Northwestern | SCHOOL OF PROFESSIONAL STUDIES

To:	**Dr. Mark Keightley**
From:	**Zachary Galaboff and Richard Peterson**
Date:	**9 August 2020**
Re:	**Financial Transfer Taxes**

Introduction

This memorandum is in response to your request for an analysis of a Financial Transfer Tax (FTT). This analysis explains the reasons for an FTT along with potential social and economic impacts. The memorandum first delivers an overview of FTTs with special focus on the impact of the tax on high frequency trading (HFT). Next, the memo provides an analysis of the effectiveness of a hypothetical FTT, assessing its efficiency, equity, and administrative simplicity, as well as exploring projections for revenue generation. Finally, the memo concludes with a handful of considerations for successful implementation of FTTs in U.S. markets. If you have further questions, you may reach out to Richard Peterson at richardpeterson2021@u.northwestern.edu and Zachary Galaboff at [redacted].

Overview of the Issue and Policy

Financial Transfer Taxes are a tax levied as a percent of the value of a security at the time the transaction occurs, and could be applied to securities such as stocks, options, or futures (Keightley, 2019). Financial Transfer Taxes (FTTs) have been debated as a policy option for combatting volatility in the stock market and raising revenue for social programs since the 1930s (Keightley, 2019). The speed of algorithmic trading has already surpassed human oversight, and in 2010 a coding glitch was responsible for the “Flash Crash” in the S&P 500 (Kirilenko, et al, 2017). FTTs could act,

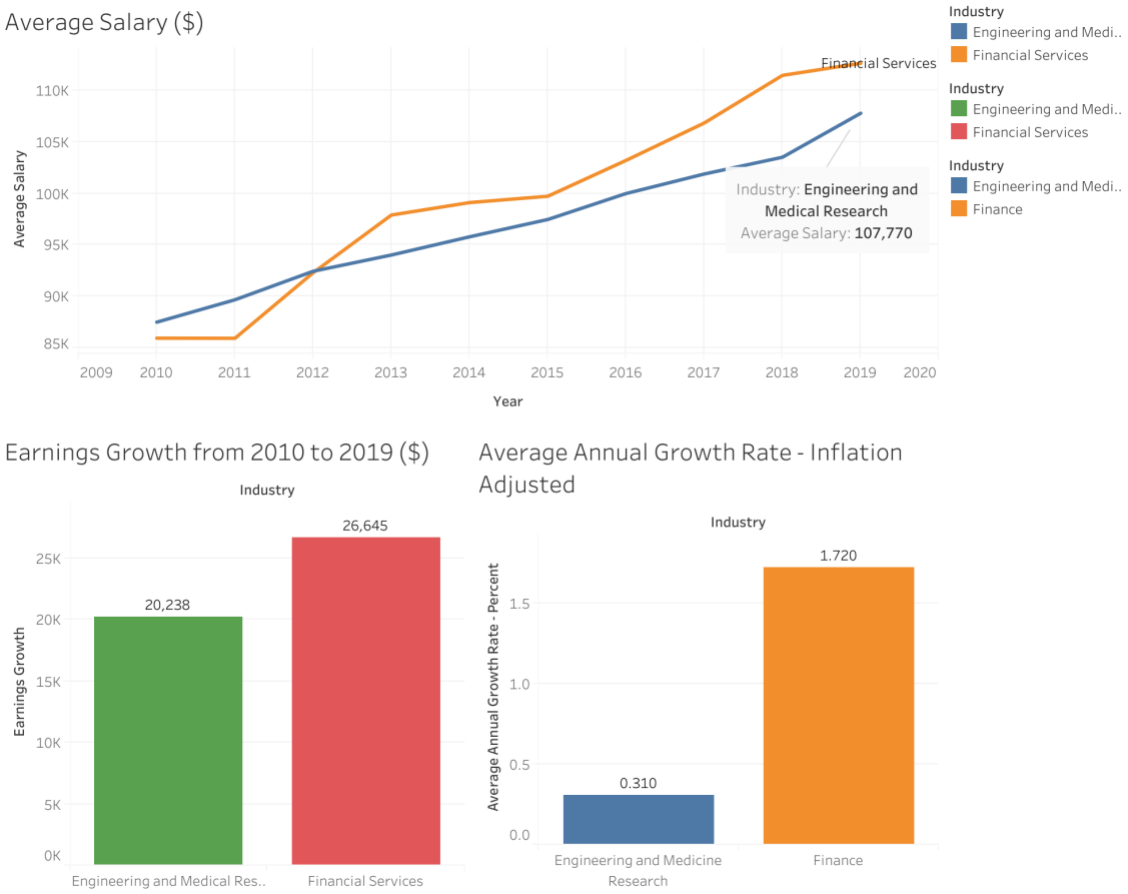
as James Tobin put it, like “sand in the gears” to slow down algorithmic and high-frequency trading (Klein, 2020). High-frequency trading (HFT) currently makes up at least 60% of the entire market as computer algorithms process signals in the stock data and commit to buys, sells, and cancellations in under a microsecond per order (MacKenzie, 2018). To achieve this volume, HFT firms must hire employees with advanced degrees in finance, math, physics, engineering, and computer science. Some economists (e.g. Tobin, 1978, and Keightley, 2019) have argued that an FTT could increase economic efficiency if the labor supply currently working at high-frequency trading firms were employed in other socially beneficial professions. Empirically, however, economists have had difficulty quantifying the amount that efficiency could be increased, or if such claims are valid.

If the social return would be higher from these highly-trained professionals being directed to other fields, this represents a current market failure. However, if efficiency is already maximized and the social return would not be higher, then imposing an FTT would likely decrease efficiency. From 2010 to 2018, the average annual growth rate for salaries (adjusted for inflation) of workers in financial services was 1.72 percent, while only 0.31 percent for workers employed in engineering and medical research (*Figure 1. Databases, Tables & Calculators by Subject.* (2020)). This has not been controlled for background, education, age, or experience, but it does demonstrate that wages in financial services have grown considerably more than in engineering and medical research, which is a factor in attracting highly-trained professionals.

The policy’s specific objective is to increase economic efficiency by levying a securities transfer tax (a type of financial transfer tax) to direct human capital to more productive uses. Private productivity might be increased by making it more economic for workers with advanced degrees to seek employment outside of HFT firms. Public and social productivity might also be increased by employment of these highly-educated

people in more socially beneficial firms, such as scientific research, as their skills are put to use in other ways besides maintaining liquidity in the market.

Figure 1. Earnings Comparison: Research and Finance
Databases, Tables & Calculators by Subject. (2020)



Section 31 of the Securities Exchange Act of 1934 allows for the collection of an "SEC Fee" that acts similarly to an FTT and is applied to most securities transactions at a rate of $22.10 per million dollars (SEC.Gov | Fee Rate Advisory #3 For Fiscal Year 2020, n.d.). Several European Union states currently have a type of FTT, such as France, which currently taxes equity trades at 0.3 percent and high-frequency trading at 0.01 percent (Asen, 2020). An EU-wide FTT was proposed in 2011 but has not been passed into law due to concerns that a non-global implementation of the tax would shift financial institutions to areas without an FTT (Humphreys, 2011). Since the 2008

financial crisis, FTTs have been considered as a way to recoup bailout funds and pay for future federal assistance to the financial sector (Bivens & Blair, 2016).

The financial transfer tax analyzed in this memo is modeled as an extension of the SEC Fee. The SEC Fee is collected from self-regulatory organizations (SROs) such as the Financial Industry Regulatory Authority and all of the national securities exchanges. The SROs then charge the fee to the brokers, who finally collect the fee from investors (SEC.Gov | Section 31 Transaction Fees, 2013). In the interest of administrative simplicity, a flat fee on all equity trades would be desirable, but to give leeway for productive trades such as futures and derivatives, some countries have implemented separate FTT rates for these types of trades (BNY Mellon, 2018).

Analysis of the Policy

Given the aforementioned policy objective, imposing a financial transaction tax will have some degree of impact on the distribution of human capital throughout the economy. It is clear that taxing financial transactions will reduce the overall volume of transactions in the market by driving a wedge between the amount sellers receive and the amount buyers pay, even if by a very small amount per trade (e.g., $1 per $1000). The resulting decrease in the quantity of transactions will disproportionately impact firms utilizing high-frequency trading, which constitutes as much as 60 percent of market transactions (Burman et al, 2016, 26). If these firms transact fewer trades (even with the use of high-speed bots), they will likely employ fewer workers to write the algorithms and code that are so crucial to their operations.

However, because it is difficult to quantify to what extent the FTT will reduce HFT, or to predict the degree to which firms will reduce their investment in the requisite human capital, it is unclear whether the policy will allocate human capital in a more socially beneficial way. The assumption is that as the FTT reduces the overall quantity of HFT, the policy “[reduces] the diversion of valuable human capital into pure rent-seeking

activities," such as coding HFT algorithms (Burman et al, 2016, 2). However, this is extremely difficult to predict because 1) little to no research exists to quantify the impacts of FTTs on the distribution of human capital, and 2) given the complexity of this technology, firms may react to an FTT in unexpected ways. Instead of investing less in human capital, firms may opt to invest more, recognizing that increasing their HFT operations is an effective way to make up the surplus lost to the tax. Additionally, firms may opt to invest more in research and development undertaking efforts to develop artificial superintelligence (ASI), or bots that can write their own code (Castelluccio, 2014, 68). Both alternatives represent scenarios in which an FTT could produce a less socially beneficial allocation of human capital, directing even more workers towards the financial sector and away from traditional STEM industries.

In terms of economic efficiency, the implementation of an FTT does present a handful of issues and trade-offs which policy-makers will need to reconcile through careful design. Given that such a tax would be levied on a per transaction basis, some financial instruments will conceivably be taxed many times over (specifically high frequency trades), ultimately bearing a much higher tax burden than those that are traded less frequently (Weiss & Kawano, 2019, 164). Therefore, the tax is likely to produce considerable deadweight loss in the market, with HFT firms impacted much more dramatically than those relying on more traditional trades. This deadweight loss also produces an incentive for investors to avoid the tax altogether, either by selecting financial instruments that are exempted from the tax, or by investing in markets outside the purview of the tax (e.g. outside the U.S.) (161). As such, policy-makers should implement the FTT gradually starting at a very low rate in order to minimize deadweight loss and assess the impact of the tax over time (150).

Nevertheless, research suggests that an FTT would be both highly progressive and administratively simple to implement. Because the tax disproportionately impacts

high frequency trades, investors with the most market volume bear the majority of the tax burden. Existing microsimulation models suggest that “nearly 70 percent of the tax burden would fall on taxpayers in the highest income quintile, and 23 percent falls on the top 1 percent” (177). This is in part because taxpayers with more wealth are more likely to engage in “rent-seeking” behavior such as high-frequency trading. Additionally, the tax is administratively simple to implement because the tools for tax collection are already in place. The Securities and Exchange Commission already collects a $22.10 fee for every $1,000,000 in market transactions, so it’s conceivable that an FTT could be levied using the same collection infrastructure (SEC.gov, 2020). Moreover, Burman (2015) notes that among existing FTTs, the “administrative costs…tend to be relatively small” (32).

Finally, revenue projections illustrate that the imposition of an FTT on market transactions in the U.S. is likely to generate considerable revenue. Estimates of its budgetary impact vary widely depending on both the scope of possible exemptions and the elasticity of the tax, however all projections demonstrate that an FTT is effective at generating revenue. The CBO’s Joint Committee on Taxation, for instance, projects that an FTT would generate as much as $776.7 billion over a span of ten years (Weiss & Kawano, 2019, 176). Meanwhile, the Urban-Brookings Tax Policy Center (TPC) has developed their own projection suggesting $50 to $60 billion annually, and as much as $500 billion from 2020 to 2030 (176-177). This model also accounts for varying elasticities to simulate differences in deadweight loss, generating as little as $412 billion with a high elasticity and as much as $628 billion with a low elasticity (177). Therefore, policy-makers need only decide how much deadweight loss is acceptable given the amount of revenue they wish to generate.

Policy Considerations

Successful implementation of an FTT on market transactions in the U.S. requires careful policy design and prudent consideration of the issues and consequences that

may result. There is a concern that an FTT might adversely affect industries that rely on purchasing commodity futures, such as the airline industry's typical purchase of fuel futures. If the transaction is subject to an FTT, the seller of the future might raise the price to cover the cost of the tax (Keightley, 2019).

From a labor efficiency perspective, the consequences of not implementing an FTT is likely the continued drain of STEM talent to the financial sector with only nominal social impact. However, in addressing this pattern with a tax, policymakers should be mindful of the effect on market liquidity that an FTT might have, as the number of algorithmic transactions is likely to decrease and the bid-ask spread of stock prices could increase as well (Avramovic, 2017). Policymakers should also consider the possibility of financial institutions responding to the tax by relocating their listing to a country or market without an FTT to dodge the tax.

Additionally, political opposition to an FTT remains strong among special interests, and policy-makers must mobilize broad public support in order to succeed. Ultimately, adoption of an FTT would impose very significant costs on a small group of investors (HFT firms), while benefitting the majority of tax-payers very little (or at least not in a way that is easily recognizable to the average voter). This dynamic creates a collective action problem in which HFT firms (who stand to lose the most from an FTT), are likely to invest significant time and resources fighting such a proposal. As such, it is hardly surprising that while numerous FTT proposals have been introduced in recent sessions of Congress, none of these bills have yet been signed into law (Keightley, 2019, 2).

References

Asen, E. (2020, January 23). Financial Transaction Taxes in Europe. *Tax Foundation*. https://taxfoundation.org/financial-transaction-taxes-in-europe/

Avramovic, A. (2017, March 15). We're All High Frequency Traders Now. *Credit Suisse Market Structure White Paper*. https://www.scribd.com/document/433440499/Credit-Suisse

Bivens, J., & Blair, H. (2016). A financial transaction tax would help ensure Wall Street works for Main Street. *Economic Policy Institute*, 19.

BNY Mellon. (2018). *Financial Transaction Taxes: A Global Perspective*. 20.

Burman, L. E., Gale, W. G., Gault, S., Kim, B., Nunns, J., & Rosenthal, S. (2016). Financial Transaction Taxes in Theory and Practice. *National Tax Journal*, *69*(1), 171–216. https://doi.org/10.17310/ntj.2016.1.06

Castelluccio, M. (2014, June). Should robots write their own programming? *Strategic Finance*, 67-68.

Databases, Tables & Calculators by Subject. (2020). [Government]. U.S. Bureau of Labor Statistics. Retrieved July 30, 2020, from https://www.bls.gov/data/

Financial Transaction Tax: Making the financial sector pay its fair share. (2011, September 28). European Commission - European Commission. https://ec.europa.eu/commission/presscorner/detail/en/IP_11_1085

Humphreys, T. (2011, November 17). EU Proposed Financial Transaction Tax – Fortune or Folly? *The Harvard Law School Forum on Corporate Governance*. https://corpgov.law.harvard.edu/2011/11/17/eu-proposed-financial-transaction-tax-fortune-or-folly/

Keightley, M. P. (2012). A Securities Transaction Tax: Financial Markets and Revenue Effects. *Congressional Research Service*, 26.

Keightley, M. P. (2019). Financial Transactions Taxes: In Brief. *Congressional Research Service*, *R42078*, 7.

Kirilenko, A., Kyle, A. S., Samadi, M., & Tuzun, T. (2017). The Flash Crash: High-Frequency Trading in an Electronic Market. *The Journal of Finance (New York)*, 72(3), 967–998. https://doi.org/10.1111/jofi.12498

Klein, A. (2020, March 27). What is a financial transaction tax? *Brookings*. https://www.brookings.edu/policy2020/votervital/what-is-a-financial-transaction-tax-2/

MacKenzie, D. (2018). Material Signals: A Historical Sociology of High-Frequency Trading. *American Journal of Sociology*, *123*(6), 1635–1683. https://doi.org/10.1086/697318

SEC.gov | Fee Rate Advisory #3 For Fiscal Year 2020. (2020, February 28). https://www.sec.gov/news/press-release/2020-49

SEC.gov | Section 31 Transaction Fees. (2013, September 25). https://www.sec.gov/fast-answers/answerssec31htm.html

Tobin, J. (1978). A Proposal for International Monetary Reform. *Eastern Economic Journal*, *4*(3/4), 8.

Weiss, A. and Kawano, L. (2019) A proposal to tax financial transactions. *The Hamilton Project*. Retrieved from: https://www.hamiltonproject.org/assets/files/Kawano_Weiss_LO_FINAL.pdf