Accounting for Deferred Income Taxes with Tax Rate Changes

One of the most difficult topics for students in Intermediate Accounting is the accounting for income taxes. Students have difficulty in understanding the concept of originating and reversing differences. One of the reasons students have difficulty with originating and reversing differences is that very basic examples are not included in the textbook or the basic examples only cover the first few years and do not cover the example from beginning to end.

A "teaching tool" for illustrating originating and reversing differences is to prepare a five year example for a company with only one piece of equipment. The company would use straight-line depreciation with a five year life for financial reporting and for tax purposes the company would use MACRS and the equipment would be classified as three year equipment. Such an example would have originating differences in Year 1 and Year 2 with reversing differences in Years 3, 4 and 5. Another benefit of the example is that it would enable students to understand the benefits of MACRS in postponing the payment of taxes. This first example would have a constant tax rate for the five years.

A second basic area to teach about deferred income taxes is the accounting treatment of income tax rate changes. The first example could be modified by changing the tax rate sometime in the five year life of the asset. Using the same example with only a tax rate change allows the students to see the accounting ramifications of the tax rate change as they have one example with a constant tax rate and examples with tax rate changes. The teaching tool has two examples with tax rate increases at different times in the life to the asset. The examples illustrate the necessity of increasing the deferred tax liability when there is a increase in the tax rates. It also has one example of a tax rate decrease during the life of the asset that requires a decrease in the deferred tax liability.

The teaching tool provides three problems that are similar to the examples with a tax rate change for students to work outside of class. Two advanced problems are provided that are significantly more difficult than the first three problems. These problems have an asset with a financial life of eight years and are five year property under MACRS. The advanced problems have two tax rate changes in an eight year life. Students who can complete the two advanced problems would have a good mastery of accounting for rate changes.

A deferred tax asset example is provided that uses unearned rent. The company is paid cash for rent in Year 1 that is applicable to Year 2. For tax purposes the rent is included in the tax return of Year 1 when received. For financial purposes the receipt of the cash in Year 1 results in a liability. For financial purposes the rent revenue is recognized in Year 2 when it is earned.

The teaching tool allows students to understand the concept of temporary differences which is very basic to accounting for income taxes. Tax rate changes and an example of a deferred tax asset are illustrated in the teaching tool. After students have mastered the concepts in this teaching tool, they are ready to move on to more complex deferred income tax items.

SOME EXAMPLES OF DEFERRED INCOME TAXES

Example 1

Assume a firm with only one piece of property plant and equipment with a cost of $75,000 and an estimate life of 5 years. Straight-line depreciation is used for financial reporting. MACRS is used for tax purposes and the equipment is classified as three year property. The firm has net income before tax and depreciation of $60,000. The tax rate is 40%

Year	financial depreciation	tax depreciation	temporary differences	
1	15,000	24,997.50 (.3333 x 75,000)	9,997.50	OR
2	15,000	33,337.50 (.4445 x 75,000)	18,337.50	OR
3	15,000	11,107.50 (.1481 x 75,000)	(3,892.50)	RV
4	15,000	5,557.50 (.0741 x 75,000)	(9,442.50)	RV
5	15,000	0.00	(15,000.00)	RV
	75,000	75,000.00	0.00	

OR Originating Differences
RV Reversing Differences

	Financial
NIBT&D	$60,000
DEPR	15,000
TAXABLE INC	45,000
TAX EXP	18,000

Income Tax Returns

	Tax 1	Tax 2	Tax 3
NIBT&D	$60,000.00	$60,000.00	$60,000.00
DEPR	24,997.50	33,337.50	11,107.50
TAXABLE INC	35,002.50	26,662.50	48,892.50
TAX PAY	14,001.00	10,665.00	19,557.00

	Tax 4	Tax 5
NIBT&D	$60,000.00	$60,000.00
DEPR	5,557.50	0.00
TAXABLE INC	54,442.50	60,000.00
TAX PAY	21,777.00	24,000.00

JOURNAL ENTRIES

	DR.	CR.
YR. 1 TAX EXPENSE - CURRENT	14,001.00	
TAX EXPENSE - DEFERRED	3,999.00	
DIT (9,997.50 X .40)		3,999.00
TAX PAYABLE		14,001.00

Kieso, Weygandt and Warfield (KWW) would use only one expense account called "Income Tax Expense" which is for the combined amount of Tax Expense - Current and Tax Expense - Deferred. They would prepare the entry as follows:

YR. 1 INCOME TAX EXPENSE	18,000.00	

DIT (9,997.50 X .40)		3,999.00
TAX PAYABLE		14,001.00

The approach used in this handout is the approach used on the CPA Examination. It would be a good idea to use the approach in this handout in preparing entries if you are planning on taking the CPA Examination in the future.

YR. 2 TAX EXPENSE - CURRENT	10,665.00	
TAX EXPENSE - DEFERRED	7,335.00	
DIT (18,337.50 X.40)		7,335.00
TAX PAYABLE		10,665.00
YR. 3 TAX EXPENSE - CURRENT	19,557.00	
DIT (3,892.50 x .40)	1,557.00	
TAX EXPENSE - DEFERRED		1,557.00
TAX PAYABLE		19,557.00
YR. 4 TAX EXPENSE - CURRENT	21,777.00	
DIT (9,442.50 X .40)	3,777.00	
TAX EXPENSE - DEFERRED		3,777.00
TAX PAYABLE		21,777.00
YR. 5 TAX EXPENSE - CURRENT	24,000.00	
DIT (15,000 X .40)	6,000.00	
TAX EXPENSE - DEFERRED		6,000.00
TAX PAYABLE		24,000.00

Calculate the tax expense, taxes payable and DIT balance for the five years.

Tax expense = 14,001 + 3,999 +10,665 + 7,335 + 19,557 - 1,557 + 21,777 - 3,777 + 24,000 - 6,000 = 90,000

Taxes payable = 14,001 + 10,665 + 19,557 + 21,777 + 24,000 = 90,000

DIT	
	Yr. 1 3,999
	Yr. 2 7,335
Yr. 3 1,557	
Yr. 4 3,777	
Yr. 5 6,000	
	0

If the tax expense for the five years is $90,000 and the taxes payable for the five years is $90,000, what is the benefit of using MACRS for tax deprecation?

In year 1 taxes of $3,999 are postponed to later years.
In year 2 taxes of $7,335 are postponed to later years.

Yr. 1 $3,999 postponed-------$1,557 paid in Yr. 3 #
$2,442 paid in Yr. 4 *

Yr. 2 $7,335 postponed-------$1,335 paid in Yr. 4 #
$6,000 paid in Yr. 5 *

an "interest free" loan from the IRS for **2 years**
* an "interest free" loan from the IRS for **3 years**

THE USE OF MACRS DOES NOT SAVE ANY TAXES. IT DOES ALLOW THE POSTPONEMENT OF THE PAYMENT OF TAXES. ANY INTEREST FREE LOANS SHOULD BE ACCEPTED BECAUSE OF THE TIME VALUE OF MONEY CONCEPT.

Example 2

AN INCREASE IN TAX RATES

Assume all the information is the same as in Example 1 except that the tax rate changes in year 3 because Congress passes a law increasing the tax rate to 45% on July 23, Year 3, effective for year three and later years.

JOURNAL ENTRIES

The entries for year 1 and 2 would be the same as in Example 1 because the circumstances are the same as in Example 1.

YR. 1	TAX EXPENSE - CURRENT	14,001.00	
	TAX EXPENSE - DEFERRED	3,999.00	
	DIT (9,997.50 X .40)		3,999.00
	TAX PAYABLE		14,001.00

YR. 2	TAX EXPENSE - CURRENT	10,665.00	
	TAX EXPENSE - DEFERRED	7,335.00	
	DIT (18,337.50 X.40)		7,335.00
	TAX PAYABLE		10,665.00

THE DIT ACCOUNT HAS A BALANCE OF $11,334.00 WHICH IS EQUAL TO THE TOTAL TEMPORARY DIFFERENCES OF $28,335.00 x .40%. THE DIT LIABILITY IS UNDERSTATED SINCE THE TAX RATE THAT WILL BE IN EFFECT WHEN THE DIFFERENCES REVERSE WILL BE 45%. THE DIT ACCOUNT SHOULD HAVE A BALANCE AT JULY 23, YEAR 3 $12,750.75 = ($28,335.00 x .45). IN YEAR THREE, TWO ENTRIES ARE REQUIRED. ONE ENTRY TO CORRECT THE DIT ACCOUNT AND ONE ENTRY TO RECORD THE TAX PAYABLE AND TAX EXPENSE. ONLY A FUTURE TAX RATE CHANGE THAT HAS BEEN ENACTED INTO LAW CAN BE USED IN COMPUTING DIT.

(28,335.00 x .05) = 1,416.75 or 12,750.75 - 11,334 = 1,416.75

JULY 23, YEAR 3			
	TAX EXPENSE - DEFERRED	1,416.75	
	DIT		1,416.75

THIS ENTRY MUST BE MADE AFTER THE LEGISLATION IS PASSED AND BEFORE YEAREND SO THAT INTERIM STATEMENTS (THIRD QUARTER AND MONTHLY STATEMENTS) REFLECT THE PROPER AMOUNT OF DIT LIABILITY.
THE BALANCE IN THE DIT ACCOUNT IS 3,999 + 7,335 + 1,416.75 = $12,750.75

YR. 3 TAX EXPENSE - CURRENT	22,001.62	
DIT (3,892.50 x .45)	1,751.62	
TAX EXPENSE - DEFERRED		1,751.62
TAX PAYABLE (48,892.50 x .45)		22,001.62
YR. 4 TAX EXPENSE - CURRENT	24,499.13	
DIT (9,442.50 X .45)	4,249.13	
TAX EXPENSE - DEFERRED		4,249.13
TAX PAYABLE (54,442.50 x .45)		24,499.13
YR. 5 TAX EXPENSE - CURRENT	27,000.00	
DIT (15,000.00 X .45)	6,750.00	
TAX EXPENSE - DEFERRED		6,750.00
TAX PAYABLE (60,000.00 x .45)		27,000.00

Example 3

AN INCREASE IN TAX RATES

Assume all the information is the same as in the Example 1 except that a tax rate change to 45% is enacted May 25, Year 2 effective for years 3, 4 and 5.

YR. 1 TAX EXPENSE - CURRENT	14,001.00	
TAX EXPENSE - DEFERRED	3,999.00	
DIT (9,997.50 X .40)		3,999.00
TAX PAYABLE		14,001.00

YR. 2 SHORTLY AFTER THE LEGISLATION IS PASSED THE DIT ACCOUNT FROM YEAR 1 SHOULD BE INCREASED FOR THE HIGHER TAX RATES. ALSO THE DIT FOR YEAR 2 SHOULD USE THE 45% RATE THAT WILL BE PAID AT THE TIME OF REVERSAL. THE TAX PAYABLE FOR YEAR 2 IS AT **40%** BECAUSE THE RATE DOES NOT BECOME EFFECTIVE UNTIL YEAR 3.

MAY 25, YEAR 2

(9,997.50 x .05)= 499.87

TAX EXPENSE - DEFERRED	499.87	
DIT		499.87

YR. 2 TAX EXPENSE - CURRENT	10,665.00	
TAX EXPENSE - DEFERRED	8,251.88	
DIT (18,337.50 X.45)		8,251.88
TAX PAYABLE (26,662.50 x .40)		10,665.00

YR. 3 TAX EXPENSE - CURRENT	22,001.62	
DIT (3,892.50 x .45)	1,751.62	
TAX EXPENSE - DEFERRED		1,751.62
TAX PAYABLE (48,892.50 x .45)		22,001.62
YR. 4 TAX EXPENSE - CURRENT	24,499.13	
DIT (9,442.50 X .45)	4,249.13	
TAX EXPENSE - DEFERRED		4,249.13
TAX PAYABLE (54,442.50 x .45)		24,499.13
YR. 5 TAX EXPENSE - CURRENT	27,000.00	
DIT (15,000.00 X .45)	6,750.00	
TAX EXPENSE - DEFERRED		6,750.00
TAX PAYABLE (60,000.00 x .45)		27,000.00

Example 4

A DECREASE IN TAX RATES

ASSUME ALL THE INFORMATION IS THE SAME AS IN EXAMPLE 1, EXCEPT THAT A RATE CHANGE TO 30% IS ENACTED JUNE 10, YEAR 4, EFFECTIVE FOR YEARS 4 AND 5.

YR. 1 TAX EXPENSE - CURRENT	14,001.00	
TAX EXPENSE - DEFERRED	3,999.00	
DIT (9,997.50 X .40)		3,999.00
TAX PAYABLE		14,001.00
YR. 2 TAX EXPENSE - CURRENT	10,665.00	
TAX EXPENSE - DEFERRED	7,335.00	
DIT (18,337.50 X.40)		7,335.00
TAX PAYABLE		10,665.00
YR. 3 TAX EXPENSE - CURRENT	19,557.00	
DIT (3,892.50 x .40)	1,557.00	
TAX EXPENSE - DEFERRED		1,557.00
TAX PAYABLE		19,557.00

YR 4 THE DIT IS OVERSTATED BECAUSE OF THE DECREASE IN THE TAX RATE AND NEEDS TO BE ADJUSTED. THE ADJUSTMENT WOULD BE EQUAL TO THE TEMPORARY DIFFERENCES (9,997.50 + 18,337.50 - 3,892.50) TIMES THE DECREASE IN THE TAX RATE (10%).

JUNE 10, YEAR 4		
DIT (24,442.50 x .10)	2,444.25	
TAX EXPENSE - DEFERRED		2,444.25
YR. 4 TAX EXPENSE - CURRENT	16,332.75	
DIT (9,442.50 X .30)	2,832.75	
TAX EXPENSE - DEFERRED		2,832.75
TAX PAYABLE (54,442.50 x .30)		16,332.75

YR. 5 TAX EXPENSE - CURRENT	18,000.00	
DIT (15,000.00 X .30)	4,500.00	
TAX EXPENSE - DEFERRED		4,500.00
TAX PAYABLE (60,000.00 x .30)		18,000.00

These four examples illustrate originating and reversing temporary differences. Also, income tax expense, taxes payable and DIT are computed and recorded. Examples Two, Three and Four illustrate how a change in tax rates is accounted for under SFAS No. 109. This seems to be very easy because we have a firm with one asset and only one type of temporary difference. The typical firm has many pieces of property plant and equipment and for any year some equipment would have originating temporary differences and other equipment would have reversing temporary differences.

There are many business transactions/events that can result in temporary differences between accounting income and taxable income. On page 1068 in Illustration 20-22 KWW list four major categories of temporary differences with three to four examples of each major category. This handout up to this point has dealt with a D 1 type temporary difference. Many large firms could have hundreds or thousands of D 1 type temporary differences plus temporary differences in many of the other categories in Illustration 20-22. The volume of temporary differences in a business makes deferred taxes a complex computation for most businesses.

DEFERRED TAX ASSET EXAMPLE (C 2 type temporary difference)

North Bay Corp. has only one temporary difference due to rent received in advance from Scio Corp.

Rent for January and February, Year 2 is received by North Bay on December 15, Year 1. The amount is $4,000 and would be recorded as follows:

Cash	4,000	
Unearned Rent (liability)		4,000

The $4,000 would be recognized in financial income in Year 2 but would be included in taxable income in Year 1. Tax rate 30%.

	Year 1	Year 2
Pretax financial Income	100,000	101,000
Temporary difference	4,000	(4,000)
Taxable Income	104,000	97,000

YR. 1		
TAX EXPENSE - CURRENT	31,200.00	
DIT (4,000.00 X .30)	1,200.00	
TAX EXPENSE - DEFERRED		1,200.00

TAX PAYABLE (104,000.00 x .30)		31,200.00

The DIT is an asset as it provides future benefit. The future benefit is that in Year 2 North Bay can recognize $4,000 of revenue and not have to pay tax on the revenue because the tax was paid in Year 1.

YR. 2		
TAX EXPENSE - CURRENT	29,100.00	
TAX EXPENSE - DEFERRED	1,200.00	
DIT (4,000.00 X.40)		1,200.00
TAX PAYABLE (97,000.00 x .30)		29,100.00

Practice problems with temporary differences due to MACRS depreciation for taxes and straight-line depreciation for financial reporting with changes in the tax rate follow:

Problem 1

Norman Manufacturing Company has only one piece of property, plant and equipment with a cost of $600,000 and an estimated life of five years. The equipment is three year property for tax purposes under MACRS. Straight-line depreciation is used for financial reporting. The firm has net income before depreciation and taxes of $700,000 per year for years 1, 2, 3, 4 and 5. The tax rate for year one and two is 40%. A new tax law is enacted on June 12, Year 2 that is effective for year three and later years (the new rate is 44%). Use the MACRS rates in the depreciation chapter.

Prepare the journal entries for years one through five.

Problem 2

Norman Manufacturing Company has only one piece of property, plant and equipment with a cost of $700,000 and an estimated life of five years. The equipment is three year property for tax purposes under MACRS. Straight-line depreciation is used for financial reporting. The firm has net income before depreciation and taxes of $900,000 per year for years 1, 2, 3, 4 and 5. The tax rate for year one and two is 40%. A new tax law is enacted on June 12, Year 2 that is effective for year three and later years (the new rate is 34%). Use the MACRS rates in the depreciation chapter.

Prepare the journal entries for years one through five.

Problem 3

Norman Manufacturing Company has only one piece of property, plant and equipment with a cost of $850,000 and an estimated life of five years. The equipment is three year property for tax purposes under MACRS. Straight-line depreciation is used for financial reporting. The firm has net income before depreciation and taxes of $925,000 per year for years 1, 2, 3, 4 and 5. The tax rate for year one and two is 40%. A new tax law is enacted on June 12,

Year 3 that is effective for year three and later years (the new rate is 45%). Use the MACRS rates in the depreciation chapter.

Prepare the journal entries for years one through five.

PROBLEMS 4 AND 5 ARE LONGER MORE COMPLEX VERSION OF NORMAN MANUFACTURING (EIGHT YEARS WITH TWO RATE CHANGES) *Do not attempt these problems until you have mastered the above problems. If you can do problems 4 and 5, you have mastered temporary differences with rate changes for depreciation.*

Problem 4

Norman Manufacturing Company has only one piece of property, plant and equipment with a cost of $1,600,000 and an estimated life of eight years. The equipment is five year property for tax purposes under MACRS. Straight-line depreciation is used for financial reporting. The firm has net income before depreciation and taxes of $900,000 per year for years 1 through 8. The tax rate for year one and two is 30%. A new tax law is enacted on June 12, Year 2 that is effective for year three and later years (the new rate is 40%). A new tax law is enacted on August 21, Year 5 that is effective for year five and later years (the new rate is 42%). Use the MACRS rates in the depreciation chapter.

Prepare the journal entries for years one through eight.

Problem 5

Norman Manufacturing Company has only one piece of property, plant and equipment with a cost of $1,600,000 and an estimated life of eight years. The equipment is five year property for tax purposes under MACRS. Straight-line depreciation is used for financial reporting. The firm has net income before depreciation and taxes of $900,000 per year for years 1 through 8. The tax rate for year one and two is 40%. A new tax law is enacted on June 12, Year 2 that is effective for year three and later years (the new rate is 30%). A new tax law is enacted on August 21, Year 5 that is effective for year five and later years (the new rate is 42%). Use the MACRS rates in the depreciation chapter.

Prepare the journal entries for years one through eight.