MIT MANAGEMENT SLOAN SCHOOL

15.516x Financial Accounting

Accounting for Income Taxes

John Core
MIT Sloan School of Management

Finance at MIT
Where ingenuity drives results

Accounting for Income Taxes

MANAGEMENT
SLOAN SCHOOL

Objectives:

- Understand how financial statements reflect taxes paid and taxes owed
- Interpret income tax disclosures
- Understand the effects of events on income taxes
  - Tax law changes
  - Valuation allowances

Motivation / Big Picture

- Taxes are a significant use of cash for firms and individuals.
  - Econ: To maximize profits, minimize costs.

- As a manager (individual), important to understand impact of taxes on decisions:
  - Asset purchase and sale
  - Financing decisions
  - Location decisions

- As investor, interpret financial statements to understand future cash flows related to tax.

Accounting (Book) Income vs. Taxable Income Intuition based on Marketable Securities

Example: Eva owns 100 Attila bonds. The price increases by $10. Eva does not sell. Accounting is trading securities. Assume a tax rate of 35%.

Based on GAAP:

- What is Eva's accounting (book) income?

  $1,000

- What is Eva's tax expense?

  $350

Based on IRS tax code:

- What is Eva's taxable income?

  $0

- What is Eva's current tax payable?

  $0

Eva has a deferred tax liability of $350. Tax will have to be paid to the IRS when the bonds are sold.

Accounting Income vs. Taxable Income

Companies do two types of accounting:

1. one for reporting to their shareholders, and
2. one for reporting to tax authorities

1. Financial accounting reports to investors and other stakeholders
   - Accounting/Book Income
   - Uses accrual accounting

   Relevant

2. Tax returns report to tax authorities
   - Taxable Income
   - More like cash accounting

   Reliable

Key point: If you forget everything else, remember this

- Accounting income $\neq$ Taxable income
- Tax expense $\neq$ Cash taxes
- Cash taxes is the cash outflows owed to the US tax authorities (some of these taxes may be paid a few months later).
- Tax expense on the income statement is an accrual number just like every other expense on the income statement.
  - Accrual:
    - Estimate of future cash outflows
    - Matched to income when it is earned

Temporary Differences between GAAP and Tax Code

- Items recognized by GAAP and by the tax code – but the items are recognized in different periods.

Examples:

- Depreciation expense on fixed assets
  - GAAP => straight-line
  - Tax code => accelerated
- Deferred revenue
  - GAAP => income when earned
  - Tax code => income when cash received

Deferred Tax Liability: Summary

Deferred tax liabilities arise/increase when a timing difference leads to:

Pretax Income > Taxable income

(GAAP) (Tax code)

Example: Depreciation expense is lower in early years under GAAP (straight-line) than for tax (accelerated).

Less cash taxes early; more cash taxes later.

Illustration of Timing Difference: Depreciation

Cooke Company bought a $100,000 asset in the beginning of 2010.

	Financial Reporting	**Tax Reporting**
Asset Life	2 years	1 year
Depreciation Rate	Straight Line	100%, 0%
Salvage Value	$0	$0

What is Cooke’s depreciation expense for financial reporting purposes?

$50,000 in both 2010 and 2011

For tax purposes?

$100,000 in 2010, $0 in 2011

Deferred Tax Liability: Illustration Depreciation – 2010

Again, assume all taxes paid in cash. There may be a small amount of taxes payable; but will be paid soon in cash.

Suppose Cooke has income before depreciation and taxes of $100,000 for both financial and tax reporting in both 2010 and 2011. Tax rate is 35%.

100K “IBDT” – 50K depreciation = 50K NI before taxes

	Financial Reporting	Tax Reporting
2010 NI before taxes	50,000	0 (=100K “IBDT” – 100K dep. exp)
Cash		0 (there is no income tax)
Tax Expense	17,500	

50K NI before taxes * 0.35 tax rate

BSE Equation Entry

	Assets	=	Liab	+	S/E
	Cash		Def Tax Liab		R/E
2010	0		17,500		–17,500 (exp)

Deferred tax liability is an accrual that estimates taxes expected to be paid in future. It is similar to a long-term payable. It occurs because tax expense is matched to revenue.

Deferred Tax Liability: Illustration
What Happens in 2011?

Suppose Cooke has income before depreciation and taxes of $100,000 for both financial and tax reporting in both 2010 and 2011. Tax rate is 35%.

Again in 2011, 100K inc. – 50K dep. = 50K NI before taxes

	Financial Reporting	Tax Reporting
2011 NI before taxes	50,000	100,000 (=100 "IBDT" – 0 dep. exp)
Cash		35,000 (=100 income * 0.35 tax rate)
Tax Expense	17,500	

50K NI before taxes * 0.35 tax rate

BSE Equation Entry

	Assets	=	Liab	+	S/E
	Cash		Def Tax Liab		R/E
2010	0		17,500		–17,500 (exp)
2011	–35,000		–17,500		–17,500 (exp)

A deferred tax liability of $17,500 was created in 2010 (like an accrued "payable").
The reversal occurs in 2011 when the firm pays cash taxes.

Example: $200K equipment purchase fully deductible; depreciated over 4 years

Year	Tax Reporting: Full Deduction	Financial Accounting Reporting: Straight-Line Depreciation	Tax vs. Book Difference	Cumulative Tax-Book Difference
1	$200,000	$50,000	$150,000	$150,000
2	0	50,000	(50,000)	100,000
3	0	50,000	(50,000)	50,000
4	0	50,000	(50,000)	0

The deferred tax liability schedule would be as follows:

Year	Cumulative Tax-Book Difference	Tax Rate	Deferred Tax Liability, End of Year	Deferred Tax Expense
1	$150,000	25%	$37,500	$37,500
2	100,000	25%	25,000	(12,500)
3	50,000	25%	12,500	(12,500)
4	0	25%	0	(12,500)

Tax Disclosures: Goldman Sachs Income Tax footnote 2016

BSE Equation Entry for 2016:

Assets	=	Liab	+	S/E
Cash		Def Tax Liab		R/E
–2,355		551		–2,906

Amount currently payable in cash to tax authorities

$ in millions	Year Ended December 2016	2015	2014
Current taxes			
U.S. federal	**$1,032**	$1,116	$1,908
State and local	**139**	(12)	576
Non-U.S.	**1,184**	1,166	901
Total current tax expense	**2,355**	2,270	3,385
Deferred taxes			
U.S. federal	**399**	397	190
State and local	**51**	62	38
Non-U.S.	**101**	(34)	267
Total deferred tax expense	**551**	425	495
Provision for taxes	**$2,906**	$2,695	$3,880

Income tax expense

Deferred Tax Asset: Summary

Deferred tax assets arise/increase when a timing difference leads to:

Pretax Income < Taxable income

(GAAP) (Tax code)

Example: If deferred revenue is received, income is lower in early years under GAAP (when earned) than for tax (when received).

More cash taxes early; less cash taxes later.

Deferred Tax Asset: Illustration
A Company that rents property out – 2010

Suppose that total rent collected in 2010 was $100,000, of which $50,000 was paid in advance for 2011.

Tax rate is 35%. (Ignore other expense)

Recognized first half of $100K collected for two year rental

	Financial Reporting	**Tax Reporting**
2010 NI before taxes	50,000	100,000 (100K cash inflow)
Cash		35,000 (100K * 0.35 tax rate)
Tax Expense	17,500	

50K NI before taxes * 0.35 tax rate

BSE Equation Entry

	Assets		**=**	**Liab**	**+**	**S/E**
	Cash	Def Tax Asset				R/E
2010	–35,000	17,500				–17,500 (exp)

Note: Similar to prepaid expense.

Deferred Tax Asset: Illustration
What Happens in 2011?

Suppose that total rent collected in 2010 was $100,000, of which $50,000 was paid in advance for 2011.

Tax rate is 35%. (Ignore other expense)

Recognized second half of 100K collected for two year rental

	Financial Reporting	Tax Reporting
2011 NI before taxes	50,000	0 (no new cash inflow)
Cash		0 (there is no income to tax)
Tax Expense	17,500	

50K NI before taxes * 0.35 tax rate

BSE Equation Entry

	Assets		**=**	**Liab**	**+**	**S/E**
	Cash	Def Tax Asset				R/E
2010	–35,000	17,500				–17,500 (exp)
2011	0	–17,500				–17,500 (exp)

A deferred tax asset of $17.5K was created in 2010. Reversal occurs in 2011 when financial reporting revenue is recognized.

TAX DISCLOSURES: GOLDMAN SACHS INCOME TAX FOOTNOTE 2016

Intuition: Deferred compensation is expensed when granted, but only is tax-deductible when employee receives.

$ in millions	As of December 2016	2015
Deferred tax assets		
Compensation and benefits	**$2,461**	$2,744
ASC 740 asset related to unrecognized tax benefits	**231**	197
Non-U.S. operations	**967**	1,200
Net operating losses	**427**	426
Occupancy-related	**100**	80
Other comprehensive income-related	**757**	521
Other, net	**394**	836
Subtotal	**5,337**	6,004
Valuation allowance	**(115)**	(73)
Total deferred tax assets	**$5,222**	$5,931
Depreciation and amortization	**$1,200**	$1,254
Unrealized gains	**342**	853
Total deferred tax liabilities	**$1,542**	$2,107
Net deferred tax assets	**$3,680**	$3,824

Intuition: Straight-line depreciation for book; accelerated depreciation for tax.

Deferred compensation DT Asset

MIT MANAGEMENT SLOAN SCHOOL

Very simplified example 1: Suppose we promise to pay an employee $1,000K in 3 years. We deduct this when we pay it; for financial reporting we expense now. Assume 30% tax rate.

Year	Tax Deduction	Accounting Expense	Tax vs. Book Difference	Deferred Tax Asset (30%)
1	0	1,000	-1,000	300
2	0	0	0	300
3	1,000	0	1,000	0

BSE in year 3:

Cash	**DTA**
300	-300

Deferred Tax Liability Disclosures: Goldman Sachs

Depreciation and amortization	**$1,200**	$1,254
Unrealized gains	**342**	853
Total deferred tax liabilities	**$1,542**	$2,107

Focusing on Depreciation and amortization – What does 1,200 mean?

Deferred tax liability of $1,200 million related to Depreciation and amortization.

To date, tax depreciation is higher than GAAP depreciation. Therefore, total taxable income is lower than total GAAP income. In future, when this reverses, Goldman will pay more tax.

To date, how much higher is total tax depreciation than GAAP depreciation (assume 35% tax rate)?

1,200 / 0.35 = $3,428 million over life of firm

Deferred Tax Liability Disclosures: Goldman Sachs

$ in millions	As of December 2016	2015
Total deferred tax assets	**$5,222**	$5,931
Total deferred tax liabilities	**$1,542**	$2,107
Net deferred tax assets	**$3,680**	$3,824

In the future, how much higher will total GAAP income be than total taxable income (assume 35% tax rate)?

Net deferred tax assets are $3,680 million.

3,680 / 0.35 = $10,514 million. Total GAAP income will be $10,514 million higher than total taxable income.

What would Net deferred tax assets be if a 21% tax rate were instead assumed?

$10,514 million x .21 = $2,208 million

Deferred Tax Liability Disclosures: Goldman Sachs

	As of December	
$ in millions	**2016**	2015
Total deferred tax assets	**$5,222**	$5,931
Total deferred tax liabilities	**$1,542**	$2,107
Net deferred tax assets	**$3,680**	$3,824

What would Net deferred tax assets be if a 21% tax rate were instead assumed?

$10,514 million x .21 = $2,208 million (a reduction of 1,472 million).

What would the income effect be on Goldman Sachs as of 12/2016 if the tax rate were reduced from 35% to 21%?

BSE Equation Entry

	Assets		**=**	**Liab**	**+**	**S/E**
	Cash	Def Tax Asset				R/E
2016	$0	-$1,472				-$1,472 (tax expense)

Effective Tax Rate

Effective Tax Rate = Tax Expense / GAAP pre-tax income

The effective tax rate can differ from the US statutory rate (35% in 2017). Examples of why:

- Items recognized by GAAP but not the tax code ("permanent differences"):
  - Interest received on tax-exempt bonds
  - Fines paid to government and associated legal expenses
- Differences in tax rates on foreign earnings
- Revaluation of DTA / DTL due to tax rate changes
- Stock compensation

Tax Disclosures: Goldman Sachs Income Tax

in millions, except per share amounts	Year Ended December **2016**	2015	2014
Revenues			
Investment banking	**$ 6,273**	$ 7,027	$ 6,464
Investment management	**5,407**	5,868	5,748
Commissions and fees	**3,208**	3,320	3,316
Market making	**9,933**	9,523	8,365
Other principal transactions	**3,200**	5,018	6,588
Total non-interest revenues	**28,021**	30,756	30,481
Interest income	**9,691**	8,452	9,604
Interest expense	**7,104**	5,388	5,557
Net interest income	**2,587**	3,064	4,047
Net revenues, including net interest income	**30,608**	33,820	34,528
Operating expenses			
Compensation and benefits	**11,647**	12,678	12,691
Total non-compensation expenses	**8,657**	12,364	9,480
Total operating expenses	**20,304**	25,042	22,171
Pre-tax earnings	**10,304**	8,778	12,357
Provision for taxes	**2,906**	2,695	3,880
Net earnings	**7,398**	6,083	8,477

Effective tax rate = 2,906 / 10,304 = 28.2% < 35%. Why?

Tax Disclosures: Goldman Sachs Income Tax footnote 2016

U.S. tax rate = 35%

	Year Ended December		
	2016	2015	2014
U.S. federal statutory income tax rate	**35.0%**	35.0%	35.0%
State and local taxes, net of U.S. federal income tax effects	**0.9%**	0.3%	3.2%
Tax credits	**(2.0)%**	(1.7)%	(1.1)%
Non-U.S. operations	**(6.7)%**	(12.1)%	(5.8)%
Tax-exempt income, including dividends	**(0.3)%**	(0.7)%	(0.3)%
Non-deductible legal expenses	**1.0%**	10.2%	—
Other	**0.3%**	(0.3)%	0.4%
Effective income tax rate	**28.2%**	30.7%	31.4%

Effective tax rate calculated on prior slide

Tax Disclosures: Goldman Sachs Income Tax footnote 2016

MIT MANAGEMENT SLOAN SCHOOL

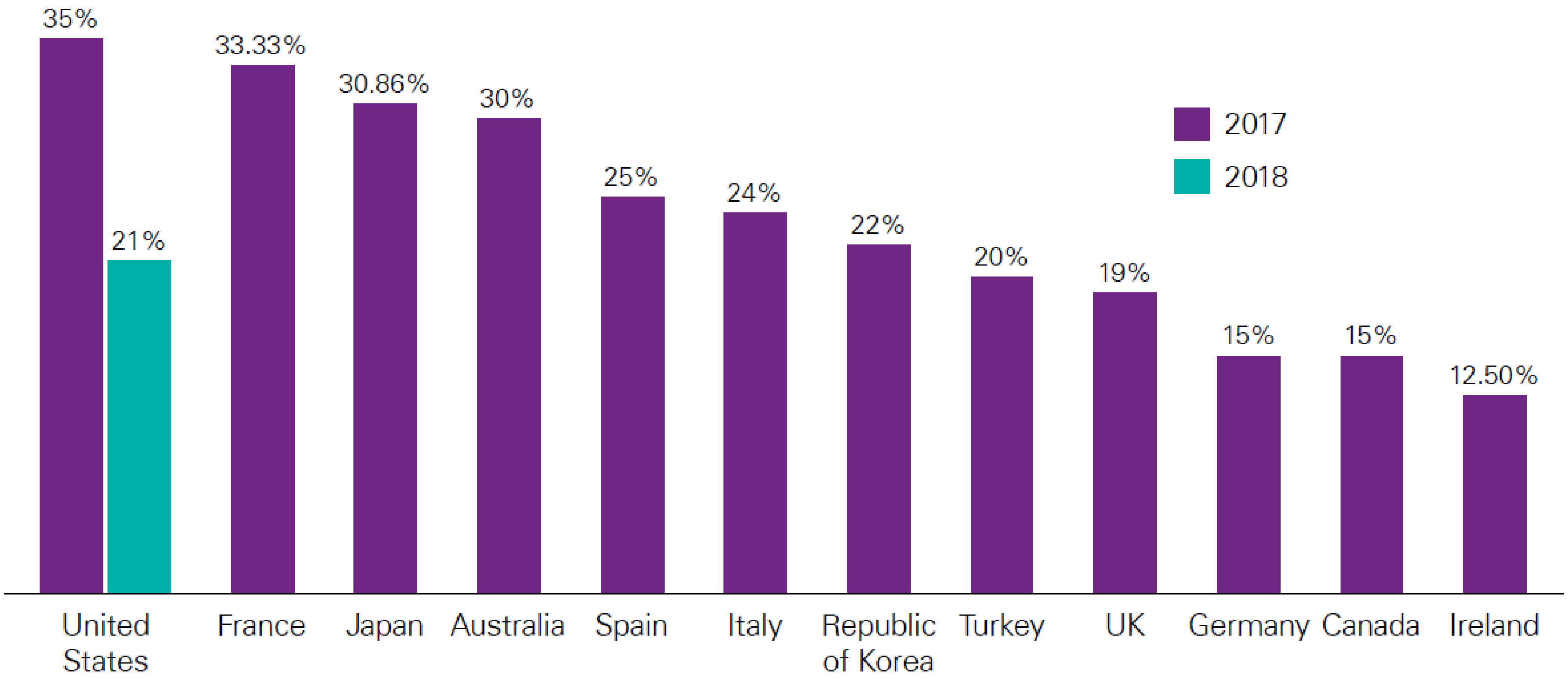
	Year Ended December		
	2016	2015	2014
U.S. federal statutory income tax rate	**35.0%**	35.0%	35.0%
State and local taxes, net of U.S. federal income tax effects	**0.9%**	0.3%	3.2%
Tax credits	**(2.0)%**	(1.7)%	(1.1)%
Non-U.S. operations	**(6.7)%**	(12.1)%	(5.8)%
Tax-exempt income, including dividends	**(0.3)%**	(0.7)%	(0.3)%
Non-deductible legal expenses	**1.0%**	10.2%	—
Other	**0.3%**	(0.3)%	0.4%
Effective income tax rate	**28.2%**	30.7%	31.4%

Differences in tax rates on foreign earnings

Permanent difference: Settlement with US related to alleged mortgage-backed securities fraud

U.S. and other OECD statutory corporate tax rates

Corporate income tax rates* in select OECD countries



**Basic, top corporate income tax rate levied by central government. Local level taxes and surtaxes are not included and can be substantial for some countries (e.g., the 2017 German rate could vary between 22.83-36.83% with local trade tax rates).*

Source: KPMG International, Tax Rates Online, 2017 data

Corporate Tax Changes Enacted 12/2017

Lowered US corporate tax rate from 35% to 21% in 2018

Previously earned foreign income was "deemed repatriated" and taxable

- Under old tax law, corporations did not pay US tax on foreign income until money was brought back to US ("repatriated")

Tax Disclosures: Goldman Sachs Income Tax Footnote 2017

	Year Ended December		
	2017	2016	2015
U.S. federal statutory income tax rate	**35.0%**	35.0%	35.0%
State and local taxes, net of U.S. federal income tax effects	**1.5%**	0.9%	0.3%
Non-U.S. operations	**(6.3)%**	(6.7)%	(12.1)%
Tax credits	**(2.1)%**	(2.0)%	(1.7)%
Tax-exempt income, including dividends	**(0.2)%**	(0.3)%	(0.7)%
Tax Legislation — repatriation tax	**29.8%**	–	–
Tax Legislation — remeasurement of deferred tax assets	**9.7%**	–	–
Non-deductible legal expenses	**0.5%**	1.0%	10.2%
Other	**(6.4)%**	0.3%	(0.3)%
Effective income tax rate	**61.5%**	28.2%	30.7%

Effective tax rate doubles in 2017!

Previously earned foreign income was “deemed repatriated” and taxable

Tax rate change lowers value of net DTA and increases tax expense (as illustrated above).

Net Operating Losses (NOL) and Deferred Tax Assets

If a firm incurs a loss for tax purposes:

- The firm does not pay negative taxes (get a refund) due to the loss.
- Instead, the firm can carry the loss forward and offset future taxable income

Net operating loss (NOL) carryforwards or "Loss Carry Forwards" create a deferred tax **asset**

- Intuition: Firm will pay less cash taxes in future.

NOL Carryforward Example

XYZ has book and tax income of -$100,000 in 2015. It carries this tax loss forward. Tax rate is 30%.

	Financial reporting	Tax reporting
2015 NI before taxes	-100,000	-100,000
Cash Taxes		0
Tax Expense (Benefit)	-30,000	

<u>BSE Equation Entry</u>

	Assets		=	**Liab**	+	**S/E**
	Cash	Def Tax Asset				R/E
2015	0	30,000				30,000 (benefit)

Use of NOL Carryforward Example

XYZ has book and tax income (before carryforwards) of $100,000 in 2016. After it uses its $100,000 tax loss carryforward, tax income is $0. Tax rate is 30%.

	Financial reporting	**Tax reporting**
2016 NI before taxes	100,000	100,000 - 100,000 = 0
Cash Taxes		0
Tax Expense	30,000	

<u>BSE Equation Entry</u>

	Assets		=	**Liab**	+	**S/E**
	Cash	Def Tax Asset				R/E
2015	0	30,000				30,000 (benefit)
2016	0	-30,000				-30,000

DTAs and Valuation Allowance

- Deferred tax assets arise when future taxes payable will be less than future tax expense, as in prior example and as with NOLs.
  - DTAs are like “pre-paid” assets.

- What happens if a firm does not expect high future income?
  - There will not be future income to use the DTA; DTA is not “realizable”

- If a DTA is not “realizable,” then it should be reduced. An analogy is accounts receivable that are not expected to be collected.
  - Firms reduce deferred tax assets by creating a valuation allowance, a contra-asset that is similar to the allowance for doubtful accounts.

Deferred Tax Asset Valuation Allowance: Illustration

In 2015, a firm has a $30,000 deferred tax asset.

Suppose instead, at end of 2016, management expects that it will not have enough future income to use the DTA.

BSE Equation Entry

	Assets		=	Liab	+	S/E
	DTA	- Valuation Allowance (XA)				R/E
2016		30,000				-30,000 (tax expense)

Note: the valuation allowance is similar to allowance for doubtful accounts.

TAX DISCLOSURES: GOLDMAN SACHS INCOME TAX FOOTNOTE 2016

	As of December	
$ in millions	**2016**	2015
Deferred tax assets		
Compensation and benefits	**$2,461**	$2,744
ASC 740 asset related to unrecognized tax benefits	**231**	197
Non-U.S. operations	**967**	1,200
Net operating losses	**427**	426
Occupancy-related	**100**	80
Other comprehensive income-related	**757**	521
Other, net	**394**	836
Subtotal	**5,337**	6,004
Valuation allowance	**(115)**	(73)
Total deferred tax assets	**$5,222**	$5,931
Depreciation and amortization	**$1,200**	$1,254
Unrealized gains	**342**	853
Total deferred tax liabilities	**$1,542**	$2,107
Net deferred tax assets	**$3,680**	$3,824

Citigroup and Deferred Taxes (CNBC.com 10/30/2009)

- Citigroup may have to write down about $10 billion in deferred tax assets in the fourth-quarter, according to CLSA banking analyst Michael Mayo, sending the shares down over 5 percent.

  Question: Why did share prices fall?

  Hint: when would a firm not be able to use deferred tax assets?

  - The DTA is valuable only if future income is positive. When a company writes down a DTA, it is because expects low future income.
  - This is a rare case when the accounting system signals low future income.

- Deferred tax assets can be used to offset future (taxable) gains. However, if over time, a company does not have gains to offset, the value of the deferred tax assets must be written down.

Stock compensation DT Asset (not on exam)

Very simplified example 2: Now suppose we have given the employee stock with a grant date expected value of $1,000K in 3 years. For financial reporting we expense now. But value turns out to be $10,000K, and we deduct $10,000K when employee recognizes income.

Year	Tax Deduction	Accounting Expense	Tax vs. Book Difference	Deferred Tax Asset (30%)
1	0	1,000	-1,000	300
2	0	0	0	300
3	10,000	0	10,000	0

BSE in year 3 (before 2017):

Cash	**DTA**	**CC**
3,000	-300	2,700

BSE in year 3 (2017 and after):

Cash	**DTA**	**RE**
3,000	-300	2,700 (tax benefit)

Joe Biden's Twitter fight with Amazon perfectly sums up the battle over America's new tax code (6/14/19)


Amazon News
@amazonnews

We've paid $2.6B in corporate taxes since 2016. We pay every penny we owe. Congress designed tax laws to encourage companies to reinvest in the American economy. We have. $200B in investments since 2011 & 300K US jobs. Assume VP Biden's complaint is w/ the tax code, not Amazon.

Joe Biden @JoeBiden
I have nothing against Amazon, but no company pulling in billions of dollars of profits should pay a lower tax rate than firefighters and teachers. We need to reward work, not just wealth. nytimes.com/2019/04/29/us/...

25.3K 5:55 PM - Jun 13, 2019

9,385 people are talking about this

Source: https://www.cnbc.com/2019/06/14/joe-biden-fight-with-amazon-sums-up-battle-over-corporate-taxes.html

Amazon Tax Footnote 2018

MIT MANAGEMENT SLOAN SCHOOL

	Year Ended December 31,		
	2016	2017	2018
Income taxes computed at the federal statutory rate	35.0%	35.0%	21.0%
Effect of:			
Tax impact of foreign earnings	-1.8%	31.0%	1.1%
State taxes, net of federal benefits	2.8%	3.0%	2.3%
Tax credits	-3.1%	-5.8%	-3.7%
Stock-based compensation (2)	4.9%	-24.1%	-9.6%
Domestic production activities deduction	-2.4%	0.0%	0.0%
2017 Impact of U.S. Tax Act	0.0%	-20.7%	-1.4%
Other, net	1.2%	1.9%	1.0%
Total	36.6%	20.2%	10.6%

The big change in ETR from 2016 to 2017 is driven by the change in accounting for tax benefit from stock compensation (not on exam).

Apple’s Tax Avoidance Illustrates Gap Between Law and Economics (WSJ 9/7/16)

American companies like Apple Inc. aren’t just world-class innovators in personal technology and marketing.

They are also, it turns out, world-class innovators in tax avoidance.

Apple’s Tax Strategy Aims at Low-Tax States and Nations (NYT 4/28/12)

Apple's headquarters are in California. By putting an office in Nevada, just 200 miles away, Apple sidesteps state income taxes.

California's corporate tax rate is 8.84 percent. Nevada's? Zero.

Accounting for Income Taxes: Take-Away Slide

- We discussed how financial statements reflect taxes paid and taxes owed
- We interpreted income tax disclosures
- We examined the effects of events on income taxes
  - Tax law changes
  - Valuation allowances