Tax Avoidance and Mergers: Evidence from Banks During the Financial Crisis

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Abstract

At the peak of the financial crisis the IRS issued Notice 2008-83, administrative guidance that effectively suspended a controversial tax rule that discourages tax-motivated acquisitions, and thereby increased the value of tax assets of commercial banks that would have otherwise been impaired if the bank changed ownership. The guidance, which changed the landscape of corporate reorganizations in the banking sector, was widely derided as an improper exercise of the Treasury department's regulatory authority and overruled by statute three months later. In this article, we report the first evidence of the effects of the Notice change on merger activity and performance. We find little evidence that lifting the notice affected bank merger activity, but we do find that mergers that occurred while the notice was in effect had lower post-merger income growth. We also find evidence consistent with the strategic recognition of tax losses to exploit the benefits of the Notice.

Introduction

Among the measures taken by federal authorities to manage the financial crisis in the fall of 2008 was a remarkable piece of administrative guidance from the IRS. Issued on September 30th of that year and less than a page long, IRS Notice 2008-83, which was styled as an interpretation of existing law, had a dramatic positive effect on the value of banks' tax assets. The Notice effectively turned off an aspect of Internal Revenue Code Section 382 that generally restricts the ability of a bank to use unrecognized tax losses from underperforming loans to offset taxable income from other sources if that bank undergoes a significant change in equity ownership, including an acquisition.

The direct result of the guidance was that tax assets of a target bank that otherwise would have been impaired following an acquisition could be fully utilized by an acquirer, with the further implication that targets with such tax assets should be more attractive to profitable acquirers who are able to more rapidly deduct those losses than acquirers with less taxable income to offset. This implication played out only a few days after the Notice was issued, when Wells Fargo re-entered negotiations for the acquisition of Wachovia and ultimately outbid Citibank after determining that its ability to utilize Wachovia's tax assets because of the Notice would allow it to improve its offer and acquire Wachovia without any FDIC assistance.[1] One estimate placed the value of the Notice in respect of Wachovia's tax assets to Wells Fargo at

[1] See FRB: Testimony--Alvarez, The Acquisition of Wachovia Corporation by Wells Fargo & Company--September 1, 2010, https://www.federalreserve.gov/newsevents/testimony/alvarez20100901a.htm (last visited Jan 3, 2017) ("Based on an IRS notice issued September 30, Wells Fargo had determined that certain U.S. federal income tax benefits resulting from the proposed Wachovia transaction would allow it to acquire Wachovia without FDIC assistance.") For a timeline of the events, see David Enrich & Dan Fitzpatrick, *Wachovia Chooses Wells Fargo, Spurns Citi*, WALL STREET JOURNAL, October 5, 2008, http://www.wsj.com/articles/SB122303190029501925 (last visited Jan 3, 2017).

roughly $20 billion.[2] Controversy over the Notice, including whether it was a proper exercise of the Treasury Department's authority and whether it was issued specifically to favor Wells Fargo, followed quickly, and the Notice was overruled when the American Recovery and Reinvestment Act was signed into law in early 2009. Thus, there was a small window of roughly 3 ½ months in which the Notice was in effect and part of Section 382 was disabled with respect to banks.

This is the first paper to examine the impact of IRS Notice 2008-83 and by implication the impact of Section 382. After presenting a model of the effect of the Notice on bank mergers, we use Call Report data and merger data from the Federal Reserve to measure changes in bank mergers around the time of the Notice. We compare mergers during the Notice window to pre-Notice mergers and examine whether the determinants of mergers differed before and during the Notice window. We also present data on the post-merger performance of Notice and pre-Notice mergers, and present evidence about strategic decisions made by banks around the timing of recognizing built-in tax losses on their loan portfolios.

Drawing conclusions about the effect the Notice is complicated to a substantial degree by the unusual (to say the least) period during which it was in effect. The financial crisis put enormous stress on banks, and there is not a control group of firms subject to these same stresses, but not subject to the Notice, against which to measure the Notice effect. Nevertheless, Section 382 is an important and controversial provision of the tax code, but little is known about its effects on business activity. Documenting what happened when Section 382 was partially

[2] Dan Freed, HOW WELLS FARGO WON THE TAX-DODGING TROPHY THESTREET (2011), https://www.thestreet.com/story/11306521/1/how-wells-fargo-won-the-tax-dodging-trophy.html (last visited Jan 3, 2017). See also Binyamin Appelbaum, *After Change In Tax Law, Wells Fargo Swoops In*, THE WASHINGTON POST, October 4, 2008, http://www.washingtonpost.com/wp-dyn/content/article/2008/10/03/AR2008100301042.html (last visited Jan 3, 2017).

disabled, even during a period of market turmoil, provides valuable information. We also contribute to the literature on the effect of tax losses on merger activity.[3]

We find only modest evidence that lifting the Notice had an effect on merger activity. While there is a visible increase in mergers during the Notice period, this period corresponds to the peak of the financial crisis and the increase is only barely statistically significant when we control for other determinants of merger activity, such as the TED spread. We find no important differences in the determinants of mergers during the Notice period, relative to the pre-notice period, such as we would expect if the suspension of 382 drove a wave of tax-motivated acquisitions. We do, however, find that banks that engage in Notice-window acquisitions show lower income growth in the two years after the Notice, consistent with the possibility that tax-motivated mergers led to lower operational synergies. We also find suggestive evidence that banks that merged during the Notice window deferred recognition of the losses on their loan portfolios to exploit the benefits of the Notice.

While we resist drawing strong conclusions given the limitations of our setting, the empirical evidence casts doubt on the view that Section 382 is an important constraint on tax-motivated mergers. Given that Section 382 is a costly and controversial tool for policing tax-motivated activity, and our model shows its welfare consequences are ambiguous, our results provide some support for those who question Section 382's value.

Part I describes in detail the legal backdrop against which the Notice was issued, including the relevant details about the operation of Section 382 and a detailed timeline of the events from the issuance of the Notice until it was overruled. These details are crucial for evaluating our research design. In Part II, we describe the theoretical framing of our analysis and

[3] See, e.g., Auerbach and Reishus (1988, 1991), Gilson (JFE, 1990), Ayers et al. (JF, 2003; CAR, 2007), Devos et al. (RFS, 2009), Erickson/Wang (AR, 2007).

the predicted effects of the Notice. Part III includes a description of the data and Part IV reports our analysis and results.

I. The Context of Notice 2008-83

This section reviews the background of Section 382 of the Internal Revenue Code and the adoption of IRS Notice 2008-83 and its aftermath. We present a timeline of events from the adoption of the notice through the ensuing controversy to its eventual repeal.

A. Section 382 of the Internal Revenue Code

U.S. Federal Income Tax law includes a variety of statutory, regulatory, and doctrinal tools for discouraging taxpayers from undertaking transactions that are excessively motivated by tax avoidance. Some of the tools are broad standards, such as the requirement that a transaction have "economic substance" to be respected,[4] while others are detailed rules that go to great lengths to anticipate the variety of ways that taxpayers might try and circumvent the intent of the rule. Section 382 of the Internal Revenue Code is an example of the latter type of rule.[5] The section was first added to Code in 1954 but subsequently revised, most significantly in 1986. At a high level of generality, Section 382 restricts the rate at which a corporation can use certain tax assets to offset taxable income following a significant change in equity ownership of the corporation. Whereas a corporation that has not triggered an ownership change can use all of its net operating loss carryforwards or unrealized built-in losses on its assets that accrued in prior years to offset taxable income in subsequent years, a corporation that has triggered an ownership change can only use a small portion of those losses. This portion is generally equal to the amount

[4] See IRC § 7701(o).

[5] The objective approach adopted by Section 382 is sharply contrasted with the intent-based test in Section 269. For a summary of the history, see Sam Dimon, *Limit My Practice Instead! Thoughts on Reforming Section 382*, 88 TAXES MAG. 65–97 (2010), Appendix B.

of equity in the corporation before the ownership change multiplied by a fraction of the Federal government's long term borrowing rate.

The fundamental tension between the expectation that taxpayers will respond to taxes but the desire that they should not respond *too* much is reflected in the complex motivations behind Section 382 and related doctrines.[6] Those motivations are multiple: discouraging "loss trafficking,"[7] preventing windfalls to new owners of loss corporations by enabling them to receive higher rates of after-tax return on account of losses that accrued before they were owners, preventing a corporation from offsetting the income from one business line with the losses from another line, limiting the incentive to continue loss corporations solely for the sake of using their tax assets, and preventing the distortion of business transactions which would ideally proceed solely on the basis of expected pre-tax returns.[8] The 1986 amendments to Section 382 drew heavily on Senate Finance Committee recommendations,[9] which reflected a new emphasis on this final motivation and the importance of "tax neutrality," that is, preventing tax considerations from distorting economic decisions.[10]

But for Section 382, corporations with large amounts of net operating loss carryforwards would be attractive vehicles for sheltering income from other sources, and be capable of providing a higher after-tax rate of return than would be available without those losses. For

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[6] The evolution of laws aimed at "loss trafficking" has tended to also reflect ambiguity about whether net operating losses should be tied to the corporation, or its shareholders, or a business line. See, e.g., Libson Shops, Inc. v. Koehler, 353 US 382 (1957) (analysis at the company level, focus on whether the corporation that inherited the losses was the one that incurred them).
[7] ALI Federal Income Tax Project Subchapter C Proposals of the American Law Institute (1958) at 341 (the transferability of tax losses "does appear to many as partaking of tax immorality.")
[8] Dimon, *supra* note 4.
[9] *Id.* at 93.
[10] Those recommendations were supported by the testimony of Assistant Secretary of the Treasury (Tax Policy) Ronald Pearlman that was submitted to the Senate Finance Subcommittee on Taxation and Debt Management. *Id.* at 93.

example, a profitable corporation might seek out a merger with a loss corporation to shelter its own active income, or it might acquire the loss corporation solely to hold passive investment assets. Thus, all else equal, a corporation with net operating loss carryforwards is a more attractive merger target than one without such tax assets, and these tax assets are more valuable in the hands of an acquirer with more income to shelter. For this reason, a profitable acquirer may be willing to pay the most to acquire a loss corporation, even if that acquirer cannot operate the assets of the loss corporation most efficiently. In general, and all else equal, a corporation with significant loss carryforwards will also be able to attract capital at a lower cost because it can offer a higher after-tax rate of return.

The emphasis in discouraging tax-related distortions, wherever they might arise, explains (even if it doesn't justify) the broad applicability of Section 382 and the wide set of circumstances in which it can be triggered. At its simplest, the Section 382 limitation is triggered when the aggregate percentage of the stock in the corporation owned by shareholders who own 5-percent of the corporation increases by more than fifty percentage points between any two dates in a three-year window. Thus, the sale by a corporate parent of 51% of the stock of a subsidiary will trigger the limitation. But the limitation will also apply to a corporation owned by 51% by one parent and 49% by another parent, if the first parents sells all of its stock to the public in a registered offering. Indeed, Section 382 applies in a variety of circumstances where there does not appear to be a high likelihood of tax-motivated behavior even if, in theory, the benefits of the tax losses could cause the loss corporation's assets to be owned by acquirers solely because of their greater tax capacity or otherwise lead to a misallocation of new capital.

B. Notice 2008-83 and its Aftermath

On September 30, 2008, the IRS issued Notice 2008-83. The Notice, which was terse, provided that:

> For purposes of section 382(h), any deduction properly allowed after an ownership change (as defined in section 382(g)) to a bank with respect to losses on loans or bad debts (including any deduction for a reasonable addition to a reserve for bad debts) shall not be treated as a built-in loss or a deduction that is attributable to periods before the change date.

The effect of the Notice was to exclude unrealized losses on loans from the Section 382 limitation. For banks with assets over $4.5 billion, losses on loans are realized for tax purposes (and hence deductible) when the debt becomes worthless or is recoverable only in part.[11] The determination of when these events have occurred is generally a facts and circumstances determination taking into account the circumstances of the debtor and the value of any collateral.[12] However, there is a conclusive presumption that a debt that is charged off for accounting and regulatory purposes will be deemed worthless. Thus, a bank has some discretion over whether an economic loss on a debt remains unrealized, in which case it would have been outside the scope of the Section 382 limitation according to the Notice, or whether it is realized and becomes a loss subject to Section 382.

The treatment of unrealized losses by the Notice was viewed as a strained interpretation of the statute by some, and an unauthorized statutory override by others, which directly benefited certain banks. For example, the Notice was viewed as directly responsible for the ability of Wells Fargo to make an 11th hour bid for Wachovia in excess of the price offered by Citibank. Wells Fargo stated at the time that it expected to use $74 billion in tax losses on the Wachovia loan portfolio.[13] The perception that the Treasury department was intervening in the market and

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[11] IRC § 166(a)(1), (a)(2).
[12] Treas. Reg. § 1.166-2(a).
[13] Jesse Drucker, Obscure Tax Breaks Increase Cost of Financial Rescue, Wall St. J., Oct. 18, 2008, at A3.

picking winner and losers through selective application of the tax law caused some scholars to argue that the guidance was in unreasonable interpretation of the law and invalid exercise of the Treasury's regulatory authority,[14] and to argue that the law should be changed to provide taxpayers with the standing to challenge IRS actions that favor their competitors.[15] Others, including some prominent law firms, argued that the Notice was merely an interpretation of existing law and designed to provide guidance about the thorny question of how to identify and measure built-in losses on distressed debt.[16]

Banks were entitled to rely on the Notice until any subsequent guidance was issued.[17] The IRS did not issue any subsequent guidance, but the interpretation of Section 382 provided in the Notice was overruled by the American Recovery and Reinvestment Act. As a result, the Notice was effective only as to transactions that were signed on or before January 16, 2009.[18]

Expressions of concern began to appear in October of 2008, when Senator Schumer wrote a letter to Secretary Paulson and IRS Commissioner Shulman expressing concern that the Notice,

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[14] Nathaniel S. Cushman, *The Impact of Illegal Tax Guidance: Notice 2008-83*, 62 TAX LAWYER 867–896 (2009).

[15] Sunil Shenoi, *Undoing Undue Favors: Providing Competitors with Standing to Challenge Favorable IRS Actions*, 43 U MICH JL REFORM 531 (2009).

[16] See, e.g., Revisiting Notice 2008-83, Jones Day (Dec. 2008), http://www.jonesday.com/files/Publication/3feb30bb-253d-40f6-89b9-9e543a0622e2/Presentation/PublicationAttachment/6764f6b7-b547-4020-b67f-a151ff60a3d7/Revisiting%20Notice.pdf.

[17] The term "bank" is defined in IRC § 581. It reads: "For purposes of sections 582 and 584, the term "bank" means a bank or trust company incorporated and doing business under the laws of the United States (including laws relating to the District of Columbia) or of any State, a substantial part of the business of which consists of receiving deposits and making loans and discounts, or of exercising fiduciary powers similar to those permitted to national banks under authority of the Comptroller of the Currency, and which is subject by law to supervision and examination by State, Territorial, or Federal authority having supervision over banking institutions. Such term also means a domestic building and loan association."

[18] Despite its repeal, some argue that Congress supported the notice. See Matthew Cline, *The Economics and Politics of Tax Loss Carryforwards in the Great Recession: Why GM Gets a $16 Billion Subsidy*, 65 TAX LAWYER 399–413 (2012). The Notice was effective as to ownership changes pursuant to contracts signed on or before 1/16/2009 or for which there was a written agreement and either a public announcement or SEC filing on or before that date.

"which was never debated by Congress," could cost tens of billions of dollars in foregone tax revenue as well as leading to excessive consolidation of the financial industry.[19] On November 14, Senator Grassley requested that the Office of the Inspector General of the Treasury conduct an investigation of the facts and circumstances of the issuance of Notice 2008-83, particularly as it pertained to the acquisition of Wachovia by Wells Fargo.[20] Five days later, Senator Sanders introduced a bill, which was never passed, to rescind the Notice.[21] On January 26, 2009, H.R. 1, which would subsequently become the American Recovery and Reinvestment Act, was introduced in the House of Representatives with language overturning Notice 2008-83.

The following is a timeline of events between the issuance of the Notice and its repeal:[22]

Timeline of Events Around Notice 2008-83

Date	Event
September 30, 2008	IRS Releases Notice 2008-83.
Early October, 2008	Law firms begin publishing guidance on the Notice.[23]

[19] Press Release, Sen. Charles E. Schumer, New York, Schumer Seeks Answers from IRS, Treasury on Tax Code Change That Subsidizes Bank Acquisitions, (Oct. 30, 2008).
[20] See Press Release, Senator Chuck Grassley, Grassley Seeks Inspector General Review of Treasury Bank Merger Move (Nov. 14, 2008), http://www.grassley.senate.gov/news/news-releases/grassley-seeks-inspector-general-review-treasury-bank-merger-move.
[21] S.3692, 110th Cong. (2008).
[22] During this eventful period, the IRS issued other notices that affected the application of Section 382. See Notice 2008-100 issued November 3, 2008 (generally disregarding stock or warrants acquired by the U.S. government for purposes of triggering application of Section 382); Notice 2008-76 issued on September 29, 2008 (preventing application of 382 resulting from acquisition by U.S. government of stock of Fannie Mae and Freddie Mac); Notice 2008-84 issued on October 14, 2008 (providing that so long as the United States or one of its agencies or instrumentalities owns more than 50% of the stock in a corporation no date with constitute a testing date for determining an ownership change); Notice 2008-78 issued on October 14, 2008 (generally loosening the anti-stuffing rules of 382(l)(1)); Notice 2008-101 issued November 3, 2008 (providing that TARP funds are not taxable income to the recipients); Notice 2008-91 (loosening short-term lending rules under Section 956 to facilitate subsidiary financing to U.S. parents).
[23] See, e.g., Stephen Feldman, Notice 2008-83: The IRS Offers Reassurance to Troubled Banks, Morrison Foerster, (Oct. 2, 2008), https://www.mofo.com/resources/publications/notice-2008-83-the-irs-offers-reassurance-to-troubled-banks.html.

Mid October, 2008	Articles appear in popular press.
October 30, 2008	Sen. Schumer sends letter to Secretary Paulson and Commissioner Doug Shulman.
November 14, 2008	Sen. Grassley asks Treasury IG to review Notice.
November 19, 2008	Sen. Sanders introduces bill to rescind Notice (The bill goes nowhere.)
January 26, 2009	H.R. 1, which would become the American Recovery and Reinvestment Act, introduced in the House with language to overturn Notice.
January 27, 2009	H. Rep. 111-8 states, "legal authority to prescribe Internal Revenue Service Notice 2008-83 is doubtful."
February 12, 2009	Conference Report to Accompany H.R. 1 is published. It repeats the language used in H. Rep 111-8, at 555–560, 111th Cong. (2009)
February 17, 2009	American Recovery and Reinvestment Act (Pub. L. 111-5) signed into law which overturns 2008-83.

It is important to understand how the events leading up to and following the Notice evolved, because it was clear only a month after the Notice was issued that the tax benefits it provided might not last indefinitely, and that putting off a transaction that would trigger the Section 382 limitation risked subjecting large unrealized losses on loan portfolios to Section 382.

II. A Simple Model of Net Operating Losses and Mergers

To inform our empirical tests, this section develops a simple model of the effect of Section 382 on the decision to merge. The model predicts that, to the extent net operating losses

("NOLs") are an important consideration in the merger decision, mergers taking place during the period that the Notice was in effect should be more numerous and exhibit lower merger synergies. The model has ambiguous predictions for how financial distress would affect the likelihood of becoming a target, and the social welfare implications of 382 are ambiguous as well.

A. The Model Setup

There are two players ($i \in \{b, s\}$) and three time periods with no discounting ($t \in \{1,2,3\}$). An acquiring corporation ($i = b$) and a target corporation ($i = s$) explore a possible business combination. For the sake of simplicity, both corporations are subject to the same corporate income tax rate of $\tau \in (0,1)$. Let's first start with the target corporation. The target has a certain amount of net operation losses ($L > 0$) the firm has accumulated over the years that the firm can use to reduce its taxable income in the future. If the target corporation were to stay independent, the firm expects to realize future income with a present value of $Y_s \geq 0$, before deducting any net operating losses. If $Y_s \geq L$, the firm will pay an income tax of $\tau \cdot (Y_s - L)$, whereas if $Y_s < L$, the firm will not pay any corporate income tax. The after tax income for the standalone target, therefore, is $Y_s - \tau \cdot \max\{Y_s - L, 0\}$.

Whether the target has sufficient taxable income in the future to take advantage of the net operating losses is an important separator. Assume that the target's future income is uncertain ex ante but is distributed with a differentiable probability density function of $f(\cdot)$ over the support of $Y_s \in [0, \overline{Y_s})$ where $\overline{Y_s} \gg 0$ and $(Y_s) > 0\ \forall Y_s$. Based on L and Y_s, we can divide the target into two groups. If $Y_s \geq L$, the target has sufficient income to be able to utilize all net operating losses. The target will expect to realize an after-tax income of $Y_s - \tau \cdot (Y_s - L) = (1 - \tau)Y_s +$

τL. If $Y_s < L$, on the other hand, the target does not generate sufficient income to be able to use the net operating losses. In this case, the target will have an after-tax income equal to pretax income: Y_s. We refer to the first type of target corporation (with $Y_s \geq L$) as "financially healthy" and the latter type (with $Y_s < L$) as "financially weak."

Turning to the acquiring corporation ($i = b$), if the buyer were to stay independent and not acquire the target, the buyer expects to realize a future income of $Y_b \geq 0$ and after-tax income of $(1 - \tau)Y_b$. If the buyer were to acquire the target corporation, the combined corporation would generate, due to operational synergies, additional income $X \in (\underline{X}, \bar{X})$ where $\underline{X} \ll 0$ and $\bar{X} \gg 0$. Assume that X has a differentiable probability density function of $g(\cdot)$ where $(X) > 0\ \forall X$. The operational synergy will increase the combined company's taxable income by X, such that the combined company's pretax income is $Y_b + Y_s + X$.

In terms of timing of the game, at $t = 1$, the target corporation's stand-alone income (Y_s) and the operational synergy (X) are observed by both corporations. Both players also observe all other relevant parameters (such as Y_b and L), so that the business combination negotiation is done in a complete, symmetric information setting. For simplicity, we assume that the buyer's stand-alone taxable income is large enough to utilize the target's net operating losses: $Y_b \geq L$. At $t = 2$, the buyer and the seller negotiate over a possible business combination. Also for simplicity, we assume that the business combination is executed as a tax-free (or tax-deferred) reorganization. In case a combination is consummated, the buyer captures $\delta \in (0,1)$ share of the benefits (which can come from either operational synergy, tax benefits, or both) and the seller captures $1 - \delta$ share of the benefits. At $t = 3$, taxable income and, in case there was a business combination at $t = 2$, synergies are realized.

B. No Limitation on Use of Net Operating Losses for the Combined Company

We start with the case where a business combination between the buyer and the target does not lead to a limitation on the use of target's net operating losses, which approximates the case of banks during the Notice window or a world in which Section 382 did not exist. We can divide the set of possible business combinations depending on the target's type. Suppose first that $Y_s \geq L$, so that the target is financially healthy. If the parties were to stay independent, the buyer and the seller will realize after-tax, stand-alone incomes of $(1-\tau)Y_s + \tau L$ and $(1-\tau)Y_b$, respectively. These represent the parties' respective reservation values, the minimum value they must capture from the merger. If they were to merge, the combined company will pay an income tax of $\tau \cdot (Y_b + Y_s + X - L)$ and realize an after-tax income of $(1-\tau)(Y_b + Y_s + X) + \tau L$. Note that the expression allows the combined entity to fully utilize the net operating losses from the target corporation. The gain from the merger, therefore, is given by

$$(1-\tau)(Y_b + Y_s + X) + \tau L - \{(1-\tau)Y_s + \tau L\} - (1-\tau)Y_b = (1-\tau)X$$

Without any limitation on the use of target's net operating losses, there is an after-tax gain from a merger whenever the operational synergy is positive: $X \geq 0$. For financially healthy targets, allowing unlimited use of tax losses is neutral and non-distortionary, encouraging business combinations if and only if there are operational synergies. When the parties execute the transaction, the buyer will obtain an additional return of $\delta(1-\tau)X$ while the seller realizes an additional return of $(1-\delta)(1-\tau)X$.

Now consider a possible business combination with a financially weak target ($Y_s < L$). If the parties were to stay independent, at $t = 3$, the buyer and the seller expect to realize after-tax incomes of $(1-\tau)Y_b$ and Y_s, respectively. In case of a business combination, the combined company will realize an after-tax income of $(1-\tau)(Y_b+Y_s+X)+\tau L$. Note that, by assumption, the buyer's taxable income is sufficiently high so that the combined company will be able to fully utilize the target's net operating losses. The gain from the merger is given by

$$(1-\tau)(Y_b+Y_s+X)+\tau L-(1-\tau)Y_b-Y_s=\tau(L-Y_s)+(1-\tau)X$$

The expression on the right-hand side is strictly positive since, by assumption, $L>Y_s$, and the gain from this merger is also greater than the gain from a merger with a financially healthy target generating the same synergies. For the financially weak seller, therefore, without any limitation on the use of net operating losses, the parties will have two distinct incentives to merge: a possible operational synergy (X) and the ability to tap into the underutilized net operating losses ($L-Y_s$). The presence of the tax benefits in the merger implies that even if the operational synergy is small or negative, the parties will have an incentive to merge. That is, so long as $X \geq -\frac{\tau}{1-\tau}(L-Y_s)$, the benefit of merger is (weakly) positive and the tax benefits grow as the tax rate rises and the amount of underutilized tax losses by the target grows. Note that $-\frac{\tau}{1-\tau}(L-Y_s)<0$, so that the merger may produce a negative operational synergy but still generate a sufficiently large tax benefit to make it attractive for the parties. Thus, for the financially weak seller, the absence of a limit on the use of tax losses following an acquisition is distortionary in the sense that it encourages the parties to merge even when merger will destroy value.

C. Limitation on the Use of Net Operating Losses for the Combined Company

Now, suppose that when the target and the buyer merge, there is a limit such as that imposed by Section 382 on how much target's net operating losses that the combined company can utilize. We can let the limitation on the target's net operating losses to be proportional to the target's future income. Let βY_s, where $\beta \in (0,1)$, represent the maximum amount of target's net operating losses that the combined company can use. The assumption represents the fact that the limitation is determined by multiplying the company's equity value (target's future income) by the long-term tax-exempt rate and that this rate is lower than the return on the target's assets. Given that the ceiling on the target's net operating losses is proportionate to the target's future income, the buyer that merges with a financially healthy target company will be able to use more of the target's past net operating losses than the company that mergers with a financially weak target company.

Due to the NOL limitation, target corporations can be divided into three different groups. The first group includes the financially healthiest targets, those that generate enough income on their own to use all of the tax losses even if the limitation applied: $Y_s > \beta Y_s \geq L$. The second group includes moderately healthy target companies, such that the stand-alone target can utilize the entire net operating losses but the combined company cannot: $Y_s \geq L > \beta Y_s$. The third group includes only financially weak target companies, with relatively low stand-alone taxable income such that neither the stand-alone target nor the combined company can utilize all the net operating losses: $L > Y_s > \beta Y_s$. Let's examine these three groups in turn.

With respect to the financially healthy seller ($Y_s > \beta Y_s \geq L$), the respective parties' reservation values are $(1-\tau)Y_s + \tau L$ for the seller, and $(1-\tau)Y_b$ for the buyer. If they were to merge, the combined company will realize after-tax income of $(1-\tau)(Y_b + Y_s + X) + \tau L$. Note that, even with the NOL limitation, the target's stand-alone taxable income is large enough so that the combined company can still utilize the entire net operating losses. Hence, the NOL limitation rule creates no distortions on mergers. The gains from the merger are given by $(1-\tau)X$ and the parties will have an incentive to merge whenever the operational synergy is positive.

Turning to the moderately healthy target corporations, the parties' reservation values are the same as in the case with financially healthiest targets, i.e., $(1-\tau)Y_s + \tau L$ for the seller and $(1-\tau)Y_b$ for the buyer. If the companies were to merge, the combined company will pay an income tax of $\tau \cdot (Y_b + Y_s + X - \beta Y_s)$ and realize an after-tax income of $(1-\tau)(Y_b + Y_s + X) + \tau\beta Y_s$. The gains from the merger are, therefore, given by $(1-\tau)X - \tau(L - \beta Y_s)$. Note that, because of the NOL limitations, the combined company is worse off by $\tau(L - \beta Y_s)$ then the target and acquirer would be, in aggregate, by remaining separate. To justify a merger, they will need a strictly positive operational synergy:

$$X \geq \frac{\tau}{1-\tau}(L - \beta Y_s) > 0$$

this threshold level of synergy prevents certain economically efficient mergers from taking place and is the distortion caused by the NOL limitation. The threshold grows with the tax rate and the foregone tax benefits due to the limitation

Finally, the acquisition of a financially weak target corporation will produce a combined company that pays income tax of $\tau \cdot (Y_b + Y_s + X - \beta Y_s)$ and realizes after-tax income of $(1-\tau)(Y_b + Y_s + X) + \tau\beta Y_s$. The gains from the merger are $-\tau(1-\beta)Y_s + (1-\tau)X$. Now, in order for the parties to merge, they will need an operational synergy that is sufficiently positive to cover the tax loss that results from the NOL limitation. That is:

$$X \geq \frac{\tau}{1-\tau}(1-\beta)Y_s > 0$$

Thus, the limitation will discourage the acquisition of financially weak targets and prevent mergers that generate positive operational efficiencies. This effect grows with the tax rate and the target's income, and as β falls.

Table 1: Possible Distortions Caused by Section 382

Minimum Operational Synergy (X) Necessary for Business Combination	No Limitation on the Use of Target's Net Operating Losses	Limitation on the Use of Target's Net Operating Losses (βY_s)
Financially Strong Target ($Y_s > \beta Y_s \geq L$)	$X \geq 0$	$X \geq 0$
Moderately Healthy Target ($Y_s \geq L > \beta Y_s$)	$X \geq 0$	$X \geq \frac{\tau}{1-\tau}(L-\beta Y_s) > 0$
Financially Weak Target ($L > Y_s > \beta Y_s$)	$X \geq -\frac{\tau}{1-\tau}(L-Y_s)$	$X \geq \frac{\tau}{1-\tau}(1-\beta)Y_s > 0$

Table 1 summarizes the main findings by tabulating the minimum operational synergy necessary for a business combination. With respect to financially healthy target corporations, for whom the limitation on NOLs does not create a binding constraint, we get the optimal merger incentive regardless of whether a limitation applies (second row). For moderately healthy target corporations ($Y_s \geq L > \beta Y_s$), limiting the use of net operating loss carryforwards for merged corporations causes distortions on merger incentives. In that case, the combined company's operational synergy must be large enough to cover the loss of NOLs (third row). For financially weak target corporations ($L > Y_s > \beta Y_s$), we get different types of distortions depending on the rule (fourth row). Without any limitations on NOL use, the tax losses create an incentive for inefficient acquisitions. With limitations on NOL use, on the other hand, we get the opposite distortion. Similar to the case of moderately healthy target corporations, the weak targets are less inclined to execute a merger due to the loss of NOL tax benefits ($\tau(1-\beta)Y_s$). Now, operational synergies must be strictly positive for a merger to make sense and, as a result, too few mergers will take place.

D. Comparative Statics and Predictions

While the model is straightforward, it leads to a number of predictions. First, when we lift the restriction on the use of target's net operating losses, the incidence of business combinations (on average) should rise. While the rule has no effect on the financially healthy target corporations, for both moderately healthy and financially weak target corporations, they need smaller operational synergies to be able to consummate a merger. Second, in addition to the general rise in the incidence of business combinations, when the restriction on the use of net operating losses is eliminated, mergers will exhibit (on average) smaller operational synergies. Again, for financially healthy target corporations, the rule change has no effect. For moderately healthy target corporations, now mergers with smaller operational synergies become feasible. For financially weak target corporations, the operational synergy can even be negative.

Third, in terms of whether lifting the NOL restriction will induce more financially strong (or financially weak) targets to be acquired, the model is agnostic. First note that, conditional on the target's stand-alone income, the increase in the range of operational synergies that become subject to a possible business combination is the same for both moderately healthy and financially weak targets: for both types, the range of X for a possible merger increases by $\frac{\tau}{1-\tau}(L - \beta Y_s)$. However, because the distribution (or the density) of X can be large or small within the relevant range, eliminating the restriction on the use of net operating losses could lead to a higher incidence of acquisition of either the moderately healthy or financially weak target. The change in the rule, of course, has no effect on the financially healthy target. Fourth, changing the NOL rule will have an ambiguous welfare effect. With respect to the moderately healthy target, lifting a limitation on the use of net operating losses will unambiguously increase welfare by making all mergers with positive operational synergies feasible. For the financially weak targets, on the other hand, lifting the restriction leads to too many mergers. Depending on the magnitude of the inefficiency, limitations on NOLs like Section 382 could either increase or decrease welfare.

III. Data

To empirically evaluate the effect of Section 382 on merger activity, we combine several data sources. Data on bank and bank holding company mergers was collected from the Federal Reserve Bank of Chicago and merged with stock return data from CRSP using a crosswalk from bank identifiers to the CRSP permanent company numbers available from the Chicago Fed.[24] Each bank and bank holding company is assigned a unique identifier known as its IDRSSD. The

[24] Data are available at https://www.chicagofed.org/banking/financial-institution-reports/merger-data

merger data include identifiers for both the target and surviving entities for the merger as well as the top company in each bank's corporate structure. We retained this information because often it is the bank holding company, and not the bank itself, that is publicly listed.

Data from regulatory filings for banks was collected from the Federal Financial Institutions Examination Council website. Call Reports for banks are filed quarterly, and we compiled a panel dataset of these reports from 2004-2014, a symmetric window around the issuance of the Notice.[25] A similar panel dataset was constructed from regulatory filing for bank holding companies on file with the Chicago Fed.[26] Where multiple reports were filed on behalf of the bank holding company we used the figures for the consolidated group. For small bank holding companies that do not file consolidated financials, we imputed the data from all majority-held subsidiaries directly to the small bank holding company. For both banks and bank holding companies we selected a subset of the available variables, focusing on those related to the tax position of the bank and the strength of its loan portfolio. These include the amount of chargeoffs and loan loss reserves, as well as the amount of loans that are nonperforming (i.e., at least 90 days past due and still accruing interest, or not accruing interest).

When analyzing mergers we restrict the sample to exclude acquisitions where the acquirer was another bank with the same parent as the target bank. Since the definition of a bank for regulatory purposes does not perfectly overlap with the definition of a bank for tax purposes (including the application of the Notice), we include only entities that, based on their description, we believe are engaged in taking deposits and lending, the touchstone of banking for tax purposes: bank holding companies, member and non-member banks of the Federal Reserve

[25] These data are available at https://cdr.ffiec.gov/public/Default.aspx
[26] These data are available at https://www.chicagofed.org/banking/financial-institution-reports/bhc-data

System, Savings and Loan Associations and State Member Banks, and certain other domestic entities that engage in banking activities in the U.S.

IV. Empirical Analysis

This section lays out our empirical tests of the effect of the Notice. We begin by discussing issues with identifying mergers affected by the notice, and then turn to tests of merger activity, post-merger performance, and changes to the market capitalization of banks.

A. Identification

Although there were a variety of tax and non-tax interventions into the financial sector during the crisis, including a series of Notices related to the application of Section 382 in light of previously uncontemplated actions by the U.S. Treasury and Federal Reserve to take ownership stakes in banks, Notice 2008-83 was the first such Notice. News articles and memos from law firms at the time indicate the unexpected nature of this piece of guidance.[27] The fact that the Notice was widely panned as an improper exercise of Treasury's authority and repealed three months later may also be viewed as evidence that the Notice was unexpected. Although the Notice applied retroactively to ownership changes that had already occurred, we think it is reasonable to assume that any merger entered into before September 30th was not "treated" in the sense that the transaction and its terms could not have been negotiated in anticipation of the Notice.

However, by November 19, when Senator Sanders introduced a bill to rescind the Notice, potential counterparties to a bank merger should have been aware that the favorable treatment of unrealized loan losses provided by the Notice would not last. Although the ultimate resolution of

[27] See *supra* notes 14-15.

how unrealized loan losses would be treated under Section 382 and which (if any) transactions the Notice would apply to could not be known, the possibility that the Notice would only apply to mergers signed or closing by a certain date should have provided counterparties with an incentive to accelerate negotiations and consummate the transactions as quickly as possible. Because of the uncertainty about when the Notice would be overruled, some mergers that closed in January 2009 may have been finalized with the mistaken belief that the target would be subject to the Notice.

Cleanly identifying the merges that were subject to the treatment (i.e., the belief that the Notice would apply to the target) is made more difficult by the fact that the merger date provided by the Chicago Fed is the closing date, while the American Recovery and Reinvestment Act generally limited the Notice to transactions that had *signed* by January 16, 2009. This difference introduces measurement errors at both the beginning and end of the Notice window; some mergers that were negotiated before the Notice was issued closed after September 30th and some mergers that signed before January 16th did not close until after that date. Although there is anecdotal evidence that bank mergers were consummated very quickly during this time, there is almost certainly some measurement error in how we identify which mergers were subject to the Notice. Practically, what this means is that we are missing from some of our tests mergers that signed in the Notice window but did not close until after it, and we contaminate our sample of Notice mergers with some that were negotiated before the window. This latter effect will tend to attenuate any effects that we observe. The former effect could bias our estimates if the mergers that take longer to close differ in relevant ways from the mergers that signed and closed in the Notice window. The increased merger activity we observe during the Notice window does not appear to extend past the end of January (see Figure 1), suggesting that any contamination effect is small.

B. M&A Activity During the Notice Period

Figure 1 shows the number of bank and bank holding company mergers and acquisitions by month around the date of the Notice. The shaded bars indicate the four-month period from October 2008 to January 2009. The chart shows a general decline in the number of mergers before the Notice period, but with considerable variability and some apparent cyclicality, with more mergers closing late in the calendar year. Nevertheless, there is a visible increase in the number of mergers in the last three months of 2008 and the first month of 2009. This period corresponds with the peak of the financial crisis, so it is difficult to draw causal conclusions about the notice, particularly as banks tend to consolidate during times of financial distress. Regressions in Table 5 suggests that the increase in merger activity during the notice period, once we control for year and quarterly cyclicality with time dummies, is statistically marginal. Nevertheless, the increase in merger activity is consistent with the prediction of the model that lifting the NOL restriction would lead to an increased number of mergers.

How do the mergers that took place within the Notice window differ from mergers that took place before September 30th? Table 3 presents summary statistics as of June 30, 2008 for all banks, as well as univariate tests of the characteristics of bank merger targets for mergers consummated before and during the Notice period using t-tests for the differences in means between the two groups of mergers. This gives a sense of how target banks differed from the general population of banks as well as how mergers before and during the Notice period differed. We look at the chargeoffs and reserves of target banks, as well as a collection of variables from

Wheelock and Wilson (2000)[28] that predict banks failures and acquisitions.[29] By comparing all of the banks as of June 30th 2008 we avoid picking up time trends, which were certainly negative during this period.

While the sample size is relatively small, we see no strong differences between window and non-window mergers, with the exception that the size (log of assets) of the pre-Notice mergers is higher than during the Notice period, suggesting smaller banks merging during the Notice window, but even this different is not robust when the assets of banks are measured directly rather than by log(assets). We see no other significant differences in target bank characteristics during the merger period.

To get more insight into whether the characteristics of bank mergers differed during the Notice period, we present regressions of the determinants of becoming a merger target in Table 4. These are pooled panel logit regressions with covariates drawn from the literature on bank mergers (Wheelock and Wilson (2000) in particular). Because our data includes a number of extreme outliers, we Winsorize our data at the 99% level. All models include quarter and year dummies to control for time trend and seasonality.

In the first model, we include only the control variables and find sensible results. Less liquid banks and banks with lower capital adequacy are more likely to be merger targets. Adding the Notice window indicator in model 2 has no effect. In model 3 we interact Notice window with the amount of bad loans reported in the Call Report. This variable corresponds most closely with the NOLs potentially made available to an acquirer by the notice. We find no increased effect of bad loans on being a merger target during the notice period. Fully interacting the controls with the

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[28] David C. Wheelock & Paul W. Wilson, *Why do Banks Disappear? The Determinants of U.S. Bank Failures and Acquisitions*, 82 REV. ECON. STAT. 127–138 (2000).
[29] For firms missing a June 30, 2008 call report, we use the prior call report.

Notice indicator in model 4, we find that none of the interaction terms are significant. We interpret this as showing that the determinants of mergers during the Notice window do not differ measurably from other time periods.

Table 5 presents a parallel set of results for acquisitions. These are pooled OLS regressions where the dependent variable is the number of acquisitions undertaken by the bank during the period covered by each Call Report observation. The covariates again show intuitive results, with stronger finances correlated with acquisition activity, but we see no differential effect on firms' acquisition activity during the notice period when we interact the Notice indicators with the other covariates in models 3 and 4.

Together, Tables 4 and 5 suggest that the effect of the Notice on merger activity was relatively weak. The dummy variable for the effect of the Notice comes in significant in only one of the models, and none of the variables interacted with Notice come in significant in either regression. A caveat in interpreting these results is that, while the panel of observations is large, the number of notice period mergers is relatively small, limiting the ability to detect small differences during the period. It is possible that the Notice had effects that are beyond the power of our tests to detect.

C. Post-Merger Performance

An additional implication of the model is that mergers motivated by tax considerations may produce fewer synergies, leading to worse post-merger performance. To test this possibility, we look at the change in net income of banks that made acquisitions during the Notice window period and compare it to the change for banks that made acquisitions during the immediately preceding quarter. We measure the bank-level change in both net income and net income/assets one and two years after the Notice window compared to the June 2008 call report. Given that banks must remain in the sample, we are only able to observe acquirers, and the sample is relatively small. Moreover, with the pace of change during the financial crisis, even a one-quarter difference in merger timing may introduce unobserved differences not related to the Notice between groups of banks. Nevertheless, there is not a contemporaneous control group, and it is at least clear that banks that merged prior to the notice were not motivated by liberalized use of NOLs. As explained above, though, the Notice was retroactive, so both groups of banks were, in fact, able to utilize NOLs of the target under the Notice. These tests thus measure differences in the motivations of the mergers rather than the ex post tax treatment.

Table 6 presents regressions of the change in bank income (or income/assets) one and two years post-Notice on a single dummy variable for whether the merger occurred during the notice period. The sample includes mergers that occurred either during the Notice period or in the quarter immediately before the notice period. The sample sizes are therefore rather small, and we do not include additional controls for this reason.

We find that banks that undertook notice period mergers had lower growth in net income/assets and net income one year after the Notice. Two years after the Notice, the result is directionally consistent, but statistically weaker. These results are consistent with Notice period mergers featuring lower synergies, but the small number of mergers and ongoing financial crisis during the period of measurement makes drawing firm conclusions difficult.

C. Strategic Recognition of Loan Losses

The Notice protected built-in (*unrecognized*) losses on banks' loan portfolios from Section 382 but *recognized* losses were unaffected, which is to say that they continued to be impaired following a change in control of the bank. This asymmetric treatment provided banks with an incentive to avoid taking actions that would cause their tax losses to be recognized. The quintessential recognition event is a sale. Although we cannot observe loan sales, we can observe banks' decisions to "charge off" loans from their reserve.

Section 166 of the Internal Revenue Code provides a deduction for debts that become worthless in whole, or in part, during the taxable year. The determination of whether a loan is worthless or not is a facts and circumstances determination. However, amounts that are "charged off" (i.e., deemed uncollectible) for GAAP or regulatory purposes enjoy a conclusive presumption of worthlessness. Banks account for impaired loans using an unusual two-step process that does not have a ready explanation apart from its connection to the tax effects. When a loan is impaired, the bank must increase its loan loss reserve. The decision to "charge off" an amount that is already reflected in the loan loss reserve does not reflect a meaningful change in status of the loan from a financial accounting or regulatory perspective, but it does give the taxpayer a favorable presumption for taking a deduction for the uncollectible amount.

Whether a loan is charged off is, to some degree, within the discretion of the bank. Consumer debt is generally charged off as the debt becomes 120 or 180 days due. Classification of commercial debt, on the other hand, is more flexible and within management's control. We expect that banks, particularly banks that anticipate being acquired during the Notice window, will charge off fewer loans than they otherwise would in Q4 2008, and that the effect will be greatest for commercial loans, where there is the greatest discretion to defer the timing of charge offs.

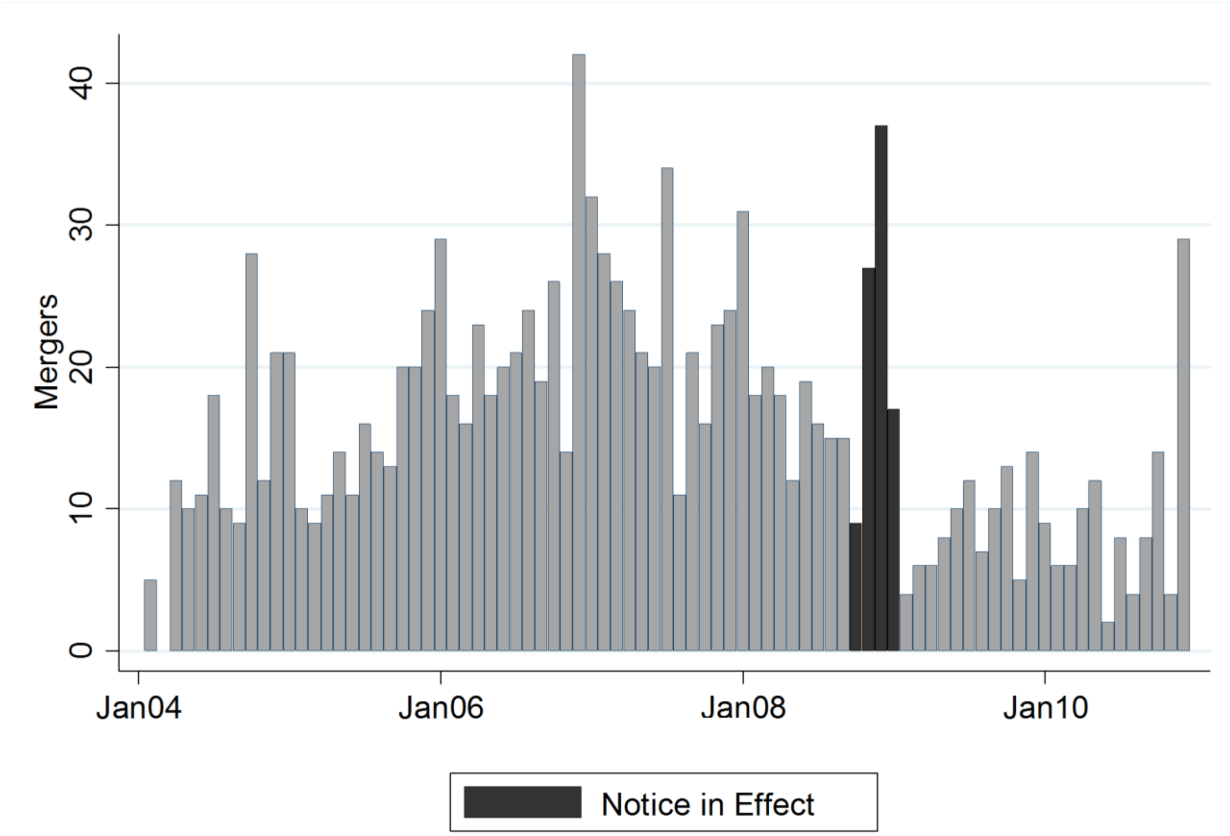
Figures 2a-2d depict the amount of loans charged off as a share of all loans in default, for commercial loans, revolving lines of credit, credit cards, and all loans, respectively, as of December 31 from 2005-2015. Each figure shows a separate time series for all banks that merged during the Notice window, and banks that did not. Note that the divergence in chargeoffs for 2008 between banks that did and did not merge in the Notice window, particularly for commercial loans, but also for revolving debt. For commercial loans, it appears that the graphs for merged banks and other banks move together during most of the time period, with only a short lived divergence in 2008 and 2009. We do not see the same decline for credit cards, although the zero bound on chargeoff rates may be binding in that case. Taken together, this evidence is consistent with banks use of discretion to delay charging off loans strategically to maximize the value of their tax assets in anticipation of being acquired.

Table 7 reports the results from a series of regressions of the effect of the Notice window on loan chargeoffs. The unit of observation is a bank in a given quarter between 2005 and 2015. We regress the chargeoffs for each category of loans on a dummy for the 12/31/08 Call Report period, a dummy for whether the bank merged in the Notice window, and the interaction between the two. The parameter estimate for this interaction term is our estimate of interest. We also control for the amount of loans in default for that bank in that quarter, and a collection of month and year dummy variables to capture seasonal and times trends in loan chargeoffs. Columns (5)-(8) also include bank fixed effects. We generally find negative effects on the interaction term, indicating that banks that merged during the Notice window had an unusually large decline in the amount of chargeoffs they made in 2008, with the effect being largest for commercial loans.

V. Conclusions

At the depths of the financial crisis, Notice 2008-83 dramatically increased the value of certain tax assets of banks to potential acquirers. This issuance of the Notice was unexpected and provides a unique setting in which to observe the effect of Section 382 in discouraging tax-motivated M&A activity. We find that lifting the Notice had relatively modest effects. While there is an increase in mergers during the period, our regressions suggest this increase may be attributable to other causes. We see little difference between the determinants of period and non-period mergers. We do, though, find some evidence that Notice period mergers have worse post-merger income, consistent with lower operational synergies. Section 382 is contentious and costly. We provide rare empirical evidence as to its effects and find that lifting the notice likely had limited impact.

Figure 1: Bank and BHC Mergers by Month: 2007-2011



Source: Federal Reserve Bank of Chicago

Figure 2a: Commercial Loan Chargeoffs/Loans in Default by Notice Window Merger

Figure 2b: Revolver Loan Chargeoffs/Loans in Default by Notice Window Merger

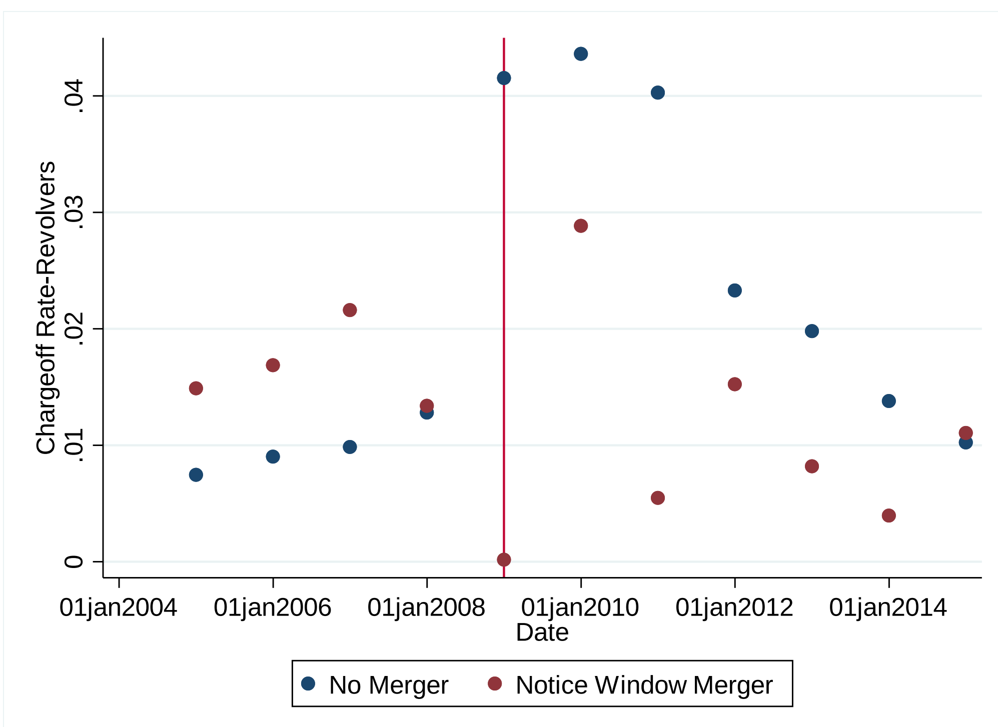


Figure 2c: Credit Card Loan Chargeoffs/Loans in Default by Notice Window Merger

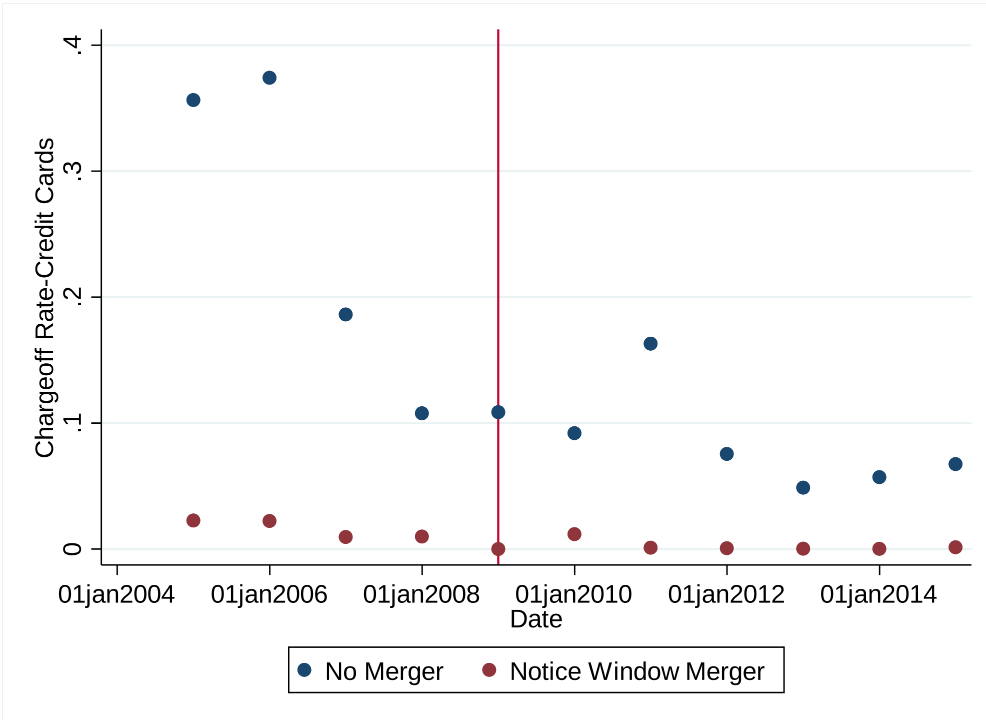


Figure 2d: All Loan Chargeoffs/Loans in Default by Notice Window Merger

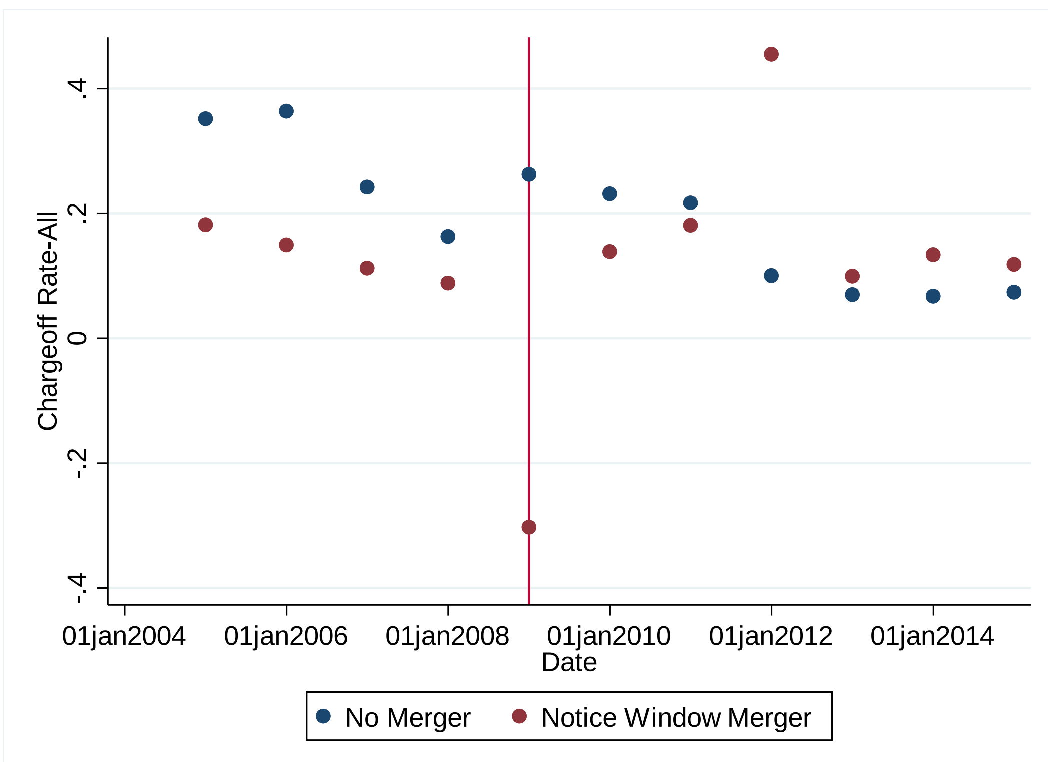


Table 2: Variables and Descriptions

This table presents descriptions of our bank variables, many of which are drawn from Wheelock and Wilson (2000).[30]

Variable	Description
A1-loans/assets	*Asset Quality: Total Loans / Total Assets. Source: Call Report.*
A2-realestateloans/loans	*Asset Quality: Real Estate Loans / Total Assets. Source: Call Report.*
A3-comindloans/loans	*Asset Quality: Commercial and Industrial Loans / Total Assets. Source: Call Report.*
A4-realestate/assets	*Asset Quality: Other Real Estate Owned / Total Assets. Source: Call Report.*
A5-interest/assets	*Asset Quality: Interest owed, but not collected / Total Assets. Source: Call Report.*
A6-badloans/assets	*Asset Quality: Non-performing loans / Total Assets. Source: Call Report.*
Assets	*Total Assets. Source: Call Report.*
CAPAD	*Capital Adequacy. Total Equity / Total Assets. Source: Call Report.*
Chargeoffs	*Chargeoffs on Loans and Leases. Source: Call Reports.*
Net Income	*Net income after taxes/Total Assets. Source: Call Reports.*
ETR Difference	*Taxes/Pretax Income of acquirer - Taxes/Pretax Income of Target. Source: Call Reports.*
Liquidity	*(Federal Funds Purchased – Federal Funds Sold)/Total Assets. Source Call Reports.*
Pretax Income	*Taxes/Pretax Income of acquirer - Taxes/Pretax Income of Target. Source: Call Reports.*
Nonperforming Loans	*Loans that are 90 days past due and accruing interest, or no longer accruing interest. Source: Call Reports.*
Reserves	*Balance of allowance for loan and lease losses. Source: Call Reports.*
Size	*Log of Total Assets. Source: Call Report.*
Taxes	*Applicable Income Taxes. Source: Call Reports.*
TEDRATE	*TED Spread from the St. Louis Fed*

[30] David C. Wheelock & Paul W. Wilson, *Why do Banks Disappear? The Determinants of U.S. Bank Failures and Acquisitions*, 82 REV. ECON. STAT. 127–138 (2000).

Table 3: Summary Statistics for All Banks and Merger Target Banks as of March 30, 2009

	All Banks		Pre-Window Merger Target Banks (6/2008 to 9/2008)	Notice Window Merger Target Banks (10/2008 to 1/2009)		
	(A) mean	sd	(B) mean	(C) mean	(B)-(C) Diff.	t-stat. on diff.
Chargeoffs	3004.913	57545.23	10548.55	69.48387	10479.07	0.70
Reserves	3968.657	30988.07	2325.176	811.4516	1513.724	1.42
Nonperforming Loans	18312.47	351304.9	95772.2	733.5161	95038.68	0.73
Assets	1319958	2.11e+07	6592534	115991	6476543	0.62
Net Income/Assets	.0036213	.0244911	.0055361	.0027215	.0028	0.33
Size [ln(assets)]	11.91364	1.369843	11.87738	11.16042	.7169	2.28
CAPAD	.1246236	.1086385	.1211788	.1481307	-.0269	-1.09
A1-loans/assets	.6472787	.1967642	.5679978	.5862178	-.01822	-0.42
A2-realestateloans/lo0ans	.7583757	4.150086	2.230794	.816332	1.414	0.44
A3-comindloans/loans	.3513987	17.48218	.1787639	.1608951	.0178	0.86
A4-realestate/assets	.0028463	.0067894	.0020875	.0019109	.0001	0.19
A5-interest/assets	.028963	.0063317	.0147486	.0144285	.00032	0.55
A6-badloans/assets	.0098592	.0170695	.0065305	.0049185	.0016121	0.77
Observations	7698		125	31		

Table 4: Likelihood of Becoming a Target for non-BHCs (Pooled Panel Logit Regressions)

This table presents pooled panel logit regressions with the dependent variable an indicator that takes the value 1 if the bank was a merger target during the period following each quarterly call report and 0 otherwise. The Notice Window indicator corresponds to the call report period beginning 9/31/2008. All variables are as described in Table 2.

(on next page)

	(1)	(2)	(3)	(4)
CAPAD	-0.00891	-0.00693	-0.00757	0.0455
	(-0.02)	(-0.02)	(-0.02)	(0.10)
Liquidity	-2.177***	-2.171***	-2.171***	-2.156***
	(-7.17)	(-7.15)	(-7.15)	(-6.91)
Net Income/Assets	-24.12***	-23.89***	-23.92***	-25.66***
	(-5.11)	(-5.06)	(-5.07)	(-5.07)
Nonperforming Loans	7.86e-08	9.38e-08	0.000000184	-5.90e-08
	(0.07)	(0.08)	(0.16)	(-0.05)
Size (ln(Assets))	0.138***	0.138***	0.138***	0.147***
	(5.42)	(5.41)	(5.41)	(5.65)
TEDRATE	0.163**	0.0122	0.0122	0.0142
	(2.19)	(0.10)	(0.10)	(0.11)
Notice Window Indicator=1		0.409	0.423	2.564*
		(1.46)	(1.50)	(1.76)
Notice Window Indicator=1 X Nonperforming Loans			-0.00000151	0.00000296
			(-0.34)	(0.67)
Notice Window Indicator=1 X Liquidity				-0.0981
				(-0.08)
Notice Window Indicator=1 X CAPAD				-1.334
				(-0.58)
Notice Window Indicator=1 X Net Income/Assets				18.03
				(1.31)
Notice Window Indicator=1 X Size-ln(assets)				-0.172
				(-1.44)
Constant	-6.677***	-6.639***	-6.639***	-6.745***
	(-21.34)	(-21.22)	(-21.23)	(-21.16)
N	216111	216111	216111	216111

Table 5: Propensity to Acquire

This table presents pooled panel logit regressions with the dependent variable an indicator that takes the value 1 if the bank was a merger target during the period following each quarterly call report and 0 otherwise. The Notice Window indicator corresponds to the call report period beginning 9/31/2008. All variables are as described in Table 2.

(on next page)

	(1)	(2)	(3)	(4)
CAPAD	0.0208***	0.0208***	0.0208***	0.0210***
	(9.27)	(9.27)	(9.27)	(9.19)
Liquidity	0.00600***	0.00601***	0.00601***	0.00576***
	(2.99)	(2.99)	(2.99)	(2.88)
Net Income/Assets	-0.0489*	-0.0487*	-0.0488*	-0.0559*
	(-1.74)	(-1.73)	(-1.73)	(-1.92)
Nonperforming Loans	-0.000000177***	-0.000000177***	-0.000000176***	-0.000000178***
	(-4.36)	(-4.36)	(-4.39)	(-4.42)
Size (ln(Assets))	0.00612***	0.00612***	0.00612***	0.00617***
	(12.79)	(12.79)	(12.79)	(12.64)
TEDRATE	-0.000105	-0.000218	-0.000218	-0.000210
	(-0.31)	(-0.38)	(-0.38)	(-0.37)
Notice Window Indicator=1		0.000344	0.000420	0.0159
		(0.25)	(0.30)	(1.22)
Notice Window Indicator=1 X Nonperforming Loans			-1.79e-08	4.14e-08
			(-0.22)	(0.47)
Notice Window Indicator=1 X Liquidity				0.00819
				(0.68)
Notice Window Indicator=1 X CAPAD				-0.00415
				(-0.92)
Notice Window Indicator=1 X income_assets				0.0954
				(1.35)
Notice Window Indicator=1 X Size-ln(assets)				-0.00129
				(-1.18)
Constant	-0.0703***	-0.0703***	-0.0703***	-0.0709***
	(-12.45)	(-12.46)	(-12.46)	(-12.33)
r2	0.00877	0.00877	0.00877	0.00878
N	352279	352279	352279	352279

Table 6. Post-Acquisition Performance

This table presents regressions in which the dependent variable is the bank-level difference in the value of Net Income, Income/Assets, and Tax Rate as of June 2008 and the same values measure as of December 2009 (1 year post-notice) and December 2010 (2 years post-notice). The sample is consists of banks that merged between June 2008 and December 2008 (the Notice period and the quarter before).

	(1) Net Income/Assets Change (1 Year Post)	(2) Net Income/Assets Change (2 Years Post)	(3) Net Income Change (1 Year Post)	(4) Net Income Change (2 Years Post)	(5) Tax Rate Change (1 year post)	(6) Tax Rate Change (2 year2 post)
Notice Window Acquisition Indicator	-0.0103*	-0.00643	-0.00857*	-0.00466	-0.534	-0.335
	(-2.23)	(-1.72)	(-2.02)	(-1.81)	(-1.28)	(-1.12)
Constant	0.00744	0.00484	0.00613	0.00333	0.350	0.260
	(1.76)	(1.51)	(1.58)	(1.72)	(0.94)	(0.88)
N	47	55	47	55	48	56

Table 7. Chargeoffs During Notice Period

	(1) Commercial /Industrial	(2) Revolvers	(3) Credit Cards	(4) All
12/31/2008 Call Date	311.2	8.798	-476.8	1304.5
	(0.81)	(0.02)	(-0.42)	(0.89)
Notice Window Merger	830.4***	-13.66	-2039.5***	2094.8*
	(2.75)	(-0.08)	(-10.08)	(1.90)
12/31/2008 Call Date X Notice Window Merger	-3834.8***	-3591.4*	-2833.6	-70072.5
	(-3.23)	(-1.66)	(-1.54)	(-1.59)
Nonperforming Loans	0.00849***	0.0168***	0.0124***	0.0448***
	(8.91)	(11.67)	(6.51)	(11.65)
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
r2	0.270	0.557	0.0317	0.349
N	328600	328598	328599	327168

	(5) Commercial/ Industrial	(6) Revolvers	(7) Credit Cards	(8) All
12/31/2008 Call Date	351.8	41.03	-508.5	1405.0
	(1.30)	(0.13)	(-0.87)	(1.59)
12/31/2008 Call Date X Notice Window Merger	-4722.7*	-3449.8*	-2297.6**	-72224.6
	(-1.73)	(-1.79)	(-2.15)	(-1.52)
Nonperforming Loans	0.00360***	0.0130***	0.00469***	0.0259***
	(4.55)	(8.14)	(4.72)	(7.87)
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
r2	0.497	0.595	0.512	0.648
N	328600	328598	328599	327168

t statistics in parentheses; * p<0.10, ** p<0.05, *** p< 0.01