



## Research

# Tax Reform: The Non-Fight over Investment Incentives

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## Executive Summary

Will tax reform actually hurt growth? Effective corporate reform would lower the statutory tax rate to an internationally competitive level – say 25 percent – and move the U.S. toward a territorial tax system. To do so in a revenue-neutral fashion may require the elimination of accelerated depreciation, raising the concern that tax reform would harm investment and growth.

As a practical matter concern over the impact on investment incentives appear misplaced. As shown in the Summary Table eliminating accelerated depreciation would have a minimal impact in investment incentives, raising the tax costs of a \$1,000 investment by less than \$1 at most.

Summary Table						
The Tax Cost of Reform: Lost Incentives on \$1,000 Investment						
	Economic Life of Investment					
	3-Year	5-Year	7-Year	10-Year	15-Year	20-Year
Tax Cost of Reform*	\$0.42	\$0.50	\$0.65	\$0.90	\$0.47	\$0.52
(Percent)	(0.042%)	(0.050%)	(0.065%)	(0.090%)	(0.047%)	(0.052%)
*Present value of loss of tax shields moving from accelerated to regular depreciation; 25 percent tax rate.						

## Introduction

Will tax reform actually hurt growth? There is a growing consensus that the U.S. corporate income tax harms growth and international competitiveness. Accordingly, comprehensive corporate tax reform is one route to improved economic performance in the United States.<sup>[1]</sup>

Effective corporate reform would lower the statutory tax rate to an internationally competitive level – say 25 percent – and move the U.S. toward a territorial tax system, either in its entirety or as a hybrid system. To do so, however, requires “base-broadening:” the elimination of credits and deductions in order to offset the revenue loss of a lower tax rate.

One important potential base-broadener is the elimination of accelerated depreciation – a capital-cost recovery system intended to improve incentives for investment, and thus growth. In principle, this raises the concern that the reduced depreciation allowances would more than offset the effects of a lower tax rate, with the result that tax reform would harm investment and growth.

This short paper investigates this issue. In practice, concerns over the impact on investment incentives appear misplaced. Eliminating accelerated depreciation (in exchange for a 25 percent tax rate) would have a minimal impact in investment incentives, raising the tax costs of a \$1,000 investment by less than \$1 at most.

## **Investment Incentives and Tax Reform**

### *Taxes and Investment Decisions*

The impact of the tax code on investment incentives hinges on the balance between taxation of the return to investment and deductions for the cost of investment. To see this, suppose that a company can invest its funds and earn a market (risk-adjusted) rate of return,  $r$  – say, 16 percent. That is, for a \$1 investment, it earns back its principal (\$1) and a return of  $r$ , for a total of  $\$(1+r)$ .

Alternatively, it could invest its \$1 in capital expenditures – outlays to expand plant, equipment, or technological capital. If that choice yields a rate of return  $i$ , say 20 percent, then the \$1 investment covers the original cost plus the rate of return, for a total of  $\$(1+i)$ .

Obviously, the investment make sense as long as  $\$(1+i)$  exceeds  $\$(1+r)$ ; that is, as long as  $i$  is bigger than  $r$  – the investment beats the market rate of return. In this simple example, the 20 percent internal return dominates the 16 percent available in the market.<sup>[2]</sup>

Taxes affect the investment calculus. For the market investment, the return  $\$(1+r)$  is partially offset by a tax on the net earnings:  $t(1+r-1)$ , where  $t$  is the tax rate and  $r$  is the taxable return – the gross return  $\$(1+r)$  minus the \$1 deduction for the cost of the original investment.

Similar considerations apply to taxes and capital investment, except that the tax code may not permit a deduction for the full cost of the investment. Suppose that \$1 investment is permitted to deduct  $\$z$  for tax purposes. If  $z$  is 1, then a full deduction is permitted. At another extreme, a  $z$  of 0 would not permit tax-based recovery of capital costs.

In the presence of taxes, the comparison becomes:

$$$(1+r) - \text{Taxes} \quad \text{versus} \quad $(1+i) - \text{Taxes}$$

or

$$$(1+r) - t(1+r-1) \quad \text{versus} \quad $(1+i) - t(1+i-z)$$

or

$$$(1-t)(1+r) + t \quad \text{versus} \quad $(1-t)(1+i) + tz .$$

Clearly, everything hinges on the allowances for capital costs in the tax code. If  $z$  is 1 (“full cost recovery”), then the presence of taxes does not alter the investment decision. The after-tax return on the investment (15 percent) exceeds the after-tax return (12 percent) in the market.<sup>[3]</sup> At the other extreme, however, allowing for no capital cost recovery ( $z$  equal to 0) means that the market investment becomes more attractive, investment would be reduced and growth would be impaired.

### *Timing: The Heart of Capital Cost Recovery*

Real world capital cost recovery, also known as tax-based depreciation allowances, is far more complex than in our simple example. Firms making a capital investment become immediately eligible for a series of future tax deductions based on the value of their investment.<sup>[4]</sup>

Under straight-line depreciation, firms receive an equal deduction every year over the expected life of an investment. So, if a piece of equipment is expected to last 3 years, the firm deducts 1/3 of the cost each year for 3 years. Or, for a building expected to last 20 years, 5 percent could be deducted in each year.<sup>[5]</sup> Notice that in each case, the depreciation allowances total 100 percent of the cost of the investment.

Accelerated depreciation refers to any situation in which depreciation allowances are granted more quickly than straight-line. For example, a 3-year piece of equipment might receive 50 percent in year 1, 40 percent in year 2, and only 10 percent in year 3. More capital cost recovery is allowed early in the life of the investment, but the total is still 100 percent.

An extreme form of accelerated depreciation is expensing. Expensing is permitted the full cost of the investment to be deducted in the first year; *i.e.*, allowing a deduction equal to the expense of the investment. Notice again, however, that the total remains 100 percent, as no other deductions would be permitted.

The lesson from examining alternative capital cost recovery schemes is that they differ only in their timing. Each provides deductions equal to 100 percent of the investment cost. But accelerated depreciation (and, especially, expensing) front-loads the deductions, while straight-line stretches them out. They differ only because tax savings farther in the future are less valuable right now.

A convenient way to compare alternative capital cost recovery schemes is to compare the present value of the tax savings to which they entitle an investing firm. First consider an expensing scheme. Because all of the deduction is immediate, the present value of depreciation allowances for a \$1,000 investment is \$1,000. If the tax rate is 25 percent, this is tantamount to a tax saving of \$250.

Under accelerated depreciation, however, not all of the deduction is immediate. The future deductions are worth less in the present, making the present value of the total amount to less than \$1,000 and the tax savings

come to under \$250. This same insight is even more pronounced for the stretched out timing of capital recovery under straight-line depreciation; the present value of depreciation and tax savings would be even smaller.

How large these differences are depends on interest rates, which tell one how much market participants discount the future. If money 10 years from now is worth relatively little, 10-year rates will have to be fairly high to induce individuals to give up their dollars for 10 years. In contrast, low interest rates means that dollars now and dollars in the future are viewed as closer to equivalent.

### *Tax Reform and the Value of Capital Cost Recovery*

Cost recovery is pivotal in the 2013 tax reform debate. In an effort to get the corporate rate to 25 percent, some are advocating extensive base broadening. Importantly, one way to do so would be to move from the current system of accelerated depreciation (the “Modified Accelerated Cost Recovery System” or MACRS) to straight-line depreciation. Others will argue that to do so would offset the benefits of the lower tax rate, damage investment incentives, impair capital investment, and undermine growth – precisely the opposite of the desired result. Indeed, many of these same advocates argue that tax reform should move in the *other* direction and permit full expensing of all investment.

On the surface, it is quite a fight. Table 1 shows that in practice it is not.

Specifically, Table 1 examines the cost recovery implications of a \$1,000 investment for each of the 3, 5, 7, 10, 15, and 20-year expected lives. In each case, the table shows the depreciation granted in each year of the investment’s life under MACRS and straight-line depreciation. Thus, for example, in year 2 of a 3-year investment MACRS would grant \$444.50 in allowances, while straight-line would grant \$333.33.

The table also shows the present value of these same depreciation allowances, calculated using the current yield curve for corporate borrowers.<sup>[6]</sup> So, for example, these same allowances have a present value of \$441.10 under MACRS and \$330.79 under straight-line depreciation.

Shown at the bottom of the respective columns is the sum of depreciation allowances, which always totals \$1,000 (the assumed cost of the investment), and the sum of the present value of depreciation allowances. Finally, the bottom entry shows the tax cost (increase in present value of taxes) of moving from MACRS to straight-line depreciation. For example, the tax cost of reform is \$0.50 for a 5-year investment, \$0.65 for a 7-year investment, and \$0.52 for a 20-year investment.

Looking across the bottom row a simple truth emerges: not much is at stake in the battle over cost recovery systems. The largest tax cost is \$0.90 – 90 cents on a \$1,000 investment, or 0.09 percent. Some of the tax costs are not even ½ of this minuscule size.<sup>[7]</sup>

### **Conclusion**

Eliminating accelerated depreciation lowers the value of capital-cost recovery allowances by stretching out the period over which depreciation occurs. In the context of the 2013 tax reform debate, however, the impact on investment incentives is minimal.

[1] For a summary, see <http://americanactionforum.org/sites/default/files/Corporate%20Tax%209-26-12%20Final.pdf>