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Why Tax Reform Lowers Interest Rates

Executive Summary

- There is a strong consensus that prospective tax reform policies will lead to rising interest rates.
- We believe this is an incorrect presumption based on an over-simplified Keynesian analysis that ignores both the incentive effects of reduced taxes and the means by which the tax cuts will be financed.
- This paper examines tax cuts in economic theory as well as the historical relationship between reduced taxes and interest rates.
- We explore two possible financing methods for lower tax rates: the proposed border adjustment tax and disallowing the deductibility of corporate interest expenses.
- We also analyze the proposed immediate expensing of capital equipment, which would stimulate investment by eliminating the distorting effects of corporate income taxes.
- Our conclusion is that, contrary to popular opinion, tax reform will likely lead to lower interest rates and provide a more favorable outlook for the bond market.

Introduction

Judging by financial market reaction and popular opinion, there is a strong consensus that prospective tax reform policies will lead to upward pressure on interest rates. We will argue here that the effects of reductions in marginal tax rates are at worst uncertain and that the presumption actually should be that tax rate reductions will result in *downward* pressure on yields.

The belief that tax cuts raise interest rates comes from an over-simplified Keynesian analysis that ignores the incentive effects of cuts in marginal tax rates on saving, investment and labor-supply decisions. Once these incentive effects are incorporated into the analysis, the effects of tax cuts are at worst uncertain. Furthermore, once the means of financing the tax cuts are included in the analysis, it is clear that cuts in marginal tax rates work to *lower* interest rates.

As this last point indicates the importance of financing tax reform, we'll examine in detail the two possible financing methods for lower tax rates: the border adjustment tax (BAT) and disallowing the deductibility of corporate interest expenses. We'll also analyze another proposed feature of tax reform, the immediate expensing and deducting of capital expenditures.

On all these points, our conclusion is that—if anything—tax reform should work to lower yields. What is more, we find past US experience with tax cuts and tax reform to be consistent with this finding. We think these perspectives provide a more favorable outlook for bond market prospects than popular opinion is positioned for.

Tax Cuts in Economic Theory

(For a formal derivation of the following results, see the [Technical Appendix](#)¹ to this paper.) Of course tax cuts work to lower interest rates. How could it be otherwise? Cuts in marginal tax rates first and foremost work to boost the returns on bonds and other assets. People buy bonds at the pre-tax yield, but they realize the after-tax yield, and cuts in marginal tax rates boost that after-tax yield.

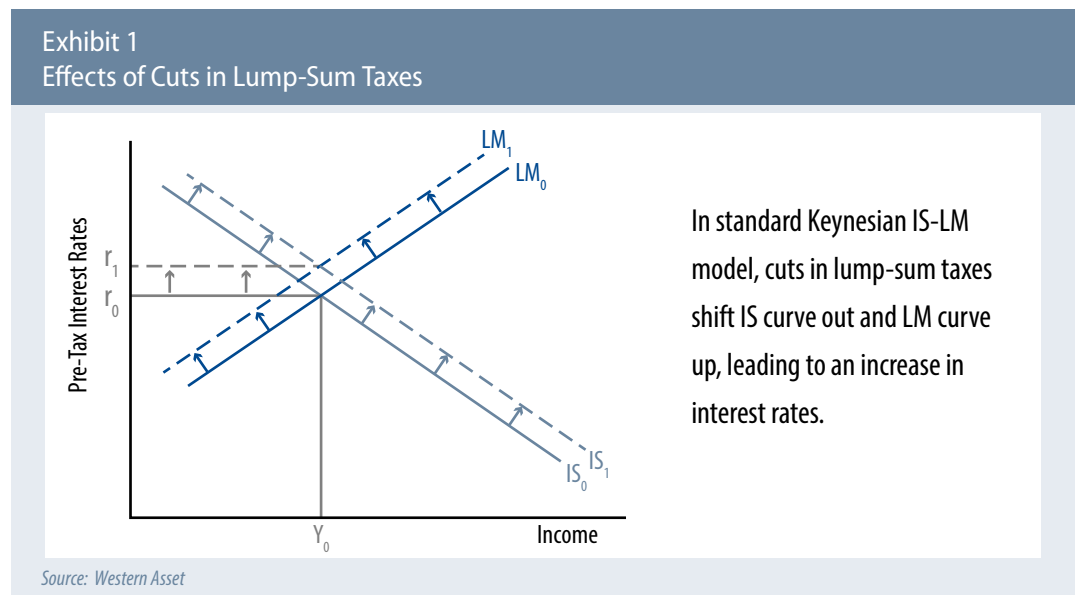
Suppose the government decided to raise the coupon payment on a bond you hold, from 4% to 5%. How could that not increase your demand for the bond? How could it not raise the price of the bond? Cuts in marginal tax rates have exactly the same effect. With a 4% pre-tax yield and a 35% marginal tax rate, you net an after-tax yield of 2.60% (65% of 4%). Cut the marginal tax rate to 20%, and your after-tax yield suddenly jumps to 3.20% (80% of 4%).

That increases your demand for the bond, pushing up its price and pushing down pre-tax yields. When government action—a cut in marginal tax rates—increases after-tax returns, market forces work to push those after-tax returns back toward their previous levels, in the process reducing pre-tax yields below previous levels. This is the standard result in any economic analysis.

This is exactly how tax cuts work in a neoclassical growth model. Lower tax rates increase the demand for assets as well as the supply of labor. The economy responds with lower interest rates, higher employment, higher investment and faster economic growth.

Keynesian analysis turns these results on their head, but only by ignoring the incentive effects of tax cuts. Instead, tax cuts are implicitly modeled as declines in lump-sum taxes, which boost after-tax income, but don't change incentives to save, work or invest. Even then, the tax cuts work to raise interest rates only if there is no consideration of the means by which tax cuts are financed.

"Lump-sum taxes" refer to taxes that are levied in fixed-dollar amounts without regard to the level of income. If the government taxes you, say, \$3,000 per year, regardless of the amount of your income, and then changes that levy to \$2,000, again regardless of your income, then after-tax returns on assets are unchanged and you have no incentive to increase your work effort. In this rarefied environment, the only impact of the tax cut is to raise after-tax income, thence consumer spending. And within the Keynesian model, that raises income and interest rates (Exhibit 1). Notice also that *under these circumstances, tax cuts work to lower investment*, precisely because they raise interest rates. Again, this is the "standard" Keynesian result.



These results depend crucially on the specification of cuts in lump-sum taxes. In the real world, income taxes are paid as a percentage of income, and the tax cuts proposed presently are cuts in marginal tax rates. Once cuts in marginal tax rates are considered, rather than cuts in lump-sum taxes, the effects on income and interest rates become completely different. The Keynesian consumption function needs to be altered so that consumption depends on after-tax income and after-tax interest rates, rather than pre-tax levels. Similar changes need to be made to the money demand function within a standard Keynesian IS-LM (investment-savings, liquidity-money) analysis.

Once these changes are made, there is no longer any indication that lower tax rates lead to higher interest rates. Rather, the lower tax rates imply higher after-tax interest rates that work to boost saving, restrain the demand for money, and in general push interest rates lower, working to offset the effects of the tax cuts on incomes.

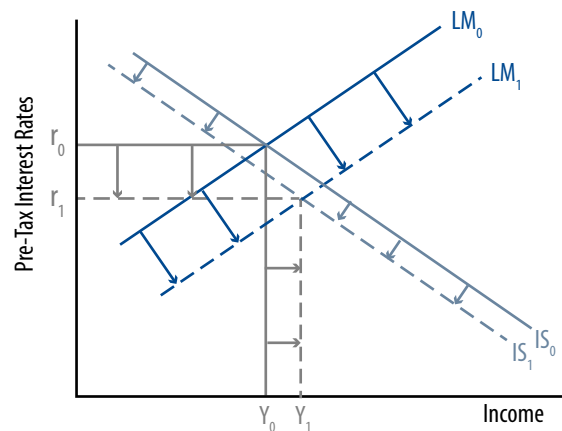
Again, the standard, naive Keynesian analysis assumes away the important incentive effects of taxes by focusing on lump-sum taxes rather than marginal tax rates. In a more comprehensive analysis, the "income effects" of the tax cut that work to raise interest rates are offset by the "substitution effects" of lower marginal tax rates on spending and saving. The effect of tax cuts on pre-tax interest rates is uncertain.

And this is the case when there is no explicit coverage of the means by which tax cuts are financed. When those financing means are considered, they work to offset the income effects of the tax cuts, leaving only

the substitution or incentive effects. The conclusion then is that cuts in marginal tax rates clearly lower pre-tax interest rates.

Suppose cuts in marginal tax rates are financed by removal of various tax preferences. “Tax preferences” are defined as concessions or loopholes that reduce tax burdens for some individuals. Cutting these tax preferences alongside cuts in marginal tax rates leaves government revenues unchanged. With no change in tax revenues, there is no direct change in after-tax income, so no income effects from the tax cuts. Only the substitution effects are in play (Exhibit 2). So, even in a simplistic Keynesian IS-LM analysis, a cut in marginal tax rates financed by removal of tax preferences works unambiguously to lower interest rates.^{1,2}

Exhibit 2
Effects of Financed Cuts in Marginal Tax Rates



When the tax cut is a cut in marginal tax rates financed by removal of tax preferences, IS and LM curve shifts down. Pre-tax interest rates clearly decline.

Source: Western Asset

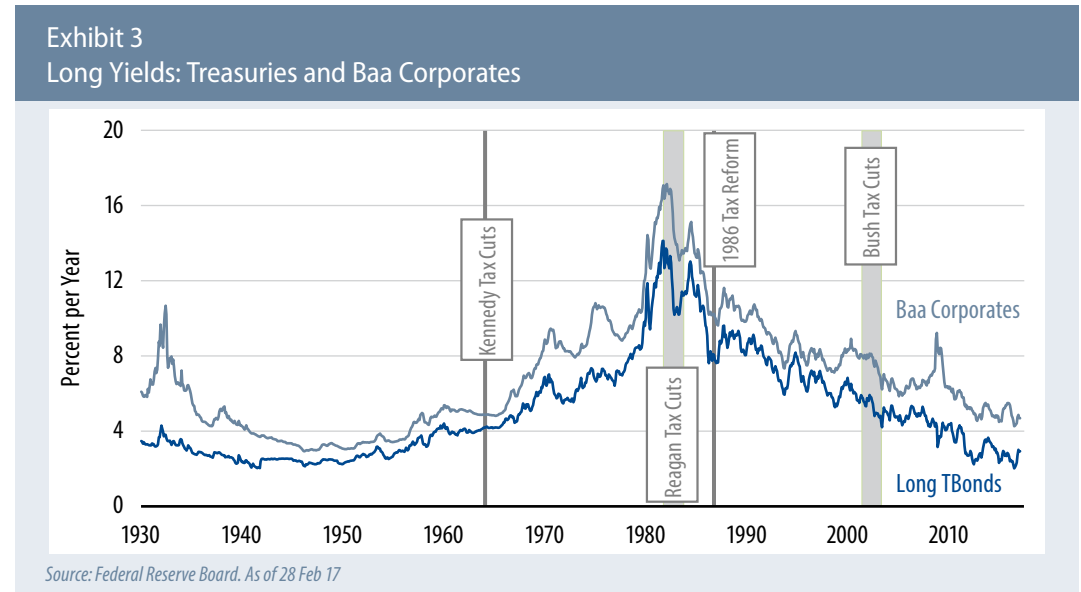
Of course, one way or the other, tax cuts need to be financed. If there is not explicit current financing, the presumption is that taxes will have to be raised in the future to finance tax cuts—and debt issuance—to-day. In this case, too, the income effects of tax cuts would again disappear. Future taxes would have to be sufficiently higher to pay both interest and principal on government debt issued today. In other words, the present value of future levies would have to equal the present value of today’s cuts.³ So, overall wealth and income for the economy would be unchanged.

Here again, only the incentive effects of tax cuts would remain. Individuals benefit from lower tax rates today but then anticipate higher tax rates tomorrow. Work and income would be transferred from the future to the present to take advantage of the tax “holiday.” Consumption would be transferred to the future—and saving would rise—to take advantage of the higher after-tax returns *currently* available on saving and investment. Pre-tax interest rates would have to decline to bring present consumption back up to sufficient levels.

Again, all these results hold even in a Keynesian analysis, once the analysis is properly configured to incorporate the effects of marginal rates on behavior and the financing of the tax rate cuts is explicitly considered. Analyzing tax-rate cuts without specifying the method of financing them is an incomplete analysis. Simply modelling marginal rate cuts as if they were cuts in lump-sum taxes is an inaccurate treatment of the effects in question. Yet, only in such flawed analyses is there any presumption that tax cuts raise interest rates. Meanwhile, again, a neoclassical economic analysis immediately finds that tax cuts lower interest rates.

Tax Cuts in Historical Experience

History certainly does not support the contention that tax cuts raise interest rates (Exhibit 3). There are four prominent episodes of significant tax cuts in postwar-US history: the Kennedy cuts of the early-1960s, the Reagan tax cuts of 1981–1983, tax reform under Reagan in 1986, and the Bush tax cuts of 2001–2003. None of these were associated with sustained increases in yields.



The Kennedy tax cuts were legislated in February 1964 in the middle of a long uptrend in yields following the emergence from the Great Depression. Yet, yields were flat in the years immediately following the cuts. While it is debatable whether yields actually declined in response to the Kennedy cuts, there is no sign whatsoever that the yield uptrend was exacerbated by those tax cuts.

The 1981–1983 Reagan tax cuts occurred at the outset of a long downtrend in yields, as inflation rates were brought steadily lower and yields declined in response. At that time, as now, various pundits asserted that those tax cuts would keep inflation high and raise interest rates still higher. Both fears proved unfounded, and here too, there is no sign of the tax cuts having an upward impact on yields.

With the tax reform of 1986, actually signed into law in March 1987, yields were on the rise briefly through October of that year, thanks to 4.5% real growth in 1987 and attendant Federal Reserve (Fed) tightening. That rise was short-lived, with yields dropping back over 1988–1990 even as the economy continued to grow and with the tax reform still in place.

The Bush tax cuts over 2001–2003 appeared during and just after a mild recession, with interest rates declining substantially throughout the period. Here again, one could argue that the declines in yields were due to cyclical pressures rather than lower marginal rates. Again, however, there is no indication that tax cuts retarded that progress toward lower yields. If anything, the declines in yields were more pronounced immediately following the tax cuts.

Earlier, we mentioned the financing of tax-rate cuts as being an issue for their effect on yields. Of the four episodes considered here, only the Tax Reform of 1986 was explicitly financed by reductions in tax preferences. So, it is ironic that this instance is the only one wherein yields rose even briefly following the change in tax rates. Once again, the rise in yields then was short-lived and can be attributed to the 1987 acceleration in growth and the Fed's response to that, both of which began prior to enactment of the tax reform.

Taking a Swing at the BAT

Our analysis of the theoretical effects of tax cuts placed great importance on the means by which cuts in marginal tax rates are financed, so we should analyze the financing mechanisms currently under consideration within the tax reform agenda. The next three sections address these mechanisms in a non-partisan way, analyzing but not endorsing nor criticizing. One such proposal is the Border Adjustment Tax (BAT). This new tax would allow exports to be excluded from a corporation's taxable revenue, while imported supplies would no longer be a deductible corporate expense.

In effect, the BAT would subsidize exports and tax imports. It would be a source of financing for corporate tax reform because imports exceed exports by about \$545 billion per year.⁴ So, in the event of a cut in corporate tax rates to 20%, it is commonly claimed that the BAT would generate \$109 billion per year.

Advocates of the BAT claim that it would lead to a comparable appreciation of the dollar that would remove any burden to importers or boon to exporters. With a 20% corporate tax rate, the dollar would have to appreciate by 25% to accomplish this. Thus, proponents argue that the BAT would raise dollar exchange rates by 25% and thus leave trade flows undisturbed.⁵

A possible counterargument against this reasoning is that such a 25% appreciation of the dollar would disrupt portfolio balance for both US and foreign investors, causing a move out of dollar assets that would pull dollar exchange rates below that initial appreciation.⁶ Similarly, a 25% dollar appreciation would be an issue for proprietorships and S corporations involved in foreign trade, as well as for individuals travelling abroad, or those importing or exporting directly. As these entities do not pay corporate income taxes, they would not accrue the export subsidies or import taxes of the BAT, only the impacts of dollar appreciation.

For all these reasons, the dollar could be expected to appreciate by something less than 25% in the event of a BAT, in which case trade flows would be affected, the revenues raised by the BAT would be something less than 20% of the current trade deficit, and there would be shifts in global capital flows caused by whatever dollar appreciation the BAT did induce. Those global capital flows out of dollar assets would tend to raise interest rates, thus offsetting some of the tendency toward lower rates induced by lower marginal tax rates.

Disallowing Interest Deductions Will Induce Widespread Circumvention

All interest expenses were formerly tax deductible for individuals and for businesses until the 1986 reform, at which time deductibility of personal non-mortgage interest was disallowed. It is not surprising that disallowing corporate interest has been proposed as a way of financing corporate tax reform this year.

If interest income were no longer tax deductible, while interest income were still taxed, that would introduce a "wedge" between the costs of borrowing (now measured by pre-tax interest rates) and the benefits of lending (still measured by after-tax interest rates). Because of that wedge, financial market operations would be severely disrupted unless interest deductibility continued to be allowed for banks and other financial intermediaries, where interest costs embody the vast majority of operating expenses.

And as long as financial entities were allowed to deduct their interest expenses, there would be vast incentives for companies to circumvent the effects of the interest deductibility "ban" via financial innovation. For example, industrial companies would have incentive to *lease* equipment from financial companies, rather than having to borrow funds to *buy* equipment. If a financial company leased capital equipment to an industrial company, the leasing costs would be a deductible expense for the industrial, while the financial would still be able to deduct the interest costs by which it financed its purchase of the equipment.

In much the same way, the removal of deductibility of non-mortgage personal interest in the 1986 reform effectively created both the retail car-leasing business and the home equity line of credit industry. The morphing of commercial banking into one large leasing business would merely be history repeating itself.

Alternatively, any operable distinction between financial and nonfinancial corporations would disappear, all due to efforts to circumvent the new rule. Holdings of corporate cash would shrink dramatically as companies would pay down now non-deductible debt, holding only enough cash as needed for working capital purposes. Corporations would also issue debt through foreign subsidiaries, taking advantage of the ability to deduct interest expenses abroad.

To the extent that corporations were unable to fully circumvent the disallowance of interest deductions, corporate debt issuance would decline, and this would induce downward pressure on yields. This extent would be small, however, since there would in fact be widespread opportunities to circumvent the new rule. On all these counts, the tax revenue raised by disallowing interest expense would be meager.

Attendant to the disallowance of corporate interest expensing have been various proposals to phase in these effects or to grandfather existing debt issues. We have already discussed the effects of “grandfathering” financial corporations. Phase-ins or other modifications of the disallowance would merely create more avenues to game the system, further reducing the revenues raised by the interest deduction disallowance.

Expensing Investment

Another element of tax reform proposals is the immediate expensing of capital equipment. Even apart from marginal tax rate reductions, this move would be a reform in and of itself. Making investment immediately expensible would all but eliminate the distortions to investment activity caused by corporate income taxation.

When a corporation invests in physical capital, it harvests only the after-tax returns on that capital. When a firm can immediately expense the investment, its after-tax cost of the equipment declines. While it might pay \$1 million for the equipment up front, the government effectively pays \$350,000 of that cost (assuming a 35% tax rate), since the firm can take a \$1 million write-off on its taxes from the equipment purchase. So, the after-tax return on the investment need be sufficient only to match the after-tax cost of the equipment, not the pre-tax cost.

The reason gradual depreciation of capital inhibits investment is that the depreciation allowances occur only over time. With immediate expensing, the present value of depreciation allowances is 100% of the cost of equipment. Under gradual depreciation, that present value is less than 100% of the cost of the capital, and the higher the tax rate, the less the present value of those depreciation allowances will be. So, expensing capital investments provide an incentive to boost investment even apart from what is going on with tax rates.

According to government data, as of 4Q16, nonfinancial corporations claimed depreciation allowances at a rate of \$1.32 trillion per year, while depreciable capital expenditures were \$1.64 trillion.⁷ Switching from the current practice to immediate expensing would thus cost 35% of the difference between these two figures, or about \$112 billion per year. Were corporate tax rates cut to 20%, the cost would be \$64 billion per year. When investment increases in response to this change, the revenue losses would be higher, but by necessity the increase in GDP would be much higher than said revenue losses.⁸

This change would benefit growing companies more than contracting ones (since for a growing company, CAPEX exceeds currently calculated depreciation allowances). It would also benefit profitable companies more than unprofitable ones, since unprofitable companies would not get the full benefit—or perhaps any benefit—from immediate expensing.

Conclusions

Any explicit financing source for marginal tax rate cuts will prove to be politically contentious. Importers are already massing to oppose the BAT. Financial companies will come together similarly to oppose interest disallowance and likely will be joined by industrial companies with highly leveraged balance sheets.

The simple fact is that cuts in marginal tax rates need to be financed, and financing means going some group's collective ox. Failing to finance tax cuts explicitly means they will effectively be financed by everyone, and perhaps over-financed,⁹ with much the same macroeconomic effects. Here too, there would be political opposition, in this case from fiscal hawks.

Given all the political dimensions, it would be speculative to project specific features of whatever tax reform—if any—is eventually passed by Congress. In fact, it is not clear that any comprehensive bill will pass. Of the financing methods proposed, we believe the disallowance of interest deductions will prove to be the most contentious and least effective, thus least likely to be enacted. For that matter, though, enacting the BAT will be no easy matter.

We haven't yet mentioned the repatriation of earnings that US corporations have piled up abroad. If corporate tax rates are indeed meaningfully reduced, repatriation of offshore earnings should occur essentially automatically. This is because US firms pay US corporate profits taxes on offshore earnings only to the extent that US tax rates are higher than the rates paid in the country where the profits were initially booked. So, if the US rate is dropped to 20%, firms would typically face no further taxation in the US when offshore profits are repatriated.

Repatriation is an issue only if US corporate tax reform fizzles altogether or fails to bring US rates below those prevailing abroad. If political divisiveness does prevent a comprehensive corporate tax reform from passing, a less comprehensive reform would be the combination of expensing investment alongside some temporary concessionary tax treatment of repatriated profits. Such concessionary treatment would provide some revenues to help pay for investment expensing, and, as discussed above, investment expensing would be a meaningful tax reform in and of itself.

Whatever the political outcome, our analysis here makes clear that we don't see tax reform as a negative for bonds. The Keynesian analysis that professes to find interest rates rising in response to tax cuts is not relevant to cuts in marginal tax rates, especially when likely methods of financing the tax cuts are considered.

Of course, it may just be that the popular opinion is based on the belief that *any* change that boosts economic growth also pushes up interest rates. This is obviously not the case, however, with respect to stronger growth induced by stimulative monetary policy. It is also clearly not the case with respect to changes intended to stimulate growth from the supply side—rather than from the demand side—such as cuts in marginal rates.

And no, this conclusion does not depend on assumptions of self-financing tax cuts a la a Laffer Curve. Again, in this analysis, we have explicitly stated that tax cuts need to be financed. Yet even in this context, we find no substance to the claim that cutting taxes implies rising interest rates.

We're not claiming that a huge bull market in bonds is in the offing. Rather, our assertion is that the current market narrative—that everything connected with the Trump election victory implies rising yields—is incorrect. We certainly contest the narrative with respect to the effects of tax cuts. We'll deal with the issues of growth, Fed rates hikes and other bond-market issues at a later time.

- ¹ <http://www.westernasset.com/us/en/pdfs/whitepapers/why-tax-reform-lowers-interest-rates-2017-04-appendix.pdf>
- ² Alternatively, assume that government spending were cut enough to finance the lower tax rates. As shown in the Appendix, this means of financing tax rate cuts results in the same decline in pre-tax interest rates as when tax rate cuts are financed by cuts in tax preferences. However, there is less stimulus to income.
- ³ This is the concept of Ricardian equivalence, that future tax burdens affects current decisions just as much as do current tax burdens. Some commentators flatly reject this concept. It is undeniable, though, that individuals do anticipate future burdens from current government debt issuance. The emergence of the TEA Party over the last seven years is testament to these perceptions. The only relevant issue is whether the public en masse perceives the present value of those burdens correctly or else overstates or understates them. Ricardian equivalence requires that individuals correctly evaluate these burdens. Keynesian stimulus from deficits requires that the burdens be chronically underestimated. Given that the US tax system is so steeply progressive and given that middle-income individuals such as TEA Party enthusiasts decry the burdens of the debt, it would seem to make as much sense to say that the public overestimates the present value of the future burden of current deficits. After all, it is unlikely that TEA Party members will actually be the ones paying higher taxes in the future.
- ⁴ This is the 4Q16 level of net exports in the National Income and Product (GDP) Accounts, as per *Bureau of Economic Analysis*. Note, though, that figure includes exports and imports by non-corporate entities.
- ⁵ The dollar would have to rise by 25% to offset a 20% BAT because $(1+25\%)*(1-20\%) = 1$. The argument that dollar exchange rates would indeed appreciate to this extent has been made by Martin Feldstein, in the 1/6/17 *Wall Street Journal*, as well as by others.
- ⁶ Proponents of the BAT state that since the combination of the BAT and a 25% dollar appreciation leaves trade flows unchanged, it also leaves national saving flows in balance, so that there is no problem on the balance of payments side. This argument ignores portfolio balance issues. Under a monetary approach to exchange rate determination, the exchange rate is seen as the price the price of one currency in terms of another, and exchange rate levels are determined by the demands for and supplies of the two currencies. Under this specification, an appreciation of the dollar would increase the share of dollar assets in global portfolios and reduce the share of non-dollar assets. If global portfolios were in balance prior to the dollar appreciation, they would certainly be out of balance after it, and investors would move some of their portfolios out of dollar assets. With the BAT in place, at pre-BAT exchange rates, goods flows would be out of balance, but global portfolios would be in balance. With the BAT in place and a 25% appreciation, trade flows would be in balance, but global portfolios would be out of balance. So, the dollar would settle at a level somewhere in between, and there would be some effect on trade flows.
- ⁷ These figures are 4Q16 estimates of total depreciation allowances and total capital investment, respectively, as per the source in footnote 4. These figures include investment by non-corporate entities and so may overstate prospective revenue losses.
- ⁸ Every extra dollar invested in capital equipment would cost the government \$0.20 of current revenue, but it would generate more than a dollar present value of future output—counting both profits and workers' wages—thus generating more than \$0.20 in present value of future tax revenue.
- ⁹ See note 3.

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