

NUMERICAL EXAMPLES ILLUSTRATING THE ACCOUNTING  
FOR THE TAX BENEFITS OF STOCK OPTIONS – Michelle Hanlon and Terry Shevlin<sup>1</sup>

In order to focus on our main point, we assume no other permanent differences and no temporary differences. Further, in the tax loss scenario we do not cover all possible scenarios that might be encountered in practice.

***Exhibit 1: Firm with positive taxable income***

**Panel A: Facts and interim calculations (same as in paper)**

Pretax book income	\$12,000
ESO tax deduction	<u>(2,000)</u>
Taxable income	10,000
Income tax liability (tax return) (TI x .35)	\$3,500

Calculations:

Current tax expense (financial statement):  
 = pre-tax book income less temporary differences less permanent differences  
 APB 25 = \$12,000 – 0 – 0 = \$12,000 x .35 = \$4,200  
 Permanent difference treatment  
 = \$12,000 – 0 – 2,000 = \$10,000 x .35 = \$3,500  
 Deferred tax expense = none in this example  
 ESO tax benefit = \$2,000 x .35 = \$700

**Panel B: Journal Entries**

	APB 25	ESO tax benefit treated as a permanent difference	
Current tax expense	\$4,200	\$3,500	
Income taxes payable		\$4,200	\$3,500
Deferred tax expense	\$0	\$0	
Deferred tax liability		\$0	\$0
Income taxes payable	\$700	No entry	
Additional PIC		\$700	No entry

**Panel C: Summary**

	APB 25	ESO tax benefit treated as a permanent difference
Current tax expense	\$4,200	\$3,500
Deferred tax expense	<u>0</u>	<u>0</u>
Total tax expense	\$4,200	\$3,500
(1) GAAP effective tax rate	35%	29%
(2) Tax burden effective tax rate	35%	29%
(3) Estimated taxable income	\$12,000	\$10,000
(4) Adjusted estimated TI	\$10,000	

<sup>1</sup> We thank George Yin for helpful feedback on this example. We are responsible for all remaining errors.

Notes:

- (1) GAAP effective tax rate = total tax expense/pretax book income.
- (2) Tax burden effective tax rate = current tax expense/pretax book income.\*
- (3) Estimated taxable income (per equation (2) in paper) = current tax expense/.35.
- (4) Adjusted estimated TI = (reported current tax expense – ESO tax benefits)/.35

\*Tax burden ETR = 35% because in this example there are no temporary or other permanent differences. Other book-tax differences may be added but they unnecessarily complicate the example.

ESO deduction = \$6,000

ESO recognition (credit to shareholders' equity) = \$2,000

ESO realization (statement of cash flows) = \$2,000

**Exhibit 2: Firm with negative taxable income and no valuation allowance established against the deferred tax asset (net operating loss carryforward – NOL cf)**

**Panel A: Facts and interim calculations**

Assume:

	<b>Year 1</b>	<b>Year 2</b>
Pretax financial reporting income	\$2,000	\$20,000
Stock option compensation deduction	<u>(6,000)</u>	<u>(8,000)</u>
Taxable income (loss)	(\$4,000)	\$12,000
Statutory tax rate	35%	35%

Calculations:

Current tax expense under APB 25

**Year 1:** Book taxable income (loss) before stock option deduction = \$2,000  
 Thus current expense = \$2,000 x .35 = \$ 700  
 (1) ESO tax benefit = \$6,000 (deduction) x .35 = \$2,100

**Year 2:** Book taxable income (loss) before stock option deduction = \$20,000  
 = \$20,000 = \$20,000  
 Thus current expense = \$20,000 x .35 = \$ 7,000  
 (1) ESO tax benefit = \$8,000 (deduction) x .35 = \$ 2,800

Income tax liability based on taxable income (tax return)

**Year 1:** Tax loss of \$4,000 = \$ 0  
**Year 2:** \$12,000 - \$4,000 (NOL cf) = \$8,000 x .35 = \$ 2,800

Cumulative Temporary Differences:

**Year 1:** Deferred tax asset (DTA: NOL cf) \$ 4,000  
x .35  
\$ 1,400

**Year 2:** Deferred tax asset \$ 0

**Panel B: Journal entries**

<b>Year 1</b>	APB 25	ESO tax benefit treated as a permanent difference	
Current tax expense	\$700	\$0	
Income taxes payable		\$700	\$0
Deferred tax asset	\$1,400	\$1,400	
Additional PIC		\$1,400	NA
Deferred tax benefit		\$0	\$1,400
Income taxes payable	\$700	No entry	
Additional PIC		\$700	No entry

<b>Year 2</b>	APB 25	Permanent difference	
Current tax expense	\$7,000	\$2,800	
Income taxes payable		\$7,000	\$2,800
Income taxes payable	\$7,000	\$2,800	
Deferred tax expense		No entry	\$1,400
Cash		\$2,800	\$2,800
Deferred tax asset		\$1,400	\$1,400
Additional PIC		\$2,800	NA

**Panel C: Summary**

<b>Year 1</b>	APB 25	Permanent Difference
Current tax expense	\$700	\$0
Deferred tax expense	<u>0</u>	<u>(1,400)</u>
Total tax expense	\$700	\$(1,400)
GAAP effective tax rate	35%	(70)%
Tax burden effective tax rate	35%	0%
(2) Estimated taxable income	\$2,000	(\$4,000)
(3) Adjusted estimated TI	(\$4,000)	

<b>Year 2</b>	APB 25	Permanent Difference
Current tax expense	\$7,000	\$2,800
Deferred tax expense	<u>\$ 0</u>	<u>\$1,400</u>
Total tax expense	\$7,000	\$4,200
GAAP effective tax rate	35%	21%
Tax burden effective tax rate	35%	14%
(2) Estimated taxable income <sup>#</sup>	\$20,000	\$12,000
(3) Adjusted estimated TI <sup>#</sup>	\$12,000	

<sup>#</sup> Before utilizing the NOL carryforward from year 1.

*Reconciliation:*

Actual tax liability over the two years	= \$2,800
Tax expense over the two years recorded in the financial statements under APB No. 25 (which is [(\$2,000+\$20,000) x .35]	= \$7,700
Tax expense over the two years recorded in the financial statements if the stock option deduction were treated as a permanent difference	= \$2,800
Total credit to APIC [((\$6,000+\$8,000) x .35]	= \$4,900

- (1) The ESO tax benefit in year 1 is calculated as the \$6,000 compensation deduction x .35 = \$2,100 (the ESO deduction). Of this, \$700 (\$2,000 currently deductible x .35) is realized and recognized and \$1,400 (\$4,000 deduction carried forward x .35) is not yet realized but is recognized because no valuation allowance is established against the deferred tax asset related to the stock option compensation deduction. In year 2, the ESO tax deduction is \$8,000 resulting in an ESO tax benefit of \$8,000 x .35 = \$2,800, which is all realized and recognized in year 2. In addition, the \$1,400 of tax benefits carried forward from year 1 are now realized for a total realized of \$4,200 in year 2.
- (2) Under APB 25 accounting, estimated taxable income  
= reported current tax expense/.35  
Year 1: = \$700/.35 = \$2,000  
Year 2: = \$7,000/.35 = \$20,000 (before NOL utilization)
- (3) Under APB 25 accounting, adjusted estimated taxable income  
= (reported current tax expense – ESO tax benefits)/.35 where ESO tax benefit is estimated as the amount recognized in shareholders' equity.  
Year 1: = (\$700 - \$2,100)/.35 = (\$4,000).  
Year 2: = (\$7,000 - \$2,800)/.35 = \$12,000 (before NOL utilization)  
Alternatively, as noted in the paper, to estimate taxable income for tax loss firms, it is best to estimate the tax loss directly using equation (1) rather than gross-up adjusted current tax expense as per equation (2). Thus adjusted estimated taxable income in year 1 is  
= pretax book income – temporary differences – permanent differences – ESO deduction  
= \$2,000 - \$0 - \$0 - \$6,000 = (\$4,000).

**Exhibit 3: Firm with negative taxable income and a full valuation allowance established against the deferred tax asset (net operating loss)**

**Panel A: Facts and interim calculations**

Assume: Same facts as Panel A in Exhibit 2.

Calculations: Same calculations as in Exhibit 2.

**Panel B: Journal entries**

<b>Year 1</b>	<b>APB 25</b>	<b>ESO tax benefit as a permanent difference</b>	
Current tax expense	\$700	\$0	
Income taxes payable		\$700	\$0
Deferred tax asset	\$1,400	\$1,400	
Valuation Allowance		\$1,400	\$1,400
Income taxes payable	\$700	No entry	
Additional PIC		\$700	No entry

  

<b>Year 2</b>	<b>APB 25</b>	<b>Permanent difference</b>	
Current tax expense	\$7,000	\$2,800	
Income taxes payable		\$7,000	\$2,800
Valuation Allowance	\$1,400	\$1,400	
Additional PIC		\$1,400	NA
Deferred tax asset		\$0	\$1,400
Income taxes payable	\$7,000	\$2,800	
Cash		\$2,800	\$2,800
Deferred tax asset		\$1,400	No entry
Additional PIC		\$2,800	No entry

**Panel C: Summary**

<b>Year 1</b>	<b>APB 25</b>	<b>Permanent Difference</b>
Current tax expense	\$700	\$0
Deferred tax expense	0	\$0
Total tax expense	\$700	\$0
GAAP effective tax rate	35%	0%
Tax burden effective tax rate	35%	0%
(1) Estimated taxable income	\$2,000	(\$4,000)
(2) Adjusted estimated TI	(\$0)	

<b>Year 2</b>	<b>APB 25</b>	<b>Permanent Difference</b>
Current tax expense	\$7,000	\$2,800
Deferred tax expense	<u>\$ 0</u>	<u>\$ 0</u>
Total tax expense	\$7,000	\$2,800
GAAP effective tax rate	35%	14%
Tax burden effective tax rate	35%	14%
(1) Estimated taxable income <sup>#</sup>	\$20,000	\$12,000
(2) Adjusted estimated TI <sup>#</sup>	\$8,000	

<sup>#</sup> Before utilizing the NOL carryforward from year 1.

*Reconciliation:* Same as in Exhibit 2.

- (1) The ESO tax benefit in Exhibit 3 in year 1 is calculated as the \$6,000 compensation deduction x .35 = \$2,100. Of this, \$700 (\$2,000 currently deductible x .35) is realized and recognized and \$1,400 (\$4,000 deduction carried forward x .35) is not yet realized and is *not* yet recognized because a valuation allowance is established against the deferred tax asset related to the stock option compensation deduction in this case. In year 2, the ESO tax deduction is \$8,000 resulting in an ESO tax benefit of \$8,000 x .35 = \$2,800, which is all realized and recognized in year 2. In addition, the \$1,400 of tax benefits carried forward from year 1 are now realized and recognized giving a total realized and recognized of \$4,200 in year 2.
- (2) Under APB 25 accounting, estimated taxable income (same as exhibit 2)  
= reported current tax expense/.35  
Year 1: = \$700/.35 = \$2,000  
Year 2: = \$7,000/.35 = \$20,000 (before NOL utilization)
- (3) Under APB 25 accounting, adjusted estimated taxable income  
= (reported current tax expense – ESO tax benefits)/.35, where ESO tax benefit is estimated as the amount recognized in shareholders' equity.  
Year 1: = (\$700 - \$700)/.35 = (\$0).  
Year 2: = (\$7,000 - \$4,200)/.35 = \$8,000 (before NOL utilization)  
However, note here that the ESO recognition amount is not equal to the ESO tax benefit (the tax deduction) amount because of the valuation allowance. The ESO deduction amount x .35 must be used.  
Year 1: = (\$700 - \$2,100)/.35 = (\$4,000)  
Year 2: = (\$7,000 - \$2,800)/.35 = \$12,000 (before NOL utilization)  
Alternatively, as noted in the paper, to estimate taxable income for tax loss firms, it is best to estimate the tax loss directly using equation (1) rather than gross-up adjusted current tax expense as per equation (2). Thus adjusted estimated taxable income in year 1 is  
= pretax book income – temporary differences – permanent differences – ESO deduction  
= \$2,000 - \$0 - \$0 - \$6,000 = (\$4,000).

Comparison of APB 25 reporting with and without valuation allowance

No valuation allowance on the deferred tax asset in year 1 (from exhibit 2)

	<b>Year 1</b>	<b>Year 2</b>	<b>Total</b>
Current tax expense	\$700	\$7,000	\$7,700
ESO deduction	\$6,000	\$8,000	\$14,000
ESO recognition (credit to shareholders' equity)	\$2,100	\$2,800	\$4,900
ESO realization (statement of cash flows)	\$700	\$4,200	\$4,900

No valuation allowance on the deferred tax asset in year 1 (from exhibit 3)

	<b>Year 1</b>	<b>Year 2</b>	<b>Total</b>
Current tax expense	\$700	\$7,000	\$7,700
ESO deduction	\$6,000	\$8,000	\$14,000
ESO recognition (credit to shareholders' equity)	\$700	\$4,200	\$4,900
ESO realization (statement of cash flows)	\$700	\$4,200	\$4,900

Because of the valuation allowance placed on the deferred tax asset, \$1,400 of the year 1 \$2,100 ESO tax benefits are not recognized until year 2.