SFB/Transregio 266
ACCOUNTING FOR TRANSPARENCY

WORKING PAPER SERIES

No. 10 | December 2019 | revised March 2020

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TRR 266 Accounting for Transparency

Funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation):
Collaborative Research Center (SFB/TRR) – Project-ID 403041268 – TRR 266 Accounting for Transparency

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Banks and Corporate Income Taxation: A Review*

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March 11, 2020

Abstract

In this paper, I review the empirical literature in the intersection of banks and corporate income taxation that emerged over the last two decades. To structure the included studies, I use a stakeholder approach and outline how corporate income taxation plays into the relation of banks and their four main stakeholders: bank regulators, customers, investors and tax authorities. I identify six dimension where taxes are important for banks: debt financing, tax incidence, organizational form choices, profit shifting, financial reporting transparency and customers' tax avoidance. In addition, the studies in this review show that corporate income taxes lead to distortions between debt and equity financing, between on- and off-balance sheet financing, of prices and of investment allocations. My contribution to the literature is threefold: First, I contribute by providing, to the best of my knowledge, a first comprehensive review on this topic. Second, I deduce policy implications from the studies under review. Third, I point to areas of future research in the intersection of bank regulation and tax legislation.

JEL classification: G21, H22, H25, M41

Key words: Corporate income taxes, banks, stakeholder approach, decision-making process

* I sincerely acknowledge helpful and constructive comments from participants of the TAF Research Seminar at Paderborn University. Additionally, I am greatful for valuable comments on the manuscript from Thomas Kourouxous and Jens Müller. I also greatly acknowledge funding by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – Collaborative Research Center (SFB/TRR) Project-ID 403041268 – TRR 266 Accounting for Transparency.

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1 Introduction

In the past decade, tax research connected to banks has grown tremendously. Potential reasons for this trend are a greater public interest in banks due to the most recent financial crisis (e.g., OECD (2009, 2010b, 2011)), the increased competitive environment in banking services and the call of Hanlon and Heitzman (2010) to deepen the understanding of how taxes influence financial institutions.

In addition to Hanlon and Heitzman (2010), other reviews on tax research (e.g., Shackelford and Shevlin (2001), Graham, Raedy, and Shackelford (2012), Dharmapala (2014), Wilde and Wilson (2018)) have emerged that, with one exception (Shackelford and Shevlin (2001)), do not explicitly systematize their results and advances in the context of banks and taxation. Hence, a general overview of what is already known in this area is lacking, rendering it difficult for researchers new to and interested in this field to identify sensible contributions.

Studying how banks react to taxation is, to date, still relevant for several reasons. First, banks are an important pillar of a country's economy (OECD (2009)). They provide loans to enterprises and customers, take deposits and are able to hedge risks. A distortion might thus have negative effects on the economy. Understanding how, e.g., taxes influence banks in setting their interest rates is therefore crucial. Second, the recent period of low interest rates has made it difficult for banks to earn profits in the tradtional areas of banking, i.e., lending and saving (Lucas, Schaumburg, and Schwaab (2019)). Additional pressure stems from customers' increased use of online banking services putting classic counter services and associated jobs at risk. This development might encourage banks to reduce expenses so that they are able to report profits to stakeholders, and in particular to investors. A significant expense in this respect is the bank's tax expense. Understanding how banks factor taxation into their, e.g., investment decisions, is therefore crucial for curtailing suitable tax legislation and regulation. Third, the media often depicts banks as a mediator for their clients, engaging in tax evasion or, in a milder form, establishing schemes to help them avoid taxes[1]. Banks are in an advantageous position as they possess much proprietary data of their clients, both individuals and corporations. Hence, they are able to advise customers more efficiently. For that matter, it is interesting to know whether banks generally prefer a high or low level of tax avoidance for their customers and whether they try to promote tax avoidance among them.

Although Hanlon and Heitzman (2010) ask for more insights into taxation and financial institutions, I focus on banks as they comprise the largest group of financial institutions, and they,

[1] E.g., UBS was told to pay $5 billion by a French court in a tax fraud case. https://www.forbes.com/sites/walterpavlo/2019/02/21/ubs-told-to-pay-5-billion-by-french-court-in-tax-fraud-case/#1cb69b4d5ccb (last accessed: 2019-11-15).

rather than other financial institutions, are commonly the center of empirical studies in tax accounting. To keep the literature review focused, I limit my review to empirical studies on corporate income taxes. I therefore neglect analytical and normative studies on bank levies and optimal taxation, as they have a more normative access to their topics and take a macroeconomic angle at their topics[2], while I am interested in how corporate income taxes and corporate decision-making are related. The studies under review broadly address the following research question:

> Do banks incorporate corporate income taxes into their decision-making process and, if so, how?

To provide guidance in the review, I partially rely on the idea of Wilde and Wilson (2018) who assess tax accounting studies according to their contribution in explaining the conflicts in a principal-agency framework. I, however, apply a broader stakeholder approach that describes the business environment in which a bank operates and how corporate income taxes play into the relationship between banks and their stakeholders: customers, regulators, investors and tax authorities. As a key objective of banks is to remain profitable and corporate income taxes are a key expense item, I identify six dimensions in the literature that banks consider when minimizing tax expense: debt-financing, tax incidence, organizational form choices, profit shifting, financial reporting transparency and customers' tax avoidance.

I contribute to the tax accounting literature in three ways. First, I provide, to the best of my knowledge, a first systematic review of empirical studies of the last two decades that assess the association between corporate income taxes and banks and that have emerged. Therefore, this review helps researchers to gain a comprehensive overview of this topic.

Second, as banks are in the focus of a public that wants them to pay their fair share of taxes[3] and be financially sound, I contribute to the debate by deducing policy implications from the studies under review. The studies provide cautious evidence that corporate income taxation in the context of banks leads to distortions between debt and equity financing, distortions between on- and off-balance sheet items, distortions of customer prices and distortions of investment allocations. Policymakers should therefore evaluate tax reform in relation to their potential to distort.

Ultimately, I point to future research areas in the intersection of bank regulation and taxation. Although research in corporate income taxation and banks is growing, evidence on how banks employ corporate income taxes in their decision-making is still limited. To curtail non-distorting

[2] For an overview, refer to de Mooij and Nicodème (2014).

[3] The introduction of public country-by-country reporting (CbCR) for banks in the Capital Reguirements Directive (CRD) IV and some OECD studies (e.g., OECD (2009, 2010a)) implicitly show this concern.

tax legislation and also bank regulation, it is important for policymakers and regulators to understand the spillover effects from tax areas to regulatory areas and vice versa. Future research might, e.g., provide more evidence on whether and how tax rules interact with other regulatory requirements and additional taxes, whether tax policy and bank regulation have different impacts on different types of banks, which channels banks use to decrease tax expenses and on how to make banks' tax avoidance comparable to that of non-banks.

As there are ongoing debates on how tax legislation might have contributed to the latest financial crisis (Shackelford, Shaviro, and Slemrod (2010)) and whether banks pay their fair share of taxes, a review on what is known in this research area is highly relevant for policymakers and standard setters (e.g., OECD (2009)) as well as for researchers trying to pursue this strand of research.

Section 2 presents the related literature and outlines the theoretical framework. Section 3 describes the process for selecting the reviewed studies. Sections 4 to 8 present the key results of the studies under review. Section 9 deduces the policy implications, and section 10 provides areas for future research. Section 11 concludes the paper.

2 Related literature and theoretical framework

In the last two decades, several reviews of tax research have emerged, most notably Shackelford and Shevlin (2001), Hanlon and Heitzman (2010), Graham et al. (2012), Wilde and Wilson (2018). This demonstrates a strong interest of scholarly researchers in how firms factor taxes into their business decisions.

Shackelford and Shevlin (2001) provide the first comprehensive review of empirical tax research in the field of accounting. They identify three major topics that were excessively studied in the 15 years prior to their review: the trade-off between tax and non-tax considerations, taxes and asset prices and international taxation. A small fraction of their review covers studies with a specific focus on regulated industries such as banks. Shackelford and Shevlin (2001) note that regulated industries provide a suitable setting for analyzing trade-offs between financial reporting and tax reporting. In essence, the findings in their reviewed studies (e.g., Scholes, Wilson, and Wolfson (1990), Beatty, Chamberlain, and Magliolo (1995), Collins, Shackelford, and Wahlen (1995)) suggest that taxes play a minor role in banks' business decisions, as tax considerations are overruled by regulatory and financial reporting considerations. Shackelford and Shevlin (2001), however, note that those studies might not appropriately control for the variation in tax status across banks.

Hanlon and Heitzman (2010) expand the review of Shackelford and Shevlin (2001) by including theoretical studies and accounting-related studies in the field of finance and economics. Addi-

tionally, the included studies need to focus on taxes that accrue to businesses, as this is where most research has been undertaken. Hanlon and Heitzman (2010) identify four themes in accounting research that gained much attention: the way businesses report income taxes in their financial statements and the information content of these items for investors; the measurement, causes and consequences of corporate tax avoidance; the relation between taxes and real business decisions; and the valuation of asset prices when investor-focused taxes (i.e., capital gains taxes) are present. In their review, they call for more research on the relationship between financial institutions and taxes, as the evidence on this topic was scarce up to 2010. Many accounting studies that center on financial institutions refer to this call by Hanlon and Heitzman (2010).

Although the literature on the association between taxes and banks has grown tremendously in the last decade, the latest review by Wilde and Wilson (2018) does not include this issue specifically. A potential reason for this might be that Wilde and Wilson (2018) review tax avoidance studies according to the contribution they make in analyzing and explaining the conflicts in a principal-agency framework.

To structure my review, I partially rely on the idea of Wilde and Wilson (2018), but instead of using a principal-agency framework, I use a broader stakeholder approach that describes the business environment in which a bank operates and how corporate income taxes play into the relationship between banks and their stakeholders. A key objective of banks is to remain profitable, not only to please and attract new shareholders, but also to comply with capital requirements.

One possible approach to reaching these goals is to reduce tax expense. Banks, however, operate in an institutional environment with various groups and interests, causing obstacles to the optimal level of tax minimization, as shown in Figure 1. Like non-banks, they report to their shareholders, compete with other banks for customers and pay taxes according to the countries' tax codes. However, they are additionally subject to regulation from banking authorities.

[Figure 1 about here.]

In Figure 1, the inner circle describes banks' internal considerations with respect to corporate income taxation. The outer circle shows the institutional setting that banks must take into account when planning their business operations.

Taxes affect banks' internal decision-making process in various ways, as taxes are a major expense item for banks. The actions in the inner circle (tax incidence, debt-financing, profit shifting, organizational choices) mainly refer to actions that minimize corporate income tax expense. In what follows, I briefly explain the various actions and their connection to banks' stakeholders. I indicate the actions to which I refer in bold type.

When financing costs (e.g., due to an increase in the tax rate) increase, banks try to shift these costs to their customers by increasing interest rates on loans and decreasing interest rates on deposits (**tax incidence**). Customers might react to these actions by turning to other banks with more favorable conditions.

Similar to non-banks, banks are allowed to deduct debt costs from their tax base (**debt financing**). Due to regulatory requirements like Basel III (e.g., minimum capital requirements or collateral for risky assets), banks are not able to excessively rely on debt financing, as this would deteriorate their capital ratio and encourage scrutiny from bank authorities.

Using international tax rate differentials, i.e., shifting profits from high-tax to low-tax jurisdictions, banks are able to decrease consolidated tax expense. To shift profits, non-banks generally exercise discretion in transfer pricing agreements. While banks report few intangibles, they have a comparative advantage in creating complex financial structures and exploiting features of derivatives such that tax expense is reduced (**profit shifting**)[4].

A more drastic approach to tax minimization was provided by the 1996 change in the U.S. tax code allowing banks to incorporate under Subchapter S where profits are taxed at the shareholder rather than at the corporate level[5]. Obviously, tax benefits stem from the abolishment of double taxation (corporate income taxation and personal gains taxation), and overall tax expense decreases (**organizational form choices**)[6].

In addition to minimizing their own tax expense, banks might consider corporate income taxation in other areas of their decision-making process. This might be relevant when customers' tax claims for certain tax positions are weak, and tax authorities might challenge these positions, resulting in additional taxes for the customer. This issue is especially important after the European Union implemented country-by-country reporting (CbCR) for multinationals. Although the reports have to be filed with the respective tax authority and are not publicly available, European tax authorities are obliged to exchange the tax information with other European tax authorities.[7] This additional information might cause longer disputes with the own tax authorities on the appropriate transfer price, but also with those abroad[8]. This would cause bank customers' free cash flows to decrease if they did not create a tax reserve for these cases in advance. A decline in cash flows threatens the payment of interest and the repayment of loans. As

[4] For an assessment of banks' possibilities in tax planning, refer to OECD (2009, 2010b).

[5] The U.S. Small Business Jobs Protection Act of 1996 relaxed the incorporation rules of banks. While banks before the act were only allowed to incorporate under Subchapter C, they are afterwards allowed to switch to incorporation under Subchapter S.

[6] Refer to the preambel of the U.S. Small Business Jobs Protection Act of 1996. Available under https://www.congress.gov/bill/104th-congress/house-bill/3448/text (last accessed: 2020-02-12).

[7] See European Council (2015, 2016) for further information.

[8] See, e.g., Hanlon (2018).

the uncertainty of repayment increases with the default risk of a loan, banks might be required to hold (additional) collateral in proportion to the probability of default (**evaluation of default risk**).

Although **financial reporting transparency** does not seem to be a direct effect of corporate income taxation, new reporting rules, like, e.g., the tax-motivated introduction of public CbCR in Article 89 of the Capital Requirements Directive (CRD) IV, might cause that banks factor new financial reporting rules into their decision-making process. The effect of these rules might be twofold: First, financial reporting transparency for investors and the firm itself increases[9]. Investors now receive additional information on the allocation of country-specific profits and the applicable taxes and might therefore be able to better predict future tax expense and profits[10]. Second, banks might change their group tax structure due to increased transparency to either prevent scrutiny by tax authorities or decrease the risk of reputational damage (**tax enforcement/tax compliance**)[11].

3 Methodology and descriptive statistics

To keep the literature review manageable, but as comprehensive as possible, I conduct a systematic review of the literature. I focus on empirical studies[12] that analyze corporate income taxes in the context of banks[13]. To identify relevant studies, I conduct a database search using *Web of Science Core Edition*. In particular, I use a variant of "bank*" and "corp* tax" in my queries which should appear either in the title, abstract or keywords of a paper[14]. I restrict my attention to publications between 1999 and 2019, as Shackelford and Shevlin (2001) already provide a comprehensive review on the early advances in the context of banks and taxation. To be included in my review, publications have to meet additional requirements. First, the studies have to be written in English. Second, the studies need to be of the document type "article", indicating that the paper is published. Third, the papers have to fall under *Web of Science*'s sec-

[9] See Hanlon (2018).

[10] Related research on how investors use tax information provide, e.g., Hanlon (2005), Bratten, Gleason, Larocque, and Mills (2017).

[11] Bozanic, Hoopes, Thornock, and Williams (2017), e.g., show that employees of the Internal Revenue Service (IRS) download financial statement information from the U.S. Securities Exchange Commission (SEC) when the IRS information is flawed. Dyreng, Hoopes, and Wilde (2016), e.g., provide evidence that U.K. firms react to public pressure of ActionAid and become more compliant in terms of subsidiary disclosure.

[12] "Empirical" studies are all those studies that contain an empirical section. Hence, I also include papers whose predictions are derived from a formal model. It is essential that the authors test their predictions in the empirical part of the paper. I exclude analytical papers, as there are already some overview articles on this topic (e.g., de Mooij and Nicodème (2014)).

[13] Banks comprise the largest group among financial institutions, and empirical studies in tax accounting usually focus on them. Corporate income taxes are the largest subgroup of taxation.

[14] Asterixes allow a more efficient search, as the abbreviations allow a wide variety of combinations such as "banks and taxation" and "banks and tax avoidance" to be covered.

tion unit "Business & Economics" to ensure the papers' proximity to accounting and economics studies. I intentionally include studies with an economic focus, as their insights also contribute to the understanding of how corporate income taxes and banks interact. Ultimately, I use two search strings to form an initial sample of relevant studies.

1. TI=(bank* AND tax* NOT bankrupt*) AND SU=Business & Economics
2. TS=(bank* AND "corp* tax*" NOT bankrupt*) AND SU=Business & Economics

I settle on these combinations, as a broad search using "banks" and "tax*" in the title, abstract and keywords (indicated by "TS") leads to 927 papers. Adding "NOT bankrupt" takes care of two aspects. First, I am able to exclude studies that focus on bankruptcy and taxation which is not the focus of this review. Second, I am also not interested in studies dealing with the social costs of banks' bankruptcy during the latest financial crisis as this is not related to corporate income taxes.

Search 1 includes all those studies that explicitly use any combination of "bank*" and "tax*" in their title, providing some confidence that they analyze some portion of the association between banks and taxation in general. This, however, comes at the cost of search precision, as papers dealing with topics that are not the focus of this review (evaluated further below) such as the optimal taxation of banks might be included in the search. I do not include papers on the optimal taxation of banks, as they are generally normative in nature, take a macroeconomic angle and do not specifically focus on the corporate decision-making process.

In comparison to Search 1, Search 2 has an advantage in that the papers in the search specifically assess corporate income taxes and banks. While search 1 limits the search to the paper's title, search 2 is intentionally broader (topic search), as requiring "corp* tax*" in the title might exclude relevant studies. Naturally, studies might be included in both searches. To that end, I merge the two searches and eliminate duplicates, resulting in my baseline sample of 90 studies.

I then review the remaining papers manually with respect to method (empirical, analytical, legal/normative) and whether their topic is related to corporate income taxation and banks. Table 1 shows the exclusion and inclusion criteria applied to the studies in the baseline sample. As I focus on empirical papers, I exclude all studies that take a mere analytical, legal or normative angle. Topic relatedness indicates that papers whose focus is not banks are excluded. Additionally, studies that consider other taxes such as capital gains taxes or taxes on deposits are excluded. However, studies that address the inclusion of specific items in the income tax base are included, as this is directly related to the calculation of corporate income tax expense. The final sample amounts to 31 published papers.

[Table 1 about here.]

Figure 2 shows that the topic of corporate income taxation in relation to banks has gained much attention, which is reflected in the increase in published studies over the last decade. Although I claim no causality, the increase might be motivated by the latest financial crisis and, additionally, debates on whether the preferential tax treatment of debt promoted the financial crisis. In addition, many tax studies refer to Hanlon and Heitzman (2010). This is especially true for tax accounting studies whose focus is on banks and taxation.

[Figure 2 about here.]

Most of the studies rely on an international sample, some with a key focus on Europe. The U.S. is also an important sample country. For that matter, it is not included in the category of "Other". Other countries mainly consist of research settings where the authors use single-country studies like, e.g., Schepens (2016).

[Figure 3 about here.]

4 Preferential tax treatment of debt

Studying and in particular, understanding how taxation affects banks' corporate fundamentals, such as banks' capital structure or their profitability, is essential to designing a well-functioning regulatory framework that avoids negative effects on the economy and promotes financial stability. This importance is also reflected in the number of studies addressing the influence of taxes on capital structure and profitability. The composition of banks' capital structures is often at the heart of regulatory discussions and interventions. The reason for this focus is a need to monitor banks' risk-taking and prevent any instability in the financial sector caused by excessive debt financing, which might then spill over to the real economy, causing economic downturn.
These concerns and probably the experience of the most recent financial crisis prompted researchers to wonder whether banks, like similar to non-banks, exploit the relative tax advantage of debt over equity. The tax benefit results from the deductibility of interest expense from the tax base, while earnings from equity are fully taxed. Banks are, due to their business model, already highly leveraged. Researchers therefore expected to observe no reaction to taxes, as the benefit would be marginal. However, studies assessing whether banks incorporate taxes in their capital structure decisions are motivated by banks' excessive use of high-risk debt in the run-up to the recent financial crisis and whether this excessive use was partially amplified by the relative tax attractiveness of debt.

As the research on the association between bank capital structure and corporate income taxation is rather extensive, I include figure 4 to provide an alphabetical overview of the studies displaying their research questions, the variables of interest and the estimated effect.

[Figure 4 about here.]

4.1 Association studies

De Mooij and Keen (2016) and Heckemeyer and de Mooij (2017) are the first to analyze whether banks' leverage and capital ratio are associated with taxation. De Mooij and Keen (2016) are interested in how strong the tax distortion is in multinational banks' capital structures arising from the preferential treatment of debt. In particular, they assess how conventional debt, hybrid financial instruments, capital buffers and leverage ratios respond to differences in statutory tax rates. From a theoretical model, they derive two predictions. First, they predict a positive association between debt and the tax rate. Second, they anticipate a negative association with capital buffers, as banks with sufficiently high equity buffers are able to more flexibly decrease the buffer in exchange for further increasing debt. As predicted, de Mooij and Keen (2016) find that conventional debt and equity buffers are highly tax sensitive, while hybrid financial instruments do not seem to be associated with statutory tax rates. The reaction, however, is not homogenous across banks. Banks with low equity buffers (i.e., those closer to the regulatory minimum) are not tax responsive, suggesting that regulatory rather than tax concerns are a key driver in their investment choices. Furthermore, large banks (i.e., systemic banks) seem to be almost tax irresponsive.

Like de Mooij and Keen (2016), Heckemeyer and de Mooij (2017) analyze how leverage responds to differences in corporate statutory tax rates in an international setting . While de Mooij and Keen (2016) center on a pure banking sample and assess different components of a bank's capital structure, Heckemeyer and de Mooij (2017) focus on the differences in debt bias[15] between banks and non-banks and the different responses to debt bias across banks and non-banks in terms of leverage and size distribution. They make no prediction whether banks' degree of debt bias is different from that of non-banks due to two countervailing arguments. On the one hand, banks are subject to regulation and hence might not have the flexibility to choose the optimal level of debt unlike non-banks resulting in a low degree of debt bias. On the other hand, well-capitalized banks are not bound in regulatory terms and are able to trade debt for equity. Additionally, large

[15] Heckemeyer and de Mooij (2017) differentiate a bank's reaction to taxes into debt bias and debt shifting. Debt bias is defined as the inclination of a bank to prefer debt over equity financing due to its deductibility. Debt shifting occurs when a multinational bank exploits tax rate differentials and accumulates debt in a high-tax country to efficiently benefit from tax shields. They focus on debt bias opposed to debt shifting as the former would generate a larger welfare loss due to allocative distortions.

banks presume that their going concern status is backed by implicit government guarantees to prevent large and systemic banks from defaulting. Hence, they might be inclined to excessively invest in debt and exercise a larger level of debt bias. The results of Heckemeyer and de Mooij (2017) show that for both non-bank and bank samples, leverage is positively associated with statutory tax rates, indicating that there is also some type of tax sensitivity for banks. While the effect is increasing in size for non-banks, the opposite holds for banks. To answer the question of whether banks with low levels of leverage have a stronger or weaker response to taxes, the authors apply quantile regression. For non-banks, the strongest (weakest) effects are found for large (small) firms with low and median (low) levels of leverage. For banks, the picture is reversed. Large banks' leverage always responds less strongly to taxes than that of small- and medium-sized banks.

In contrast to the aforementioned studies, Gu, de Mooij, and Poghosyan (2015) combine the assessment of debt bias and debt shifting. In an international setting, they test whether subsidiaries experience an increase in debt (leverage) when the corporate statutory tax rates increase (debt shifting) and whether subsidiaries are generally responsive to the "traditional" debt bias. They find that subsidiary banks' leverage reacts to local taxes, which is some indication of a debt bias. In economic terms, a 10% increase in the tax rate increases a subsidiary's leverage ratio by 3%. The authors also find significant evidence for the incentive to shift debt internationally, but the traditional debt bias exerts more impact on leverage than debt shifting. To measure reliability, the authors focus on which coefficient is more robust and find that the coefficient of debt bias is less robust in terms of its significance (i.e., after the inclusion of time-fixed effects) than that of debt shifting. In accordance with de Mooij and Keen (2016) and Heckemeyer and de Mooij (2017), the authors find the strongest effect of debt bias and debt shifting in the group with the highest capital abundance while the coefficients are smaller for the group with a relatively tight capital ratio.

In sum, there is some evidence that banks use debt in a similar fashion as non-banks to receive the benefits of tax deductibility. The effect, however, is heterogeneous across banks. In principle, large banks seem to be highly tax *irresponsive*, and banks with sufficiently high capital ratios are highly tax *responsive*.

4.2 Quasi-experimental evidence

In general, researchers are interested in testing causal relations rather than showing associations between variables. Quasi-experimental settings in the form of, e.g., a tax reform provide tax researchers with an exogenous shock to test causal relations (Gassen (2014)). The following

studies exploit this opportunity in either a one-country or an international setting.

Changes in statutory tax rates across states/countries

In contrast to the association studies above, Hemmelgarn and Teichmann (2014) use tax reforms across a cross-section of countries to obtain insights into the relative attractiveness of debt over equity financing[16]. Similar to prior studies, Hemmelgarn and Teichmann (2014) find a significant reaction of banks' capital structures to tax rate changes. In addition to the aforementioned studies, Hemmelgarn and Teichmann (2014) analyze the potential channels through which banks try to adjust their capital structure. After, e.g., a tax decrease, banks seize opportunities to re-gain the optimal level of capital. To achieve this goal, they might repay debt; however, this would result in a decreased business volume with which to finance their investments. Another possibility is to increase internal equity by reducing dividends to shareholders. In line with this reasoning, the authors find that upon a tax decrease, the probability of a bank to distribute dividends and the amount of the pay-out decreases.

The research design of Schandlbauer (2017) is theoretically similar to that of Hemmelgarn and Teichmann (2014), as he assesses whether U.S. tax rate increases change the relative tax attractiveness of debt over equity for U.S. banks. In particular, Schandlbauer (2017) incorporates the level of banks' capital ratios in his research design and analyzes whether this affects banks' incentive to exploit the tax advantage of debt. Schandlbauer (2017) finds evidence that better-capitalized banks substitute equity with debt, as the non-depository debt ratio increases upon a tax rate increase. No effect is found for worse-capitalized banks. However, they seem to use hybrid securities (e.g., mezzanine capital that is not tax deductible) and convert those to sub-ordinated debt (tax deductible). This shows that although the overall non-depository debt ratio does not change, the incentive to exploit the debt tax shield is also apparent under worse capitalization.

Milonas (2018) exploits the same sample of U.S. state tax reforms as Schandlbauer (2017). While Schandlbauer (2017) primarily focuses on the effect of tax rate increases, Milonas (2018) explicitly tests for the effect of tax rate increases and decreases via the inclusion of interaction terms[17]. With this set-up he is able to distinguish whether increases exhibit different effects on a bank's capital ratio compared to decreases. The effect of tax rate increases has a greater magnitude than that of tax rate decreases. This difference, however, is not significant.

In sum, the evidence seems to corroborate the findings of the association studies above that

[16] The mechanism is that upon an increase in tax rates banks increase their debt and decrease equity due to the tax incentive.

[17] In the robustness section, Schandlbauer (2017) uses 18 state tax decreases and does not find the decrease in leverage that theory would predict.

banks' capital structure is partially tax sensitive.

One-country tax reforms

As the inclination to use debt depends on its relative attractiveness in comparison to equity, some countries try to increase the attractiveness of equity by introducing allowances for corporate equity (ACE).

Schepens (2016) is the first to assess whether the introduction of ACE during the Belgian tax reform of 2006 causes banks to increase their equity. Against a control group of European banks, the author finds evidence that Belgian banks increase their equity ratio by 13%. With regard to potential policy implications, an important finding is that the increase in equity is probably caused by retained earnings and does not coincide with a decrease in lending activity. Additionally, banks with formerly low capital ratios reduce the risk mix in their asset structure, suggesting that losses due to customer default now become more costly to those banks.

Building on the idea in Schepens (2016), Martin-Flores and Moussu (2019) analyze the tax effect of a notional deduction on equity[18] in Italy around its introduction and a few years later around its removal. In contrast to Schepens (2016), they provide evidence on whether banks' equity reacts symmetrically to an increase/decrease in relative tax attractiveness. As expected, they find an increase in equity after the installment of the ACE and a decrease after its removal. In line with Schepens (2016), they find no significant effect on banks' asset sides, suggesting that lending activity is not affected. The change in equity is probably due to changes in retained earnings. After the removal of the ACE, the authors find evidence of an increase in the asset side, suggesting that banks increase debt, causing the capital ratio to decrease. The effect, however, is again not homogenous across banks. As in the studies above, Martin-Flores and Moussu (2019) find an effect for small but not for medium-sized or large banks. An explanation for their finding is that large banks probably have other channels for decreasing their tax expense and therefore do not react to the tax incentive of the ACE.

Overall, the studies in this section suggest that banks react to the tax incentive that debt provides. The effect, however, is not homogenous across banks. Large banks appear to be the least responsive to tax incentives. The picture is mixed with respect to medium-sized banks, but small banks seem to be highly tax responsive. As the studies above note, small banks might not have access to the channels of tax minimzation utilized by large banks (e.g., shifting channels).

[18] Notional deduction on equity refers to a reduced tax rate for equity rather than an actual deduction.

4.3 Differential tax treatment of on- and off-balance sheet items

While the studies above focus on how the tax advantage of debt over equity affects on-balance sheet items, Han, Park, and Pennacchi (2015) and Gong, Hu, and Ligthart (2015) analyze whether the differential tax treatment of on- and off-balance sheet items affects a bank's incentive to securitize. In particular, Han et al. (2015) analyze how the taxation of banks' corporate earnings and the competitive conditions in the loan and deposit markets that banks face affect their securitizing behavior. Banks in markets with abundant lending opportunities but limited access to deposits (whose interest expense is tax deductible) might be inclined to sell these self-originated mortgages to either fund new loans or decrease the tax liability of interest income from loans. The opposite holds in markets with an abundant supply of deposits. Here, banks need to increase their equity capital ratio and hence refrain from selling mortgages. In sum, the incentive to securitize increases with the tax rate and the shortage of deposits. In descriptive and multivariate analyses, they corroborate their theoretical findings. In U.S. states with a high state tax rate and high loan demand (i.e., a country with a rather young demographic structure), the authors find an incentive to securitize more, while they find no significant reaction in a situation with a high tax rate and high deposit supply. Gong et al. (2015) expand the U.S. setting of Han et al. (2015) to an international sample. Their idea, however, is similar, as they analyze whether headquarters of OECD banks in high tax rate countries and with constrained funding opportunities (i.e., a low supply of deposits) tend to securitize more than those with abundant funding opportunities. In accordance with Han et al. (2015), Gong et al. (2015) find that OECD banks with headquarters in high tax rate countries and a high loan-to-deposit ratio show an increased likelihood of using asset-backed securities (i.e., to securitize more). The decisive feature in both studies is that loans are sold and shifted off-balance in such a way that the generated income is not subject to taxation; this is normally done via the use of special purpose entities (SPE).

In general, both studies show that there is a distortion between on- and off-balance sheet financing. Potential policy implications are discussed further below.

5 Bank profitability and tax incidence on customers

The questions of how taxation influences banks' profitability and who (the bank, the lender or the depositor) bears the additional cost of taxation are highly relevant in times of low interest margins and enhanced competition in the banking market. One measure to assess how efficiently the bank turns over its assets is the net interest margin. The higher this margin is, the more

efficient the bank is in generating income from its assets. Taxes are a key expense that might drive efficiency down and distort the investment decisions of banks. In an alphabetical order, Figure 5 provides an overview of the studies in this section.

[Figure 5 about here.]

Demirgüç-Kunt and Huizinga (1999) are the first to provide international evidence on how taxes, among other factors, affect the net interest margin of banks. In particular, they are interested in whether taxes are passed on to the bank's customers (either to the lender or the depositor). They find a positive association between a bank's effective tax rate (ETR) and the net interest margin suggesting that taxes are passed on to customers via higher prices or, put differently, less favorable saving/lending conditions. The authors explain this finding by investors' focus on after-tax earnings, which would require banks to pass taxes on to customers to yield the same profit to meet investors' expectations. On these grounds, the authors assume that banks' investment decisions become distorted.

While Demirgüç-Kunt and Huizinga (1999) assess selected determinants of bank profitability, of which taxation is one, Albertazzi and Gambacorta (2010) and Chiorazzo and Milani (2011) directly test how corporate income taxes influence banks' profitability and whether banks transfer some of their tax burden to customers. The motivation of Albertazzi and Gambacorta (2010) is similar to that of Demirgüç-Kunt and Huizinga (1999), as they argue that microeconomic theory advises not to tax intermediate goods (banks distribute loans and deposits and hence act as intermediaries). Taxation would hinder the efficient allocation of resources and is therefore distortive. Based on a theoretical model, Albertazzi and Gambacorta (2010) predict that changes of the corporate income tax (CIT) rate alters banks' cost of equity. This change causes banks to increase their interest rates on loans to meet regulatory capital requirements. This, in turn, might decrease demand for loans and hence, might cause a decrease in corporate investment activity, resulting in a negative correlation between the CIT rate and lending, while having no impact on deposits.

Using a sample of 10 industrial countries, they find an ambiguous association between the CIT rate and bank profitability[19]. For low levels of the CIT rate, the effect on profitability is positive, while the relation is negative for high levels, suggesting that banks partially shift tax costs to customers. Albertazzi and Gambacorta (2010) additionally disaggregate profitability into its different components (net interest income, non-interest income, operating costs, provisions).

[19] In their first analysis, bank profitability is calculated as profit before taxes divided by total asssets. Albertazzi and Gambacorta (2010) refer to this as the net interest margin. In a second analysis, they replace profit before taxes by its different components.

The effect on interest income is similar to that found for the net interest margin: negative for high levels and positive for low levels of CIT. The association between non-interest income and CIT is always negative as predicted. The underlying assumption is that the demand for those services decreases when the CIT increases. CIT and operating costs are negatively associated as well. The association between corporate income taxes and provisions turns out to be not significant.

Testing for who bears the tax incidence, they split the interest spread (l-d) into a mark-up (l-r) and a mark-down (r-d) portion and regress those separately on CIT and other controls[20]. The relation between the mark-up and CIT is significant and positively correlated, suggesting that a higher CIT rate coincides with a higher interest rate on loans, in line with the models' predictions. An increase in the CIT rate increases corporations' loan costs, depressing demand for bank loans and potentially affecting corporate investments.

Closely related to Albertazzi and Gambacorta (2010) in terms of research question and research design, Chiorazzo and Milani (2011) assess the incidence of taxes in the banking sector. However, they focus not only on CIT but also on whether value added taxes (VAT) directed at financial services are distortive. With reference to Huizinga (2004), they assume that VAT are not as distortive as CIT and might therefore be a better alternative for taxing banks. Like Albertazzi and Gambacorta (2010), they disaggregate profitability in its different components and find a positive association between profitability and CIT as well as VAT. Based on their findings, they presume that VAT are also passed on to customers, indicating that this type of tax is also distortive and that Huizinga (2004)'s assumption should therefore be rejected.

Gaganis, Pasiouras, and Tsaklanganos (2013) corroborate the findings of previous studies using a frontier technique. They also find a positive association between taxation and bank performance, indicating that banks shift taxes to customers. The effect is stronger in highly concentrated markets. The association between tax rate and performance, however, diminishes with higher levels of tax rates.

While the studies above only assess CIT's effect on the profitability of domestic banks, Huizinga, Voget, and Wagner (2014) expand the assessment by differentiating between the effect of domestic and that of foreign banks. In particular, they investigate whether international taxation puts foreign banks at a disadvantage, as they are subject to corporate income taxation at home and to withholding taxes abroad, and whether this situation hinders foreign direct investment (FDI) from banks. In contrast, the pre-tax profits of home-bound banks are only subject to corporate income taxation. Dividend-double taxation might therefore lead to distortions in the

[20] The letter "l" refers to the interest rate on loans, "d" to the interest rate on deposits and "r" to the market rate of return.

international banking market. Huizinga et al. (2014) assume that the distortions cause differences in profitability/prices (interest margin) between domestic and foreign banks in the host country and in the level of foreign banks' FDI. In case of double taxation, they find no significant association between the host-country CIT and net interest margins, indicating that local taxes are not passed on to customers. The authors test explanations for this and assume that foreign banks rather decrease their employees' wages than shift profits abroad or partially transfer taxes to their customers. With respect to double taxation, they find a significantly positive association between double taxation and net interest margins, indicating that foreign banks that are subject to double taxation shift a large portion of their tax burden to their customers. Their estimates indicate that foreign banks bear approximately 14% and their customers approximately 86% of the tax burden. In addition, the FDI activity of foreign banks decreases in light of double taxation. Economically speaking, a 1 percentage point increase in double taxation results in a reduction in foreign bank FDI of 7.2%. The authors conclude that foreign-owned banks need to increase their interest margins to counterbalance the lower amount of financial services (measured in terms of investment volume).

In sum, the evidence presented above suggests that banks generally shift parts of their tax burden to customers.

6 Organizational (form) choices and consequences

Studying organizational form choices is important, as organizational form determines a firm's tax base, the structure and publication of financial reports and how investors value the firm. The U.S. Small Business Jobs Protection Act of 1996 therefore provides a fruitful setting to test whether banks re-structure their organizational form to exploit the associated tax benefit. While U.S. non-banks were already allowed to incorporate as Subchapter S corporations[21], banks were only granted this right after 1996. Banks incorporated under Subchapter S can pass their profits to their shareholders, where they are then taxed. Hence, Subchapter S banks are not subject to double taxation (corporate income taxation at the corporate level and dividend taxation at the shareholder level). The tax reform therefore allows a) investigations into the motivation of banks to convert from C corporations to S corporations and b) observations of the direct effects of this conversion on banks' stakeholders. The studies below generally assess the effect on two stakeholders: shareholders and customers. I provide an alphabetical overview of the studies in this section in Figure 6.

[21] With no change of meaning, I sometimes refer to Subchapter S and Subchapter C corporations as S corporations or C corporations, or S banks or C banks.

[Figure 6 about here.]

Hodder, McAnally, and Weaver (2003) contribute to the understanding of why banks convert from Subchapter C to Subchapter S corporations. In particular, they are interested in when and why banks convert from taxable C to entity-level non-taxable S corporations. Hodder et al. (2003) assume that a bank will convert if the benefits of conversion (e.g., avoiding double taxation, alternative minimum taxation) outweigh the costs of conversion (e.g., loss of deferred tax assets decreasing regulatory capital, built-in gains, limits to external capital funding). The results are in line with their theoretical predictions: the more dividends a bank pays, the more likely conversion becomes. Factors that negatively impact conversion are, e.g., large built-in gains, the presence of tax loss carryforwards, the prohibition of conversion in specific states a bank's subsidiary operates in and late adoption. The authors assume that late adopters' tax benefit is smaller, as they experience higher costs of adaptation due to, e.g., organizational re-structuring.

The three studies of Depken, Hollans, and Swidler (2010), Donohoe, Lisowsky, and Mayberry (2015) as well as Chang, Jain, Lawrence, and Prakash (2016) expand Hodder et al. (2003) by analyzing the effects of conversion on stakeholders. In essence, they try to understand whether tax benefits of Subchapter S are transferred to banks' stakeholders. While Depken et al. (2010) focus on banks' customers, Donohoe et al. (2015) take a broader approach and assess the effect (in terms of existence and magnitude) on four stakeholders (customers, suppliers, employees and owners).

In particular, Depken et al. (2010) assess whether the tax benefit of conversion is passed on to customers via lower loan interest rates and higher deposit rates. From a theoretical point of view, shareholders might accrue all of the tax benefit. However, as S banks compete with C banks, they might be inclined to forgo some of the profit to attract and keep customers. The opposite (no transition of tax benefits) might hold as well, if banks offer customers services in a price bundle (e.g., a joint contract for a credit card and savings account). Customers, in this situation, cannot observe the individual contract components properly, and thus, they are deprived of the ability to compare. Depken et al. (2010) find no significant difference in deposit rates between Subchapter S and C banks, indicating that benefits are not transferred to customers.

Donohoe et al. (2015) corroborate the finding of Depken et al. (2010), as they also do not find a pass-on of tax benefits to customers (neither lenders nor depositors). They do, however, find a positive effect on banks' shareholders and bank employees, indicating that banks pay shareholders higher dividends and employees higher wages.

Chang et al. (2016) find evidence that the benefits of conversion are neither passed on to cus-

tomers nor, in contrast to Donohoe et al. (2015), passed on to employees.

Mayberry, Weaver, and Wilde (2015) take a slightly different research angle compared to the aforementioned studies. They are not interested in the tax benefits of conversion, but they investigate whether Subchapter S banks show differences in riskiness and risk-taking behavior compared to Subchapter C banks. They assume that differences might arise based on two mechanisms with opposing effects. First, the number of shareholders is limited for S corporations. On the one hand, this might cause managers to refrain from investing in risky assets in order not to jeopardize a sustainable capital structure. On the other hand, tax savings from choosing S status might be relatively high, supplying banks with sufficient internal funds and the freedom to invest in risky assets. Second, S banks might be subject to a higher degree of shareholder scrutiny. Because profits are not taxed at the entity level, but at the shareholder level, shareholders are interested in large cash outflows. For that reason, shareholders might either constrain excessive risk-taking or foster it, as those projects yield higher returns. To test their predictions, Mayberry et al. (2015) use a difference-in-difference design in which they compare the riskiness of S corporations to that of C corporations before and after the tax reform. The findings suggest that S banks are less risky than C banks and that the risk-taking behavior of C banks decreases once they have converted. This provides some evidence that the conversion to Subchapter S does not only yield tax benefits, but also decreases banks' risk-taking behavior.

Adopting a different perspective on banks' organizational choices than taken by the studies of the Small Business Jobs Protection Act of 1996, Smolyansky (2019) analyzes whether the effects of tax reforms in one state lead to economic consequences in other states with no tax reform. In particular, Smolyansky (2019) assesses whether U.S. banks divert lending activities to other jurisdictions after a tax rate change and, if this is the case, how strong the impact is on the local economy of the jurisdiction to which the bank shifts its activities. The underlying mechanism is as follows. State taxation usually calculates the tax burden according to loan receipts in a specific state (nexus) and not the actual profit of a bank subsidiary in that state. Hence, when a customer from state B receives a loan from a bank in state A, the bank then pays taxes on the amount of loans in state B. To reduce taxation, banks can shift from offering loans in state B to increase supply in state A, where perhaps no tax accrues. Smolyansky (2019) finds that banks decrease their loan supply in those states that increased their tax rate and increase loan supply in those states with no change. He also shows that employment and state income negatively respond to a decrease in the loan supply, suggesting real economic consequences.

7 Profit shifting, financial reporting transparency and tax enforcement

From the studies above, we have some evidence that banks try to decrease their tax burden. In addition to the actions discussed above (debt bias, tax incidence and organizational form choices), banks can also exploit the international tax rate differentials across the world to reduce their tax burden. Dharmapala (2014) provides an overview of the studies analyzing the degree of profit shifting among non-banks. He concludes that an increase of 10 percentage points in the tax rate differential between headquarter and subsidiaries increases the pre-tax income of the subsidiary by 8%. This effect on pre-tax income is rather large. Considering that banks' income-generating assets are highly mobile and flexible, it is surprising that only recently some studies have emerged on whether banks engage in profit shifting. Profit shifting is most likely viewed ambiguously by banks' stakeholders. Various OECD reports (e.g., OECD (2009)) and the recent requirement of public CbCR for EU banks suggest that tax authorities and the public view profit shifting as a tool for aggressively, and presumably improperly, reducing the tax expense (Karas (2012), European Parliament (2013)). Shareholders' perceptions on this topic might be ambiguous. Some studies on tax avoidance suggest that aggressive tax avoidance is associated with manager rent extraction and intransparent financial reporting to disguise that rent extraction (Desai and Dharmapala (2006), Desai, Dyck, and Zingales (2007)). In this case, shareholders would probably view profit shifting negatively. On the other hand, profit shifting means greater free cash flows and hence higher dividend yields. In this situation, shareholders should respond positively to profit shifting. Figure 7 provides an alphabetical overview of the studies in this section, including research questions and key findings.

[Figure 7 about here.]

7.1 Banks' profit shifting

There is some, but small, evidence that banks actually engage in profit shifting. Demirgüç-Kunt and Huizinga (2001) provide first suggestive evidence of banks' involvement in profit shifting. Although financial markets show a large amount of integration in terms of financial asset mobility, the authors notice that a key expense, taxes, varies nationally. This might provide advantages to foreign banks, which can either use tax rate differentials to create favorable transfer pricing agreements or offset foreign taxes against a tax credit in their home countries. A consequence of this is that international investment decisions become distorted and efficiency decreases. A first step, when investigating differences between foreign and domestic banks, is to assess the effect of

taxes on their net interest margins. If the effect of taxes is positive, then banks pass taxes on to their customers. If taxes rise, domestic banks' profits need to increase as well to offset the extra expense. The effect on the interest margin for foreign banks with the option of a tax credit at home depends on the amount that can actually be offset. With a full offset, the foreign bank will be indifferent to taxation and, this indifference will decrease with the degree of the offset. For foreign banks with profit-shifting opportunities, the reaction is not clear up front. It can either be positive, indicating the need to increase profits, or negative, showing that the bank engages in profit shifting. Using the same sample and design as in Demirgüç-Kunt and Huizinga (1999), they find that banks generally pass taxes on to customers, but foreign banks to a lesser extent. To find evidence for the argument of profit shifting, they use pooled regression and show that the interaction between foreign banks and the respective tax rate is negative.

Meeks and Meeks (2014) use a small sample of UK banks to descriptively assess the causes that explain the gap between the estimated tax revenues of fiscal authorities and those reported by UK banks. In contrast to Demirgüç-Kunt and Huizinga (2001), they systemically assess different reasons why the tax gap increased (e.g., a decline in UK tax rates, decreases in operating profits or the usage of tax loss carryforwards due to the latest financial crisis). Banks' reported (UK and global) ETRs show no variation across time, indicating that decreasing tax rates do not explain the discrepancy between tax revenues and reported taxes. Meeks and Meeks (2014) assume that UK banks report less profits and therefore taxes in the UK. To check this explanation, the authors use the ratio of UK assets to total assets. Unexpectedly, they find no decrease in this ratio but instead a small increase, which does not suggest that UK banks engage in profit shifting. The authors, however, state that the results should be interpreted cautiously, as only some banks provide a detailed geographic segment report. As some banks do not report geographic segments, the already small sample deceases further and the generizability of the results is limited.

Using subsidiary-level data that provide information on profits at the unconsolidated level, Merz and Overesch (2016) are able to close the gap of missing data in Meeks and Meeks (2014). They assess whether internationally operating banks are inclined to shift profits. In their approach, they follow Hines and Rice (1994) and use the tax rate differential to measure the elasticitiy of banks in response to different tax rates. They predict and find that banks are highly responsive to lower tax rates abroad. When controlling for legal enforcement and transfer pricing strictness, the effect becomes weaker and in some specifications even nonexistent. Different income types might be more (e.g., non-interest income) or less (e.g., interest income) responsive to taxes. Merz and Overesch (2016) find that income from trading gains is highly responsive to taxes. As the potential to shift also depends on the capital ratio level a bank must sustain, Merz and Overesch

(2016), similar to the studies in subsection 4, differentiate between better- and worse-capitalized banks. In contrast to the other studies, they do not find a differential effect.
In sum, there is initial suggestive evidence that banks exploit international tax rate differentials to decrease overall tax expense.

7.2 Financial reporting transparency and taxation

The introduction of public CbCR for EU banks in the context of the Capital Requirements Directive (CRD) IV in July 2013 might cause a better supply of information and more detailed data on economic indicators (such as profits before taxes, tax expense, employees) in each country in which a bank has a subsidiary. The law change, therefore, provides a suitable setting for researchers to study banks' profit shifting and tax avoidance behavior as well as to investigate how investors react to the new information and whether the mandatory information has an effect on the banks' financial reporting. As the law became effective for fiscal years starting in 2014, the empirical literature using these data is still preliminary. To date, two published studies exploit this setting.
Dutt, Ludwig, Nicolay, Vay, and Voget (2019) assess whether investors in a bank perceive the introduction of the CbCR in the CRD IV as beneficial or harmful. The beneficial view comes from the perception that CbCR will increase financial reporting transparency, mitigate excessive risk-taking by banks and align the interests of investors and bank managers. In contrast, CbCR might be costly if investors fear a decrease in firm value due to either a decrease in tax planning activities or the revelation of aggressive and not sustainable tax planning. The latter might cause reputational damage and decrease firm value. To exploit whether benefits or costs prevail, Dutt et al. (2019) analyze the reaction of investors to the public announcement (February 27$^{\text{th}}$, 2013) that CbCR will be mandatory for EU banks. Unlike similar studies, they surprisingly do not find a significant investor reaction, as measured by the three-day cumulative average abnormal return. Using additional event dates and sample splits such as banks with a high connection to individual customers or banks with a high portion of institutional investors, the authors again do not find evidence of significant reactions. An explanation for their findings is that some investors evaluate the introduction of CbCR as beneficial, while the others views it as costly. On average, those two effects would then counteract each other, leading to no effect on average.
Brown, Jorgensen, and Pope (2019) assess whether the mandatory disclosure of CbCR causes banks to adjust their geographic segment reporting pursuant to IFRS 8. They also test whether banks that are active in tax havens use a higher aggregation level to obfuscate this fact. The motivation results from the idea that banks have to file two different sets of disclosures, the CbC

report and the geographic segments. Brown et al. (2019) wonder whether disclosed countries as identified in the CbC report are then disclosed in the geographic segments as well. They do not find a significant change in the quantity of reported items in the geographic segment report after the introduction of CbCR. However, they find an association between the degree of aggregation and tax haven intensity which supports the idea of banks trying to hide this tax haven activity. Not directly related to the studies above, Andries, Gallemore, and Jacob (2017) examine whether the rules of the corporate tax system exhibit positive effects, especially on banks' financial reporting and, hence, for investors. In particular, they are interested in whether there is an association between the corporate tax system and loan loss provisioning (LLP), and whether this association is driven by the timely recognition of losses or by excessive risk-taking. To test their research question, they use a cross-section of countries and regress LLPs on statutory tax rates and a variable indicating the tax deductibility of general LLPs. They predict and find a positive and significant coefficient on the interaction, indicating that there is an association between LLPs and the tax system in general. To test whether the relation is driven by timely loan loss recognition, they regress LLPs on the interaction between a variable indicating whether the bank suffers from a high change in non-performing loans, the statutory tax rate and the general deductibility of LLPs and find a positive and significant coefficient, as predicted. They are not able to establish a link between LLPs and increased risk-taking. Andries et al. (2017) conclude that the corporate tax system fosters timely loss recognition when LLPs are tax deductible.

8 Customers' tax avoidance

In addition to banks' actions to minimize their own tax expense, it is relevant to know how banks perceive and value the tax planning and tax avoidance (practices) of their clients. Theoretically, there are two views banks might have on this subject, both with different implications for regulators and investors. On the one hand, banks might value a high degree of tax avoidance, as this generates cash that can then be used to pay interest and repay loans. On the other hand, a high degree of tax avoidance might be indicative of risky tax planning. Risky tax planning, such as exhausting the discretion in transfer prices or advanced tax rulings (subject to illegal state aid)[22], might lead to substantial back payments if the company is not able to sustain the

[22] Advanced tax rulings attracted a vast amount of public attention after the leakage of papers showing that Luxembourg and other EU states have set up special tax arrangements with corporations. Those arrangements are now subject to the EU investigations for illegal state aid. https://www.wsj.com/articles/eu-court-sides-with-starbucks-in-tax-case-11569314810 (last accessed 2019-10-02).

tax position following a tax audit[23]. Therefore, a tax dispute might be a threat to the financial stability of firms and banks if the corporation is not able to service its loans. If banks favor a high degree of tax avoidance and encourage risky tax planning, then regulators might become concerned with banks' financial soundness. Investors, in anticipation of increased risk, should charge banks a higher risk premium. If banks, in contrastf, view tax avoidance negatively, banks might exercise their stakes in companies to mitigate risky tax planning by charging higher premia in loan contracts. In that case, banks act as a disciplining power to minimize excessive tax planning.

This topic presumably received much attention due to the vast media coverage of banks helping their clients evade taxes. Although there are banks that have assisted their clients in tax evasion, it is not clear to what extent banks themselves engage in tax avoidance and favor a low degree of avoidance in their clients. Figure 8 shows an alphabetical overview of the studies in this section.

[Figure 8 about here.]

At first glance, it seems that the findings in the literature are somewhat mixed. In a U.S. setting, Hasan et al. (2014) find that banks charge higher loan spreads on firms with a high level of tax avoidance. An explanation for this finding is that banks do not directly benefit from customers' appetite for risk but only bear the costs (i.e., default risk of loans). On these grounds, they charge higher premia to compensate for the risk of default.

Beladi, Chao, and Hu (2018) find similar evidence, but in a Chinese setting. Similar to Hasan et al. (2014), they assume that the costs of tax avoidance outweigh the benefits to creditors. For that matter, they predict and find that Chinese banks charge higher loan costs and provide loans with shorter maturity.

Kovermann (2018) distinguishes between the perception of tax avoidance and tax risk. Contrary to Hasan et al. (2014), he finds that banks view tax avoidance positively. Although Hasan et al. (2014) do not directly test this relation, the positive association between tax avoidance and loan spread might be driven by the concept of tax risk, rather than tax avoidance. In line with this argument, Kovermann (2018) provides evidence that tax risk and the cost of debt are positively correlated, suggesting that banks price the potential risk resulting from unsustainable tax positions. He further shows that the relation between tax avoidance and the cost of debt is moderated by tax risk.

[23] Hasan, Hoi, Wu, and Zhang (2014) provide some examples of the direct cost of an IRS audit. A more recent example is the legal proceedings between the IRS and Amazon.com Inc. The IRS claims that, in tax terms, Amazon undervalued the inputs provided by the U.S. headquarters when setting up a cost sharing agreement with its Luxembourg subsidiary. Additional taxes in the amount of $230 million would be due if Amazon was to be convicted. https://news.bloombergtax.com/transfer-pricing/amazon-irs-return-to-court-for-2-billion-tax-case-appeal (last accessed on 2019-10-02).

Gallemore, Gipper, and Maydew (2019) implicitly assume that banks generally prefer a low level of tax avoidance. In particular, they are interested in whether and which banks help their clients to form tax planning strategies. To test their hypotheses, they use different approaches. First, they show an association between a firm's level of tax avoidance and the average tax avoidance level of that bank's clients. The degree of assistance, however, differs across banks. In a second step, they therefore assess new lending relationships and find that the firm's degree of tax avoidance increases when entering into a new loan contract with a tax-intermediary bank[24]. This suggests that banks specialising in that area actually help firms with tax planning. A follow-up question in this respect is which characteristics a tax-intermediary bank has. On average, a tax-intermediary bank focuses on non-lending income and has industrial expertise measured in terms of lending market share in the respective industry. Gallemore et al. (2019) additionally show that assistance in tax planning is more pronounced in longer lending relationships and relationships with a higher lending volume. An interesting outcome is that firms providing foreign income, when entering into a lending contract, seem to have a higher degree of tax avoidance than those who do not. In contrast to Hasan et al. (2014), they find that banks provide more assistence to firms with a low credit rating probably to bolster their after-tax cash flows and increase the probability of debt repayment.

Partially linked to Gallemore et al. (2019), Chernykh and Mityakov (2017) assess whether the degree of tax evasion of banks with offshore activities and the firms that conduct business with these banks is higher than that of banks with no offshore activities. In a unique Russian setting, they show that there is an association between the degree of banks' engagement in offshore financial activities and tax evasion. The authors predict that offshore-active banks and their customers try to evade taxes through reporting lower income and through the underreporting of employee compensation, as the latter is also taxed at the entity and not at the employee level. To determine whether employee expense is underreported, they compare the car value of employees working for firms that conduct business with offshore banks to the car value of employees working in firms that conduct business with banks with no offshore relations. The assumption is that while the salary of employees can be underreported, the car that an employee drives is visible and can be determined accurately. The authors predict that if offshore-related banks underreport their employee expense, there should not be a significant association between the car value of an employee who works in a bank that is active in tax havens and the car value of employees in banks with no stakes in offshore activities. They find evidence in line with their predictions.

[24] Gallemore et al. (2019) define a bank as an tax intermediary if its clients' average tax rate is above the median across all banks in the three years prior to the new loan contract.

9 Policy implications

The studies under review implicitly and explicitly provide several policy implications. Empirical studies are a suitable tool to evaluate legislation as they assess actual conditions and can help in shaping evidence-based policy making. I sort the implications according to four distortions that taxes cause: distortions between debt and equity, distortions between on- and off-balance sheet financing, distortions of prices and distortions of investment allocations.

First, the studies in section 4 show that the tax system favors debt over equity, leading to distortions in the efficient allocation of debt and equity. In particular, small banks seem to be highly responsive to the tax shield. This effect is counterproductive to the call for higher equity ratios (D'Erasmo (2018)). In addition, small banks probably have fewer opportunities to efficiently hedge the risk from loans than larger banks. A possible solution might pose the introduction of ACE that incentivizes banks to increase equity. However, this effect seems not to be homogenous across banks. Tax legislators and bank regulators should bear this trade-off in mind and consider size-dependent legislation and regulation.

Second, some studies (Gong et al. (2015), Han et al. (2015)) demonstrate that there is a distortion between on- and off-balance sheet financing. More importantly, taxes might exacerbate this trade-off. This result is particularly relevant as policymakers still discuss the introduction of additional taxes and levies on banks (de Mooij and Nicodème (2014)). In a constrained funding environment (i.e., environments with a low supply of deposits), additional taxes incentivize banks to securitize even more loans. As the securitization process is usually structured in a way that proceeds from these transactions are free of tax, this funding mechanism becomes more attractive in high-tax areas. However, bundles of loans are generally not well monitored by the selling bank. This causes a threat to the financial stability of the financial sector. For policymakers, Gong et al. (2015) suggest to counterbalance this problem by the introduction of ACE.

Third, the studies provide evidence that corporate income taxes are partially shifted to customers of banks. This potentially distorts efficient price setting as depositors receive a lower interest rate and lenders a higher one. The optimal tax theory therefore suggests not to tax capital and implicitly not to tax financial intermediaries whose key input factor is capital (Atkeson, Chari, and Kehoe (1999), Huizinga (2004), Chiorazzo and Milani (2011)). In contrast, studies on the organizational form choices in section 6 provide evidence that after the abolishment of taxing banks at the corporate level, tax benefits are not necessarily transferred to consumers.

Fourth, few studies provide some evidence that multinational banks might exploit international tax rate differentials to decrease overall tax expense. Merz and Overesch (2016), e.g., suggest

a tax elasticity of -2.387 for multinational banks. This seems to be large in comparison to a consensus estimate of -0.8 for non-banks (Heckemeyer and de Mooij (2017)). However, evidence on banks' profit shifting is, except for Merz and Overesch (2016) and some preliminary studies (Langenmayr and Reiter (2017), Miethe (2019)), still scarce[25]. As a remedy to Base Erosion and Profit Shifting (BEPS) and tax avoidance, policymakers introduced private and public disclosure of banks' geographic operations (e.g., European Parliament (2013), European Council (2015)). Due to the rather recent introduction of this policy tool, there are only a few published and preliminary studies (e.g., Joshi, Outslay, and Persson (2019), Overesch and Wolff (2019)), assessing the costs and benefits of public disclosure, i.e., CbCR. Evidence on whether public CbCR helps in decreasing BEPS is, to date, scarce and mixed. Therefore, clear implications for policymakers cannot be inferred yet.

10 Areas of future research

In this section, I introduce four potential areas of future research in the intersection of bank regulation and tax policy. As regulations and tax laws often follow different goals[26],future empirical research would contribute by providing guidance in this area. There are several situations in which an understanding of the interplay between regulation and taxation would be important. Research in this respect is scarce though.

First, while bank regulation is steadily increasing since the financial crisis as, e.g., the increase in capital requirements (Basel Committee On Banking Supervision (2010)), also corporate income tax systems become more complex (Hoppe, Schanz, Sturm, and Sureth-Sloane (2019)). For that reason, it might be difficult for policymakers, both of bank regulation and tax legislation, to assess spillover effects from one area to the other in full detail. Negative spillover effects can, however, destabilize the financial sector and harm the economy as a whole (Han et al. (2015)). There is only one preliminary study (Bremus, Schmidt, and Tonzer (2018)) that examines the different incentives for banks under corporate income taxation and bank levies. While the latter promotes less risky capital structures, the first incentivizes increases in debt due to its tax deductibility. They show that the mitigating effect of the bank levy decreases with an increasing corporate income tax rate.

Second, little is known about whether additional regulatory requirements or additional taxes on

[25] In their 2013 report on base erosion and profit shifting (BEPS), the OECD refers to this point as well and admits that it is difficult to "reach solid conclusions about how much BEPS actually occurs [since] most of the writing is inconclusive although there is abundant circumstantial evidence that BEPS behaviours are widespread".

[26] Bank regulation is primarily concerned with the financial stability of the economy. Tax policy aims at, e.g., maintaining a sound fiscal balance, regulating, externalizing and incentivizing specific transactions (e.g., tax on tobacco) and redistributional purposes.

the financial sector have consequences for the real economy, potentially threatening economic growth. In this respect, Smolyansky (2019) provides some evidence that changes in U.S. state tax legislation lead to a decrease in banking activities in those states that have not changed their tax status. A preliminary study (Biswas, Horváth, and Zhai (2019)) shows that after the Belgian introduction of ACE, banks use freed reserves to increase the credit supply to specific borrower groups. Additional research is necessary to assess real effects of other policies. Future research might therefore look at other regulation and tax law changes.

Third, we know little about possible heterogenous responses to regulation and taxation of banks, i.e., small banks might react differently to the same regulation than large banks and vice versa. Prior research generally focuses on large and multinational banks. However, to maintain the economy's financial stability, policymakers would need to be aware of negative effects, arising for all banks.

Fourth, we have some evidence that multinational banks possibly exploit international tax rate differentials. We, however, do not know which channels (e.g., hybrid financial instruments) other types of banks use to decrease tax expense. A complex and sophisticated financial structure of banks probably poses a threat to financial stability. Additionally, we do not know to what extent multinational banks rely on the international tax rate differential. As minimum capital requirements are also binding for banks' subsidiaries, banks are not able to infinitively shift debt to their subsidiaries or vice versa. A thorough analysis of the incentives provided by the international tax system and the disincentives of regulations would shed light on this topic. For policymakers, it would be relevant to know how much of a bank's international group structure is merely tax-motivated and which part is necessary to uphold the business operations. While the first falls under the area of aggressive tax planning, interferring in the latter would result in investment distortions and welfare losses.

11 Conclusion

In this review, I systematize studies in the intersection of banks and corporate income taxation. To structure the review, I adopt the idea from Wilde and Wilson (2018), but instead of using a principal-agency framework, I apply a stakeholder approach. This approach depicts the influence of corporate taxes on banks' business operations and how corporate income taxes play into the relationship between banks and their customers. With the help of this approach, I identify six dimensions where taxes are important for banks: debt financing, tax incidence, organizational form choices, profit shifting and financial reporting transparency as well as customers' tax avoidance. Additionally, I deduce policy implications from the studies in this review. The studies show that

taxes distort banks' decision between debt and equity financing and between reporting on and off the balance sheet that is exacerbated by taxes. A possible remedy against this distortion might be the introduction of an allowance on equity, making equity more attractive. Furthermore, banks transfer some of their tax burden to customers, causing distortions in interest rates. Theory therefore suggests not to tax financial intermediaries (Atkeson et al. (1999), Huizinga (2004)). However, studies on the organizational form choice provide evidence that after the abolishment of corporate taxes, tax benefits are not necessarily transferred to banks' customers. Finally, studies provide evidence that multinational banks use international tax rate differentials to decrease overall tax expense. To limit this behavior, policymakers have introduced public CbCR for European banks. Research on the consequences of this introduction is, due to its recency, scarce and yields mixed results. Clear policy implications are therefore difficult to infer.

Based on the distortions, I identify four future research areas in the intersection of bank regulation and tax legislation in which research is either scarce or missing. In general, future empirical studies should focus on how bank regulation and tax legislation either reinforce or counteract each other. This understanding is important to curtail suitable legislation and regulation.

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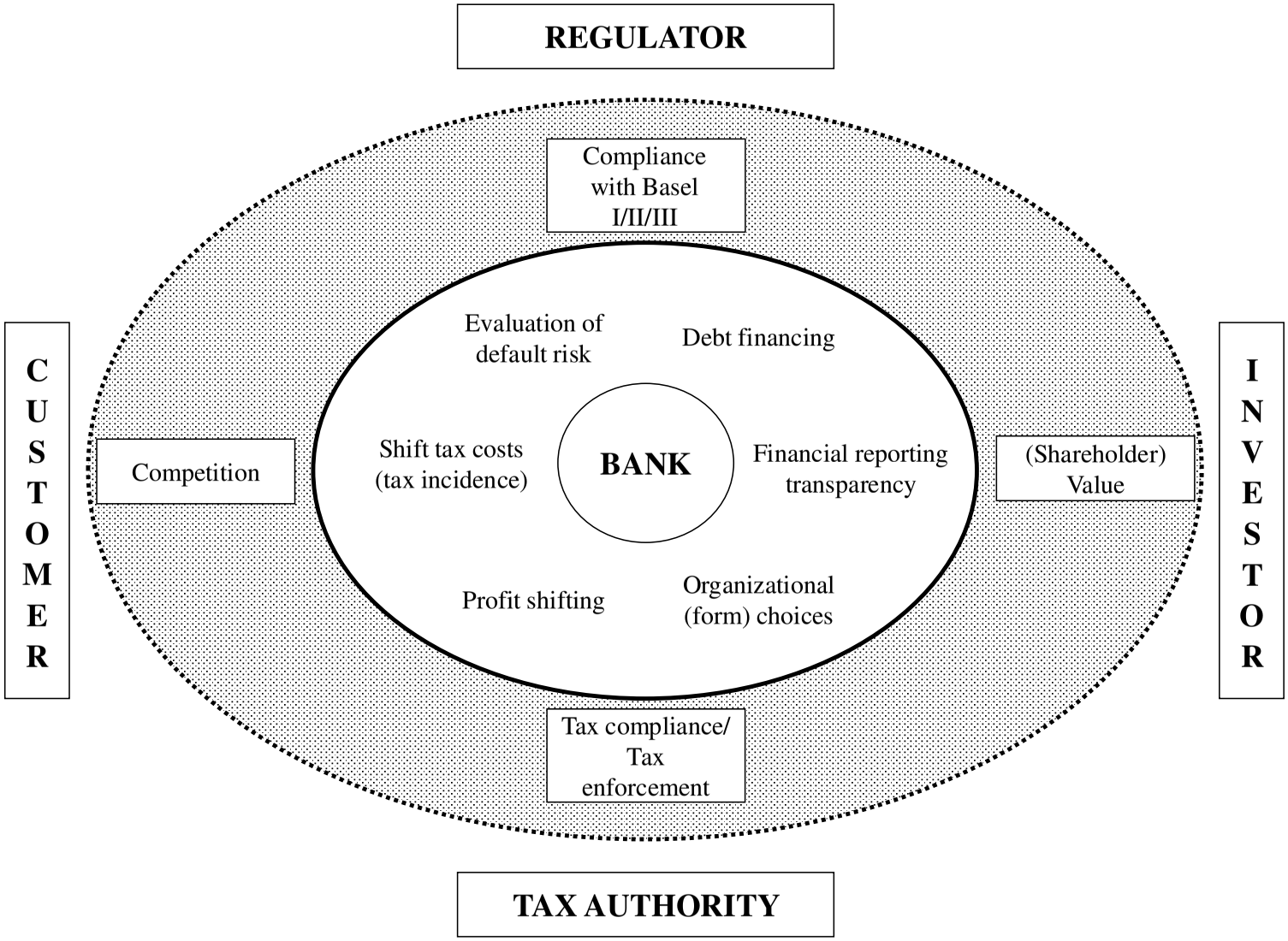
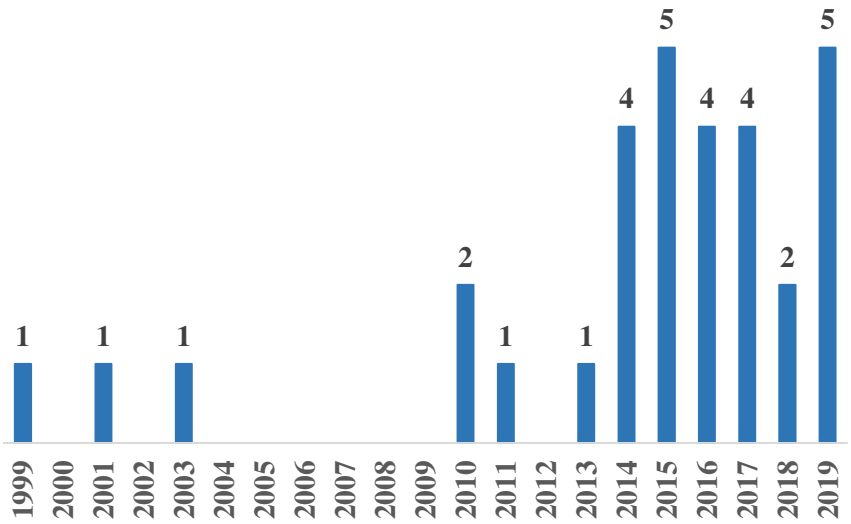
Figure 1: Banks' stakeholders and corporate income taxes



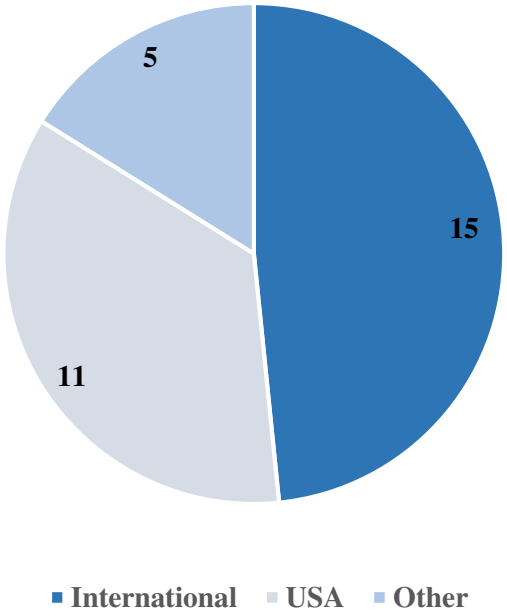
This diagram describes the relation between banks, their stakeholders and corporate income taxes. The inner circle shows how banks incorporate corporate income taxes into their decision-making process. However, these possibilities are subject to certain institutional conditions like competition for customers, complying with tax legislation and bank regulation and remaining profitable to increase shareholder value. I use the six actions in the inner circle to structure my review.

Figure 2: Distribution of published papers per year



This figure shows the distribution of published papers in our sample per year. The selection process is described in Table 1.

Figure 3: Sample countries of studies



This figure gives an overview of the countries that papers use as their sample countries. **International** refers to those studies that use a wide range of countries not specific to certain continents. The category **USA** includes all studies with a U.S. sample. Single-country studies that only look at one specific country (like, e.g., Schepens (2016) whose sample country is Belgium) fall under the category **Other**.

Figure 4: Studies on tax attractiveness of debt (section 4)

Author	Year	Research question	Capital structure item	Tax variable	Sample split	Effect
de Mooij/ Keen	2016	How strong is the tax distortion in banks' capital structures arising from the preferential treatment of debt against equity?	leverage ratio	corporate income tax (CIT) rate	all observations	+
			conventional debt			+
			hybrids			no effect
			risk-weighted leverage ratio			+
			equity buffer			-
			leverage ratio		capital abundant banks	+
					capital tight banks	no effect
					large banks	no effect
Gu/ de Mooij/ Poghosyan	2015	How do corporate taxes affect the capital structure of multinational banks? Does the corporate tax rate induce subsidiary banks to raise their leverage?	leverage ratio	CIT rate of host country (debt bias)	all observations	strong +
				Δ CIT rate home and CIT rate host (debt shifting)		+
				debt bias + debt shifting		+ < ++
					capital abundant banks	strong +
					capital tight banks	debt bias: weak + debt shifting: weak -
Heckemeyer/ de Mooij	2017	How do banks and non-banks react to debt bias? Are the reactions different with varying degrees of firm size?	leverage ratio	CIT rate	non-banks	+
					banks	+
				CIT rate*Size	non-banks	+
					banks	-
				CIT rate	medium/ small banks	strong +
					large bank	weak +
					medium/ small nonbanks	weak +
					large nonbank	strong +

This figure provides an overview in alphabetical order of those studies that assess the tax attractiveness of debt and its implications for bank capital structure. Corporate income tax is abbreviated with CIT.

Figure 4: Studies on tax attractiveness of debt (continued)

Author	Year	Research question	Capital structure item	Tax variable	Sample split	Effect
Hemmelgarn/ Teichmann	2014	Do banks confronted with a tax rate change adjust their capital structure differently compared to banks that were not affected by a tax change?	leverage ratio	Δ tax rate + lags of Δ tax rate	all observations	+/- general adjustment to tax rate changes
Martin-Flores/ Moussu	2019	How do banks react to an allowance on equity (ACE) in Italy? Do banks react symmetrically to the introduction and removal of that allowance?	equity ratio	interaction ACE (treated)*post	all observations (introduction ACE)	+
			total bank assets			no effect
			retained earnings	binary variable post	treated banks (introduction ACE)	+
			equity ratio	interaction ACE (treated)*post	all observations (removal ACE)	-
			total bank assets			+
			retained earnings	binary variable post	treated banks (removal ACE)	no effect
Schandlbauer	2017	Do financial institutions adjust their capital structure/ leverage upon a tax increase?	non-depository debt ratio	interaction tax increase*BC	better-capitalized banks	+
				interaction tax increase*WC	worse-capitalized banks	no effect
			conversion of hybrid instruments (mezzanine items, sub-ordinated debt)	interaction tax increase*BC	better-capitalized banks	no effect
				interaction tax increase*WC	worse-capitalized banks	+
Schepens	2016	Is reducing the relative attractiveness of debt-financing by the introduction of an ACE a suitable addition to bank capital regulation?	equity ratio	interaction Belgian banks*post	all observations	+
			total assets			no effect
			total loans			no effect
			retained earnings			+
			other equity			no effect
			equity reserves			no effect

This figure provides an overview in alphabetical order of those studies that assess the tax attractiveness of debt and its implications for bank capital structure. ACE stands for Allowance on Corporate equity, BC and WC mean better-capitalized and worse-capitalized, respectively. Δ refers to changes.

Figure 5: Studies on bank profitability and tax incidence on customers (section 5)

Author	Year	Research Question	Sample	Finding
Albertazzi/ Gambacorta	2010	How does the corporate income tax rate affect banks' profitability?	European	Banks partially shift tax costs to customers; lenders mainly bear the tax incidence
Chiorazzo/ Milani	2011	To what extent are banks able to shift their tax-burden (corporate income tax rate/ value added tax (VAT)) to customers?	European	Positive association between profitability and CIT as well as VAT, indicating a shift of taxes to customers
Demirgüç-Kunt/ Huizinga	1999	What causes differences in interest margins?	International	Positive association between ETR and net interest margin
Gaganis/ Pasiouras/ Tsaklanganos	2013	How does taxation affect bank profit efficiency?	International	Positive association between taxation and bank performance, indicating a shift of taxes to customers
Huizinga/ Voget/ Wagner	2014	How does international taxation affect bank interest margins and pretax profitability? How does international taxation affect banking foreign direct investment?	International	In the case of double taxation, foreign banks shift a large amount of their tax burden to host country customers; additionally, double taxation leads to a decrease of foreign direct investment (FDI) of foreign banks

This figure provides an overview in alphabetical order of those studies that assess the influence of taxes on bank profitability and tax incidence on bank customers.

Figure 6: Studies on organizational (form) choices and consequences (section 6)

Author	Year	Research Question	Sample	Finding
Chang/ Jain/ Lawrence/ Prakash	2016	Do banks incorporated under Subchapter S use the tax benefits for the purposes outlined in the Small Business Job Protection Act 1999?	United States	No evidence that benefits are transferred
Depken/ Hollans/ Swidler	2010	Do customers of Subchapter S banks benefit from the preferential tax arrangements compared to customers from Subchapter C banks through higher deposit and lower loan rates?	United States	No significant difference between deposit rates of Subchapter S and Subchapter C, suggesting that benefits are not transferred to customers
Donohoe/ Lisowsky/ Mayberry	2015	Do stakeholders (customers, suppliers, employees, owners) of Subchapter S banks benefit from the tax advantage that this organizational form provides?	United States	No evidence on transferal of benefits to customers, but evidence that benefits are passed on to shareholders and employees through higher wages and dividends
Hodder/ McAnally/ Weaver	2003	When and why do banks convert from taxable C-corporations to non-taxable S-corporations?	United States	The higher the dividend payout of the banks and hence the benefit from conversion, the more likely the conversion to Subchapter S
Mayberry/ Weaver/ Wilde	2015	Does the conversion from Subchapter C bank to Subchapter S bank exhibit other consequences than the intended tax consequences? Do organizational form restrictions of S corporations influence riskiness and risk-taking behavior of S corporations differently than that of C corporations?	United States	Subchapter S banks seem to be less risky than Subchapter C banks and risk-taking behavior of C banks decreases after conversion
Smolyansky	2019	Do banks divert lending activities to other jurisdictions once tax rate changes aiming at banks have been implemented in another jurisdiction?	United States	Banks decrease their loan supply in those states that increased their tax rates and divert lending activities to states with no change

This figure provides an overview in alphabetical order of those studies that assess changes in organizational form choices of banks due to tax incentives.

Figure 7: Studies on profit shifting, financial reporting transparency and tax enforcement (section 7)

Author	Year	Research Question	Sample	Finding
Andries/ Gallemore/ Jacob	2017	Does a beneficial tax treatment of loan loss provision foster timely loan loss recognition?	International	Evidence that deductibility of loan loss provisions promotes timely loss recognition
Brown/ Jorgensen/ Pope	2019	Do banks adjust their geographic segment disclosure after the introduction of public disaggregated segment reporting in the form of CbCR?	European	No change in the quantity of reported items in geographic segment report after introduction of CbCR; Banks engaging in tax havens aggregate their geographic segment disclosure on a higher level
Demirgüç-Kunt/ Huizinga	2001	Is there a difference between foreign and domestic banks on the tax incidence of corporate income tax? Do foreign banks shift profits?	International	Foreign banks pass on taxes to customers in host country, but to a lesser extent; the interaction between foreign banks and the tax rate is negative, suggesting profit shifting of foreign banks.
Dutt/ Ludwig/ Nicolay/ Vay/ Voget	2019	Do investors perceive the introduction of public CbCR in the CRD IV as beneficial or costly?	European	No evidence for a significant investor reaction around the event date of Feb. 27th, 2013
Meeks/ Meeks	2014	What causes the sharp fall in UK tax receipts from UK banks?	United Kingdom	No evidence that large UK banks engage in profit shifting, as the ratio of UK assets to total assets does not decrease, but slightly increases; generizability of results due to small sample size is limited
Merz/ Overesch	2016	How do multinational banks react to taxation? How do the different components of income respond to taxation?	International	Large tax response of multinational banks found; after accounting for differences in TP regulations and enforcement status, the effect vanishes Income from trading gains is highly-tax responsive Potential channel of profit shifting: Loan loss provisions

This figure provides an overview in alphabetical order of those studies that assess the influence of taxes in the fields of profit shifting, financial reporting transparency and tax enforcement.

Figure 8: Studies on customers' tax avoidance (section 8)

Author	Year	Research Question	Sample	Finding
Beladi/ Chao/ Hu	2018	How do Chinese commercial banks respond to the level of tax avoidance of Chinese public firms?	China	Chinese commercial banks charge higher loan costs and provide loans with shorter maturity
Chernykh/ Mityakov	2017	Do banks conducting operations with offshore financial centers engage more often in tax evasion than banks using more legal ways? Are firms that are involved in business activities with the former banks more likely to evade taxes?	Russia	To save taxes, Moscow-headquartered banks with offshore financial centers underreport employee expense and are more likely to engage in international money transfers. Firms, conducting business with these banks, also underreport employee expense
Gallemore/ Gipper/ Maydew	2019	Do banks assist their clients in tax planning strategies? What kind of banks assist their clients in tax planning?	United States	Positive association between a firm's tax avoidance and bank's other clients' tax avoidance, indicating that bank plays a role in the determination of tax avoidance; rather investment banks than interest-income oriented banks assist in tax-planning.
Hasan/ Hoi/ Wu/ Zhang	2014	How do debtholders perceive firms' engagement in tax avoidance?	United States	Banks charge higher loan spreads on firms with a high level of tax avoidance
Kovermann	2018	Is there a difference in pricing tax avoidance and tax risk, respectively?	Germany	While banks value tax avoidance positively, they charge higher costs of debt for firms with higher tax risk

This figure provides an overview in alphabetical order of those studies, assessing banks' reaction to their customers' tax avoidance.

Table 1: Sample selection process

	Baseline sample from Web of Science search	92
-	Analytical studies	14
-	Normative or legal approach	9
-	Individuals' taxation and bank deposits	4
-	Taxes other than corporate income taxes	7
-	No explicit focus on banks	14
-	Others	13
	Final sample of published papers	31

This table shows the sample selection process. I start with a sample of 92 published papers. I lose papers due to their methodological focus, due to a focus on other business-related taxes, and when papers do not explicitly focus on banks.

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