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Does taxation on banks mean taxation on bank-dependent borrowers?

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Abstract

We investigate the economic impacts of bank levies on bank-dependent borrowers, exploiting the surprise announcement of a bank tax by the Tokyo metropolitan government on February 7th, 2000. We find that the tax announcement had negative effects on the abnormal return of firms which depended on soon-to-be taxed banks for external funds. Moreover, the adverse economic effects of the bank tax were larger for smaller and more financially distressed firms, suggesting that bank levies are likely to be passed onto bank-dependent firms with limited access to non-bank finance.

1. Introduction

Historically, the banking sector has served as an important source of revenue for cash-strapped governments. During the late 19th century, the government of Mexico raised a substantial amount by borrowing frequently from banks and simply choosing not to repay these loans (Haber, Maurer, and Razo 2003). The United States also raised revenue from their banking sectors via bank chartering, direct taxations, and dividends payment in the early 19th century (Sylla, Legler, and Wallis 1987). Even to this day, the governments of many developing countries impose implicit and explicit taxation on banks via a combination of high reserve requirements, repressed interest rates, and high income taxation (Barth, Caprio, and Levine 2006). More recently, taxation on banks is increasingly seen as a viable funding source to pay for the costs of public bailouts (International Monetary Fund 2010, and Beck and Huizinga 2011).

Other than the fact that banking sector can serve as a source of revenue, the taxation on banks can have important real economic effects. On one hand, a well-designed bank levy can incentivize banks to reduce their reliance on short-term debts, thereby making the banking system less vulnerable to solvency and liquidity shocks. On the other, taxation on banks reduces the after-tax profitability of banks, and thus banks might end up passing some of the tax burden onto borrowing firms. If the economic burden of bank taxation is passed on to bank-dependent borrowers who have limited access to financial capital outside of banking sector due to asymmetric information, a bank levy can have negative real effects.[1]

In this paper, we empirically examine whether taxation on the banking sector affects bank borrowers by exploiting a natural experiment in which the Tokyo metropolitan government made a surprise announcement to impose a three percent tax on the gross profit of selected banks. We find two notable results. First, we find that the tax announcement had abnormal negative effects on the share prices of firms which relied on soon-to-be taxed banks. Second, within a group of affected firms, the adverse effects of the bank tax were larger for smaller and more financially distressed firms. These results suggest that bank taxation can have negative real effects via its effects on the availability and costs of financial capital for bank-dependent borrowers.

The paper is organized as follows. Section 2 discusses the background of the Tokyo bank tax. Section 3 discusses the empirical strategy and data. Section 4 shows the results, followed by concluding remarks in Section 5.

2. Tokyo Bank Tax

The main economic motivation of the Tokyo metropolitan government for raising tax revenue from banks was its weakened fiscal health. The Tokyo government's corporate tax revenue fell dramatically from 210 billion yen in 1985 to 3.4 billion yen in 1999 as a result of a decade-long recession that reduced net profitability of firms operating in Tokyo. By 1999, the deficit increased to $6 billion and the debt to $60 billion. When a new governor, Shintaro Ishihara, took office in 1999, he quickly called for a 12% cut in public housing outlays and a 14% cut in public-works expenditure. To further secure a fiscal cushion, he also proposed a 3 percent tax on banks' gross profits (i.e., the profits before loan write-offs) for an additional source of revenue. Under the existing tax law, the Tokyo government claimed 10 percent of bank

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[1] In theory, if banks can accumulate valuable information about their borrowers that outside investors do not have access to during the course of lending relationship, bank borrowers might be "informationally captured" by banks (Sharpe 1990, and Rajan 1992). Several empirical studies find evidence in support of this theory; e.g., exogenous shocks to banks' ability to supply loans have important economic effects on bank-dependent borrowers (Slovin, Sushka, and Polonchek 1993, Ashcraft, 2005, and Khwaja and Mian, 2008).

net profit (gross profit minus loan charge-offs). However, the banking sector generated little tax revenue for the government overall because banks were unprofitable and, more importantly, undertook aggressive write-offs of bad loans, both of which meant that the net profits of banks were generally negative. The proposed 2000 bank tax applied only to the banks whose funds exceeded five trillion yen and was scheduled to be levied starting in April 2001 for five years.

For the purpose of our research design, the most attractive feature of this particular tax is that its announcement was a complete surprise, thereby making it suitable for the event study methodology we employ.[2] In addition, since the tax was not imposed on all banks, we have a natural control group: the untaxed banks and firms that rely on them for external funds.

As soon as the announcement was made, the tax plan was strenuously opposed by both the banking industry and the central government that had just injected over $70 billion of capital into 19 of the banks that were to be taxed. In particular, legal experts promptly noted that, though the Local Taxes Law gives prefectural governments the right to levy local corporate tax, the law also stipulates that tax "should not be extremely unbalanced". Since only one industry, banking, and furthermore, only large banks, was targeted, lawsuits from the affected banks were expected. As anticipated, the passing of the tax bill through the assembly on March 23, 2000 prompted lawsuits from these banks. The ruling turned out unfavorable to the metropolitan government as the Tokyo District Court ruled against the tax in 2002.

3. Empirical Methodology

Based on the media accounts of these developments, it is clear that the announcement of a new bank levy on February 7th, 2000, was a complete surprise to markets. Thus, we estimate the abnormal return of firms, associated with that particular event, using the standard event study approach (MacKinlay 1997). Since the Tokyo bank tax announcement was announced on Monday, we first calculate weekly return of all non-bank firms listed on the Tokyo Stock Exchange from Thursday to Wednesday, denoted by r_{it}. The data source for the share price of banks and firms is *Kabuka (Stock Price) CD-ROM*. We then estimate a simple weekly market model, using a sample of sixty Thursday-to-Wednesday weeks before the week beginning January 27th, 2000 (one week before the Bank Tax)[3]:

$$r_{i,t} = \alpha_i + b_i r_{MKT,t} + \varepsilon_{it}$$

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[2] During his campaign and before the announcement of bank tax, Ishihara's fiscal reconstruction plan centered on reducing public employees, scaling back public-works, and selling off idle assets – he never expressed his intention to impose a tax on banks throughout his election campaign or his earlier political career. It was revealed later that the tax plan was discussed in secrecy within a group of only four individuals – Shintaro Ishihara himself and his immediate aids (the tax bureau chief and two special secretaries) –to avoid political interference from the central government and the banking industry. Because of this, the announcement that came on February 7th, 2000, was a surprise to everybody, including industry insiders and even the officials at the Financial Supervisory Agency that supervises the banking sector. The New York Times reported on February 8th, 2000 that

> Mr. Ishihara's plan …came as a shock to the banks and to financial regulators, inciting howls of protest. "There was no notice," fumed Michio Ochi, the head of the Financial Reconstruction Commission, which is charged with overseeing the rehabilitation of Japan's rickety financial system.

It was widely reported that the share prices of banks declined on the day of this surprising announcement.

[3] We also estimate the market model on 50, 70, 80, 90, and 100-week samples preceding January 27. The results shown here are qualitatively robust to these alternative specifications.

For precision in estimating the relationship, only weeks with a full set of firm returns on each day for which the Nikkei 225 (the market benchmark returns) are traded are included in the sample of this market model.[4] From each firm market model estimation, we calculate the predicted returns, $\hat{r}_{i,t}$, and weekly abnormal returns, $r_{i,t} - \hat{r}_{i,t}$, for each firm in the event week. In the "second stage", these abnormal returns are regressed on a host of firm-level characteristics to estimate the effect of the bank tax on the firms with different characteristics.

In order to identify firm reliant on soon-to-be taxed banks for external funds, we use the *Japan Company Handbook* (JCH). JCH reports the banks with which a given firm has stable long-term relationships. Although Japanese firms almost always rely on multiple banks for credit, prior studies on the "main bank system" suggest that firms often have one main bank that plays an important role in monitoring firms and also leading coordination with other banks.[5] We identify the main bank for each firm by making use of the fact that the *Japan Company Handbook* lists banks in order of importance to a firm.[6]

Once we identify each firm's main bank, we create a dummy variable that equals 1 if a firm's main bank is one of the banks that were to be taxed by the Tokyo metropolitan government. We expect the coefficient on this dummy variable to be negative and statistically significant; that is, to the extent the announcement of the bank levy was unanticipated, it should have larger negative effects on the share price of firms whose banks were targeted by the government, conditional on the usual market relationship. In running these regressions, we restrict our analysis to those firms whose main banks are regional (that is, non-metropolitan). This is because the firms which rely on city banks tend to be much larger and have better access to non-bank finance, a factor that could introduce serious bias into the results if it is not properly taken into account.[7] We also examine whether the announcement of the bank tax has heterogeneous effects on banks of different characteristics such as log of assets, a measure of firm size, and the interest coverage ratio, a measure of financial health, since these characteristics have been identified as reasonable proxies for access to capital markets and the tightness of financing constraints in corporate finance literature (e.g., Fazzari, Hubbard, and Petersen 1988, and Hoshi, Kashyap, and Scharfstein 1990).

4. Results

The first basic results of our event studies are displayed in Figure 1, which plots the cumulative abnormal returns for firms in our sample whose main banks were targeted by the tax and for other firms. These two series follow a similar path up until the event week. In the week of February 7, 2000, when the Tokyo Metropolitan Government made a surprise announcement of bank levy, the firms with taxed banks experienced a large negative abnormal return of 4%, whereas other firms suffered negative abnormal return of much smaller magnitude. In the following weeks, the path of abnormal returns converged again, reflecting the skepticism of markets that the tax was likely to be illegal and that the Tokyo Government would lose the

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[4] Similarly in the "second stage" Abnormal Return regressions, only firms with complete returns for the week of the event are included.

[5] See Aoki, Patrick, and Sheard (1994) for an overview of the literature.

[6] This is essentially the same methodology used by Gibson (1995), Yamori and Murakami (1999), Klein, Peek, and Rosengren (2002), and more recently, Amiti and Weinstein (2011) to identify the main bank of each Japanese firm.

[7] The results are qualitatively similar when we include these relatively larger firms—however—much less robust, statistically. This is likely to be driven by the fact that these large firms are better able to withstand the funding shocks by tapping into non-bank source of external funds.

lawsuits. Hence, the results suggest that the bank levy was considered to be particularly harmful to firms that depend on soon-to-be taxed banks.

We take the individual abnormal return during the week of February 7, 2000, and regress on a dummy variable identifying whether a firm's main bank was scheduled to be taxed. The results are displayed in Table 1. As previewed in Figure 1, the coefficient on the dummy variable for having a taxed main bank is negative and statistically significant (column 1); these results are robust to the inclusion of controls for firm size (column 2) and industry dummies (columns 3 and 4). We run a simple placebo tests on these results in which we use abnormal returns during the week of January 24th and the week of January 30th as the dependent variable. These are useful empirical exercise that might reveal the leakage of information prior to the key event week and/or the presence of some other unobservable shocks that affect firms around the same time period. It turns out that the coefficient on the dummy for taxed main banks is not significant in these placebo tests (columns 5 and 6), which helps rule out the possibility of information leakage or correlated shocks are skewing our results.

Finally, we split the sample into firms with taxed main banks and firms with untaxed main banks and examine whether the effect we find is correlated with firm size and interest coverage ratio, characteristics identified as proxies for access to financial capital and reliance on banks. The results are shown in Table 2. For firms whose main banks were to be taxed, the abnormal return is positively correlated with firm size and the interest coverage ratio (columns 1-3), suggesting that the tax had disproportionately negative effects on smaller, financially distressed firms. However, when the same regression is run on firms with untaxed banks, all results are statistically insignificant, suggesting that these findings are not driven by unobservable common shocks that affected all bank-dependent borrowers. Since these characteristics are associated with the inability of firms to raise capital outside of their main banks, the results suggest that the bank levy was anticipated to be particularly harmful to firms with limited access to non-bank finance. On aggregate, the taxation of banks seems to have important effects on bank borrowers who view bank loans and other sources of external funds as imperfect substitutes.

5. Concluding Remarks

This paper assesses the economic effects of a bank tax by exploiting the surprise announcement that the Tokyo metropolitan government would levy a 3 percent tax on banks' gross profit. We document that the tax had large effects on the share price of firms whose main banks are scheduled to be taxed. In addition, bank levy had much larger effects on smaller firms and more financially distressed firms, suggesting that taxation banks might have unintended consequences on bank-dependent borrowers' ability to raise financial capital.

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Figure 1: Marginal Effect of Bank Tax around Event Week
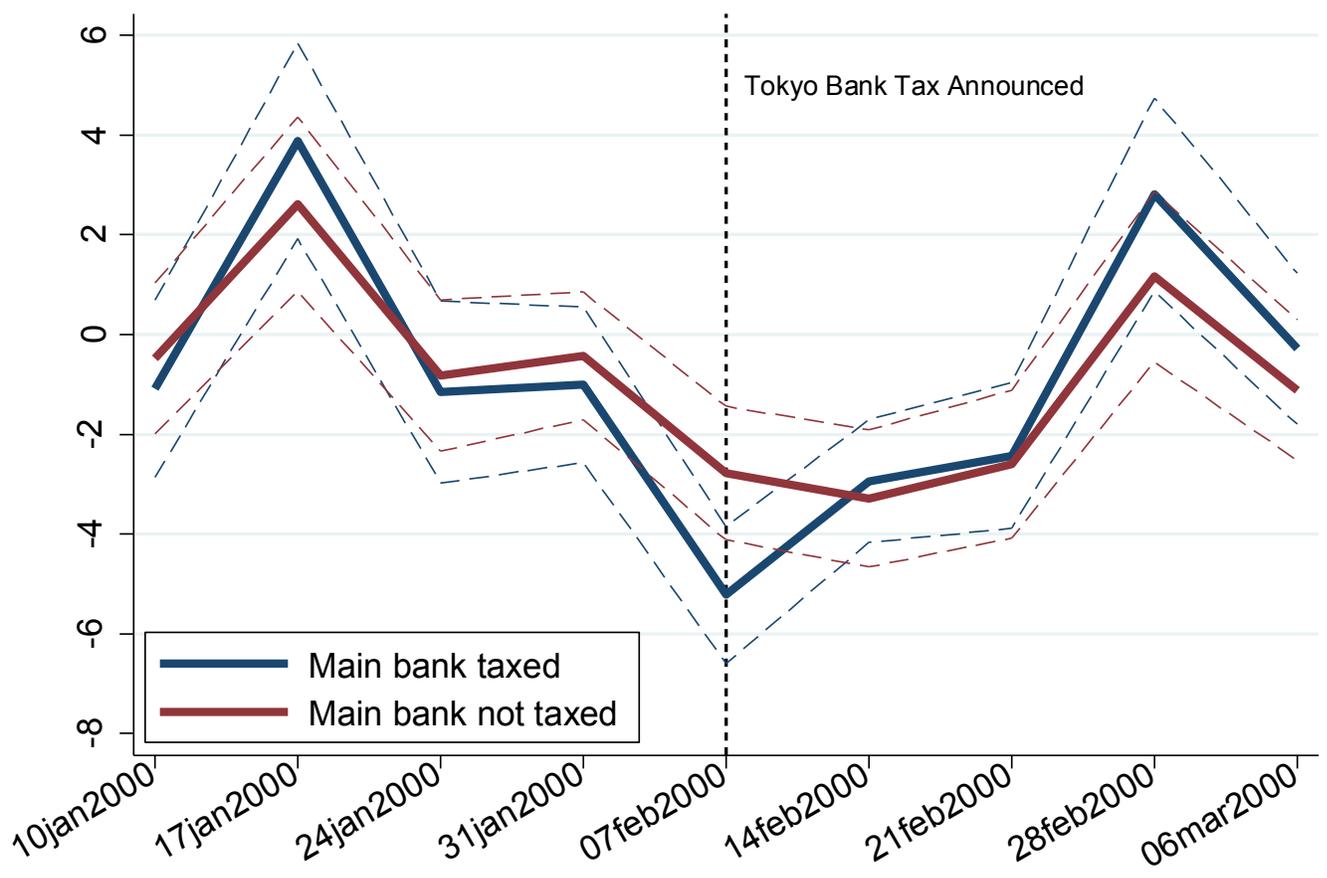
Note: Dashed lines indicate 95% confidence bounds of weekly regressions

Table 1: The Economic Effects of Bank Tax on Firms' Abnormal Returns
Abnormal returns are estimated based on a simple weekly market model, using a sample of sixty
Thursday-to-Wednesday weeks before the event week

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable: Abnormal Returns on Event Week						
Main Bank Taxed	-1.681*	-1.718*	-2.836**	-2.944**	-1.073	-0.442
	[1.009]	[0.999]	[1.193]	[1.201]	[1.422]	[1.365]
Ln(Assets)		0.535		0.81	0.134	-1.108*
		[0.515]		[0.565]	[0.806]	[0.635]
Event Week	*Feb. 7*	*Feb. 7*	*Feb. 7*	*Feb. 7*	*Jan. 24*	*Jan. 31*
Industry Fixed Effects	*No*	*No*	*Yes*	*Yes*	*Yes*	*Yes*
Observations	146	146	146	146	138	140
R-Squared	0.02	0.03	0.38	0.39	0.147	0.195

Robust standard errors in brackets

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 2: Heterogeneous Effects of Bank Tax

Abnormal returns are estimated based on a simple weekly market model, using a sample of sixty Thursday-to-Wednesday weeks befor

	(1)	(2)	(3)	(4)	(5)	(6)
	Firms with Taxed Main Banks			Firms with Untaxed Main Banks		
Dependent Variable: Abnormal Returns on February 7, 2000						
Ln(Assets)	1.146*		1.084*	0.0553		-0.06
	[0.623]		[0.641]	[0.759]		[0.89
Interest Coverage Ratio		0.000855***	0.000656***		0.000427	0.000
		[0.000201]	[0.000224]		[0.000480]	[0.0006
Constant	-16.80**	-4.752***	-16.23**	-3.539	-2.857***	-2.18
	[6.612]	[0.664]	[6.782]	[8.300]	[0.809]	[9.70
Observations	67	67	67	79	76	76
R-squared	0.050	0.014	0.058	0.000	0.003	0.00

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1