

Australia's Tobin Tax: Arguments and evidence

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“A financial transactions tax is an idea whose time has come.”

Paul Krugman

Nobel Prize in Economics

Professor of Economics, Princeton University¹

Executive Summary

A tax on financial transactions, or “Tobin” tax, could protect superannuation investors, improve the operation of Australia’s capital markets and provide a source of tax revenue worth over \$1 billion per year.

Protecting investors

Australia’s super funds and retail investors are losing up to \$2 billion per year due to practices such as high-frequency trading (HFT). HFT investors use powerful computers to trade large volumes of assets at very high speeds, completing transactions in a fraction of a second. HFT traders are able to buy up the shares that normal investors have ordered, pushing up the price, before selling at the higher price to normal investors, who are unable to process their orders at such speeds. A Tobin tax would reduce the ability of HFT traders to affect market prices and profit from super funds and retail investors.

Improving capital markets

A Tobin tax would reduce the volatility of capital markets that HFT creates, as incentives to trade large volumes exacerbating minor markets movements are reduced by the tax. A Tobin tax could also work to keep more investors on public exchanges and away from less transparent “dark pools”. This would improve transparency and the price formation function of capital markets.

Revenue

Between \$1 and \$1.4 billion could be raised by a Tobin tax on transactions of derivatives and securities, based on rates of 0.012 per cent to 0.35 per cent, using conservative assumptions on tax elasticity, regulatory cost impositions and evasion rates. Revenue would be raised in a highly progressive manner as financial assets and HFT funds are almost exclusively held by high income earners.

Existing Tobin taxes

Tobin taxes or some form of financial transaction tax are in effect in over a dozen jurisdictions internationally, including UK, France, Italy, Hong Kong and South Africa. Sweden had a financial transactions tax which was repealed.

Arguments against a Tobin tax

Some commentators oppose Tobin taxes arguing that they could mean investors leave the country. This was a key problem with Sweden’s tax, where investors were easily able to trade in similar markets. This problem has largely been overcome by improved tax design

¹ "Op-Ed Columnist - Taxing the Speculators - NYTimes.com." 2009. 22 Feb. 2015
<<http://www.nytimes.com/2009/11/27/opinion/27krugman.html>>

based on where companies are headquartered, as has been the case with the UK's "stamp duty" tax.

Another concern is that a Tobin tax would reduce liquidity in the market. While the tax would reduce the volume of trade, the nature of much of this trade, ie HFT, means that while volume is increased, the useful liquidity is not improved. On the contrary, many investors are pushed into off-market "dark pool" trading.

Arguments that a Tobin tax would impose a serious burden on business are not convincing. The ASX already levies a small fee on transactions, which could easily be extended to collect the tax on transactions.

Design

While many designs are possible, tax of between 0.01 per cent to 0.4 per cent on all wholesale capital market secondary transactions would discourage excessive speculation and market manipulation without distorting the primary function of the market. The rate could depend on the instrument in question and would be adjusted every five years in response to changing market conditions.

A well designed Tobin tax could significantly reduce costs for workers with superannuation accounts and retail investors, as well as improving the functioning of capital markets and raising significant government revenue.

Introduction

In theory, capital markets exist to allocate resources to the people that can best use them. Markets like the Australian Stock Exchange (or ASX) work to help companies get access to the capital they need to operate and grow, and to allow investors to find investments with a suitable level of risk and return.

In practice, however, markets are full of speculation and other practices that distort their fair and efficient operation. One practice that is gaining attention for this reason is high-frequency trading (HFT). HFT involves the buying and selling of large volumes of securities such as stocks or derivatives for very short periods of time - often for only fractions of a second. HFT uses sophisticated computers and mathematical algorithms designed to capitalise on millisecond-long discrepancies in stock prices.

For example, one HFT strategy is to push up or down the price of shares another investor is planning to buy or sell. Many markets allow traders to see other traders' orders of what they would like to buy or sell. If a high-frequency trader can see another trader's "buy order", they can intercept that order before it is processed and buy those shares themselves, pushing up their price. When the first investor's buy order is received, the high-frequency trader can quickly sell at the higher price they helped create, pocketing the profit created by the change in the share price. This all occurs in less than a second. Such changes in price are very small, so large volumes need to be traded.

Such practices are profitable for the high-frequency trader, but they take away from the normal investor's trade, creating an uneven trading environment by effectively "skimming profits". Journalist Penny Pryor, writing for Business Insider, explains:

HFT traders are able to work out the direction of trades by people, usually mums and dads, but also institutional investors. They can then push up the price of stock a retail trader might be trying to buy - by going in and buying it at a cheaper price and then on-selling it to you at the higher price - all in a fraction of a blink of an eye.²

The Australian Council of Trade Unions provides a similar summary:

An investor submits an order to a trading venue for shares in company XYZ. HFT traders are able to detect the order milliseconds before others. Sometimes...certain traders are given advance notice of an incoming order by around 0.03 seconds (these are called 'flash orders'). Knowing that an order is coming they buy all available shares in XYZ. The order then hits the market. The HFT traders can then sell the shares they bought milliseconds before for a higher price. Within a fraction of a second HFT traders have bought-low and sold-high - without any human intervention and with negligible risk.³

² "FLASH AUSSIE BOYS: How High-Frequency Trading Plays ..." 2014. 22 Feb. 2015
<<http://www.businessinsider.com.au/flash-aussie-boys-how-high-frequency-trading-is-playing-out-in-the-australian-market-2014-4>>

³ "High-Frequency Trading - Australian Council of Trade Unions." 22 Feb. 2015
<<http://www.actu.org.au/Images/Dynamic/attachments/7744/High-Frequency%20Trading%20-%20A%20Workers%E2%80%99%20Capital%20Briefing.pdf>>

HFT is carried out by specialists and not by retail investors or institutional investors such as superannuation funds. The Industry Super Network estimates that HFT is costing Australian investors and super funds up to \$2 billion a year.⁴

Rapid access to market information is crucial for HFT; mere milliseconds can be the difference between millions in additional profit or loss. HFT traders are willing to pay a premium to secure access to market information faster than their competitors. To get information faster, HFTs seek to their physical proximity to the exchange. Financial market operators such as the ASX make money from renting out computer space at their exchanges to HFTs.⁵ This process, known as **co-location**, increases the speed of access to information by just 1000ths of a second, but this difference can be crucial to HFT returns.

Nobel Prize-winning economist Joseph Stiglitz referred to the current situation as “an unlevel playing field”.⁶ There is a real and ongoing cost to normal investors and the efficient operation of markets. This inefficiency constitutes a market failure. There is thus a role that government should fulfill, to remove distortions from the market, level the playing fields and protect investors. One way this could be achieved is through a tax on financial transactions, also known as a “Tobin tax”.

What is a Tobin tax?

A Tobin tax is a tax on short-term financial transactions, or as their originator, Nobel Prize-winning macroeconomist James Tobin, put it “sand in the well-greased wheels” of financial speculation.⁷ Tobin’s original proposal was aimed at foreign currency trading and reducing the destabilising swings on currency markets following the end of the Bretton Woods currency system in the early 1970s.

Although named after Tobin, he was far from the first to make such a suggestion. Following the Great Depression, economist John Maynard Keynes argued for a financial transactions tax as an efficient way to stem uninformed market speculation creating excessive volatility.⁸

While Tobin’s suggestions were aimed at currency markets, the same idea has also been applied to other financial transactions. By charging a small tax on transactions, typically less than one per cent of the transaction value, there is a disincentive for large volumes of short term trading, such as with HFT.

In some circumstances the primary goal of a Tobin tax is to discourage speculative and destabilising trading, while at the same time it is a revenue raising instrument. Both sides have been important in implementing these taxes in various jurisdictions.

Where have Tobin taxes been implemented?

Currently more than a dozen jurisdictions have some sort of a financial transaction tax, including Hong Kong, London, Korea, Taiwan and South Africa.⁹

⁴ "High-speed trading costs investors \$2b, say industry super ..." 7 April 2014 <<http://www.smh.com.au/business/markets/highspeed-trading-costs-investors-2b-say-industry-super-funds-20140407-367cz.html>>

⁵ Corkery, Jim, and Kristen Zornada. "High-frequency trading and a financial transactions tax." *Revenue Law Journal* 22.1 (2012): 3.

⁶ "Stiglitz Calls High-Speed Trading - Bloomberg." 22 Feb. 2015 <<http://www.bloomberg.com/news/articles/2014-04-15/stiglitz-calls-high-speed-trading-front-running-suggests-tax>>

⁷ "What's not to like? • Inside Story." 2014. 22 Feb. 2015 <<http://insidestory.org.au/whats-not-to-like/>>

⁸ Spratt, Stephen. "A Sterling Solution: A Report for Stamp Out Poverty." *London, September 2006*, <<http://www.stampoutpoverty.org/wp-content/uploads/2012/10/A-Sterling-Solution.pdf>>.

In August 2012, France implemented a limited Tobin tax on financial transactions of 0.2 per cent. Its scope was limited to companies with a market capitalisation of over \$1 billion euros, and then only on high-frequency trades and short sells of sovereign credit default swaps.

Italy has a 0.02 per cent tax on trades that occur in 0.5 seconds or less¹⁰. Total trade volumes dropped 10 per cent for the month of its implementation.

While political announcements around Italy and France's taxes focus on revenue raising to pay down public debt, reducing market volatility is the focus in Japan, where Former Deputy Finance Minister of Japan, Naoki Minezaki, suggested a transaction tax to dampen capital speculation.¹¹

Sweden had a Tobin tax on share trades and foreign-exchange dealing for seven years in the 1980s and 1990s. It was later repealed because share trading simply went elsewhere. However, Sweden's tax was unusually large at 0.5 per cent (a rate later doubled on some instruments).¹² In addition, the tax was levied on all transactions occurring on domestic markets, ignoring the capacity for traders to simply trade the same products on other markets not subject to the tax.

The United Kingdom's stamp duty tax avoids this design error by levying the tax on all security trades of a company with its base within its jurisdiction. This "source principle" prevents a substantial geographical shift of trading activity, as it applies to trading in the securities of companies which have their seat in the UK or whose parent company is based in the UK, regardless of whether those shares are bought or sold in London, Frankfurt, Paris or New York.¹³

The European Commission have advocated for a 0.1 per cent tax on the transfer of shares, bonds, and financial instruments, and a 0.001 per cent tax on derivatives.¹⁴ A European Union-wide special financial transaction tax is set to be introduced on January 1, 2016.¹⁵

Arguments for a Tobin tax in Australia

Compulsory superannuation means that all Australian workers are investors in capital markets. Australian industry and not-for-profit funds have considerable exposure to Australian and global capital markets. Cumulatively, they have billions invested in equities, bonds, derivatives and foreign exchange. Australian workers have a strong interest in stable and efficiently operating capital markets.

⁹ "The Financial Transaction Tax - Intereconomics." 2012. 4 Mar. 2015
<<http://www.intereconomics.eu/archiv/jahr/2012/2/809/>>

"Q&A: What is the Tobin Tax on financial trading?" BBC Business 10 September 2013.
<<http://www.bbc.com/news/business-15552412>>

¹⁰ "Italy launches tax on high-frequency transactions - CNBC.com." 2013. 22 Feb. 2015
<<http://www.cnbc.com/id/101002422>>

¹¹ "Japan Should Impose Taxes on Financial Trading, Minezaki ..." 2010. 23 Feb. 2015
<<http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aOYvwYcuJD5I>>

¹² Campbell, John Y, and Kenneth A Froot. "International experiences with securities transaction taxes." *The internationalization of equity markets* (1994): 277-308.

¹³ "The Financial Transaction Tax - Intereconomics." 2012. 4 Mar. 2015
<<http://www.intereconomics.eu/archiv/jahr/2012/2/809/>>

¹⁴ "The 'Robin Hood Tax' is neither simple nor the right solution." 22 Feb. 2015 <<http://theconversation.com/the-robin-hood-tax-is-neither-simple-nor-the-right-solution-23453>>

¹⁵ "Bring the Robin Hood tax to Australia - NSW Nurses and ..." 22 Feb. 2015 <<http://www.nswnma.asn.au/wp-content/uploads/2013/12/Bring-the-RH-tax-to-Australia.pdf>>

Furthermore, unlike some market participants such as high-frequency traders, super funds invest in assets for the underlying value they hold and create. They are not managed to speculate on short term speculation or market manipulation. As such, it is in these groups' interests to have a global system as secure, transparent and robust as possible. By reducing such practices with a Tobin tax, there would be less opportunity for short-term speculation bubbles to emerge and threaten the long-term investments of superannuation funds and retail investors.

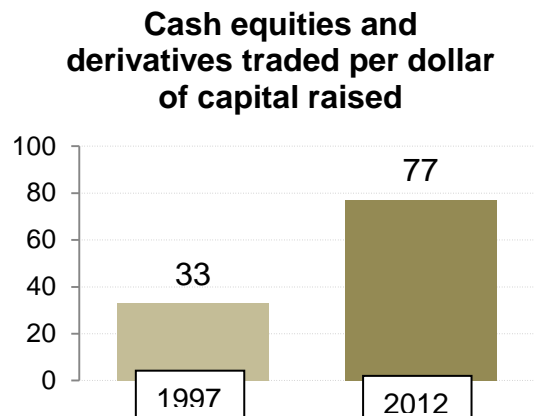
In the aftermath of the Global Financial Crisis, advocates for Tobin taxes claimed they might have a stabilising effect on world financial markets. While a Tobin tax would not, in and of itself, deter the recurrence of another financial crisis, Paul Krugman points out it could play a useful role:¹⁶

It's true that a transactions tax wouldn't have stopped lenders from making bad loans, or gullible investors from buying toxic waste backed by those loans.

*But bad investments aren't the whole story of the crisis. **What turned those bad investments into catastrophe was the financial system's excessive reliance on short-term money.***¹⁷

It is this reliance on "short-term money" that a financial transaction tax would curb, rather than the issuing of bad debt. The effect on market stability would not be to prevent all crashes, but to mitigate their impacts.

In last 20 years, Australia has seen enormous growth in the finance sector, and this has had an effect on the nature of trading. The efficiency of the capital market's primary role - namely, to allocate and distribute savings into investment in the economy - has been seriously eroded.



Source: Industry Super Australia, *Capital formation and Australia's capital markets* (2014).

Recent growth in trade volume is disproportionately occurring in the secondary market. Nevertheless, this growth has not been associated with a decrease in the cost of capital raising for businesses. In fact, the cost of capital has *increased* as short-term trading has grown as a ratio of total trade volume in Australia. This makes it more costly for businesses to raise capital to invest into expansion.

This is important because, in theory, increased trading indicates a growing number of buyers and sellers are in the market, leading to greater competition and lower costs required to raise

funding on the capital market. That the reverse has occurred suggests the market is failing in its role, and government intervention is necessary.

¹⁶ "Op-Ed Columnist - Taxing the Speculators - NYTimes.com." 2009. 22 Feb. 2015
<<http://www.nytimes.com/2009/11/27/opinion/27krugman.html>>

¹⁷ Emphasis added.

HFT can create enormous volatility in capital markets, potentially destabilising them. In 2011, for example, US insurance company Enstar Group Ltd had its share price fall from around \$US100 per share to \$0 in a few seconds, then quickly recovered to \$100.¹⁸

Jim Corkery, a professor of law at Bond University, summarised the effect of this hyper-liquidity¹⁹:

...High-frequency trades have introduced too much liquidity to the markets. Swings are becoming far more frequent, with some shares on the US and Australian markets fluctuating by 5% or so in quick time. Swings that once took weeks or days now take a few minutes. Good or bad news produces an almost instantaneous and exaggerated result on the market²⁰.

A Tobin tax in Australia would be highly progressive. Because a transaction lasting 5 seconds is taxed equally to one lasting five decades, owing to the nature of HFT, the more transactions you undertake, the greater your tax liability. HFT traders are unlikely to be lower income investors - HFTs must turnover enormous sums of capital to create meaningful profit. A 2013 study found that, for every \$10,000, HFT firms made \$USD0.43 profit, giving an indication that large amounts of capital are commanded by HFT traders.

A Tobin tax would reduce the number of investors moving away from public exchanges and moving towards less transparent “dark pools” for conducting their business. In “dark pools”, private forums for trading securities, information on trade orders are not as readily available to HFT investors. As these off-market transactions cannot as reliably be intercepted and exploited by HFTs, the margins for normal investors are higher. Investors leaving public exchanges erodes the price discovery power of on-market exchanges.

Furthermore, because traders cannot be guaranteed of the identity of who they are interacting with, some fear the utilisation of “dark pools” risks trade with entities of unknown solvency, elevating the effect of firm collapse and increasing the occurrence of violent share price fluctuations.²¹ There is also greater financial risk, as pre-trade market prices are not displayed, negating the positive intended effect that advocates for high-frequency trades suggest accompanies the behaviour (by more effectively identifying value of an asset).²²

Depth

The number of units a bidder is willing to buy or sell for any given price. A higher depth indicates a higher number of buyers and sellers, meaning greater capital liquidity.

(Source: Mizrahi, Bruce, and Christopher J. Neely. "The transition to electronic communications networks in the secondary treasury market." *Federal Reserve Bank of*

Liquidity

The time and cost required to turn a non-cash position into cash, and vice versa.

(Source: Gibson, Rajna, and Nicolas Mougeot. "The pricing of systematic liquidity risk: Empirical evidence from the US stock market." *Journal of banking & finance* 28.1 (2004): 157-178.)

¹⁸ "With High-Speed Trading, the Market Cannot Hold: Mark ..." 2014. 22 Feb. 2015
<<http://www.bloombergvew.com/articles/2011-10-05/with-high-speed-trading-market-cannot-hold-commentary-by-mark-buchanan>>

¹⁹ Corkery, Jim, and Kristen Zornada. "High-frequency trading and a financial transactions tax." *Revenue Law Journal* 22.1 (2012): 3.

²⁰ Emphasis added.

²¹ "Turning the table on high-frequency traders | Business ..." 2013. 22 Feb. 2015
<<http://www.businessspectator.com.au/article/2012/7/19/interest-rates/turning-table-high-frequency-traders>>

²² "Australia Model Curbs Speed as CEO Says US Too Far Gone." 4 Mar. 2015
<<http://www.bloomberg.com/news/articles/2014-04-03/australia-model-curbs-speed-as-ceo-says-u-s-too-far-gone>>

Bid-ask spread

The difference between the price at which you can buy an asset (the dealer's ask price) and the price at which you can sell the same asset at the same point in time (the dealer's bid price). Related to and a measure of liquidity.

(Source: Damodaran, Aswath. "Marketability and Value: Measuring the Illiquidity Discount." (2005))

ASIC estimates that, currently, dark pool trading accounts for around a quarter of all trades made by volume. ASIC believes increasing accumulation in dark pools widens **bid-ask spreads**, degrades the quality of price formation, lowers depth of public markets, and increases on-market volatility.²³ Increasing accumulation of capital in these pools of liquidity has the effect of increasing volatility, risk, and widening spreads for investors, increasing the cost of trading and reducing the ability of Australian companies to raise finance on the stock market by increasing the barrier for entry and thus demand for new stocks issued.

There is increasing evidence that, beyond a point, growth in the financial sector retards growth in the real economy, "dragging down overall growth and curbing productivity."²⁴

By distributing resources towards industries that are asset-backed and thus more easily collateralised and away from growth industries that are more dependent on research and development, regardless of what growth opportunities either present, an increasingly speculative financial sector becomes a source of inefficiency. In real terms, the Bank for International Settlements estimates the effect on productivity and GDP per worker in countries with rapidly growing financial sectors is around 2 per cent lower per year than countries without a rapidly growing financial sectors.²⁵

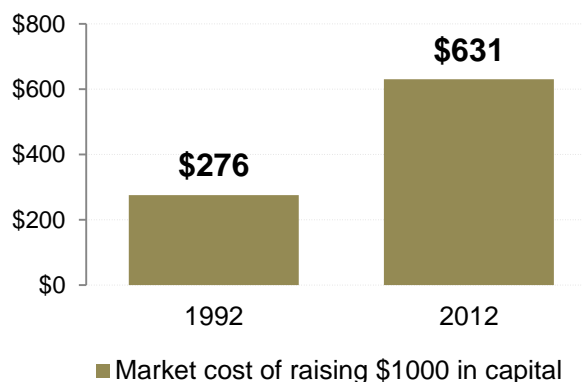
Arguments against a Tobin tax

Lower liquidity:

It is sometimes assumed that, owing to the increased volume of trades occurring due to HFTs, market liquidity is improved. To some extent, this is true. And as liquidity is desirable in most cases, there is a cost to imposing restrictions.

But not all liquidity is equally desirable. Much of the liquidity generated by HFTs is illusory and artificial, prompting author and trader Sal Arnuk to remark that HFTs "add volume, not liquidity".²⁶ HFT utilises enormous volumes of orders (signals of intention to trade) within seconds, the bulk of which are then cancelled. This strategy uses volume to adjust prices, which is then used to create profit opportunities. Owing to the increased flood of capital

Despite increased liquidity, the capital formation efficiency of the finance sector has rapidly declined



Source: Industry Super Australia. *Capital formation and Australia's capital markets* (2014)

²³ "Dark pools, high-frequency trading and competition | ASIC ..." 2014. 4 Mar. 2015 <<http://asic.gov.au/about-asic/media-centre/speeches/dark-pools-high-frequency-trading-and-competition/>>

²⁴ "Smothered by a Boom in Banking - NYTimes.com." 2015. 5 Mar. 2015 <<http://www.nytimes.com/2015/03/01/business/economy/smothered-by-a-boom-in-banking.html>>

²⁵ Cecchetti, Stephen G, and Enisse Kharroubi. "Why does financial sector growth crowd out real economic growth?." *Finance and the Wealth of Nations Workshop, Federal Reserve Bank of San Francisco & The Institute of New Economic Thinking* 27 Sep. 2013.

²⁶ "A Tax to Kill High Frequency Trading - Forbes." 2012. 23 Feb. 2015 <<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

into “dark pools” of off-market liquidity, the profitability of HFT firms have decreased as volumes traded decrease.²⁷

Similarly, the theory that additional liquidity constitutes greater price discovery capacity, widely accepted in the leadup to the Great Financial Crisis,²⁸ has been challenged since the recession. Regulators prohibit trading on insider knowledge or private information, despite its negative effect on liquidity.

It is also important to distinguish between short- and long-term liquidity. Empirical studies have found that liquidity disappears from a market far more quickly amid a downturn than it does in more ‘bullish’ trading.²⁹ Because trading liquidity is affected by ‘herd’ momentum weakly correlated with underlying economic activity, periods of downturn can be exacerbated by excess liquidity, rather than buffered by it.^{30,31} At a time when stability is most necessary for traders, excess liquidity exaggerates downturns, pushing more long-term traders out of the market.

Derivative

A financial contract whose value is based on, or derived from, another financial instrument (such as a bond or share) or a market index (such as the Share Price Index). Examples of derivatives include futures, forwards, swaps and options.

(Source: RBA: Glossary. Reserve Bank of Australia. Accessed 24 Mar. 2015. <http://www.rba.gov.au/Glossary/text_on_ly.asp>.)

Burden on business:

Many argue that a Tobin tax represents an additional burden of regulation on businesses. If traders are required to submit their receipts to the Australian Tax Office for processing, the high degree of tax incidence could amount to a significant increase in processing times.

This argument can be overcome with an examination of how the tax could be collected. Because the ASX already levies a small fee for each transaction, Australia could merely increase this amount, and revenue above the baseline rate would be collected from what equates to a Tobin Tax.

Others, including the Australian Financial Markets Association (AFMA), have made the case that a FTT would raise the cost of businesses seeking to raise capital for investment.³² In a 2011 briefing note, AFMA suggested that levying a financial transactions tax of 10 basis points would raise the cost of raising capital by 25 basis points. This would occur if the profit generated by the trading of securities is taxed to an extent that traders seek to recoup the taxed earnings in higher-yield trades. As a result, companies need to offer a higher rate of return to investors in order to raise capital.

But the cost of capital is best considered an opportunity cost - namely, the cost of an investor not investing in the next most-profitable alternative. It represents the expected time value of money invested and the risk of the investment. Since financial transactions taxes target

²⁷ "A Tax to Kill High Frequency Trading - Forbes." 2012. 23 Feb. 2015 <<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

²⁸ See, for instance, Schulmeister, Stephan. "A General Financial Transaction Tax: a short cut of the pros, the cons and a proposal." 344 (2009).

²⁹ Amihud, Yakov, et al. "The Illiquidity Premium: International Evidence." Available at SSRN 2191949 (2013).

³⁰ Crombez, John. "Momentum, rational agents and efficient markets." *The Journal of Psychology and Financial Markets* 2.4 (2001): 190-200.

³¹ Shiller, Robert J. "From efficient markets theory to behavioral finance." *Journal of economic perspectives* (2003): 83-104.

³² Australian Financial Markets Association. "Briefing Note on a Financial Transactions Tax", 26 Oct. 2011 <http://www.afma.com.au/afmawr/_assets/main/lib90048/t17-11%20ftt%20briefing%20note.pdf>

short-term trades, small cap firms with longer average holding periods are less affected than are larger, more heavily-capitalised firms, which are disproportionately exposed to high-frequency trading owing to their narrow bid-ask spreads and high levels of liquidity.

This exposure, however, is quickly corrected under a financial transactions tax, as the cost of capital depends on the average time a security is held (the expected time value of money) and the risk of the investment (which is influenced by speculation, excess liquidity, and volatility).³³ By increasing the average time held, an FTT in fact *insulates* large cap stocks from the threats referenced by AFMA.

Burden on consumers:

A common misconception is that the cost imposed by such a tax would simply flow to consumers and small-scale investors. As one commentator put it:³⁴

...Such a step will increase the cost of finance and flow on to mortgage interest rates, small business loans and industry borrowings.

But a financial transactions tax on secondary trading (such as on derivatives, rather than underlying assets) will exclude mortgages, bank loans, and primary capital. If it serves to reduce bank profit, then this profit is coming from higher-risk speculation, and is unstable. Besides, if banks do experience a reduction in profit, they can increase their total lending to compensate, which will further increase supply of loans in the market, increasing competition and lowering prices.

Hedging:

Hedging is a strategy used to reduce the risks arising from market fluctuations. For example, Qantas is heavily exposed to fuel prices. An increase in fuel prices has risk for the company, which it can mitigate by investing money in something that would benefit from the increase in fuel prices. This investment is called a hedge.³⁵

Some commentators suggest that levying a transaction cost on hedging will significantly lower the frequency of the behaviour, thus increasing a firm's exposure to risk. Some academic research indicates that a transaction cost proportional to the amount of trading does have a significant effect on overall hedging behaviour.³⁶

But levying a tax on high-frequency transactions, rather than all transactions, has the advantage of not influencing hedging activity. As University of New South Wales banking and finance professor Ross Buckley told the ABC:³⁷

"A substantial proportion of transactions in modern financial markets are for less than a second. The asset is bought, held and sold - the total time period is less than a second. That's not a hedge, that's a gamble, like at the race track."

³³

³⁴ "Greens' high tax ambitions | The Australian." 2010. 22 Feb. 2015 <<http://www.theaustralian.com.au/national-affairs/greens-high-tax-ambitions/story-fn59niix-1225906066002>>

³⁵ "Robin Hood tax 'could feed millions' - ABC News (Australian ..." 2011. 22 Feb. 2015 <<http://www.abc.net.au/news/2010-03-30/robin-hood-tax-could-feed-millions/386864>>

³⁶ Soner, Halil M, Steven E Shreve, and J Cvitanić. "There is no nontrivial hedging portfolio for option pricing with transaction costs." *The Annals of Applied Probability* (1995): 327-355.

³⁷ "Robin Hood tax 'could feed millions' - ABC News (Australian ..." 2011. 22 Feb. 2015 <<http://www.abc.net.au/news/2010-03-30/robin-hood-tax-could-feed-millions/386864>>

In addition, in order for risk to be distributed through hedging, it must first be produced. The greater the production of risk, the greater the necessity to distribute it - and, in turn, the greater the cost of doing so. Because HFT algorithms simultaneously predict from trend and incorporate contrarian market mechanisms, they are not based on underlying economic fundamentals such as productivity, yield and exogenous market conditions. To defend HFT as a means to alleviate risk exposure is to ignore the source of this risk.

Market volatility:

Some argue that a financial transactions tax would increase market volatility, as it decreases liquidity in the market, potentially distorting price signals of a firm's performance by removing information investors use to determine such a value.³⁸ However, excess liquidity can be just as costly as insufficient liquidity. The highest possible level of liquidity would see infinite trades in a fraction of a fraction of a second, and the lowest would see none. Few argue either of these extremes are desirable from a market efficiency perspective, as if trades are signals of value then having too few is as troublesome as having too many.

Tax avoidance:

An argument made by many opponents of the principle is that a financial transactions tax would see **capital flight**³⁹ to jurisdictions that do not impose such a tax.⁴⁰ As more international experience is gained and tax designs are improved, this risk looks increasingly unlikely. The UK's 0.5% stamp duty has not sent investors offshore, for example. Besides, the risk that speculators take their activity elsewhere may be a positive net effect, rather than a negative.

Some suggest that, by facilitating aggressive, immediate trading across markets, high-frequency transactions improve the efficiency of the market, thereby reducing or eliminating price discrepancies between related financial instruments.⁴¹

But this view necessitates a prohibitively narrow perception of efficiency, limited only to individual transactions and not to allocative efficiency of the market as a whole. Viewed in a broader context, the market does not appear to be responding as efficiently as these opponents suggest. Academic research indicates that the increasing prominence of HFTs is causing the natural "overshooting" of the market to occur more frequently and more wildly

Capital flight

The transfer of assets abroad in order to reduce loss of principal, loss of return, or loss of control over one's financial wealth due to government-sanctioned activities.

(Source: Epstein, Gerald A., ed. *Capital flight and capital controls in developing countries*. Edward Elgar Publishing, 2005.)

³⁸ "France's Tobin Tax will make a little but damage a lot - City AM." 2013. 22 Feb. 2015
<<http://www.cityam.com/article/france-s-tobin-tax-will-make-little-damage-lot>>

³⁹ "What would be the economic impact of the proposed ... - Oxera." 2012. 22 Feb. 2015
<<http://www.oxera.com/Oxera/media/Oxera/downloads/reports/The-economic-impact-of-the-proposed-FTT.pdf?ext=.pdf>>

⁴⁰ Epstein, Gerald. *Central banks as agents of economic development*. Research Paper, UNU-WIDER, United Nations University (UNU), 2006.

⁴¹ "High-Frequency Trading - Australian Council of Trade Unions." 22 Feb. 2015
<<http://www.actu.org.au/Images/Dynamic/attachments/7744/High-Frequency%20Trading%20-%20A%20Workers%E2%80%99%20Capital%20Briefing.pdf>>

when it does.⁴² This “overshooting” favours speculators over longer-term investors, who are not able to generate the same instability or able to capitalise on it when it occurs.⁴³

Indeed, the reason high-frequency transactions are as profitable as they are is simply because they are able to capitalise on information asymmetries between buyers that exist for milliseconds. While it is profitable for high-frequency traders to do so, this means institutional investors, such as pension funds, are left to pay a premium for securities simply because they cannot afford to compete with high-frequency traders. For this reason, assuming a high volume of transactions equals an efficiently high level of market liquidity would be foolish. The bid-ask spreads being taken advantage in the market exists for only increasingly brief fractions of time, meaning a supposed benefit of HFT - namely, the improved price-setting efficiency mechanism - exists momentarily, only to the availability of other high-frequency traders. While much of this liquidity is artificial and available only to non-institutional investors,⁴⁴ the risk associated with this hyperliquidity is spread far more equally.

Although many advocates of HFT point to reduced spreads as a positive effect of the practice, because it increases competition for the “ask” price and lowers the total cost of trading, this is true only for those able to take advantage of this tighter spread. The vast majority of traders see no advantage, and indeed, if their profitability is negatively impinged by the presence of intercepting HFT traders, may be priced out of the market altogether.

How would it work?

Australia’s security trading occurs on two markets: the Australian Stock Exchange (or ASX), which accounts for around 86 per cent of on-exchange trading,⁴⁵ and the Chi-X, a smaller competitor, but favoured by high-frequency traders.⁴⁶

A financial transactions tax would lower the incentive to engage in short-term trading, as it is designed to raise transaction costs. As a result, it would increase the average holding period of securities, particularly where the bid-ask spread for that security is narrow.⁴⁷

The FTT should be introduced at a low rate initially, to be reviewed every five years to minimise sovereign risk and maximise optimal taxation rates in lieu of developments within the global derivatives market. The rate should be determined such that the (exogenous) cost of the FTT is less than the (endogenous) cost incurred on traders from settling in a collecting clearinghouse. This will eliminate the incentive for traders to move off-market, and thus avoiding tax payment, because the cost of avoidance greater than the cost of fulfilling tax obligations, owing to the greater efficiency and coordination provided by these institutions.⁴⁸

⁴² Schulmeister, Stephan. "Boom-bust cycles and trading practices in asset markets, the Real Economy and the Effects of a Financial Transactions Tax." Available at SSRN 1705628 (2010).

⁴³ Buckley, RP. "0.05 Percent as an Instrument of Global Justice and Market ..." 2013. <<http://ssrn.com/abstract=2293539>>

⁴⁴ Jones, Charles M. "What do we know about high-frequency trading?." Columbia Business School Research Paper 13-11 (2013).

⁴⁵ "Australia Model Curbs Speed as CEO Says US Too Far Gone." 4 Mar. 2015 <<http://www.bloomberg.com/news/articles/2014-04-03/australia-model-curbs-speed-as-ceo-says-u-s-too-far-gone>>

⁴⁶ "High-speed trading costs investors \$2b, say industry super ..." 2014. 22 Feb. 2015 <<http://www.smh.com.au/business/markets/highspeed-trading-costs-investors-2b-say-industry-super-funds-20140407-367cz.html>>

⁴⁷ Buckley, Ross P., and Gill North. "Financial Transactions Tax: Inefficient or Needed Systemic Reform, A." *Geo. J. Int'l L.* 43 (2011): 745.

⁴⁸ Schmidt, Rodney, and Aniket Bhushan. *The Currency Transactions Tax: Feasibility, revenue estimates, and potential use of revenues.* UNDP, 2011.

Typically, the base of a financial transactions tax is the transactional amount.⁴⁹ Its design differs in its various incarnations around the world, from extending only to sales of securities, to including unfilled orders, derivatives, repos, currency trades, and all other forms of financial transaction.⁵⁰

There are many design scenarios possible, each with their own set of advantages. Some have suggested a 0.01 per cent to 0.1 per cent impost on all wholesale capital market secondary transactions.⁵¹ Ideally, the tax base should be broad to minimise distortions and avoidance, but should not extend to primary market issuance, such as new security issuances or offerings, so as to avoid raising costs for consumers and encourage engagement with underlying assets.⁵²

The tax is collected in real time⁵³ by already-existing clearinghouses, leading the IMF to conclude in 2011 that collection is “no more difficult and, in some respects easier, to administer than other taxes.”⁵⁴

Australia already levies a domestic transaction tax on stocks and corporate bonds.⁵⁵ Because financial transaction taxes are typically collected by the clearinghouse, Australia already has the advantage of a well-established clearinghouse with the proven capacity to collect on its transactions.⁵⁶ These clearinghouses would continue to serve in this capacity.

In addition, international experience predicts that a growing percentage of exchange profits comes from fees and rents extended for co-location.⁵⁷ Another design option, then, is to simply tax profits of these exchanges at a higher rate, considering this cost will need to be passed onto HFT firms. If trend holds, and HFT firms continue to extend into owning exchanges (as has occurred with BATS and Direct Edge), this tax may be more direct and thus less distortionary than predicted.

Investment bank UBS, itself involved in high-frequency trading, has recommended that a small fee of 1.7 cents be charged on every message sent to market in order to control and regulate this practice. This would thwart some traders intent to overwhelm other traders with millions of messages to buy and sell stocks which rarely result in a trade, frustrating genuine investors.

This design mirrors France’s transaction tax structure. France’s tax is applied to messages to trade, rather than actual trades, if the message to trade ratio is too high. In France, this ratio is defined as messages above a cancellation or modification rate of 80 per cent.

⁴⁹ "A Tax to Kill High Frequency Trading - Forbes." 2012. 23 Feb. 2015
<<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

⁵⁰ "A Tax to Kill High Frequency Trading - Forbes." 2012. 23 Feb. 2015
<<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

⁵¹ Buckley, RP. "0.05 Percent as an Instrument of Global Justice and Market ..." 2013.
<<http://ssrn.com/abstract=2293539>>

⁵² Buckley, RP. "0.05 Percent as an Instrument of Global Justice and Market ..." 2013.
<<http://ssrn.com/abstract=2293539>>

⁵³ "A Tax to Kill High Frequency Trading - Forbes." 2012. 23 Feb. 2015
<<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

⁵⁴ Brondolo, J. "Taxing Financial Transactions; An Assessment of ... - IDEAS." 2011.
<<https://ideas.repec.org/p/imf/imfwpa/11-185.html>>

⁵⁵ "Bring the Robin Hood tax to Australia - NSW Nurses and ..." 22 Feb. 2015 <<http://www.nswnma.asn.au/wp-content/uploads/2013/12/Bring-the-RH-tax-to-Australia.pdf>>

⁵⁶ "A Tax to Kill High Frequency Trading - Forbes." 2012. 22 Feb. 2015
<<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

⁵⁷ "A Tax to Kill High Frequency Trading - Forbes." 2012. 23 Feb. 2015
<<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

England's 0.5 per cent stamp duty levied on all transactions yields \$4 billion pounds annually. The advantage for traders afforded by a centralised trading zone far outweighs the cost imposed by the levy.⁵⁸

The longer that Australia waits to implement the tax, the more disruptive its introduction will initially be. A new tax will cause a downward adjustment proportionate to the amount of the additional cost of the transaction. Because artificially high trade volumes are increasing the appearance of liquidity, thus propping up share prices, the sooner the volume bubble is deflated the less dramatic the share price adjustment will be. Globally, the prevalence of high-frequency transactions is increasing rapidly. The annual value of the world's financial transactions, worth about 15 per cent of global GDP in 1990, reached 70 per cent in 2010.⁵⁹

Why target derivatives?

Most of the revenue from a transaction tax would arise from the taxation of derivatives.⁶⁰ Derivatives are increasingly dominating total trading flows, accounting for 88 per cent of world transactions in 2007.⁶¹ Derivatives can disguise borrowing.⁶² This occurs through two parties effectively trading debts in different currencies, which in theory should be of equal value (and thus not appear like debt on a budget sheet). The way "equal value" is calculated uses prevailing exchange rates between the two currencies.

But if both parties agree to different, fictional exchange rates in an off-market agreement - say, 5 percentage points difference - then the value of that difference can be given to one party in cash and will appear, to those observing the books, as free money.⁶³ However, because the amount of this free money should be about the same amount as the difference in real and off-market exchange rates, the cash is in fact debt. The recipient of the "debt" receives initial upfront cash in their home currency, lowering their on-book liabilities, but pays the cash back with interest at a future date.⁶⁴ Greece and Italy have both used this technique to avoid restrictions on sovereign debt.⁶⁵

Derivatives of this variety have useful functions as well as dangerous functions. They can be used to hedge risk arising from currency fluctuations, but they can also be used to take on additional risk. Governments are wary of deterring the useful functions whenever designing financial transaction taxes. In the USA, a proposed solution has been to tax derivatives at the

⁵⁸ "Bring the Robin Hood tax to Australia - NSW Nurses and ..." 22 Feb. 2015 <<http://www.nswnma.asn.au/wp-content/uploads/2013/12/Bring-the-RH-tax-to-Australia.pdf>>

⁵⁹ Buckley, RP. "0.05 Percent as an Instrument of Global Justice and Market ..." 2013. <<http://ssrn.com/abstract=2293539>>

⁶⁰ "A Tax to Kill High Frequency Trading - Forbes." 2012. 23 Feb. 2015 <<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

⁶¹ Buckley, RP. "0.05 Percent as an Instrument of Global Justice and Market ..." 2013. <<http://ssrn.com/abstract=2293539>>

⁶² "Goldman Secret Greece Loan Shows Two Sinners as Client ..." 2015. 23 Feb. 2015 <<http://www.bloomberg.com/news/articles/2012-03-06/goldman-secret-greece-loan-shows-two-sinners-as-client-unravels>>

⁶³ "How Goldman Sachs Helped Greece to Mask its True Debt." 2012. 23 Feb. 2015 <<http://www.spiegel.de/international/europe/greek-debt-crisis-how-goldman-sachs-helped-greece-to-mask-its-true-debt-a-676634.html>>

⁶⁴ "Goldman and Greece: What the Heck are Currency Swaps ..." 23 Feb. 2015 <<http://blogs.wsj.com/marketbeat/2010/02/17/goldman-and-greece-what-the-heck-are-currency-swaps/>>

⁶⁵ "How Goldman Sachs Helped Greece to Mask its True Debt." 2012. 23 Feb. 2015 <<http://www.spiegel.de/international/europe/greek-debt-crisis-how-goldman-sachs-helped-greece-to-mask-its-true-debt-a-676634.html>>

same rate as other transactions, but determine the proportion to be taxed on the net payment (which is small) rather than their face-value, notional amount.⁶⁶

This structure maintains the cost advantages of derivatives, while deterring liquidity suppliers from using derivatives to mask underlying transactions.

How much could it collect?

Currently, high-frequency transactions are estimated to cost Australian investors around \$2 billion a year. A fraction of this would be recovered, though not all.

Revenue estimates are prone to optimism, due to the liquidity of high-frequency trade capital and the minuscule margins these transactions individually target. A financial transaction tax aims at reducing the number of transactions in order to bring financial market activity into closer correlation with activity in the real economy. The tax is charged if, and only if, trade in financial assets occurs. If trading activity is low, the amount of tax collected will also be low.

Even so, a financial transactions tax in Australia could conservatively raise between \$1 to \$1.4 billion a year.⁶⁷

Revenue projections from Australian financial transaction tax, 2013-14

Assumption	Revenue generated
EU standards ⁶⁸	\$6.48 billion
Half the tax rate of EU standards, double the EU additional transaction cost percentage, and 10 per cent additional avoidance	\$2.22 billion
Half the tax rate of EU standards, double the EU additional transaction cost percentage, and 20 per cent additional avoidance	\$1.21 billion

Estimates are based on the European Commission's single-leg formula for estimating financial transaction tax revenue in 2011, where:⁶⁹

$$\text{Tax revenue} = ((1 - E_{\%}) \cdot \text{traded value} \cdot (1 + (c_{\%} \div t_{\%}))^{-\epsilon})$$

And E is the fraction of all trades of type that will be evaded, t is the tax rate levied on the particular form of transaction, c is the updated transaction cost as a percentage of the previous cost, and ϵ is the tax elasticity.⁷⁰

⁶⁶ "A Tax to Kill High Frequency Trading - Forbes." 2012. 23 Feb. 2015
<<http://www.forbes.com/sites/leesheppard/2012/10/16/a-tax-to-kill-high-frequency-trading/>>

⁶⁷ "Robin Hood tax 'could feed millions' - ABC News (Australian ...)" 2011. 22 Feb. 2015
<<http://www.abc.net.au/news/2010-03-30/robin-hood-tax-could-feed-millions/386864>>

⁶⁸ For a more complete discussion and outline of the proposed tax rates levied in modelling by the European Commission, see Næss-Schmidt, Helge Sigurd et.al, 2014, *A European Financial Transactions Tax: Revenue and GDP effects for Germany*, published by Copenhagen Economics,
<<http://www.copenhageneconomics.com/>>

⁶⁹ See above.

Trade value for 2013-14 has been taken from the 2014 Australian Financial Markets Report by the Australian Financial Markets Association.⁷¹

Unlike other taxes on consumer activity, the tax will unambiguously have a progressive impact since financial assets are held disproportionately by members of the higher income brackets.⁷²

Conclusion

Even if an Australian Tobin Tax raised no revenue at all, it would still be worthwhile regulation from a risk management perspective. It will lower trade volumes, increasing bid ask spreads and thus reducing opportunities for profit off 50/50 short-term speculative trading. As such, it takes bad liquidity out of the market and introduces a greater profit incentive for good, longer-term liquidity. As it serves as a dampener on excessive speculation and risk, it lowers the volatility of the market and offers a buffer against future financial shocks.

Suggestions that price discovery requires ever-increasing rates of trade volume are not supported by the evidence. Australia's traded volumes have increased significantly in the last 20 years, yet the cost of raising capital for firms is rising, not falling.

As the cost of transactions becomes lower and lower, nearing zero, there is an exponential growth in the number of trades occurring, until at some point it becomes infinite. Few could suggest that a near-infinite amount of trades in any given moment is efficient. As such, it is generally true that more traders affords greater efficiency, but it is not true that this relationship holds forever. Government intervention in the market is necessary, and the most effective way of doing so is through regulation that taxes financial transactions.

A financial transactions tax in Australia would save smaller traders up to \$2 billion a year, collect the government more than \$1 billion a year, and would protect the nation from dangerous volatility in the financial sector.

It will not solve every problem, but it is not intended to. Indeed, an FTT will need to be one of many regulations required to protect the capital market. However, it offers an excellent starting point, and one that, in the current revenue mix, is sorely missed.

⁷⁰ Griffith-Jones, Stephany, and Avinash Persaud. "Financial transaction taxes." Study prepared for—and presented to—the Committee on Economic and Monetary Affairs of the European Parliament (2012).

⁷¹ Australian Financial Markets Association. 2014 Australian Financial Markets Report. (2014). Accessed 24 Mar. 2015 <<http://www.afma.com.au/data/afmr/2014%20afmr.pdf>>

⁷² Botsch, A. "Financial transaction taxes in the EU - ETUI." 2012. <<http://www.etui.org/content/download/7148/65251/file/Policy+Brief-N%C2%B08-2012-EN+final.pdf>>