introduction and serial distortion effects after.

# The Swedish Experience 1983-1991

- ✓ STT introduced in 1983, doubled in 1986, abolished in 1991
- ✓ Revenue impact was minimal. Trading migrated to London
- ✓ Foreign investors avoided STT by placing orders in London
- ✓ Domestic investors used offshore accounts and foreign brokers
- ✓ Broadening STT to cover bonds resulted in sharp drops in Swedish government bills and bonds and in related derivative contracts
- ✓ This undermined Bank of Sweden's ability to conduct monetary policy
- ✓ Bond trading fell so dramatically that popular support for STTs vanished
- ✓ STT's on fixed income were abolished in 1990; and all STTs in 1991.
- ✓ **Lessons from Sweden:**
- ✓ **STT's can and will be avoided to the extent possible; Markets and volumes move offshore; Trading shifts to other assets; Contracts are devised to defeat the STT; when STT is removed some volume migrates back; but there is always a permanent loss to other markets.**
- ✓ **Japan, Brazil have also abolished STT. UK is moving toward that goal.**

# The Issue of Trading Volumes (1)

- Trading volume is not simply an outcome of the trading process; nor is speculative day trading as rampant as suspected in boosting volumes
- Volume has intrinsic value in transmitting key market information
- Trading volume is boosted by inter-dealer trading which is indispensable
- Dealers provide liquidity, assume risks. As market-makers, they have to provide capital to assure bid-ask on which they seek a reasonable return
- Bid-ask quotes cannot be made/will have no validity unless dealers can transact reasonable quantities at quoted prices. They must have inventory
- Without inventory they cannot offer price stability nor price discovery
- Liquidity, Price Discovery, Price Stability require inventory management
- Inventory management drives dealer trading volumes to maintain sufficient market competition and efficiency. But it involves risk.
- Inter-dealer trading is fundamental for managing inventory risk
- STT's complicate interdealer trading; add to inventory management risk

## The Issue of Trading Volumes (2)

- STTs cause volumes to migrate, diminishing information efficiency
- STTs lead to volume reduction/fragmentation
- Result: Market Segmentation and Inefficient Price Discovery
- Several empirical studies across a number of countries show no positive impact of STTs on reducing supposedly '*destabilising*' trading volatility.
- Some studies indicate an overall negative impact on market efficiency
- STT's cause tax-driven portfolio shifts in asset choices; making other assets not affected by the STT more price/volume volatile.
- STTs do not succeed in moderating trading volumes to reflect 'reality'
- They shift trading to other markets (cf. Sweden in 1986) and assets
- That results in permanent volume losses to markets with STT's.
- Sweden lost volume share to London even after STT was removed
- Japan lost volume to SNG and US markets when STTs were in force
- But did not recover it completely when the STT was removed.

## Understanding 'Noise Effects' in Trading Volumes

- Demand for an asset changes when an STT is introduced on that asset
- Demand for F/O and other derivatives on that asset rises
- But demand for the underlying spot security (share or bond) falls
- Changes in demand are reflected in changes in trading volumes
- Does that matter?
- **Under the standard rational expectations model (SREM):**
- Trading orders have both 'useful signal' and 'noise' components
- Without 'noise' there is no aggregate supply uncertainty about the asset
- Prices of the asset adjust immediately to 'full information' values.
- When the 'genuine signal' component is aggregated with 'noise' the information content of the 'price signal' emitted is compromised.
- Volume then becomes a simple outcome of the trading process.
- It does not emit useful signals about underlying asset values.
- In that case, migration of volume to other assets, instruments, markets should not matter; it just signals a relocation of supply uncertainty.

## Understanding 'Noise Effects' in Trading Volumes

- **But is the SREM view that “volume is not valuable information” correct?**
- Contrary to the SREM view, **other new analysis suggests that:**
- The source of 'noise' is not simply uncertainty about asset supply
- It concerns precision of private information about the genuine 'signal'
- Prices reflect an aggregate average of the value of private information
- Volumes convey information about the precision of private signals
- Volumes thus play a valuable, non-trivial informational role
- That results in combined price-volume signals being more informative and valuable than price signals alone; particularly for less traded, less liquid stocks not subject to significant analyst coverage
- Volume data on derivatives can convey even more valuable information on future securities prices
- VOLUMES MATTER: They are direct determinants of market efficiency
- So when STTs affect trading volumes, they lower information efficiency of markets, thus preventing more efficient resource allocation.

# The Issue of Volatility

Volatility typically (and normally) caused/explained by:

1. Arrival of continuous stream of public information in trading hours
  2. Informed investors translating private information into asset prices
  3. Price movements during trading due to: demand-supply variables, market frictions, broker inventory-risk management, and transactions costs
- Trading Process accounts for 12% of daily return variance (DRV) at most
  - Over 90% of variance (DRV) is attributable to normal market interaction of public-private information exercised during trading hours
  - *Ceteris paribus*: higher transaction costs increase price volatility
  - STTs can therefore have an effect opposite to that intended:
  - **i.e. they can actually increase volatility instead of reducing it.**

# Understanding Price Formation

- ✓ Ideally asset prices should reflect all information available at a time
- ✓ As new information arrives, investors rebalance asset portfolios
- ✓ Trading is a continuous process of new information updating asset prices
- ✓ With no transactions costs, rebalancing is done automatically and continuously. Price discrepancies are eliminated instantly.
- ✓ Even small Transactions Taxes/Costs introduce large frictional costs
- ✓ Cascade effects make continuous portfolio rebalancing far more costly
- ✓ That prevents valuable information from being reflected in prices
- ✓ Prices then do not reflect full information values and emit poor signals
- ✓ That introduces trading/pricing distortions attempting to capture better price signals to enable better dealer inventory risk management
- ✓ But instead of correcting distortions such compensatory trading often results in amplifying price distortions instead

# The Myth of STT Coverage & Neutrality

- ❖ Almost impossible to design a non-discriminatory STT that does not influence asset portfolio choices in unintended ways.
- ❖ A uniform small STT is NOT 'pay-off neutral' across asset portfolios
- ❖ For STT to be **pay-off neutral**, the STT rate must be such that a change in the value of a replicating portfolio is exactly equal to a change in the price of the underlying asset to which STT is applied.
- ❖ i.e. the STT rate must depend on the 'delta' of the replicating portfolio
- ❖ But, in practice, the 'delta' changes as more information is revealed.
- ❖ So, a 'pay-off neutral' STT would have to be very frequently adjusted in real time to equalise the pay-off of replicating portfolios.
- ❖ In the real world that makes it impossible to implement an STT that is actually 'pay-off neutral' and non-discriminatory across asset classes.

# STTs around the World

**Table 1: Transaction Taxes around the World**

Country	Tax Size	Description	Changes since 1991
Australia	0.3%	Transaction tax	Additional stamp tax removed in 1991
Austria	0.15% 0.06% 0.04%-0.09%	Transfer tax Arrangement fee Courage fee	May be avoided by trading off exchange May be avoided by trading off exchange
Belgium	0.17% 0.025%	Stamp tax on purchases and sales Stock market fee	No tax ex country; maximum of 10,000 Belgian francs No tax ex country; maximum of 2,500 Belgian francs
Finland	0.5%	Transaction fee	Waived if parties foreign; eliminated in 1992
France	0.15%	Trading tax	Tax on trades greater than 1 million francs; rate is doubled on smaller transactions; may be avoided by trading ex country
Germany	0.125% 0.06%	Boersenumsatzsteuer Courage tax (official border fee)	Residents only May be avoided by trading ex country
Hong Kong	0.25% 0.006% 0.05%	Stamp duty Special levy Exchange levy	May be avoided by trading off market May be avoided by trading off market
Italy	0.05%	Stamp duty tax	May be avoided by trading ex country
Japan	0.30%	Sales tax	May be avoided by trading ex country; eliminated in 1999
Malaysia	0.05% 0.3%	Clearing fee Transfer stamp duty on purchases and sales	Maximum \$100; may be avoided by trading off exchange Eliminated in 1992
New Zealand	0.0057% plus per trade fee	Transaction levy	May be avoided by trading off exchange; eliminated in 1992
Singapore	0.1% 0.05% 0.2%	Contract stamp duty Clearing fee Transfer stamp duty	May be avoided by trading off exchange Maximum \$100; may be avoided by trading off exchange Purchase only; eliminated in 1992
Sweden	0.5%	Turnover tax	May be avoided by trading ex country; eliminated in 1991
Switzerland	0.0005% 0.01% 0.075%	Exchange fee State tax Stamp tax	May be avoided by trading ex country May be avoided by trading ex country May be avoided by trading ex country
United States	0.0034%	SEC fee	
United Kingdom	2 pounds 0.5%	Levy Stamp duty tax	On trades over 5,000 pounds On purchases only

Source: Compiled by author from various sources including Jeffrey Frankel, "How Well Do Foreign Exchange Markets Work: Might a Tobin Tax Help?," in Mabbub ul Haq, Inge Kaul and Isabelle Grunberg (eds.), *The Tobin Tax: Coping with Financial Volatility*, Oxford University Press, New York, p. 70, 1996; and Karl Habermeier and Andrei Kirilenko, "Securities Transaction Taxes and Financial Markets," *IMF Working Paper*, WP/01/51, IMF, May 2001.

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## Issues to Consider in the Indian Context:

- The world has changed
- Trading in India is no longer the only game in town
- Many uncertainties concerning trading in India remain unresolved
- Policy obduracy on openness has strengthened not diminished
- Consequently activity outside the country has blossomed:
  - INR NDF (roughly half the onshore forward turnover)
  - Nifty futures @ SGX (roughly half the onshore open interest)
  - CDS (100% market share overseas)
  - ADRs / GDRs (bigger than the onshore market in a few cases!)
  - OTC equity derivatives market (100% market share overseas)
  - Interest rate derivatives (nobody knows how much is where)
- But Indian policymakers remain stuck in command-control mode
- They still live in an imaginary world where capital controls work.
- But the private sector is obliged to recognize reality
- The cost of 'splendid isolation' fantasy for the real world is too high
- So: a growing chunk of the business is going offshore.

## An Example - Index Futures - NSE vs. CME

- ✓ **NSE charges:** 0.2 bp NSE fee + 0.01bp for IPF + 0.2 bp Stamp Duty + 12.24% service tax on brokerage fee + STT=1.7 bp on sales. Total comes to 2.2bp (of which NSE fee is one-eleventh; rest is government tax on transactions of one sort or another)
- ✓ **CME charges:** \$0.35 per contract with caps on any single firm's proprietary transactions of \$250 per day for Futures + Options
- ✓ Adjusting notional contract values for comparability across NSE and CME for the same volume of trading we see that the round-trip charges in INR equivalents come out to:

	<u>NSE</u>	<u>CME</u>
Retail Customers:	3,344	374
High Volume Firm Traders	1,235	109
Proprietary Trading	789	31

If there were open competition all NSE trading would shift to CME

# An Example - Commodities - India vs. Others

- Report in HT April 21<sup>st</sup>, 2008
- Two months after introduction of CTT there is discernible movement of trades to cheaper exchanges overseas and to 'off-market' deals
- Transactions being settled outside exchanges at exchange prices but without margins of taxes
- Average turnover of commodity exchanges has dropped by 25%
- Dabba trading has revived big-time in mentha oil and gujjar seed
- The 12% service tax and CTT of Rs 17 per Rs 100,000 increases total transaction costs dramatically:

<u>Country/Region</u>	<u>Transaction Cost per INR lakh</u>
US (CME/CBOT)	INR 0.71 to 2.00
EU (LME/LIFFE)	INR 0.05 to 1.12
China	INR 5.00 to 7.50
Malaysia	INR 2.00
Japan	INR 2.00 to 4.00
India	INR 19.25 (after ST/CTT)

## Transactions Taxes Damage Sophisticated Markets Most

- ✓ An efficient derivatives market requires vibrant arbitrage
- ✓ I.e. spot-futures arbitrage, dynamic hedging with options, etc.
- ✓ The incidence of STT falls disproportionately on this market.
- ✓ To a layman the damage isn't obvious
- ✓ The damage is in the lack of unity between markets for spot, futures, options, etc.
- ✓ TC's make the market less appealing for the buyer and writer
- ✓ They damage the entire trading market across the board.
- ✓ But derivatives suffer disproportionate damage with STT.
- ✓ Yet this is precisely the market critical to price discovery
- ✓ What we are now witnessing is the loss of a number of key derivative contracts to offshore markets
- ✓ That trend will accelerate if we keep the present transaction cost (TC) structure in place

**High TC's will drive financial trading on Indian securities and contracts offshore.**