Wesleyan Economic Working Papers

http://repec.wesleyan.edu/
N°: 2011-005

Does Taxation on Banks Tax Bank Borrowers? Evidence from the Tokyo Bank Tax Experiment

Peter Hull and Masami Imai

October 17, 2011

WESLEYAN UNIVERSITY

Department of Economics
Public Affairs Center
238 Church Street
Middletown, CT 06459-007

Tel: (860) 685-2340
Fax: (860) 685-2301
http://www.wesleyan.edu/econ

Does Taxation on Banks Tax Bank Borrowers? Evidence from the Tokyo Bank Tax Experiment[#]

Peter Hull and Masami Imai

This draft: October 17, 2011

Abstract

We investigate the economic impacts of bank taxation on the value of banks and that of borrowing firms, exploiting the surprise announcement of a tax by the Tokyo metropolitan government as a natural experiment. We find that the tax announcement had broad effects on the share prices of banks, although the effects are stronger for a subset of soon-to-be taxed banks. However, the adverse effects of the tax on bank borrowers, although statistically significant, turn out to be quantitatively small (a half of the effects on bank share prices). These results suggest that the adverse economic consequence of bank taxation is felt primarily on banks themselves.

[#] Imai (corresponding author): Department of Economics, Wesleyan University, Middletown, CT 06459-0007. Tel: 860-685-2155, Fax: 860-685-2301, e-mail: mimai@wesleyan.edu. Hull: Federal Reserve Bank of New York,. Tel: 212-720-8566, e-mail: peter.hull@ny.frb.org. We gratefully acknowledge the financial support of the Economics Department (Imai) and Quantitative Analysis Center (Hull) of Wesleyan University. The views expressed in this paper are those of the authors and are not necessarily reflective of views at the Federal Reserve Bank of New York or the Federal Reserve System. Any errors or omissions are the responsibility of the authors.

1. Introduction

Historically, the banking sector has served as an important source of revenue for 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 before the era of "free-banking" (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).

The fiscal dependence of governments on banks can have important economic effects. The first direct effect is that taxation on banks reduces the after-tax profitability of banks, thereby adversely affecting the economic viability of the banking sector. The second and more indirect effect is that the taxes might have undesirable (and unintended) consequences on borrowers that depend on banks for external funds. In particular, the economic burden of bank taxation might be passed on to bank-dependent borrowers who view bank loans and other sources of external funds as imperfect substitutes due asymmetric information problem in credit markets.[1] In this paper, we empirically examine whether taxation on the banking sector affects not only the banking sector itself but also bank borrowers by exploiting a natural experiment in

[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, which makes it difficult to switch to non-bank lenders or other banks for external funds in the short run (Sharpe, 1990; 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 (e.g., Slovin, Sushka, and Polonchek, 1993; Ashcraft, 2005; Khwaja and Mian, 2008).

which the Tokyo metropolitan government imposed a three percent tax on the gross profit of banks.

We find three notable results. First, we find that the tax announcement had broad effects on the share prices of banks, although the effects are stronger for a subset of soon-to-be taxed banks. Second, the adverse effects of bank tax on bank borrowers, although statistically significant, turn out to be quantitatively small. These results suggest that although bank borrowers incurred some additional costs of raising capital from non-bank lenders, the adverse economic consequence of bank taxation were felt primarily on banks themselves without being passed onto their borrowers.

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

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.[2] This 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.[3] In addition, since the tax was not imposed on all banks, we have a natural control group: the untaxed banks and firms that have close relationships with them.

The tax plan was strenuously opposed both by the banking industry and by the central government that had just injected over $70 billion of capital into 19 of the banks that were to be taxed. The passing of the tax bill through the assembly on March 23, 2000 prompted lawsuits from 21 of the affected banks. On October 18 these banks filed on the grounds of a violation of Article 14 of the Constitution, which guarantees equality under the law of all members of society and forbids discrimination in political and economic relations. The ruling was not favorable to the metropolitan government. On March 26, 2002, the Tokyo District Court ruled against the tax. Shortly thereafter, the government appealed in High Court, which, too, ruled against the tax on January 30, 2003. Displeased with the high court ruling, Ishihara promised that the metropolitan

[2] Banks were targeted for two reasons. First, under the existing tax law, the Tokyo government claimed 10 percent of bank net profit (gross profit minus loan charge-offs). The problem, however, was that the banking sector generated little tax revenue for the government 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. Second, the central government had just injected a large sum of taxpayer money during 1998-1999 to bail out problem banks, which, in turn, made banks public villains to be politically exploited.

[3] 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.

government would appeal to the Supreme Court. At the end, his government agreed to return all the tax revenue back to the banks in a settlement on September 17, 2003.

3. Empirical Methodology

From the media accounts of these developments, we focus on the following 6 events that were likely to send important signals to investors regarding the tax.

1. February 7, 2000: Ishihara Shintaro makes official announcement of the bank tax
2. March 23, 2000: The Tokyo metropolitan assembly's Financial Committee approves the tax
3. October 18, 2000: Banks file their lawsuit against the tax
4. March 26, 2002: The Tokyo District Court rules against the tax
5. January 30, 2003: The High Court rules against the tax
6. September 17, 2003: The Tokyo government and banks agree to a settlement

We first calculate abnormal returns associated with these six events by estimating the following equations for banks:

$$R_{it} = \alpha_i + \beta_i M_t + \sum_{j=-2}^{+2} \gamma_j D_{t+j} + \varepsilon_{it}$$

where R_{it} , M_t , and D_{t+j} , are the percentage change in stock price for firm *i* on day *t*, the percentage change in the market index Nikkei-225 on day *t*, and a dummy variable equaling one if day *t* fall in the 5-day window of an event, respectively.[4] The cumulative average abnormal return (*CAR*) associated with an event is the sum of average abnormal return, γ_{-2}, γ_{-1}, γ_0, γ_1, and γ_2:

$$CAR = \gamma_{-2} + \gamma_{-1} + \gamma_0 + \gamma_1 + \gamma_2$$

[4] We also try using 3-day event windows. The results, which are not reported to conserve space but available upon request, are qualitatively similar.

We estimate this equation for both listed banks and listed firms. Our data starts on November 1, 1999 and ends on December 26, 2003 (100 days before the first event and 100 days after the last event).[5] Standard errors are adjusted for heteroskedasticity and extreme event clustering.

In order to identify whether a firm relies on taxed banks for external funds, we use the *Japan Company Handbook* which reports the banks with which a given firm has relationships. Although Japanese firms almost always rely on multiple banks for credit, the prior studies on the "main bank system" suggest that firms often have one or two banks that play an important role in monitoring firms and also leading coordination with other banks.[6] We find the main bank and the second 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.[7]

4. Results

The results of our event studies are reported in Table 1 for banks and Table 2 for firms. These results are also displayed in Figure 1. Starting with the results based banks, two empirical patterns stand out. First, the announcement of the bank tax had negative effects on abnormal returns for the entire banking sector, although the effects are much larger on the soon-to-be taxed banks than those ignored by the tax. This particular pattern might be related to the fact that Tokyo bank tax quickly stimulated debates in other local governments as to whether they, too, should impose a bank tax. The markets are likely to have impounded this possibility into the share prices of untaxed banks. Second, the legal settlement that would return tax revenue back to the banks had large positive effects on the cumulative abnormal return of taxed banks. We do

[5] The data source for the share price of banks and firms is *Kabuka (Stock Price) CD-ROM*
[6] See Aoki, Patrick, and Sheard (1994) for an overview of the literature.
[7] 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 (2009) to identify the main bank of each Japanese firm.

find some puzzling results, however. For example, while the decision of Tokyo's District Court against the tax has a positive impact on abnormal returns, the decision of the High Court to rule against the tax on banks has a negative impact (albeit small) on banks' abnormal return. One possible explanation for this discrepancy is that the Supreme Court ruling against the tax prompted Ishihara to make a public announcement that he was determined to pursue his policy and promise that the metropolitan government would appeal to the Supreme Court.

For firms, the adverse economic effects of bank tax announcement are broadly felt for both the firms which relied on the taxed banks and the other banks whose main banks were not to be taxed as of the time of announcement. Again, one possible explanation for this is that there were concerns in the banking industry that other prefectures might follow Tokyo to tax banks, which would affect borrowers at banks which were not targeted by this particular plan. Alternatively, bank tax might have been expected to raise overall costs of funds in the market for bank loans. However, although the effects are statistically significant, they are much smaller in general than for banks, suggesting that the market expected that banks would shoulder most of the tax burdens themselves. On aggregate, the results suggest that the taxation of banks has important effects on the profitability of the banking sector and that some small part of the tax burden is passed onto 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 and broad effects on the share price of banks--however-- that it had much smaller effects on the share price of bank dependent firms. The

results suggest that the burden of taxation on banks is likely to be felt primarily by banks themselves.

References

Amiti, M., Weinstein, D.E., 2009. Export and Financial Shocks. NBER Working Paper 15556.

Aoki, M., Patrick, H., Sheard, P., 1994. The Japanese main bank system: introductory overview. In: Aoki, M. and Patrick, H., Editors. The Japanese Main Bank System: Its Relevance for Developing and Transferring Economies, Oxford University Press, New York, pp. 3–50.

Ashcraft, A.B., 2005. Are Banks Really Special? New Evidence from the FDIC-Induced Failure of Healthy Banks. American Economic Review 95 (5), 1712-30.

Barth, J., Caprio, G., Levine, R., 2006. Rethinking bank regulation: till angels govern. Cambridge University Press.

Gibson, M.S., 1995. Can Bank Health Affect Investment? Evidence from Japan. Journal of Business 68 (3), 281-308.

Haber, S., Razo, A., Maurer, N., 2003. The politics of property rights: Political instability, credible commitments, and economic growth in Mexico, 1876-1929. Political Economy of Institutions and Decisions series. Cambridge; New York and Melbourne: Cambridge University Press.

International Monetary Funds, 2010. A fair and substantial contribution by the financial sector final report for the G-20. http://www.imf.org/external/np/g20/pdf/062710b.pdf
Jayaratne, J., Strahan, P.E., 1996. The Finance-Growth Nexus: Evidence from Bank Branch Deregulation. Quarterly Journal of Economics 111 (3), 639-70.

Klein, M.W., Peek, J. and Rosengren, E.S., 2002. Troubled banks, impaired foreign direct investment: the role of relative access to credit. American Economic Review 92 (3), 664–682.

Khwaja, A.I., Mian, A., 2008. Tracing the Impact of Bank Liquidity Shocks: Evidence from an Emerging Market. American Economic Review 98 (4), 1413-42.

Rajan, R.G., 1992. Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt. Journal of Finance 47 (4), 1367-400.

Sharpe, S.A., 1990. Asymmetric Information, Bank Lending, and Implicit Contracts: A Stylized Model of Customer Relationships. Journal of Finance 45 (4), 1069-87.

Richard S., John B. L., John J. W., 1987. Banks and State Public Finance in the New Republic: The United States, 1790-1860. Journal of Economic History 47 (2), 391-403.

Slovin, M.B., Sushka, M.E., Polonchek, J.A., 1993. The Value of Bank Durability: Borrowers as Bank Stakeholders. Journal of Finance 48 (1), 247-66.

Table 1: 5-Day Cumulative Abnormal Returns for Banks

This table reports 5-day cumulative abnormal return for banks. Standard errors are adjusted for heteroskedasticity and extreme event clustering.

Event	*All Banks*	*Taxed Banks*	*Untaxed Banks*
1. Gov. Ishihara announces bank tax	-0.0319***	-0.0608***	-0.0292***
(February 7, 2000)	(0.000)	(0.0000)	(0.0000)
2. Finance Committee approves tax	-0.0244***	-0.0377***	-0.0233***
(March 23, 2000)	(0.000)	(0.0000)	(0.0000)
3. Banks file lawsuit	0.00078	0.00517**	0.000353
(October 18, 2000)	(0.5906)	(0.0215)	(0.7746)
4. Tokyo District Court rules against tax	-0.00114	0.00877***	-0.00252*
(March 26, 2002)	(0.3924)	(0.0014)	(0.0553)
5. High Court rules against tax	-0.00211	-0.0153***	0.00018
(January 30, 2003)	(0.1259)	(0.0000)	(0.9421)
6. Tokyo government and banks agree to a settlement	0.0543***	0.141***	0.0400***
(September 17, 2003)	(0.000)	(0.0000)	(0.0000)
Observations	88821	9943	78878
Number of Banks	99	13	86
R-squared	0.101	0.214	0.075

*** p<0.01, ** p<0.05, * p<0.1
p-values in parentheses

Table 2: 5-Day Cumulative Abnormal Return for Firms

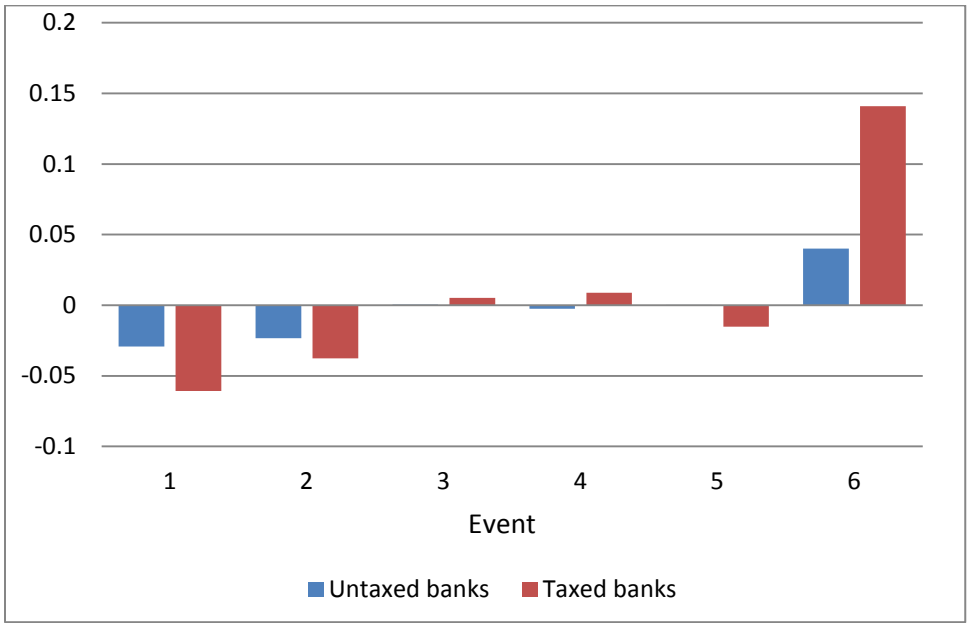
This table reports 5-day cumulative abnormal return for firms whose first main bank and second main banks are both taxed (column 1), firms whose first main bank, but not second main bank, was taxed (column 2), firms whose second main bank, but not first main bank, was taxed (column 3), and firms whose first main bank or second main bank was untaxed. Standard errors are adjusted for heteroskedasticity and extreme event clustering.

Event	*Both Taxed*	*First Taxed*	*Second Taxed*	*Neither Taxed*
1. Gov. Ishihara announces bank tax	-0.0259***	-0.0269***	-0.0258***	-0.0137**
(February 7, 2000)	(0.0000)	(0.0000)	(0.0000)	(0.0391)
2. Finance Committee approves tax	0.001420	-0.000587	0.00451	0.00788
(March 23, 2000)	(0.7008)	(0.8896)	(0.2459)	(0.2650)
3. Banks file lawsuit	-0.00728**	-0.00783**	-0.00605**	-0.00469
(October 18, 2000)	(0.0102)	(0.0166)	(0.0413)	(0.4038)
4. Tokyo District Court rules against tax	-0.00817***	-0.00527*	-0.00878***	-0.00518
(March 26, 2002)	(0.0033)	(0.0835)	(0.0012)	(0.3240)
5. High Court rules against tax	-0.0128***	-0.0115***	-0.00975***	-0.0122**
(January 30, 2003)	(0.0000)	(0.0000)	(0.0001)	(0.0146)
6. Tokyo government and banks agree to a settlement	0.00500**	0.0116***	0.00907***	0.00991**
(September 17, 2003)	(0.0309)	(0.0000)	(0.0002)	(0.0213)
Observations	612182	498141	571635	176935
Number of Firms	710	592	651	232
R-squared	0.0772	0.0752	0.0888	0.0707

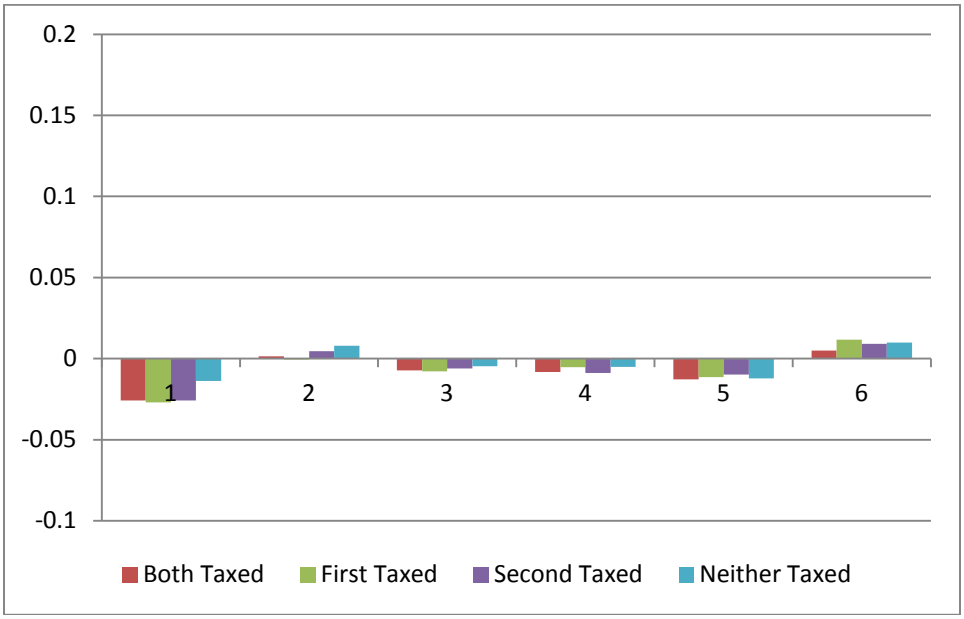
*** p<0.01, ** p<0.05, * p<0.1
p-values in parentheses

Figure 1: 5-Day Cumulative Abnormal Returns

Panel A: Banks



Panel B: Firms



Event 1: Ishihara Shintaro makes official announcement of the bank tax on February 7, 2000
Event 2: The Tokyo metropolitan assembly's Financial Committee approves the tax o March 23, 2000
Event 3: Banks file their lawsuit against the tax on October 18, 2000
Event 4: The Tokyo District Court rules against the tax on March 26, 2002.
Event 5: The High Court rules against the tax on January 30, 2003
Event 6: The Tokyo government and banks agree to a settlement on September 17, 2003