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Economic Analysis of an EBIT-Based Business Interest Limitation

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1 Executive Summary

The deduction for interest expense is limited under present law to 30 percent of adjusted taxable income. For taxable years beginning before January 1, 2022, *adjusted taxable income* is computed without regard to any deduction allowable for depreciation, amortization, or depletion ("EBITDA-based limitation"). For taxable years beginning after December 31, 2021, *adjusted taxable income* is computed *after* any deduction allowable for depreciation, amortization, or depletion ("EBIT-based limitation"). Therefore, beginning in 2022 the base on which the amount of deductible interest is determined will be smaller and the interest limitation will be more restrictive. The American Investment Council engaged PwC to examine the economic effects of the change to an EBIT-based limitation.

This scheduled change is estimated to have significant effects on government fiscal receipts, raising tens of billions of dollars in the years to come. It is also expected to have significant effects on taxpayers. The limitation on the deductibility of interest directly increases the after-tax cost of capital for taxpayers who, in the absence of a limitation, would have net interest expense exceeding 30 percent of adjusted taxable income. It may also increase the after-tax cost of capital indirectly for other taxpayers. The increase in the after-tax cost of capital is likely to reduce investment.[1] Lower capital investment reduces economic growth[2] and average labor productivity.[3] Lower labor productivity results in lower wages.[4] These effects are likely to be more significant with an EBIT-based limitation than with an EBITDA-based limitation.

If the EBIT-based limitation had been in effect in 2019:

- US public companies would have had an estimated $29.9 billion of additional excess interest expense, with companies in manufacturing, information, and mining seeing the largest increases in excess interest expense.
- US public companies would have paid an estimated $4.7 billion of additional incremental tax, an increase of 275.5 percent relative to the tax increase under an EBITDA-based limitation. Companies seeing the largest increases in tax relative to an EBITDA-based limitation are in information, manufacturing, and transportation and warehousing.
- Companies affected by the limitation would have had excess interest expense on average equal to 47.3 percent of their total interest expense. The mining sector would lose almost three-quarters of its interest deductions while the educational services and administrative and support and waste management and remediation services ("ASWMRS") sectors would lose about two-thirds.
- Low profitability companies (defined as those with a ratio of EBIT to assets of zero percent to less than 5 percent) would account for more than 60 percent of additional excess interest expense and nearly two-thirds of additional incremental tax relative to the tax increase under an EBITDA-based limitation despite representing 17.2 percent of all public companies.

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[1] See, for example, Eric Zwick and James Mahon, "Tax Policy and Heterogeneous Investment Behavior," *American Economic Review*, vol. 107, no. 1, January 2017, pp. 217-248; Christopher House and Matthew Shapiro, "Temporary Investment Tax Incentives: Theory with Evidence from Bonus Depreciation," *American Economic Review*, vol. 98, June 2008, pp. 737-768; and Kevin A. Hassett and R. Glenn Hubbard, "Tax Policy and Business Investment," *Handbook of Public Economics*, Volume 3, (eds. Alan J. Auerbach and Martin Feldstein), North-Holland Publishing Co., 2002, pp. 1293-1343; and Jason G. Cummins, Kevin A. Hassett, and R. Glenn Hubbard, "A Reconsideration of Investment Behavior Using Tax Reforms as a Natural Experiment," *Brookings Papers on Economic Activity*, vol. 2, 1994, pp. 1-74.
[2] Francesco Caselli, "Accounting for Cross-Country Income Differences," Phillipe Aghion and Steven N. Durlauf (eds.), *Handbook of Economic Growth*, vol. 1A, 2005, pp. 680-741.
[3] Capital intensity is responsible for about 45 percent of labor productivity growth in the United States since 1987. Department of Labor, Bureau of Labor Statistics, Multifactor Productivity Trends–2020, March 23, 2021.
[4] Anna Stansbury and Lawrence Summers, "Productivity and Pay: Is the Link Broken?," in *Facing up to Low Productivity Growth* (eds. Adam S. Posen and Jeromin Zettelmeyer), Peterson Institute for International Economics, February 2019.

The incremental effect of an EBIT-based limitation is estimated to be greater during a recession period, such as experienced in 2020, with affected companies losing 61.3 percent of their total interest expense. Incremental tax increases by 338.4 percent relative to the tax increase under an EBITDA-based limitation. The overall amount of incremental tax is estimated to be slightly lower in the recession period than in the nonrecession period of 2019, in part because more companies are expected to be in a loss position during the recession period.

Under an EBIT-based limitation, a company may be limited in its interest deduction when it makes an investment that is eligible for accelerated depreciation, even when that incremental investment is funded entirely with equity. While an additional investment generates additional income sufficient to cover economic depreciation and financing costs, the availability of accelerated depreciation means that taxable income before interest and taxes but after depreciation rises by a smaller amount or may even decline. This may cause a firm to lose interest deductions related to debt used to finance past investments even if the new investment is financed entirely with equity.

The effects of the limitation may create unexpected results in the presence of a net operating loss ("NOL"). Despite being subject to a stricter interest limitation, in some circumstances a company may pay less tax in a particular year under an EBIT-based limitation than under an EBITDA-based limitation because of interaction with the 80-percent NOL limitation. A deferred interest deduction may offset 100 percent of taxable income in a future year while an interest deduction that generates an NOL in the current year may only offset 80 percent of taxable income in a future year.

The interest limitation may discourage merger and acquisition activity that would otherwise generate positive economic benefits. For example, if two small companies merge, they may no longer benefit from the statutory exemption for companies below a certain level of gross receipts. In other situations, the limitation may provide an incentive for two companies to merge even though absent the limitation they would operate more efficiently as independent companies. For example, a company with excess interest expense may seek to acquire a company with excess interest capacity, thereby allowing the combined firm to deduct more interest (and pay less tax) than if the two companies remained separate.

Finally, if the United States were to implement an EBIT-based interest limitation, it would be the only advanced economy with this limitation. While the OECD guidelines allow flexibility to introduce such a rule, among the 35 OECD countries that have a rule that restricts tax deductibility based on a ratio of interest expense to some measure of earnings, no country currently has an EBIT-based rule.

2 Economic Analysis of the Interest Limitation

2.1 Description of Limitation on Business Interest

Under present law, interest paid or accrued by a business generally is deductible in the computation of taxable income, subject to a number of limitations. In particular, the deduction for business interest expense is generally limited to the sum of (i) business interest income of the taxpayer for the taxable year, (ii) 30 percent (50 percent for taxable years beginning in 2019 or 2020) of the *adjusted taxable income* of the taxpayer for the taxable year (not less than zero), and (iii) floor plan financing interest of the taxpayer for the taxable year. The amount of any business interest expense not allowed as a deduction for any taxable year may be carried forward indefinitely. Special rules apply for partnerships.

Taxpayers with average annual gross receipts for the 3-taxable year period ending with the taxable year that precedes the current taxable year that do not exceed $26 million (2021 dollar value, as indexed for inflation) ("the gross receipts test") are not subject to the limitation. Certain trades or businesses are not treated as trades or businesses for purposes of the limitation including (1) the trade or business of performing services as an employee; (2) any electing real property trade or business; (3) any electing farming business; and (4) certain regulated public utilities.

Adjusted taxable income means the taxable income of the taxpayer computed without regard to (1) any item of income, gain, deduction, or loss that is not properly allocable to a trade or business; (2) any business interest or business interest income; (3) the amount of any net operating loss deduction; and (4) the amount of any deduction allowed under section 199A. For taxable years beginning before January 1, 2022, *adjusted taxable income* is computed without regard to any deduction allowable for depreciation, amortization, or depletion ("EBITDA-based limitation"). For taxable years beginning after December 31, 2021, *adjusted taxable income* is computed *after* any deduction allowable for depreciation, amortization, or depletion ("EBIT-based limitation"). Therefore, beginning in 2022 the base on which the amount of deductible interest is determined will be smaller, and the interest limitation will be more restrictive.

Final regulations on the interest limitation reconsidered proposed regulations and provide that the amount of any depreciation, amortization, or depletion that is capitalized into inventory under section 263A during taxable years beginning before January 1, 2022, is added back to tentative taxable income as a deduction for depreciation, amortization, or depletion when calculating adjusted taxable income for that taxable year, regardless of the period in which the capitalized amount is recovered through cost of goods sold.[5] The Treasury Department and the Internal Revenue Service ("IRS") estimate that the number of taxpayers potentially affected by the change in regulations could be as high as roughly 61,000 entities, those that are both (1) subject to calculating their section 163(j) net interest limitation and (2) required by the Internal Revenue Code to capitalize any expenses, including depreciation, amortization, or depletion expenses.[6] This is a taxpayer favorable revision to the proposed regulations for taxable years before 2022; however, it provides no relief to the EBIT-based limitation that begins in 2022.

[5] Treas. Reg. sec. 1.163(j)-1(b)(1)(i)(D) and sec. 1.163(j)-1(b)(1)(iii)
[6] T.D. 9905, 2020-40 I.R.B. 614, September 28, 2020.

2.2 Effects on Revenue

2.2.1 JCT staff revenue estimates

The staff of the Joint Committee on Taxation ("JCT staff") estimated that the interest limitation provision as originally enacted would raise $253.4 billion for fiscal years 2018-2027, representing the largest domestic revenue raising provision in the legislation (**Table 2-1**).[7] The JCT staff estimated that in the first full fiscal year the EBIT-based limitation is scheduled to be in effect (fiscal year 2023), the limitation raises approximately $10 billion more than in the last full fiscal year the EBITDA-based limitation is scheduled to be in effect (fiscal year 2021).[8]

Table 2-1 JCT Staff Estimated Budget Effects of Interest Limitation (Billions of Dollars)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2018-2027
Limit net interest deductions to 30 percent of adjusted taxable income, carryforward of denied deduction	8.4	17.7	19.7	19.6	24.9	30.2	29.6	31.8	34.7	36.9	253.4

Note: Details may not sum to total due to rounding.
Source: Joint Committee on Taxation (JCX-67-17), December 18, 2017.

The Coronavirus Aid, Relief, and Economic Security ("CARES") Act[9] modified the limitation in two ways. It increases the percentage of the taxpayer's adjusted taxable income that factors into the calculation of the limitation on the deduction of business interest from 30 percent to 50 percent for any taxable year beginning in 2019 or 2020 and permits a taxpayer to elect to substitute the adjusted taxable income for its last taxable year beginning in 2019 for its adjusted taxable income for any taxable year beginning in 2020. If adjusted taxable income in 2019 is higher than in 2020, the taxpayer would face a less restrictive limitation if it makes the election. The JCT staff estimated that these changes reduce revenue by $13.4 billion for fiscal years 2020-2030 (**Table 2-2**).[10]

Table 2-2 JCT Staff Estimated Budget Effects of CARES Act Modifications to Interest Limitation (Billions of Dollars)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2020-2030
Modification of limitation on business interest	-7.1	-4.9	-0.5	-0.4	-0.3	-0.1	[1]	[1]	[1]	[1]	[1]	-13.4

[1] Loss of less than $50 million.
Note: Details may not sum to total due to rounding.
Source: Joint Committee on Taxation (JCX-11R-20), April 23, 2020.

[7] See, Joint Committee on Taxation, *Estimated Budget Effects of the Conference Agreement for H.R. 1, the "Tax Cuts and Jobs Act"* (JCX-67-17), December 18, 2017.
[8] See, Joint Committee on Taxation, *Estimated Budget Effects of the Conference Agreement for H.R. 1, the "Tax Cuts and Jobs Act"* (JCX-67-17), December 18, 2017.
[9] P.L. 116-136.
[10] See, Joint Committee on Taxation, *Estimated Revenue Effects of the Revenue Provisions Contained in an Amendment in the Nature of a Substitute to H.R. 748, the "Coronavirus Aid, Relief, and Economic Secure ("CARES") Act," as Passed by the Senate on March 25, 2020, and Scheduled for Consideration by the House of Representatives on March 27, 2020"* (JCX-11R-20), April 23, 2020.

2.2.2 Tax expenditure estimates

Tax expenditure estimates, unlike revenue estimates, do not incorporate the effects of behavioral changes that are anticipated to occur in response to a provision. The tax expenditure estimates for the limitation on net interest deduction to 30 percent of adjusted taxable income, therefore, may give a better sense of the direct effect on revenue solely from the amount of interest deduction disallowed, not including any behavioral responses of taxpayers. Because the limitation provides special treatment that is less favorable than normal income tax law, it is considered a *negative* tax expenditure by the JCT staff. The most recent tax expenditure estimates for the interest limitation as prepared by the JCT staff total $57.1 billion for fiscal years 2020-2024, with more than 90 percent of the effect on corporations.[11] The tax expenditure estimate for fiscal year 2023 (the first full fiscal year for which the EBIT-based limitation is scheduled to be in effect) is approximately $12 billion more than the estimate for fiscal year 2021 (the last full fiscal year for which the EBITDA-based limitation is scheduled to be in effect). A portion of this difference is attributable to provisions of the CARES Act that temporarily eased the limitation.[12]

Table 2-3 JCT Staff Tax Expenditure Estimate (Billions of Dollars)

	Corporations					Individuals					Total
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020-2024
Limitation on net interest deduction to 30 percent of adjusted taxable income	-2.0	-4.8	-11.4	-15.9	-18.1	-0.6	-0.5	-0.9	-1.3	-1.5	-57.1

Note: Details may not sum to total due to rounding.
Source: Joint Committee on Taxation (JCX-23-20), November 5, 2020.

2.3 Effects on Investment

The limitation on the deductibility of interest directly increases the after-tax cost of capital for taxpayers who, in the absence of a limitation, would have net interest expense exceeding 30 percent of adjusted taxable income. In addition, the limitation may cause taxpayers with net interest expense less than 30 percent of adjusted taxable income to face a higher cost of capital. This may occur for taxpayers who cannot predict their net income with certainty who then either choose not to incur additional debt and to forgo additional investment or choose to substitute more costly equity finance for debt to limit the risk of having their interest expense deduction limited. The economic literature has shown that changes in tax policy that change the cost of capital have a noticeable effect on investment.[13] Thus, the increase in the after-tax cost of capital as a result of the limitation on the

[11] Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2020-2024* (JCX-23-20), November 5, 2020.
[12] The JCT staff estimated the CARES Act amendments to the interest limitation reduced receipts by $4.9 billion in fiscal year 2021 and by $0.4 billion in fiscal year 2023, for a net difference between the two years of about $4.5 billion. The tax expenditure estimates prior to the CARES Act reported a difference between the effect in fiscal year 2021 and fiscal year 2023 of approximately $10 billion. This suggests the effect of the CARES Act on the tax expenditure estimate of between $2 billion and $4.5 billion.
[13] See, for example, Eric Zwick and James Mahon, "Tax Policy and Heterogeneous Investment Behavior," *American Economic Review*, vol. 107, no. 1, January 2017, pp. 217-248; Christopher House and Matthew Shapiro, "Temporary Investment Tax Incentives: Theory with Evidence from Bonus Depreciation," *American Economic Review*, vol. 98, June 2008, pp. 737-768; and Kevin A. Hassett and R. Glenn Hubbard, "Tax Policy and Business Investment," *Handbook of Public Economics*, Volume 3, (eds. Alan J. Auerbach and Martin Feldstein), North-Holland Publishing Co., 2002, pp. 1293-1343; and Jason G. Cummins, Kevin A. Hassett, and R. Glenn Hubbard, "A Reconsideration of Investment Behavior Using Tax Reforms as a Natural Experiment," *Brookings Papers on Economic Activity*, vol. 2, 1994, pp. 1-74.

deductibility of interest is likely to reduce investment. Lower capital investment reduces economic growth[14] and average labor productivity.[15] Lower labor productivity results in lower wages.[16]

Relative to an EBITDA-based limitation, an EBIT-based limitation makes it more likely that a deduction for interest will be denied and deferred to a later year. The deduction is likely to be deferred longer under an EBIT-based limitation. For companies that are permanently limited in their interest deductions under an EBIT-based limitation, interest expense in excess of the limit is lost permanently. These characteristics mean that an EBIT-based limitation is more likely to raise the cost of capital and reduce investment.

2.3.1 Effects by industry

The change from an EBITDA-based limitation to an EBIT-based limitation is likely to have differential effects by sector and by company. Even within an industry, companies differ in their reliance on debt finance. For those firms with interest subject to limitation, those with greater amounts of depreciation, amortization, and depletion relative to income will experience the largest reduction in currently deductible interest expense. The JCT staff reported that in 2014, more than 86 percent of businesses claimed no deduction for interest expense and "that relatively few highly leveraged firms are responsible for most of the interest" expense.[17] Use of interest varies by type of business entity and by industry.[18] For 2016, JCT reported that 36 percent of C corporations, 39 percent of S corporations, 13 percent of partnerships, and 7 percent of sole proprietorships claimed any deduction for interest. C corporations claimed 83 percent of all interest deductions, S corporations 5 percent, partnerships 11 percent, and sole proprietorships 1 percent. The manufacturing sector had the largest value of interest deductions at more than $180 billion followed by finance and insurance at $160 billion and management of companies at less than $100 billion.

PwC examined financial statement information for all US companies traded on a major stock exchange or over-the-counter (hereinafter "public companies") to analyze the effect of a change from an EBITDA-based limitation to an EBIT-based limitation.[19] Data are based on global consolidated financial statements and reflect adjustments for certain nonrecurring items. Differences in reporting for financial statement purposes and tax filings imply this analysis is only an estimate of present law effects of an EBITDA-based limitation and of a change to an EBIT-based limitation. Tabulations do not reflect any potential future behavioral response by companies in response to the interest limitation, although any actions taken by 2019, for example to adjust the capital structure of the company, potentially reflect a response both to the current EBITDA-based limitation and in anticipation of the scheduled change to the EBIT-based limitation.

Table 2-4 reports estimates of interest expense in excess of an EBITDA-based limitation and an EBIT-based limitation (hereinafter "excess interest expense") for public companies for quarters defined to correspond most closely with calendar year 2019.[20] Industry information is based on the North American Industrial Classification

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[14] Francesco Caselli, "Accounting for Cross-Country Income Differences," Phillipe Aghion and Steven N. Durlauf (eds.), *Handbook of Economic Growth*, vol. 1A, 2005, pp. 680-741.
[15] Capital intensity is responsible for about 45 percent of labor productivity growth in the United States since 1987. Department of Labor, Bureau of Labor Statistics, Multifactor Productivity Trends–2020, March 23, 2021.
[16] Anna Stansbury and Lawrence Summers, "Productivity and Pay: Is the Link Broken?," in *Facing up to Low Productivity Growth* (eds. Adam S. Posen and Jeromin Zettelmeyer), Peterson Institute for International Economics, February 2019, pp.
[17] See, Joint Committee on Taxation, *Present Law and Data Related to the Taxation of Business Income* (JCX-42-17), September 15, 2017, pp. 69-74.
[18] Joint Committee on Taxation, *Overview of Limitation on Deduction of Business Interest: Section 163(j)*, March 28, 2019. https://www.jct.gov/publications/2019/overview-of-limitation-on-deduction-of-business-in/
[19] Data for public companies traded on a US exchange or over-the-counter were obtained from the Capital IQ global database.
[20] The interest limitation begins with a calculation of 30 percent of EBITDA or EBIT. This part of the limitation may not be less than zero. The CARES Act provisions that temporarily increased the limitation percentage from 30 percent to 50 percent are assumed not to apply. While the statute provides that the limitation is increased for

System ("NAICS").[21] Some taxpayers have a statutory exemption from the limitation, including taxpayers that satisfy the gross receipts test. Any electing real property trade or businesses, any electing farming business, and certain regulated public utilities are also not subject to the limitation. These statutory and elective exclusions are applied in this table.[22] Companies with negative EBIT and EBITDA are also included in the tabulations (for whom even the first dollar of interest expense would be limited under the respective limitations).

Companies are estimated to have approximately $20.4 billion of excess interest expense under an EBITDA-based limitation, or approximately 40 percent of the $53.0 billion total interest expense for such companies. Including only companies with excess interest expense that is limited under an EBITDA-based limitation, the sectors with the greatest percentage of total interest expense in excess of an EBITDA-based limitation are conglomerates (100 percent)[23] the administrative and support and waste management and remediation services ("ASWMRS") sector (56.0 percent); real estate and rental and leasing sector (53.5 percent);[24] and mining, quarrying, and oil and gas extraction sector (51.5 percent), with excess interest expense equal to more than half of total interest expense. Companies are estimated to have $50.3 billion of excess interest expense under an EBIT-based limitation, or approximately 47 percent of the $106.5 billion total interest expense for such companies. Including only companies with excess interest expense that is limited under an EBIT-based limitation, the mining sector loses almost three-quarters of its interest deductions while the educational services and ASWMRS sectors lose about two-thirds. Of the $29.9 billion of additional excess interest expense under an EBIT-based limitation, the manufacturing sector (led by computer and electronic product manufacturing and chemical manufacturing) is responsible for $7.9 billion (26.3 percent). The information sector (including broadcasting and telecommunications) is responsible for $7.2 billion (24.1 percent) of additional excess interest expense, followed by the mining sector (led by oil and gas extraction) at $5.4 billion (18.2 percent).

Excess interest expense does not give rise to incremental tax liability for all companies. A taxpayer that is subject to the limitation may not incur incremental tax liability because, for example, the taxpayer is already in a loss position due to other deductions before the denial of any deduction for interest expense.[25] A taxpayer may also have excess tax credits that would shield any otherwise incremental current tax liability.

Based on data for 2019, 2.7 percent of all US public companies would have incurred incremental tax liability as a result of an EBITDA-based limitation. Had an EBIT-based limitation applied in that year, 7.0 percent of public companies would have incurred incremental tax liability. For purposes of these calculations, a company that

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business interest income, these amounts are not separately reported in the financial statement data available. Instead, the analysis here increases the limitation by interest and investment income as reported by Capital IQ. To the extent that amounts other than business interest income are included in this total, the reported results understate the effect of the interest limitation. No adjustment is made for floor plan financing interest. To the extent that interest expense includes floor plan financing interest, the analysis here overstates the effect of the interest limitation.

[21] For some observations, information on the NAICS industrial code was missing and was imputed based on other industry sector information available from Capital IQ. The few companies for which imputation was not possible based on available information are reported as not elsewhere classified.

[22] The adjustment for companies that satisfy the gross receipts test reduced the estimates of excess interest expense by about 5 percent under an EBITDA-based limitation and 2 percent under an EBIT-based limitation. The adjustment for companies that are assumed to elect out of the provision reduced the estimates of excess interest expense by about 6 percent and 12 percent, respectively. The effect of both adjustments reduced the estimates of excess interest expense by about 11 percent and 14 percent, respectively.

[23] Conglomerates that are limited by the interest deduction in the sample lose all of their interest because they have negative earnings and report no business interest income.

[24] While the interest limitation does not apply to any electing real property trade or business, this sector includes rental and leasing of property other than real property.

[25] In 2017, the last year before the interest limitation applied, approximately half (50.2 percent) of all C corporations reported losses (after all deductions, including interest expense). These companies accounted for 32 percent of interest deductions and 25 percent of total assets of all C corporations. Internal Revenue Service, Statistics of Income, *Corporation Income Tax Returns, Complete Report, 2017*, Publication 16 (Rev. 9-2020), Table 2.3 and Table 5.4.

satisfies the gross receipts test is assumed to incur no incremental tax liability. A company in the agriculture sector, utilities sector, real estate subsector, or accommodation subsector is assumed to elect out of the interest limitation.[26] Incremental tax is calculated assuming a marginal rate of 21 percent. Incremental tax is limited to the portion of interest deductions that would have reduced taxable income to zero; no additional incremental tax is incurred by further denial of interest deductions in the current year.

Table 2-5 reports estimates of incremental tax liability by industry under an EBITDA-based limitation and under an EBIT-based limitation had it applied in 2019. Companies are estimated to have approximately $1.7 billion of incremental tax liability under an EBITDA-based limitation, representing 3.6 percent of EBIT for those companies with incremental tax, and $6.5 billion of incremental tax liability under an EBIT-based limitation, representing 3.9 percent of EBIT for those companies facing incremental tax and a 275.5 percent increase compared to an EBITDA-based limitation. The sectors with the largest percentage increases in incremental tax liability relative to the tax increase under an EBITDA-based limitation are accommodation and food services (3,462.3 percent), mining (2,839.8 percent), and transportation and warehousing (2,531.1 percent). The $4.7 billion of additional incremental tax ($6.47 billion less $1.72 billion) represents approximately 2.9 percent of EBIT for those companies with additional incremental tax. Of the $4.7 billion of additional incremental tax liability under an EBIT-based limitation relative to the tax increase under an EBITDA-based limitation, the information sector is responsible for more than $1.3 billion (28.4 percent), the manufacturing sector is responsible for just under $1.3 billion (26.9 percent), and the transportation and warehousing sector (led by pipeline transportation) is responsible for $0.5 billion (10.6 percent).[27]

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[26] To the extent that a company in one of these industries chooses not to elect out of the interest limitation or is ineligible to elect out based on other statutory criteria, the data presented here may understate the effect of the interest limitation.

[27] The $4.7 billion of incremental tax would differ from a revenue estimate of a provision to impose an EBIT-based limitation for several reasons. For example, the estimate of incremental tax applies to the subset of taxpayers that are public companies, while the interest limitation applies to taxpayers regardless of their legal form or whether they are publicly traded or privately held. The estimate of incremental tax does not take into account the provision of the CARES Act, which is expected to alter the baseline level of interest deductions for several years to come. Interest rates are forecast to be different in the future than they were in 2019. A revenue estimate would incorporate behavioral responses of taxpayers in response to a change in law. Revenue estimates are prepared with respect to the government's fiscal years rather than calendar years.

Table 2-4. Estimated Excess Interest Expense by Industry, 2019
Millions of Dollars

Industry	Interest Expense in Excess of EBITDA-based Limitation	Total Interest Expense of EBITDA-limited Companies	Percent of Interest in Excess of EBITDA-based Limitation	Interest Expense in Excess of EBIT-based Limitation	Total Interest Expense of EBIT-limited Companies	Percent of Interest in Excess of EBIT-based Limitation	Additional Excess Interest under EBIT-based Limitation	Percent of Additional Excess Interest Expense
Mining, Quarrying, and Oil and Gas Extraction	1,185.6	2,302.5	51.5%	6,610.4	9,047.5	73.1%	5,424.8	18.2%
Construction	177.5	465.2	38.2%	311.1	557.3	55.8%	133.6	0.4%
Manufacturing	5,633.1	13,208.3	42.6%	13,493.3	26,089.4	51.7%	7,860.3	26.3%
Wholesale Trade	1,023.7	3,625.2	28.2%	2,125.3	4,646.8	45.7%	1,101.6	3.7%
Retail Trade	655.7	1,516.5	43.2%	1,764.5	3,701.2	47.7%	1,108.8	3.7%
Transportation and Warehousing	715.9	1,587.5	45.1%	3,234.4	8,945.1	36.2%	2,518.4	8.4%
Information	3,679.6	10,199.7	36.1%	10,869.5	28,164.9	38.6%	7,189.9	24.1%
Finance and Insurance	1,869.3	6,895.0	27.1%	2,257.3	7,809.9	28.9%	388.0	1.3%
Real Estate and Rental and Leasing	1,340.2	2,506.5	53.5%	1,486.4	2,816.6	52.8%	146.2	0.5%
Professional, Scientific, and Technical Services	814.2	2,341.3	34.8%	1,742.6	3,809.2	45.7%	928.4	3.1%
Administrative and Support and Waste Management and Remediation Services	718.3	1,283.5	56.0%	1,613.2	2,408.7	67.0%	894.9	3.0%
Educational Services	78.6	205.3	38.3%	140.1	214.3	65.3%	61.4	0.2%
Health Care and Social Assistance	1,507.8	3,795.0	39.7%	2,439.9	4,034.6	60.5%	932.1	3.1%
Arts, Entertainment, and Recreation	360.8	2,204.9	16.4%	1,356.2	2,723.3	49.8%	995.4	3.3%
Accommodation and Food Services	28.4	85.4	33.2%	207.4	723.6	28.7%	179.1	0.6%
Other Services (except Public Administration)	40.4	163.9	24.7%	63.8	169.6	37.6%	23.4	0.1%
Conglomerate	605.0	605.0	100.0%	605.0	605.0	100.0%	-	0.0%
Grand Total	**$20,434.0**	**$52,990.8**	**38.6%**	**$50,320.4**	**$106,467.2**	**47.3%**	**$29,886.4**	**100.0%**

Note: Calculations are before consideration of taxable income. The following sectors are included in the analysis but excluded from the table because the calculations result in no estimated excess interest expense: agriculture, forestry, fishing, and hunting; utilities; management of companies and enterprises; and public administration. Details may not sum to total due to rounding.
Source: Capital IQ, PwC calculations.

Table 2-5. Estimated Incremental Tax Liability by Industry, 2019
Millions of Dollars

Industry	Incremental Tax under EBITDA-based Limitation	Incremental Tax under EBIT-based Limitation	Effect of EBIT-based Limitation	Percent Increase in Incremental Tax	Percent of Additional Incremental Tax
Mining, Quarrying, and Oil and Gas Extraction	14.7	431.5	416.8	2,839.8%	8.8%
Construction	25.9	53.6	27.7	107.0%	0.6%
Manufacturing	311.2	1,590.0	1,278.8	411.0%	26.9%
Wholesale Trade	190.7	413.5	222.8	116.8%	4.7%
Retail Trade	45.3	235.2	189.9	419.2%	4.0%
Transportation and Warehousing	19.9	522.4	502.6	2,531.1%	10.6%
Information	334.2	1,680.9	1,346.7	403.0%	28.4%
Finance and Insurance	122.1	173.5	51.4	42.1%	1.1%
Real Estate and Rental and Leasing	269.6	298.6	29.0	10.8%	0.6%
Professional, Scientific, and Technical Services	112.0	296.9	184.9	165.1%	3.9%
Administrative and Support and Waste Management and Remediation Services	23.9	134.7	110.8	462.8%	2.3%
Educational Services	2.7	15.2	12.5	470.8%	0.3%
Health Care and Social Assistance	192.8	359.8	167.1	86.7%	3.5%
Arts, Entertainment, and Recreation	49.5	226.7	177.3	358.4%	3.7%
Accommodation and Food Services	0.7	25.6	24.9	3,462.3%	0.5%
Other Services (except Public Administration)	7.9	11.9	4.0	50.8%	0.1%
Grand Total	**$1,722.9**	**$6,470.1**	**$4,747.2**	**275.5%**	**100.0%**

Note: Calculations reflect statutory exemptions, assume all eligible taxpayers elect out of the interest limitation, and do not increase tax for denied deductions that would reduce taxable income below zero. The following sectors are included in the analysis but excluded from the table because the calculations result in no estimated incremental tax liability: agriculture, forestry, fishing, and hunting; utilities; management of companies and enterprises; public administration; and conglomerate. Details may not sum to total due to rounding.
Source: Capital IQ, PwC calculations.

2.3.2 Extrapolation to all taxpayers

The data above relate only to US public companies, nearly all of which are taxed as C corporations. While public C corporations represent the vast majority of income of all C corporations, all C corporations account for only about 40 percent of total business income in the United States.[28] Assuming that the additional incremental tax liability of public companies attributable to the shift from an EBITDA-based interest limitation to an EBIT-based interest limitation is 40 percent of the total additional incremental tax liability for all forms of business, then the additional incremental tax liability in 2019 for all businesses could be as large as $11.9 billion, ignoring behavioral responses by businesses.[29]

2.3.3 Effects by profitability

The effect of the interest limitation varies by the profitability as measured by the ratio of EBIT to assets. **Table 2-6** and **Table 2-7** report total interest expense and estimates of excess interest expense and incremental tax liability for public companies by profitability.

Negative ratio of EBIT-to-assets. Companies with a negative ratio of EBIT to assets (i.e., those with a loss before taking into account any deduction for interest expense) account for 22.4 percent of all public companies, 5.5 percent of total interest expense of all public companies, 34.6 percent of total interest expense in excess of an EBITDA-based limitation, and 23.7 percent of total interest expense in excess of an EBIT-based limitation. Under an EBITDA-based limitation, these companies have excess interest expense of $7.1 billion, equal to 56.3 percent of the $12.6 billion total interest expense of EBITDA-limited companies in this group. Under an EBIT-based limitation, these companies have excess interest expense of $10.4 billion, equal to 71.1 percent of the nearly $14.6 billion total interest expense of EBIT-limited companies in this group.[30] While loss companies are assumed to have no incremental tax liability as a result of their excess interest, the analysis indicates that a substantial portion of their interest deductions are deferred, increasing the likelihood that some portion of the interest deductions will be disallowed permanently.

Zero to less than 5 percent ratio of EBIT-to-assets. Companies with a ratio of EBIT to assets of zero percent to less than 5 percent represent 17.2 percent of all public companies, 31.7 percent of total interest expense, 32.9 percent of total interest expense in excess of an EBITDA-based limitation, and 49.2 percent of total interest expense in excess of an EBIT-based limitation. Excess interest expense equals 33.2 percent of total interest expense of EBITDA-limited companies in this profitability group and 54.4 percent of total interest expense of EBIT-limited companies in this profitability group. The shift to an EBIT-based limitation results in the most additional excess interest expense of any profitability group. Companies in this group account for $30.6 billion (52.3 percent) of interest expense in excess of an EBIT-based limitation and $22.8 billion (64.5 percent) of the additional excess interest expense. The change in the limitation is reflected not only in the large increase in excess interest expense but also in the additional incremental tax due shown in **Table 2-7**. While this group is responsible for 31.2 percent of incremental tax liability under an EBITDA-based limitation, it accounts for 54.6 percent of incremental tax liability under an EBIT-based limitation and nearly $3 billion (63.1 percent) of the total $4.7 billion additional incremental tax effect of an EBIT-based limitation relative to the tax increase under an EBITDA-based limitation.

5 percent to less than 10 percent ratio of EBIT-to-assets. More profitable companies, those with a ratio of EBIT to assets of 5 percent to less than 10 percent, represent 8.7 percent of all public companies and account for the plurality (37.4 percent) of total interest expense, 25.5 percent of total interest expense in excess of an EBITDA-based limitation, and 25.4 percent of total interest expense in excess of an EBIT-based limitation. Excess interest expense of $5.2 billion equals 33.3 percent of the $15.7 billion total interest expense of EBITDA-limited

[28] Internal Revenue Service, Statistics of Income, Integrated Business Data.
[29] Additional incremental tax liability from **Table 2-5** is $4.747 billion. $4.747 billion / 0.40 = $11.868 billion.
[30] A company with excess interest expense under an EBIT-based limitation in this profitability group has excess interest expense equal to 100 percent of its net interest expense. If a company has interest income, its net interest expense is less than its total interest expense.

companies, and the excess interest expense of $12.7 billion under an EBIT-based limitation is 31.4 percent of the $40.7 billion total interest expense of EBIT-limited companies. Companies in this group are responsible for 58.5 percent ($1.0 billion) of incremental tax liability under an EBITDA-based limitation and 40.1 percent ($2.6 billion) under an EBIT-based limitation. They bear about one-third of the effect of the move to an EBIT-based limitation.

10 percent and greater ratio of EBIT-to-assets. Highly profitable companies, those with a ratio of EBIT to assets of 10 percent to less than 15 percent and 15 percent or more, represent a smaller fraction of companies. Companies in these two profitability groups have 20.7 percent and 28.5 percent, respectively, of their interest expense in excess of an EBITDA-based limitation and about a quarter of their interest expense in excess of an EBIT-based limitation.

Missing asset data. While 43.6 percent of companies are missing asset data necessary to calculate a profitability ratio, they represent less than one percent of all interest expense. Excess interest expense represents a large share of interest for limited companies under either an EBITDA-based limitation (48.0 percent) or an EBIT-based limitation (76.5 percent). However, they are responsible for only 2.9 percent and 1.9 percent of incremental tax liability, respectively.

Table 2-6. Estimated Excess Interest Expense by Profitability, 2019
Millions of Dollars

Ratio of EBIT to Assets	Percent of Public Companies	Total Interest Expense of All Public Companies	Interest Expense in Excess of EBITDA-based Limitation	Total Interest Expense of EBITDA-limited Companies	Percent of Interest in Excess of EBITDA-based Limitation	Interest Expense in Excess of EBIT-based Limitation	Total Interest Expense of EBIT-limited Companies	Percent of Interest in Excess of EBIT-based Limitation	Additional Excess Interest Expense under EBIT-based Limitation	Percent of Additional Excess Interest Expense
<0%	22.4%	16,284.5	7,064.8	12,553.2	56.3%	10,379.2	14,591.8	71.1%	3,314.5	11.1%
0% to <5%	17.2%	93,775.0	6,715.8	20,213.2	33.2%	24,780.2	45,593.2	54.4%	18,064.5	60.4%
5% to <10%	8.7%	110,632.2	5,212.4	15,657.1	33.3%	12,773.3	40,717.5	31.4%	7,560.9	25.3%
10% to <15%	4.6%	41,475.3	525.0	2,536.3	20.7%	924.8	3,341.7	27.7%	399.8	1.3%
15%+	3.5%	31,025.9	86.4	302.8	28.5%	120.6	468.2	25.8%	34.2	0.1%
Missing asset data	43.6%	2,424.2	829.6	1,728.2	48.0%	1,342.3	1,754.8	76.5%	512.7	1.7%
Grand Total	**100.0%**	**$295,617.2**	**$20,434.0**	**$52,990.8**	**38.6%**	**$50,320.4**	**$106,467.2**	**47.3%**	**$29,886.4**	**100.0%**

Note: Calculations are before consideration of taxable income. Details may not sum to total due to rounding.
Source: Capital IQ, PwC calculations.

Table 2-7. Estimated Incremental Tax Liability by Profitability, 2019
Millions of Dollars

Ratio of EBIT to Assets	Percent of Public Companies	Incremental Tax under EBITDA-based Limitation	Percent of Incremental Tax under EBITDA-based Limitation	Incremental Tax under EBIT-based Limitation	Percent of Incremental Tax under EBIT-based Limitation	Effect of EBIT-based Limitation	Percent of Incremental Tax under EBIT-based Limitation
<0%	22.4%	-	0.0%	-	0.0%	-	0.0%
0% to <5%	17.2%	537.8	31.2%	3,532.9	54.6%	2,995.1	63.1%
5% to <10%	8.7%	1,007.9	58.5%	2,594.1	40.1%	1,586.3	33.4%
10% to <15%	4.6%	108.5	6.3%	192.4	3.0%	84.0	1.8%
15%+	3.5%	18.1	1.1%	25.3	0.4%	7.2	0.2%
Missing asset data	43.6%	50.6	2.9%	125.3	1.9%	74.6	1.6%
Grand Total	**100.0%**	**$1,722.9**	**100.0%**	**$6,470.1**	**100.0%**	**$4,747.2**	**100.0%**

Note: Calculations reflect statutory exemptions, assume all eligible taxpayers elect out of the interest limitation, and do not increase tax for denied deductions that would reduce taxable income below zero. Details may not sum to total due to rounding.
Source: Capital IQ, PwC calculations.

2.3.4 Procyclicality of the limitation

Companies in cyclical industries with income subject to greater fluctuations may find the limitation restricts interest deductibility during periods of weak economic performance while during periods of normal profitability the companies can fully deduct their interest expense. During an economic downturn, companies that experience a disproportionate reduction in revenue relative to expenses see a larger drop in adjusted taxable income than other companies. A decline in earnings results in a reduced ability to deduct interest because interest expense becomes a higher percentage of adjusted taxable income. At the same time, these companies may borrow more money to make payroll or to finance other expenses. This may increase the amount of interest expense the companies have incurred. The combination of these pressures can result in a relatively higher tax bill at a time when the firm is least able to pay. The limitation increases the cost of capital, making it more expensive to undertake investment during recession times as well. An EBIT-based limitation may be susceptible to larger percentage fluctuations when revenue declines than an EBITDA-based limitation due to depreciation, depletion, and amortization deductions on current and prior year investments.

To understand the effects of a recession, PwC estimated the effects of both an EBITDA-based and EBIT-based interest limitation had all companies' tax years corresponded to the period from the fourth calendar quarter of 2019 to the third quarter of 2020. This period (the "recession period") includes the start of the COVID-19 recession in the first quarter of 2020 and continued economic weakness for many companies at least through the second quarter of 2020.[31] **Table 2-8** reports estimates of excess interest expense for US public companies during the recession period. Companies are estimated to have approximately $33.9 billion of excess interest expense under an EBITDA-based limitation, or approximately 52.7 percent of the $64.4 billion total interest expense for EBITDA-limited companies. Including only companies with excess interest expense under an EBITDA-based limitation, the sectors with the greatest percentage of total interest expense in excess of an EBITDA-based limitation are conglomerates (100 percent), the educational services sector (96,7 percent); transportation and warehousing (81.9 percent); and arts, entertainment, and recreation (74.9 percent), with excess interest expense equal to more than three quarters of total interest expense. Companies are estimated to have $71.2 billion of excess interest expense under an EBIT-based limitation, or 61.3 percent of the $116.3 billion total interest expense for EBIT-limited companies. Including only companies with excess interest expense under an EBIT-based limitation in a recession period, the arts, entertainment, and recreation sector and mining sector have the largest percentage of excess interest expense, 90.3 percent and 83.1 percent, respectively. Of the $37.3 billion of additional excess interest expense under an EBIT-based limitation, the mining sector (led by oil and gas extraction) is responsible for $10.1 billion (27.1 percent), followed by manufacturing at $10.1 billion (27.0 percent), and the information sector at $7.1 billion (19.1 percent).

The recession period is associated with more excess interest expense under either interest limitation than in the nonrecession period of calendar year 2019. The incremental effect of an EBIT-based limitation is more severe during the recession period, with the additional excess interest expense increasing by 25 percent relative to the nonrecession period.[32]

One reason for an increase in the amount of interest subject to limitation is an increase in debt during the recession period. Debt for all US public companies increased by almost $1 trillion, or 5.5 percent, from $18.05 trillion to $19.05 trillion during the recession period. There was substantial variation by sector. The private sector industries that saw the largest percentage increases in their debt were accommodation and food services (+34.5 percent), transportation and warehousing (+21.3 percent), and information (+11.4 percent), while some industries experienced a decline in debt burdens including construction (-9.9 percent), educational services (-6.8 percent), and real estate (-6.7 percent).

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[31] Complete financial statement information for the fourth quarter of calendar year 2020 was not available at the time these data were collected.

[32] Compare $37.3 billion of additional interest expense in **Table 2-6** versus $29.9 billion of additional excess interest expense in **Table 2-4**.

Table 2-9 reports estimates of incremental tax liability by industry under an EBITDA-based limitation and under an EBIT-based limitation for the recession period. Companies are estimated to have approximately $1.3 billion of incremental tax liability under an EBITDA-based limitation and $5.9 billion of incremental tax liability under an EBIT-based limitation. Of the $4.5 billion of additional incremental tax liability under an EBIT-based limitation relative to the tax increase under an EBITDA-based limitation, the manufacturing sector now leads with more than $1.3 billion (29.5 percent) of incremental tax with the information sector only slightly behind with $1.3 billion (29.2 percent), and the transportation and warehousing sector (led by pipeline transportation) is responsible for $0.5 billion (10.7 percent).

Assuming that the additional incremental tax liability of public companies attributable to the shift from an EBITDA-based interest limitation to an EBIT-based interest limitation is 40 percent of the total additional incremental tax liability for all forms of business, then the additional incremental tax liability in the recession period for all businesses could be as large as $11.3 billion.[33]

The overall amount of incremental tax is estimated to be slightly lower in the recession period than in the nonrecession period of 2019. One explanation for this result is that more companies are estimated to be in a loss position in the recession period. The number of companies reporting negative financial statement net income increased by approximately 8.9 percent in the recession period compared to 2019. If a company is in a loss position before any deduction for interest, the limitation will not result in any incremental tax liability. For a company that has positive income before any deduction for interest, even an interest deduction that has been limited may create a loss.[34] Any excess interest expense will be carried forward. During a recession period, incremental tax will be more heavily concentrated in sectors that remain profitable or that have positive taxable income merely as a result of the interest limitation.

Table 2-10 and **Table 2-11** report total interest expense and estimates of excess interest expense and incremental tax liability for public companies by profitability for the recession period. The total amount of estimated excess interest expense and incremental tax liability matches the amounts shown in **Table 2-8** and **Table 2-9**.

Compared to the nonrecession period, the most significant changes are for companies with a negative ratio of EBIT to assets and those with very high profitability. Consistent with the effects of a recession, companies with a negative ratio of EBIT to assets make up a slightly larger share of companies (23.0 percent vs. 22.4 percent of all companies and 43.5 percent vs. 39.8 percent of all companies for which asset data are not missing). This group accounts for much more total interest expense (14.1 percent vs. 5.5 percent), total interest expense in excess of an EBITDA-based limitation (64.8 percent vs. 34.6 percent), and total interest expense in excess of an EBIT-based limitation (48.5 percent vs. 20.6 percent). Excess interest expense equals 78.1 percent (vs. 56.3 percent) of total interest expense of EBITDA-limited companies in this group and 94.0 percent (vs. 71.1 percent) of total interest expense of EBIT-limited companies.

The most profitable companies, those with a ratio of EBIT to assets of 15 percent or more, face an increase in incremental tax liability of 9.4 percent under an EBIT-based limitation compared to the nonrecession period. The recession also increases the effect of an EBIT-based limitation for this group by almost 50 percent ($7.2 million vs. $10.6 million).

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[33] Additional incremental tax liability from **Table 2-7** is $4.520 billion. $4.520 billion / 0.40 = $11.301 billion.
[34] However, the excess interest expense in a recession period may result in less incremental tax liability than in the nonrecession period if, for example, taxable income before any interest deduction in the recession period is less than the amount of limited interest in the nonrecession period.

Table 2-8. Estimated Excess Interest Expense by Industry, Recession Period
Millions of Dollars

Industry	Interest Expense in Excess of EBITDA-based Limitation	Total Interest Expense of EBITDA-limited Companies	Percent of Interest in Excess of EBITDA-based Limitation	Interest Expense in Excess of EBIT-based Limitation	Total Interest Expense of EBIT-limited Companies	Percent of Interest in Excess of EBIT-based Limitation	Additional Excess Interest under EBIT-based Limitation	Percent of Additional Excess Interest Expense
Mining, Quarrying, and Oil and Gas Extraction	2,020.8	4,865.8	41.5%	12,129.3	14,595.5	83.1%	10,108.5	27.1%
Construction	262.7	402.8	65.2%	367.6	586.4	62.7%	105.0	0.3%
Manufacturing	9,358.5	17,657.3	53.0%	19,434.8	33,649.3	57.8%	10,076.2	27.0%
Wholesale Trade	745.9	3,716.4	20.1%	2,114.9	5,393.2	39.2%	1,369.0	3.7%
Retail Trade	1,024.7	1,936.2	52.9%	2,120.9	3,083.9	68.8%	1,096.2	2.9%
Transportation and Warehousing	4,598.5	5,615.7	81.9%	7,074.7	12,714.0	55.6%	2,476.3	6.6%
Information	4,677.3	11,208.5	41.7%	11,819.3	21,930.1	53.9%	7,141.9	19.1%
Finance and Insurance	1,952.8	3,647.5	53.5%	2,503.6	4,517.9	55.4%	550.9	1.5%
Real Estate and Rental and Leasing	1,813.7	2,439.3	74.4%	1,898.8	2,719.3	69.8%	85.0	0.2%
Professional, Scientific, and Technical Services	879.1	2,215.1	39.7%	1,959.6	3,311.4	59.2%	1,080.6	2.9%
Administrative and Support and Waste Management and Remediation Services	886.1	2,189.3	40.5%	1,918.1	2,677.3	71.6%	1,032.1	2.8%
Educational Services	68.7	71.1	96.7%	109.1	179.4	60.8%	40.4	0.1%
Health Care and Social Assistance	1,891.8	3,473.0	54.5%	2,725.2	3,941.1	69.1%	833.4	2.2%
Arts, Entertainment, and Recreation	2,104.3	2,808.7	74.9%	2,537.2	2,808.7	90.3%	432.9	1.2%
Accommodation and Food Services	932.9	1,265.4	73.7%	1,311.5	1,807.4	72.6%	378.6	1.0%
Other Services (except Public Administration)	38.7	166.0	23.3%	68.3	185.6	36.8%	29.6	0.1%
Conglomerate	678.0	678.0	100.0%	1,152.9	2,179.0	52.9%	474.9	1.3%
								0.0%
Grand Total	**$33,934.5**	**$64,356.1**	**52.7%**	**$71,245.9**	**$116,279.5**	**61.3%**	**$37,311.4**	**100.0%**

Note: Calculations are before consideration of taxable income. The following sectors are included in the analysis but excluded from the table because the calculations result in no estimated excess interest expense: agriculture, forestry, fishing, and hunting; utilities; management of companies and enterprises; and public administration. Details may not sum to total due to rounding.
Source: Capital IQ, PwC calculations.

Table 2-9. Estimated Incremental Tax Liability by Industry, Recession Period Millions of Dollars

Industry	Incremental Tax under EBITDA-based Limitation	Incremental Tax under EBIT-based Limitation	Effect of EBIT-based Limitation	Percent Increase in Incremental Tax	Percent of Additional Incremental Tax
Mining, Quarrying, and Oil and Gas Extraction	14.4	328.7	314.3	2,183.9%	7.0%
Construction	16.9	31.3	14.4	85.6%	0.3%
Manufacturing	327.6	1,662.7	1,335.1	407.5%	29.5%
Wholesale Trade	137.7	402.8	265.1	192.5%	5.9%
Retail Trade	20.6	90.1	69.5	338.1%	1.5%
Transportation and Warehousing	23.2	506.7	483.5	2,083.8%	10.7%
Information	263.5	1,583.1	1,319.6	500.9%	29.2%
Finance and Insurance	64.3	139.3	75.0	116.7%	1.7%
Real Estate	134.0	138.1	4.1	3.1%	0.1%
Professional, Scientific, and Technical Services	77.0	281.0	204.0	264.8%	4.5%
Administrative and Support and Waste Management and Remediation Services	18.2	116.0	97.7	536.0%	2.2%
Educational Services	0.0	8.5	8.5		0.2%
Health Care and Social Assistance	185.1	320.7	135.5	73.2%	3.0%
Arts, Entertainment, and Recreation	43.7	112.9	69.1	158.2%	1.5%
Accommodation and Food Services	3.3	22.4	19.0	569.4%	0.4%
Other Services (except Public Administration)	6.2	12.4	6.2	100.1%	0.1%
Conglomerate	0.0	99.7	99.7		2.2%
Grand Total	**$1,335.7**	**$5,856.3**	**$4,520.5**	**338.4%**	**100.0%**

Note: Calculations reflect statutory exemptions, assume all eligible taxpayers elect out of the interest limitation, and do not increase tax for denied deductions that would reduce taxable income below zero. The following sectors are included in the analysis but excluded from the table because the calculations result in no estimated incremental tax liability: agriculture, forestry, fishing, and hunting; utilities; management of companies and enterprises; and public administration. Details may not sum to total due to rounding.
Source: Capital IQ, PwC calculations.

Table 2-10. Estimated Excess Interest Expense by Profitability, Recession Period
Millions of Dollars

Ratio of EBIT to Assets	Percent of Public Companies	Total Interest Expense of All Public Companies	Interest Expense in Excess of EBITDA-based Limitation	Total Interest Expense of EBITDA-limited Companies	Percent of Interest in Excess of EBITDA-based Limitation	Interest Expense in Excess of EBIT-based Limitation	Total Interest Expense of EBIT-limited Companies	Percent of Interest in Excess of EBIT-based Limitation	Additional Excess Interest Expense under EBIT-based Limitation	Percent of Additional Excess Interest Expense
<0%	22.4%	42,626.6	21,977.1	28,146.5	78.1%	34,564.6	36,786.6	94.0%	12,587.5	33.7%
0% to <5%	17.2%	91,871.1	6,810.1	19,637.2	34.7%	23,348.4	45,952.2	50.8%	16,538.3	44.3%
5% to <10%	8.7%	97,006.5	3,486.7	12,680.3	27.5%	10,280.9	26,754.7	38.4%	6,794.1	18.2%
10% to <15%	4.6%	40,878.7	280.2	1,517.3	18.5%	618.8	1,850.1	33.4%	338.6	0.9%
15%+	3.5%	21,937.3	81.6	387.4	21.1%	131.9	542.9	24.3%	50.3	0.1%
Missing Data	43.6%	6,999.6	1,298.8	1,987.4	65.4%	2,301.3	4,393.0	52.4%	1,002.5	2.7%
Grand Total	**100.0%**	**$301,319.8**	**$33,934.5**	**$64,356.1**	**52.7%**	**$71,245.9**	**$116,279.5**	**61.3%**	**$37,311.4**	**100.0%**

Note: Calculations are before consideration of taxable income. Details may not sum to total due to rounding.
Source: Capital IQ, PwC calculations.

Table 2-11. Estimated Incremental Tax Liability by Profitability, Recession Period
Millions of Dollars

Ratio of EBIT to Assets	Percent of Public Companies	Incremental Tax under EBITDA-based Limitation	Percent of Incremental Tax under EBITDA-based Limitation	Incremental Tax under EBIT-based Limitation	Percent of Incremental Tax under EBIT-based Limitation	Effect of EBIT-based Limitation	Percent of Incremental Tax under EBIT-based Limitation
<0%	22.4%	-	0.0%	-	0.0%	-	0.0%
0% to <5%	17.2%	485.9	36.4%	3,306.9	56.5%	2,821.0	62.4%
5% to <10%	8.7%	709.1	53.1%	2,135.9	36.5%	1,426.8	31.6%
10% to <15%	4.6%	57.6	4.3%	128.7	2.2%	71.1	1.6%
15%+	3.5%	17.1	1.3%	27.7	0.5%	10.6	0.2%
Missing Data	43.6%	65.9	4.9%	257.0	4.4%	191.1	4.2%
Grand Total	**100.0%**	**$1,335.7**	**100.0%**	**$5,856.3**	**100.0%**	**4,520.5**	**100.0%**

Note: Calculations reflect statutory exemptions, assume all eligible taxpayers elect out of the interest limitation, and do not increase tax for denied deductions that would reduce taxable income below zero. Details may not sum to total due to rounding.
Source: Capital IQ, PwC calculations.

2.3.5 Effect on equity-financed investment

Under an EBIT-based limitation, a company may be limited in its interest deduction when it makes an investment that is eligible for accelerated depreciation, even when that incremental investment is funded entirely with equity. While an additional investment generates additional income sufficient to cover economic depreciation, the availability of accelerated depreciation means that taxable income before interest and taxes but after depreciation rises by a smaller amount or may even decline. This may cause a firm to lose interest deductions related to debt used to finance past investments even if the new investment is financed entirely with equity.

Consider the following example. Assume a corporation has adjusted taxable income of $1 million and interest expense of $350,000 due to interest relating to prior investments. (For purposes of this example, assume all prior year investment has been fully depreciated.) The application of section 163(j) would result in the loss of $50,000 of interest deductions in the year (the amount of interest expense exceeding 30 percent of adjusted taxable income of $1 million). Now consider an incremental $100,000 investment in equipment financed with retained earnings that is placed in service midyear that can be immediately expensed under section 168(k). Suppose in the first half-year of service this new investment is used to produce $15,000 of goods that enter inventory and are sold in that year, generating $15,000 of revenue. Under an EBITDA-based limitation, adjusted taxable income increases to $1.015 million, and the additional $15,000 of adjusted taxable income permits the taxpayer to deduct an additional $4,500 of interest expense (30 percent of the $15,000 increase in adjusted taxable income). This reduces the interest deductions that are lost in the current year from $50,000 to $45,500.

Under an EBIT-based limitation, depreciation, amortization, and depletion are not permitted to be added back in computing adjusted taxable income, and it declines by $85,000 (the $100,000 of depreciation less the $15,000 of incremental revenues). The decline in adjusted taxable income causes the taxpayer to lose an additional $25,500 of interest deductions (30 percent of the $85,000 decrease in adjusted taxable income), even though the incremental investment was completely financed with retained earnings. Corporate income taxes increase by $5,355 (21 percent of $25,500), and the after-tax cost of this investment rises from $79,000 ($100,000 cost to purchase less $21,000 after-tax savings from expensing) to $84,355 – a 6.8% increase in the after-tax cost of the investment in the first year.

2.4 Interaction with Net Operating Loss Deduction

As noted above, relative to an EBITDA-based limitation, an EBIT-based limitation makes it more likely that a deduction for interest will be denied in the current year. A deduction denied in the current year is more likely to be deferred longer under an EBIT-based limitation and has a higher risk of being lost permanently. The effects of the limitation may create unexpected results in the presence of a net operating loss (“NOL”). Under present law, a NOL deduction may not offset more than 80 percent of taxable income (“NOL limitation”).

Depending on the income and deductions of a company over time, the interaction with the NOL limitation makes it possible for the present value of tax payments under an EBIT-based limitation to be less than under an EBITDA-based limitation. This unexpected result can arise because the different interest limitations result in different NOLs, which are limited in a manner different from interest expense. An EBIT-based limitation is more likely than an EBITDA-based limitation to result in a larger interest carryforward and a smaller NOL, all else being equal. An interest deduction carried forward can offset taxable income in full while an NOL deduction carried forward may not offset more than 80 percent of taxable income. Thus, it is possible for the interest deductions to be used more quickly than an equivalent amount of NOL deductions, resulting in a smaller present value of tax payments under an EBIT-based limitation. It is unclear how frequently this result would arise, but it creates an additional factor to consider when evaluating the effect of the different interest limitations on companies with losses.

2.5 Effect on Merger and Acquisition Activity

The interest limitation may discourage merger and acquisition activity. Mergers and acquisitions may allow companies to become more efficient, producing more net value combined than they can generate as separate enterprises. Companies may be able to expand their product and service offerings, diversify risks, acquire proprietary technology that may be applied in a broader context, or take advantage of economies of scale.

The de minimis threshold may discourage a potential buyer acquiring another company if the growth would cause the company to be subject to the limitation. Consider two firms, A and B, each with $15 million of gross receipts, EBIT of $10 million, and interest expense of $4 million. Each company satisfies the gross receipts test and is not subject to the interest limitation. If the firms merge, the combined company, AB, will have gross receipts of $30 million and will no longer satisfy the gross receipts test. AB has $20 million of EBIT, interest expense of $8 million, and an EBIT-based limitation of $6 million. AB has excess interest expense of $2 million and incremental tax liability at 21 percent of $420,000. Any advantages of the merger must be $420,000 larger than they otherwise would have to be to justify the combination.

For a potential buyer subject to the rule, the interest limitation raises the cost of acquiring a company with debt, making it more costly for the economy to achieve the efficiency benefits of any merger transaction.

The limitation may create a tax-motivated reason for a potential buyer to seek a target company with excess interest income or additional earnings capacity, even if the merger might otherwise not result in significant nontax economic benefits. A potential seller limited by the rule faces a similar tax incentive to find an acquirer that is not limited.

A potential seller may be a more attractive target for acquisition because it will have a lower price as a result of lower discounted after-tax earnings than an otherwise similar company that is not limited by the rule.

The incentive effects described above are greater under an EBIT-based limitation than under an EBITDA-based limitation, because an EBIT-based limitation is more restrictive.

3 International Comparisons

3.1 OECD History

The Organization for Economic Cooperation and Development and Group of 20 ("OECD/G20") Base Erosion and Profit Shifting ("BEPS") project called for recommendations regarding best practices in the design of rules to prevent base erosion using interest expense.[35] In its Action 4 report, the OECD recommends an approach based on a fixed ratio rule which limits an entity's net deductions for interest (and economically equivalent payments) to a percentage of its earnings before interest, taxes, depreciation, and amortization ("EBITDA"). While the OECD guidelines allow flexibility to introduce rules based on earnings before interest and taxes ("EBIT"), no other country has such a rule.

The OECD collects information on implementation of Action 4 including whether a jurisdiction has an interest limitation rule and, if so, the main design features of the rule.[36] Main design features of an interest limitation rule include: the type of rule (e.g., thin capitalization, earnings stripping); the financial ratio referenced (e.g., debt-to-equity or interest expense to EBITDA); whether the rule applies to gross or net interest; whether the rule applies to related party debt, third party debt, or both; whether a de minimis threshold applies; whether an exclusion applies; and whether any carry-back or carry-forward provision applies.

3.2 Analysis of OECD Interest Limitation Rule Data

Detailed data are available for 117 of 137 members of the Inclusive Framework. Most of the jurisdictions (77 countries) have some form of interest limitation rule, and 10 have more than one interest limitation rule in place.[37] The most common type of interest limitation rule is a thin capitalization rule (43 countries), generally based on a ratio of debt to equity or debt to assets. The second most common type of interest limitation rule (35 countries) restricts tax deductibility based on a ratio of interest expense to some measure of earnings (**Table 3-1**). Among these 35 countries, none currently has an EBIT-based interest limitation rule.[38] Every rule references EBITDA, with some countries providing for modifications for certain tax adjustments or to account for interest not subject to limitation.

Countries vary in the percentage of earnings that deductible interest may represent. Romania has the strictest limitation, denying a deduction for interest exceeding 10 percent of EBITDA, while Japan permitted a deduction for interest up to 50 percent of EBITDA in 2019.[39] Most countries (27 of the 35 with an earnings-related limitation) have a ratio of 30 percent.

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[35] OECD, *Limiting Base Erosion Involving Interest Deductions and Other Financial Payments, Action 4 – 2016 Update: Inclusive Framework on BEPS*, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris, 2017, available at https://www.oecd-ilibrary.org/docserver/9789264268333-en.pdf.

[36] OECD published the information pertaining to rules in effect in 2019 in OECD, *Corporate Tax Statistics: Second Edition*, 2020, available at https://www.oecd.org/tax/tax-policy/corporate-tax-statistics-second-edition.pdf.

[37] Bulgaria, Czech Republic, Japan, Korea, Latvia, Lithuania, New Zealand each have two interest limitation rules while Belgium, Denmark, and France each have three rules.

[38] PwC Worldwide Tax Summaries.

[39] Japan subsequently lowered the benchmark fixed ratio from 50 percent to 20 percent for taxable years beginning on or after April 1, 2020.

Table 3-1 Countries with an EBITDA-based Interest Limitation

OECD Countries		
Belgium	Iceland	Poland
Czech Republic	Italy	Portugal
Denmark	Japan	Slovak Republic
Estonia	Korea	Spain
Finland	Latvia	Sweden
France	Lithuania	United Kingdom
Germany	Luxembourg	United States
Greece	Netherlands	
Hungary	Norway	

Non-OECD Countries		
Argentina	India	Romania
Bulgaria	Malaysia	South Africa
Costa Rica	Maldives	
Côte d’Ivoire	Malta	

Source: OECD.

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