The Hidden Costs of a Financial Transaction Tax: Estimated Impact on Pension Funds

The following is an analysis of the projected economic impact that The Inclusive Prosperity Act of 2017’s financial transaction tax (“FTT”) would have on the savings community, with a particular emphasis on the excessive costs that would be borne by public pension funds that include:

Page 2 – California Public Employees' Retirement System (CalPERS)
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By way of background, the pension fund information utilized in this analysis was based on information available in publicly disclosed reports and yielded through Freedom of Information Act requests for data. It is noted that the turnover information is based on these public summaries, disclosure of aggregate summaries that are partially useful (breakdown by asset class is required), disclosures of categorical summaries; and, when available, detailed full transaction information.

The tax rates applied to the academic analysis are those set forth in The Inclusive Prosperity Act of 2015, H.R. 1464, an early edition of the legislation that set the following asset class rates:

- 0.5% rate (Equity)
  - any share of stock in a corporation
  - any partnership or beneficial ownership interest in a partnership or trust
- 0.1% rate (Debt)
  - any note, bond, debenture, or other evidence of indebtedness, other than tax-exempt State or local bonds
- 0.005% rate (Derivatives)
  - any derivative financial instrument with respect to any security or securities described above, or any derivative financial instrument with respect to any currency or commodity including notional principal contracts, and any other derivative financial instrument

Notably, exemptions set forth in the bill include: (1) Initial issuance of securities defined above, such as IPOs; (2) A note, bond, or debenture which trades on a trading facility located in the U.S. and has a fixed maturity of not more than 60 days; (3) Securities lending arrangements, i.e., stock loan, where gain or loss is not recognized by reason of section 1058

Further, it should be noted that the tax is paid by the seller only.
I. California Public Employees' Retirement System (CalPERS)

Following is an examination of the tax liability that CalPERS would have incurred in 2015.

For more than eight decades, CalPERS has built retirement and health security for state, school, and public agency members who invest their lifework in public service. Our pension fund serves more than 1.8 million members in the CalPERS retirement system and administers benefits for more than 1.4 million members and their families in our health program, making us the largest defined-benefit public pension in the U.S. CalPERS' total fund market value currently stands at approximately $302 billion.¹

CalPERS is utilized as the first example for several reasons, including its relative size, its data transparency, and its reputation as a recognized global leader in the investment industry.

Categorization

Many pension funds have different asset classes that fall within the broad categories defined by the tax bill so it is important to accurately classify them. In the case of CalPERS, the major asset classes, their total value as of December 31, 2015 (in $Billions) and they are categorized as follows:

- **Equity (0.5%)**
  - Public Equity - $154.67
  - Private Equity $27.36
  - Real Estate - $25.92
  - Forestland - $2.19
  - Infrastructure - $2.33

- **Debt (0.1%)**
  - Income - $55.59
  - Liquidity - $5.19

- **Derivatives (0.005%)**
  - Inflation - $13.95

A few notes are in order. While it may seem strange to include Real Estate, Forestland and Infrastructure in the Equity category, the actual investment is usually made in the form of partnership interests and thus falls within the definition of Equity.

Some may question including Liquidity, which generally includes relatively short-term cash-equivalent securities, under the Debt category. CalPERS uses State Street’s Short Term Investment Fund (STIF) for this portion of the fund so with limited disclosure it’s not possible to know for sure whether the maturities are less than 60 days. Further, it is unclear whether the fund is not exchange-traded, thus it would probably not qualify for the short-term exemption.

Calculation Methodology

As stated earlier, the total value is not used to calculate the FTT. Rather, the tax is calculated based on the notional amount traded, or turnover. For CalPERS, the data in the Investment Compliance Monthly Update is prepared for the Investment Committee and posted on its website. Within this report is a page titled, “Investment Transactions” which contains tables listing fund values and Purchases/Sales amounts for each asset class (Contributions / Distributions in the case of Private Markets classes.) For example, here is a link to the report for the month ending December 31, 2015. The table is located on page 9 of 14.

The relevant data for calendar year 2015 was extracted and included in a companion spreadsheet, “FTT Public Pension Analysis.xls” (attached hereto). It contains two tabs for each plan we examine, “Transaction Detail” and “Summary.” In addition, the tab labeled, “Tax Details and Rates” contains information taken from the Congressional bills themselves, including a list of co-sponsors.

Beginning with the “CalPERS Transaction Detail” tab, this study has collected the Purchases/Sales data for each asset class for all months of 2015 and summed the absolute values at the bottom in the rows labeled “Purchases,” “Sales,” and “Abs Sum”, the latter being the absolute value of all turnover in the class (Purchases + Sales). We then specify the tax rates stated in the proposed FTT bill in the row beginning with, “Tax Rate.” We multiply Tax Rate by the Sales amount in order to get the amount CalPERS would have owed the U.S. Government, labeled “Tax Owed U.S.,” then sum across all asset classes to reach the total tax paid, $508,374,705. That’s not a typo—CalPERS and the hard-working public employees it invests for, would have paid more than half a billion dollars in tax in 2015 alone.

Spread Cost

The financial markets are made up of negotiations between buyers and sellers. Like all negotiations, most of end up in compromise. The distance between what someone wants and what someone is willing to give during a particular negotiation is ‘the spread.’ For both parties, the narrower the spread, the less either party has to concede and thus, the better the price from their perspective. Fierce competition between market makers willing to offer the narrowest price ranges has resulted in a dramatic reduction in spreads since 2006.

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2 https://www.calpers.ca.gov/docs/board-agendas/201602/invest/item05d-02.pdf
Historically, introducing additional costs on the stock market, via fees or financial transactions taxes, increases spreads. Below is a graph from a study showing the experience of Canada after it imposed a per-message fee on its market on April 1, 2012. The bid-ask spread rose by 9% immediately.

To be clear, a per-message fee is different from a financial transaction tax in that it is usually levied on a particular segment of the market. However, as this chart shows, the resulting widening of the spread affects everyone in the market.

An increase in spreads is paid by every investor who demands liquidity, especially large pension funds like CalPERS. Usually, estimating future spread costs based on economic factors can be a fairly inaccurate, theoretical exercise. There are many factors for which there is no set dollar among to account for in a spread. For example, the effect on trading volumes and volatility to name a couple of the more prominent and unquantified forces.

However, a financial transaction tax is a very specific dollar amount and it can be factored in as the least a spread will need to widen, in addition to the aforementioned unquantified forces.

In some respects, the increase in spreads would relate to asset class. For example, let’s assume that for a liquid S&P 500 stock the average spread is $0.01, and at this level market makers make some fraction of a cent in profit. The average price of an S&P 500 stock is about $84/share, so the tax on a sale transaction would be $0.42/share (0.5%). Clearly, after paying the tax the market maker will not be profitable and, all things being equal, will increase her quoted

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spreads to try to make up the difference. Unless she is able to realize the entire tax in her trading profitability, the market maker will lose money and not stay in business very long. (However, for asset classes like Fixed Income, where current spreads may be larger than the amount of the tax, market makers could elect to absorb some portion of the tax rather than pass it on to a buyer.)

So, for a typical HFT market maker, her quoted spread may go from 50.00 – 50.01 (one penny) to 50.00 – 50.43 (43 pennies). If all market makers follow this logic, there would be little reason for “natural” liquidity providers to narrow the spreads, and thus all investors would be negatively affected by them.

A model that seeks to quantify this is labeled “Excess Spread” and it allows the user to specify what a reasonable amount of extra spread will be, expressed as a percentage of the tax. If one assumes that market makers account for 50% of the trading in equities, and those market makers will need to add in the full amount of the tax to their quoted spread when selling, set the “excess spread variable” to 50%. That variable value is the same when assuming that all participants will build half the tax into their spreads.

The model assumes an “Excess Spread” variable of 50% for publicly-traded equity and derivative assets, and 25% for fixed income-based assets. To be conservative, we have not added a spread cost for non-exchange-traded assets like private equity, although we believe some amount of the tax will be reflected in their prices as well.

For all these reasons, we estimate the net effect of widening spreads on CalPERS in 2015 would have been $162,782,019.58.

Other considerations

Highly respected research firms like Tabb Group have estimated the amount of professional market makers as representing about 50% of overall market activity. Therefore, it stands to reason that under a broad financial transaction tax the other 50% -- our nation’s pension funds, IRAs, 401Ks and individual investors -- will be left paying at least half the overall burden. Unfortunately, we believe the amount this group pays would be much higher as professional market makers reduce their activity in the U.S. in favor or more profitable operations in markets without a financial transaction tax.

Assuming that half the counterparties leave the market, but the funding needs of a financial transaction tax remain, it is reasonable to expect policy makers to double the rate of the tax.

Some may argue that “long-term” investors would not have to increase their spread when selling and so buyers may not have to bear the full brunt of the tax. We find this argument unconvincing since without market makers there would be little incentive for anyone to narrow the spread. Put simply, why would anyone sell for $50.01 if they could yield $50.43?
II. Federal Retirement Thrift Investment Board Savings Plan (TSP)

Following is an examination of the tax liability that the Federal Retirement Thrift Investment Board Savings Plan would have incurred in 2015.

The TSP is a retirement savings plan for Federal employees; it is similar to the 401(k) plans offered by many private employers. As of May 2016, TSP assets totaled approximately $469.9 billion, and retirement savings accounts were being maintained for more than 4.9 million TSP participants. Participants include Federal civilian employees in all branches of Government, employees of the U.S. Postal Service, and members of the uniformed services. Additional information can be found at www.tsp.gov.4

The TSP has been selected for this analysis because of its relative size, its data transparency, and its mission to provide retirement options for our nation’s military and civil service workers.

Categorization

TSP’s major asset classes, and how they are categorized in this study, are listed here (total value is as of December 31, 2015 and expressed in $Billions5):

- **Equity (0.5%)**
  - Common Stock Index Investment (C) Fund - $142.41
  - Small Capitalization Stock Index (S) Fund - $50.16
  - International Stock Index Investment (I) Fund - $33.98

- **Debt (0.1%)**
  - Government Securities Investment (G) Fund - $206.93
  - Fixed Income Index Investment (F) Fund - $24.79

The Government Securities Investment (G) Fund invests exclusively in non-marketable U.S. Treasury securities whose interest is based on the market yields of all U.S. Treasury securities with more than 4 years to maturity. While we do not know the exact maturities of

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these securities, since they are not exchange-traded they would not qualify for the short-term exemption.

Of note, the seller is responsible for paying the tax to the U.S. Treasury. However, what if the seller is the U.S. Treasury? Since it is reasonable that the Treasury will not opt to pay itself, a reasonable conclusion is that the tax amount would be built into the securities’ yield such that the fund would shoulder the cost.

**Calculation Methodology**

As stated earlier, the tax is calculated based on the notional amount traded, or turnover. For TSP, data was provided by the “December 2015 Performance Review - G, F, C, S, I, and L Funds” which is prepared for the Board and posted on their website. Within this report is a page titled, “Trading Costs” which contains a table listing Dollar Amount Traded and Trading Costs for each fund. Here is a link to the report for the month and year-to-date ending December 31, 2015⁶. The table is located on page 2.

Unfortunately, this table does not include two important pieces of information. First, it doesn’t include the Dollar Amount Traded for the “G” Fund. To back into a hypothetical estimate of that value, the following calculation was performed. In the Annual Financial Statement⁷ Appendix 2, the value of the fund at year-end 2015 was $206,929,770,000, which is about 82% of the size of all the other funds combined ($206,929,770,000 / $251,342,581,000 = 82%). Thus it is reasonable to estimate that the G fund traded value is 82% of the traded value of the other funds combined for the same period, or $55,075,368,403.

Also, the table does not separate the dollar amount bought from the dollar amount sold for each fund. For purposes of this analysis, we will assume equal weights (50%) for each of these values.

Returning to the companion spreadsheet the “TSP Transaction Detail” tab shows the “Dollar Amount Traded” data for each asset class for all months of 2015 and sums the absolute values at the bottom in the rows labeled “Purchases,” “Sales,” and “Abs Sum”, the latter being the absolute value of all turnover in the class (Purchases + Sales.) The tax rates stated in the proposed FTT bill are inserted in the row beginning with, “Tax Rate.” The Tax Rate is multiplied by the Sales amount in order to determine the amount TSP would have owed the U.S. Government. This is labeled “Tax Owed U.S.” The sum across all asset classes equals $176,923,684.

Accounting for wider spreads in the rows labeled “Excess Spread” and “Spread Cost” this model totals $73,535,081, for a total economic impact of $250,458,765.

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⁷ Ibid.
III. State of New Jersey Pension Fund

Following is an examination of the tax liability that The State of New Jersey Pension Fund would have incurred in 2015. This fund is one of the most transparent public pensions, as the NJ Department of the Treasury, Division of Investment, discloses all transactions of the fund on their website on a monthly basis. This, along with its size, makes the fund an ideal candidate for precise analysis.

The Division of Investment, under the supervision of the State Investment Council, is one of the largest pension fund managers in the United States. The pension fund supports the retirement plans of approximately 769,000 active and retired employees in seven public pension systems: the Consolidated Police & Firemen’s Pension Fund, the Judicial Retirement System, the Police & Firemen’s Retirement System, the Prison Officers Pension Fund, the Public Employees’ Retirement System, the State Police Retirement System and the Teachers’ Pension & Annuity Fund. At the end of Fiscal Year 2015, the pension fund was valued at $79 billion. 8

Categorization

In response to a Freedom of Information Law request, historical reports were provided from the funds’ custodian, State Street, covering the period January 31, 2015 thru December 31, 2015. These reports map into tax categories fairly directly:

- **Equity (0.5%)**
  - Domestic Equities
  - International Equities
  - Alternative Investments
- **Debt (0.1%)**
  - Fixed Income
- **Derivatives (0.005%)**
  - Derivative Transactions

The companion spreadsheet shows the data extracted from the State Street reports under the “NJ Transaction Detail” tab shows the “Dollar Amount Traded” data for each asset class for all months of 2015 and sums the absolute values at the bottom in the rows labeled “Purchases,” “Sales,” and “Abs Sum”, the latter being the absolute value of all turnover in the class (Purchases + Sales.) The tax rates stated in the proposed FTT bill are stated in the row beginning with, “Tax Rate.” Tax Rate is multiplied by the Sales amount in order to get the amount the New Jersey Pension Fund would have owed the U.S. Government, labeled “Tax Owed U.S.” The sum across all asset classes projects the total tax that would have been paid is $132,340,967.

Increased costs due to wider spreads are found in the rows labeled “Excess Spread” and “Spread Cost” which total $57,122,774. On the tab labeled, “NJ Summary” the total economic impact is valued at $189,463,741.
IV. New York City Public Pension Funds

Following is an examination of the tax liability that The City of New York would have incurred in 2015 on behalf of five public employee pension funds. Trading is overseen by the New York City Comptroller, who is the custodian and investment advisor to the funds’ Boards. It represents the least transparent funds in this study, with little information about turnover and trading on their website. Multiple non-FOIL requests have yet to be fulfilled, and future updates of this study will reflect any further information we obtain through FOIL.

The City’s primary employee Pension Funds are the New York City Employees’ Retirement System (NYCERS); the Teachers’ Retirement System of the City of New York (TRS), the New York City Police Pension Fund Subchapter 2 (POLICE); New York City Fire Department Pension Fund Subchapter Two (FIRE); and the New York City Board of Education Retirement System (BERS). Each Pension Fund is financially independent and has its own board of trustees.

The Funds provide benefits to their members, which are financed by contributions from members, their participating employers and the Funds’ investment earnings. 9

The total size of the fund assets as of May 31, 2016 was $163.1 Billion.

Methodology

Since the Comptroller does not publicly post information about the funds’ turnover, the following alternative approach was adopted to determine reasonably accurate estimates of equity trading activity, which would be taxed at 0.5% of notional value.

Each of the five funds publishes a “Comprehensive Annual Financial Report” which contains, among other data, a “Schedule of Brokers’ Commissions.” 10 This schedule has columns enumerating the Brokerage Firm, Number of Shares Traded, and Total Commission paid by the fund to that broker. We assume that this schedule refers only to equity-related

9 http://comptroller.nyc.gov/general-information/pension-funds-asset-allocation/
10 All of the statements may be accessed through this link. http://comptroller.nyc.gov/reports/2015-fiduciary-funds-financial-statements/
trading (the fact that the activity is listed as “shares traded” and not “bonds” or something else is a significant clue.)

Data contained in the schedule is presented on the tab labeled, “NYC Broker Commissions” in the companion spreadsheet. On this tab, the total number of shares traded for each fund populates the “Shares Traded” column on the tab labeled “NYC Summary.”

While this provides a good measure of how many shares were traded by each fund, it still does not designate how many were buys and how many were sells. The difference is important because as we noted above, only the seller pays the tax. For purposes of this analysis there is an estimated a 50/50 ratio of buys to sells, resulting in the number of shares sold being half the total shares traded.

Finally, the number of shares sold were converted into the notional value of shares sold. This was achieved by calculating the weighted average price of a stock in the Russell 3000 Index, which is the benchmark that the funds use to gauge their equity performance. This calculation is performed for the fiscal year 2015 on the tab, “Russell 3000 Avg Sh Pre” and the result--$49.81--is referenced on the “NYC Summary” tab. $49.81 was multiplied by the number of shares and the tax rate—0.5%--to arrive at the results in the column labeled, “Tax Owed.”

Based on these assumptions, the total amount of financial transaction tax that would have been paid by NYC for the fiscal year 2015 would have been $864,179,744.

Increased costs due to wider spreads are found in the rows labeled “Excess Spread” and “Spread Cost” which total $432,089,872. On the tab labeled, “NYC Summary” we see that the total economic impact to the funds is $1,296,269,615.

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