The Effect Of The Tax Reform Act Of 1986 On U.S. Manufacturing Corporations

by

Dr. George E. Moody, DBA
Clarion University of Pennsylvania

and

Don P. Holdren, Ph.D.
West Virginia University

This paper considers the impact of the Tax Reform Act of 1986 on capital intensive industries. While the findings in this report may not be applicable to service-type businesses, it was felt that the impact on manufacturing businesses would be the most severe. The specific areas of impact considered are investment tax credits, tax on foreign earned income, the change in depreciation, and the effect of lowering tax rates on the cost of capital. The authors reviewed the tax bill after it came out of the Joint Conference Committee ready for a vote of the Congress. In addition, studies were done using Pittsburgh Plate Glass for the investment tax credit effects and using General Motors and Chrysler for the cost of capital effects. Three of the four areas studied were found to impact negatively on either earnings or capital investment for manufacturing firms; so one would have to conclude that instead of being neutral, these new tax law changes will impact negatively on U.S. manufacturing corporations.

The federal government developed a policy in 1981 which provided a long needed and respectable incentive for capital intensive firms to invest. That policy was articulated in the Economic Recovery Tax Act of 1981 (ERTA). ERTA provided industry the Accelerated Cost Recovery System (ACRS), which reduced the maximum depreciable life of long term capital investment projects to 15 years. Even though this lifetime was extended to 18 years by the Deficit Reduction Act of 1984 (DRA), the incentive was still greater than the 30 year depreciation schedule that existed prior to ERTA.

With the shorter depreciable life and the added incentive of investment tax credits for capital investments, which was also implemented by ERTA, firms began investing. These capital investments, spurred by the new incentives, formed the basis for the economic recovery which ultimately pulled the country out of a period of recession and high inflation.

The Tax Reform Act of 1986

The Tax Reform Act of 1986, hereinafter referred to as TRA, is another major effort toward tax reform.¹ This paper addresses some of the law's provisions for four areas and its impact on capital investment and the firm's investment incentives. Specifically, the law's provisions which affect depreciation, investment tax credit, cost of capital and foreign tax credit are reviewed to show their potential impact on the capital incentive firm.

Investment Tax Credits

Investment tax credit (ITC) for capital investments generally ranges from 6.0% for three-year life property to 10.0% for five-to fifteen year recovery class property.² The new law eliminates this tax advantage for corporate investments. Therefore, capital investment will become more expensive, and the purchasing of new or replacement plant and equipment may be expected to decline.

The National Association of Manufacturers³ (NAM) testified before Congress that the repeal of the ITC would be the most significant area of the tax law. The ITC has a history of effectiveness in stimulating investment in productive plant and equipment.

ITC and ACRS. The law repeals the ITC for property placed into service after December 31, 1985.⁴ The revised ACRS rules will be effective for property placed into service after December 31, 1986. Still undefined is "investment tax credit transition rule property." These transition rules will define how depreciation rules will be applied to property placed into effect after July 31, 1986.

Earlier testimony by the NAM estimated that repeal of the ITC and modifying the ACRS depreciation will increase tax on capital by approximately \$260 billion over the period 1986-1990 inclusive. In five years, those two reforms would recoup the entire 1985 budget deficit!! The need to rely on the Gramm-Rudman Law to balance the budget would be significantly lessened. Repeal of the ITC and the proposed modified ACRS provisions combined could result in a significant reduction in business capital investment. This could lead to reduced production and employment and ultimately to a recession, if only a modest one, within six months after the law becomes effective.

Repeal of the ITC alone would be dramatic. The 1984 annual report of PPG Industries, Inc. shows the following information on PPG investment tax credits for 1982-1984.

EXHIBIT 1

IMPACT OF INVESTMENT TAX CREDITS ON PPG EARNINGS (Income and Tax Credits in \$Millions)

	<u>1982</u>	<u>1983</u>	<u>1984</u>
Investment Tax Credit (%)	(12.3)	(4.8)	(3.1)
Pre-Tax Income (millions)	203.60	376.50	526.90
Investment Tax Credit (millions)	25.04	18.07	16.33
Income After Tax w/ITC	155.00	233.00	303.00
Income After Tax w/o ITC	130.00	215.00	287.00
% Change in Income w/o ITC	-20.2	-8.37	-5.57
Effective Tax Rate(%) w/ITC	23.0	38.0	42.5
Effective Tax Rate (%) w/o ITC	35.3	42.8	45.6
% Change Effective Tax Rate w/o ITC	+53.5	+12.6	+7.29
Capital Spending of PPG (millions)	451.7	450.1	314.7

Total Capital Spending, \$1,216.5; Average Annual ITC, \$19.8
Increase in Tax Liability with TRA = $19.8 \times .34 = \$6.73$

The investment tax credits for each of those years averaged about 5.0% of the amount of capital spending. Repeal of the ITC would have the equivalent effect of an added 5.0% tax on the capital investments of PPG or an increased tax liability of \$6.73 million.

Foreign Earned Income⁵

The new law requires calculating tax credits on foreign earned income on a per country basis. This would replace the current method of "overall" foreign tax credit which permits averaging of taxes paid in high tax countries with those paid in low tax countries. Averaging, not per country, is a proper attribute of a foreign tax credit.⁶

Within the context of global business, averaging was a realistic way of dealing with the complexities of the international trade where business is ordinarily conducted on an integrated rather than a per country basis. Most countries that deal in international trade use a per country limitation that permits a form of averaging. None of these countries use a per country method resembling that developed by the TRA. The per country method may cause U.S. companies to be subject to greater taxation of foreign income than are their foreign competitors. The per country proposal would lead to an increase in the overall effective tax rate on foreign source income of U.S. business and would decrease U.S. competitiveness. To compensate for these higher taxes, corporations may be forced to move operations or to locate new operations to a more tax advantageous foreign country. The following exhibit shows the differences in the effect of a per country limitation and an overall limitation on a U.S. company.

EXHIBIT 2

COMPARISON OF PER COUNTRY LIMITATION AND OVERALL LIMITATION FOR A U.S. COMPANY WITH BUSINESS IN CHILE AND CANADA

	<u>Per Country Limitation</u>	<u>Overall Limitation</u>
1. Gross Foreign Source Income:		
a. Gross interest income earned in Canada	\$ 100	\$ 100
b. Gross interest income earned in Chile	100	100
2. Total foreign source income	\$ 200	\$ 200
3. Withholding Tax:		
a. 15% Canadian withholding tax (applied on gross income as prescribed by U.S./ Canada tax treaty)	15	15
b. No Chilean withholding tax	0	0
4. Total foreign tax	15	15
5. U.S. expenses allocated and apportioned to foreign income under Reg. Sec. 1.861-8		
a. Canada	90	
b. Chile	60	
6. Total Expenses	150	

7.	Foreign Source Net Income		
	a. Canadian source net income	10	
	b. Chilean source net income	40	
8.	Foreign-source net income	<u>50</u>	
9.	Foreign Tax Credit (FTC)		
	Limitations (34% of net foreign income equals pre-FTC U.S. tax liability)		17
	a. Canadian	3.40	
	b. Chilean	13.60	
10.	FTC		15
	a. Canada	3.40	
	b. Chile	0	
11.	Excess FTC		
	a. Canada (3a - 9a)	11.60	0
	b. Chile	0	0
12.	U.S. Tax Paid (9b)	13.60	2
13.	Foreign tax paid (4)	14.00	15
14.	Total tax paid (12 + 13)	<u>28.60</u>	<u>17</u>
15.	Effective tax rate on foreign source income (14 - 8)	57.2%	34%

The overall foreign tax credit limitation, through the averaging mechanism permits the U.S. taxpayer to pay an overall rate of tax equivalent to 34%. A per country limitation causes excess foreign tax credits (57.2% vs. 34%) as a result of our rules for allocating U.S. expenses to foreign source income; thus, it can be argued that \$10 of Canadian source income is subject to a \$15 Canadian tax and thereby an effective tax rate of 57.2% on overall foreign income.

The new per country amendment places U.S. business operating abroad at a competitive disadvantage compared to their foreign counterparts operating abroad. Foreign investments and operations by U.S. businesses provide significant benefit to the U.S. economy in the form of jobs, increased exports trade balance and tax revenue. To compensate for these higher taxes, corporations may be forced to move operations or to locate new operations to a more advantageous foreign country.

The per country process is based on the premise that the overall limitation leads U.S. companies to distort their worldwide investment decisions for purely tax motivated reasons, giving many taxpayers a tax motivated incentive to invest abroad rather than in the U.S.

To the extent that excess foreign tax credits provide an incentive to move the location of financial assets to generate low taxed foreign source income, U.S. tax laws have been amended to limit such artificial activity.

To the extent that lower U.S. corporate tax rates provide an incentive for foreign corporations to locate in the U.S. to take advantage of the now lower rates, foreign governments can be expected to amend their tax laws to prevent the loss of production and employment in their countries.

Depreciation⁷

The current law, 1984 DRA, provides for ARCS (Accelerated Cost Recovery System) which allowed accelerated depreciation for fixed investment over an eight year period and a straight line depreciation for the remaining ten years. The 1986 TRA extends the life for real estate and fixed plant to 31.5 years, and permits only straight line depreciation over this period. Exhibit 3 shows the comparison of the amount of depreciation allowed between the two methods. Probably the most interesting numbers are the cumulative amounts of depreciation per \$1000 of investment for the 5, 10, 15, and 18 year periods. The current law provides for more depreciation each period both because of a shorter depreciation life and a faster write off in the first eight years. In fact, the middle column shows a 252.6% greater deduction for five years declining to a 174.9% greater deduction over the 18 year ACRS period.

However, this does not tell the whole story, because one might think that with greater amounts of depreciation in the early years, ACRS would be superior, and thus capital intensive firms would be at a disadvantage by having to go to 31.5 years straight line depreciation. Exhibit 4 is constructed on the assumption that a firm has an income before tax of \$1,000 and the depreciation is taken from the ACRS schedule on Exhibit 3 for \$1,000 of investment. The straight line depreciation remains constant at \$31.75 per year over the 31.5 year life.

EXHIBIT 3

DEPRECIATION CALCULATION PER \$1,000 INVESTMENT

YEAR	ACRS (CURRENT LAW)		Percent Difference	STRAIGHT LINE (TRA)	
	Annual	Cumulative		Annual	Cumulative
1	97			31.75	
2	88				
3	79				
4	72	<u>401</u>	252.6%	31.75	158.75
6	58				
7	53				
8	48				
9	44				
10	44	<u>648</u>	204.1%	31.75	<u>317.50</u>
11	44				
12	44				
13	44				
14	44				
15	44	<u>868</u>	182.3%	31.75	476.25
16	44				
17	44				
18	44	<u>1,000</u>	174.9%	31.75	571.50
.					
.					
.					
31.5	44			31.75	<u>1,000.00</u>

NOTE: The only depreciation changes for years 19 through 31 would be under TRA.

After tax income instances is calculated by the following formula:

$$I_{AT} = (I_{IB} - D) (1-t)$$

The terms are defined as follows:

I_{AT} = Income after tax

I_{BT} = Income before tax

D = Depreciation

t = the maximum tax rate permitted

Surprisingly enough, one can see that the income after tax for this hypothetical example is higher under the new law than under the old one, even though depreciation expenses are less than under the ACRS method. The reason for this is that the change in maximum tax rates from 46% to 34% has more of an effect than the change in depreciation methods. Thus, one would have to conclude that capital intensive firms will be better off in the sense that they will have higher income after tax with the TRA of 1986. In fact, the income is 31% greater the first year and falls to 18% greater in the last ten years.

EXHIBIT 4

EARNINGS AFTER TAX [\$1,000 OF EARNINGS BEFORE TAX AND BEFORE DEPRECIATION]

<u>YEAR</u>	<u>ACRS EARNINGS AFTER TAX</u>	<u>NEW LAW EARNINGS AFTER TAX</u>	<u>% DIFFERENCE</u>
1	487.42	639.05	131.05
2	492.50		
3	497.30		
4	501.00	639.05	126.57
5	504.90		
6	508.70		
7	511.04	639.05	123.80
8	514.10		
9	516.20		
10	516.20	639.05	118.34
11	516.20		
12	516.20		
13	516.20		
14	516.20		
15	516.20		
16	516.20		
17	516.20		
18	516.20		
19	NA		
20	NA		

Cost of Capital

One might think that lowering the marginal tax rate on corporations from 46% to 34% would be a benefit, and to the extent that corporations will pay fewer dollars in taxes for a greater amount of income, this is true. However, there is also a negative impact to the lowering of this rate, and that is through its effect on the cost of capital to the firm.

Probably the best way to observe this phenomenon is to look at two well known manufacturing firms to see the actual effect. Before looking at the two companies, General Motors and Chrysler, some explanation of the methodology, assumptions and data sources is in order. The cost of capital refers to the overall cost of funds to a business. This calculation is critical because decisions about long term capital investments are made using the cost of capital. One common technique is to use this cost as a cut off or critical rate, and the procedure is to use this cost as a cut off or critical rate, and the procedure is to accept those investment projects which produce a higher return than the cost of capital (K). One common way to calculate this cost is to use the weighted average cost where:

$$K = \frac{K_{d1} (1-t)}{T} + \frac{K_{d2} (1-t)}{T} + \frac{CK_s}{T}$$

The variable are:

K = Cost of component in question

T = Total liabilities and equity or total assets

K_{d1} = cost of short term debt

K_{d2} = cost of long term debt

C = Total capital account including retained earnings

t = nominal tax rate

s = common stock

The data for balance sheet numbers and percentages was taken from Moody's Industrial Manual, and the cost figures were taken from the October 23, 1985 Wall Street Journal (WSJ). To ease computations, some simplifying assumptions were made, namely: all short term debt was assumed to cost the prime rate; all long term debt was evaluated at the rate of the bond issue quoted in the above WSJ; and the cost of common stock was calculated by the following formula:

$$K_C = \frac{D_1}{P_0} + g$$

where $\frac{D_1}{P_0}$ was obtained from the current yield quote in the WSJ; and the g was calculated as growth in earnings for the last 10 years for GM, and the last 4 years for Chrysler. The following six tables show the weighted average cost calculations for GM and Chrysler with a corporate tax rate of 46% and the new proposed tax rate of 34%.

TABLE I
CALCULATION OF COST OF CAPITAL FOR
GENERAL MOTORS WITH A 50% CORPORATE TAX RATE*

		Weight (%)	Before Tax Costs (%)**
Short-term Debt	\$14,909,000	24.30	9.50
Long-term Debt	25,145,900	40.96	11.00
Preferred Stock**	283,600	---	---
Common Stock	<u>21,053,500</u>	<u>34.30</u>	<u>12.20</u>
Total Liabilities and Net Worth	<u>\$61,392,000</u>	<u>99.56</u>	

*Balance sheet numbers are in thousands.

**Note: the preferred stock for General Motors was not considered because it represents less than 1/2% of the total capitalization.

TABLE II
WEIGHTED COST OF CAPITAL CALCULATORS FOR GM
WITH A 50% CORPORATE TAX RATE

	Weight (%)	After Tax Cost (%)*	Weighted Component Cost (%)**
Short-term Debt	24.30	4.75	1.12
Long-term Debt	40.96	5.50	2.25
Common Stock	34.30	12.20	<u>4.18</u>
Weighted Average Cost			<u>7.55</u>

*After Tax Cost = Before Tax Cost Times (1-t)

**Weighted Cost = Weight Times After Tax Cost

TABLE III
WEIGHTED COST OF CAPITAL CALCULATORS FOR GM
WITH A 34% CORPORATE TAX RATE

	Weight (%)	After Tax Cost (%)*	Weighted Component Cost (%)**
Short-term Debt	24.30	6.27	1.424
Long-term Debt	40.96	7.26	2.974
Common Stock	34.30	12.20	<u>4.185</u>
Weighted Average Cost			<u>8.683</u>

*After Tax Cost = Before Tax Cost Times (1-t)

**Weighted Cost = Weight Times After Tax Cost

TABLE IV
CALCULATION OF COST OF CAPITAL FOR
FOR CHRYSLER CORPORATION*

		Weight (%)	Before Tax Costs (%)
Current Liabilities	\$4,115,700	45.41	9.50
Long-term Debt	1,641,100	18.11	10.00
Common Stock	3,305,900	36.48	30.60
TOTAL	\$9,062,700	100.00	

*All balance sheet numbers are in thousands.

TABLE V
CALCULATION OF COST OF CAPITAL FOR
CHRYSLER WITH A 46% CORPORATE TAX RATE

	Weight (%)	After Tax Cost (%)	Weighted Component Cost (%)
Current Liabilities	45.41	4.75	2.16
Long-term Debt	18.11	5.00	.91
Common Stock	36.48	30.60	11.16
Weighted Average Cost			14.25

TABLE VI
CALCULATION OF COST OF CAPITAL FOR
CHRYSLER WITH A 34% CORPORATE TAX RATE

	Weight (%)	After Tax Cost (%)	Weighted Component Cost (%)
Current Liabilities	45.41	6.27	2.846
Long-term Debt	18.11	6.60	1.195
Common Stock	36.48	30.60	11.163
Weighted Average Cost			15.204

To update the previous data, calculations were done in August 1986 to check the effect of the current financial markets on the cost of capital for General Motors and Chrysler. The main difference between these and the previous calculations is that the prime rate, the proxy rate for the cost for short term debt, has decreased from 9.50 to 7.50 percent.

When one compares these Tables VII, VIII, IX, and X with the previous calculations, one can see that the cost of capital for Chrysler with the new tax law is still about 1% higher than with the previous law even with the lower short term rate of 7.50%, which is the most recent short-term rate. There is still a 1% difference in the cost of capital with the 1986 TRA. Thus, the previous conclusion is reaffirmed -- that is, the effect of the new law on the

TABLE VII
COST OF CAPITAL FOR
GENERAL MOTORS WITH A 46% CORPORATE TAX RATE

	Weight (%)	After Tax Cost (%)	Weighted Component Cost (%)
Short-term Debt	24.30	4.05	.9842
Long-term Debt	40.96	5.94	2.4330
Common Stock	34.30	12.20	4.1846
Weighted Average Cost			<u>7.6018</u>

TABLE VIII
COST OF CAPITAL FOR
GENERAL MOTORS USING THE 34% TAX RATE

	Weight (%)	After Tax Cost (%)	Weighted Component Cost (%)
Short-term Debt	24.30	4.95	1.203
Long-term Debt	40.96	7.26	2.974
Common Stock	34.30	12.20	4.185
Weighted Average Cost			<u>8.362</u>

TABLE IX
COST OF CAPITAL FOR
CHRYSLER USING THE 46% TAX RATE

	Weight (%)	After Tax Cost (%)	Weighted Component Cost (%)
Short-term Debt	45.41	4.05	1.839
Long-term Debt	18.11	5.40	.978
Common Stock	36.48	30.60	11.163
Weighted Average Cost			<u>13.980</u>

TABLE X
COST OF CAPITAL FOR
CHRYSLER USING THE 34% TAX RATE

	Weight (%)	After Tax Cost (%)	Weighted Component Cost (%)
Short-term Debt	45.41	4.95	2.247
Long-term Debt	18.11	6.60	1.195
Common Stock	36.48	30.60	11.163
Weighted Average Cost			<u>14.605</u>

cost of capital is to increase it. Therefore, the expected end result would be a lower level of capital investment for those firms with larger amounts of long term debt because of the fewer projects which would meet or exceed the higher cost of capital. General Motors also experiences an increase in the cost of capital of about the same magnitude of Chrysler.

One interesting conclusion that one can observe from these calculations is that in both the case of General Motors and Chrysler, the cost of capital would increase by about 1% with a change in the corporate tax rate. The reasons for this is that debt becomes less advantageous because it increases the firm's after-tax cost of capital. Since cost of capital is used in the capital budgeting process, this implies that some projects that would have been profitable with a lower cost of capital, will not be profitable with the new increased cost of capital caused by the TRA. While it is difficult to estimate exactly how much of a decrease in capital investment would result, it is clear that, *ceteris paribus*, there would be a decrease in such activity.

FOOTNOTES

1. Sources of information for the discussion of the Tax Reform Act of 1986:
 - (1) Democratic Study Group. U.S. House of Representatives. Fact Sheet. No. 99-35. August 21, 1986.
 - (2) "Comparison of Tax Reform Provisions of H.R. 3838 As Passed By the House and Senate," Joint Committee Print. U.S. Government Printing Office. July 15, 1986.
 - (3) House of Representatives, H.R. 3838, Report No. 99-313, 99th Congress, 2d. Session, An Act to Reform the Internal Revenue Laws of the United States, Committee - Reported Amendment in the Senate. (As approved by vote of the full House and Senate in September, 1986.) Short title: "Tax Reform Act of 1986."
2. Internal Revenue Code Sections 46(c) (2) and (c) (7); and IRS Regulation Section 1.46-3(b).
3. This analysis is based on the comments of the National Association of Manufacturers, made by Paul R. Huard, before the Committee on Ways and Means, House of Representatives, June 26, 1985.
4. Title II, Subtitle B, Sec. 49.(a), TRA 1986.
5. Op.C.T., Title IX, Foreign Tax Provisions.
6. This discussion is based on testimony of the Chamber of Commerce of the United States, by Richard W. Rahn, before the House Ways and Means Committee on June 26, 1985.
7. Title II, Subtitle A. Sec. 201, et. seq, TRA 1986.

GLOSSARY

The various tax acts and their acronyms are listed below.

ERTA	Economic Recovery Act of 1981
DRA	Deficit Reduction Act of 1984
TRA	Tax Reform Act of 1986