Interest Costs, Taxes, and Value Creation

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Abstract

The Tax Cuts and Jobs Act (TCJA) enacted in December 2017 will limit the deductibility of business interest expense to 30% of adjusted taxable income (ATI) beginning in 2022. This article uses earnings before interest and taxes (EBIT) as a proxy for ATI to examines how this bill will have an asymmetric impact on taxes, earnings, and cash flow from operations (CFO) of firms with interest coverage ratios (ICR) that are at or marginally above 3.33. Equity analysts will need to consider the higher volatility in estimated taxes paid in the future when using discounted Free Cash Flow (FCF) to value a firm's equity. Issuing debt becomes less attractive with implications for the capital structure of the firm, bond ratings and use of leverage for growth, share repurchase or dividend payout. Firms with substantial interest deduction carryforwards because of inadequate EBIT, might want to sell or merge with firms with high ICRs that can take advantage of the unused interest deduction carryforwards. Firms attempting to reduce leverage might rollover maturing debt with qualified preferred stock issues.

Interest Costs, Taxes and Valuation

The Tax Cuts and Jobs Act (TCJA) enacted in December 2017 changed the deductibility of business interest expense. Under previous rules, business interest expense was typically deductible in the same year in which the interest was expensed.

Under the bill, the amount of interest expense companies can deduct from their taxes is limited to 30% of earnings before interest, taxes and depreciation and amortization (EBITDA) through 2021. Beginning 2022, the new rules will limit the deductibility of net business interest expense to 30% of adjusted taxable income (ATI). Because ATI approximates earnings before interest and taxes (EBIT) we use EBIT, which is readily available, instead of ATI. This limitation generally applies to all debt incurred, and there is no exemption for existing debt. Any interest expense amount not allowed as a deduction for any taxable year can be carried forward indefinitely.[1] Switching from EBITDA to EBIT in 2022 will pose a challenge for capital intensive firms due to their high depreciation expenses.[2] The CARES act increases the limitation from 30% to 50% of ATI, but the change is temporary and ends in 2020. It also leaves unchanged the switch to ATI (EBIT instead of EBITDA based computation) beginning in 2022. There are other quirks in the CARES act, but given that these changes are temporary, this paper focuses on the permanent changes introduced by the TCJA enacted in December 2017.

The 30% limitation effectively applies to net business interest expense (interest expense minus interest income). So, say that a firm's EBIT is $8,000 and its net interest expense is $3,000. Only $2,400 of the interest expense is deductible for tax purposes and the remaining $600 would be disallowed as a deduction in the same year and carried forward to subsequent years.

Asymmetry in Tax Liability

Limiting net interest expensing for tax reporting will have an asymmetric impact on taxes paid by firms with interest coverage ratios (ICR) that are at or marginally above 3.33.[3] Table 1 presents taxes paid by a firm that has $3,000 in interest expense with an expected EBIT of $10,000 (ICR= 3.33), but which can vary between $5000 t and $15,000. Under the old tax regime, the impact on taxes paid is symmetrical. If EBIT deviates plus or minus 10% from the expected amount, taxes paid declines or increases by 14.3%. Accordingly, larger variations in EBIT also lead to symmetrical deviations in earnings.

Table 2 shows results for the same firm under the new tax regime. Observe that limiting interest expensing to 30% of EBIT leads to asymmetric variation in taxes paid. If EBIT is 10% higher than the expected amount, taxes paid increases by 14.3%, but if EBIT is 10% lower, taxes paid declines by 10.0%. Observe the same asymmetrical pattern for larger variations in EBIT. Because of the asymmetry in taxes paid, the distribution of Cash Flow from Operations (CFO) will be skewed to the left.

The difference in taxes paid between the old and new tax regimes when the ICR falls below 3.33 is:

$$(\textit{Interest Expense} - \textit{EBIT}^{*}.3) * 0.21$$

if $(\textit{Interest Expense} - \textit{EBIT}^{*}.3) > 0$, and the corporate tax rate is 21%.

Table 1. Ex Ante Tax Cuts and Jobs Act

				Expected			
EBIT	\$5,000	\$8,000	\$9,000	**\$10,000**	\$11,000	\$12,000	\$15,000
Interest Expense	\$3,000	\$3,000	\$3,000	**\$3,000**	\$3,000	\$3,000	\$3,000
Deductible Interest Expense	\$3,000	\$3,000	\$3,000	**\$3,000**	\$3,000	\$3,000	\$3,000
Taxable Earnings	\$2,000	\$5,000	\$6,000	**\$7,000**	\$8,000	\$9,000	\$12,000
Taxes Paid @ 21%	\$420	\$1,050	\$1,260	**\$1,470**	\$1,680	\$1,890	\$2,520
Deviation from Expected Taxes Paid	-71.4%	-28.6%	-14.3%	**0.0%**	14.3%	28.6%	71.4%
Proxy for Cash Flow	\$1,580	\$3,950	\$4,740	**\$5,530**	\$6,320	\$7,110	\$9,480
Deviations from Expected Cash Flow	-71.4%	-28.6%	-14.3%	**0.0%**	14.3%	28.6%	71.4%
Tax benefit associated with Interest	\$630	\$630	\$630	**\$630**	\$630	\$630	\$630

Table 2. Ex Post Tax Cuts and Jobs Act

				Expected			
EBIT	\$5,000	\$8,000	\$9,000	**\$10,000**	\$11,000	\$12,000	\$15,000
Interest Expense	\$3,000	\$3,000	\$3,000	**\$3,000**	\$3,000	\$3,000	\$3,000
Deductible Interest Expense (.3*EBIT)	\$1,500	\$2,400	\$2,700	**\$3,000**	\$3,000	\$3,000	\$3,000
Taxable Earnings	\$3,500	\$5,600	\$6,300	**\$7,000**	\$8,000	\$9,000	\$12,000
Taxes Paid @ 21%	\$735	\$1,176	\$1,323	**\$1,470**	\$1,680	\$1,890	\$2,520
Deviation from Expected Taxes Paid	-50.0%	-20.0%	-10.0%	**0.0%**	14.3%	28.6%	71.4%
Proxy for Cash Flow	\$1,265	\$3,824	\$4,677	**\$5,530**	\$6,320	\$7,110	\$9,480
Deviations from Expected Cash Flow	-77.1%	-30.8%	-15.4%	**0.0%**	14.3%	28.6%	71.4%
Tax benefit associated with Interest	\$315	\$504	\$567	**\$630**	\$630	\$630	\$630

Issuing corporate debt had been attractive over the past decade because of low interest rates, leading to low ICRs for a significant number of firms. Domestic corporate debt outstanding is close to a record \$10 trillion, and the excessive borrowing presents new risks because a lot of the bond outstanding are barely investment grade.[4,5,6] These firms will find that an economic downturn – as we are experiencing presently - could lead to both lower EBIT and rising interest rates on new debt if the debt is downgraded. Rates could rise significantly because investment grade bond funds will be compelled to sell bonds that lose their investment grade rating.

Finance Theory and Prognostications for the Future

So, what does this portend for the future? ICR data for 2018 from the Ready Ratios website shows that from a sample of 2724 firms, 896 have ICRs less than 3.33, 192 have ICRs between 3.33 and 4, and 232 firms have ICRs between 4 and 5.[7] Financial analysts covering firms that have ICRs marginally above 3.33 need to be cognizant of declines in the ratio that can lead to an asymmetric distribution in taxes paid. That is, a decline in the ICR to below 3.33 will lead to a decline in taxes paid that will be less than the increase in taxes when the ICR increases beyond 3.33, as is demonstrated in Table 2. Reported earnings will not be impacted by the TCJA because taxes expensed on income statements are based on GAAP's measure of income and not actual taxes paid. Reported taxes will be less than taxes paid which will increase deferred tax assets (DTA) on the balance sheet because future tax benefits will be realized since interest costs not allowed as a deduction in any year can be carried forward indefinitely.

The distribution of CFO will be asymmetric because of the asymmetric distribution of taxes paid. A firm with an ICR close to 3.33 will experience a decline in taxes paid when the ICR declines that will be less than the increase in taxes paid when the ICR is above 3.33. So, the volatility in CFO could be greater for firms with ICRs that are around 3.33. Equity analysts and investment managers using discounted Free Cash Flow (FCF) estimated from the firm's CFO to value a firm's equity will need to adjust for the higher volatility in estimated taxes paid in the future.[8] An increase in future volatility would require an adjustment to the required return used to discount future FCF. Past estimates of volatility will underestimate the equity's beta estimate for instance, if it is used to estimate the required rate of return. Systematic risk will increase because rising interest rates or an economic downturn will have the same effect on a significant number of firms.

Finance theory postulates that under the former tax regime, the optimal capital structure was one that maximized the value of the levered firm. It's worth examining the effect on capital structure within the traditional Modigliani & Miller (M&M) framework, a cornerstone and to date a paradigm of corporate finance. Notwithstanding the tax subsidy of debt, there were limits to the amount of debt that should be issued because of the increasing probability of financial distress. The new tax rules make the old optimal capital structure theory obsolete because of the 30% of EBIT limit on interest expensing. From the tax subsidy point of view, it does not make economic sense for interest expense to exceed 30% of EBIT, or an interest coverage ratio (ICR) that is below 3.33X.

The value of the levered firm, including financial distress costs, is:

$$VL = Vu + T \cdot B - D$$

Where, ***VL*** = value of the levered firm, ***Vu*** = value of the unlevered firm, ***T*** = corporate tax rate, and ***B*** is the value of debt outstanding, and ***D*** is the expected cost of financial distress. Note that the decline in the corporate tax rate from 35% to 21% - Biden proposes to increase it to 28% - and the new rule limiting interest deduction to 30% of EBIT reduces the incentive to issue debt. It will alter a paradigm of corporate finance—that debt is a more appealing than stocks as a way to raise cash. So now companies will be less willing to issue debt and rather issue stock, thereby reducing earnings per share.

If the ICR falls below 3.33, ***T·B*** will equal zero and M&M's first proposition comes into play, that is capital structure becomes irrelevant in the absence of the tax subsidy of interest costs.[9,10] But when the expected cost of financial distress is included, issuing additional debt becomes a losing proposition. Increasing financial leverage could increase the firms Return on Equity but as M&M's second proposition proves, so will the required return because increases in debt will also increase the firm's risk level.[11] The risk level increases because of higher expected distress costs and an increase in earnings and cash flow volatility because increasing debt increases fixed interest costs. Subtracting a fixed cost – interest – from a variable EBIT leads to more volatile earnings.

If finance theory postulates are correct, highly leveraged firms will find that reducing debt levels should increase its stock price. Increasing debt levels for such firms will be a losing proposition. To limit debt outstanding, companies would be less likely to borrow to fund share buybacks and dividend payments. Or they could dial back expansion plans because cost of capital increases would reject projects that looked attractive in the past. Carrizosa Gaertner and Lynch determined that because of the TJCA, companies have decreased their reliance on debt by decreasing debt issuances, primarily term loans, rather than by reducing existing debt, which makes sense because reducing existing debt might require calling in the bond at a premium, therein suffering a loss relative to the par value of the bond.[12] They also determined that after the introduction of the new limitations, affected firms – firms with low ICRs - significantly decreased corporate leverage. Relative to unaffected U.S. firms - firms with high ICRs - affected firms decrease their leverage by an average of 2.9% of assets, which is equivalent to about $126 million per firm with an aggregate value of $29.8 billion over their entire sample. The TCJA interest limitation calculation of

ATI is set to change in 2022, disallowing the add-back of depreciation and amortization expense in computing ATI. This additional restriction will result in a significant number of firms not currently subject to limits to be subject to interest limits in the future. Their analysis finds that firms subject to future losses in tax benefits of debt reduce leverage by nearly half as much compared to companies currently subject to the limitation.

Remarkably, they determined an increase in foreign debt, which can still be deducted in many foreign jurisdictions, suggesting the TCJA may create a substitution effect whereby firms decrease domestic debt and increase foreign debt, suggesting that firms decrease debt that is most affected by the new limit rules and increase debt that is least affected.

Equity analysts should note that firms build up substantial interest deduction carryforwards because of inadequate EBIT, might want to sell or merge with firms with high ICRs because the acquiring firm can harvest the value created by added interest deductions sooner rather than later. The value of the interest deduction carryforwards can be derived from the DTA created by the interest deduction carryforward. The sooner the acquiring company can benefit from lowering their tax liability, the more attractive the acquisition candidate. Firms with higher ICRs that could lower their tax bills the most and quickest will be willing to pay a higher price for the selling firm.

The decision to buy another firm with substantial interest deduction carryforwards instead of simply leveraging itself would make sense if the DTA can be bought a discount, say 70 cents on the dollar. The seller would be willing to discount the selling price of the DTA because it cannot realize the benefit in the foreseeable future for any number of reasons such as foreseeing a steep and long-lasting recession. Moreover, if the seller is a strategic fit for the acquirer, the discounted DTA is icing on the cake.

In particular, companies with unused interest expense deductions might become more lucrative acquisition targets in the wave of bankruptcies that are inevitably going to arise because of the prolonged economic downturn caused by the pandemic. According to bankruptcy law, creditors of companies can petition bankruptcy courts to have their debt converted into equity in the firm, which would enable them to then sell their ownership to other corporations which could use those tax deductions and, as a result, pay the creditors a higher price.

Collateralized loan obligation (CLO) investment companies could become significant players in this market.

> *"CLOs purchase a diverse pool of senior secured bank loans made to businesses that are rated below investment grade. The bulk of CLOs'*

underlying collateral pool is comprised of first-lien senior-secured bank loans, ranking at the top in priority of payment in the borrower's capital structure if bankruptcy occurs, which is ahead of unsecured debt. Senior secured bank loans from a diversified set of borrowers are pooled to be managed by the CLO manager. The equity investor in the CLO indirectly owns the managed pool of bank loans." [13]

CLO investment companies, which hold a large amount of the corporate loans of firms with low coverage ratios, would receive a higher price paid by an acquirer for the tax deductions. Those CLOs could incentivize management to file a Chapter 11 bankruptcy, so that the CLOs can assume ownership and sell to acquirers who would benefit from the interest deduction carryforward.

The limitation on allowable deductions of interest expense under the TJCA will affect the capital structure of many companies by increasing the after-tax cost of debt financing. Financial analysts will need to consider the asymmetric distribution in taxes paid especially for firms whose ICRs may decline to below 3.33 given the uncertain economic outlook. Companies that operate in an industry where sales are relatively stable will be less affected by this issue. Finally, the substantial interest deduction carryforwards (DTA) should be a valuable option to an acquirer in a merger or takeover and so will marginally increase the value of the acquisition. In addition, the nuances of the bankruptcy law may present the creditors and CLO's with new opportunities to monetize the DTA. It will be interesting the see the empirical outcome over the next few years of this specific change in TJCA.

Analyzing the full effect of the new interest rules because of the temporary increase in the interest allowed by the CARES Act of 2020 and the COVID-19 pandemic prevent precise analysis beyond the initial period following the TCJA.

We anticipate that firms with low ICRs will continue to de-leverage by financing future capital budgeting needs with equity and substituting maturing debt with equity financing. Firms might reduce dividend payouts so that more of retained earnings can be used to finance future capital needs. The Penn Wharton Budget Model predicts that leverage ratios will decline nine percent by 2027.[14]

We anticipate low ICR companies to raise capital by issuing qualified preferred equity. Once a company has maximized its interest deductibility of debt, it behooves the company to gain some of the benefits of leverage by issuing fixed-dividend preferred stock without increasing its risk of bankruptcy. There are tax breaks available that do not accrue to the issuing corporation but to the investor, who should be willing to accept a lower yield on the preferreds than bonds issued by the same corporation because the qualified dividend paid by the preferred stock is subject to a lower tax rate.

The table below shows marginal income tax rates and the corresponding tax rate on qualified dividends.[15]

Table 3. Marginal income tax rates and the corresponding tax rate on qualified dividends

Ordinary Income Tax Rate	Qualified Dividend Tax Rate
0%	0%
12%	0%
22%	15%
24%	15%
35%	15%
37%	20%

As you can see the tax rates on qualified dividends are far lower for high marginal tax brackets, implying that investors should be willing to accept a lower yield on the preferred stocks than bonds issued by the same corporation.[16] The difference in the yields is akin to a tax break that accrues to the issuing corporation. As Americans age, they will be seeking lower risk investments that offer a stable income. Qualified preferred stock funds that are taxed at a lower rate will be especially attractive to investors in high marginal income tax brackets. It's a win-win situation for both the corporation and the investor buying the qualified preferred stock issue.

The Biden administration recommends increasing the corporate income tax rate from 21 percent to 28 percent and to impose a minimum tax of 15 percent on the book income of large corporations.[17] If the tax rate increases, corporate debt becomes more attractive because as we presented earlier,

$$VL = Vu + T \cdot B - D$$

The higher the tax rate the more valuable the levered firm. But there is no mention of removing the limits set on the deductibility of interest. So, if that limitation remains in place, there is an upper bound on the optimal amount of debt that the firm should assume, which does not change from what it was under the TCJA.

While the focus of this paper is in the context of corporations, it's worth noting that the TCJA for the first time in US tax history has introduced qualified business income (QBI) deduction from pass through entities such as sole proprietorship and partnership etc. with certain limitations; it also has more restrictions on the use of losses of pass through entities.[18] Choosing an organizational form and optimal capital structure for the business depends upon both tax and nontax factors; nonetheless changes in tax rates over time have affected preferences for different types of organizational forms over time.[19] The TCJA of 2017, tax provisions of the CARES Act and a newly elected administration make it extremely important for managers to fully understand the changing tax landscape in order to maximize value.

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Endnotes

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