

VIOLETING THE GOLDEN RULE: FLEEING THE NEXT GENERATION FROM THE BACKS OF THE PAST

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INTRODUCTION

THE GOLDEN RULE OF PUBLIC FINANCE HAS several dimensions and implications. It suggests that public investment spending (in the form of debt) is justifiable if the return on that investment exceeds financing costs (the cost of carrying and servicing that debt). It further requires that financing costs accrue over time in a manner consistent with the inter-temporal benefits derived from the deployment of the debt-financed asset.¹ The intent is to specifically guard against the transfer of economic burdens to generations that do not experience the project's economic benefits, thus, prohibiting intergenerational equity violations and guarding against saddling future generations with burdens of paying for the consumption of current generations. While this "golden rule" has, in some states, (and some countries)² been legislatively adopted, it is more often advisory and fails to be universally applied to both the acquisition and disposition of assets.

With significant implications for the golden rule, a new finance trend has developed (heralded as an innovation in public finance) and is spreading like wildfire across the states. Much like a garage sale, but with physical assets that are still regularly used in the provision of public services and not with surplus items that are in the back of the closet, state and local governments are selling to private investors highways and other properties for immediate cash. Some are brownfield assets, while others involve franchise opportunities for construction of new assets, but all bring funds into government treasuries.

The reasons are not surprising; it is politically expedient in that it brings revenue and the promise of services without the requirement of a tax or charge levied to pay for the service. The results are far from benign, however, and likely have serious intergenerational equity and efficiency ramifications. Unfortunately, using proceeds from the sale of government assets as revenue to cover operating costs and thinking you have made the public better off is about the same as burning pieces of your house for heat and thinking that

you are better off because you haven't had to buy firewood.

The trend is an outgrowth of sale and lease back arrangement for assets such as city halls of the 1980s and the more recent lease of at least \$16 billion in transit assets.³ However, the current manifestation has far more significant implications than the federal tax law inspired fiscal benefits of those schemes. It involves either the sale (or long-term lease) of public capital assets or the issuance of sole supplier contracts for the development and operation of public transportation rights-of-way.⁴ Current examples include the 99-year \$1.8 billion dollar lease of the Chicago Skyway, Indiana's 75-year, \$3.8 billion lease of the Indiana Toll Road, Virginia's lease of the Pocahontas Parkway, plans for private construction and operation of toll and limited access diamond lanes over a 14-mile expansion of the Capital Beltway and a 50-year lease of the Dulles Toll Road, Texas Governor Perry's plan for construction of as much as 4,000 miles of private toll roads, and Chicago's recent approval of a \$2.5 billion, 99-year lease of Midway Airport.

Applications abound. Akron voters recently defeated (by 63 percent to 37 percent on Tuesday, November 4, 2008) a proposal labeled the "Akron Scholarship Plan" to lease the city sewage system and use the capital payment to fund college tuition at Akron colleges and trade schools. These projects are part of a broader attempt to extract the capital value of public assets often to provide operating subsidies to services benefiting current populations (Olson, 1965).

THE SCENARIO

Sale/lease/contract payments are made as lump-sum distributions at the beginning of the period, based on the presumed present value of the contract (based on presumed returns to the contractor over the life of the asset lease).⁵ Proceeds bolster revenues for current state (and local) government operations, alleviating the need for additional current period revenues. In instances of the lease of

existing assets, current gubernatorial administrations (and state legislators) are liquidating previous generation’s investments in assets (extracting rents) while saddling future generations with the costs. This is in an attempt to extract economic value and to reap short-term (political and financial) benefits of a current revenue infusion. In the case of contracts for the development, operation and pricing of new transportation assets, current actors seek to extract the capital value of the future stream of returns to the private firm in order to benefit the current population (and government officials) again at the expense of future generations. In both cases, spatial monopolies are being established and public choices about future capacity needs and facility pricing are being replaced by private ones, presenting potentially serious ramifications for efficient use of existing assets and future transit system investment.

CONTRACT CLAUSES RAISE ISSUES

Contracts frequently include anti-competition clauses and surrender essential elements of transportation planning (see Table 1). The implications are astounding. Such contracts are justified on the bases of the “competitive market.” That is, under the assumption that the process for determining net present value is competitive and that the market possesses sufficient information to accurately evaluate risk over the course of the next 100 years. There are many factors that suggest that both of these assumptions are incorrect. The result is less competition

and higher risk evaluations, and, thus, less than full valuation of assets. The likely outcome is a seriously underpaid contract price. Even if payments do reflect the true present value of extractions, the intergenerational implications remain.

The creation of a private spatial monopoly (particularly in transportation) has serious implications; this is clearly demonstrated by experience with private traction and plank road companies in U.S. cities at the turn of the previous century (Holli, 1969). Further, as William Vickrey (1986) showed, payments extracted from a congestible public good (in the form of tolls) are likely to be many times greater than the financial costs of constructing and maintaining the asset. Still, these tolls are willingly paid by the public to escape congestion and conserve time. The result is the potential for public revenue generation absent deadweight loss. These surplus “public” resources can then be reprogrammed to any public function and improve the overall operation of the revenue generation system. There is little reason to believe that public benefit is to be gained from the extraction of these excess rents by private actors and much to suggest substantial public cost and inefficiency.

THE GREAT MOTIVATION

Public comment by legislative and administrative actors involved in the sale of these assets indicate that the great motivation was the desire

Table 1

<i>Project</i>	<i>Date</i>	<i>Price* (\$Million)</i>	<i>Term (Years)</i>	<i>Winning Bidder</i>	<i>Number of Bidders</i>	<i>Monopoly Terms</i>
Chicago Skyway	Jan-05	\$1,830	99	Skyway Concession Company (Cintra & MIG)	3	
Indiana Toll Road	Jan-06	\$3,800	75	Statewide Mobility Partners (Cintra & MIG)	4	Non- Competition Clause
Pocahontas Parkway	May-06	\$297	99	Flour-Daniels >> Transurban Group	1	
Capital Beltway	Dec-07	\$1,000	80	Fluor-Transurban	1	
Dulles Toll Road (Greenway)	Sep-95	\$350	Privately Owned (60-year rights- of-way concession)	MIG; formerly Toll Road Investors Partnership II (Bryant/Crane Family LLC and Kellogg Brown & Root)	1	Non- Competition Clause

for a revenue infusion without the political cost of raising taxes or themselves raising tolls.

There are many alternatives to asset divestiture that do not create enormous negative consequences. These include public ownership (with or without contracted operation), with retention of public control of pricing and political stamina to price appropriately and/or the issuance of long-term revenue bonds predicated on the revenue stream from future tolls. The latter of these would allow the same extraction of future revenue streams for the present (however dubious), while maintaining public control over the asset.

METHODS OF ANALYSIS

To begin to assess the full implications of asset divestiture, we must evaluate the specific terms of the agreements to determine whether the economic value received by the state is consistent with the value of the asset. The obvious beginning point is the (1) payment received by the state compared to the likely future net income stream of the asset. This, however, provides little insight into the (2) balance of aggregate social benefits and costs, nor a direct conclusion regarding (3) issues of intergenerational equity. These later issues require a more complicated assessment (Bailey, 1987). As an element of the complication, we must understand how divestiture has impacted the financial/economic position of the associated parties. A complete view also requires consideration of the effect of divestiture on other holdings and/or future endeavors. The assessment provided here is directed primarily at issue one (1), however, the results have significant implications for conclusions regarding issues two (2) and three (3). If the first issue cannot be satisfied, there is scant hope of satisfying the other two.

DIFFICULTIES OF PUBLIC ASSET VALUATION

Latent assets confounded valuation techniques because they failed to provide adequate signals to potential investors (Brennan, 1990). Rational investors can only value assets that provide some indicator of worth. As a result, traditional valuation instruments, which assume rationality, are somewhat ineffectual when latency is significant. Latency is a function of the uncertainty. For infrastructure privatization, latency is a function of the uncertainty associated with economic evolution

(and long-term demand). Infrastructure assets operate in a dynamic environment; much can change over the course of a 75- or 99-year lease term. Investors accept the risk of losses along with the possibility of significant gains. But to what extent is risk sharing symmetrical across parties? Levels of uncertainty tend to stack the deck in favor of the private investors. This is particularly so given the static nature of value calculation and the notion that a reasonable analysis must consider the probability that the asset will increase in value over time.

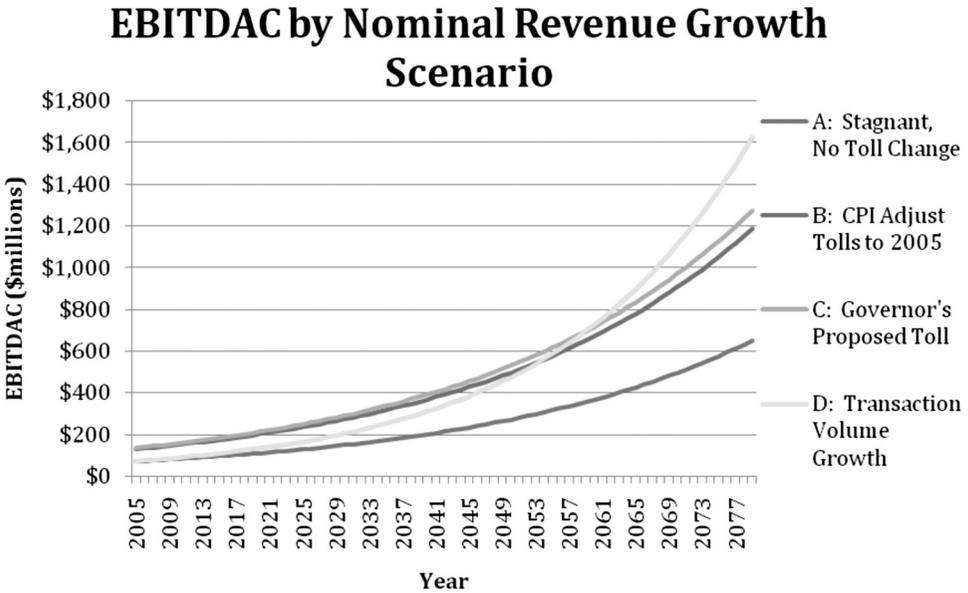
The likely extent of asymmetry is informed by an understanding of the context. The public suppliers, the intrinsic value of the asset, as well as its political capital, are both in play and impacts decision making among governmental officials who must win elections to retain office. Efforts to amass political capital are thinly veiled, as evidenced by the Akron sewage proposal. Asset sale may be pursued as a convoluted method of financing current operating programs (for a specific constituency) rather than for an objective directly related to the asset in question. In contrast, the only commodity of consequence to the private sector is the intrinsic value of the asset. To the extent that public suppliers stand to gain utility from both political capital and the funds raised from sale, they are positioned a priori to sell the asset at a discount (relative to the full value the public supplier places on the asset).

VALUATION

Scenarios Based on Net Revenue Flows

Figure 1 shows the effect of different nominal revenue growth scenarios on annual net earnings generated by the Indiana Toll Road (in millions).⁶ Prior to its lease, Indiana had among the lowest per-mile toll rates in the nation and had not increased tolls on the road since 1985, therefore real toll rates were declining through 2005. The “no price change” scenario (scenario A) is provided as a baseline, reflecting these stagnant 1985 toll levels and current volume. Toll rates are held at constant prices after 2005 by incorporating a 3.06 percent price inflation factor for years 2006 through 2079 based on the average rate of inflation between 1985 and 2005. In scenario B, we observe the effects on nominal revenue if toll rates were increased in 2005 and beyond to maintain their real 1985 values. We do so by adjusting annual revenue and earnings

Figure 1: Earnings Profiles Over Time



from 1986 through 2005 for CPI driven changes in tolls. The resulting earning increase for our base year of 2005 is 82 percent. For years beyond 2005, we project nominal earnings growth (but constant annual real earnings) by annually inflating earnings by 3.06 percent (the average rate of inflation between 1985 and 2005). This produces nominal growth, no real price change, and no real growth.⁷

The State’s RFP for the asset lease included a proposed toll increase of 113 percent for commercial vehicles and 72 percent for automobiles to take effect April 2006. Weighting these increases based on the 2004 distribution of toll collections, this results in a 96 percent overall toll increase (assuming relative volume is maintained). The actual toll schedule increase specified in the contract, however, allows somewhat higher increases to be phased in by 2010, with actual weighted toll increases to date of 81 percent. In addition, a formula allows additional tolls increases based on a 2 percent annual minimum and an annual maximum of the greater of the change in CPI or growth in per capita GDP. The application of this formula to the period between 1985 and 2006 would have allowed a 267 percent increase in tolls (NW Financial Group, 2006). Given this, scenario C projects net earnings based on the proposed 96 percent increase in tolls included

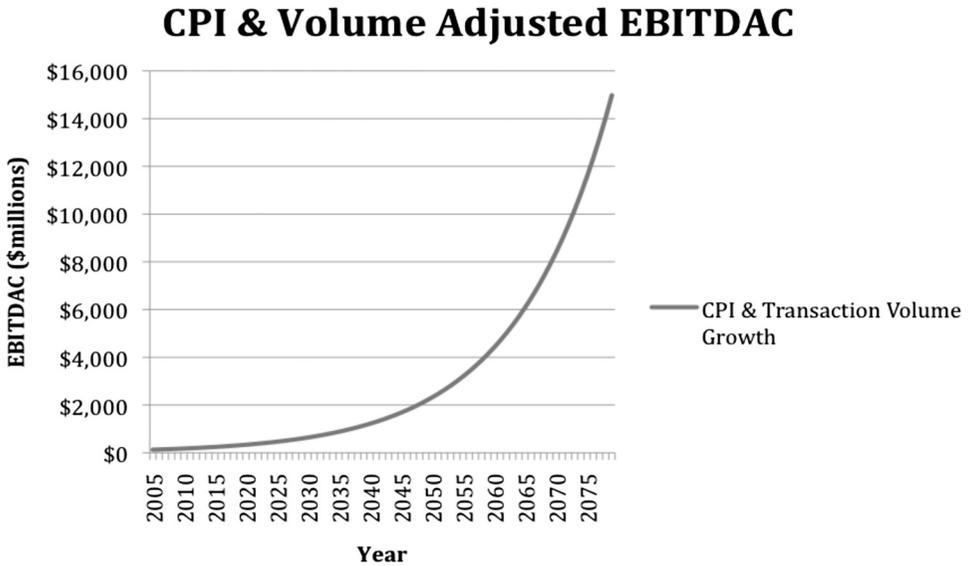
in the RFP. Scenario D captures the effect of traffic volume increases, absent increases in the actual tolls, maintaining real value of future tolls at their nominal 2005 levels (Scenario A). This is based on previous patterns of volume increase over the 1985 through 2004 period. The effect of increased traffic volume is staggering. The Indiana Toll Road did not increase tolls during this two decades span, while the rate of increase in the number of transactions (vehicles) averaged approximately 4.34 percent.

A fifth scenario (scenario E) incorporates both projections of increased volume (D) with inflation adjusted tolls (B). It is likely conservative, as income increases would suggest that “real” toll increases (at least at the rate of income growth) are viable without significantly affecting volume. Still, revenue growth in this scenario dwarfs the other growth scenarios to such an extent that it requires separate display in Figure 1a.

Present Value

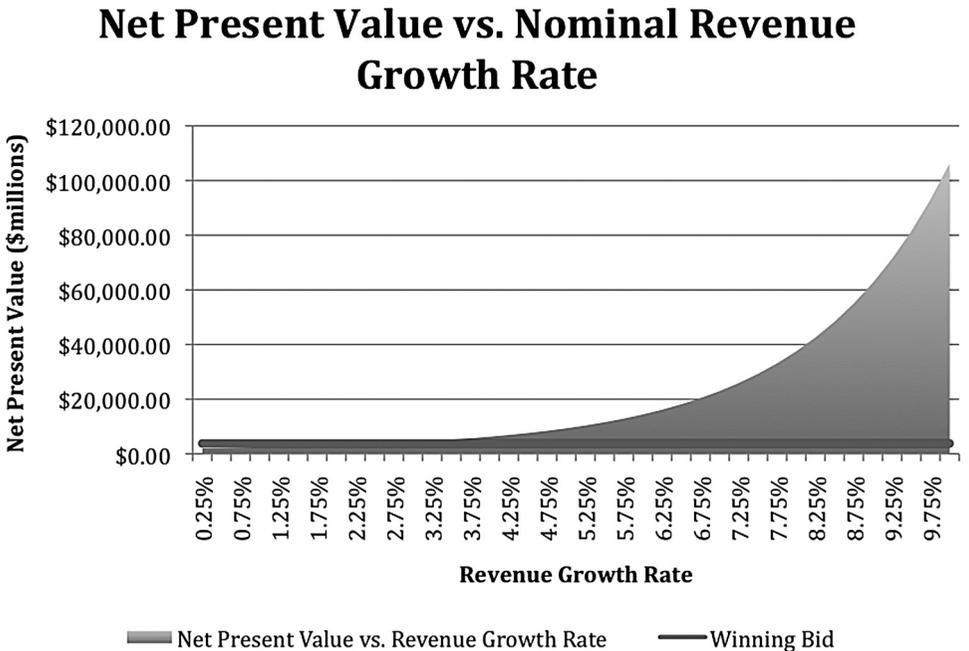
Revenue growth translates into asset growth via its impact on present value. To understand the implications of revenue growth on the value of the asset, it is useful to visualize the impact of growth on net present value, given a [real] discount rate of 3.5 percent. Figure 2 depicts this relationship

Figure 1a: Earnings Profiles Over Time (Scenario E)



The gulf in magnitude is so great that it would significantly limit the observable distinction between the other scenarios if it were included in the same figure.

Figure 2: Asset Value as a Function of Revenue Growth



for the Indiana Toll Road. Furthermore, the winning bid of \$3.8 billion is juxtaposed to provide a sense of the scale of revenue growth impact on asset value.

It is apparent that relatively moderate growth has a significant effect on the value of the underlying asset. It is also clear that the potential value of the asset dwarfs the bid. However, given the high level of uncertainty with respect to the path of rate increases over time, as well as the evolution of the demand function for the asset, it is understandably difficult to incorporate such asset value growth into the calculation of worth. The disparity between the true and calculated values of the asset depends on the valuation method used.

Valuation Omissions

The value of public assets is indeed difficult to isolate. In the private sector, managers need only consider the “bottom line” profit. Other values may be incorporated to be sure, but none are vital to the survival of the organization. The public sector is bound by the values that define the expectations of the citizenry. These additional values are not easily quantified, and have inhibited the development of a satisfactory public asset valuation model. How does one value representativeness, accountability, or fairness? More broadly, how does one calculate the value of the “public interest”? The second and third order effects of basic infrastructure are difficult to calculate with precision.

While we may not be able to accurately quantify the benefit of the public interest, most would agree that it is indeed valuable. However, traditional valuation techniques tend to discount assets (from the public perspective) due to their failure to accommodate such concerns. Techniques such as Net Present Value and the derivative State Preference Approach rely on the fundamental assumptions that characterize discounted cash flow analysis. Specifically, the analyst must be able to effectively forecast cash flows upfront. Forecasting cash flows incorporates significant uncertainty and the techniques used must rely on significant static assumptions. However, the factors that drive revenue volume vary with time, creating difficulties in incorporating changes into assessment of asset potential.

The Floor: Minimum Bid Price

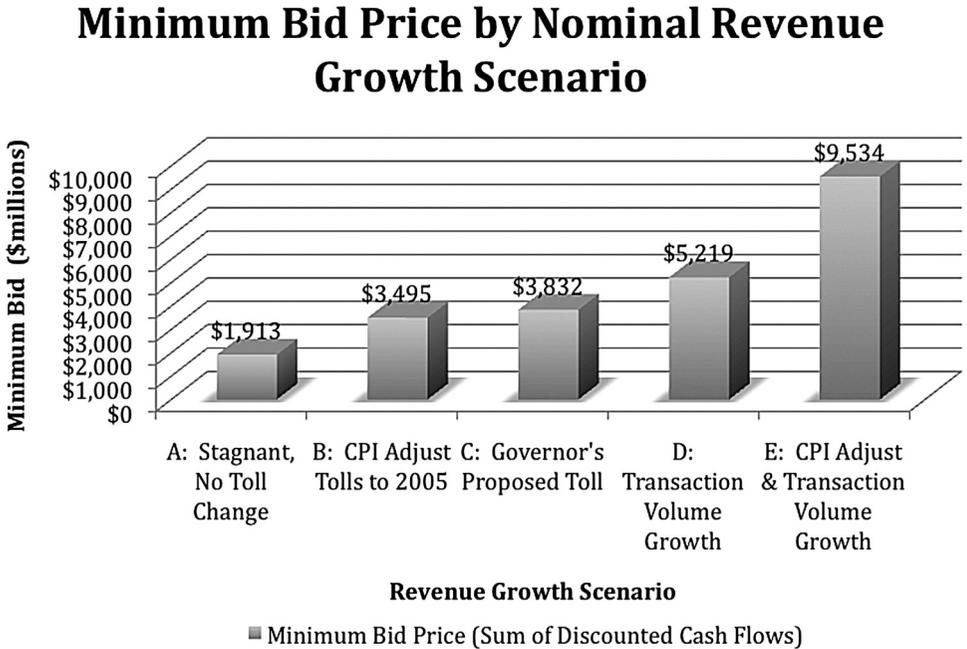
Figure 3 demonstrates the variance in the minimum bid price (or the sum of future discounted cash flows, discounted at 3.5 percent) across the

five previously identified revenue growth scenarios. In both Scenario D (volume growth) and Scenario E (incorporating inflation and demand growth), the growth scenarios are adjusted here (and made more conservative) due to the fact that the historical volume (demand) increase occurred while the real price charged for using the toll road declined. Because of this, aggregate demand increases may be overestimated. The rate of volume growth assumed previously was 4.34 percent. We apply a price elasticity of demand of $-.28^8$ to recalculate expected volume growth resulting in a conservative estimate. Assuming a constant inflation rate over the historical period of volume growth of 3.06 percent results in a price adjusted historical growth rate of 3.484 percent per year $(4.34 - (3.06 * .28))$. These scenarios are additionally conservative because they reflect no real price increase even in the face of aggregate increases in income, population, and congestion. There is, however, an upper limit on growth created by the capacity of the current infrastructure. We would contend, though, that the competition sheltered right-of-way is more valuable than the capital investment and that private incentives for increasing capacity would likely emerge as a vehicle for increasing net revenue return.

The implications of the results are stark. The constant real price, constant volume scenario (B) results in an expected value of \$3.5 billion, just \$300 million less than the lease payment. The assumption of a completely static state returns almost the entire value of the lease. Further, the scenario incorporating the proposed toll increases included in the State’s request for proposals results in an expected value nearly identical to the lease payment (at \$3.83 billion), again assuming no volume increase. Considering only volume increases (absent even a nominal toll increase) results in a \$5.22 billion valuation, 37 percent greater than the actual lease payment. Finally, our conservative growth (constant price) scenario (E) suggests that the state of Indiana received an amount equal to only 40 percent of (or \$5.734 billion below) the actual economic value of the physical asset.

It could be argued that the identified growth scenario trends are predictable and lend themselves to estimation. Even if incorporated and accurately reflected in the price received, this would not fully compensate the public for the disposition of the asset. Not all of the value associated with roads is intrinsic to the assets themselves. To the extent that

Figure 3: Minimum Bid Price as a Function of Revenue Growth



this road is one portion of a larger transit system, the NPV method fails to account for systemic potential, a uniquely public concern.

While, for simplicity, the analysis presented here relies on a constant elasticity of demand, in practice this assumption is overly constrictive (Evans, 1994). Price changes do not produce consistent responses at all economic levels. Precipices, localized price points at which relatively radical changes occur with each unit change in cost, can and will occur. Realization of this concept, and the fact that private organizations are inclined to optimize revenue streams empirically, provides a context in which profit-maximizing incentives may not coincide with socially optimal results. While the government should be in the business of optimizing the allocation of economic resources (in this case maximizing the volume of non-hypercongestive traffic flow), firms are in the business of maximizing their own wealth.

While the agreements surrounding the transfer of these infrastructure assets are technically leases, the terms of the contracts involve the transfer of nearly all rights of ownership to the private inves-

tors. There are two important implications associated with this transfer. The first has to do with the nature of the conditions leading to it. As previously stated, the public impetus for these transfers was not driven by the fundamentals of the financial aspects of the agreements themselves, but rather by external pressures inciting action to gain, recoup, or prevent further loss of political and/or financial capital.⁹ This brings us to the second implication. If this is indeed the case, it is probable that the option value of deferred divestiture (Ross, 1995) was unconsidered (or at least discounted). The extent to which volatility of interest rates increased the value of *future* projects (the same project at future times) represents real losses in the net worth of government holdings. In addition, optionality plays a role with respect to the rights of ownership beyond the right to sell. Specifically, the value of the option to modify or destroy the asset should be included in the analysis.

Long-Term Leasing as Debt

A persuasive argument can be made for viewing the long-term lease of assets as public borrowing

(Bowman, 2008). Effectively the government acts as the debtor in this transaction, receiving a lump-sum payment in return for amortized payments over the length of the lease term. In this case, the periodic payments are the revenue streams from the leased asset. In this light, the financial appeal of leasing arrangements can be strengthened given the arbitrage opportunities that arise from the disparities in financing costs for public and private entities. The capacity of governments to issue low interest bonds to finance the construction of assets and effectively sell them (albeit temporarily) to the private sector (which typically operates with a weighted average cost of capital that exceeds public bond coupon rates) provides these opportunities.

COST OF CAPITAL DISPARITIES: BOND V. LEASE

Analysis within this framework yields insights regarding additional pitfalls that may increase the detrimental effects of the toll road transactions discussed here. First and foremost, the cost of capital disparity should provide a positive valuation difference from the perspective of the government. The asset being of greater value to the investors, the public sector should use its power in the transaction to leverage a share of the asset value gains that accrue over the life of the term. There are examples of this occurring in practice to a limited extent. The Capital Beltway agreement requires Fluor-Transurban to share any gains that exceed an 8.1 percent return on investment, whether it be from revenues or refinancing. As of December 2007, it was the only project of its kind to have such a provision.

Second, terms that exceed 40 years are problematic. Longer leases restrict public policy action, and require explicit forecasting of major maintenance action and component overhaul (which is quite difficult to predict). Furthermore, given that long-term leases are effectively equivalent to a bond issue for the sale amount, the transactions should be comparable. However, bonds issued by governments typically have a 30-year maturity. The disparity in the obligation's terms makes the relative instrument cost somewhat unclear in the absence of analysis. *In other words, the cost of the lease transactions (revenues generated by the assets) that is incurred after the first 30 years may represent losses to the public with no commensurate benefit.*

ROLE OF INTEREST AND DISCOUNT RATES

To provide greater transparency of the relative costs of instrument, we analyzed the sensitivity of input assumptions. Determining the cost disparity between long-term leases and bond issuance requires a host of assumptions about the bond interest rate, discount rate, and expected revenue growth over the life of the applicable term. The following figures attempt to display the sensitivity of the relative cost disparity to these assumptions. All of the graphical representations depicted below assume a 30-year maturity for bonds and a 75-year term (Indiana Toll Road model) for the lease. Figure 4 assumes a 3.5 percent discount rate and revenue growth at a rate of 3.484 percent.¹⁰ Holding these parameters constant, the figure shows the effect of bond interest rates on the cost disparity.

The linear decline as a function of interest rate is expected; only the value of the bond issuance is affected by this variable. As we can see, the relative cost is highly dependent upon the coupon rate, and the subsequent valuation of the bond. As is also apparent, bonds are decidedly preferred to leases over the entire relevant range of public sector interest costs. All of this also assumes proper valuation, which is certainly suspect for the Indiana case.

Figure 5 demonstrates the nonlinear variation of relative cost when the discount rate is altered. The discount rate affects the value of both the bond issuance and the lease. The effect is nonlinear because the discount rate affects both valuations at differing rates, as a function of the relative magnitude of future revenue streams. This figure assumes the same constant revenue growth, but this time the coupon rate is held constant at 5 percent while the discount rate is permitted to vary.

Again, it is quite apparent that the input assumptions are significant factors in the determination of relative value. This suggests that blanket statements about the relative *explicit* cost between public finance instruments cannot be made. Each individual project has situation-specific variables that drive the fundamentals of the project. However, across the most relevant range, bonds appear decidedly superior and the differences in the magnitude of costs for choosing one over the other are again stark.

Choosing lease finance could lead to substantial losses. However, this is not the entire story. To fully assess potential outcomes, we must consider how

Figure 4: The Relative Benefit of Utilizing Bonds with a Constant Discount Rate

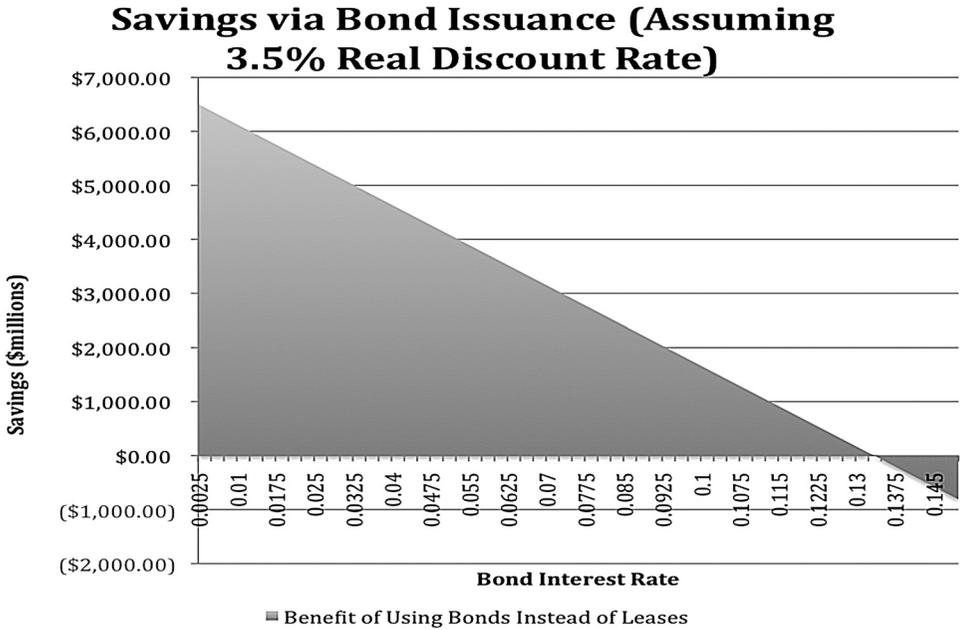
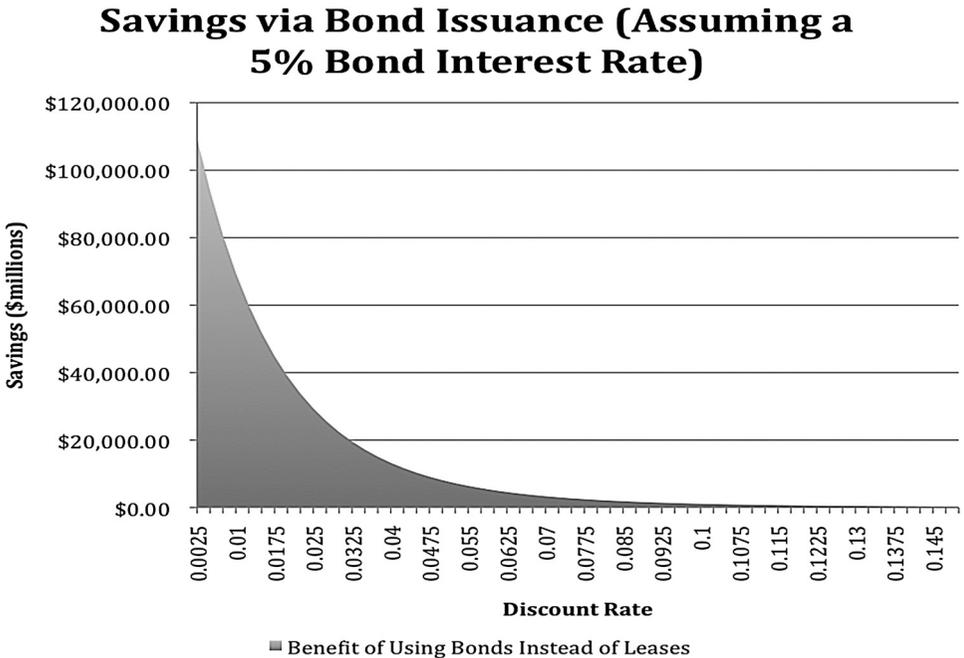


Figure 5: The Relative Benefit of Utilizing Bonds with a Constant Interest Rate



the relative cost of bonds and leases is affected when both interest rate and discount rate are permitted to vary and do so in an area figure. The growth and term assumptions still apply in Figure 6.

This figure clearly demonstrates the impact of discounting on the relative value of financing vehicles. The lease appears to be attractive over significant ranges of sensitivity, but the more likely discount/coupon rate scenarios depict bond issuance as a better alternative.¹¹ That being said, we must remember the caveats that accompany the incorporation of discounting in valuation schemes. The longer the timeline, the more inaccurate the estimate of present value. Discounted long enough, or with sufficient magnitude, all values approach zero. For this reason, discounted cash flow analysis is biased against consideration of future generations (Ackerman, 2007). This point is particularly salient

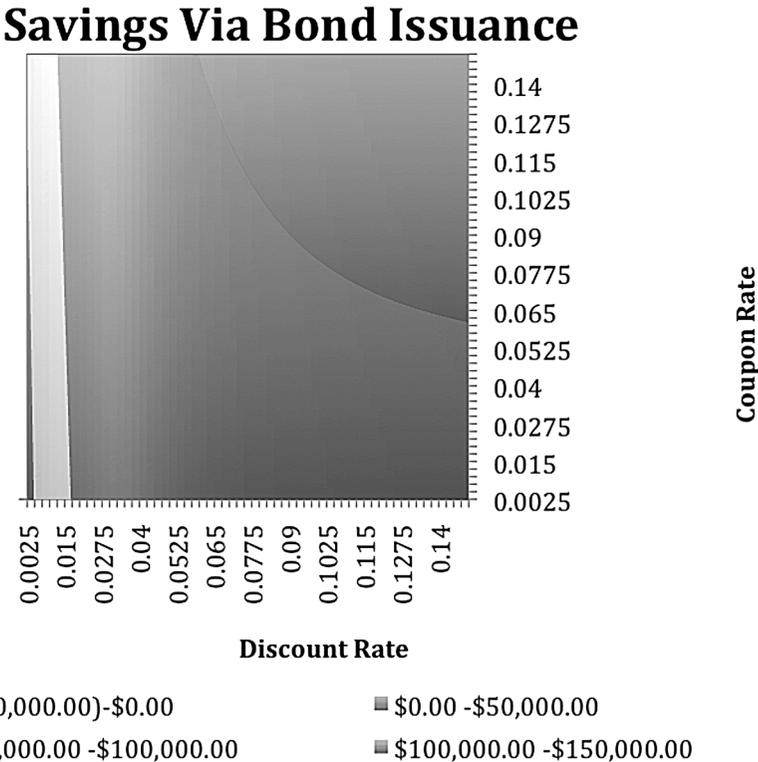
when considering the fact that the financing of capital assets is generally tied (at least cursorily) to the expected life of the asset. Conventional debt financing arrangements for financing large capital assets generally utilize 30-year bonds for this reason. When lease terms are extended on the order of 75+ years, the uncertainty regarding the quality of that asset upon return to the owner grows dramatically. Given that major repairs are often quite unpredictable, it is difficult to know whether or not the recipient generation will receive an asset worthy of continued use.

LINGERING CONSIDERATIONS

Assessing the Fiscal Impact?

There exists a high level of concern in public finance regarding deficits incurred by governments,

Figure 6: Relative Benefit of Bond Issuance as a Function of Coupon and Discount Rates



particularly at the subnational level. While this measure of economic health is valuable, it must be recognized that the deficit does not capture all relevant information. Deficits only capture changes in the explicit, not implicit, liabilities of a public body (Easterly, de Haan, & Gali, 1999). Implicit liabilities can constitute anything from the increase in future repair costs due to deferred maintenance activity to uncompensated reductions in revenue volume for future generations. These implicit liabilities can adversely impact the value of governmental holdings just as significantly as explicit liabilities. Thus, so long as we are not assessing the impact of fiscal actions on total net worth, that is assets less total liabilities, we cannot be sure of their true impact.

In the context of this discussion, if we value only the asset explicitly identified in the transaction, we fail to take into account the costs incurred as a result of not having access to the asset in the future. This could be considered an analysis of opportunity cost that extends beyond the resources earmarked for the operation and maintenance of the asset, and the first order impacts of its revenue stream. Even effective public managers tend to focus on cost of service (and first order impacts) as opposed to the overall potential of an asset (Bailey, 1987). An example of this implicit cost would be the limitations on the local jurisdiction's ability to appropriately channel economic resources through modification of the transportation network. During the lease term, these governments relinquish the authority to increase (or modify) the capacity of the assets if need be. In some cases, they are not even permitted to build auxiliary roads that may "compete" with the primary asset. Such is the case with the Indiana Toll Road; the agreement with Statewide Mobility Partners disallows competing roadways. As it stands now, there are no alternative contiguous roads that provide the same inter-urban connectivity as the Indiana Toll Road. The construction of a spatial monopoly could hardly be more complete.

The second danger of focusing on deficits has to do with transparency. Failing to account for changes in implicit liabilities is likely to lead to undervaluation of the asset. The extent to which the true value exceeds the actual sale price represents the implicit subsidy awarded the purchaser. In other words, the holdings of government are a collective

asset owned by the public. Any reduction in net worth that occurs as a result of these transactions is a direct transfer of wealth from the public to private investors. An example of such an implicit liability could involve the traffic costs incurred when the non-compete clause in the Indiana Toll Road contract prevents the construction of a "competitive" roadway in the pursuit of accommodating the growth of new population centers along its 157-mile length.

Implications of Asset Sale

To understand the implications of asset sales, a comprehensive analysis (beyond the scope of this paper) of the incentive structures at work must be performed. The actual sale may be a manifestation of rent seeking. There are, however, other incentives, and shifting the locus of ownership may exchange management driven by social optimality for that driven by individualized return. When studying the deficiencies in wholly private transactions, the market failure model is normally employed. However asset sales may be more reflective of a public sector failure of incentives. Relevant factors in considering the implications asset sales include efficiency, equity, and efficacy.

The idea that significant *technical* efficiency disparities exist between private and public organizations is one of the central arguments for privatization. However, it does not appear to be the motivating factor within this context. The locus of ownership is not an inherent determinant of efficiency; the important factor is competition (Caves & Christensen, 1980). Transferring assets to the private sector in these transportation projects does not alter the level of competition experienced in their operation (in fact, noncompetition clauses may reduce it).

Consideration of *allocative* efficiency implication requires a broadening of scope from the organizational to societal level. The assets in question are non-rival only to the point of congestion and are excludable; facilitating cost recovery via user charges. However, from a social perspective, charges are appropriate only once congestion is reached. Though the initial investment is significant, operating costs are relatively low when compared to the revenue generation capability of the asset. Private ownership provides an incentive to

maximize net revenue through asset operation and is likely to result in suboptimal social pricing. Further, capacity decisions determine when congestion is reached and these choices have highly significant public implications (for direct users of the asset and resulting development patterns). Maximization of net revenue and maximization of flow-through capacity are not necessarily complementary. When private organizations (protected from competition) are charged with decisions on both the operation of existing assets and investments in new assets, suboptimal outcomes are likely. Toll roads have the capacity to earn revenues far in excess of their costs (Vickrey, 1986). In public hands, these resources can be used to increase efficiency elsewhere (displacing revenue otherwise collected via distortionary taxes for example). Private capture of these rents will likely result in a significant increase in social costs via asset management in the pursuit of self-interest.

From an equity perspective, asset sale deprives the future generation of the potential of a long-term revenue stream in exchange for capitalization of the value of that stream in the present. There are significant intergenerational equity implications. The assets, themselves, were constructed by previous generations, which invested rather than consumed the economic resources at their disposal. The value of their investment is housed within the asset. The current generation is simultaneously siphoning off the value of past investment and capturing future revenue generation. The political incentive structure favors the present and heavily discounts the future. Liquidation of extant assets for the benefit of the current generation represents consumption without commensurate investment, and is a certain violation of the “golden rule” (Robinson, 1998).

Are such policies efficacious with regard to the “public interest”? A host of reasons precipitate doubt. First, it is unclear that the private sector is any better positioned to optimize the maintenance and operation of this asset. This concern is heightened given that toll roads represent spatial monopolies. Secondly, the sale prices may not be remotely indicative of the explicit value of the assets? This divergence is magnified when the broader social value of the asset is considered. Equivalent to debt, the “golden rule” requires that financing be used to support investment that yields returns in excess of the cost of capital. On

the cost side, we have implicitly incurred costs via explicit asset discounting, the failure to capture option value, and the juxtaposition of private sector values into enterprises that should arguably be seeking social optimality. On the benefit side, even technical efficiency gains are problematic and the size of the gain (and social return) would have to be most formidable, to offset losses.

CONCLUSIONS

Privatization is not an inherently good or bad policy instrument. However, asset sale (and especially competition shielded asset sale) should be approached rationally and skeptically. The delivery of social goods entails a complicated interaction of public and private markets. This complexity needs to be appreciated to understand likely outcomes under various scenarios. Our review of this instance suggests significant deficiencies in current approaches.

Notes

- ¹ For example, Kentucky, Pennsylvania, and New York link the term of project financing to the expected asset life or prohibit financing terms to be longer than expected asset life (see U.S. Government Accountability Office, 1989).
- ² In the United Kingdom, the Finance Act of 1998 includes a “Code for Fiscal Stability” that includes intergenerational fairness as an objective (see Creel, Monperrus-Veroni, and Saraceno 2007).
- ³ Transit authorities across the United States have used lease back agreement as a vehicle to extract the capital value of tracks and rail cars to infuse their current budgets. Many of these agreements were made viable through risk protection provided by AIG insurance. With the AIG economic collapse, lease holders have attempted to terminate agreements and demanded payment of lease terms. Recently the Washington Metropolitan Transit Authority successfully argued for an injunction against KBG group demands for \$43 million in payments (see Henchmann, 2008).
- ⁴ For federal tax purposes, the sale of a toll road would be seen as transfer of three bundles of property rights: (1) a lease of the infrastructure assets, (2) a lease of the land under those assets, and (3) a grant of an intangible franchise to collect tolls. Federal tax law regards lease of an asset for a period longer than its useful life to be a sale. Under that logic, the long-term leases of these toll roads can reasonably be discussed as sales regardless of the packaging of the deal (Kleinbard, 2008).

- ⁵ A number of states, including Indiana, California, New Jersey, Illinois, Colorado, Florida, Michigan, Texas, and New York, have considered the sale of their state lotteries to private firms in order to receive an up-front payment or annual contractual payment of some portion of profits, following a logic similar to that of sale of physical operating assets. However, a memorandum opinion of the U.S. Department of Justice held that federal exemptions provided for state lotteries would not extend to such enterprises, thereby prohibiting such a privatized enterprise from operating. [[http://www.usdoj.gov/olc/2008/stateconducted lotteries101608.pdf](http://www.usdoj.gov/olc/2008/stateconducted%20lotteries101608.pdf)] The sale format will apparently not work. States may, however, issue bonds with lottery profits as a pledge for repayment, bringing future revenue to the present but without sale of the lottery franchise.
- ⁶ This is earnings before interest, depreciation, taxes, amortization, and charges to other funds (EBITDAC). It is essentially operating revenue – operating expenses (see Bowman 2008).
- ⁷ It is also conservative, as we assume a constant ratio of revenues to earnings. A proportionate increase in revenue from tolls will result in a higher proportionate increase in net earnings, as costs are relatively unchanged and the proportion of the toll which reflects net earnings increases. However, we also do not adjust (at this point) for possible reductions in volume due to a price increase.
- ⁸ Bowman relies on a price elasticity of -.56 in estimating price sensitivity of demand for the Chicago Skyway. We have used an elasticity equal to one half of this due to the 20-year nature of the observation of demand for the Indiana Toll Road and the absence of consideration of the effects of income growth during this and subsequent periods. We feel this is additionally conservative due to the fact that the Chicago Skyway is much more subject to potential significant price driven substitutions due to the many alternative routes available to drivers. There are no comparable substitutes for the Indiana Toll Road across the length of its extension and, therefore, price sensitivity should be significantly lower.
- ⁹ In the case of the Pocahontas Parkway, approximately 80 percent of the \$611 million payment from Transurban was used to relieve the State of Virginia of significant debt that had accrued over the life of the Pocahontas project. Thus, the cost of capital was likely to be of lesser priority than it otherwise would have been. This project was initiated by Fluor-Daniel; Transurban's payment to Virginia came as a subsequent transaction.
- ¹⁰ Assuming demand increase with a price (toll) increases at the rate of inflation (3.06 percent), essentially assuming no real change in price.
- ¹¹ Again, this assumes appropriate valuations. Asymmetry and uncertainty suggests that asset valuations for leases are likely to underestimate the value of the underlying asset and proceeds received.

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