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Distributional Effects of Taxing Financial Transactions and the Low Interest Rate Environment

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Distributional effects of taxing financial transactions and the low interest rate environment

Dorothea Schäfer (DIW Berlin, JIBS and CERBE) *

Abstract

The study aims to assess the distributional effects of taxing financial transactions including a focus on gender. It specifically investigates the impact of the low interest rate environment on tax revenues and distribution. The first part of the study is explorative, aiming to develop a concept for the assessment. This is because the role of low or even negative interest rates is not yet specifically considered in the context of FTT. In the second part, the challenge is to find appropriate data for European countries in order to assess distributional effects. The study also highlights the existing data gaps that prevent a long-term evaluation of FTT with regard to tax revenues, impact, and distributional consequences.

Keywords: European Union, financial transactions, tax burden, social sustainability
JEL: G20, H21, H22, H23

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Contents

1 Introduction

In 2011, the European Commission presented a draft for a directive to introduce a unified financial transaction tax (FTT) within EU member states. Since then, negotiation between member states has been on going, along with heavy lobbying by financial sector representatives who are opposed to the FTT. The eleven member states then asked the commission to develop a concept for an FTT within the framework of enhanced cooperation. The commission presented its draft in 2013. Member states remain divided over which FTT should be introduced. Thus, a final conclusion regarding the FTT remains out of reach.

Most EU-governments are deeply in need of additional fiscal revenues. On the one hand the EU needs greater revenues in order to enhance investments in education, green technology and infrastructure, as well as to fight unemployment and social inequality. On the other hand, the costs of the financial crisis have remarkably tightened the fiscal space of its member states. Sovereign expenses for coping with the global fallout from the Lehman insolvency and for rescuing domestic financial sectors have increased tremendously. At the same time, fiscal revenues fell sharply as growth slumped in EU-economies. Today, around eight years later, most EU countries continue to struggle with huge gaps between expenses and revenues, resulting in ever increasing debt levels (see appendix).

Under the regime of financialization, over-indebtedness is dangerous, in one way or another. In particular, EU-countries from the euro zone periphery are consistently threatened by speculative attacks on their sovereign bonds (Morris & Shin 1998, Baum et al. 2016). Britain's Brexit decision even aggravated this looming threat. The corresponding sharp increase in sovereign yields would quickly push the high debt levels to non-bearable levels. Stability of the Eurozone would again be put at risk as those attacked by capital markets are pushed to the brink of insolvency.

On the other hand, the high and ever increasing EU member debt levels is

creating a trap for ECB's interest rate decisions. Momentarily, the ECB is doomed to stick to levels around zero. Gradually lifting interest rates may create a similar situation in the longer run as speculative attacks would do in the short run. Increasing interest rates would make high sovereign debt levels non-sustainable and, consequently, once again destabilize the euro zone. The crucial question is, therefore, what is the way out of this dilemma? What can be done to lower the risk of speculative bond attacks and, at the same time, to be freed from the trap of having to stick with extremely low interest rates?

Further cutting expenses to reduce current deficits and stabilize debt levels is not a reasonable solution because such measures aggravate austerity. In many EU countries, inequality in income and wealth levels is rising, an issue that threatens to undermine the legitimacy of the European project. Specifically, sufficient and sustainable social expenditures are important for fighting inequality. However, fiscal austerity tends to particularly affect social spending. Against this backdrop, boosting fiscal revenues is the only feasible alternative that offers a way out of this EU-dilemma. This is why FTT is truly important.

When adding new tax sources, the challenge for politicians is social and economic efficiency. Economic distortions that are naturally arising from any tax need to be kept to a minimum and are, ideally, balanced by economically, societally, and/or socially positive side effects. This paper investigates whether a unified EU financial transaction (FTT) tax qualifies in this respect. First, we discuss the prospects that the FTT offers to mitigate the aforementioned dilemma. Second, we explore the stabilizing potential of FTT in terms of income and wealth inequality. In particular, we investigate not just whether the tax would contribute to a more equitable distribution of the tax burden between labor and capital, but also between men and women.

We find that FTT could contribute to resolving the fiscal dilemma without endangering income and wealth equality. On the contrary, the FTT affects only

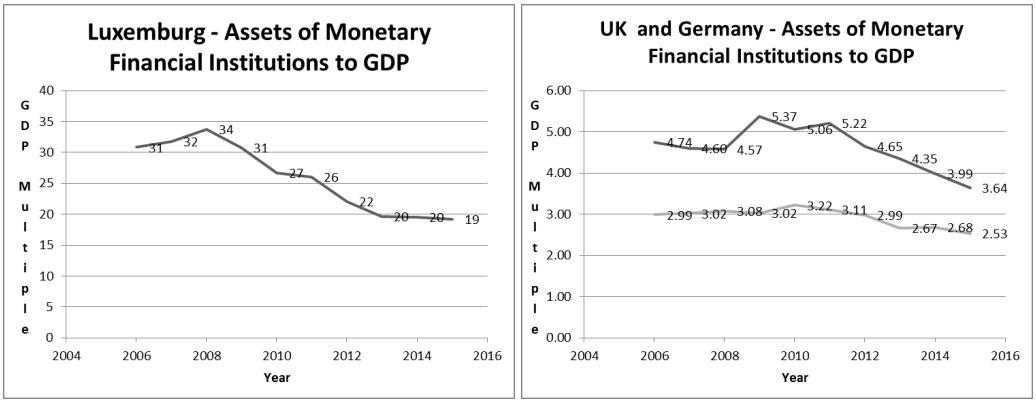
the financial sector and capital owners. As the tax is highly progressive, and capital ownership and financial trading is unevenly distributed between men and women, it will contribute to increased equality in societies.

The rest of the paper is organized as follows. Section 2 summarizes important developments since the EU Commission proposed the FTT in 2011. Section 3 explores the impact of FTT in the current low interest rate environment. Section 4 evaluates how FTT and the opportunity to exit the zero-interest rate environment are related. Section 5 analyses the distributional effect of an FTT. Section 6 investigates whether FTT's incidence will differ between men and women. Finally, Section 7 concludes.

2 Financial Transaction Tax: Where do we stand?

During their 2010 meeting, G20 leaders expressed the goal of a "fair and substantial contribution" by the financial sector that would also curb "excessive risk taking" (Gabor 2016). Responding to this demand, in September 2011, the Directorate-General Taxation and Customs Union (DG TAXUD) of the European Commission (EC) proposed a financial transaction tax (FTT). In the first half of 2012, the European Parliament and several committees, including the Economic and Social Committee, approved the proposal of the European Commission. However, the FTT concept did not find unanimous support among member states. In particular, countries with relatively large financial sectors, including the UK and Luxembourg opposed the FTT. In Luxembourg, the aggregated balance sheets of monetary financial institutions, including money market funds, was around twenty-times the Gross Domestic Product in 2012 (Figure 1). In Great Britain this ratio was at about five (e.g. Liikanen et al. 2012). In these heavily financialized countries, the financial sector is especially influential and, thus, able to directly affect governmental action.

Figure 1: Financialization in Germany, Luxembourg, and the UK



Luxembourg's multiple is particularly high. UK's multiple is higher than Germany's multiple

Source: ECB, own calculations

Eventually, eleven member states agreed to the tax. Thus, Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia, and Spain, authorized the European Commission to propose a concept for enhanced cooperation with respect to a financial transaction tax. The level of financialization in these countries is lower. For example Germany's ratio is roughly 3 times GDP, dropping slightly since 2012 (Figure 1).[1]

In February 2013, the European Commission proposed an FTT-directive that called for enhanced cooperation across the eleven EU countries seeking an FTT. The revised proposal imposes a tax rate of 0.1 percent per party, that is, both the buyer and the seller, in securities trading (essentially, stocks and bonds); here, the tax basis is the transaction price. In contrast, derivative contracts are taxed based on nominal value, which is often the value of the underlying security. The proposed tax rate in this instance is 0.01 percent. Like the original proposal, the FTT concept for enhanced cooperation excludes all primary activities, including everyday banking transactions, among others. Accordingly, demand or time

[1]It is interesting to note that in Germany, Luxembourg, and the United Kingdom, the ratio of aggregated balance sheets of monetary financial institutions, including money market funds, to GDP has dropped substantially since the financial crisis started.

deposits in banks are not taxed, nor are loans to businesses, households, and governments or the issuance of stocks and bonds. All transactions between customers and life insurance companies are also excluded (Schäfer 2013).

Fiscal revenue and incentive effects, as well as the opportunities for tax avoidance, are critically dependent on the width of the base, the level of the tax rates, and the principle of taxation. Since submission of the proposal, the eleven states have been negotiating the exact configuration of the tax. After negotiation procedures were restructured in early 2015, some progress on these issues has been made.[2] However, by the end of 2015 further setbacks occurred. While Estonia pulled out, the British Finance Minister threatened with legal action.[3] Enhanced cooperation within the EU needs at least 9 member states and, eventually, all EU countries must agree on an FTT within enhanced cooperation. Therefore, the British exit decision may also affect negotiations on enhanced FTT-cooperation.

To prevent tax avoidance through the relocation of activities, it is proposed that all transactions carried out by financial institutions situated within the tax area (residence principle) and all transactions made using instruments issued in the tax area (issuance principle) should be taxed.[4] However, as of yet, consensus on these key elements has not yet been achieved. Smaller countries like Austria are particularly worried about whether the larger participants would compensate them sufficiently for establishing the infrastructure necessary to ensure efficient tax collection. According to Austrian press sources, in June 2016 two new working groups were established in order to overcome the remaining obstacles

[2]Portugal took over the secretariat, providing administrative support and guidance to the negotiation process. Austria took over the presidency over the rounds of negotiations and leads the political coordination. Prior negotiating was carried out without a formal structure; the agreements achieved are not yet protocolled.

[3]http://www.telegraph.co.uk/finance/newsbysector/banksandfinance/12040139/Estonia-pulls-out-of-financial-transactions-tax-as-George-Osborne-threatens-legal-challenge.html

[4]Tax collection should give priority to the residence principle, as the country in which the financial institution is situated is usually the one supplying rescue funds whenever difficulties have occurred in the past (European Commission 2013*a*). In addition, according to the Commission's proposal for enhanced cooperation, the principle of " substance over form" should be applied in order to prevent legal circumvention through the use of special constructs.

by autumn.

There is a chance that a renewed momentum will be brought into the negotiations over the European FTT when the US-presidential race enfolds. Both Democratic primary presidential candidates, Hilary Clinton and Bernie Sanders, have proposed a US-financial transactions tax. While Clinton only intends to apply an FTT to high-speed trading, Bernie Sanders favors a more general transaction tax applied to both stock and bond trading (0.5 percent on stock and 0.1 percent on bond trading).

3 FTT in a low interest rate environment

Since 2011, when the FTT initiative of the EC Commission started, the economic circumstances of the European Union have changed severely. ECB has adopted an extremely loose monetary policy to fight the current financial and European sovereign debt crises. Accordingly, interest rates have reached historically low levels. For example, the yield of AAA rated euro area central government bonds with maturity of 10 years have decreased from 3.05 (2011) to 0.62 (2015) percentage points (Table 2). The corresponding 5-year bond that yielded 2.16 percentage points in 2011, yields close to zero in 2015. The yields for shorter terms have followed the ECB's deposit facility rate into negative territory. This situation is historically unique. Naturally, the question arises of how this particular environment may affect the plans to implement an FTT. The issue also plays a role in the negotiations for EU-enhanced cooperation.

Interest rate changes move the prices of financial products. Thus, FTT is affected if the tax basis is the transaction price. This is the case for securities trading (essentially, stocks and bonds). Figure 2 illustrates the price movements of a perpetual bond in response to a fixed interest rate drop (or increase).[5] The bold line

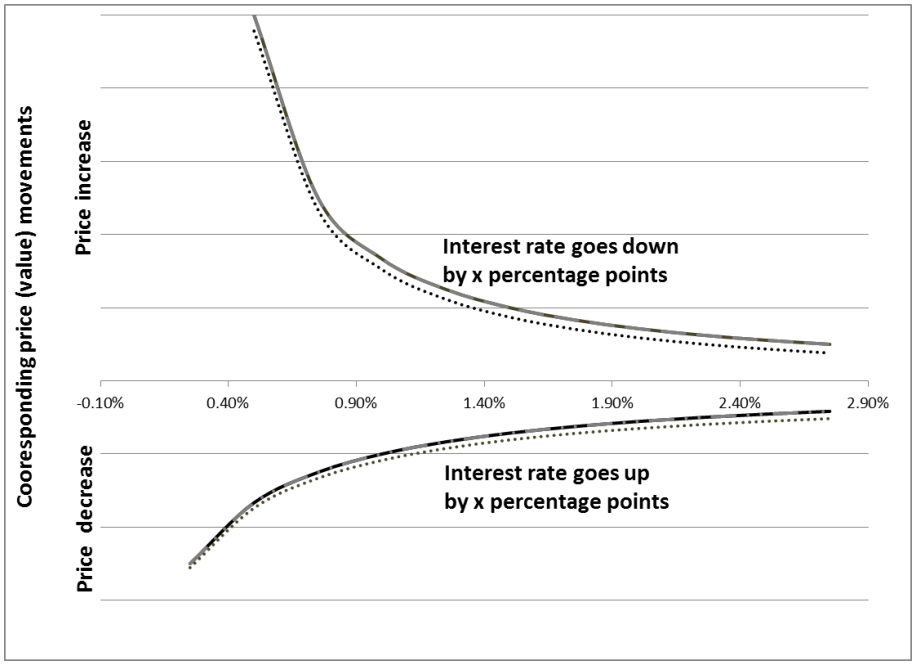
[5] A perpetual bond yields a coupon in each period and lasts forever. Its value is determined by the formula *coupon divided by the interest rate.*

Table 1: Yields of AAA rated euro area* central government bonds

Maturity (years)	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
1	3.22	4.00	3.62	0.91	0.59	0.90	0.05	0.06	0.01	-0.27
2	3.37	4.04	3.60	1.50	0.94	1.24	0.20	0.18	0.04	-0.24
3	3.43	4.05	3.65	1.99	1.31	1.57	0.44	0.37	0.15	-0.18
4	3.48	4.06	3.74	2.38	1.66	1.89	0.73	0.60	0.31	-0.09
5	3.52	4.09	3.83	2.70	1.99	2.16	1.02	0.84	0.49	0.03
6	3.57	4.11	3.92	2.97	2.27	2.41	1.29	1.08	0.68	0.16
7	3.62	4.14	4.00	3.20	2.52	2.61	1.55	1.32	0.87	0.29
8	3.66	4.17	4.07	3.39	2.72	2.79	1.77	1.53	1.06	0.41
9	3.70	4.19	4.14	3.55	2.89	2.93	1.96	1.72	1.22	0.52
10	3.73	4.22	4.20	3.69	3.04	3.05	2.12	1.89	1.38	0.62
11	3.76	4.24	4.25	3.80	3.15	3.15	2.25	2.04	1.51	0.71
12	3.79	4.26	4.30	3.89	3.24	3.23	2.36	2.16	1.63	0.78
13	3.82	4.28	4.34	3.97	3.32	3.30	2.45	2.27	1.73	0.85
14	3.84	4.30	4.37	4.03	3.38	3.35	2.52	2.36	1.82	0.91
15	3.86	4.31	4.40	4.08	3.43	3.39	2.58	2.43	1.90	0.97
16	3.87	4.32	4.43	4.12	3.46	3.43	2.62	2.49	1.96	1.01
17	3.89	4.34	4.45	4.16	3.49	3.45	2.65	2.53	2.01	1.05
18	3.90	4.35	4.47	4.18	3.51	3.48	2.68	2.57	2.05	1.09
19	3.91	4.36	4.48	4.20	3.53	3.49	2.70	2.59	2.08	1.12
20	3.92	4.37	4.50	4.22	3.54	3.51	2.71	2.61	2.11	1.15
21	3.93	4.37	4.51	4.22	3.55	3.52	2.72	2.63	2.13	1.17
22	3.94	4.38	4.53	4.23	3.55	3.52	2.72	2.63	2.15	1.19
23	3.95	4.39	4.54	4.23	3.56	3.53	2.72	2.64	2.16	1.21
24	3.95	4.39	4.54	4.23	3.56	3.53	2.72	2.63	2.16	1.23
25	3.96	4.40	4.55	4.23	3.56	3.54	2.72	2.63	2.16	1.24
26	3.97	4.40	4.56	4.22	3.55	3.54	2.72	2.62	2.16	1.26
27	3.97	4.41	4.57	4.22	3.55	3.54	2.71	2.61	2.16	1.27
28	3.98	4.41	4.57	4.21	3.54	3.54	2.70	2.60	2.16	1.28
29	3.98	4.42	4.58	4.20	3.54	3.54	2.70	2.59	2.15	1.29
30	3.99	4.42	4.58	4.19	3.53	3.54	2.69	2.58	2.15	1.30

Source: Eurostat, Own calculations
*Euro area (EA11-2000, EA12-2006, EA13-2007, EA15-2008, EA16-2010, EA17-2013, EA18-2014, EA19)

Figure 2: Impact of FTT on interest rate-induced changes of bond prices



Dotted curves: Price change with FTT is introduced.
Source: Own Calculations

in the upper area indicates the increase of the bond price in response to interest rate movements when transactions are not taxed.[6] The price reaction is convex. When the interest rate drops by one unit, the price rise (in percentage points) is larger, the lower the existing interest rate level is.[7]

The dotted lines represent the impact of FTT. If, in the current situation, interest rates dropped further, bond prices would increase particularly strongly, as would tax revenues from bond trading, provided that price elasticity is sufficiently low (Matheson 2011). However, compared to the situation with no taxation, an FTT would dampen the bond value inflation when introduced parallel to the interest rate drop.[8] Moreover, the tax would presumably reduce demand for

[6] Annuity bonds and zero bonds show a comparable pattern with the exception that the range of induced price effects is smaller.

[7] The same logic applies to an interest rate increase. The corresponding drop of the transaction price is higher, the lower the interest rate is.

[8] Basically, the impact of introducing FTT is the same as if the interest rate drop were smaller than it actually is.

bonds with the likely effect of reduced trading and disinflation of prices.

In the (unexpected) case of an interest rate increase any time soon, inflated bond values (and prices) would start heading in the opposite direction. Bond price deflation would be stronger if an FTT was introduced in parallel.

It is important to note that the described impact is a one-time effect. It appears only if one compares bond price movements with and without FTT. Once FTT is in place prior and ex post to the interest rate change, bond value changes in percentage points are the same, regardless of the presence of an FTT or not.

Stock prices are related to interest rates, in particular to long-term rates. For example, if prices of bonds move up in response to an interest rate drop, stocks become more attractive for investors and demand is likely to shift to shares. Thus, an interest rate drop usually triggers an upward movement of share prices. Most likely, as an alternative to bonds, stock prices increase more rapidly the lower the pre-existing interest rate is. Thus, in the current low interest rate environment, further drops will result in particularly high bond and stock price inflation. FTT tends to dampen the interest-rate induced share price inflation.

Derivative contracts are taxed based on nominal value. Assume a company takes out a loan with floating interest rates. The company buys an interest rate swap to hedge against the risk of rising interest rates. Thus, the derivative's nominal value is the loan amount. While the price of the swap contract naturally depends on the interest rate, its nominal value does not. Therefore, a direct effect of the low interest rate environment on the taxation of derivatives can be ruled out.

However, there could be an indirect effect when borrowers take out larger and more loans because interest rates are so low. Such behavior would increase the swap's nominal value (or the number of swaps) and, thus, the tax base. However, similar to the dampening effect on the equity price inflation, reduced incentives to expand interest rate-induced borrowing is a desirable effect of FTT. Excessive borrowing is a large threat to financial stability in today's low interest rate envi-

ronment.

4 FTT and the chance to exit the zero-interest rate environment

Germany is proud of its recently achieved fiscal surplus. However, within the EU28, only four member states have a non-negative fiscal budget (Table 3). To a large extent, the historically low interest rates are responsible for Germany's favorable budget situation. In 2015, slightly more than 49 billion euro in interest had to be paid on the debt of the public sector. This corresponds to an average interest rate (AIR) of only 2.26 percent. Without massive cuts in spending, Germany, like most EU countries, could not afford paying higher interest rates. Even a 1.0 percent increase in AIR, applied to the current debt, would require 21.6 billion euro in additional interest payments. Had Germany needed to pay the average interest rate of 2005, the additional expenditure would amount to 39.7 billion euro (10.35% of central government's budget). Austria's respective differential expenditures are 2.9 billion and 5.8 billion euro (5.01% of central government's budget). Sweden's additional expenditure would amount to 1.96 billion and 5.11 billion euro (3.84% of central government's budget)(Table 2).

Currently, only six EU member states have a ratio of current deficit to GDP greater than the three percent threshold of the Maastricht-Treaty (Table 3). However, had member states needed to pay the AIR of 2005 on their current debt, everything else equal, 17 member states would break this threshold. Thus, they theoretically would have had an increased risk of being subject to speculative attacks on their domestic bonds or, if they are outside the euro zone, on their currencies. The 60 percent debt level threshold imposed by the Maastricht treaty is exceeded by 19 out of the 28 EU countries. Five member states are above 100 percent, among them Belgium, Greece, and Italy. This looming threat of speculative

Table 2: Interest payment of EU countries

GEO	Debt levels 2015	Interest expenses 2015	AIR payed 2005	AIR payed 2015	**PAE** (AIR of 2005	AIR 2015 + 1 %	**PAE** (AIR of +1%)
	mill Euro	mill Euro	%	%	mill Euro	%	mill Euro
European Union	12,477,670	335,348	4.33%	2.69%	**205,496**	3.69%	**124,777**
Euro Area	9,440,246	250,776	4.21%	2.66%	**146,852**	3.66%	**94,402**
Belgium	434,186	11,886	4.61%	2.74%	**8,111**	3.74%	**4,342**
Bulgaria	11,774	421	5.86%	3.57%	**269**	4.57%	**118**
Czech Republic	67,948	1,773	3.76%	2.61%	**781**	3.61%	**679**
Denmark	106,896	4,237	5.50%	3.96%	**1,643**	4.96%	**1,069**
Germany	2,152,943	48,549	4.10%	2.26%	**39,720**	3.26%	**21,529**
Estonia	1,993	19	4.18%	0.97%	**64**	1.97%	**20**
Ireland	201,266	6,747	3.91%	3.35%	**1,132**	4.35%	**2,013**
Greece	311,452	6,703	4.37%	2.15%	**6,91**1	3.15%	**3,115**
Spain	1,072,183	33,122	4.12%	3.09%	**11,076**	4.09%	**10,722**
France	2,097,103	44,112	3.90%	2.10%	**37,720**	3.10%	**20,971**
Croatia	37,925	1,566	4.70%	4.13%	**216**	5.13%	**379**
Italy	2,171,671	68,440	4.42%	3.15%	**27,621**	4.15%	**21,717**
Cyprus	18,964	496	5.05%	2.62%	**462**	3.62%	**190**
Latvia	8,872	325	4.37%	3.66%	**63**	4.66%	**89**
Lithuania	15,882	565	4.34%	3.56%	**124**	4.56%	**159**
Luxembourg	11,174	189	2.99%	1.69%	**145**	2.69%	**112**
Hungary	80,366	3,902	6.87%	4.85%	**1,622**	5.85%	**804**
Malta	5,621	228	5.37%	4.05%	**74**	5.05%	**56**
Netherlands	441,664	8,211	4.42%	1.86%	**11,305**	2.86%	**4,417**
Austria	290,716	7,933	4.73%	2.73%	**5,826**	3.73%	**2,907**
Poland	215,242	7,629	5.09%	3.54%	**3,322**	4.54%	**2,152**
Portugal	231,345	8,192	3.78%	3.54%	**563**	4.54%	**2,313**
Romania	60,543	2,639	7.95%	4.36%	**2,172**	5.36%	**605**
Slovenia	32,070	1,145	5.81%	3.57%	**718**	4.57%	**321**
Slovakia	41,306	1,393	4.87%	3.37%	**619**	4.37%	**413**
Finland	130,746	2,521	4.03%	1.93%	**2,754**	2.93%	**1,307**
Sweden	196,393	2,160	3.70%	1.10%	**5,111**	2.10%	**1,964**
United Kingdom	2,265,800	60,246	4.89%	2.66%	**50,624**	3.66%	**22,658**

Source: Eurostat, Own calculations
Average interest rate (AIR): *Amount of Interest Payed/Debt*
AE: Additional Expenses
PAE: Projected Additional Expenses

attacks puts monetary policy in the EU into an interest rate trap.

The term trap is justified because long-lasting zero, or even negative, interest rates have also dangerous economic consequences. For example, Germany's most recent national pension system reforms mandated a gradual but substantial reduction of the pension level from today's 48 percent of salaries to 43 percent in 2030. The OECD expects German pension levels in 2050 to be lower than those of most other European countries (OECD 2015). Consequently, the privately funded pension pillar will become ever more important in the future. However, long-lasting, extremely low, interest rates will severely damage the possible returns from private retirement savings and threaten the living standard of Germany's future retirees. Higher interest rates are needed, at least in the medium term, but the ECB and other central banks can only escape the interest rate trap if member states are able to reduce the risk of speculative attacks.

A further reduction of public spending by EU members would probably negatively impact the already weak growth while exacerbating existent social problems. Investment expenditure needs to be higher than it has been in previous years in order to modernize infrastructure. Productivity-enhancing investments are necessary to re-stimulate, in the medium to long term, otherwise weak growth. Such an investment offensive requires growing public sector expenditures. Increasing flows of refugees and the cost of an intensified fight against climate change are other factors that will be reflected on the expenditure side of the states' budgets. Therefore, socially responsible fiscal consolidation requires higher revenues instead of lower expenses.

Of course, FTT is not the only possible source for higher fiscal revenues but it is particularly attractive for a number of reasons. In times of financialization, imposing a financial transaction tax can be justified by the theory of public (club) goods. Financial market stability is a public good. As long as financial market stability exists, there is no rivalry in usage and no exclusion. If one interprets the

Table 3: Debt/GDP and Deficits (2005 and 2015)

Country	Debt/GDP 2005	Debt/GDP 2015	Deficit 2005	Deficit 2015	Deficit projected 2015 (AIR of 2005 is applied)
European Union	61.8	85.2	-2.5	-2.4	-3.7
Euro Area	69.2	90.7	-2.6	-2.1	-3.5
Belgium	94.6	106.0	-2.6	-2.6	-4.6
Bulgaria	26.6	26.7	1.0	-2.1	-2.7
Czech Republic	28.0	41.1	-3.1	-0.4	-0.9
Denmark	37.4	40.2	5.0	-2.1	-2.7
Germany	66.9	71.2	-3.4	0.7	-0.6
Estonia	4.5	9.7	1.1	0.4	0.1
Ireland	26.1	93.8	1.6	-2.3	-2.8
Greece	107.4	176.9	-6.2	-7.2	-11.2
Spain	42.3	99.2	1.2	-5.1	-6.1
France	67.2	95.8	-3.2	-3.5	-5.3
Croatia	41.3	86.7	-3.9	-3.2	-3.7
Italy	101.9	132.7	-4.2	-2.6	-4.3
Cyprus	63.2	108.9	-2.2	-1.0	-3.7
Latvia	11.8	36.4	-0.4	-1.3	-1.5
Lithuania	17.6	42.7	-0.3	-0.2	-0.5
Luxembourg	7.5	21.4	0.1	1.2	1.0
Hungary	60.5	75.3	-7.8	-2.0	-3.5
Malta	70.1	63.9	-2.7	-1.5	-2.3
Netherlands	48.9	65.1	-0.3	-1.8	-3.5
Austria	68.3	86.2	-2.5	-1.2	-2.9
Poland	46.7	51.3	-4.0	-2.6	-3.4
Portugal	67.4	129.0	-6.2	-4.4	-4.7
Romania	15.7	38.4	-0.8	-0.7	-2.1
Slovenia	26.3	83.2	-1.3	-2.9	-4.8
Slovakia	33.9	52.9	-2.9	-3.0	-3.8
Finland	40.0	63.1	2.6	-2.7	-4.1
Sweden	48.2	43.4	1.8	0.0	-1.2
United Kingdom	41.5	89.2	-3.5	-4.4	-6.4

Source: Eurostat, Own calculations
Average interest rate (AIR): *Amount of Interest Payed/Debt*

trading of financial instruments as a utilization of this public good, the FTT can be viewed as the price for this usage. According to the polluter pays principle, the financial transaction tax would, consequently, contribute to internalizing the costs of this usage. In this way, it counteracts the over-exploitation and collapse of the system (Darvas & Weizsäcker 2011, Schäfer 2015).

Second, financial stabilization policies have preserved asset values, "while crisis-driven fiscal adjustment tends to burden those with incomes from labour and social transfers more heavily" (Iara 2015). However, FTT enables fiscal consolidation via increased revenues, burdening the financial sector and asset owners. Thus, it links the goal of a 'fair and substantial contribution' of the financial sector to the aim of socially responsible fiscal consolidation.[9]

Third, there is suspicion that low interest rates especially spur speculative trading. Incentives created by upward price trends and historically cheap borrowing hint in this direction. FTT would reduce these incentives and, thus, contribute to curbing 'excessive risk taking' in the present low interest rate environment.

Fourth, misconduct in the financial sector is a fact (Zingales 2015). Trading is the field in which misconduct of banks is particularly likely. Most trading occurs between counter-parties within the financial sector. The European Commission estimates that 85 percent of all trading is intra-sectoral trading. In addition, a few market players dominate the business in many areas of financial trading.

> The American Antitrust Institute has attempted to calculate the undue rents created by bank cartels. As regards market manipulation, it is estimated that, on average, the overcharges of 17 cartels amount to 61% of fees, implying total overcharges of USD 347 billion. The

[9]Between 2008 and 2014, European Union governments provided 1,188.1 billion euro in guarantees, 453.3 billion euro to recapitalise banks, and 188.5 billion euro for impaired assets measures (DG Competition, http://ec.europa.eu/competition/ state_aid/scoreboard/f inancial_economic_crisis_aid _en.html). Workers in the financial sector enjoy a premium compared to other workers. The premium is particularly large for top earners (Philippon & Reshef 2012).

> fees involved for the foreign exchange cartel alone, which lasted 11 years, are estimated to be between USD 51 billion and USD 340 billion. According to the study ... "antitrust injuries from banking cartels and market manipulation will rise to trillions of dollars worldwide". (European Systemic Risk Board 2015)

If properly designed, a financial transaction tax will be able to reduce incentives for misconduct because it establishes greater transparency and because it dampens profits from misconduct.

Fifth, to date ten EU-member states have already imposed an FTT. France and Italy have introduced their FTTs only recently.[10] The construction of FTTs differs widely from country to country. These individual solutions contribute to the fragmentation of the internal EU capital market. A unified transnational financial transaction would improve this situation, thus supporting the free movement of capital within the EU.

Finally, FTT revenues do not necessarily belong to the country that collects it. Thus, some pooling and re-allocating of tax revenues needs to occur. In additions, smaller countries specifically need to be compensated for their investment in taxing infrastructure. Otherwise, these countries would have no incentive to make these investments. The revenue pooling may open up the possibility for establishing in the future a joint budget, from which the countries with enhanced cooperation could finance pre-defined joint projects, such as fighting youth unemployment in their countries.

5 FTT's distributional effects

From the very beginning, the FTT is connected to economic and social fairness. Occasionally the FTT is nicknamed the "Robin Hood Tax". Accordingly, the

[10] Although there is much research investigating the impact of the French and Italian FTT, results are inconclusive (see chapter 3 and the appendix of Schäfer 2015).

objectives fairness and distributive justice play an important role in the FTT-proposal for enhanced cooperation (European Commission 2013*b*). Distributional effects are a crucial issue, even also in the current US-debate regarding an FTT.

The rising income and wealth inequality on both sides of the Atlantic suggest that newly introduced taxes, such as the FTT, should be progressive. High levels inequality is not only suspected of triggering the financial and economic crisis (see, for example, van Treeck 2014), but also of causing social tensions and political instability.

To assess the progressivity of the FTT, data on the frequency and value of financial asset transactions across income classes (or wealth classes) is needed. However, even basic data, including information on financial asset holdings across income or wealth classes, is very sparse. Respective data on frequency is absent. At best, household surveys provide information on participation rates of different income classes in the tax-relevant financial asset types.

These household survey data allow for assessing whether the FTT is progressive under certain assumptions. First, trading activity must be either similarly spread across income (or wealth) classes, or trading activity is positively related to the class. For example, if each financial instrument is traded once in a year, the share of each income class in the trading volume would correspond to the respective class's share in asset ownership. If trading increases with classes, the traded volume would be more unevenly distributed than asset ownership.[11] Second, the tax must be completely passed through to the holders of the financial instrument. If the pass-through is incomplete then the financial sector's profits, management bonuses, and salaries will be affected.[12]

[11]See the following example with three income classes: 1, 2 and 3 with number 3 representing the richest class. Assume that market capitalization is 1,000 billion euro of which class 1 owns 1% (10 billion), class 2 owns 30% (300 billion) and class 3 owns 69% (690 billion). If each share is traded once in a period the turnover ratio is 100% in each class. In this case, share ownership and trading volume are distributed equally. In contrast if the turnover rate is 10% (1), 30% (2) and 60% (3) the trading volume is more unevenly distributed than ownership: 0.2% (class 1), 17.8% (class 2) and 82% (class 3).

[12]Philippon & Reshef (2012) find large wage differentials between the financial sector and the

While the first assumption seems rather plausible, the second one can be questioned in the highly competitive financial services market. In an European Commission impact study, the share of intra-financial sector transactions was estimated to be around 85 percent (European Commission 2013*a*). In Europe, it seems unlikely that the remaining 15% of transactions, client-related trading, would see a full pass-through of the FTT since there is extensive competition in the financial sector (Pagano & Advisory Scientific Committee 2014). It is more likely that efforts to neutralize the effect of the FTT on the financial sector will involve either reducing transaction costs or reducing profits (Baker & Woo 2015).

5.1 The US-case

Table 4 shows the distribution of assets by asset type across US-income percentiles (Baker & Woo 2015). The richest 10% of US-households own more than 80% of bonds and nearly 80% of stocks and pooled investment funds. If the turnover rate is equal across percentiles the richest US-households will bear the brunt of the FTT-burden; if trading activity increases with the income percentile, FTT is even more progressive.[13] Baker & Woo (2015) estimate that 75 percent of a US-FTT would be paid by the richest fifth of taxpayers, and 40 percent by the top 1 percent.[14] Accordingly, the Tax Policy Center in Washington concludes in an evaluation report, "A well designed FTT could raise up to about 0.4 percent of GDP ($ 75 billion in 2017) in the United States and would be quite progressive" (Burman et al. 2016).

rest of the private sector. They estimate that 30% to 50% of the differential can be explained by extraordinary rents.

[13] A full pass-through is assumed. Partial pass-through will affect profits, bonuses, and salaries in the financial sector (Baker & Woo 2015).

[14] http://www.taxpolicycenter.org/publications/financial-transactions-taxes/full

Table 4: Share of Holdings by Income Percentile in the US

Percentile of Income	Bonds	Stocks	Pooled Investment Funds	Retirement Accounts	Cash Value Life Insurance	Other Managed Assets	Total
< 20	-	1.2%	2.5%	0.8%	2.5%	1.3%	1.2%
20 - 39.9	5.0%	1.7%	1.7%	2.3%	5.5%	3.6%	2.4%
40 - 59.9	2.1%	3.9%	3.5%	7.3%	9.5%	4.4%	5.6%
60 - 79.9	4.3 %	7.1 %	5.9 %	17.4%	14.5%	11.9%	12.3%
80 - 89.9	-	8.2%	7.6%	18.7%	9.9%	11.0%	13.0%
90 - 100	88.6%	77.9%	78.9%	53.5%	58.0%	67.7%	65.5%
Total	100%	100%	100%	100%	100%	100%	100%

Source: Baker & Woo (2015)

5.2 The European case

In comparison to US figures, European data on asset ownership is less specific (Iara 2015). Table 5 shows the distribution of total assets across deciles of household gross income for a selection of EU countries. The second column adds the ratio of financial assets to total assets across all households. Breaking down the ratio across income deciles is impossible.[15] Financial assets' share out of total wealth is generally well below 50% in the selected European countries, while in the USA financial assets cover 51.5% of total assets. In order to infer from the skewed distribution of total assets to the distribution of tax burden, one must assume that the share of deciles in total assets and trading activity in financial assets is highly correlated. Given a high correlation we can expect that the tax burden is concentrated in the higher income deciles.

The participation ratio in financial asset ownership across income classes offers a more specific way to assess the distributional effects of the FTT. Table 6

[15]The OECD financial wealth figures consists of currency and deposits, loans, shares and other equity (including shares issued by investment funds), other securities, insurance technical reserves, other non-pension financial assets and voluntary individual life insurance, as well as private pension funds. Non-financial wealth consists of principal residence, other real estate property, vehicles, valuables, and other non-financial assets. http://stats.oecd.org/index.aspx?datasetcode=Wealth.

indicates the participation ratio of euro area households in financial asset ownership across income quantiles in 2010.[16] The FTT is relevant for owners of mutual funds, bonds, stocks, pension funds and life insurance, as well as other financial assets.[17] Participation rates reveal the likelihood of households in a particular income class to own a specific asset type. Across all asset types, ownership is more likely if the household has a higher income. For example, the likelihood of owning a mutual fund is more than five times higher among the 20 percent of the richest households than it is in the poorest 40 percent. The same relation applies to stocks. Bond ownership and ownership of other financial assets is more than four times more likely in the richest 20 percent of households.

Participation rates do not reveal what percentage of the aggregate value of this asset type belongs to the specific income class, as in Table 4. However, it is plausible to assume that the amount invested in a particular asset type increases across income classes. For one, richer households have lower risk aversion. Second, richer households have a higher share of income and higher absolute amounts available for investing. Therefore, the percentage of assets that belong to the highest income class will be considerably higher than the participation rates. Taken together, both indicators, the distribution of total wealth and the participation rates, clearly indicate a highly progressive effect of an European FTT.

6 Gendered FTT's incidence?

Many studies provide evidence that there are differences between male and female investors. However, these differences tend to disappear once financial and/or socioeconomic backgrounds are accounted for (e.g. Barasinska & Schäfer 2013, Christiansen et al. 2007). For assessing a possible "gendered" FTT incidence,

[16] Asset types affected by FTT are emphasized.

[17] The latter includes derivatives (Eurosystem Household Finance & Consumption Network 2013).

Table 5: Distribution of total assets (including housing) across deciles of total household gross income in some euro area Members, 2010

Decile *Country*	OECD: ratio of financial/ total assets (2010)	**1**	**2**	**3**	**4**	**5**	**6**
		Share of decile					
Austria	40.9%	2.3	3.1	4.9	5.6	7.2	8.3
Belgium	33.4%	4.1	4.6	7.6	6.7	10.0	8.6
Cyprus		3.4	4.6	5.1	5.1	5.7	7.4
Germany	34.2%	1.9	2.4	3.1	4.4	6.0	6.8
Spain	19.3%	4.1	5.0	5.3	7.0	7.5	9.2
Finland	18.3%	2.9	3.4	4.8	6.2	7.1	8.6
France	27.8%	3.2	3.3	4.0	5.8	6.0	7.4
Greece	11.7%	4.2	5.4	5.8	8.0	8.3	10.1
Italy	18.3%	3.8	3.9	5.1	6.1	7.0	7.9
Luxembourg	14.1%	3.3	3.6	6.1	4.6	6.7	7.2
Malta		4.4	5.2	5.9	7.3	6.6	7.1
Netherlands	29.1%	8.4	6.1	7.0	7.7	7.5	9.1
Portugal	24.4%	4.6	3.9	4.9	6.0	6.6	8.3
Slovenia		8.8	2.9	8.5	6.4	9.0	9.1
Slovak Republic	12.9%	6.5	6.7	6.1	9.8	9.4	9.4

Decile		**7**	**8**	**9**	**10**
Country		**Share of decile**			
Austria	40.9%	8.9	12.8	14.4	32.5
Belgium	33.4%	10.9	12.2	13.6	21.7
Cyprus		8.4	13.2	18.5	28.6
Germany	34.2%	8.0	12.4	19.8	35.1
Spain	19.3%	9.4	11.1	13.5	28.1
Finland	18.3%	10.6	12.3	14.5	29.6
France	27.8%	9.3	10.8	14.2	36.1
Greece	11.7%	10.3	11.8	14.3	22.1
Italy	18.3%	10.1	11.0	13.5	31.8
Luxembourg	14.1%	8.4	12.5	15.8	32.0
Malta		8.7	11.0	12.8	31.0
Netherlands	29.1%	10.5	13.0	13.5	17.3
Portugal	24.4%	8.7	9.6	13.4	34.1
Slovenia		8.2	9.4	16.8	21.0
Slovak Republic	12.9%	10.0	11.4	13.8	17.1

Source: OECD.Stat, Iara (2015), Appendix, own calculations

Table 6: Participation rates of euro area households in financial asset ownership across quantile of income in 2010

Asset type	Euro area income quantile				
	1	2	3	4	5
	%	%	%	%	%
Deposits	89.9	96.5	98.2	98.6	99.0
Mutual funds	3.4	4.6	8.9	13.2	26.5
Bonds	1.5	3.0	4.6	6.2	11.1
Stocks	2.2	4.2	7.2	12.3	24.4
Money owed to household	6.7	6.5	8.3	7.4	9.2
Pension funds and life insurance	13.2	20.4	31.1	41.9	58.3
Other financial assets	2.7	2.6	5.4	7.3	12.2

Source: Eurosystem Household Finance & Consumption Network (2013)

unconditional differences in investment behavior between men and women are the relevant basis. That is, we consider men's and women's ownership of assets and trading activity without incorporating other background information. We use previous empirical evidence on gender differences in investing and in trading for our assessment. All tradable financial products are relevant for the FTT-incidence. However, the lack of gender data regarding the ownership of the complete universe of financial products means that most existing studies proxy risky assets with stocks.

It is well documented that women typically participate less in the stock market than men. Barasinska & Schäfer (2013) document the participation gap in favor of men for Austria, Italy, the Netherlands, and Spain. They also find that financial wealth is unevenly distributed between men and women in these four countries. Women have 52% of men's financial wealth in Austria, 62% in Italy, 41% in Netherlands, and 32% in Spain.[18] Christiansen et al. (2007) report that while 27 percent of Danish men participate in the stock market, only 23 percent of Danish women participate. In Denmark, the value of women's stock holdings is only 82 percent of men's value in stockholding. Thomas & Spataro (2015) in-

[18]The numbers refer to country-specific sample means.

vestigates participation rates in Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Sweden and Switzerland. They find that being a woman decreases the probability of participating in the stock market by 3.2%. Halko et al. (2012) study the association between gender and stock holdings in Finland. They focus on female investors and female finance students. Within the group of investors, women participate to 62% in the stock market while their male counterparts participation rate is 73%. An even larger difference appear for students (46% vs. 67%). Almenberg & Dreber (2015) explore data from the 2010 consumer survey of the Swedish Financial Supervisory Authority. They find that female stock market participation is 49% while male participation is 51 %. The British National Statistics estimates that between 2008 and 2010, women owned 36 percent of the value of securities while men possessed 64 percent.[19]

Table 7 illustrates that gender difference in total stock holdings is more pronounced than differences in participation rates, if men's average holding is larger than women's average holding. In addition, evidence on trading activities suggests that men trade more frequently than women (Barber & Odean 2001, Shao & Wang 2015). The consequence of more frequent trading is also visible in Table 7. In the example we assume that men sell their stock holdings completely in the period under consideration (turnover rate 100%) while women only trade half of their holdings. Thus, total trading volume in the example amounts to 70000 euro. Women's share in trading is only 14 percent (trading volume 10000 euro) and thus considerably lower than their share in asset ownership. Men account for 86 percent (60000 euro) of the trading volume.

The example illustrates that if men's ownership of securities is higher than women's ownership, more frequent male trading will further increase the incidence gap between men and women. Thus, the empirical evidence gathered up to now - male investors have higher stock ownership and trade more frequently

[19]https://www.gov.uk/government/statistics, Assets by age and gender

than female investors - allows us to conclude that FTT has a gendered incidence and will affect male stock owners more than female stock owners.

Table 7: Participation rates, gender distribution of asset ownership and trading share - Example

Gender	Individuals (Share in All))	Participation rate	Share in Stock owners (number)	Average value per stockholder (euro)	Total stock value (euro)	Share in total stock value	Turn over rate	Trading share
Women	100 (50%)	20% (20)	40%	1000	20000	25 %	50 %	14 %
Men	100 (50%)	30% (30)	60%	2000	60000	75 %	100 %	86 %
All	200	25% (50)		1600	80000			

Source: Own calculations

7 Conclusion

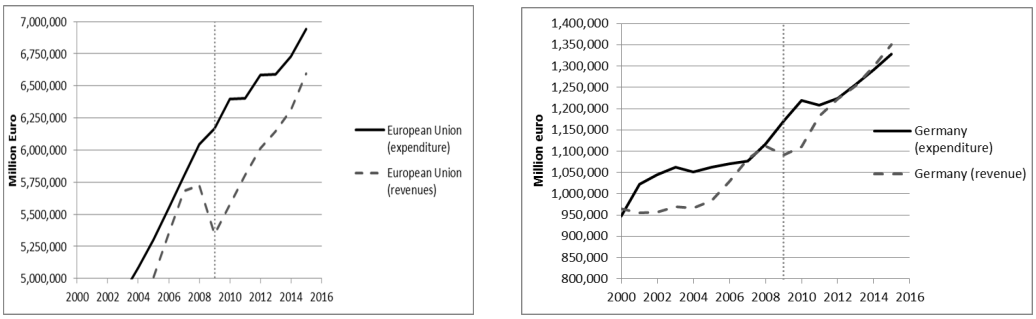
An FTT within the enhanced cooperation of at least 9 EU members is a step toward harmonizing the various existing national FTT-regimes and to imposing a fair share of crisis costs on the financial sector. Because FTT works in favor of "patient money," financial markets will most likely become more stable and will be more closely linked to the real economy. If designed in a broad-based way, that is, if the tax covers as many financial instruments as possible, then the FTT is an appropriate instrument to substantially increase government revenues.

Higher revenues would help to escape two traps. First, there is the austerity-trap. Inequality in income and wealth levels is rising and has even become a severe threat to the legitimacy of the European project. Social spending is specifically important for fighting inequality, but fiscal austerity programs tend to focus on reducing social budgets. Second, there is the interest rate trap of the central banks. If annual deficits become smaller and sovereign debt levels stop rising, then the looming threat of speculative bond attacks weakens and interest rates

can increase. The existing income and wealth data suggest that tax-relevant financial securities are concentrated in the upper income deciles. We conclude from this evidence that the FTT is progressive and would contribute to increased societal equality. In addition, empirical evidence suggests that securities ownership is not only unevenly distributed between men and women, but securities are more frequently traded by men than women. Therefore a "gendered" incidence of FTT can be expected. In sum, the introduction of an FTT could increase social sustainability within the European Union.

A Aggregated state revenues and expenditures of the European Union members

Figure 3: European Union (aggregate) and Germany



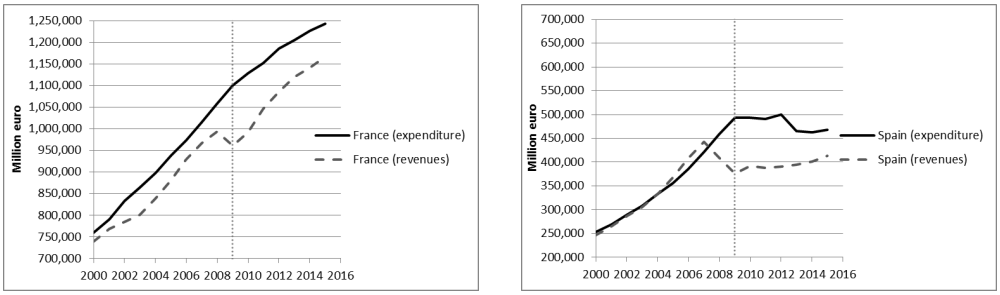
Source: ECB, own calculations

References

Almenberg, J. & Dreber, A. (2015), 'Gender, stock market participation and financial literacy', *Economics Letters* **137**, 140 – 142.
URL: *http://www.sciencedirect.com/science/article/pii/S0165176515004115*

Baker, D. & Woo, N. (2015), The incidence of financial transactions taxes, Cepr reports and issue briefs, Center for Economic and Policy Research (CEPR).
URL: *http://EconPapers.repec.org/RePEc:epo:papers:2015-25*

Figure 4: France and Spain



Source: ECB, own calculations

Barasinska, N. & Schäfer, D. (2013), 'Is the willingness to take financial risk a sex-linked trait? evidence from national surveys of household finance', *Deutsche Bundesbank Discussion paper* **05/2013**.

Barber, B. & Odean, T. (2001), 'Boys will be boys: Gender, overconfidence, and common stock investment', *The Quarterly Journal of Economics* **116**(1), 261–292.
URL: *http://EconPapers.repec.org/RePEc:oup:qjecon:v:116:y:2001:i:1:p:261-292.*

Baum, C. F., Schäfer, D. & Stephan, A. (2016), 'Credit rating agency downgrades and the eurozone sovereign debt crises', *Journal of Financial Stability* **24**(C), 117–131.
URL: *http://EconPapers.repec.org/RePEc:eee:finsta:v:24:y:2016:i:c:p:117-131*

Burman, L. E., Gale, W. G., Gault, S., Kim, B., Nunns, J. & Rosenthal, S. (2016), Financial transactions taxes: An overview, Technical report, Tax Policy Center.

Christiansen, C., Joensen Schrøter, J. & Rangvid, J. (2007), Fiction or fact: Systematic gender differences in financial investments?, Conference paper, EFA 2007.
URL: *http://ssrn.com/abstract=948164*

Darvas, Z. & Weizsäcker, J. (2011), 'Financial transaction tax: Small is beautiful', *Society and Economy* **33**(3), 449–473.
URL: *https://ideas.repec.org/a/aka/soceco/v33y2011i3p449-473.html*

European Commission (2013*a*), Commission staff working document - impact assessment, accompanying the document proposal for a council directive implementing enhanced cooperation in the area of financial transaction tax - analysis of policy options and impacts, com(2013) 71 final, swd(2013) 29 final, Technical report, European Commission.

European Commission (2013*b*), *Proposal for a Council directive implementing enhanced cooperation in the area of financial transaction tax*, European Commission.

European Systemic Risk Board (2015), Report on misconduct risk in the banking sector, report, European Systemic Risk Board.

Eurosystem Household Finance & Consumption Network, H. (2013), The Eurosystem Household Finance and Consumption Survey - Results from the first wave, Statistics Paper Series 1, European Central Bank.
URL: *http://www.ecb.europa.eu/pub/pdf/scpsps/ecbsp2.en.pdf*

Gabor, D. (2016), 'A step too far? the european financial transactions tax on shadow banking', *Journal of European Public Policy* **23**(6), 925–945.
URL: *http://dx.doi.org/10.1080/13501763.2015.1070894*

Halko, M.-L., Kaustia, M. & Alanko, E. (2012), 'The gender effect in risky asset holdings', *Journal of Economic Behavior & Organization* **83**(1), 66–81.
URL: *https://ideas.repec.org/a/eee/jeborg/v83y2012i1p66-81.html*

Iara, A. (2015), Wealth distribution and taxation in EU Members, Taxation Papers 60, Directorate General Taxation and Customs Union, European Commission.
URL: *https://ideas.repec.org/p/tax/taxpap/0060.html*

Liikanen, E., Bänziger, H., Campa, J. M., Gallois, L., Goyens, M., Krahnen, J. P., Mazzucchelli, M., Sergeant, C., Tuma, Z., Vanhevel, J. & Wijffels, H. (2012), High-level expert group on reforming the structure of the eu banking sector - final report, Technical report, European Commission.

Matheson, T. (2011), Taxing financial transactions; issues and evidence, IMF Working Papers 11/54, International Monetary Fund.
URL: *http://EconPapers.repec.org/RePEc:imf:imfwpa:11/54*

Morris, S. & Shin, H. S. (1998), 'Unique equilibrium in a model of self-fulfilling currency attacks', *American Economic Review* **88**(3), 587–97.

OECD (2015), *Pensions at a Glance 2015*, OECD Publishing.

Pagano, M. & Advisory Scientific Committee, E. (2014), Is europe overbanked?, mBank - CASE Seminar Proceedings 132, CASE-Center for Social and Economic Research.
URL: *http://EconPapers.repec.org/RePEc:sec:bresem:0132*

Philippon, T. & Reshef, A. (2012), 'Wages and Human Capital in the U.S. Finance Industry: 1909–2006', *The Quarterly Journal of Economics* **127**(4), 1551–1609.
URL: *https://ideas.repec.org/a/oup/qjecon/v127y2012i4p1551-1609.html*

Schäfer, D. (2013), 'EU-Finanztransaktionssteuer und ihre Auswirkung auf Einkommens- und VermÃ¶gensverteilung', *Vierteljahrshefte zur Wirtschaftsforschung / Quarterly Journal of Economic Research* **82**(1), 177–190.
URL: *https://ideas.repec.org/a/diw/diwvjh/82-1-11.html*

Schäfer, D. (2015), *Fiscal and Economic Impacts of a Limited Financial Transaction Tax: Final Report; Research Project Conducted on Behalf of the Parliamentary Group of the SPD*, Vol. 96 of *DIW Berlin: Politikberatung kompakt*, DIW Berlin, German Institute for Economic Research.
URL: *https://ideas.repec.org/b/diw/diwpok/pbk96.html*

Shao, R. & Wang, N. (2015), 'Effects of Aging on Gender Differences in Financial Markets', *Economics Bulletin* **35**(1), 834–840.
URL: *https://ideas.repec.org/a/ebl/ecbull/eb-15-00172.html*

Thomas, A. & Spataro, L. (2015), Financial literacy, human capital and stock market participation in europe: An empirical exercise under endogenous framework, Discussion papers, Dipartimento di Economia e Management (DEM), University of Pisa, Pisa, Italy.
URL: *http://EconPapers.repec.org/RePEc:pie:dsedps:2015/194*

van Treeck, T. (2014), 'Did inequality cause the u.s. financial crisis?', *Journal of Economic Surveys* **28**(3), 421–448.
URL: *http://dx.doi.org/10.1111/joes.12028*

Zingales, L. (2015), Does Finance Benefit Society?, CEPR Discussion Papers 10350, C.E.P.R. Discussion Papers.
URL: *https://ideas.repec.org/p/cpr/ceprdp/10350.html*