Bonus Depreciation Calculator

Impact on NPV by utilizing bonus depreciation

INPUTS:	
Current "Bonus Depreciation" Percentage Rate:	
New "Bonus Depreciation" Percentage Rate:	
Asset Class (years) per Internal Revenue Service:	
Annual Discount Rate Applicable to this Asset:	
Number of Months Prior to Initial Tax Benefit Occurring from Bonus Depreciation that the Asset is Placed into Service:*	
Depreciable Basis of the Asset:	
Firm's Marginal Tax Rate:	
OUTPUTS:	
Change in NPV Today:	
Change in NPV as % of Original Depreciable Basis:	

Assumptions:

1. The standard MACRS schedule is utilized both with and without bonus depreciation.
2. The discount rate used is consistent throughout the depreciable life of the asset.
3. The asset is retained for the entire depreciable time and embedded options are ignored.
4. The marginal tax rate does not change over the depreciable life of the asset.

* It can range from 0 to 12 months. All additional (negative) tax benefits from bonus depre
apart after the initial (positive)

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advice or a promise of potential savings or reduced tax liability. For more information about th
professional or visit the Internal Revenue Service website at http://ww**

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reserved. For an online article that develops this Excel model, see: Kuhlemeyer, Gregory A. and
Bonus Depreciation on Project Decision Making." Financial Decisions, Winte
<http://www.financialdecisionsonline.org/current/KuhlemeyerWachowicz***

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0.00%
50.00%
10
12.00%
12
$ 100,000.00
40.00%
$ 5,689.07
5.69%

ciation are assumed to occur one year
) tax benefit from bonus depreciation.

**. It should not be construed as tax
ne bonus depreciation, contact a tax
ww.irs.gov ."**

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Wachowicz, John M., "The Impact of
er 2011, Article 2.
Winter2011.pdf>***

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Bonus MACRS Minus Standard MACRS Schedule (half-year convention)						
	IRS Property Class (Years)					
Year of Depreciation	3	5	7	10	15	20
1	33.33%	40.00%	42.86%	45.00%	47.50%	48.13%
2	-22.22%	-16.00%	-12.24%	-9.00%	-4.75%	-3.61%
3	-7.41%	-9.60%	-8.75%	-7.20%	-4.28%	-3.34%
4	-3.70%	-5.76%	-6.25%	-5.76%	-3.85%	-3.09%
5		-5.76%	-4.46%	-4.61%	-3.46%	-2.86%
6		-2.88%	-4.46%	-3.69%	-3.12%	-2.64%
7			-4.46%	-3.28%	-2.95%	-2.44%
8			-2.23%	-3.28%	-2.95%	-2.26%
9				-3.28%	-2.95%	-2.23%
10				-3.28%	-2.95%	-2.23%
11				-1.64%	-2.95%	-2.23%
12					-2.95%	-2.23%
13					-2.95%	-2.23%
14					-2.95%	-2.23%
15					-2.95%	-2.23%
16					-1.48%	-2.23%
17						-2.23%
18						-2.23%
19						-2.23%
20						-2.23%
21						-1.12%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Bonus depreciation is based on a first-year bonus of:	**50.00%**
Standard MACRS is used with current bonus of:	**0.00%**

This schedule is completed by calculating the amount of depreciation each year utilizing the special first-year bonus depreciation and then subtracting the traditional MACRS depreciation for the comparable period. For example, in the 5-year class the first year special depreciation rate assuming a 50% bonus rate is 60%. The standard depreciation rate is 20%. Therefore, the difference of 40% occurs in the first year and is shown in cell D5.

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Impact on Additional NPV if Base Case Variables Ch

Variable Input	Change from Base Case to:	Output NPV	Dollar Change from Base Case
Base Case	No change	$ 5,689.07	$ -
Tax rate	25%	$ 3,555.67	$ (2,133.40)
Discount rate	6%	$ 3,570.19	$ (2,118.88)
Asset Class	20-year	$ 10,035.89	$ 4,346.82
Bonus Depreciation	30%	$ 3,413.44	$ (2,275.63)
Change all 4 at once		$ 2,675.33	$ (3,013.74)

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ange
Percentage Change from Base Case
-37.5%
-37.2%
76.4%
-40.0%
-53.0%

Yearly Changes in Depreciation, Tax-Shield Benefit, and P
Benefit Due to Bonus Depreciation

Year	Depreciation	Tax Shield Benefit
1	$ 45,000.00	$ 18,000.00
2	$ (9,000.00)	$ (3,600.00)
3	$ (7,200.00)	$ (2,880.00)
4	$ (5,760.00)	$ (2,304.00)
5	$ (4,608.00)	$ (1,843.20)
6	$ (3,686.40)	$ (1,474.56)
7	$ (3,276.80)	$ (1,310.72)
8	$ (3,276.80)	$ (1,310.72)
9	$ (3,276.80)	$ (1,310.72)
10	$ (3,276.80)	$ (1,310.72)
11	$ (1,638.40)	$ (655.36)
		Total Present Value of Bonus Depreciation:

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resent Value (PV) of
PV of Benefit
$16,071.43
($2,869.90)
($2,049.93)
($1,464.23)
($1,045.88)
($747.06)
($592.90)
($529.38)
($472.66)
($422.02)
($188.40)
$5,689.07

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Change in NPV Relative to Depreciable Basis

Bonus Depreciation Impact: Percentage change in the asset depreciable basis given different combinations of *IRS Asset Property Class* and *Asset Discount Rate*

		IRS Property Asset Class					
		3	5	7	10	15	20
Applicable Asset Discount Rate	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	3%	0.54%	0.99%	1.41%	2.02%	3.42%	4.38%
	6%	1.01%	1.82%	2.56%	3.57%	5.77%	7.13%
	9%	1.41%	2.51%	3.48%	4.76%	7.41%	8.90%
	12%	1.77%	3.10%	4.24%	5.69%	8.55%	10.04%
	15%	2.08%	3.59%	4.85%	6.41%	9.35%	10.77%
	18%	2.35%	4.00%	5.35%	6.96%	9.91%	11.24%
	21%	2.58%	4.35%	5.76%	7.39%	10.29%	11.52%
	24%	2.79%	4.65%	6.09%	7.73%	10.55%	11.68%

Assumptions:

1. The standard MACRS schedule is utilized with and without the bonus depreciation.
2. The discount rate used is consistent throughout the depreciable life of the asset.
3. The asset is retained for the entire depreciable time and embedded options are ignored.
4. The marginal tax rate does not change over the depreciable life of the asset.
5. The firm's marginal tax rate: 40.00%
6. The bonus depreciation first-year rate: 50.00%

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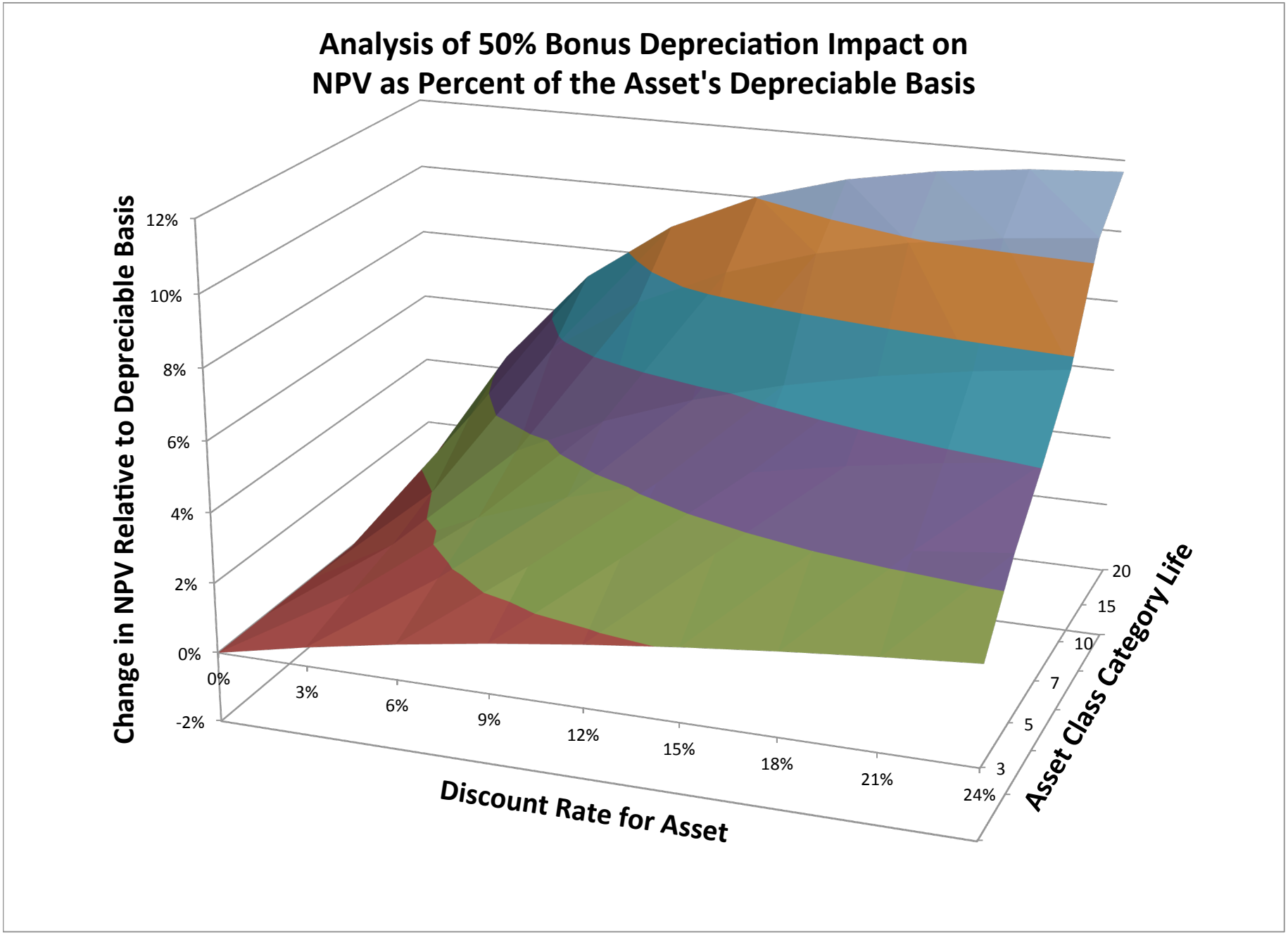

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