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BACHELOR THESIS

Taxation in Financial Sector

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Declaration of Authorship

The author hereby declares that he compiled this thesis independently, using only the listed resources and literature.

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Abstract

The purpose of this thesis is to review taxation in financial sector, discuss its objectives and compare its past and most recent implementations. Financial Activities Taxes, Financial Transaction Taxes, and Financial Stability Contribution are compared from theoretical point of view. Trends in profitability, volumes of derivatives, and equity ratios are presented for two groups in both Italy and France - banks that are subject to new Financial Transaction Taxes and those that are not. Using panel data on financial institutions, positive impact of FTT introduction on derivative volumes is found in France, and no significant effect is found in Italy.

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Abstrakt

Cílem této práce je poskytnout přehled o nových daních ve finančním sektoru, diskutovat jejich cíle a porovnat jejich zavedení. Daně z finančních aktivit, finančních transakcí a příspěvky pro finanční stabilitu jsou porovnány. Profitabilita, objemy derivátů a poměr kapitálu u bank ve Francii a Itálii jsou analyzovány v rámci dvou skupin – bank, jež jsou předmětem nové daně z finančních transakcí a těch, které nikoliv. Povaha pozitivní závislosti mezi zavedením daně z finančních transakcí na objemy derivátů se potvrdila ve Francii a nepodařila se prokázat u italských bank.

Klasifikace	G12, G14, G18
Klíčová slova	Sektorové danění, Bankovníctví, FAT, FTT
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Acronyms

ACE	Allowance for Corporate Equity
BCBSR	Basel Committee on Banking Supervision Reforms
CBIT	Comprehensive Business Income Tax
CDS	Credit Default Swap
EU-28	European Union - 28 member states (as of 2015)
EU FTT	European Union Financial Transactions Tax
EVA	Economic Value Added
FAT	Financial Activities Tax
FSC	Financial Stability Contribution
FTT	Financial Transactions Tax
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IMF	International Monetary Fund
M&A	Mergers and Acquisitions
ROAA	Return on Average Assets
ROAE	Return on Average Equity
SDRT	Stamp Duty Reserve Tax
SST	Sector-specific Taxation
VAT	Value Added Tax

1 Introduction

In the aftermath of the 2007-08 financial crisis, new debate about taxation in financial sector emerged. Three forms have been proposed: Financial Stability Contributions, Financial Activities Taxes (FAT), and Financial Transaction Taxes (FTT). They aim to have a corrective impact on behavior of financial institutions and to generate additional government revenue. The reasoning for new additional taxation in financial sector is based on specific tax treatment: VAT exemption. As of today, most of the financial activities are not subject to the Value Added Tax. New forms of taxation may serve as a substitute, account for undertaxation and mitigate other market distortions, especially excessive risk, debt-bias, and economic rents. Financial Transaction Taxes have been implemented to large extent in the last decades and their proponents point out substantial revenues at low nominal rates. However, Financial Stability Contribution and Financial Activities tax have been suggested to be more desirable than Financial Transaction Tax as they better target the systemic risk present in the financial sector. Furthermore, FTT is often not levied purely on institutions in financial sector: its base is determined as a specific type of transaction and is not linked to undesirable activity directly. Corrective forms of taxation include statistical default risk taxes, liquidity-based taxes, market-based taxes, and debt-bias related actions.

In the European Union, much of the debate concerned EU-FTT, which was elaborated and proposed by the European Commission. Proposal of EU-FTT establishes unified form of taxation across the EU-28. Support for

common tax across Europe is not as strong as the case would require and as a result, some of the proponents have introduced national FTTs in the meantime. France introduced in 2012 tax on equity, uncovered CDSs, and high-frequency trading, followed one year later by Italy introducing a tax in similar areas. Implementing FTT on a multinational level would prevent activity shifting to areas with more beneficial tax treatments. In financial sector, this issue is particularly relevant as financial institutions can transfer activity with great flexibility.

The purpose of this thesis is threefold: (1) to present recent proposals on sector-specific taxation in financial sector, their objectives, implementations, as well as underlying concepts that are specific to financial sector, (2) to review empirical literature studying the effects of taxation on financial institutions as well as past and potential government revenues, and (3) to present trends in financial indicators of banks in countries where some form of sector-specific taxation has been introduced. Difference-in-differences methodology is used to test for effect of tax introductions on volumes of derivatives on banks' financial statements in Italy and France. These two countries introduced unilaterally an FTT on equity- and other transactions after the recent financial crisis. The base and perimeter of the tax is similar with few important differences, most notably the case for tax exemption for derivatives in French case. This creates place for activity shifting and making more use of derivatives. This thesis contributes to the existing literature by providing a group analysis of banks that are subjects to newly introduced FTTs and those that are not.

Thesis is structured as follows. In part two, proposals of taxation and their differences are presented. Empirical studies of taxation effects in financial sector are reviewed. In part three, using Bankscope data on Italian and French banks, trends in financial sectors of Italy and France are analysed. Profitability ratios, derivatives volumes, and Equity Ratios are studied over

time and compared for the two countries. Following hypothesis is tested using difference-in-differences methodology: introduction of FTT has a positive impact on derivative volumes in France and Italy. As a control group non-treated banks that are operating in same regions and are used: banks in Italy with market capitalization below 500 million EUR and banks in France with market capitalization below 1 bn EUR.

2 New Taxation in Financial Sector

Researchers and public have advocated in multiple studies for introductions of new taxes on financial sector. Comprehensive report on new taxation instruments was delivered by IMF for the G-20 Pittsburgh summit (2009), with the goal of redesigning the current tax system of financial institutions that would mitigate the excessive risk taking it imposes, while making the implementation administratively feasible. The new calls for financial sector taxation came after the recent financial crisis: current design of financial sector is said to play pivotal role in initiating and exacerbating economic distress. IMF estimates that the fiscal cost of direct support after the 2007-08 financial crisis to have averaged 2.8 percent of GDP for the G20 countries. While multiple tax instruments for future regulation were proposed, the least distortionary way to hold financial institutions responsible for the fiscal support would be a retrospective charge. Coordinated actions are necessary to address tax planning and movement of financial activities from places with higher tax rates. Proposed forms of taxation include three instruments: Financial Stability Contribution, Financial Activities Taxes, and Financial Transaction Taxes.

2.1 Proposed Forms of Taxation

Designing a new form of taxation needs to consider four aspects: Perimeter of the levy, base of the levy, rate of the levy, and implementation type. Narrow perimeter might include a specific kind of institutions (e.g. banks only), while a broad parameter would consider some broader range of institutions. The former approach might be easier to implement, while second would prevent migration of activities across

the sectors. Financial sector is highly elastic and the activities can be easily shifted beyond the base of the levy. Furthermore, tax incidence can be passed on to another entity as financial institutions fill the intermediation role in the market. The question here is to which extent would the tax burden fall on economic rents that are created in financial sector. Therefore, proper definition of base and perimeter is very important.

Table 2-1: Aspects of Financial Sector Taxation

Aspect	Description
Perimeter of the levy	Narrow (e.g. banks only) or broad
Base of the levy	On/Off Balance sheet items
Rate of the levy	Reflecting contribution to systemic risk
Implementation	Phase-in period / Direct Implementation

Source: IMF 2010

Financial Stability Contribution (FSC): sometimes referred to as "Bank tax" is a tax on all financial institutions. The purpose of FSC is to accumulate finances that would be used by pre-defined resolution mechanism to recover costs of future financial crises. An initial flat rate levy might be later refined with respect to institutions' contributions to the systemic risk (e.g. interconnectedness and substitutability). FSC would attempt address moral hazard associated with too-big-to fail institutions, as those would be taxed to larger extent than others: the scope would be tied to the institutional- and systemic risk of each institution. In that way, FSC would serve as a way to disincentivize them from excessive risk taking. One of the possibilities may be to reflect the structure of each institution's liabilities, size, or leverage situation. As far as the current

differences in corporate taxation are concerned an FSC might increase those differences if not applied unilaterally. On the other hand, countries would not necessarily face the same extent of FSC as riskiness of financial institutions varies.

Financial Transactions Tax (FTT): is a tax levied on a specific monetary transaction (e.g. shares, bonds, or derivatives) rather than a specific institution. One of the first advocates for “transaction taxes” was Keynes (1936) who viewed them as a way to mitigate speculation in the United States. Tobin (1984) proposed a tax on foreign exchange for similar reason – to curb foreign exchange volatility.

The many proposals differ in their scopes as well as definitions of transactions taxed, most of them have a quite wide range at low rate (see Appendix 1 for overview of introduced FTTs in the past). Proper distinguishing between desirable and undesirable transaction would be difficult achieve, especially with the need of harmonized approach to tax introductions. Unlike FSC, Financial Transaction Tax is not directly aimed at economic rents or systemic risk. Advocates of Financial Transaction taxes point out that the potential gains from very little rates are substantial. Furthermore, the FTT may reduce market price volatility as well as speculative bubbles (financial transactions would target short-term trading, hence the investment would target long-term investments). Empirical studies do not often confirm these arguments. See part 2.9. for review of empirical literature on the effects of FTT. Critics point to the systemic distortions that they may impose, such as shifting of the activity across the countries or sectors.

FTT on European level has been recently proposed by European Commission and requested by 11 European Countries (Germany, France, Italy, Spain, Portugal, Austria, Slovenia, Estonia, Greece, Belgium and Slovakia) that account for 90% of Eurozone’s GDP (European Parliament 2012). The tax would target directly financial institutions and transactions

between them, which is in contrast to the recently implemented financial transaction taxes in France and Italy. These taxes were put in force unilaterally and go beyond the financial sector. In France the perimeter of the levy consists of all publicly listed companies with market capitalization over 1 bn EUR. In Italy, similarly, the new financial transaction tax targets large listed companies with market capitalization over 500 million EUR. However, the main motivation for Financial Transaction Taxes, as expressed by International Monetary Fund (2010) and European Parliament (2015) is to generate revenue from financial sector and limit the scope of its activities. In particular, those activities that are *not desirable* should be targeted. In this sense, FTT is a form of Pigouvian tax that targets economic activity producing negative externalities.

The base for the common European levy would include securities (shares, bonds), derivatives (linked to equity, interest rates, or currency) with differentiated tax rates. All transactions where at least one of the financial institutions is based in European Union would be taxed (that means their residence is within the European Union, following the Residence Principle of Taxation). European Commission (2013) estimates following impacts on the economy: Revenues for tax on securities of 19.4 bn EUR (13.0 bn EUR for EU-11) and additionally 37.7 bn EUR (21 bn EUR for EU-11) from tax on derivatives and reduction of future GDP growth by 1.76% if levied at 0.1% on securities.

Shackerfold, Shaviro, and Slemrod (2010) analyse justifications for special taxes on financial institutions as well as various instruments that would meet those objectives. They conclude that financial transaction taxes (FTT) are more damaging to the economy than the alternative forms of taxation. Backward-looking would be most cost-efficient, while forward-looking taxes would be difficult to administer. Furthermore, they propose rationalisation of taxing financial institutions' profits in excess of a normal return, i.e. taxing rents and preventing excessive risk-taking.

Financial Activities Tax: is levied on the sum of bank's profits and remuneration of bankers. FAT does not directly reflect individual and systemic risk of each institution. The motivation for FAT stems from excessive profitability of financial sector (linked to the fact that financial sector is under taxed), too large size of the financial sector (too-big-to-fail government support) and also as a way to raise substantial government revenue. If levied on those remunerations above normal returns to capital, it would serve as a direct tax on economic rents. Indeed, the issue of distinguishing between economic rent and profit due to higher productivity arises. If levied on all remunerations, it would approximate a value added tax (VAT). FAT is close in its design to VAT and thus might serve as a substitute to repealing financial sector VAT exemption (Keen 2011). Because it is not significantly different from the current design of taxes, which are in place, its implementation should not be difficult. Three forms of FAT have been proposed. FAT1 is a financial activities tax levied on the sum of bank's profits and remuneration of bankers and is considered a VAT substitute. FAT2 is a tax on those profits and remuneration above normal returns to capital and is considered a tax on economic rents. FAT3 would have a more narrow parameter and would tax only very high remunerations in order to discourage excessive risk taking. Introductions of FAT may be difficult due to conflicts with existing legislature. In Germany, for instance, FAT2 and FAT3 levied on financial institutions might not comply with constitution unless the government revenue would stay and be used within the same sector (Fuest 2011). In *the Impact Assessment of Financial Sector Taxation Proposals*, European Commission proposes FAT1 to be best aligned with individual risk.

Deposit insurance is a form of corrective taxation that mitigates the risk associated with bank defaults. The reason for viewing deposit insurance as a tax (or at least quasi tax) is its compulsory nature for the benefit of systemic stability and government revenue. Use of deposit insurance

requires efficient administrative mechanism to ensure its proper implementation. For instance, the recent financial crisis revealed substantial spillovers associated with deposit insurance introductions (IMF 2010).

Before introducing new taxes on financial services, one should consider existing distortions that are already present. Ideally, new taxes would mitigate some of the most serious: systemic risk associated with too-big-to-fail institutions and debt-bias associated with excessive risk taking.

2.2 Systemic Risk

Systemic risk refers to an uncertainty with respect to the whole sector and concerns especially those institutions with multiple linkages and dependencies (unlike unsystemic risk, which refers to uncertainty specific to one institution). Linkages and dependencies transfer financial shocks throughout the sector causing rapid changes, e.g. in price levels. Direct taxation of systemic risk was proposed by Acharya (2010) and involves two components: (1) Expected losses from bank's default, and (2) the firm's contribution to expected losses in the crisis multiplied by the expected systemic costs when the financial sector becomes undercapitalised. Thus they would disincentivize both the risk related to business itself, as well as the systemic risk. One of the obstacles in taxing systemic risk is the difficulty of measurement. Liquidity risk charges have been proposed by Perroti and Suarez (2010). They target short term uninsured liabilities weighted against their maturity. Total charges to bank are proposed in the following form:

Equation 2.1

$$C = \sum_{s=1}^S R \times L(s)$$

Source: Perroti and Suarez (2011)

where C refers to Total Charges to Bank, R refers to Refinancing Risk Weight for Maturity, and L refers to Bank Liabilities as a function of maturity.

The cost of interventions when systemically important institutions are to be saved from defaults is usually large, though due to the systemic importance, not saving them would be generally even more costly – the distress would spread through linkages on other institutions. IMF (2010) reports 3% fiscal cost for financial recoveries due to the financial crisis as of June 2010. The decision government faces when deciding if it should support a failing institutions is that of moral hazard.

2.3 Debt Bias

Debt bias is a situation in which interest payments are deductible against corporate income tax, while equity returns are not. When discouraging excessive leverage at firm-level, taxation could be a well-suited complement to the regulatory mechanisms in financial sector. Alternatively, a Financial Stability Contribution could be introduced.

Debt bias is present in financial sector just as it is common in others. In financial sector, however the issue is of particular importance as its flexibility allows for designing the proper ratio to for tax avoidance purposes. Hybrid instruments whose underlying assets appear “as equity”

for regulatory purposes, and “as debt” for tax purposes are often used by financial institutions (Keen 2012).

Table 2-2: Required Post-CIT Rates of Return, 2008 (% of int. rate)

Aspect	Debt	New Equity
Canada	62.0	70.5
France	66.7	100.0
Germany	75.0	71.0
Italy	72.5	83.4
Japan	70.0	88.9
United Kingdom	72.0	80.0
United States	65.0	76.5

Source: IMF 2009

Table 2-2 compares the costs of debt- and equity-financing. It relates to investors facing top marginal tax rates in order to show the extent of debt bias. Even for such investors, debt is cheaper than new equity financing in 6 out of 7 countries. For instance, a US corporation needed to earn 65% of gross return after corporate income tax to finance debt but 76.5% to finance equity.

Increases in corporate income taxes tend to be strongly correlated with increases in debt bias. One of the indirect consequences of debt bias are higher leveraged buyouts, which in turn may contribute to the financial crisis. In financial sector, debt bias is a particularly relevant issue. Banks react to tax incentives on debt, while even small responsiveness of this sector can lead to important consequences on the probability and the depth of a banking crisis and large public revenue losses associated with

public bail-outs. (European Commission 2015) Several ways have been proposed to mitigate the negative effects:

- Reducing deductibility of interests
- Allowance for corporate equity (ACE)
- Reclassification of debt into equity
- Tax on liabilities

The easiest way to eliminate debt bias would be removing deductibility of interest payments or imposing substitutive exemptions on equity financing. While the first approach establishes a restriction on debt financing, allowance for corporate equity fosters equity investment. In 2014 Belgium, Brazil, Italy and Latvia have had an allowance for corporate equity. In Italy, the ACE has been introduced with a clear goal of stimulating growth and investment. Belgium has on the other hand followed the traditional model more viable to abuse (European Commission 2015) Reducing deductibility of interests would require a common framework to avoid creating space for tax avoidance. In 2014, debt bias has been present in the majority of countries in 2014 (CORIT-Academic 2014). Debt bias has been in recent years steadily increasing. Asymmetric applications of new taxes across the world may lead to new issues in double taxation, double non-taxation, as well as tax evasion. On February 14, 2014 the European Commission has proposed to harmonise key features of FTT in order to prevent such causes.

2.4 VAT Exemption

Full taxation of financial sector is not present due to administrative feasibility – it is not clear to which extent should be a certain operation attributed to

which entity. For instance, to decide how much of spread between deposit and lending rates should be attributed to which party is not clear (Honohan 2003). The effective tax rate in financial sector is lower and the financial institutions have an incentive to perform economic activity that would be otherwise exercised in other sectors. Financial operations are exempted from value-added taxation in majority of countries. In a production chain, the value-added by financial sector is not subject to VAT. As a consequence, financial sector may be too large due to undertaxation, although such specification is economically ambiguous.

Another reasoning for VAT exemption is the systemic importance of financial sector. Efficient banking system, which provides for financial intermediation is important for functionality of all other sectors in the economy. Alternative measure to the taxation is banking regulation, through which policymakers try to regulate the economic distortions that occur and mitigate the consequences for future financial crises.

2.5 New Banking Regulation

On top of new taxation, in-depth reforms in European financial regulation took place. New rules known as Basel-III have been introduced. The objectives of new banking regulation complement the tax initiatives in terms of stability and excessive risk prevention and further attempt to strengthen transparency and disclosures of financial institutions. Basel-III consists of three pillars: Pillar 1 covers capital (Quality and level of capital, capital loss absorption at the point of non-viability, capital conservation buffers, countercyclical buffers), risk coverage (securitizations, trading book, counterparty credit risk, bank exposures to central counter parties), and containing leverage (leverage ratio); Pillar 2 risk management and supervision; and Pillar 3 Market discipline. On top of these three pillars concerning capital requirements, Basel-III sets global liquidity standards. (BCBSR 2016) Regulation in financial sector aims to reach compromise

between three objectives: banking profitability, financial stability, and reducing moral hazard. (Dewatripont 2015) In times of financial distress, governments are facing a possibility to let problematic institutions fail or offer them a direct support. Letting the problematic institutions fail might lead to further financial instability, whereas supporting them shifts the cost to taxpayers and might contribute to higher risk-taking tendencies in the future. As a form of prevention, governments might try to increase financial stability through extensive regulations, which would in turn limit banks' profitabilities.

2.6 Objectives of Sector-Specific Taxation

The motivation for taxation in financial sector is both backwards- and forward-looking. On the one hand, there is a motivation for penalising financial sector for costs to the public finance that emerged during the financial crisis and on the other hand to prevent the risk of financial crises in the future. European commission defines four objectives of sector-specific taxation in financial sector:

1. Ensure an adequate contribution by financial sector
2. Generate additional revenue for public sector
3. Reduce undesirable market behavior
4. Foster coordination among different countries' regulations

Raising additional revenue is a common argument for financial sector taxation. In particular, applying a tax on financial transactions can achieve substantial revenues at low nominal rates. The estimates of government revenues have been studied for past and potential transaction taxes. The results of empirical studies are presented in section 2.9. Additional

revenue might be inconsistent with another objective - reducing undesirable market behavior. The impact on debt bias needs to be considered, so that new taxes do not exacerbate the problem and lead to *more* risk-taking on the side of banks. Other things equal, levying tax on equity may encourage trading in the derivatives which in turn may lead to higher systemic risk. This is the case for French Financial Transaction Tax, which levies a tax on equity and does not establish equivalent treatment of derivatives. The impact on volumes of derivatives on financial statements in France and Italy is studied in section 3. Tax may shift activities beyond the sector purely for tax reasons. Most common way to consider tax efficiency is to take a look at the deadweight loss created by sector-specific taxation.

2.7 International Coordination

The study by Buettner and Erbe (2012) estimates the revenue and welfare effects of FAT for Germany. Key assumption in their analysis is that the tax burden is fully shifted to the consumer. However, this is possible only if there is a joint approach to FAT and all countries in the world introduce the same tax rate. Unilateral actions may create incentives for profit shifting and thus contradict some of the primary objectives of new taxation. This is one of the main reasons of opposition to the current proposals of any new taxation. For instance, European Commission has proposed a new EU FTT to be introduced in all member states of the EU. However, only 11 member states have agreed on participation in: Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia, and Spain. Other countries, such as United Kingdom fear that financial transaction taxes may shift the trade of targeted instruments outside of EU. (Hampel 2011) While unilateral approach would be the most efficient way to prevent distortions, agreement on broad principles (e.g. minimal tax rates) may be an alternative and politically more feasible way to reach the objectives. Issuance principle may be an efficient way to mitigate the incentives for

profit shifting. The inspiration for Issuance principles has been taken from UK which bases their Stamp duty on it, though other countries have implemented it as well. Issuance principle has been present in Finland for their 1.6% Transfer tax, in Ireland for their 1% Stamp duty, as well as in France on the new Financial Transaction Tax on shares and naked CDS. On the contrary, place of transaction principle has been used in Belgium and Greece on their Stock Exchange Transaction Taxes.

2.8 Sector-specific Taxation in Place

Over last decades, Financial Transaction Taxes have been introduced in multiple countries. Particularly wide scope of FTT has been introduced in Argentina (current accounts transactions) and Turkey (all receipts of banks and insurance companies. Most of the taxes fall into one of four categories: (1) taxes on shares (e.g. China, India, South Korea, UK), (2) bonds or loans (e.g. Italy and Switzerland), (3) futures or options, (4) forex trading, (5) capital duties. Review of past Financial Transaction Taxes are presented in Appendix 1. The focus in Part 3 is on FTT in Italy and France that were introduced between years 2012-13. Both countries are proponents of EU-FTT, which would prevent creation of profit-shifting incentives.

Table 2.1: Financial Transaction Taxes in Italy

	Coverage
1	Transactions in regulated markets & multilateral trading facilities / other transactions
2	Swaps, futures, options, cash notional forward agreements, CDS
3	High-frequency algorithm trading with ratio of cancelled to all orders exceeding 60 %

Source: European Commission (2015)

FTT in France has introduced 3 types of taxes: Tax on the purchase of equity securities, high-frequency algorithm trading, and credit default swaps. FTT taxes companies irrespective of their sector, they are listed by Ministry of Finance of France, based on market capitalization, calculated as a stock price at given point of time multiplied by number of shares outstanding. The cut-off line lies at 1 bn EUR. Most importantly, the FTT does not tax derivative transactions, which provides a possibility for tax evasion. Furthermore, FTT does not cover Acquisitions on primary market, Acquisitions of clearing houses and central depositories except for transactions that are unrelated to clearing/deposition, Acquisitions in market making activities, Acquisitions resulting from liquidity agreements, 5. Restructuring and intra-group acquisitions, Temporary acquisitions, such as repurchase agreements, Acquisitions by employee savings scheme, and Acquisitions of bonds exchangeable or convertible into stock. (Sramko 2015)

FTT in Italy has been introduced on transactions, derivatives, and high-frequency algorithm trading one year after that in France. The introduction dates differ across the targeted categories: transactions taxes for regulated markets and multilateral trading facilities (1) as well as high-frequency algorithm trading (2) are subject to tax from March 2013. The taxes on derivative transactions, however, are effective from September of the same year. As in France, FTT taxes companies irrespective of their sector, they are listed by Ministry of Finance of Italy based on market capitalization. The cut-off line lies at half of the French one – at 500 million EUR. The tax rate in Italy is 0.1% in case of regulated markets, 0.2% in case of other markets, transactions on derivatives are taxed by fixed amount.

Some countries have implemented taxes that are close to the design of FAT (targeting economic rents through excessive returns and remunerations). France taxes salaries in excess of 14,960 EUR in the rate of 13.6%, Denmark

taxes remunerations in financial sector at the rate of 9.13%, and Quebec similarly at the rate of 3.9%. (Fuest 2011)

Table 2.2: Financial Transaction Taxes in France

Coverage	
1	Tax on Purchase of Equity Securities and other related Instruments
2	Uncovered CDS purchased on the French Market on bonds issued by governments of EU member states
3	High-frequency Trading Algorithm trading with ratio of cancelled orders exceedin 60%

Source: European Commission (2015)

2.9 Review of Empirical Literature

New sector-specific taxation has been introduced without any extensive literature provided by public finance economists (Keen 2011) who have often excluded financial sector from their analyses. Financial Transaction Taxes have been paid most of the attention, as they are substantially more common than their theoretical complements (FAT, FSC). Common feature of FTT is that they are implemented beyond the financial sector as well. For instance, French and Italian taxes target shares of companies above a certain level of market capitalization (1 bn EUR in France, 500 million EUR in Italy). Four effects of taxes that are most commonly studied studied: market volatility, volumes, liquidity and returns. While the magnitude and significance of empirical estimates differ, most of the studies agree on direction of effects. Increases in taxes are found to have positive effect on market volatility, negative effect on volumes (Capelle-Blancard (2014)), negative effect on liquidity (Colliard (2015)), and negative effects on returns (Coelho (2014)).

Tax Effects on Capital Structure: Further studies have considered effects of taxation on capital structure (choice between equity and debt for financing activities). Core concepts on financing have been developed by Modigliani and Miller (1958). They concluded that Equity Ratio, i.e. the choice between debt- and equity- financing is equally desirable for a company. However, this conclusion is valid in perfect capital markets in the absence of tax-deductibility of interest. When tax-deductibility is present and there are no tax reliefs on equity side, the case for debt is more desirable (Modigliani 1963). Hemmelgarn and Teichmann (2013) estimate the effect of corporate income tax changes on leverage, dividend policies, and earnings management. They find that higher taxes induce debt financing when interest payments are tax deductible.

Tax Incidence: The question of tax incidence, i.e. shifting of increased costs on borrowers with respect to new taxation introduced after the financial crisis has been first studied by Capelle-Blancard and Havrylchuk (2013). They adopted Monti-Klein model on a sample of Hungarian banks to show that there is no such case as the taxation is not affecting maximization functions of banks. This is in contrast to the previous literature: Chiorazzo and Milani (2011) analyze firm-level data within financial sector and find that taxes tend to increase Net Interest Margins and therefore be passed on to borrowers. Albertazzi and Gambarocchia (2010) come to the same conclusion.

Empirical Studies on FTT: Many researchers have estimated additional revenues that would be generated by new taxes. Buettner and Erbe analyse revenue and welfare effects of FAT for Germany. They suggest that a FAT with a rate of 3% would result in a yearly revenue gain of about EUR 1.092 bn. Such taxation would have similar effects as an introduction of a 19% VAT (current standard rate in Germany) and thus compensate for the current VAT exemption of financial activities. Financial Activities Taxes, Bank Levies and Systemic Risk have been analysed using SYMBOL, a micro-simulation mode of banking system, by team of

researchers for European Commission. Comparing the FAT and Bank levies, the study finds that bank levies outperform FAT when contagion is avoided (bank failure due to interconnectedness), while FAT and bank levies turn out to be equally efficient, contagion is not avoided. (European Commission 2014).

Government Revenues and Profit Shifting: While many studies and proposals estimate substantial contributions to public finances after SST introductions, the past experiences suggest that special attention has to be given to profit shifting when calculating policy impacts. Much of the research of past sector-specific taxation has been done on case of Sweden, which introduced an FTT in 1984 with tax rate of 0.5% on a purchase and sales of financial derivatives, equity securities, and fixed income securities. The reasons were similar to those appearing nowadays in the aftermath of 2007-2008 financial crisis: (1) generate additional revenue to the public sector and (2) reduce undesirable behavior of financial institutions. However, the outcomes of Swedish taxation proved not to fulfil these goals and in 1991 Sweden abandoned this tax, which generated on average 3.33% of expected revenues to the public sector. Moreover, the tax created incentives for financial institutions to shift their activities outside of Sweden, or at least outside of area where new taxes applied. 30% of the Swedish equity trading moved abroad (Wrobel 1996). Moreover, introduction had an indirect impact on revenues raised by capital gains tax, which declined as the taxable trading volumes went down.

3 French and Italian Banks During FTT Introductions

Using Bankscope dataset, this part presents changes in profitability indicators (Return on Average Assets, Net Interest Margin), volumes of derivatives, and capital structure during the FTT introductions in France and Italy. One of the core differences between French and Italian tax is the case of derivatives. While in France derivatives are exempted from the FTT, in Italy they are taxed by fixed amount that depends on type of transaction. Exemption from taxing derivatives leaves a room for tax evasion. I employ difference-in-differences estimation to describe the direction and scope of effect of new tax on the volumes of derivative assets. The expected effects are positive for the case of France.

3.1 Description of the Dataset

For the analysis of bank's financial statements in France and Italy, data from Bankscope database are used. The database contains balance sheet information on over 30,000 banks as well as 12,000 insurance companies worldwide over past 20 years. For the purpose of this thesis, version 306.1 released in January 2016 is used. Along with bank name, country name, and period, 5 variables are considered: Return on Average Assets (%), Volumes of Derivatives (thousands of USD), Equity (thousands of USD), Total Assets (thousands of USD), and Net Interest Margin (%). The dataset contains 357 observations for banks in Italy and 642 observations for banks in France.

Derivative Assets are taken as an outcome variable. Four additional variables are considered: Performance indicator (ROAA), Exposure-to-

interest-risk indicator (Net Interest Margin), Capital-Structure indicator (Equity-to-Assets), and size-indicator (Assets). Equity is weighted against total assets to measure the extent to which banks use equity over debt to finance their activities. Assets are transformed to their natural logarithms in order to account for changes in asset size across large range of institutions. I also set a dummy variable *Treated* determining whether the institution is subject to the new taxation (1) or not (0), and present the changes for each of the 2x2 subsets (France Taxed, France Not Taxed, Italy Taxed, Italy Not Taxed). Similarly, *Post* variable indicates years after the introduction of FTT in the respective country.

Table 3-1: Description of Regressors

Variable	Description	Source
DER	Derivative Assets	Bankscope (2016)
EQTA	Total Equity / Total Assets	Bankscope (2016)
ASSETS	Natural log of Total Assets	Bankscope (2016)
ROAA	Return on Average Assets	Bankscope (2016)
NIM	Net Interest Margin (%)	Bankscope (2016)
	Derivatives (Asset Side)	Bankscope (2016)
Treated	Subject to New Taxation (1 or 0)	Central Bank of France, Ministry of Finance (Italy)
Post	Post-Introduction (1 or 0)	Author's computation
Interaction	Interaction term between variables <i>Treated</i> and <i>Post</i>	Author's computation

Sources: Bankscope, International Monetary Fund, Ministry of Finance (Italy and France)

3.2 Methods

Difference-in-Differences: Estimation relies on Difference-in-Difference methodology and follows Wooldridge (2012). This methodology is commonly used for studying differential effects of a policy change on treatment group (in this case French and Italian institutions that are subject to FTT). For each time period let us consider a model linear in parameters:

Equation 3-1

$$Derivatives_{it} = \beta_0 + \beta_1 Group_{it} + \beta_2 Post_{it} + \beta_3 FTT_{it} + \gamma X_{it} + u_{it}$$

where t is time period, i is the institution index. $Group$ is a dummy variable that is equal to 1 for banks that are subject to tax (listed by ministries of finance in France and Italy) and 0 otherwise. $Post$ is a dummy variable that is equal to 1 for periods after the introduction and 0 before. $FTT_{it} = Group_{it} Post_{it}$ is an interaction term between dummy variables. The conditional expectations are given by:

Equations 3-2 – 3-5

$$E(y_{it}|Group = 1, Post = 1) = \beta_0 + \beta_1 + \beta_2 + \beta_3$$

$$E(y_{it}|Group = 1, Post = 0) = \beta_0 + \beta_1$$

$$E(y_{it}|Group = 0, Post = 1) = \beta_0 + \beta_2$$

$$E(y_{it}|Group = 0, Post = 0) = \beta_0$$

The parameter of interest is β_3 , which is the difference-in-differences, i.e. time-difference for Group 1 less time-difference for Group 0. Positive value would indicate that after FTT introduction volumes of derivatives for banks that are subject to FTT have increased with respect to the other group of

banks. Coefficients β_1 and β_2 are partial effects of the respective dummy variable on *Derivatives*. As a control group I take banks in Italy and France the market capitalization of which falls below the specified level. In that case I control for general tendencies in the respective financial sectors. Further possibilities for control groups – such as banks in other countries with similar market capitalization, institutions within same countries, other sectors, and same market capitalizations, and finally, institutions within other countries, other sectors, and same market capitalization would be worth testing, but were ruled out due to data unavailability. Orbis database may be employed to cover most of these control groups for further research.

Hausman test is a commonly used test for choosing between fixed- and random-effects models. The idea behind is that one of the estimators (fixed effects estimator) is consistent under both hypotheses, while the other estimator (random effects estimator) is consistent only under the null hypothesis. The test statistic follows chi-square distribution and null hypothesis in the Hausman test is:

$$H_0: E(u_{it}|X_{it}) = 0$$

Fixed Effects over Random Effects

The main reason for preference of fixed-effects approach over random-effects is that the policy is not random (i.e. the choice for French and Italian banks that are subject to the new taxation is determined by a certain rule). In this case, the rule is market capitalization. Therefore, the requirement for random-effects estimation – zero covariance between regressors and unobserved effect across all periods and institutions is not met.

Assumptions

Good estimators have to be unbiased, i.e. their expected value has to be equal to the true population parameter. Four requirements are necessary for Difference-in-differences model. First, it requires strict exogeneity of regressors. That means that the errors must be uncorrelated with explanatory variables in each time period. Specification without any control variables on institution- and time- level assumes that there are no time-variant variables, leading to omitted variable bias. A set of control variables is employed: *ROAA* (Return on Average Assets), *NIM* (Net Interest Margin), *LASSETS* (Natural log of Total Assets), and *EQTA* (Total Equity to Total Assets) are institution-specific time-variant variables and they follow Hundman (1999) specification. Second, there is an assumption of parallel trend across both treatment and control groups: Covariance between the error term and the interaction term is zero. Third, the error term itself is on average zero. Fourth, the model has to be correctly specified. Misspecifying model may lead to significant biases and even opposite direction of the treatment effect.

Derivatives

Derivatives are financial instruments the price of which is determined by an underlying asset (e.g. commodity, security, or currency), such as futures, forwards, swaps, and options. They have been increasingly used in the last decades by financial institutions to hedge against various forms of financial risk. Derivatives are also used for speculative purposes. The key characteristics of derivatives are changing value based on the underlying security and settlement in future. Generally, derivatives are divided to three categories: Forward based derivatives with an exact point of time in the future when they are settled. Swap-based derivatives are those whereby one party exchanges a stream of cash flows for another. Option-based derivatives give the holder right to take part in a transaction

in the future. They may be settled on a particular day or in a specified time range. On the balance sheets, they appear both on asset and liabilities side. For the purpose of this analysis, I use derivatives on the asset side. Derivatives are measured at their fair value (value at which the asset could be exchanged among knowledgeable parties). Derivatives are taxed in Italy from 2013 and excluded from taxation in France. Therefore, in France there is a potential for activity shift to evade the tax. In Italy the scope of the tax is fixed and determined by the type of transaction. Scope and the definitions of targeted transactions are presented in tables 2.2 and 2.3.

Return on Average Assets (ROAA)

Return on Average Assets shows how well banks are utilising their assets to generate income. ROAA is one of the most popular measures of bank's profitability. Alternative measure is Return on Average Equity (ROAE) and sometimes Net Interest Margin, which I use as an indicator of Interest Risk Exposure. Alternative more sensitive measures of profitability have been recently suggested. For instance, Economic Value Added (EVA) is the difference between net operating profit after taxes and invested capital over weighted average cost of capital. The expected sign on ROAA is positive, as derivatives allow banks to invest in more profitable (and riskier) assets.

Interest Risk Exposure (Net Interest Margin)

As opposed to Return on Average Assets and Equity, only performance of interest-yielding activities of banks is measured. This indicator reflects only returns from investments and not the profitability in terms of fees and service charges that banks charge. Net Interest Margin is defined as the difference between Investment Returns and Expenses over Interest Generating Assets. Derivatives are used to hedge against interest rate risk, therefore the expected sign on Net Interest Margin is negative.

Capitalization (Total Equity over Total Assets)

Capitalization is defined as Total Equity over Total Assets. It indicates to which extent the banks are using equity to finance their activities. Due to tax benefits on debt financing, banks have an incentive to increase their size to the point where they meet the lowest criteria possible as defined by regulators. Negative effect of capitalization on use of derivatives is expected.

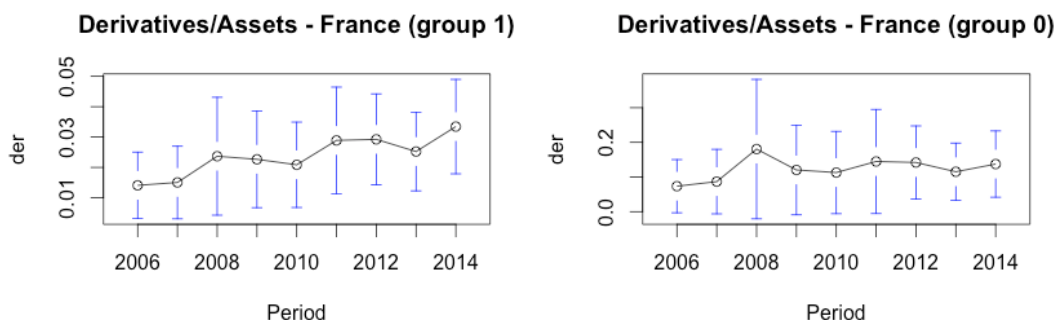
Size of the Company

Size is expected to have a positive effect on the use of derivatives for these reasons: First, use of derivatives requires professional financial analysts that are more likely to be hired by larger corporations. (Hundman 1999) Second, share of non-interest income tends to be higher as the banks get larger (Heffernan 2005). The measure of size on this paper is the value of Total Assets from bank's balance sheets.

3.3 Descriptive Analysis

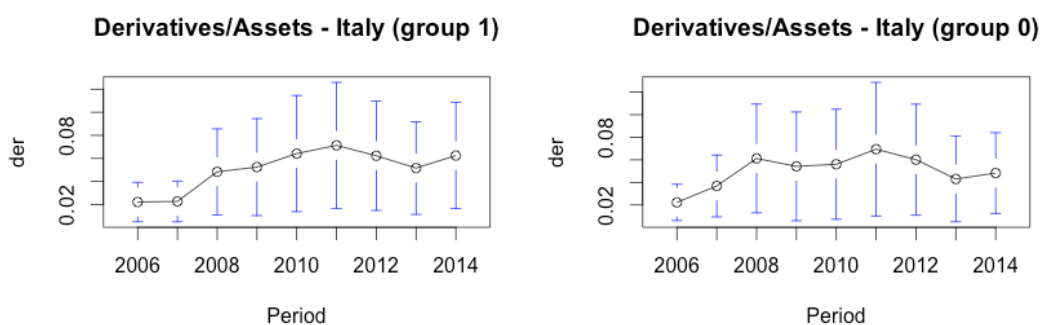
First I check for similar trends on the outcome variable *before* tax introductions. In France volumes of derivatives with respect to total assets have dropped for both groups between 2012-2013 and returned to grow in the subsequent year. Afterward the tax introduction, there is an increase in use of derivatives on the side of banks in the treatment group.

Figure 3-1: Derivatives – Across Groups (France)



In Italy the growth in derivatives over assets is similar for both groups before the tax implementations. The similar trend continues even after tax introduction, which makes sense, as the taxation in Italy did not create incentives for activity shift as in case of France. There, the volumes of derivatives follow similar trend before tax introductions as well. Thus, the common trend assumption appears to be satisfied.

Figure 3-2: Derivatives – Across Groups (Italy)



Source: Bankscope 2016, author's computations, at mean values

French banks have a substantially larger mean value of Derivatives than Italian banks, although the French median lies at about half of the Italian median. In France the volumes have been rapidly increasing prior to the financial crisis and reached peak in 2008. ROAA in France has been following a similar pattern before and after 2012 FTT introductions for both groups, with a slight decrease between 2013-2014 for those banks that are not subject to tax. The standard deviation in this group is substantially larger.

Return on Average Assets

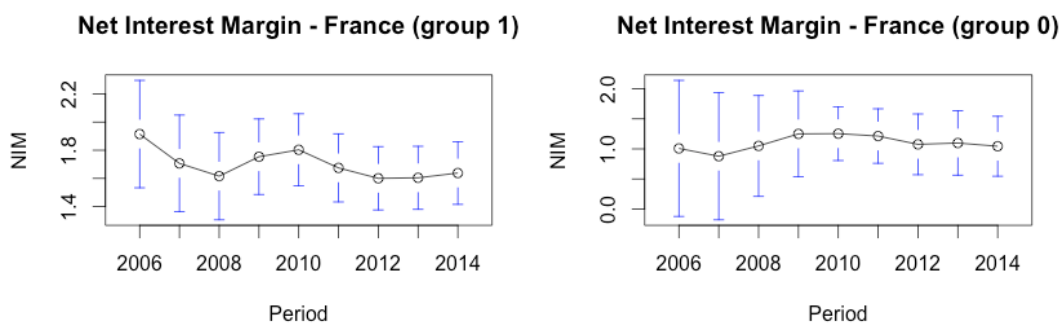
For profitability I use ROAA (Net Income over Average Assets). ROAA median value is 0.80 in France and 0.45 in Italy. Most values fall into range around 0-1% (1st Qu. 0.11, 3rd Qu. 0.72). The gap between ROAA means in Italy and France has increased over time with the peak in 2012. Values in both countries were decreasing with the largest drops in 2012. Afterwards they begin to slowly increase and reached about the same values in 2014 as in 2011 in both countries. Core country-wise difference lies in ROAA differentiation across the target and control groups. While in Italy, mean ROAA values are very close for both groups for all observed periods, in France the mean values for control groups have been substantially larger than in the treatment group, where the values are even negative for the period during the financial crisis and in year 2012.

Equity Ratio

Capitalization indicator is larger in France than Italy, which indicates that banks from the French sample are using on average more equity to finance their activities than their Italian counterparts. One of the objectives

of sector specific taxation (as proposed by IMF) has been to increase this ratio and thus reduce the debt bias, which comes from tax deductibility of interest on debt side.

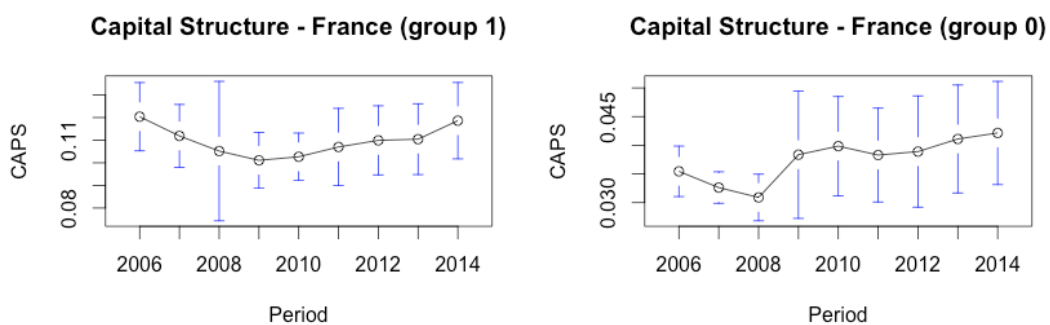
Figure 3-3: Net Interest Margin – Across Groups (France)



Source: *Bankscope 2016, author's computations, at mean values*

Banks in both groups have had increasing mean values for Equity Ratio indicator since 2008. This means that the French banks have been reducing their debt bias, which is aligned with the objectives of new regulations as well as sector specific taxation in general.

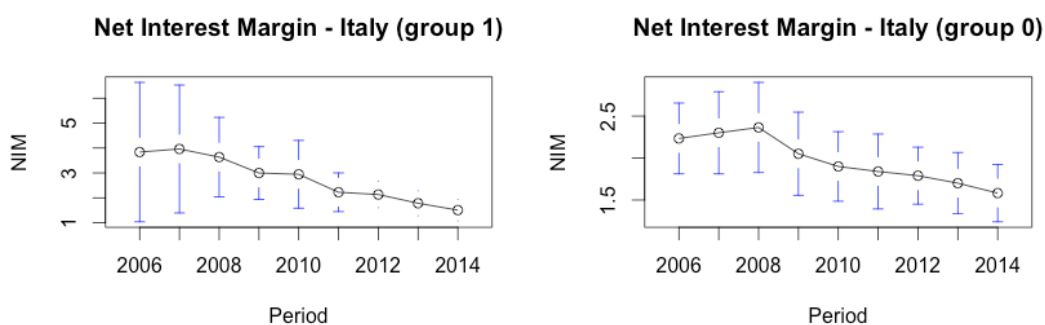
Figure 3-4: Equity Ratio – Across Groups (France)



Source: *Bankscope 2016, author's computations, at mean values*

The descriptive statistics on banks from the Italian sample are provided in Table 3.5. There is a substantial variation in Net Interest Margin (mean 0.02, standard deviation 3.23), as well as ROAA (mean 0.45, standard deviation 1.34). ROAA in Italy has followed similar pattern for both groups in Italy as well. While the major drop for group 1 came in 2012, it was preceded on the side of group 0 by one year. Since then, this ratio has been decreasing, by contrast to both groups in the French case.

Figure 3-5: Net Interest Margin – Across Groups (Italy)



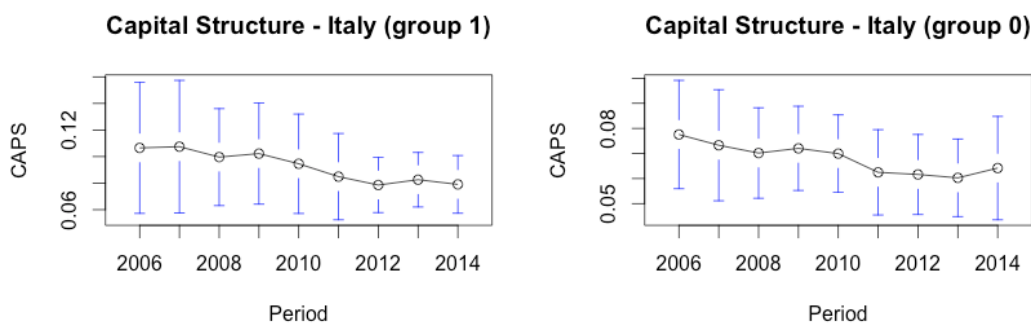
Source: Bankscope 2016, author's computations, at mean values

Almost identical development can be observed in case of the third profitability ratio – Net Interest Margin. For both groups, the ratio has been decreasing at steady pace after the financial crisis, reaching minimal values in 2014. The variation is substantially larger in case of group 0.

Equity Ratio variable has been decreasing for both groups in Italy since 2010. After FTT introduction, the ratio grew for group 1 while it decreased for group 0. This means that the Italian banks that were subject to the new taxation have been reducing their capital structure and relying more on equity than debt, which is aligned with the objectives of new regulations as well as sector specific taxation in general. Banks that aim

to maximize profit have an incentive to keep the ratio down by reaching minimal capital requirements and increasing total assets afterwards.

Figure 3-6: Equity Ratio – Across Groups (Italy)



Source: *Bankscope 2016, author's computations, at mean values*

3.4 Estimation

The expected outcomes are positive change in France, due to the exemptions on derivatives trading. In Italy the effect is ambiguous, as the derivatives are taxed accordingly. First I estimate the model with no control variables, including dummy variables *TREATED* and *POST* as well as their interaction term. The results are presented in Table 3.2 for Italy and 3.3 for France.

No evidence has been found in case of Italy, that the FTT levy would have an effect on changes in Derivatives Assets volumes. Thus, the null hypothesis that there is no effect of tax introduction on volumes of derivatives cannot be rejected at 5% level, as the p-value of 0.34 is larger than 0.05. The adjusted R-squared indicates that 9.68% of variation in Derivatives volumes can be explained by variables *TREATED*, *POST*, and

INTERACTION. In order to avoid omitted variable bias, 4 additional control variables are added and estimated in Table 3.3. F-Test is significant suggesting that the variables considered are jointly different from zero.

Table 3-2: Regression Results in Italy without control variables

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	2582374	1510207	1.710	0.0882
TREATED	17151934	2851094	6.016	< 0.01***
POST	760275	3251811	0.234	0.8153
INTERACTION	-5583273	5952170	-0.938	0.3489

Residual standard error: 21360000 on 353 degrees of freedom

Multiple R-squared: 0.1044

Adjusted R-squared: 0.09675

F-statistic: 13.71 on 3 and 353 degrees of freedom, p-value: < 0.01

Neither in case with control variables has been found enough evidence, that the FTT levy would have an effect on changes in Derivative volumes. Changes in sizes of banks have a positive effect on the derivatives volumes, which is expected, as larger institutions engage in derivatives deals to larger extent. The adjusted R-squared increased by adding control variables to 26.64%. F-Test is significant suggesting that the variables considered are jointly different from zero. No effect in the Italian case is not surprising, there are no visible changes after FTT introduction in derivatives volume. This is different from the French case, where treatment group 1 has an increase, while control group 0 is stagnant. No effect may be attributed to the proper treatment by Italian policymakers who offset the tax on equity trading by imposing an equivalent tax on

derivatives.

Table 3-3: Regression Results in Italy with control variables

	Estimate	Std. Error	T value	Pr(> t)
(Intercept)	-88011415	10396812	-8.465	< 0.01***
TREATED	3696663	2956087	1.251	0.212
POST	94905	2968046	0.032	0.975
INTERACTION	-4967808	5380274	-0.923	0.356
NIM	314019	425381	0.738	0.461
EQTA	27493552	17278787	1.591	0.112
ROAA	-336258	579554	-0.580	0.562
lassets	5556400	612127	9.077	< 0.01***

Residual standard error: 19250000 on 349 degrees of freedom

Multiple R-squared: 0.2808

Adjusted R-squared: 0.2664

F-statistic: 19.47 on 7 and 349 degrees of freedom, p-value: < 0.01

In case of France, the variable *INTERACTION* is significant at 10% level. Thus the null hypothesis that FTT levy has no effect on volumes of derivatives is rejected. This may be an indicator of movements to the use of derivatives with their exemptions from the tax. F-Test is significant suggesting that the variables considered are jointly different from zero. Again I add 4 control variables to mitigate the omitted variable bias: *NIM*, *EQTA*, *ROAA*, and *lassets*

Table 3-4: Regression Results in France without control variables

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	9075469	3469326	2.616	0.00911**
TREATED	180060772	12965567	13.888	< 0.01***
POST	-873513	5814928	-0.150	0.88064
INTERACTION	48081953	22405859	2.146	0.03225*

Table 3-4: (cont.)

Residual standard error: 68430000 on 645 degrees of freedom

Multiple R-squared: 0.351

Adjusted R-squared: 0.3479

F-statistic: 116.3 on 3 and 645 degrees of freedom, p-value: < 0.01

After controlling for interest risk exposure, corporate structure, profitability, and bank size, variable *INTERACTION* is again significant at 10% level. Similarly, the size of bank has a positive and significant effect on Derivative Volumes. This confirms that larger banks use derivatives to larger extent than smaller banks. The effect of Net Interest Margin is not significant but still has economic meaning. Direction of change is negative which is aligned with the expectations that banks use derivatives in order to mitigate interest exposure risk. Variable *TREATED* is significant and the positive coefficient indicates that treated banks (i.e. those with market over 1 bn EUR) make larger use of derivatives. F-Test is significant suggesting that the variables considered are jointly different from zero.

Table 3-5: Regression Results in France with control variables

	Estimate	Std. Error	T value	Pr(> t)
(Intercept)	-326955593	41619212	-7.856	< 0.01***
TREATED	107203008	13853403	7.738	< 0.01***
POST	-3142165	5428439	-0.579	0.5629
INTERACTION	48460165	20693706	2.342	0.0195*
NIM	-4350846	2406207	-1.808	0.0710
EQTA	63380999	42958466	1.475	0.1406
ROAA	2287044	1755171	1.303	0.1930
lassets	19815876	2211843	8.959	< 0.01***

Residual standard error: 63170000 on 641 degrees of freedom

Multiple R-squared: 0.4502

Adjusted R-squared: 0.4442

F-statistic: 74.99 on 7 and 641 degrees of freedom, p-value: < 0.01

Finally, I take a different approach and weigh the dependent variable against total assets in order to look at the effect of tax on proportion, rather than volumes of derivatives on the asset side of financial statements. The effect is estimated for both uncontrolled and controlled cases and the coefficient of interest is insignificant for both countries. Alternative approach could take a natural logarithm of the value of derivatives. However, this would need to account for multiple zero values especially in the case of smaller institutions that do not have any derivatives on their balance sheets. Further research may also focus on volumes of derivative transactions rather than items on a balance sheet. These would allow for shorter time intervals, and may yield better and more detailed insights on the impacts of financial transaction taxes.

Conclusion

In this thesis the current proposals on Financial Stability Contribution, Financial Activities Taxes, and Financial Transaction Taxes were reviewed from theoretical point of view and current proposals were summarised. While FSC and FAT are generally agreed to be preferable to FTT, the majority of implemented taxes have concerned financial transactions. Besides under taxation as a result of broad VAT exemptions in the financial sector, the further objectives were reduction of systemic risk, generation of additional revenue, and fostering international cooperation. Most of the literature on effects of taxation has studied the effects on investment decisions, capital structure, and profit shifting.

Along their introductions of Financial Transaction Taxes, groups of banks in France and Italy (those which are subjects to the new taxes and those which are not) have shown similar trends in profitability ratios and equity ratios. In terms of country differences, mean values for profitability indicator (ROAA) were higher in France over observed years, while the indicator of Interest Risk Exposure (Net Interest Margin) was higher in Italy. Equity Ratio that defines the capital structure has been higher in France and increasing more rapidly in the years after FTT introduction than in Italy. Net Interest Margins in Italy have been decreasing to larger extent than in their French counterparts.

Empirical part has studied the effect of tax introductions on derivative volumes in French and Italian institutions. The direction of change has been positive and significant only in case of France. In Italy the effect was reverse and insignificant. This is aligned with the expectations: the Italian

FTT taxes derivatives directly and thus does not provide room for shifting their activities. Standard regressors that explain changes in derivative volumes: profitability, size of companies, capital structure, and interest risk exposure have shown expected signs and proved significant in some cases.

Further research may take a different perspective on the effects of FTT introductions on derivatives. Rather than considering volumes of assets on the banks' balance sheet, it may be reasonable to analyze derivative *transactions* in the market directly. Furthermore, it would be worth employing additional control groups, for instance banks from other countries and companies with similar market capitalization (1 bn EUR in case the treatment group is France, 500 million EUR in case of Italy) that operate in different countries and are not subjects to the current taxation. Estimation for different control groups would account for additional underlying trends.

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Appendix A

Table A-1: Financial Transaction Taxes in Place

Argentina	1%	Provincial stamp tax on bonds or loans
Australia		State-level taxes apply to shares, loans and bonds
Brazil	1.50%	Tax on equity (issued abroad as depository receipts) and on loans
	0.38%	Tax on forex
	5.28%	Tax on short-term forex (less than 90 days)
	2%	Tax on capital inflows to stock and bond markets
Chile	0.10%	Tax on bond issuance
	1.20%	
China	0.10%	Tax on equity principal
France	0.20%	FTT charged on equity instruments
		FTT charged on the notional value of the credit default swaps and on high frequency
	0.01%	trading
Hong Kong	10 bps	On equity
India	0.13%	STT charged on securities transaction on a delivery-based buy and sell
	0.03%	STT charged on securities transaction on a non-delivery-based buy and sell
	0.02%	STT charged on futures and options
Indonesia	0.10%	Tax on value of shares and local stamp duties may also apply
		Local stamp duties may apply for Bonds or Loans
Italy	EUR 168.00	Flat fee on share issuance

	3%	Tax on business purchases
	0.01% - 0.14%	Shares traded off exchange
	0.25% - 2%	On loan principal
Japan	0.40%	Registration tax on mergers and trusts
		Capital duty of value of new share issues and new bond issues, but not upon formation
Russia	0.20%	
		or IPO of company
Singapore	20 bps	On equity
South Africa	0.25%	Tax on equity value but new share issue is excluded
South Korea	0.10%- 0.4%	Tax on capital formation
	0.50%	Tax on value of shares in corporations or partnerships
Switzerland	1%	Tax on share issuance in excess of CHF 1 million
	15 bps	Tax on domestic shares
	30 bps	Tax on foreign shares
	6-12 bps	Tax on bond issuance
Taiwan	30 bps	Tax on equity
	10 bps	Tax on corporate bond principal
	10-60 bps	Tax on premiums for options
	Up to 0.025 bps	Tax on interest rate futures
	Up to 6 bps	Tax on stock index and other futures

Turkey	0.20%	Stock issuance charge
	0.10%	Initial charge for obtaining stock market quote
	0.03%	Annual maintenance charge
	0.60% - 0.75%	Bond issuance charge
United Kingdom	0.50%	Stamp duty on secondary sales of shares and trusts holding shares
	50 bps	On strike price for options if executed and on delivery price for futures
United States	0.00%	SEC fees on stock trading
	\$ 0.05	NY state tax per share up to \ \$ 350 per trade

bps = Basis Point

Source: Patel (2013)

Appendix B

Table B-1: Correlation Matrix – French Sample

	ROAA	DER	NIM	Treated	Post	EQTA	INTER	LASSETS
ROAA	1.00							
DER	-0.06	1.00						
NIM	0.42	-0.10	1.00					
Treated	-0.06	0.32	-0.11	1.00				
Post	-0.06	-0.01	-0.15	0.02	1.00			
EQTA	0.28	-0.12	0.61	-0.14	-0.07	1.00		
INTER	-0.07	0.09	-0.07	0.42	0.50	-0.08	1.00	
LASSETS	-0.14	0.51	-0.34	0.53	0.05	-0.43	0.23	1.00

Table B-2: Correlation Matrix – Italian Sample

	ROAA	DER	NIM	Treated	Post	EQTA	INTER	LASSETS
ROAA	1.00							
DER	-0.11	1.00						
NIM	-0.16	-0.21	1.00					
Treated	-0.10	0.58	-0.14	1.00				
Post	-0.11	0.01	-0.05	-0.01	1.00			
EQTA	0.24	-0.26	0.11	-0.26	0.04	1.00		
INTER	-0.06	0.38	-0.08	0.56	0.20	-0.14	1.00	
LASSETS	-0.32	0.58	-0.29	0.57	0.02	-0.55	0.32	1.00