The Impact of TCJA on Cost of Capital

ASA Ask the Experts Webinar

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ASA
American Society of Appraisers
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Introduction to the Panel

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Depreciation Issues

Accelerated Depreciation

- For qualified tangible property (and certain computer software) placed in service between Sept. 28, 2017 and Dec. 31, 2022 that has a depreciable life of up to 20 years, the first-year bonus depreciation percentage is 100% (up from 50%)
  - This accelerated depreciation will not be permitted under many states' tax laws
- This 100% deduction is allowed for both new and used qualifying property

Accelerated Depreciation (cont.)

- In subsequent years, the bonus depreciation will be:
  - 2023 : 80%
  - 2024 : 60%
  - 2025 : 40%
  - 2026 : 20%
- For certain property with longer production periods, the 100% write-off extends through 2023 and scales down from 2024 through 2027

Management Projections of CapEx and Depreciation

- The work of the valuator is simplified if management supplies adequate schedules as to capex and depreciation for the projection period
- It is even more helpful if longer-term schedules are made available
- When management has supplied information, the valuator should review the data for reasonableness and internal consistency

GAAP Financials are Insufficient for DCF Calculations

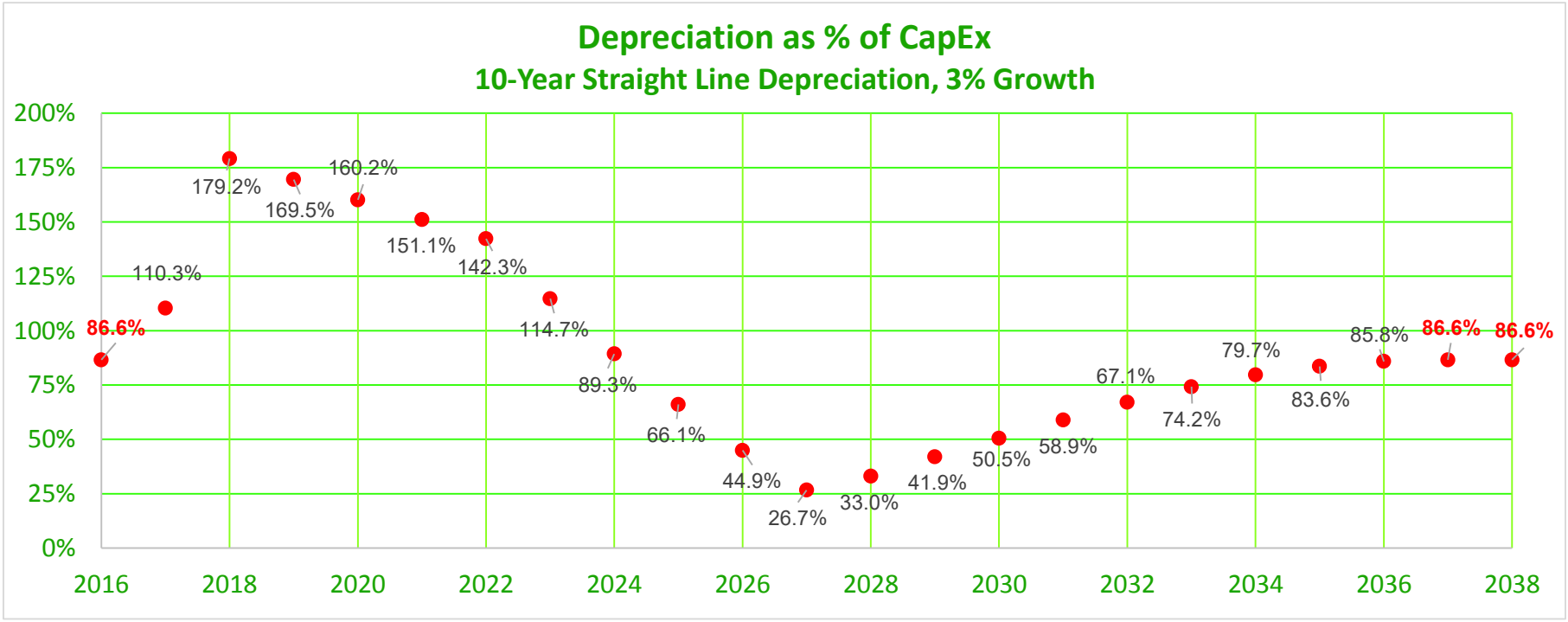
- The impact of some of the tax changes will not be shown in GAAP income statements
- For example, depreciation will be based on GAAP rules and not on the accelerated schedule permitted for tax purposes
- Therefore, the cash savings will not be directly shown
- It will be necessary to ask clients for projections not only on a GAAP basis but also on a tax basis
  - GAAP financials are appropriate for the market method but usually will not suffice for the income method

Changes to the CapEx/Depreciation Relationship

- The table below shows the impact of accelerated depreciation, assuming normal straight-line ten-year depreciation and 3% growth in capex

	2016	2017	2018	2019	2020	2021	2022
Depreciation	841	1,103	1,845	1,798	1,750	1,700	1,649
CapEx	971	1,000	1,030	1,061	1,093	1,126	1,159
	2023	2024	2025	2026	2027	2028	2029
Depreciation	1,369	1,099	837	586	358	457	598
CapEx	1,194	1,230	1,267	1,305	1,344	1,384	1,426
	2030	2031	2032	2033	2034	2035	2036
Depreciation	742	891	1,045	1,191	1,317	1,423	1,505
CapEx	1,469	1,513	1,558	1,605	1,653	1,702	1,754

Abnormal Capex/Depreciation Ratios



Abnormal Capex/Depreciation Ratios (cont.)

- With 10-year depreciation, the relationship between capex and depreciation does not normalize until 2037
- If assets are depreciated over a 15-year period, the relationship of depreciation to capex does not normalize until 2042

Normalizing for Terminal Value

- For terminal value calculations, capex and depreciation should be normalized
- The ability of companies to write off capital expenditures in the first year rather than depreciating them materially complicates the treatment of capex/depreciation in calculating terminal value

Adjusting for Abnormal Capex/Depreciation Ratios

- The Gordon growth model necessarily assumes that FCF in the base year is normalized and does not include non-recurrent or limited-life items
- The new tax law will cause depreciation to follow an irregular pattern for a period much longer than the length of most management projections
- The basic issue here is the impact of timing differences on present value

Calculating Terminal Value

- There are various ways in which this can be addressed
- One approach is to use a multi-stage model. E.g.:
  - A second stage for declining depreciation
  - A third stage as it increases
  - A final stage when the normal capex/depreciation relationship is restored
- Because of the scale-down in accelerated depreciation from 80% in 2023 to none in 2027, the second stage should run through 2027, the year in which depreciation is at its low point
- The length of the third stage would be a function of the depreciation period for the company's assets

Calculating Terminal Value (cont.)

- Another approach is to calculate terminal value based on normalized data and then to adjust for the present-value of the abnormal capex/depreciation differences
- A third alternative is to use a two-stage model through 2027, to compute terminal value based on normalized 2028 data, then to adjust for the present value of the remaining capex/depreciation differences
  - If the company's fiscal year is not a calendar year, the second stage should end with the 2027/28 fiscal year, so that the second stage will include the entire period of declining depreciation

An Example

- Assume we have management projections though 2022
- Let's look at an example of calculating terminal value using the third alternative, using the following assumptions:
  - Projected revenues in 2022 = 200
  - Growth rate = 5% from 2022 to 2027, 3% thereafter
  - Discount rate = 12%
  - EBITD [not EBITDA] margin = 20%
  - No interest
  - Capex = 10, growing at growth rate
  - Accelerated depreciation per new tax law
  - Normalized depreciation = 10-year straight line
  - State income tax = 6% = 4.74% net of federal tax*
  - Δ working capital = 5% of Δ revenues
  - Amortization = 5 per year through mid-2024
    - *Assuming the state's tax law follows federal law; many states do not

Stage 2

Present Value of FCFs, 2023–2027						
	2022	2023	2024	2025	2026	2027
Sales	$200.0	$210.0	$220.5	$231.5	$243.1	$255.3
EBITDA	45.0	47.0	46.6	46.3	48.6	51.1
Depreciation	14.2	12.0	9.8	7.6	5.5	3.4
Amortization	5.0	5.0	2.5	0.0	0.0	0.0
EBIT	25.8	30.0	34.3	38.7	43.2	47.6
Tax at 25.74%	6.6	7.7	8.8	10.0	11.1	12.3
Net income	19.1	22.2	25.4	28.7	32.1	35.4
Capital expenditures	(10.0)	(10.5)	(11.0)	(11.6)	(12.2)	(12.8)
Depreciation	14.2	12.0	9.8	7.6	5.5	3.4
Amortization	5.0	5.0	2.5	0.0	0.0	0.0
Change in working capital	(1.0)	(1.0)	(1.1)	(1.1)	(1.2)	(1.2)
Free cash flow	27.4	27.8	25.7	23.7	24.2	24.8
Discount Factor @ 12%	0.6005	0.5362	0.4787	0.4274	0.3816	0.3407
Present Value		14.9	12.3	10.1	9.2	8.5
Sum, 2023-2027						**$46.6**

Normalized FCF for Growth Model

- Now we determine the normalized FCF for 2027 & 2028
- As shown earlier, normalized depreciation is 86.6% of capex

Normalized DCF for Growth Model		
	2027	2028
Sales	$255.3	$262.9
EBITDA	51.1	52.6
Depreciation (normalized)	11.1	11.4
Amortization	0.0	0.0
EBIT	40.0	41.2
Tax @ 25.74%	10.3	10.6
Net income	29.7	30.6
Capital expenditures	(12.8)	(13.1)
Change in working capital	(1.2)	(0.8)
Free cash flow	$26.8	$28.1

PV of Difference between Actual and Normalized Depreciation

- We can then compare annual depreciation based on the tax law with normalized depreciation and calculate the present value (net of tax) of the differences

Present Value of Under-Depreciation									
	2028	2029	2030	2031	2032	2033	2034	2035	2036
Sales	$262.9	$270.8	$278.9	$287.3	$295.9	$304.8	$313.9	$323.4	$333.1
EBITDA	52.6	54.2	55.8	57.5	59.2	61.0	62.8	64.7	66.6
Depreciation for tax purposes	4.3	5.7	7.0	8.5	9.9	11.3	12.5	13.5	14.3
Depreciation normalized	11.4	11.7	12.1	12.4	12.8	13.2	13.6	14.0	14.4
Difference	(7.0)	(6.0)	(5.0)	(4.0)	(2.9)	(1.9)	(1.1)	(0.5)	(0.1)
Difference net of 25.74% tax	(5.2)	(4.5)	(3.7)	(2.9)	(2.1)	(1.4)	(0.8)	(0.4)	(0.1)
Capital expenditures	(13.1)	(13.5)	(13.9)	(14.4)	(14.8)	(15.2)	(15.7)	(16.2)	(16.7)
Change in working capital	(0.8)	(0.8)	(0.8)	(0.8)	(0.9)	(0.9)	(0.9)	(0.9)	(1.0)
Free cash flow	1.8	3.1	4.4	5.7	7.1	8.4	9.5	10.4	11.1
Discount Factor @ 12%	0.3042	0.2716	0.2425	0.2165	0.1933	0.1726	0.1541	0.1376	0.1229
Present Value	$(1.59)	$(1.22)	$(0.91)	$(0.64)	$(0.41)	$(0.24)	$(0.12)	$(0.05)	$(0.01)
Sum of Present Values of Under-Depreciation, 2028-2036									$(5.2)

Application of Other Approaches

- This model can be used in three stages by treating 2028-2036 as stage 3 and calculating terminal value with a growth model based on 2037
  - In that case, the adjustment for over-depreciation would not be needed since it would be subsumed that the intermediate stages
- If terminal value is calculated with a growth model based on 2023, a calculation of the present value of over-depreciation in the early years and subsequent under-depreciation would need to be performed

Companies May Accelerate Capex

- Our example assumes that capex will grow steadily
- In practice, companies may accelerate capex to take advantage of accelerated depreciation
- However, given the gradual 20% annual decrease from 2022 through 2027, the impact of accelerated capex is unlikely to be material
  - Valuators should ascertain management's plans for capex as part of their due diligence