

Capping the Deductibility of Corporate Interest Expense

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Many lawmakers have indicated support for reducing the statutory corporate tax rate from 35 to 25 percent on a revenue-neutral basis. However, they have not made clear how they would broaden the base enough to pay for that rate reduction. This report proposes a specific approach for revenue-neutral corporate tax reform: limiting the tax deductibility of interest expense for C corporations. That would significantly reduce the tax code's bias in favor of debt-financed investment relative to equity-financed investment, while keeping the overall cost of capital roughly the same.

The authors propose reform that lowers the corporate tax rate from 35 to 25 percent and allows nonfinancial C corporations to deduct only 65 percent of their interest expense, with special treatment for the financial sector and for companies that would have otherwise realized taxable losses. Based on a static analysis of aggregate data between 2000 and 2009, the authors calculate that the revenue loss from lowering the corporate tax rate to 25 percent would have been about the same as the revenue gain from their proposed limits on interest deductions.

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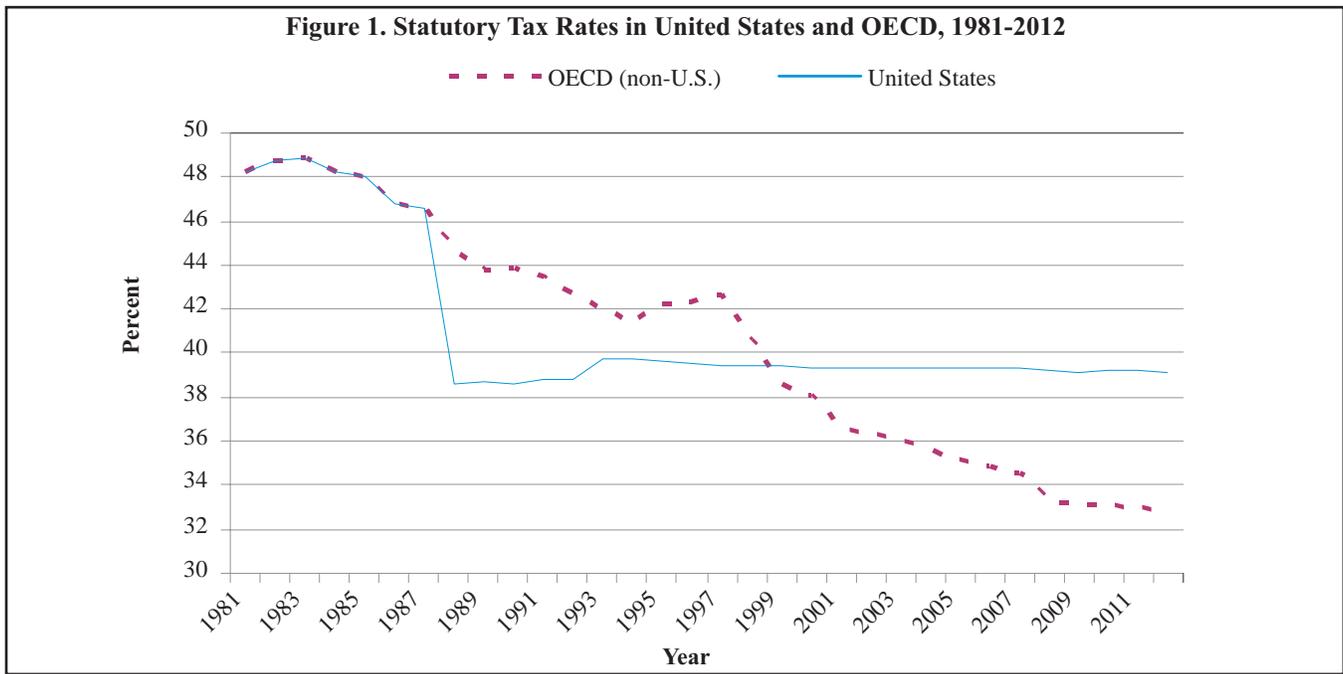
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I. Introduction

As the economy continues its sluggish recovery from the Great Recession, U.S. lawmakers have been advocating for corporate tax reform as a way to bolster growth and competitiveness. Meanwhile, the unsustainable fiscal path of the federal budget likely precludes any significant increases in federal deficits in order to achieve corporate tax reform. As a result of those competing demands, policymakers have been searching for revenue-neutral reforms that would broaden the corporate tax base and reduce the statutory corporate tax rate. This report argues that such reform should include a limitation of the tax deductibility of corporate interest expense and it provides one illustrative proposal.

Reformers contend that the statutory corporate tax rate is too high. Indeed, when combined with average state and local corporate taxes, the top rate is 39.1 percent, the highest in the OECD.¹ That rate has largely been unchanged since the Tax Reform Act of 1986; in the meantime, however, most industrialized countries have significantly trimmed their corporate tax rate. (See Figure 1.)

¹OECD Tax Database.



By taking into account various other features of the U.S. tax code, such as accelerated depreciation allowances, researchers can calculate the effective marginal tax rate (EMTR) on corporate investment. The EMTR measures the tax code’s combined impact on an investment project that is expected to just satisfy investors’ required returns; economists typically consider the EMTR to be a good measure of the extent to which the tax code disincentivizes marginal investment. Although the U.S. EMTR is somewhat higher than the average EMTR of our OECD competitors, the difference is less stark than suggested by a simple comparison of statutory corporate tax rates (see Table 1).

However, the decision of where to locate a particular discrete investment (for example, a factory) is likely to depend heavily on the statutory rate, not just the EMTR.² That’s because those investments are expected to generate profits substantially above the marginal cost of capital; for such highly profitable projects, provisions such as accelerated depreciation deductions or targeted tax credits matter less, and the statutory rate at which those profits are taxed matters more.³ Because the U.S. statutory rate

	U.S.	OECD (ex-U.S.), Unweighted	OECD (ex-U.S.), GDP-Weighted
Statutory rate ^a	39.1%	25.0%	32.8%
Effective marginal tax rate ^b	23.6%	17.3%	21.6%

^a Authors’ calculations based on OECD data. Tax rates include taxes imposed by subnational governments. *Id.*
^b Hassett and Mathur, “Report Card on Effective Corporate Tax Rates,” *Am. Enter. Inst. Tax Pol’y Outlook* 6 (Feb. 9, 2011). See also Gravelle, “International Corporate Tax Rate Comparisons and Policy Implications,” Congressional Research Service, R41743, at 5 (Mar. 31, 2011), *Doc 2011-7074*, 2011 TNT 65-32 (estimating a similar difference between the U.S. EMTR and the (ex-U.S.) OECD average EMTR). EMTR calculations do *not* include the impact of shareholder-level taxes. Since these estimates were made, Japan has cut its corporate tax rate by 3 percentage points; that would very slightly increase the disparity between U.S. EMTR and the average EMTR of OECD nations (excluding the United States).

is so high, corporations are encouraged to engage in discrete investment projects in countries or territories with lower statutory tax rates, such as Ireland or Switzerland, rather than in the United States.

Thus, the central objective of most corporate tax reform proposals is to lower the statutory tax rate. While different proposals have suggested different statutory rates, a rate of 25 percent seems to be a common objective. That is the rate proposed by the

²See Devereux and Griffith, “Evaluating Tax Policy for Location Decisions,” 10 *Int’l Tax and Pub. Fin.* 107, 108 (Mar. 2003) (arguing that discrete investment choices depend on the effective average tax rate, which is a weighted average of the EMTR and the statutory tax rate).

³Sometimes, those profits are taxed at some rate other than the top statutory rate; for instance, profits attributable to domestic production activities are generally taxed at roughly 31.85 percent, rather than 35 percent. Section 199.

Business Roundtable,⁴ Mitt Romney,⁵ and Rep. Paul Ryan, R-Wis.⁶ Indeed, in a Grant Thornton survey of 318 senior financial officials at major U.S. corporations, 60 percent reported that they would support repeal of “tax breaks” only in exchange for a tax rate of 25 percent or below.⁷

Yet few proposals have offered sufficient details on the base-broadening measures. For instance, President Obama has proposed a revenue-neutral corporate tax reform, which would reduce the statutory tax rate to 28 percent and provide additional incentives for manufacturing and research and development.⁸ However, the president’s proposal identified only enough base-broadening measures to lower the rate by roughly 1 percentage point.⁹

In fact, Congress will not find it easy to draft a revenue-neutral corporate tax reform policy. Tax expenditures — including deductions, exclusions, deferrals, and credits — are less sizable in the corporate income tax code than they are in the individual income tax code. The Joint Committee on Taxation has roughly estimated that the elimination of nearly all corporate tax expenditures — with the noted exception of the deferral of taxation on profits from controlled foreign corporations — would allow the statutory tax rate to be reduced to only 28 percent on a revenue-neutral basis.¹⁰

⁴Liberto, “CEOs: Create Jobs by Cutting Corporate Tax Rate and Regulations,” CNN.com (Mar. 7, 2012).

⁵Romney, “Believe in America: Mitt Romney’s Plan for Jobs and Economic Growth,” 6 (Sept. 6, 2011).

⁶Ryan, “The Path to Prosperity: A Blueprint for American Renewal,” 15 (Mar. 20, 2012), *Doc 2012-5826*, 2012 TNT 55-22.

⁷Mark Stutman, testimony at a House Ways and Means Committee hearing on how business tax reform can encourage job creation, 2-3 (2011), *Doc 2011-11907*, 2011 TNT 107-58.

⁸The White House and Treasury, “The President’s Framework for Business Tax Reform,” 1 (Feb. 22, 2012), *Doc 2012-3711*, 2012 TNT 36-18.

⁹Robert C. Pozen, “Some Quick Thoughts on the Math of Obama’s Corporate Tax Reform Plan,” available at <http://BobPozen.com> (Oct. 4, 2012). The president’s proposal laid out a “menu of options” for raising the necessary revenue: increasing taxes on noncorporate businesses, reforming accelerated depreciation deductions, and “reducing the bias toward debt financing.” White House and Treasury, *supra* note 8, at 10.

¹⁰JCT, memorandum to Democratic lawmakers (Oct. 27, 2011), *Doc 2011-23034*, 2011 TNT 213-12. The JCT memorandum did *not* propose disallowing the deferral of taxation on profits from CFCs, which has a significant budgetary cost. *Id.* at 11 (calculating the revenue effects of repealing most other corporate tax expenditures). See also Office of Management and Budget, “Analytical Perspectives, Budget of the United States Government, Fiscal Year 2013,” 249 (2012) (estimating that deferral of income from CFCs has a cost (in the tax expenditure sense) of \$216 billion from fiscal 2013 to 2017). However, a simple repeal of deferral (*i.e.*, imposing immediate U.S. taxation on all worldwide income of U.S. corporations) is not feasible, politically or economically. See generally Pozen, “A Two-Pronged

(Footnote continued in next column.)

Even if Congress were willing to disallow deferral of taxation on foreign-source income, the JCT analysis shows that Congress would likely have to eliminate every large corporate tax expenditure in order to finance a rate cut to 25 percent. Further, many large tax expenditures — such as the deduction for manufacturing in the United States and the exclusions of interest on municipal bonds — are seen by both political parties as vital to the economy.

Therefore, if policymakers want to reduce the corporate tax rate on a revenue-neutral basis, they will likely have to adopt other types of reforms to broaden the corporate tax base. Ideally, those reforms should offer the potential for significant revenue gains and reduce economic distortions. Capping the deductibility of interest expense meets both of those criteria.

We are not the first to suggest that the deductibility of interest expense should be limited.¹¹ Importantly, House Ways and Means Committee Chair Dave Camp, R-Mich., and Senate Finance Committee Chair Max Baucus, D-Mont., have indicated that policymakers should consider modifying the treatment of interest expense as part of a rate-lowering corporate tax reform.¹²

This report further develops the arguments in favor of that limitation and analyzes a proposal to restrict the corporate deduction for interest expense. In particular, our proposal allows nonfinancial companies to deduct only 65 percent of gross interest paid and allows financial companies to deduct 79 percent of gross interest paid (with special treatment for both financial and nonfinancial companies that would have otherwise realized a taxable loss). We use those percentages because they alone would raise approximately enough revenue (based on historical data) to lower the corporate tax rate from 35 to 25 percent. This modification to the treatment of interest expense also would substantially reduce the

Approach to Reforming International Corporate Taxes in the U.S.,” *Tax Notes Int’l*, Sept. 26, 2011, p. 951.

¹¹See Bipartisan Tax Fairness and Simplification Act of 2011, S. 727, section 211 (2011); White House and Treasury, *supra* note 8, at 10. See also the President’s Economic Recovery Advisory Board, “The Report on Tax Reform Options: Simplification, Compliance, and Corporate Taxation” (Aug. 2010), *Doc 2010-19068*, 2010 TNT 167-50; Brill, “A Pro-Growth, Progressive, and Practical Proposal to Cut Business Tax Rates,” 1 *Am. Enter. Inst. Tax Pol’y Outlook* 1, 2-3 (Jan. 19, 2012); Calvin H. Johnson, “Corporate Meltdowns and the Deduction of Credit-Risk Interest,” *Tax Notes*, May 2, 2011, p. 513, *Doc 2011-7312*, or 2011 TNT 86-7; and Poole, “Moral Hazard: The Long-Lasting Legacy of Bailouts,” 65 *Fin. Analysts J.* 6 (Nov. 2009).

¹²See Ways and Means and Senate Finance committees’ hearing on tax reform and the tax treatment of debt and equity (2011).

bias in the tax code toward debt, which distorts economic decision-making.

We recognize that the reduction of the corporate tax rate from 35 to 25 percent need not be financed solely by limiting corporate interest deductions. However, we believe that our proposal provides a good starting point for serious consideration of domestic tax reform. If Congress decided to allow a greater share of corporate interest expense to be deducted, it would have to limit other corporate deductions or pass new taxes to finance that reduction.

II. Proposal

We propose a corporate tax reform that lowers the statutory rate, paid for by capping the fraction of interest expense that is deductible for C corporations.¹³ Such limitations on interest expense have the potential for significant revenue gains: In 2007 C corporations with net income claimed nearly \$1.4 trillion in interest deductions. And as will be discussed in later sections, there is a strong policy justification for reforming the tax treatment of interest expense: reducing the large bias of the U.S. tax code in favor of debt over equity.

This section outlines an illustrative proposal for revenue-neutral corporate tax reform that:

1. Lowers the corporate tax rate to 25 percent.
2. Allows nonfinancial C corporations to deduct 65 percent of their gross interest expense.
3. Allows financial C corporations to deduct 79 percent of their gross interest expense.¹⁴ (Hereafter, the provisions described in bullets 2 and 3 will be referred to as the “interest cap.”)
4. Allows all corporations that would have had a taxable loss — but for the interest cap — to report a taxable income of zero.¹⁵ For instance, if (nonfinancial¹⁶) Corp. X made \$75 in income (before interest expense) and paid \$100 in interest expense, it would be allowed to claim a taxable income of zero, rather than \$10, which would otherwise result from the interest cap ($\$75 - \$100 \times 0.65 = \$10$).

This proposal should be considered an illustration of the general strategy of limiting the corporate

¹³S corporations, partnerships, and similar corporate entities can fully deduct interest expense, and they pass those deductions through to their owners. We might want to explore some modifications to that treatment; however, our current proposal would affect only C corporations.

¹⁴We will explore several alternatives to that treatment, all of which would be designed to raise the same amount of revenue.

¹⁵This provision prevents our proposal from placing a large tax burden on companies nearing financial distress.

¹⁶This provision would apply equally to financial companies.

interest deduction. As will be discussed below, we have used macro data and static analysis to determine the revenue neutrality of the various provisions.¹⁷ Nonetheless, the calculations show that modifications to the deductibility of interest expense can raise a large amount of revenue, relative to total corporate tax receipts.

A. Data

We rely primarily on corporate tax return data from the IRS Statistics of Income division.¹⁸ Those data are based on a stratified sample of more than 100,000 unaudited corporate tax returns each year. They contain estimates of assets, liabilities, receipts, deductions, credits, and tax payments, with many subcategories for each.

We use Table 17, “Returns With Net Income, Form 1120” for our estimates.¹⁹ We use the data for the years 2000 to 2009, as 2009 is the most recent year with available data; further, a 10-year estimating period is desired. Later in this section, we will address some cautions and caveats arising from using these assumptions.

Table 2. Summary Data (in billions of dollars)^a

Year	Corporate Tax Revenue	Credits ^b	Non-Financial Sector Interest Deductions	Financial Sector Interest Deductions
2000	\$185.4	\$12.8	\$610.4	\$321.0
2001	\$153.5	\$12.4	\$556.6	\$308.3
2002	\$139.7	\$13.0	\$378.9	\$204.6
2003	\$156.7	\$14.8	\$385.4	\$182.6
2004	\$199.2	\$15.8	\$430.2	\$266.3
2005	\$283.4	\$22.2	\$621.7	\$390.4
2006	\$314.7	\$18.9	\$847.9	\$581.8
2007	\$293.6	\$17.7	\$987.6	\$381.1
2008	\$207.4	\$12.4	\$590.7	\$98.3
2009	\$181.7	\$13.6	\$335.7	\$87.0
Total	\$2,115.3	\$153.6	\$5,745.1	\$2,821.4

^a*Id.* Columns may not precisely sum to totals because of rounding.

^bExcluding foreign tax credits.

B. Revenue Impact of Lowering Rates

Our proposal would reduce the tax rate from 35 to 25 percent. That would have cost \$648 billion from 2000 to 2009, estimated as follows: Over that period, the treasury collected \$2,115 billion in corporate tax revenue. Corporations additionally claimed \$154 billion in credits that (essentially) do not depend on

¹⁷We are seeking funding for a more rigorous, forward-looking estimate.

¹⁸IRS, “SOI Tax Stats — Corporation Complete Report.”

¹⁹*Id.*

the tax rate. Thus, a 10 percentage point reduction in the corporate tax rate would have cost, on a static basis, roughly \$648 billion ($\$2,115 \text{ billion} + \154 billion) $\times 10/35$ over that period.

C. Revenue Impact of Interest Cap

Our proposal would allow nonfinancial sector C corporations to deduct only 65 percent of their interest expense. Financial sector C corporations would be allowed to deduct 79 percent of their interest expense. Relative to existing policy, which allows the complete deduction of interest expense (with only a few minor exceptions),²⁰ the interest cap would have expanded the corporate tax base by roughly \$2,603 billion ($0.35 \times \$5,745 \text{ billion} + 0.21 \times \$2,821 \text{ billion}$) over the period from 2000 to 2009. At a 25 percent tax rate, that expanded tax base would have resulted in \$651 billion ($0.25 \times \$2,603 \text{ billion}$) in additional tax revenue — roughly equal to the \$648 billion cost of reducing the tax rate from 35 to 25 percent.

D. Caveats to Revenue Estimate

As mentioned above, those revenue estimates are highly uncertain. Our goal is not to formulate a rigorous revenue estimate but rather to demonstrate the base-broadening potential of a policy resembling the interest cap. Nevertheless, it is necessary to acknowledge how a more rigorous estimate might differ qualitatively from the ballpark estimates we have provided.

Most obviously, a forward-looking estimate would find a larger absolute value for all our revenue gain and loss estimates, as inflation and real economic growth increase both corporate tax revenue and corporate interest deductions. That growth does not change our conclusions as long as we assume that corporate tax revenue and interest deductions will increase at the same relative growth rate. In the sections below, we describe some reasons why that assumption may not hold in the future. We also discuss several features of the historic data that we use that could distort the true impact of our proposal on corporate tax revenue.

1. Revenue gain from interest cap. Although we hope that the interest cap will affect the financing decisions of corporations, those behavioral responses should not adversely affect the estimated revenue gain from the interest cap. If a company were to finance a marginal investment using equity, it would not be able to deduct any of the return to capital; if it financed the investment using debt, it would still be able to deduct 65 or 79 percent of its returns. Because the EMTR facing equity-financed

investment will remain higher than the EMTR facing debt-financed investment, any shifting from debt to equity will, if anything, increase revenue relative to our estimates.²¹

Nevertheless, by relying on data from 2000 through 2009, our estimates for the potential revenue gain from limiting corporate interest deductions might not accurately reflect future conditions. First, the Congressional Budget Office projects that the average yield of a 10-year treasury will be 4.2 percent over the next 10 years, compared with an average of 4.46 percent from 2000 to 2009.²² Second, bondholders may be partially affected by the interest cap in the form of lower yields, reducing the value of interest deductions relative to our estimates and also reducing interest income taxable to lenders. Third, corporate leverage has decreased significantly since 2008 (a decrease that is partially captured in the last two years of our data).²³ All those factors suggest that we overestimate the amount of revenue that can be raised by the interest cap.

On the other hand, our calculations include only interest deductions claimed by corporations with net income, as those are the companies to whom the interest cap would fully apply. However, corporations with net losses may still bear the interest cap to a lesser degree.

Consider again Corp. X. It had \$75 in income before interest expense, but \$100 in interest expense. Under current rules, that corporation would claim a taxable loss of \$25 and would generally be entitled to carry that loss backward or forward.²⁴ Under the interest cap, the company could deduct only \$65 in interest expense, which would result in a taxable profit of \$10; however, under the fourth element of the proposal, X would be allowed to claim a taxable income of zero. Therefore, relative to current law, our proposal has eliminated X's \$25 taxable loss and thereby eliminated a potential tax loss carryback or carryforward, increasing the company's tax liability. Because our estimates do not include gains from companies like that, we may underestimate the amount of revenue raised by the interest cap.

²¹Because the statutory tax rate is the same regardless of financing method, a higher EMTR on equity finance implies a higher effective average tax rate as well. See Devereux and Griffith, *supra* note 2, at 112.

²²Author's calculations based on CBO, "An Update to the Budget and Economic Outlook: Fiscal Years 2012 to 2022" (Aug. 22, 2012), *Doc 2012-17803*, 2012 TNT 164-13.

²³See generally McKinsey Global Institute, "Debt and Deleveraging: The Global Credit Bubble and Its Economic Consequences" (Jan. 2010).

²⁴See section 172.

²⁰See generally section 163.

2. Revenue loss from reducing the tax rate.

a. Dynamic responses. We do not account for any dynamic responses to a lower corporate tax rate. A lower rate would make the United States a relatively more attractive destination for discrete, profitable investment projects. That should lead companies to locate projects in the United States rather than overseas, thereby mitigating the revenue loss from the lower tax rate.

b. Foreign tax credits. For the purposes of calculating the revenue loss from reducing the corporate tax rate, we assume that foreign tax credits are proportional to the tax rate. That effectively assumes that corporations only repatriate profits if they initially paid taxes to a foreign country at a rate greater than or equal to the U.S. rate (and thus owed little or no additional tax liability on the repatriation).

To understand our reasoning, consider the following example. Imagine that a corporation paid 35 percent in tax (say, to Japan) on one dollar of total profits. Generally, the corporation would be able to claim 35 cents of FTCs and would owe no additional tax liability when it repatriated those earnings. If the U.S. tax rate were reduced to 25 percent, the corporation would still owe no additional tax liability on that repatriation, but it would claim only 25 cents in FTCs. If corporate repatriations of foreign-source profits resemble this example, then we are justified in assuming that FTCs on existing repatriations are roughly proportional to the U.S. tax rate.²⁵

However, the corporation in this example might be able to continue claiming a full 35 cents of FTCs; it could use 25 cents of the credit to wipe out its tax liability on the profits in question, while “cross-crediting” the other 10 cents to decrease its tax liability on foreign-source profits earned in low- or no-tax jurisdictions.²⁶ If cross-crediting is widespread, an assumption of proportionality is unwarranted and would understate the revenue loss from reducing the corporate tax rate. Therefore, we assume that lawmakers will impose limits on cross-

²⁵Under this framework, the lower U.S. tax rate may lead a corporation to decide to repatriate income that had been taxed at 30 percent in a foreign country. That would generate additional tax credits but would (generally) have no impact on tax revenue (absent the effect of cross-credits, as described in the text), so for the purposes of revenue estimation, we are not concerned with those transactions.

²⁶See section 904(d).

crediting, perhaps in a manner as outlined in Obama’s fiscal 2013 budget.²⁷

Financing Method	EMTR
Debt	-6.4%
External equity (new shares)	36.1%
Internal equity (retained earnings)	34.5%
Weighted average	25.3%

^aCBO, “Computing Effective Tax Rates on Capital Income,” Corrected Effective Tax Rates (Dec. 19, 2006), *Doc 2006-25321, 2006 TNT 244-11*. Estimates from this CBO model take into account effective investor-level taxes (considering, for instance, the presence of tax-exempt accounts), but they do not include state-level taxes. For internal equity and weighted average, we change the limits as suggested by CBO, “Taxing Capital Income,” 27 (Oct. 1, 2005), *Doc 2005-21274, 2005 TNT 202-16*. For internal equity, we calculate the EMTR on equity-financed investment when the fraction of earnings retained by corporations is set to one. For the weighted average, we calculate the EMTR on all corporate investment when the fraction of earnings retained by the corporation is set to 0.9.

III. Policy Motivation for Interest Cap

A. The Tax Code’s Bias for Debt

The tax code generally favors debt over equity because interest on debt is deductible against corporate tax while returns to equity (in the form of dividends or share appreciation) are not. As a result, equity-financed corporate investment typically faces two layers of tax (at the corporate level and again at the shareholder level), while debt-financed investment faces only shareholder-level tax.

In a thorough analysis of the tax code, the CBO estimated that debt-financed corporate investment faced an EMTR of -6.4 percent in 2005, while corporate investment financed with external equity (new share issues) faced an EMTR of 36.1 percent.²⁸ By using one different parameter in the model as suggested by the CBO in a separate report, we find that corporate investment financed with internal equity (retained earnings) faced an EMTR of 34.5 percent — slightly less than the 36.1 percent on investment financed through new equity, but still 41 percentage points above the EMTR on debt-financed investment.²⁹ (See the appendix for a more

²⁷See Treasury, “General Explanations of the Administration’s Fiscal Year 2013 Revenue Proposals,” 87 (Feb. 2012), *Doc 2012-2947, 2012 TNT 30-32* (proposing determining the FTC on a pooling basis).

²⁸CBO, “Computing Effective Tax Rates on Capital Income” (Dec. 19, 2006), *Doc 2006-25321, 2006 TNT 244-11*.

²⁹CBO, “Taxing Capital Income: Effective Rates and Approaches to Reform,” 27 (Oct. 1, 2005), *Doc 2005-21274, 2005*

(Footnote continued on next page.)

detailed discussion about the existing bias for debt generally, as well as this estimate in particular.)

That divergent treatment is often justified by claiming that interest expense is a “cost of doing business,” while dividends, share repurchases, and increases in shareholders’ equity (as reflected in a higher stock price) reflect a division of profits. However, we believe the similarities of debt and equity capital far outweigh their differences.³⁰

At their most basic level, both debt and equity represent funds that individuals contribute to a corporation in the hope that they receive a return on their investment in the future. Although debt holders have a more senior and more limited claim on corporate earnings than do shareholders, interest expense serves a similar function to an equity return in that both constitute a return to invested capital. Thus, we find no strong policy rationale supporting the very favorable treatment of interest expense relative to that of returns to equity.

One possible reform would be to significantly decrease the high tax burden on returns to equity-financed investment, while holding constant the low tax burden on returns to debt-financed investment.³¹ However, if designed to achieve revenue neutrality, that kind of revenue-neutral reform would require a significant increase in the corporate tax rate,³² which would make the United States less competitive in attracting discrete, highly profitable investment projects.

Therefore, our proposal reduces the tax burden on equity-financed investment, paid for by modestly increasing the tax burden on debt-financed investment. Under our proposal, the return to a marginal investment project entirely financed by debt — equal to the interest paid to bondholders — is taxed to the (nonfinancial) corporation at 8.75

percent (25 percent (the corporate tax rate) x 35 percent (the interest subject to tax)).

B. Arguments in Favor of Tax Bias for Debt

Much literature has attempted to justify the tax code’s bias for debt by citing three main market failures that allegedly discourage the use of external finance.³³ Because companies might be reluctant to issue new equity for tax and nontax reasons,³⁴ those market failures could primarily have the effect of reducing the use of debt (and increasing the use of retained earnings), suggesting a role for tax policy that favors debt. However, we do not believe that any of the three market failures offers convincing evidence that the tax code should treat debt finance considerably more favorably than equity finance.

1. Signaling. Some have argued that the issuance of external capital signals poor health of the issuer.³⁵ Under that theory, companies will be overly reluctant to issue external capital (which is usually debt), for fear that the negative signal will reduce the stock price or otherwise destroy company value. However, others have argued that debt issuance in particular signals good health because it shows that the company is confident that it will be able to make interest payments over the relevant period.³⁶ Various papers have summarized studies analyzing the impact of leverage-increasing transactions on stock prices; the results have been mixed.³⁷

2. Adverse selection. Others have argued that adverse selection leads companies to underuse external capital.³⁸ That is, because of informational asymmetries, investors are less willing to lend to companies or invest in new shares because they cannot verify the company’s behavior. Under the theory, this market failure primarily forces companies to use retained earnings rather than issue debt.

TNT 202-16. We determine the EMTR for investment financed with retained earnings by imposing on the model the condition that all profits are retained by corporations. See appendix for details.

³⁰See also Warren, “The Corporate Interest Deduction: A Policy Evaluation,” 83 *Yale L.J.* 1585 (July 1974) (arguing that the differential taxation of returns to debt and to equity is not inherently justified by any commonly cited concept of income).

³¹See generally Institute for Fiscal Studies, “Equity for Companies: A Corporation Tax for the 1990s,” report of the IFS Capital Taxes Group (Apr. 1991); and Devereux and Freeman, “A General Neutral Profits Tax,” 12 *Fiscal Stud.* 1 (Aug. 1991) (arguing for an allowance for corporate equity).

³²Cf. de Mooij and Devereux, “An Applied Analysis of ACE and CBIT Reforms in the EU,” 18 *Int’l Tax and Pub. Fin.* 93, 110 (Feb. 2011) (finding, using a model representing the open economies of the European Union, that a revenue-neutral introduction of an allowance for corporate equity would require, on average, a 17 percentage point increase in the corporate tax rate).

³³See generally de Mooij, “Tax Biases to Debt Finance: Assessing the Problem, Finding Solutions,” IMF, Staff Discussion Note SDN/11/11 (May 3, 2011).

³⁴That is a fairly reasonable assumption, given that new equity issuance finances a relatively small amount of corporate investment. In fact, in every year since 1995, share repurchases by nonfinancial corporate businesses have exceeded new share issues by those companies. See Federal Reserve, “Flow of Funds Accounts of the United States, Historical Data.” Note, however, that external equity plays a significant role in R&D-intensive industries.

³⁵See, e.g., Gordon, “Taxation and Corporate Use of Debt: Implications for Tax Policy,” 63 *Nat’l Tax J.* 151, 153 (Mar. 2010).

³⁶See, e.g., Ross, “The Determination of Financial Structure: The Incentive-Signaling Approach,” 8 *Bell J. of Econ.* 23, 29 (Spring 1977) (using a model in which managers signal the quality of their company by issuing more debt).

³⁷See, e.g., Gordon, *supra* note 35, at 161; and Smith, “Investment Banking and the Capital Acquisition Process,” 15 *J. of Fin. Econ.* 3, 5 (Jan. 1986).

³⁸See, e.g., Stiglitz and Weiss, “Credit Rationing in Markets With Imperfect Information,” 71 *Am. Econ. Rev.* 393 (June 1981).

To the extent that debt is information-intensive, this is a valid argument. However, most high-quality corporate debt instruments are not information-intensive; bondholders need concern themselves mainly with the relatively low risk of bankruptcy. Thus, we don't believe that this small market imperfection justifies the tax code's large bias for debt.

3. Agency problems. Many have argued that corporate debt works to fix an agency problem in which managers use cash flow to build empires rather than make productive investments.³⁹ By forcing managers to distribute profits to investors through interest payments, debt supposedly improves managerial behavior, helping to resolve this "free cash flow problem."

However, to some degree, performance-linked executive compensation attenuates the free cash flow problem.⁴⁰ Further, professor Yilei Zhang has shown that performance-linked compensation is often used as a substitute for leverage as a mechanism for addressing the free cash flow problem.⁴¹ Given the rapid expansion of performance-linked executive compensation,⁴² the concern over the use of free cash flow may not be as significant as hypothesized.

In fact, because performance-linked compensation is often linked to the performance of a company's stock, high leverage can introduce a new agency problem: excess risk-taking. Because those compensation schemes insulate managers from losses realized by creditors, managers could be incentivized to neglect tail risk. That is, managers might find it personally optimal to engage in projects that are (in expectation) profitable for shareholders, but that have negative net present value because of the risk of a large loss that would be borne by creditors.⁴³ High leverage exacerbates this potential agency problem by insulating managers from a greater share of potential losses.

C. Effect on Debt Bias and Cost of Capital

In the absence of any compelling evidence that the market for debt financing suffers from failures that lead to underleverage, we believe the tax code

³⁹Jensen, "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," 76 *Am. Econ. Rev.* 323 (May 1986).

⁴⁰See Broussard et al., "CEO Incentives, Cash Flow, and Investment," 33 *Fin. Mgmt.* 51 (Summer 2004).

⁴¹Zhang, "Are Debt and Incentive Compensation Substitutes in Controlling the Free Cash Flow Agency Problem?" 38 *Fin. Mgmt.* 507 (Sep. 2009).

⁴²See generally Bebchuk and Grinstein, "The Growth of Executive Pay," 21 *Oxford Rev. of Econ. Pol'y* 283 (Summer 2005).

⁴³See Bebchuk, "Fixing Bankers' Pay," 6 *The Economists' Voice* 1, 3 (Nov. 2009).

should treat debt and equity more neutrally.⁴⁴ To that end, our proposal narrows the gap between debt- and equity-financed investment by raising the EMTR on the former and reducing it on the latter. Quantitatively, under the CBO model, our proposal would raise the EMTR on debt-financed investment from -6.4 to 16.8 percent.⁴⁵ It would reduce the EMTR on investment financed with new equity from 36.1 to 27.7 percent, and it would reduce the EMTR on investment financed with retained earnings from 34.5 to 25.9 percent (see Table 4).

Table 4. Effective Marginal Tax Rates Under Current Law and Under Illustrative Proposal^a

Financing Method	EMTR (current law)	EMTR (illustrative proposal)
Debt ^b	-6.4%	16.8%
External equity (new shares)	36.1%	27.7%
Internal equity (retained earnings)	34.5%	25.9%
Weighted average	25.3%	23.4%

^aCBO, "Computing Effective Tax Rates on Capital Income," Corrected Effective Tax Rates (Dec. 19, 2006), *Doc 2006-25321, 2006 TNT 244-11*. For internal equity and weighted average, we change the model limits. For internal equity, we calculate the EMTR on equity-financed investment when the fraction of earnings retained by corporations is set to one. For the weighted average, we calculate the EMTR on all corporate investment when the fraction of earnings retained by the corporation is set to 0.9. See CBO, "Taxing Capital Income," 27 (Oct. 1, 2005).
^bEMTRs of debt are for nonfinancial corporations.

In isolation, one could object to our proposal by noting that it increases the EMTR on debt-financed investment, which could dissuade corporations from investing. Indeed, some proposals to restrict the deductibility of interest expense do increase the average EMTR facing corporate investment.

In particular, many proposals finance a corporate tax rate reduction by restricting the deductibility of net interest expense⁴⁶ — that is, interest expense minus interest income, if that difference is positive. For those companies with positive net interest expense, the restriction to the deductibility of net interest expense increases the EMTR facing debt-financed investment to essentially the same extent as if the restriction were applied to gross interest expense. Yet a restriction to the deductibility of net

⁴⁴In fact, leverage is associated with negative externalities that suggest that, if anything, the tax code should favor equity over debt.

⁴⁵This latter EMTR (16.8 percent) is applicable to nonfinancial corporations.

⁴⁶Bipartisan Tax Fairness and Simplification Act of 2011, *supra* note 11, section 211.

interest expense would raise significantly less revenue and thus would be able to finance only a modest reduction in the corporate tax rate. Robert Carroll and Thomas Neubig have estimated that such a combination would raise the average EMTR on corporate investment.⁴⁷

However, our interest cap generates substantially more revenue than those proposals to restrict net interest deductions. The additional revenue can finance rate reduction sufficient to hold constant the average EMTR facing corporate investment. The reduced corporate tax rate mitigates the increase in the EMTR on debt-financed investment and significantly decreases the EMTR on equity-financed investment. In particular, under the CBO model, the average EMTR for corporate investment would decrease from 25.3 to 23.4 percent.⁴⁸

So at worst, our proposal is likely to increase the cost of capital for individual companies in industries that historically have been heavy users of debt finance (such as finance and real estate) and cannot easily shift to equity finance. However, that change merely eliminates a preexisting subsidy that distorts economic decisions. Thus, while our proposal might create winners and losers (as would any revenue-neutral tax reform), it would increase economic efficiency by treating different types of financing — and thus different types of investment — more neutrally.

D. Reducing Economic Distortions

In a world with no tax, corporations would make financing decisions such that the marginal private⁴⁹ cost of debt for corporations equaled the marginal private cost of equity for corporations. However, the tax bias for debt can cause corporations to use debt financing for investment projects that would (in the absence of tax) be more economically suitable for equity finance.

⁴⁷Carroll and Neubig, “Business Tax Reform and the Tax Treatment of Debt: Revenue Neutral Rate Reduction Financed by an Across-the-Board Interest Deduction Limit Would Deter Investment,” report by Ernst & Young LLP prepared for Private Equity Growth Capital Council, 11 (May 2012).

⁴⁸CBO, “Computing Effective Tax Rates on Capital Income,” Corrected Effective Tax Rates, *supra* note 28. We hope our proposal will incentivize corporations to switch from debt finance to equity finance. That would increase the overall EMTR relative to the case of no shifting, because the EMTR of equity finance would still be greater than the EMTR of debt finance. However, corporations would shift from debt to equity only if they found it economically attractive to do so — for example, because a thicker equity cushion would reduce investors’ required after-tax return on debt, effectively reducing the company’s total cost of capital.

⁴⁹The private cost to the company, as opposed to the social cost, which could include external effects.

Based on a review of the literature and a stylized model, professors Alfons Weichenrieder and Tina Klautke have analyzed the distortions in companies’ financing decisions associated with the tax code’s bias for debt.⁵⁰ Under corporate tax rules, interest expense is (essentially) fully deductible⁵¹; therefore, a higher corporate tax rate implies a greater tax advantage for debt. Weichenrieder and Klautke find that the additional bias for debt caused by a 10 percentage point increase in the corporate tax rate would introduce distortions to companies’ financing decisions equal to between 5 and 15 basis points of the total capital stock.⁵² Assuming that the total capital stock is equal to 1.5 times GDP, those estimates imply that reducing the tax code’s bias for debt (through a 10-point reduction in the corporate tax rate) would result in efficiency gains to companies’ financing decisions alone of \$11 billion to \$33 billion per year.⁵³

There are other types of distortions caused by the bias for debt that are not captured by the Weichenrieder and Klautke model. In particular, various instruments, such as bonds convertible into equity or bonds with interest levels contingent on corporate returns, are treated as debt for tax purposes even though they have equitylike features. Those hybrid instruments are designed primarily to take advantage of tax and regulatory rules; they have little underlying economic motivation. Therefore, any effort designing those instruments is unlikely to be a socially productive use of human capital.

Further, beyond distorting financing decisions, the bias for debt can distort investment decisions. In particular, tax advantages for debt finance favor investment in assets that happen to be more economically suitable to debt finance (such as equipment that can easily be used as collateral), at the expense of investments that are more suitable for equity finance (such as risky projects with high upside potential).

In particular, those distortions disproportionately hurt young companies that invest heavily in R&D. R&D expenditures are poorly suited for debt finance for various reasons. First, a large fraction of R&D investment is in human capital, which cannot be collateralized. Second, R&D investments do not generally provide a stable source of cash flow from

⁵⁰Weichenrieder and Klautke, “Taxes and the Efficiency Costs of Capital Distortions,” CESifo, Working Paper Series No. 2431 (Oct. 2008).

⁵¹See generally section 163.

⁵²Weichenrieder and Klautke, *supra* note 50, at 17.

⁵³This analysis did not attempt to measure the effect of such a tax increase on investment decisions. *Id.* at 6 (describing the nontax costs of suboptimal capital structure, as used in their model).

which interest expense can be paid. Third, the probability distributions of the payoffs of many R&D projects are positively skewed: They have a relatively high chance of failure (a burden that debt holders would bear) and a relatively small chance of large gains (a reward that debt holders would not share).

Further, such young, R&D-intensive companies may have small or negative cash flows, limiting their access to internal equity. Therefore, for those companies, the marginal source of funding might be new share issues,⁵⁴ which face an especially high EMTR. That disincentive is particularly concerning because R&D expenditures are often said to generate positive externalities because of knowledge spillovers,⁵⁵ suggesting that a tax penalty for R&D is especially socially harmful.⁵⁶ By reducing the bias toward debt finance and against equity finance, our proposal could alleviate the distortions that disfavor investment in R&D.

E. Externalities of Excess Debt

The previous discussion of distorted decisions assumed that companies operating in a free market would choose a socially optimal level of leverage if tax considerations were not a factor — in particular, that all costs of excess debt are borne internally by the company issuing the debt. However, we argue below that excess debt is associated with significant negative externalities beyond the company, suggesting that the government should penalize debt, rather than subsidize it. Those externalities apply to all businesses, but externalities and other market failures are typically most significant in the financial sector.

1. Bankruptcy risk (general case). A company with more debt is at higher risk of bankruptcy. Borrowers are contractually required to pay interest at specified periods, unlike dividends, which can be suspended or eliminated. An increase in debt, and therefore in interest payments, increases the prob-

ability that a random shock can render a company unable to service its debt and thus force it into bankruptcy.

Bankruptcy is undoubtedly costly to the company and to external parties, even in the nonfinancial sector. Shareholders lose value, and bondholders may lose part of their principal. Some employees lose their jobs. Some customers and suppliers face disruption. However, we must be careful when determining whether any negative outcomes associated with financial distress are truly externalities, and thus whether they generate a justification for government intervention.

Stock prices paid by shareholders and interest rates charged by bondholders theoretically reflect all known information about a company, including its leverage and bankruptcy risk. Thus, the risk of harm to owners of debt and equity is unlikely to qualify as an externality, assuming complete and accurate disclosure.

By contrast, the risk of substantial harm to employees (and other corporate stakeholders) in bankruptcy is likely external to the leverage decision. Of course, it is possible that employees could demand higher wages to compensate for their companies' additional risk of bankruptcy associated with increased leverage,⁵⁷ making the potential harm to employees again internal to the leverage decision. One study found that highly leveraged companies tended to have higher average employee pay,⁵⁸ lending some credence to that view.⁵⁹

Nevertheless, it is highly unlikely that this "compensating differential" perfectly accounts for employees' exposure to bankruptcy risk. Sticky wages (especially to the downside), imperfect information, and other transaction costs are likely to hinder the operation of any bargaining between employees and employers. At the very least, the presence of an (only partially experience-rated) unemployment insurance (UI) system will cause the compensating differential to be too small, because UI reduces the

⁵⁴See generally Brown et al., "Financing Innovation and Growth: Cash Flow, External Equity, and the 1990s R&D Boom," 64 *J. of Fin.* 151 (Feb. 2009).

⁵⁵See, e.g., Kenneth Arrow, "Economic Welfare and the Allocation of Resources for Invention," in *The Rate and Direction of Inventive Activity: Economic and Social Factors* 609 (1962).

⁵⁶Note that the tax code offers various incentives designed to promote R&D. First, most R&D expenditures can be immediately expensed, rather than depreciated over several years. Section 174. Second, since 1981 (with a brief lapse in the mid-1990s), the tax code has offered a temporary tax credit for increasing R&D expenditures, equal to a percentage of R&D expense above a base amount. See section 41. It is possible that reducing the EMTR on new share issues could allow a reduction in these other incentives; this is a potential area for further research.

⁵⁷Berk et al., "Human Capital, Bankruptcy, and Capital Structure," 65 *J. of Fin.* 891 (June 2010).

⁵⁸Chemmanur et al., "Capital Structure and Employee Pay: An Empirical Analysis," 20 (Dec. 3, 2009).

⁵⁹Presumably, customers and suppliers could fit in that framework. Customers could have a lower willingness to pay for the goods of a highly leveraged company to the extent that they are relying on the continued existence of that company. Similarly, suppliers could sell their products to a highly leveraged company only at a higher price, to compensate themselves for the risk that any supply contracts could be abrogated in bankruptcy. None of those outcomes represent externalities. On the other hand, it is unlikely that most customers and suppliers have enough information and bargaining power to obtain arrangements that fully reflect the risks of a company's bankruptcy.

private cost of unemployment. Thus, the higher bankruptcy risk associated with increased leverage imposes a fiscal externality on the UI system.

2. Exacerbating business cycles. By examining the performance of 14 advanced economies between 1870 and 2008, one study found that expansionary periods accompanied by excess credit growth in the private sector were associated with more severe ensuing recessions.⁶⁰ To the extent that this association merely accounts for the harm that highly indebted companies inflict on themselves during the deleveraging process, there is no externality. But to the extent that the effects of excess leverage — including higher bankruptcy risk and periods of extended deleveraging — undermine the forces that drive investment decisions by others, corporate indebtedness can arguably contribute to a market failure. There is much debate (which goes beyond the scope of this report) over the government's role in managing the business cycle. If policymakers believe the government has a role in stabilizing macroeconomic shocks, an interest cap could be a practical long-run tool.⁶¹

IV. Impact on Financial Sector

The nature of financial institutions suggests that the interest cap should treat the financial sector specially. Like any other company, a financial institution's "production function" transforms inputs into outputs. To use a simple example, the inputs of a traditional bank are deposits from savers, who supply funds on the condition that they have liquid access to their funds. The outputs are loans to borrowers, who demand funds on the condition that the funds do not have to be repaid for a period of time (that is, that the loans are less liquid). The bank earns profits based on the spread between the interest rates charged to borrowers and those paid to savers.

That framework suggests that a financial institution's interest expense is a cost of operating its business, rather than a return to capital, and thus should be fully deductible. Indeed, many other proposals for reducing the tax deductibility of in-

terest effectively exempt the financial sector by applying only to net interest expense.

On the other hand, the market failures associated with leverage in the financial sector are much more substantial than in the nonfinancial sector. Those market failures suggest a critical need for public policy to drastically decrease the incentives for leverage within the financial sector. To balance those concerns, our proposal would apply the interest cap to the financial sector, but at a lower rate (21 percent, instead of 35 percent).

Of course, we need not treat all financial sector leverage equally. Some types of borrowing by some types of companies are more socially risky: The market failures of excess leverage are most severe for wholesale borrowing by systemically important institutions. Thus, we will explore some other, more targeted options for applying the interest cap to financial institutions.⁶²

Regardless of the exact form of the interest cap, we acknowledge that financial institutions cannot easily substitute equity for debt. Most likely, the financial institutions most affected by the interest cap will primarily respond by reducing the quantity of their assets, as the interest cap renders some loans unprofitable. We discuss below the costs and benefits of that kind of balance sheet reduction.

A. Market Failures in the Financial Sector

1. Bankruptcy risk. Beyond creating the same externalities on stakeholders as the bankruptcies of nonfinancial companies, the bankruptcy of a financial institution can be very disruptive systemically. Direct exposures (through interbank loans or derivative contracts) can be very large in the financial sector. In a perfect market, those counterparty risks are accurately priced in to the loan arrangement or derivative contract; thus, those direct exposures cannot immediately be seen as externalities. Nevertheless, a financial company's failure can cause external harm to other financial companies through indirect mechanisms such as the following.

a. Fire sales. When a financial company liquidates (and in some other circumstances), it must quickly sell off its assets by engaging in what's known as a fire sale. If other financial institutions are engaging in fire sales at the same time because of a common shock, there might be a limited supply

⁶⁰Jordà et al., "When Credit Bites Back: Leverage, Business Cycles, and Crises," 19, National Bureau of Economic Research, Working Paper No. 17621, (Nov. 2011) ("a legacy of higher excess credit from the previous expansion creates an ever more painful post-peak trajectory").

⁶¹But see Desai's testimony at a Ways and Means and Finance committees hearing on tax reform and the tax treatment of debt and equity, at 6 (2011), *Doc 2011-15265, 2011 TNT 135-41* (showing that leverage in the nonfinancial sector was relatively low in the years before the financial crisis, which suggests that excess leverage in the nonfinancial sector does not significantly account for the onset or severity of the crisis).

⁶²A perfect corrective tax would take into account the "systemicness" of a financial institution; relevant factors could include not only its size, but its complexity and its interconnectedness with existing financial institutions. However, it may be practically difficult to establish differential systemicness estimates of each financial institution. As such, any practical tax reform policy must be relatively simple. See generally Keen, "Rethinking the Taxation of the Financial Sector," 57 *CESifo Econ. Stud.* 1 (Mar. 2011).

of liquidity in the market. As a result, the demand for assets to be liquidated may not be perfectly elastic; thus, a fire sale may result in lower prices. In that situation, those lower prices partially reflect the amount of cash in the market, rather than the assets' expected future profits.⁶³

However, other financial companies will be under intense pressure to use those lower fire sale prices when valuing their assets. If prices drop enough, the accounting value of a financial company's assets may become less than the value of its liabilities, making it appear insolvent — even if it would be fully solvent if it were allowed to continue until the relevant assets mature. That appearance of insolvency would likely trigger further fire sales, further price reductions, and thus a continued downward spiral — which many commentators believe occurred in the fall of 2008.⁶⁴

b. Panic. The bankruptcy of a financial company can undermine the confidence on which other financial companies rely. Banks and other financial companies primarily make money by borrowing short-term, liquid funds and investing them in longer-term, less liquid assets. If enough depositors withdraw their short-term funds at the same time (that is, if they run on the bank), the financial company will not be able to immediately meet its obligations, and it will likely fail.

Critically, a financial institution need not be actually distressed to suffer a run; if enough borrowers believe that the institution is distressed, a run can occur. Through that mechanism, the failure of one financial institution — made more likely because of suboptimally high leverage — imposes externalities on the entire financial system. The company's bankruptcy can lead to increased expectations, correct or not, that other financial institutions will fail, triggering runs on them.⁶⁵

Because FDIC insurance has dramatically reduced the potential for bank runs by retail depositors, the panic externality is concentrated in the wholesale borrowing market, which has become increasingly important for financial institutions. In 2000 FDIC-insured deposits were equal to 44 percent of total liabilities of financial C corporations; by 2007, FDIC deposits shrank to 31 percent of those liabilities.⁶⁶

⁶³See generally Allen and Carletti, "Mark-to-Market Accounting and Liquidity Pricing," 45 *J. Acct. & Econ.* 358 (Aug. 2008).

⁶⁴See generally Shleifer and Vishny, "Fire Sales in Finance and Macroeconomics," 25 *J. Econ. Persp.* 29 (Winter 2011).

⁶⁵See, e.g., Huang and Ratnovski, "The Dark Side of Bank Wholesale Funding," 20 *J. Fin. Intermediation* 248, 249 (Apr. 2011).

⁶⁶Author's calculations based on CBO, *supra* note 22, and the FDIC, "FDIC Statistics at a Glance."

Therefore, one might prefer to more effectively target the interest cap within the financial sector by exempting the interest paid on FDIC-insured deposits from the interest cap (or alternatively, subjecting that interest to the cap at a lower rate). Of course, exempting that interest from the cap would raise less revenue. If our proposal fully exempted that interest while raising the same amount of revenue, the interest cap would have to apply to all other interest expense of financial companies at roughly the same rate as it applies to the interest expense of nonfinancial companies.⁶⁷

c. Effect on nonfinancial sector. Externalities related to fire sales and the spread of panic are not limited to the financial sector. As financial companies shrink their balance sheets in response to those external events, they must curtail their lending activities. To the extent that balance sheet consolidation occurs in response to liquidity-based pricing or an increase in panic (rather than changes in actual economic expectations about the underlying assets), that lending otherwise would have been generally profitable to the companies and their counterparties; thus, a decrease in lending represents a market failure. It was largely through the mechanism of a "lending freeze" that the financial crisis spread to the nonfinancial sector⁶⁸; the credit constraints of nonfinancial companies tightened, forcing them to abandon otherwise profitable engagements, creating inefficiencies throughout the economy.⁶⁹

2. Implicit bailout guarantees. For very large financial institutions, the risk of failure is offset to some degree by the belief that they may be subject to an implicit government guarantee. It is unclear

⁶⁷In fact, the relevant rate (on all interest of nonfinancial companies and all interest of financial companies other than interest on FDIC-insured deposits) would have to be 35.3 percent. This would present competitive issues within the financial sector. Another option for raising the same amount of revenue would be as follows: The interest cap could apply to nonfinancial sector interest expense at a 35 percent rate (as it does under our baseline proposal), to interest on FDIC-insured deposits at a 15 percent rate, and to all other financial sector interest expense at a 25 percent rate.

⁶⁸Obviously, financial companies also changed their expectation about the income-generating potential for certain mortgage-backed securities, and households' net worth declined as the housing bubble popped. The point is that these changed expectations do not account for the entirety of the financial crisis, nor the accompanying lending freeze.

⁶⁹See also Blair, "Financial Innovation, Leverage, Bubbles and the Distribution of Income," *Vand. Pub. Law*, Research Paper No. 10-40 (Oct. 18, 2010) (arguing that an expansion of leverage helped to cause the underlying housing bubble by effectively growing the supply of moneylike instruments, causing misallocations of capital during the run-up to the crisis and contributing to the magnitude of the crisis).

whether regulators would be willing to use their new powers granted by the Dodd-Frank Wall Street Reform and Consumer Protection Act to liquidate very large financial institutions that pose a major risk to the whole financial system.⁷⁰ Given that ambiguity, financial institutions considered “too big to fail” are likely to experience moral hazard to some degree: to the extent they are subject to (implicit) government insurance, the (implicitly) insured parties might change their behavior.

Without an implicit guarantee, bondholders would charge an interest rate that fully priced in the risk of bankruptcy. If a company were to issue more debt, its bankruptcy risk would increase, and the interest rate would rise to reflect that. However, if a company were implicitly guaranteed by the government, bondholders would believe they might be made whole in the event of a bankruptcy, and thus they would have less need to price in additional bankruptcy risk. As a result, the interest rate charged by bondholders would be suboptimally low, and therefore indebtedness would be suboptimally high. That excess leverage would make future bailouts more likely, imposing a fiscal externality on the federal budget.

If the interest cap applied to all financial sector interest expense at a flat rate, as in our baseline proposal, it would partially offset the problem of large banks borrowing too much absolutely — the interest cap would raise the effective interest rate that those banks would pay, discouraging them from borrowing. However, such a flat-rate interest cap would not offset the relative funding advantage of large financial institutions, which are able to borrow more cheaply than their smaller competitors. The IMF has estimated that this advantage for a large financial institution is equivalent to 10 to 50 basis points of total assets, with an average estimate of 20 basis points.⁷¹

Applying special treatment to the interest on FDIC-insured deposits could partially offset the too-big-to-fail relative subsidy, assuming that smaller financial institutions are more likely to make use of FDIC-insured deposits for their marginal borrowing. More directly, we could apply the interest cap progressively; that is, a financial company would be able to deduct less and less of each additional dollar of interest expense.

⁷⁰See Dodd-Frank Wall Street Reform and Consumer Protection Act, P.L. 111-203, Title II (2010) (to be codified in scattered sections of the U.S. code).

⁷¹IMF, “A Fair and Substantial Contribution by the Financial Sector,” Final Report for the G-20, 14 (June 2010).

B. Effect on Lending by Banks

The interest cap, whatever its form, almost certainly would make borrowing more costly for financial institutions. One can immediately conclude that the interest cap could render unprofitable some loans by financial institutions, reducing aggregate lending activity; that reduced lending could slow economic growth.

To some extent, financial institutions may find it optimal to raise a modest amount of additional equity (presumably, by choosing to retain a greater share of their earnings) beyond the amount required by regulation. One study argues that the observed high leverage ratios of financial institutions are largely the result of existing subsidies for leverage; without those subsidies, financial institutions could increase the equity on their balance sheet without destroying company value.⁷² Those increases in equity would allow banks to make more loans, thereby reducing any adverse effects on lending of the proposed interest cap.

Nevertheless, because equity cannot replicate the maturity transformation function of debt, the interest cap will likely result in less aggregate bank lending. The interest rate for many borrowers would likely increase and the total amount of bank loans would likely decrease, both of which are undesirable.

However, the existing tax bias for debt and the significant negative externalities of leverage in the financial sector strongly suggest that the financial sector is overleveraged from the standpoint of society as a whole. Thus, in our view, the adverse effects on bank lending are outweighed by the benefits of the interest cap: a more competitive corporate tax rate, more efficient debt/equity decisions, and a less leveraged financial system — all of which can help drive long-run economic growth.

V. Practical Issues

A. Avoidance

While we do not attempt to develop a full regulatory structure for implementing the interest cap, any tax proposal should take into account the possibility of avoidance. International avoidance of this cap should not be a huge concern. Imagine that a corporation directed its CFC to borrow funds overseas, deduct that interest against foreign tax, and directly transfer those funds back to its U.S. parent.⁷³ Even if such a transaction were allowed,

⁷²Admati et al., “Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity Is Not Expensive,” 3, Working Paper Series No. 86 (Mar. 23, 2011).

⁷³In reality, such a transaction would likely run afoul of transfer pricing rules. See section 482 and its related regulations.

the corporation will have succeeded only in claiming a (larger) deduction against foreign tax, rather than a (smaller) deduction against U.S. tax — a transaction that would actually increase U.S. tax revenue.

Nevertheless, there are some legitimate possibilities for avoidance that regulators must address. First, and most critically, many nonfinancial companies will likely try to characterize their interest expense as financial sector interest expense. Regulators must define what qualifies as financial sector interest expense and create strong antiabuse rules to prevent that mischaracterization.⁷⁴

Second, regulations must reduce the ability for corporations to disguise loan arrangements as lease arrangements, because lease expense would remain fully deductible under our proposal. Similarly, banks should not be allowed to evade the interest cap through repurchase agreements or other loan-like arrangements.

Third, regulators might need to restrict the ability of some large companies to change organizational forms, because our proposal applies the interest cap only to C corporations.⁷⁵ Because our proposal leaves average EMTRs roughly unchanged for C corporations, our proposal would not increase the average tax disparity between C corporations and other business entities. However, some debt-intensive C corporations may find it desirable to change organizational form.

Fortunately, existing laws would disincentivize a large C corporation from changing organizational forms. If a C corporation were to convert to S corporate form, it would immediately owe substantial taxes on unrecognized gains.⁷⁶ Also, any company with more than 100 shareholders may not legally be organized as an S corporation.⁷⁷ Lastly, debt-intensive companies are unlikely to consider a partnership structure to be appealing, as at least one partner must generally be subjected to unlimited liability for the company's debt.⁷⁸

⁷⁴Such a definition would clearly include interest paid by banks, insurance companies, and other taxable financial companies that borrow money in order to extend credit to consumers or small businesses. We would have to consider allowing parts of conglomerate corporations, such as GE, to be treated as financial institutions, subject to antiabuse provisions. We acknowledge the problems in defining and maintaining that distinction, but we do not attempt to solve them in this report.

⁷⁵Congress could apply the interest cap to all corporate entities, not just C corporations. However, that would impose a significant burden on small businesses, which have little access to equity finance. Thus, expanding the interest cap beyond C corporations is likely to be a tough political sell.

⁷⁶See section 1374.

⁷⁷Section 1361(b)(1)(A).

⁷⁸See Uniform Partnership Act section 306 (1997).

B. Transition Rules

Given the wide-ranging consequences of our proposal, we do not suggest imposing it overnight. Corporations will need time to adjust financing decisions and partially pay back previously existing debt issues, if desired. Thus, our proposal must be phased in.

One phase-in option would be to apply the interest cap only to new debt issues (and phase in the corporate tax reductions in a revenue-neutral way). However, unless that change was instant and wholly unexpected, corporations would be able to evade the interest cap by issuing long-maturity debt shortly before the cap takes effect. As a result, the interest cap should apply to existing debt as well as new debt.

Therefore, we propose phasing in the interest cap and the rate reductions linearly over 10 years. In other words, the interest cap would grow by 3.5 percentage points each year, while the corporate tax rate would be reduced by 1 percentage point per year.

VI. Conclusion

This report proposes a revenue-neutral corporate tax reform that would reduce the corporate tax rate from 35 to 25 percent and allow corporations to deduct only 65 percent of their interest expense (with special treatment for financial sector interest expense, as well as for companies that would otherwise have incurred a taxable loss). Adopting this proposal would hold roughly constant the effective marginal tax rate for U.S. corporations in total, while significantly lowering that rate for equity-financed investments — substantially reducing the tax code's bias in favor of debt.

Reducing the tax code's bias for debt is a critical goal for public policy. It causes distortion to financing and investment decisions. Corporations may choose, for tax reasons, to use debt finance for investments that would otherwise be more suitable for equity finance. The economy may misallocate capital in favor of easily collateralized assets because they happen to be more economically suitable for debt finance.

Further, various market failures associated with excess leverage suggest that the government should disincentivize the use of debt finance. Those market failures include the harm that debt imposes on external parties as a result of more severe economic downturns and increased bankruptcy risk — especially within the financial sector. In particular, financial institutions that are perceived as having an implicit government guarantee will tend to be over-leveraged from the standpoint of society as a whole.

Of course, our proposal is not a free lunch. Although we would reduce the EMTR on equity-financed investment, we would increase it on debt-financed investment. That would pose challenges, relative to the status quo, for debt-intensive industries. To address those challenges for financial companies, we apply the interest cap to financial sector indebtedness at a lower rate (21 percent, instead of 35 percent), though we recognize that our proposal would probably lead to a modest decrease in bank lending.⁷⁹

To the extent that Congress finds those concerns economically or politically persuasive, it could narrow the applicability of the interest cap. Perhaps most simply, Congress could allow a greater share of interest expense to be deductible for nonfinancial companies (say, 80 percent). Or, it could shield smaller businesses by applying the interest cap only to interest expense above some fixed dollar amount. It could also shield relatively well-capitalized companies by scaling the interest cap by a company's debt-equity ratio (that is, so that a company with a lower debt-equity ratio could deduct a greater share of interest expense).

However, a scaled-back version of the interest cap would raise less revenue. Therefore, if Congress were unwilling to limit or eliminate other large tax preferences for U.S. corporations — or create a new tax such as a carbon tax or a VAT — it would be unable to reduce the corporate tax rate from 35 to 25 percent on a revenue-neutral basis.

In fact, reducing the corporate tax rate is one of few policy areas on which many Republicans and Democrats in Congress seem to agree. Both Camp and Baucus have called for lower corporate tax rates.⁸⁰ Both lawmakers have, in principle, indicated their support for base-broadening measures to pay for at least part of that rate reduction.⁸¹

⁷⁹We also recognize that other debt-intensive industries would push for special exemptions from the interest cap. Because those exemptions would reduce the revenue generated, Congress would have to limit other tax expenditures in order to finance rate reduction.

⁸⁰See Baucus's remarks to the Bipartisan Policy Center (June 11, 2012), *Doc 2012-12500*, 2012 TNT 113-24 ("In contrast, the U.S. has one of the highest statutory corporate tax rates in the world. We give countless tax breaks to business, but many don't attract or retain investment. That's a waste"); and Ways and Means discussion draft of the Tax Reform Act of 2011 (Oct. 26, 2011), *Doc 2011-22576*, 2011 TNT 208-27.

⁸¹See Baucus's remarks, *supra* note 80 ("Any tax reform plan must be developed with a sound budget in mind that reduces deficits and debt. . . . We can do this, in part, by trimming the fat from the code. Most economists agree that lowering rates and paying for it by getting rid of tax expenditures generates growth. Tax breaks have doubled since 1986. They now cost as much in revenue as the entire income tax brings in"), and "Summary of Ways and Means Discussion Draft: Participation (Footnote continued in next column.)"

A policy along the lines of our proposed interest cap could play a significant role in bipartisan corporate tax reform. It holds the potential to raise a large amount of revenue: Our interest cap is roughly enough to finance the entire reduction in rate from 35 to 25 percent. The interest cap also has a solid policy rationale, both in terms of reducing tax distortions to corporate decisions and in correcting substantial market failures. While few base-broadening measures are politically popular, our proposed interest cap could be more politically feasible than other base-broadening options that raise substantial revenues.

Appendix: Calculating the Bias for Debt

A. A Simple Model

Consider the first two periods of a stylistic model of corporate investment resembling those presented by professors George Zodrow and Alan Auerbach, among others.⁸² In period 1, the company raises \$1 in capital and invests that dollar in some project. In period 2, that investment pays a pretax return equal to π , and the company distributes profits to investors.

Corporate profits are taxed at τ_{corp} , interest income is taxed to bondholders at τ_{int} , and dividends are taxed to shareholders at τ_{div} . Capital gains are also taxed to shareholders on accrual at τ_{cgt} , which is lower than the statutory tax rate on realized capital gains.⁸³

Below, we will use this model to analyze how the effect of taxation on marginal investment projects varies depending on the form of financing: debt, external equity (new shares), and internal equity (retained earnings). In each case, we solve for the minimum required pretax return (π) that makes investors indifferent between investing in the project and investing in their outside option (which provides an exogenous after-tax return of ρ). All variables, other than π , are taken as given.

By relating this required pretax return to the after-tax return realized by investors (which will

Exemption (Territorial) System" (2011), *Doc 2011-22575*, 2011 TNT 208-29 ("this rate reduction would be accomplished without increasing the deficit by broadening the tax base").

⁸²Auerbach, "Taxation and Corporate Financial Policy," in 3 *Handbook of Pub. Econ.* 1251, 1254-1261 (2002), and Zodrow, "On the 'Traditional' and 'New' Views of Dividend Taxation," 44 *Nat'l Tax J.* 497, 499 (Dec. 1991).

⁸³The assumption of taxation-on-accrual (at an appropriate rate) is valid if a fraction of shares outstanding are exogenously traded in each period. *But see* Lewellen and Lewellen, "Taxes and Financing Decisions," 13 (Feb. 2005) (arguing that various conclusions of the corporate taxation literature rely on the precise nature of this taxation-on-accrual assumption).

necessarily equal ρ), we can calculate the EMTR, which we have mentioned in the text. In particular, the EMTR is defined as:

$$\frac{\text{pretax required return} - \text{after-tax required return}}{\text{pretax required return}}$$

In the variables of our model:

$$\text{EMTR} = \frac{\pi - \rho}{\pi}$$

1. Debt-finance. In period 1, the company issues \$1 in bonds and invests that dollar. In period 2, the company earns an operating profit of π , which it distributes to bondholders as an interest payment.⁸⁴ Because the company can deduct the interest expense against taxable income, this project generates no corporate tax liability. However, investors must pay taxes on the interest income. In total, investors receive a return of $\pi(1 - \tau_{int})$ in period 2.

If investors are indifferent between investing in these bonds and investing in an outside option, it must be true that $\pi(1 - \tau_{int})$ equals ρ . Therefore, by substituting for ρ in the previous equation, we can see that this model calculates an EMTR of debt finance equal to:

$$\frac{\pi - \pi(1 - \tau_{int})}{\pi} = \tau_{int}$$

2. New equity.⁸⁵ In period 1, the company issues \$1 in new equity. In period 2, the company earns an operating profit of π . Because returns to equity are not tax deductible, the company must pay corporate tax on these profits, leaving it with after-corporate-tax profits $(1 - \tau_{corp})$. The company then distributes these after-corporate-tax profits as a dividend,⁸⁶ on which shareholders will pay another layer of tax. Thus, shareholders will receive an after-tax return, in period 2, of:

$$\pi(1 - \tau_{div}) * (1 - \tau_{corp})$$

Again, setting the after-tax return equal to ρ , we find that investments financed with new shares are subject to an EMTR of:

⁸⁴Recall that we are calculating the minimum required return. If the company were able to distribute some amount less than the full operating profit (π), it could earn a lower rate and still satisfy investors. Therefore, for the purpose of this calculation, the interest payment must equal the operating profit.

⁸⁵This section describes, in rough terms, the “traditional view” of dividend taxation.

⁸⁶Alternatively, the company could distribute a fraction F of these after-corporate-tax profits as dividends, with the rest $(1 - F)$ reflected in a higher share price, triggering capital gains taxes. This would result in a lower tax burden on investment financed with new equity. The key traditional view assumption is that dividends must increase (although perhaps not linearly) as profits increase and, therefore, that dividend taxation disincentivizes investment. See Auerbach, “Taxation and Corporate Financial Policy,” *supra* note 82, at 1256.

$$\frac{\pi - \pi(1 - \tau_{corp})(1 - \tau_{div})}{\pi} = \tau_{corp} + \tau_{div}(1 - \tau_{corp})$$

3. Retained earnings.⁸⁷ The tax treatment of investment financed by new shares is critical for young, expanding companies. However, new share issues finance a relatively small fraction of corporate investment. Therefore, the tax treatment of retained earnings is more relevant to most equity-financed corporate investment.

The tax incentives of retained earnings are subtly different when compared to new equity issues. That’s because retained earnings are subject to shareholder-level tax whenever they are distributed as dividends to shareholders; the present-value advantage of deferring this taxation by retaining earnings equals (in expectation) the future dividend taxes that will be paid on the returns to the investment financed by these retained earnings. At the same time, the retention of corporate earnings increases the value of the corporation and the price of its stock. This increase implies a capital gain at the shareholder level, which would be subject to tax at the relevant capital gains rate. Therefore, the capital gains tax — not the dividend tax — is the only shareholder-level tax that influences investment decisions under this theory.⁸⁸

More formally, recall that the investor’s opportunity cost (in period 1) to investing in debt or new equity was simply \$1; thus, the investor’s opportunity cost, as evaluated in period 2, was simply $(1 + \rho)$. However, because of the impact of built-in dividend taxes, that will no longer be the case. So, the relevant “indifference condition” is broader. For a marginal investment, the following two values are necessarily equal: the benefit of an extra dollar of retained earnings from the shareholder’s perspective and the cost of that retention to the shareholders, which includes taxes incurred and dividends foregone.

In particular, imagine that the company retains and invests \$1 in period 1. From the shareholder’s perspective (in period 1), the cost of that retention is not equal to one, but rather the net-of-tax dividends forgone plus the capital gains tax (τ_{cg}) triggered on

⁸⁷This section describes, in rough terms, the “new view” of dividend taxation. See generally Auerbach, “Share Valuation and Corporate Equity Policy,” 11 *J. of Pub. Econ.* 291 (June 1979); Bradford, “The Incidence and Allocation Effects of a Tax on Corporate Distributions,” 15 *J. of Pub. Econ.* 1 (Feb. 1981); and King, “Taxation and the Cost of Capital,” 41 *Rev. of Econ. Stud.* 21 (Jan. 1974). This particular model is taken nearly directly from Auerbach, “Taxation and Corporate Financial Policy,” *supra* note 82, at 1259.

⁸⁸While this theory states that dividend taxation does not affect investment decisions, it does affect the valuation of the company.

the share appreciation (Q), where Q is Tobin's Q . Thus, the shareholders' cost of this investment (in period 1) is:

$$(1 - \tau_{div}) + [Q\tau_{cg}]$$

To evaluate this cost from the perspective of period 2, we simply multiply this cost by $(1 + \rho)$, which reflects the fact that the period 1 cost can earn interest at the rate of the shareholder's outside option. So, the shareholder's period 2 cost of the retention is:

$$(1 - \tau_{div} + Q\tau_{cg})(1 + \rho)$$

However, in equilibrium, the shareholders' cost of this extra dollar $(1 - \tau_{div}) + [Q\tau_{cg}]$ must equal the value of this extra dollar (Q).⁸⁹ Thus, the shareholder's cost of the retention is simply Q from the perspective of period 1 and $Q(1 + \rho)$ from the perspective of period 2.

Meanwhile, in period 2, the company earns an after-corporate-tax profit of $\pi(1 - \tau_{corp})$ on its investment. If the company retains all its earnings (the initial retained earnings *and* the period 2 earnings),⁹⁰ the initial investment plus its return will be worth, from the shareholders' (period 2) perspective, $Q(1 + \pi(1 - \tau_{corp})(1 - \tau_{cg}))$. This is equal to the initial dollar retained plus the after-tax return on that invested dollar, all multiplied by Q .

We have derived (1) the value of this dollar (in period 2) if it is retained and invested and (2) the shareholder's cost of this retention (evaluated from the perspective of period 2). Thus, we can derive the relationship between the pretax return (π) and the investor's after-tax return (ρ) that sets the value equal to the cost:

$$Q(1 + \pi(1 - \tau_{corp})(1 - \tau_{cg})) = Q(1 + \rho)$$

The Q 's cancel, the ones cancel, and we are left with:

$$\pi(1 - \tau_{corp})(1 - \tau_{cg}) = \rho$$

This translates into an EMTR of:

$$\frac{\pi - \pi(1 - \tau_{corp})(1 - \tau_{cg})}{\pi} = \tau_{corp} + \tau_{cg}(1 - \tau_{corp})$$

This is analogous to the EMTR facing investment financed with new equity, with τ_{cg} replacing τ_{div} . Since $\tau_{cg} < \tau_{div}$, this analysis suggests that investment financed with retained earnings faces a lower tax burden than investment financed with new equity.

We have now derived the EMTRs facing investments financed with different forms of capital. The

results are recapped in Table 5. The third column calculates the EMTR assuming that $\tau_{corp} = \tau_{int} = 0.35$,⁹¹ $\tau_{div} = 0.15$, and $\tau_{cg} = 0.075$ (a rate that roughly accounts for the ability to defer or avoid capital gains taxation).

Type of Capital	EMTR (in symbols)	EMTR (under illustrative tax rates)
Debt	τ_{int}	35%
New equity issues	$\tau_{corp} + \tau_{div}(1 - \tau_{corp})$	44.75%
Retained earnings	$\tau_{corp} + \tau_{cg}(1 - \tau_{corp})$	39.875%

This table shows a clear ranking for the tax costs of certain types of financing. Debt-financed investment faces the lowest EMTR, followed by investment financed by retained earnings, while investment financed by new equity issues faces the highest EMTR. For our purposes, the key observation is that debt-financed investment is tax favored relative to other financing methods.

B. More Complete Analyses

The CBO's 2006 model, on which we have drawn heavily, extended this very simple model to take account of other economic facts and features of the tax code.⁹² Some of those additions to the model, such as accelerated depreciation, reduce the EMTR of all types of financing (although not necessarily uniformly). However, many of these facts and features, such as inflation and differences between investors in different types of assets, exacerbate the tax code's bias for debt. As a result, the CBO finds estimated EMTRs that differ significantly from the theoretical rates offered in Table 5.

First, the inflation component of interest can be deducted against tax (decreasing total tax liability on a marginal investment project), while the inflation component of capital gains is subject to tax (increasing total tax liability on such a project). This increases the EMTR on equity-financed investment while decreasing it on debt-financed investment.

Second, corporate debt and corporate equity tend to be held by different types of investors in different types of accounts, as the CBO found. Roughly 58 percent of marginal saving in corporate equity was held in fully taxable accounts, while only 46 percent

⁸⁹Auerbach, "Taxation and Corporate Financial Policy," *supra* note 82, at 1259.

⁹⁰If the company distributes all its earnings as dividends (again, the initial retained earnings *and* the period 2 earnings), the algebra is messier but the result is unchanged. *Id.* at 1259.

⁹¹In fact, as described below, the effective tax rate on interest income is significantly lower than 35 percent.

⁹²CBO, "Computing Effective Tax Rates on Capital Income," *supra* note 28. Estimates from that model take into account shareholder-level taxes, but they do not include state-level taxes.

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of marginal saving in corporate debt (which includes bank instruments) was held in such accounts.⁹³ Further, the CBO also found that investors who held corporate debt in taxable accounts paid an average marginal tax rate of 22.1 percent, much lower than the top rate of 35 percent.⁹⁴ Investors in corporate equity paid dividend and (on-realization) capital gains taxes closer to the top statutory rate of 15 percent.⁹⁵ Relative to the tax rates that we assumed in Table 5, those differences lead to a greater disparity in favor of debt-financed investment.

⁹³*Id.* at 63. Twenty-one percent of marginal saving in corporate debt was held in tax-deferred accounts, while 33 percent was held in nontaxable accounts. Six percent of marginal saving in corporate equity was held in tax-deferred accounts, while 36 percent was held in nontaxable accounts.

⁹⁴*Id.* at 64. This average was weighted by the amount of debt held by each investor.

⁹⁵*Id.* at 65.

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