Accepted Manuscript

The Australian Bank Levy: Do Shareholders Pay?

Dimitris K. Chronopoulos , Anna L. Sobiech , John O.S. Wilson

Please cite this article as: Dimitris K. Chronopoulos , Anna L. Sobiech , John O.S. Wilson , The Australian Bank Levy: Do Shareholders Pay? , *Finance Research Letters* (2018), doi: 10.1016/j.frl.2018.06.010

HIGHLIGHTS

- Bank taxes have proliferated worldwide since the financial crisis.

- We investigate the impact of the Australian Bank Levy on bank net-worth.

- We find a significant loss of value for affected banks, following the introduction of the levy.

- This suggests that the burden of the levy is borne partly by affected bank shareholders.

The Australian Bank Levy:

Do Shareholders Pay?

Dimitris K. Chronopoulos [1]

Anna L. Sobiech [2]

John O.S. Wilson [3]

ABSTRACT

Since the global financial crisis, the tax treatment of banks has gained interest in academic and public policy arenas. In this paper, we investigate the stock price reaction of a small sample of commercial banks that were affected by the sudden introduction of a bank levy in Australia. The results of an event study analysis suggest that there is a significant decline in the returns of affected banks following the announcement of the bank levy. This suggests that the banks liable to pay the Australian bank levy lose a considerable percentage (5.2%) of their market capitalisation following its announcement.

Keywords: Bank levy, Taxes, Australian banks, Event Study

---

[1] Centre for Responsible Banking & Finance, School of Management, Gateway Building, University of St Andrews, St Andrews, Fife, KY16 9RJ, UK, phone: +44 (0) 1334 461963, fax: +44 (0) 1334 462812, e-mail: dc45@st-andrews.ac.uk.

[2] Centre for Responsible Banking & Finance, School of Management, Gateway Building, University of St Andrews, St Andrews, Fife, KY16 9RJ, UK, fax: +44 (0) 1334 462812, e-mail: als23@st-andrews.ac.uk.

[3] Centre for Responsible Banking & Finance, School of Management, Gateway Building, University of St Andrews, St Andrews, Fife, KY16 9RJ, UK, phone: +44 (0)1334 46 2803, fax: +44 (0) 1334 462812, e-mail: jsw7@st-andrews.ac.uk.

ABSTRACT

Since the global financial crisis, the tax treatment of banks has gained interest in academic and public policy arenas. In this paper, we investigate the stock price reaction of a small sample of commercial banks that were affected by the sudden introduction of a bank levy in Australia. The results of an event study analysis suggest that there is a significant decline in the returns of affected banks following the announcement of the bank levy. This suggests that the banks liable to pay the Australian bank levy lose a considerable percentage (5.2%) of their market capitalisation following its announcement.

---

1. Introduction

In this paper, we investigate market expectations regarding the effects of the sudden introduction of a bank levy in Australia. Prior research has focused on assessing the incidence of bank levies in European countries, where they have formed part of a broader range of policy interventions and regulatory changes (Buch et al., 2016; Capelle-Blancard & Havrylchyk, 2017). The introduction of these levies is typically justified as a means of containing excessive risks of banks, and raising revenues to augment depleted government coffers following taxpayer funded bank bailouts that took place during the financial crisis (see Corsetti et al., 2011; Chaudry & Mullineux, 2014). More specifically, the objectives of the bank levy are to ensure that large banks: contribute to the government budget in the short- and long-term; make a fair contribution given risks they pose to the financial system and wider economy; operate on a more level competitive playing field with smaller banks (Parliament of the Commonwealth of Australia, 2017). The bank levy is expected to raise AU$6.2 billion over the first four years of its operation.

We augment the recent literature that examines the effects of bank taxation. Moreover, to the best of our knowledge, we also provide the first assessment of the effects of the Australian bank levy. In contrast to many European countries where taxpayer funded bailouts left government finances in a parlous state (Laeven & Valencia, 2013; Correa & Sapriza, 2015; Goddard et al., 2015), direct taxes on banks were introduced in Australia during relatively buoyant economic conditions. On May 9th 2017 (during the release of the 2017-18 budget), the government announced a levy specifically targeted at large banking institutions. The levy is collected quarterly at a rate of 0.015% on certain liabilities of banks with total liabilities exceeding AU$ 100 billion.

Given the prevailing stability in the financial system and economy more generally (and in contrast to bank levies introduced elsewhere) the Australian bank levy took investors by surprise. One of Australia's leading business newspapers, *The Australian Financial Review*, reported that *'[T]he mood in the banks on Wednesday [is] one of shock and confusion, given there had been no consultation about the tax ahead of the budget.'*[1] The unexpected nature of the announcement of the Australian bank levy provides an ideal setting to gauge the extent of investors' surprise via an assessment of the stock price reaction of affected banks (see MacKinlay, 1997).

The effect of the Australian bank levy on the stock returns of affected banks depends crucially on the extent to which investors expect banks to internalise the increased costs (arising from the levy) rather than pass these through to depositors or borrowers. As the introduction of the levy implies that the cost of funding for affected banks increases, it is likely to have implications for the costs of financial intermediation (Buch et al., 2016). In the short-run to offset higher tax liabilities, banks may increase loan rates charged to borrowers or lower the interest rates paid to depositors. Competitive and political pressures will thereby determine the extent to which banks can pass on tax costs to bank customers (Kogler, 2016).

---

[1] See "Budget 2017: Dismayed bank CEOs say shock 'stealth tax' may weaken banks," *The Australian Financial Review*, May 10, 2017.

Shareholder wealth ultimately depends upon expected after-tax profits, which in turn are in part a function of bank net interest margins. As a consequence, any negative abnormal returns observed around the announcement of the levy would imply that shareholders expect the levy to adversely affect bank profitability. This would be consistent with the view that banks internalise tax costs. However, if investors anticipate banks will neutralise the costs associated with the levy by changing their corporate policies, organizational structures, or prices of financial services, then non-significant or positive abnormal returns could be observed around the announcement of the levy. Indeed, prior evidence for the banking industry suggests a high degree of pass-through of corporate income taxes to customers (Demirguc-Kunt & Huizinga, 2001; Albertazzi & Gambacorta, 2010; Chiorazzo & Milani, 2011; Capelle-Blancard & Havrylchyk, 2017). Ultimately, the impact of the Australian bank levy on (shareholders) bank stock prices is an empirical question, the answer to which depends largely on the extent of the pass-through of taxes to bank customers.

The results of our event study analysis (where we estimate the daily abnormal stock returns for a sample of banks that were affected by the levy) indicate a material decline in the returns of affected banks following the announcement of the bank levy. This suggests that the banks liable to pay the Australian bank levy lose a considerable amount of their market capitalisation following its announcement. The remainder of the paper is structured as follows. Section 2 presents the methodology and data. In section 3 the results are presented. Section 4 provides a brief summary.

2. Methodology and Data

The data used in the present study are drawn from Datastream and comprise daily stock prices for six commercial banks (four affected, two unaffected) operating in Australia that are also listed on the country's stock market. The period of analysis, which spans from April 4, 2016 to May 12, 2017, straddles the announcement of the bank levy on May 9, 2017. The date on which the

Australian government announced its intention to introduce a levy on banks' liabilities is used as the event day ($t = 0$).

To test our hypothesis, we estimate deviations in actual from expected bank stock returns as a result of the Australian bank levy announcement. Following Brown and Warner (1985) among others, we estimate daily abnormal stock returns for each bank in our sample using the risk-adjusted market model:

$$R_{i,t} = \alpha_i + \beta_i R_{M,t} + \varepsilon_{i,t} \tag{1}$$

where $R_{i,t}$ is the daily return of bank *i* at time t and $R_{M,t}$ is the daily return of the benchmark index on day *t*. Daily returns are calculated as $R_{i,t} = \ln(P_{i,t}/P_{i,t-1})$, where $P_{i,t}$ denotes the closing share price of bank *i* at time *t*. We use the Australian stock market index as our benchmark index. In order to check the robustness of our results, we also estimate Equation (1) using a global bank index as a benchmark. The risk-adjusted market model is estimated using Ordinary Least Squares over a 260 trading day estimation period from May 3, 2016 to May 3, 2017.[2] We use the estimates $\hat{\alpha}_i, \hat{\beta}_i$ to construct abnormal returns for bank *i* at time *t* using the following equation:

$$AR_{i,t} = R_{i,t} - \left(\hat{\alpha}_i + \hat{\beta}_i R_{M,t}\right) \tag{2}$$

Event studies should employ cumulative abnormal returns (CARs) when there is uncertainty about the exact date at which the information is incorporated in the share price (MacKinlay, 1997). Therefore, in order to capture any potential leakage of information regarding the bank levy in the stock market ahead of its announcement by the government, we calculate CARs of various lengths. Cumulative average abnormal returns (CAARs) are calculated as the average of individual CARs. Formally, CARs and CAARs are calculated as follows:

$$CAR_{i,[\tau1,\tau2]} = \sum_{t=\tau1}^{\tau2} AR_{i,t} \tag{3}$$

---

[2] The results are robust to the estimation period stopping a calendar month before the bank levy is announced. This is to ensure that any leaked information related to the introduction of the levy is not incorporated in the estimation of the parameters of our risk-adjusted market model.

$$CAAR_{[\tau1,\tau2]} = \sum_{i=1}^{N} CAR_{i,[\tau1,\tau2]}. \tag{4}$$

Two parametric tests are employed to determine the statistical significance of a CAAR, namely the Patell and BMP statistics due to Patell (1976) and Boehmer et al. (1991), respectively. Since the bank levy applies to a number of banks operating in Australia at the same time, this is likely to generate cross-sectional correlation in abnormal returns across affected banks that could inflate the Type I error when testing the null hypothesis of zero CAARs (Kolari and Pynnonen, 2010). In order to address this issue, we use the adj-Patell and adj-BMP test statistics which are modified versions of the standardised tests mentioned above (Kolari and Pynnonen, 2010). Kolari and Pynnonen (2010) show that both the adj-Patell and the adj-BMP statistics account for cross-sectional autocorrelation in abnormal returns.

3. Results

Table 1 presents CAAR estimates over varying event windows for the full sample comprising four listed banks affected by the levy and two banks that remain unaffected. The CAAR for the affected banks on the 7-day event window [-3, 3] suggests a drop in the affected banks' value in the order of 5.2%. This reduction in the market valuation of affected banks is also statistically significant according to both adj-Pattell and adj-BMP statistics. However, there is no evidence of a decline in the affected banks' market valuation in the event window prior to the announcement of the levy (see event window [-3, -1]). This suggests that there was no leak of the news prior to its announcement and that the levy was largely unanticipated by market participants. Looking at the unaffected banks, their CAAR in the post-announcement window albeit positive is statistically insignificant. This implies that market participants do not expect unaffected banks to be able to benefit from the imposition of the levy.

Overall, these results suggest that banks affected by the imposition of the Australian bank levy lose a considerable amount of their market capitalisation. As such this lends support to the contention that market participants consider that affected banks will not be able to pass the cost associated with the levy entirely onto their customers, but will have to bear part or the full cost of it. The robustness of these findings are verified by placebo tests whereby we show that CAARs for either affected or unaffected banks do not change when we falsely assume that the bank levy is announced on April 10, 2017 (a calendar month before the actual announcement). For these placebo tests the estimation window has been modified to span from April 4, 2016 to April 4, 2017. Further robustness checks are conducted by re-estimating the CAARs using the Datastream Global Banks index as the benchmark index. The results of this analysis are reported in Table 2 and corroborate our findings.

4. Summary

Prior research on the impact of bank levies has typically focused exclusively on bank customers as the bearer of tax costs. In this paper, we investigate market expectations regarding the effects of the sudden introduction of a bank levy on large Australian banks. We estimate daily abnormal stock returns for each bank in our sample using the risk-adjusted market model. The cumulative abnormal returns for the banks liable to pay the levy suggest a decline in value of the order of 5.2%, which is statistically and economically significant. Overall, our findings indicate that shareholders bear part of the tax costs that arise from the bank levy. In the medium term shareholders may also bear the costs of the bank levy in the form of lower dividends. As such our findings are of interest to policy makers who are charged with designing and monitoring the impact of bank levies on shareholders, depositors and savers.

References

Albertazzi, U., Gambacorta, L., 2010. Bank Profitability and Taxation. *Journal of Banking & Finance,* 34(11), pp.2801–2810.

Binder, J.J. 1985. Measuring the effects of regulation with stock price data, *RAND Journal of Economics*, 16(2), pp.167-183

Brown, S.J., Warner, J.B., 1985. Using Daily Stock Returns. *Journal of Financial Economics*, 14(1), pp.3–31.

Boehmer, E., Masumeci, J., Poulsen, A.B., 1991. Event-Study Methodology under Conditions 34 of Event-Induced Variance. *Journal of Financial Economics*, 30(2), pp.253–272.

Buch, C.M., Hilberg, B., Tonzer, L., 2016. Taxing Banks: An Evaluation of the German Bank Levy. *Journal of Banking & Finance*, 73, pp. 52–66.

Capelle-Blancard, G., Havrylchyk, O., 2017. Incidence of Bank Levy and Bank Market Power. *Review of Finance*, 21(3),pp.1023-1046.

Chiorazzo, V., Milani, C., 2011. The Impact of Taxation on Bank Profits: Evidence from EU Banks. *Journal of Banking & Finance*, 35(12), pp.3202–3212.

Chaudhry, S., Mullineux, A.W., eds., 2014. *Taxing Banks Fairly*. Cheltenham: Edward Elgar Publishing Limited.

Correa, R., Sapriza, H., 2015. Sovereign debt crises, in Berger, A.N., Molyneux, P., Wilson, J.O.S. (eds.) *Oxford Handbook of Banking*, Second Edition. Oxford: Oxford University Press.

Corsetti, G. et al., 2011. Taxation and Regulation of the Financial Sector. *EEAG Report on the European Economy*, pp.147–169.

Demirgüç-Kunt, A., Huizinga, H., 2001. The Taxation of Domestic and Foreign Banking. *Journal of Public Economics*, 79(3), pp.429–453.

Goddard, J., Molyneux, P., Wilson, J.O.S. 2015. Banking in the European Union: Deregulation, Crisis and Renewal, in Berger, A.N., Molyneux, P., Wilson, J.O.S. (eds.) *Oxford Handbook of Banking*, Second Edition. Oxford: Oxford University Press.

Kogler, M., 2016. On the Incidence of Bank Levies: Theory and Evidence. University of St Gallen Discussion Paper, Number 2016-06.

Kolari, J.W., Pynnonen, S., 2010. Event Study Testing with Cross-Sectional Correlation of Abnormal Returns. *Review of Financial Studies*, 23(11), pp.3996–4025.

Laeven, L., Valencia, F., 2014. Resolution of Banking Crises: The Good, the Bad, and the Ugly, in Claessens, S., Kose, S.A., Laeven, L., Valencia, F. (eds.), *Financial Crises: Causes, Consequences, and Policy Responses*. Washington: Internaitonal Monetary Fund..

MacKinlay, A.C. 1997. Event Studies in Economics and Finance. *Journal of Economic Literature*, 35, pp.3–39.

Parliament of the Commonwealth of Australia. 2017. *Major Bank Levy Bill 2017: Explanatory Memorandum*. House of Representatives.

Patell, J.M., 1976. Corporate Forecasts of Earnings per Share and Stock Price Behaviour: Empirical Tests. *Journal of Accounting Research*, 14(2), pp.246–276.

Table 1: Event study analysis

Event window	Affected banks			Unaffected banks		
	CAAR	adj-Patell	adj-BMP	CAAR	adj-Patell	adj-BMP
[-3, 3]	-0.057	-2.863***	-3.552***	-0.008	-0.255	-0.393
[-3, -1]	-0.017	-1.271	-0.943	-0.009	-0.504	-1.131
[0, 3]	-0.039	-2.687***	-3.292***	0.001	0.098	0.208
[-3, 3] Placebo	-0.0004	-0.013	-0.108	0.002	0.033	0.055
No of banks	4	4	4	2	2	2

This table presents the results of an event study analysis. The event date considered in this analysis is May 9, 2017, the day the Australian government announced a plan to introduce a levy on banks with over AU$100 billion in total liabilities. The placebo window falsely assumes that the levy was first announced on April 10, 2017. CAAR denotes cumulative average abnormal returns. The Australian stock market index is used as the benchmark for estimating the abnormal returns. Both the adj-Patell statistic (Patell, 1976) and the adj-BMP statistic (Boehmer et al., 1991) are adjusted for cross-sectional correlation as recommended by Kolari and Pynnonen (2010). ***, **, *, indicate significance at the 1%, 5%, and 10% level respectively.

Table 2: Sensitivity check – Event study analysis using alternative benchmark

Capital Injection						
Event window		Affected banks			Unaffected banks	
	CAAR	adj-Patell	adj-BMP	CAAR	adj-Patell	adj-BMP
[-3, 3]	-0.052	-2.196**	-3.070***	-0.002	-0.068	-0.114
[-3, -1]	-0.017	-1.080	-0.887	-0.009	-0.457	-1.079
[0, 3]	-0.034	-1.970**	-3.013***	0.006	0.305	0.708
[-3, 3] Placebo	0.006	0.292	2.731***	0.007	0.257	0.443
No of banks Observations	4	4	4	2	2	2

This table presents the results of an event study analysis using the Datastream Global Banks index as the benchmark for estimating the abnormal returns. The event date considered in this analysis is May 9, 2017, the day the Australian government announced a plan to introduce a levy on banks with over AU$100 billion in total liabilities. The placebo window falsely assumes that the levy was first announced on April 10, 2017. CAAR denotes cumulative average abnormal returns. Both the adj-Patell statistic (Patell, 1976) and the adj-BMP statistic (Boehmer et al., 1991) are adjusted for cross-sectional correlation as recommended by Kolari and Pynnonen (2010). ***, **, *, indicate significance at the 1%, 5%, and 10% level respectively.