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Taxing banks: An evaluation of the German bank levy

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ABSTRACT

Bank distress can have severe negative consequences for the stability of the financial system. Regimes for the restructuring and resolution of banks, financed by bank levies, aim at reducing these costs. This paper evaluates the German bank levy, which has been implemented since 2011. Our analysis offers three main insights. First, revenues raised through the levy were lower than expected. Second, the bulk of the payments were contributed by large commercial banks and by the central institutions of savings banks and credit unions. Third, for those banks, which were affected by the levy, we find evidence for a reduction in lending and higher deposit rates.

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1. Introduction

Bank distress can have severe negative consequences, not just for the stability of the financial system but also for the real economy and for public finances. On average, systemic banking crises have imposed fiscal costs of 7% of gross domestic product, and output has fallen by 23% compared to long-run trends (Laeven and Valencia 2013). Banking crises increase public debt significantly, aggravating the risk of public sector default (Reinhart and Rogoff 2011, 2013). In order to reduce the probability of banking crises and to internalize the costs of bank distress, policymakers imposed various changes to the regulatory framework. For example, regimes for restructuring and resolution of banks have been established. They rely on fiscal backstops and bank levies, which aim at internalizing systemic risk and to finance restructuring funds (IMF 2010; Perotti and Suarez 2011; Shin 2010).

In this paper, we assess the effects of the German bank levy, which has been implemented since 2011 as part of the German Bank Restructuring Act. The levy applies to all credit institutions with a German banking license, and it is managed by the Federal Agency for Financial Market Stabilisation. The tax base for the levy is calculated by taking banks' total liabilities and deducting equity and retail deposits. Banks are exempt from paying the tax if their contribution-relevant liabilities are less than €300 million. For contribution-relevant liabilities exceeding €300 million, tax payments are increasing progressively but are capped at 20% of profits. The levy has the objectives to generate resources for a restructuring fund and to internalize banks' contributions to systemic risk.

Our analysis on the effects of the levy on bank behavior is based on a difference-in-difference approach which exploits two features of the levy. First, while the Restructuring Fund Act was passed in December 2010, the specific terms of the levy were not known until the Restructuring Fund Regulation was actually passed in July 2011. Second, the levy was imposed in 2011, but it was applied retrospectively to banks' balance sheets of 2010. This implies that banks could not adapt their behavior before the introduction of the levy. We exploit this exogenous policy change from the perspective of the individual bank to distinguish the behavior of banks that paid the tax (the treated banks) from those that did not (the control group), and we focus on differences in banks' behavior before (2008–2010) versus after (2011) the introduction of the levy. This allows isolating the effect of the levy.

In analyzing the effects of the German bank levy, we focus on two main questions. First, what is the tax burden on different types of banks? The aim of the bank levy is to internalize banks' contributions to systemic risk. Larger banks, riskier banks, and banks with a high share of wholesale funding are thus supposed to pay higher levies. We find that the bank levies indeed correlate strongly with the size of banks. The largest commercial

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banks and central institutions of savings banks and credit unions account for the bulk of the payments, whereas most smaller banks do not contribute to the levy at all. Other bank-specific features, such as the capital ratio, liquidity ratio, or the profitability of banks are only weakly correlated with the levy.

Second, we ask how the levy affects bank behavior. The design of the levy implies that banks' costs of wholesale funding increase. This provides incentives to adapt the business model towards equity and customer deposits. Given the short time span following the introduction of the levy that we can analyze, we cannot identify such structural shifts in banks' business models though. First and stylized evidence suggests that banks did not adapt their funding structure to reduce their amount of contribution-relevant liabilities in the short run.

While structural changes in banks' business models or funding structure evolve in the long-run, banks might respond to the levy already in the short-run. To analyze the short-run responses of banks to the levy, we use data on a subsample of German banks for which we have information about *new* loans, the interest rates on these *new* loans, and the interest rates paid on *new* deposits as provided by the *Deutsche Bundesbank*. Banks can respond to higher costs by increasing lending rates or reducing lending. Effects on deposit rates are not clear cut. On the one hand, lower deposit rates would help banks to increase their interest rate margins. On the other hand, higher deposit rates would create incentives to switch to deposit financing and thus to a source of funding exempted from the levy.

We find that banks affected by the levy tend to reduce their lending and to increase the interest rate on new deposits. This holds in particular for deposits obtained from non-financial firms, weaker evidence is found for deposits obtained from households. This finding suggests that banks try to attract funds which are not subject to the levy, especially in the firm sector, in which competition is likely to be higher. Hence, the result indicates that, in the longer run, banks' might change their business models to more retail based funding in order to pay lower taxes.

Our research contributes to four strands of literature. One strand of literature finds that banks pass higher taxes on to borrowers (Demirgüç-Kunt and Huizinga 1999, 2001, Albertazzi and Gamabcorta 2010, Chiorazzo and Milani 2011). However, few empirical studies deal with regulatory taxes. One recent exception is the paper by Capelle-Blancard and Havrylchyk (2013) who analyze the Hungarian levy. The Hungarian levy differs from similar tax regimes because it is not imposed on positions on the liability but on the asset side of the balance sheet. Similar to our study, the authors use a difference-in-difference model to test whether larger banks respond differently than smaller banks to whom a lower tax rate is applied. Their results suggest that banks are able to pass a large fraction of the tax to customers, in particular to those with a low demand elasticity like households. Devereux et al. (2015) study the effect of bank levies introduced in European countries on the risk-taking behavior of banks. Our findings contribute to this literature by revealing a negative impact of the German bank levy on loan supply and a positive impact on deposit rates. We do not find strong evidence that banks pass the levy on to borrowers by increasing interest rates on new loans.

A second strand of literature contains policy proposals which focus on regulatory measures designed to internalize banks' contributions to systemic risk (IMF 2010). Perotti and Suarez (2009) propose a liquidity charge. Shin (2010) raises the idea of a tax on banks' non-core liabilities, which might reduce their reliance on short-term wholesale funding as a means to finance excessive balance sheet expansions during booms. Similarly, Hahm et al. (2013) establish a positive relationship between non-core liabilities and financial vulnerability. We find evidence that banks increase deposit rates as a response to the levy, which might reflect the long-term objective to restructure funding sources toward retail funding.

A third strand of literature compares the effect of taxes on banks to alternative regulatory measures like capital and liquidity requirements from a theoretical point of view, e.g. Perotti and Suarez (2011) and De Nicolò et al. (2012). If we compare the design of the German bank levy with tax schemes discussed in the literature, we see that they all share the idea of targeting the liability side of banks' balance sheet and internalizing systemic risk due to excessive reliance on short-term wholesale funding.

A fourth strand of literature analyzes the relationship between bank levies and banks' contributions to systemic risk empirically. Schweikhard and Wahrenburg (2013) show that, within the German tax scheme, banks that contribute more to systemic risk pay higher taxes. Unlike our research, their analysis focuses on a selected sample of large banks and on the link between systemic risk measures and (hypothetical) tax payments in different regulatory regimes. Our objective instead is to evaluate the short-term effects of the German levy on banks' interest rate setting and lending behavior.

The paper is structured as follows. In the next section, we describe the design and legal background of the German bank levy. In Section 3, we introduce our data. Section 4 contains results from the calculation of the levy, the empirical model and the regression results. We conclude in Section 5.

2. German bank levy: design and legal background

The German bank levy was introduced in 2011 as part of a new regulatory framework for the restructuring and resolution of banks. It applies to all credit institutions with a banking license, as specified in the German Banking Act.[1] The levy finances the Restructuring Fund (*Restrukturierungsfonds*), which has a target size of €70 billion. The Restructuring Fund is managed by the Federal Agency for Financial Market Stabilisation (FMSA; *Bundesanstalt für Finanzmarktstabilisierung*), in association with the German Federal Ministry of Finance (*Bundesministerium der Finanzen*). These funds are earmarked as a financial backstop if the failure of a bank or parts thereof were to endanger the systemic stability of the banking system. Unlike a deposit insurance fund that insures depositors, the rescue fund is designed to intervene only if systemically important banks are in distress. In the first three years after the introduction of the bank levy in Germany (2011–2013), €1.8 billion have been collected. The yearly revenues vary between €520 million (in 2013) to €690 million (in 2012).[2] The bank levy collected between 2011 and 2013 accounts for 1.5% of operating income and 2.2% of total profits before taxes of German banks in this period.[3]

2.1. Timing of the legislation

To identify the effect of the bank levy on bank behavior, we use a difference-in-difference approach. This approach relies on the assumption that banks affected by the levy could not adjust their behavior *prior* to the introduction of the levy. For example, in anticipation of the tax, banks might have had incentives to restructure sources of funding in order to lower the tax base. If this would have been possible, the introduction of the levy would not qualify as an exogenous policy change. In this paper, we exploit two features in the timing of the legislation which help rule out related concerns.

[1] The Appendix provides details on which banks are subject to the regulation.

[2] See information published by the German Bundestag in Drucksache 17/12339, http://dipbt.bundestag.de/dip21/btd/17/123/1712339.pdf.

[3] The German bank levy is considered as non-interest expenses in the profit and loss accounts of banks.

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