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March 25, 2003

Dear Friends,

It is my pleasure to present this analytical paper entitled, **Slot Machine Gambling in Maryland: An Economic Analysis**, to you for your perusal. The paper's author is Robert E. Carpenter, associate professor of economics and faculty associate at the Maryland Institute for Policy Analysis and Research (MIPAR) at the University of Maryland, Baltimore County (UMBC). Dr. Carpenter's paper takes no position regarding whether video gaming (a.k.a. slots) should be legalized in the state. Rather, he undertook this independent analysis to examine the costs and benefits of slots in order to help inform the debate around proposals to introduce them into Maryland.

Dr. Carpenter's paper contains significant and new information about slots that should help Maryland residents and public officials make tough decisions on this important issue in coming weeks and months. His findings, for example, show that, as currently proposed, slots are a very good deal for track owners but not such a good deal for the state and its citizens.

Among other things, the current application fee for the gaming license and the state's proposed revenue distribution have probably left hundreds of millions of dollars on the table for casino owners. The current proposal will not help to solve the state's current fiscal crisis, and there is some cause to be concerned that it will not materially help to shrink the long term deficits currently forecast. The current proposal will also involve very large public subsidies to race track owners and to the racing industry. Last, Dr. Carpenter found that the costs to the state in terms of crime prevention and control and gambling addiction are not trivial.

Best personal regards,

Donald F. Norris, Director
Professor of Policy Sciences

Slot Machine Gambling in Maryland: An Economic Analysis

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About the Author

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Slot Machine Gambling in Maryland: An Economic Analysis

The introduction of slot machine gambling to Maryland could hardly be more controversial. Proponents of slots believe that they will help to solve a state budget crisis that is the worst in recent memory. Proponents also argue that the revenue from slots will help to alleviate prospective state deficits looming on the horizon and that revenues from slot machines will help fund education. Indeed, almost the state's entire share of slot machine revenues is earmarked for it. Finally, proponents argue that the revenues from slot machine gambling and the placement of casinos at racing tracks will help to save and revitalize the state's historic, but declining, horse-racing industry. Critics focus on the costs of gambling and pathological gambling, gambling's morality, and the impact that casinos have on the quality of life for nearby residents.

The arguments in the slots debate have been largely political arguments, arguments based on evidence from other states' experiences with slots, or arguments offered by stakeholders in the slot machine legislation. I've written this paper because I believe that there has been very little economic analysis of the available evidence, and because I believe that very large and important elements of the proposal have escaped analysis completely. I think the value of my paper is really putting the facts into perspective, along with some original economic analysis of my own to bring some issues to light that have not been part of the public debate.¹ I have made every effort to be dispassionate about the desirability of allowing slot machine gambling into Maryland. This paper does not take a position on the desirability of legalizing slots. I intend it that way. I believe that any decision about slots needs to be guided by the full knowledge of their costs and benefits, and I believe that if the state decides to establish a slot machine monopoly in Maryland as a revenue enhancement device, the financial terms must be good ones for the people of the state.²

This paper's first section discusses the costs of gambling, and I've tried to put the size of those costs into perspective. I then turn to the revenue, or benefit, that slot machines will provide in section 2. This section is especially important because I've tried to estimate the value of the slot machine license to the casinos' owners under each of the proposals that have been offered by the Governor, and most recently, the proposal of the State Senate. This section also discusses the impact of slot machine gambling to the state's treasury. My belief is that all of the proposals that have been offered to date are great deals for the casinos' owners, but their effect on the state's treasury is highly likely to be smaller than we might think. I have also made extensive use of some very new material that is highly relevant to the debate about slots. A reporter from the Baltimore Sun has been kind enough to give me a copy of the KPMG March 17, 2003 consultant's report that was commissioned by the Maryland Department of Budget and Management (DBM), and also the written portion of the Magna Corporation's/Maryland Jockey Club March 14, 2003 presentation (hereafter, Magna presentation) to the State Senate's Budget and Taxation

¹ I first began to think about the budgetary impact of slots at January 21, 2003 Annapolis forum on the Maryland economy, hosted by the Maryland Public Policy Institute, where I presented my paper entitled, "Maryland's Budget Crisis: What a Drag." My earlier paper is available at www.mdpolicy.org, or by request. This current paper grew most directly out of a presentation I made in Annapolis at a March 14, 2003 forum on video slot machine legalization sponsored by the Maryland Public Policy Institute (www.mdpolicy.org). There, I had the opportunity to comment upon Thomas Hemphill's paper on the costs and benefits of introducing slot machine gambling to Maryland. Hemphill's paper is especially valuable because it is fact-heavy. My paper is a greatly expanded version of my discussant's remarks and my analysis relies on Hemphill's work for many important facts. Hemphill's paper, "Video Gaming in Maryland: Weighing the Costs and the Benefits," is available at www.mdpolicy.org. I want to thank the Maryland Public Policy Institute for organizing both forums and the Maryland Legislature for providing time and space to present my views.

² Before I begin, it's important for me to note that this paper represents my views, and not those of UMBC, the Levy Economics Institute, the Alex Brown Center, or MIPAR.

Committee. I analyze elements of the consultant's report and the Magna presentation and make some critical comments in section 3. In section 4, I examine the proposal's subsidy to the horse racing industry in Maryland, both in terms of its size, and also about what economics has to say about the wisdom of offering industries subsidies generally. Section 5 offers some brief concluding comments.

1. The Costs of Slots

I think we all realize that slot machine casinos have some costs associated with them. These costs have affected the choice about where they are to be located. For example, my understanding is that no casinos are to be located on the Eastern Shore of Maryland in an attempt to preserve the family atmosphere of that resort area. Slot machines are also unlikely, as of this writing, to be placed at the Inner Harbor. Those decisions are implicitly statements about the existence of costs and the belief that the relative costs and benefits of casinos vary by location.

Crime is an important potential cost of a casino. Hemphill (see footnote 1) discusses this type of cost and cites several studies that show no statistical link between casinos and crime. It is worth pointing out that there are studies that do show such a link.³ A much more important question, however, is whether the absence of a jump in crime rates means that there are no crime costs associated with a casino. The answer is an unequivocal no. All of the additional public safety costs, e.g., police, fire, EMS, lighting, even the private expenditures for alarms, fences, etc., made by local home and property owners are a cost of crime, even if no additional crimes are committed. The costs of crime, simply put, include the costs of crime prevention.

Hemphill mentions the costs of pathological gambling and the evidence he provides suggests somewhere between 0.9 percent and 1.29 percent of the US population suffers from an addiction to gambling. Hemphill states, without comment, that the studies conclude pathological gambling is quite rare. It's a matter of perspective, but I look at those rates as being high. Suppose there was a disease that affected one of every hundred people, reducing their quality of life and their families, and which sapped their economic vitality. We wouldn't think that disease "rare," quite the contrary. A fair example might be something like glaucoma, which affects only 0.3% of Americans.

What might we expect in terms of the costs of gambling addiction in Maryland? Hemphill's paper gives us much of what we need to make some rough calculations. I looked to the US Census and found the over-21 population in Maryland was 3.737 million people in 2000. That translates to perhaps 37,370 problem gamblers in Maryland.⁴ To put that number into perspective, it's significantly larger than the average attendance at a Baltimore Orioles home game (which was just over 33,000). Hemphill also provides us with the ability to make some rough guesses about how much these pathological gamblers will spend. He cites statistics showing that they will contribute somewhere between 5 and 15 percent of gaming revenues. Taking the Governor's estimate of 1.3 billion dollars a year in revenue from slots, that's expenditures by problem gamblers of \$1,700-\$5,000 apiece, for a total expenditure by problem gamblers of between \$65 and \$195 million dollars per year. It's also important to note that for these gamblers the expenditures we're talking about are really gambling losses.

³ As an example, a study conducted at the University of Illinois that looks at US county level data claims to find approximately 8-10% of crime in counties with casinos were linked to the casino. See, Grinols, Mustard, and Dilley, "Casinos, Crime, and Community Costs," University of Illinois.

⁴ This may be a very conservative estimate of the number of problem gamblers in Maryland. The Department of Legislative Services has stated the number could exceed 70,000. (Source: The Baltimore Sun, March 10, 2003, "Addicts may get aid from slots.")

Hemphill has also cited estimates made by the National Research Council which state the social costs of problem gamblers are \$900 per gambler per year. What are social costs? In addition to crime, which includes police, court, and jail costs, the costs include lost work productivity, illness, bankruptcy, suicide, and costs born by the gambler's family. Those 37,370 problem gamblers impose social costs of just over \$33.6 million dollars per year according to the statistics in Hemphill's paper. Those costs are large and have to be accounted for when calculating the net benefits of slot machines.

The numbers of problem gamblers are especially large when they're compared against the amount of money allocated for counseling. The Governor's original proposal set aside \$500,000 for problem gambler counseling. Most observers, and also the Administration, felt that number to be too low and it has increased to \$1.07 million based on the latest information that I have. [Note 3/31/03: I have been given new information stating this figure has been revised upward, to approximately \$4,000,000.] Nevertheless, my guess is that will pay the salaries and other costs of somewhere between 10 and 20 counselors, or perhaps 1 per 1,800 problem gamblers. [The larger amount devoted toward problem gamblers will employ roughly 55 counselors.]

The bottom line is that the costs of gambling are by no means small on an absolute scale, even if they are small relative to the gross returns to the state in terms of slot machine revenues.

2. The Benefits

I want to turn to the revenue side now, and discuss the economic benefits of slot machines. One of the big areas of debate is the proper price of the license, and how the net revenues will be divided between the casinos and the state. This is perhaps the most important part of the debate, and also the most fluid. There have currently (as of 3/20/03) been three major proposals that have been seriously discussed by the legislature and the media: the original proposal offered by the Governor, his revised proposal of 3/5/03 and an alternative proposal passed by the State Senate Budget and Taxation Committee on 3/18/03. I think it's valuable to discuss each of the proposals and my assessment of their value to the casinos and the state because the evidence strongly suggests that each of the proposals is a very good deal for the casino owners, but each of the proposals is not a very good deal for the state. It's especially important to read my analysis of the original proposal because this section of the paper provides the general framework I'll use to estimate the value of each proposal to the casinos' owners. It's important to point out one more thing. As each additional proposal has been announced, more information has become available. Since I've tried to incorporate those new facts, some of the assumptions I make change between proposals. It's important to keep those differences in mind when you compare the proposals.

A. The Original Proposal and a Financial Framework for Evaluating the Slot License Fee

The original proposal gave the casino owners a license to run a 20-year monopoly on slots in return for a fee of \$350 million dollars and 25 percent of the net revenues. To evaluate this proposal, I have used what information is available to conduct a simple financial exercise to value the license, one that virtually all finance students know very well. I projected the casinos cash flow from slots, and calculated their present value under a variety of scenarios.

I'll present just one scenario, which is, in my view, fairly conservative. The Governor projects \$1.3 billion per year in net revenues, the Maryland General Assembly slightly less, between \$870 million and \$1.05 billion. I took the \$1.05 billion figure as a happy medium. Projecting out the cash flows, I assumed that slot machine net revenues would grow at an 8% rate for 3 years, then 3% for the remainder of the license (3% is roughly the US economy's average growth rate). The casinos' cut would be 25% of that, and would grow at the same rate. I assumed that the casinos' expenses associated with running the slot machine portion of their business would be 60 percent of their revenues, and so expenses will grow at the same rate as revenues. I assumed a 40% corporate income tax rate. This exercise gave me a 20 year stream of cash flows. Since cash tomorrow is worth less than cash today, I calculated the present value (PV) which puts future dollars on a comparable basis with current dollars.⁵ To calculate the PV, I chose a discount rate of 15%. A discount rate reflects the idea that investing in the casino would carry some risk and reflects the cost of financial capital the casino would face. Put another way, it represents the rate of return potential investors would require to invest in their money in the slot machine project. My view is that a 15% discount rate is a conservative choice, and it is supported by some evidence that I present below.

Under those assumptions the present value of cash flow from the casinos turns out to be \$522 million dollars. Suppose that the casinos paid a total of \$125 million dollars to construct the slot machine facilities. (It's not appropriate to charge the construction of kitchens, bars, etc. against the slot machine component of the project, as I discuss below.) Then, the net present value, or NPV is the present value of cash flows less the cost of investing (here limited to construction costs) and is equal to \$397 million. Again, this number reflects the fact that the cash flows are received over a 20-year period, are net of expenses and costs of building facilities, and reflects a cost of financial capital of 15%. Deducting a license fee of \$350 million leaves an NPV, after all expenses and license fees, of \$47 million dollars. A basic rule of finance is that all investments with NPV's greater than zero should be taken, because any project with an NPV greater than zero provides the investors a financial return that exceeds what they require to invest in the project (in this example, that return is 15%). Indeed, this example suggests that the "right" price for the license with a 25% cut for the casinos is \$397 million dollars. The conclusion I take away from this is that the Governor's original proposed price for the license was in the ballpark, and he should have stuck to it. Furthermore, I think his original proposed cut would have allowed the casinos to make plenty of money, and he should have stuck to that as well.

B. The First Revised Proposal (3/5/03)

The Governor presented a revised proposal on 3/5/03. The revised proposal was far more generous to the casinos and provided a much lower share of revenues for the state. This proposal would have given

⁵ Calculating a present value is a key piece of this analysis and deserves a separate discussion. The slot machine license would allow casino owners to make profits over a 20 year period. We can't just simply add up those profits over 20 years to determine the total profits of the project. The reason is that dollars received in the future are worth less than dollars received today. It's easiest to illustrate with an example. Suppose I could lend you 91 dollars and could charge you a 10 percent interest rate. At the end of the year, you would owe me $91 \times 1.1 = \$100$. Now suppose I had an alternative to buy a coupon that would entitle me to \$100 one year from today. What is the most I would be willing to pay for the coupon? \$91 dollars. Why? Because I could make the same 10 percent return by lending to you. The more general point is that the present value of \$100 dollars one year from now is \$91 when interest rates are 10%. To figure out the tradeoff between dollars in the future and dollars today outside of this simple example requires a little financial mathematics. In this case, the math is very simple $\$100/(1.1) = \91 . All one needs to remember, however, is this simple fact. Discounting future cash flows is exactly the opposite of compound interest. In the latter case, you're looking at how much money you'll have in the future by investing today. In the former case, you're looking at the value in today's dollars of the future returns from your investment.

a 46% share of revenues to the casino operators and would have lowered the license fee to \$120 million dollars. The proposal also required the casinos to spend a minimum of \$300 million dollars on capital improvements to the facilities, and I used this figure in my calculations. To determine the value of the license to the casinos, I repeated the exercise I performed to evaluate the original proposal. I added two additional scenarios, however. First, I considered a higher discount rate as an alternative. In addition to the 15% required rate of return to investors, I considered an investors' required rate of return of 20%. I also considered an alternative where there was zero revenue growth for the casinos over the 20 year period of the license. The assumptions about taxes and expenses are the same as before. Discounting at 15%, the net present value of the cash flows from the casinos, which is equal to the value of the license, was \$661 million dollars. Under the terms of this proposal the casinos would have paid much less than the NPV. Since the license fee was set at \$120 million, it implied that under this proposal the casinos would have paid \$541 million less for the license than it was worth. Examining the alternative scenarios, the NPV of the project was \$422 million before the license fee when cash flows are discounted at 20%, implying the casinos would have paid \$302 million less for the license than it was worth. Even assuming zero growth in revenues and a 15% discount rate, the NPV of the project is \$425 million before the license fee. This version of the proposal was a great deal for the casinos.

C. The Current Proposal (3/17/03)

The current proposal has three important features. First, it almost entirely eliminates the license fee to be charged to the casinos. Second, the casinos would receive a 39% share of the revenues. Third, the Senate's proposal would shorten the life of the license to 15 years. This last change is important because it will have the effect of reducing the value of the license to the casinos, as they will not receive cash flows from years 16-20 as they would have in the previous two proposals. I repeated my analysis, taking into account the new features of the proposals, and was also able to include some additional information regarding the casinos' costs of financial capital (which affects the discount rate used to calculate the NPV of the project). The new information comes from the KPMG consultant's report to the Maryland Department of Budget and Management, dated March 17, 2003, and also from the March 14, 2003 presentation of the Magna Entertainment Corp. and the Maryland Jockey Club to the State Senate's Budget and Taxation Committee.⁶

The Magna Corp. provides information about its intended mix of debt and equity that it will use to finance the project. They appear to intend to use 86 percent debt and 14 percent equity to finance the project. This is an important piece of information because it helps me to construct what finance practitioners call a weighted average cost of capital (WACC). The WACC is designed to show the cost of finance to the firm when both equity and debt are used to finance investment projects and it is the discount rate used to calculate the NPV of investment projects. The Magna Corp. and KPMG also provide some estimates of what they believe the cost of debt and cost of equity are for the project. These are also critical pieces of information used to construct the WACC.

KPMG states that the cost of debt for the project is between 12 and 14 percent. Magna stated that its cost of debt was 12%, and since it was consistent with KPMG's estimates, I used that figure in my calculation. The cost of equity varies much more widely between the two documents. Magna insists its cost of equity is "at least 30%." It's worth noting that this is an extremely high return to investors; roughly triple the average return on stocks. KPMG suggests equity costs of between 16 and 20 percent

⁶ I should note that I have only the written materials of the Magna presentation, and not a transcript.

based on the opinion of “several financial institutions and investment firms.” This information, and assuming a tax rate of 40 percent, is all the information I need to compute the WACC.⁷ Table 1 shows the discount rate and NPV of the cash flows from slot machines, and hence the value of the license under the now several scenarios. Unless otherwise noted, all scenarios are based on \$1.05 billion in slot revenues, a 39 percent share of slot revenues allocated to casinos, an eight percent revenue growth for three years, and a three percent growth thereafter. Expenses are 60 percent of revenues, and casinos face a tax rate of 40 percent, and together they spend a total of \$300 million for construction of facilities.

TABLE 1
Financial Evaluation of Current Slots Proposal

Scenario description	WACC (Discount rate)	Present value of cash flows	Estimated construction costs	NPV of investment = Value of license	Value transferred to casino owners = NPV less \$15 million in application fees
1. Author’s assumptions	15%	\$739 million	\$300 million	\$439 million	\$424 million
2. Author’s assumptions	20%	\$576 million	\$300 million	\$276 million	\$261 million
3. KPMG assumption of 16% cost of equity	8.2%	\$1.11 billion	\$300 million	\$810 million	\$795 million
4. KPMG assumption of 20% cost of equity	9.0%	\$1.05 billion	\$300 million	\$754 million	\$739 million
5. Magna assumption of 30% cost of equity	10.4%	\$964 million	\$300 million	\$664 million	\$649 million

Note: Rows may not sum precisely due to rounding

The table shows that, compared to the discount rate implicit in the information provided by KPMG and the Magna Corp., my choice of a 15% discount rate, and therefore my estimates of the true value of the license, have been highly conservative. Discounting cash flows at 15%, the value of the license is \$439 million. Since the state proposes to charge only a \$15 million dollar application fee, the remainder of the licenses’ value, \$424 million dollars, will be transferred to the casinos.

⁷ The formula for the WACC can be found in virtually any introductory finance textbook. It is $WACC = ((1 - \text{Tax rate}) * \text{interest rate for debt} * \text{share of project financed with debt}) + (\text{required return on equity} * \text{share of project financed with equity})$.

Using my calculations of the weighted average cost of capital, calculated using the information provided by the KPMG report and the Magna Corporation in its presentation to the State Senate, the results show that the application fees are extremely small relative to my estimate of the true value of the license. The higher of the two estimates of the cost of equity capital provided by KPMG (20%) implies a WACC of 9 percent.⁸ Using this as the discount rate suggests a present value of cash flows of \$1.05 billion, and after construction costs, an NPV and therefore a value of the license of \$754 million. Using the Magna Corp. statement that equity investors would require a 30% rate of return implies a WACC of 10.4%, a present value of cash flow of \$964 million, and a value of the license of \$664 million. It is very important to understand what this means. The state currently proposes to charge the casinos only \$15 million for the license. This has the effect of transferring an additional \$649 million dollars to private investors above and beyond the return required for them to invest in the project.

I want to stress how my analysis should be interpreted and its limits. Some of the smaller details of the proposal are unknown. For example, I don't have good information on all components of the projects startup costs, and I don't have information on its salvage value. Not accounting for startup costs can overestimate the value of the project; not accounting for salvage values underestimates its value. Furthermore, I did not account for the fact that after 15 years, the license could almost surely be renewed, and it would almost surely be renewed at the same tracks. This is called a "real option" by financial professionals and in the case of the casinos, it is quite valuable. Because much of finance is an art, my valuation of the license is unlikely to be exactly correct. I can say this with a great deal of confidence, however: The State of Maryland is considering selling something worth several hundred millions of dollars for \$15 million. All of the proposals are a very good deal for the casinos, but the current proposal is a great one.

D. But Are Any of the Proposals a Good Deal for the State?

It's important to recognize that not all spending on slot machines represents new spending, some spending is reallocated. Reallocated spending occurs when Marylanders cut their spending on goods and some services (e.g., the lottery, dining out, etc.) and spend more money on slots. We need to think about what this implies. Hemphill's paper states that the payout of slot machines in Delaware is 92.4%. That is, the machine returns 92.4 cents per dollar gambled leaving net revenues of 7.6 cents. The "price" of the machine, or the "tax" imposed on the gambler is then 7.6%. Suppose Maryland chooses the same payout rate, which might do to be competitive. The original proposal gave the state 64% of the net revenues. That is, a take of 4.86 cents for the state per dollar spent. It's important to understand what this means. If I were to spend \$1 on retail goods, I'd pay a sales tax of 5%. If I reallocated this \$1 toward slots, the state would have received "tax revenues" of 4.86 percent, *but the state now loses the 5% tax revenue from the retail sale!*

The Governor's revised proposal gave the state a smaller, 44%, share of net revenues. Therefore, the tax rate on slots' net revenue would have been $44\% \times 7.6\% = 3.34\%$, much lower than the state sales tax rate. Recall that a dollar spent on retail goods yields the state 5 cents. If this dollar is reallocated to slots it will instead yield the state 3.34 cents. The current proposal gives the state a 46% share of net

⁸ The reason the WACC is lower than the cost of equity capital is that while this scenario assumes equity costs of 20%, equity accounts for only 14% of the projects financing. The remaining 86 percent comes from debt, and since interest payments are tax deductible, a 12% before-tax cost of debt turns into a 7.2% after-tax cost of debt. I made similar calculations for scenarios 3 and 5 in the table.

revenues, which implies a tax rate on slots of $46\% \times 7.6\% = 3.49\%$. The important point here is that for each of the three major proposals that have been the topic of public debate, the tax rate on slot machine gambling is lower than the sales tax rate and the state actually receives less revenue on each dollar of reallocated spending. It's also worth noting that the net revenues, relative to the current sales tax rate, decline the larger the cut given to the casinos. They say that much of the revenue from slots will come from players in other states, and from Marylanders who now stay home instead of gambling in Delaware and West Virginia...I think we'd better hope so.⁹ But the larger point is that the mix of new spending versus reallocated spending has an important impact on the size of the revenues the implementation of slots will have on the state's budget. I don't believe that we've thought carefully about that, or for that matter, even about the mix of in-state versus out-of-state players.

It's also true that the entry of Maryland into the slot machine business will affect the returns to slots. The regional market for slots is really an example of what economists call an "oligopoly," which is a market that includes just a few sellers. In this case, the sellers are the three states. A particular feature of this sort of market is that profits depend on the producers' market share. When Maryland enters the industry, West Virginia and Delaware will cut their price. The price of a slot machine is related to the payout. To cut the price of playing the machine you raise the payout, and the gambler loses a smaller proportion of his dollars. Since the payout determines the state's revenues, rising payouts mean fewer dollars go to the state's treasury. If another state enters the market after Maryland, like Pennsylvania, the price of playing the machines will decline further and profits will fall. With the proper information, I could even make a guess about how big the fall in price might be.

The bottom line is that for the state slots are highly unlikely to be, in a net sense, a license to print money, and may very well not help as much as we might hope to solve the state's budget problems, even over the long term. With the prospect for the almost complete elimination of license fees for the casinos, slots are almost certain to do nothing in the short term to help with the state's fiscal mess. On the other hand, the current license structure may very well be a great deal for the casinos.

3. The KPMG Consultant's Report and the Presentation of the Magna Corporation

While I have used pieces of the KPMG report and the written portion of the Magna Corp. presentation to the State Senate in my analysis, both have some important conceptual flaws. Since these documents have the potential to affect the public policy debate, it is important to point out what I believe to be some of the larger errors.

To begin, the casinos' slot machine projects, and hence their relationship with the state, will last over many years. It is absolutely critical that any analysis of the project or the proposals reflect the fact that the cash flows from the project will be received over a 15 or 20-year period, depending on the structure of the proposal. Neither the presentation nor the consultant's report does so. I'll give a concrete example of why this is important. If the casino borrows to finance the project, the interest payments are likely to be fixed over time (in fact, the Magna presentation makes this assumption explicitly).

⁹ It's worth noting that the tax rate on the lottery tends to be much higher than for slots. There are many lottery games, but the following example is helpful to illustrate the issues: \$1 bet on the bonus match 5 (without the bonus ball match) pays \$15 when the player matches 3 numbers and has a probability of 1 in 109 (source: the Maryland Lottery). This translates to a mathematical probability of 0.009. The "net price" of the ticket, or the lottery "tax" revenue received by the state is the ticket price minus the average payout to lottery players per dollar spent, or $\$1 - \$15(0.009) = 0.865$, or 86.5 cents. The state will receive around 3.5 cents if the dollar is spent on slots instead. The conclusion to draw is that the state will lose a good deal of revenue if lottery players switch to slot machine gambling.

However, the revenues of the project will grow over time. Failing to account for time will have the potential to understate total profits, because future profits get overlooked.

The Magna presentation also makes an error in that it commingles the investing decision with the decision about how to finance the investment. The basic theory of finance instructs us that these decisions should be made separately. Let me quote to you from a textbook: “[T]he separation principle tells us to evaluate investment decisions separately from financing decisions...the companies financing decisions must not be commingled with the investment’s cash flows.” (Source: Corporate Finance: Principles and Practice, by Gary Emery, Addison Wesley, 1998, page 386). The Magna presentation does exactly what the finance profession tells us not to do. I’ve reproduced a piece of the Magna presentation to the State Senate as Table 2 to show why this error is so important. Column 1 reproduces exactly the figures in their presentation, column 2 contains my example. Both are discussed below.

TABLE 2
(From the Magna Corp. presentation
to the State Senate)

FINANCING PLAN:
SOURCES OF CASH AND RETURNS (\$ IN MILLIONS)
(Market Assumptions)

<u>Sources of Cash</u>	Column 1 (Magna Presentation)	Column 2 (My example)
A. Debt		
1. Bank Debt (at 8% interest)	\$209.51	\$0
2. High Yield Bonds (at 14% interest)	<u>\$419.09</u>	<u>\$0</u>
3. Total Debt (at average 12% interest)	\$628.60	\$0
B. Equity		
1. Minority Investors	\$10.0	\$10
2. Newly Raised Equity	<u>\$90.0</u>	<u>\$718.6</u>
3. Total Equity	\$100.0	\$728.6
 <u>Returns</u>		
A. Operating Revenue Before:	\$139.8	\$139.8
B. Minus Annual Debt Service	-108.1	0
C. Minus Annual Maintenance Capital Expenditures	<u>- 24.1</u>	<u>-24.1</u>
D. Pre-Tax Net Income	\$7.6	\$115.7
E. Minus Federal and State Income Taxes at 40%	<u>-12.1</u>	<u>-46.2</u>
F. After-Tax Cash available for return to Equity Investors	- \$4.5	\$69.5
G. Percent Return to Equity Investors	- 4.5%	9.5 %

In column 1 the Magna Corp. states that it plans to raise the \$728.6 million to finance the project using a combination of \$628.6 million in debt and \$100 million in equity. The use of debt means they will incur an interest expense of \$108.1 million, which leads to a loss of \$4.5 million dollars and a return to shareholders of *negative 4.5%*. Of course, this loss could be used as an argument for the casinos to receive a larger share of the revenues. But this loss is the result of their financing choice, or what is often referred to as their capital structure choice. To see why it's important to separate financing choices from the evaluation of investment projects, suppose they had chosen a different capital structure,

which used no debt, financing the project entirely with \$728.6 million dollars in equity instead. The financial result of that all-equity capital structure choice comprises my example in column 2.

Because my example assumes that the project is financed entirely with equity, interest expense drops to zero and its pre-tax income is positive \$115.7 million rather than the \$7.6 million of the Magna presentation. The all-equity financing choice increases the firm's after-tax cash available for equity to \$69.5 million, rather than the loss of \$4.5 million in the Magna presentation. The returns to shareholders are now positive 9.5% ($\$69.5 \text{ after-tax income} / \728.6 in equity) rather than the loss of 4.5% in the Magna example. The underlying project is the same. However, by making the mistake of commingling investment and financing decisions the Magna example makes the project appear to generate a loss to shareholders, where an alternative financing structure leads to a positive return of 9.5% to shareholders.

I also think that both KPMG and Magna have made a conceptual error when thinking about and presenting their estimates of the costs of construction. This conceptual error will tend to overstate the construction costs associated with the slots project. Appendix D of the KPMG report provides the construction cost estimates for each of the three existing tracks. The text of KPMG's report contains the following quote, "Pursuant to the DBM's request, it was communicated to the Tracks that improvements relative to the race track were to be bifurcated into improvements which could be attributed to VLT operations versus those for race track operations." This quote suggests that the parties recognize it is not appropriate to attribute non-slots costs to the slots project.

It is very important to note that the bifurcation, or split, requested by DBM is not complete. There are more categories of costs than the two identified by the DBM request. In particular, there are costs associated with race track operations, costs of the casino associated with slot machines (VLTs), and costs of the casino that are not directly associated with slot machines. Examples of the latter costs are those incurred constructing eating areas or kitchen facilities, bars, or entertainment centers within the casino. The DBM request lumps the slot and non-slot costs of casino construction together. This is important because only the costs directly associated with slot machines should be charged against the slot machine project. Since the state does not gain revenue from dining, drinking, and entertainment, it is inappropriate to charge that component of the construction costs to the slots project. Because it appears those joint costs of construction have been entirely attributed to the slot machine project, it will tend to overstate the costs, and also to understate the slot project's returns to the casinos' owners.¹⁰

Lastly, there has been a great deal of discussion about the high risk of the slot machine project. The risk has two components, market and political risk. Both of these are mentioned in the Magna presentation. Political risk might refer to a change in legislation that makes the slot license less valuable, say, if some future Governor and Legislature combined to outlaw slots. It's a valid point, but also one that I think can be worked around. If I were the owner of a casino, I would probably insist that the State agree to sign a promissory note that would refund my construction costs, plus interest, plus a cancellation fee, if slots were outlawed before the end of the license.

¹⁰ This issue is entirely separate from the size of the estimated construction costs. KPMG and Magna list different figures for the costs of construction. Magna's estimates are the lower of the two, and total \$652 million for 3 casinos. It is impossible to say whether these costs are "high." It is possible to put them into perspective, however. The construction costs for a new baseball stadium in the D.C. area to house a prospective major league team have been estimated at \$430 million. (Source: The Washington Post, March 20, 2003, page D01)

I'm much more skeptical of the high degree of market risk facing the casinos. We need to remember, these proposals would lead to the establishment of a statewide gambling monopoly in the center of one of the largest metropolitan areas in the country. Even if Pennsylvania and Virginia entered the market with their own casinos, I suspect that Maryland casinos would still be profitable (although perhaps not as profitable as the casino owners might hope). After all, there are many casinos in Las Vegas. More importantly, it is possible to measure market risk. Market risk shows how the value of a business, measured by the price of its stock, moves relative to the market and is measured by a variable called beta by financial professionals. A beta of one means that the stock moves with the market, and hence is no riskier than the market as a whole. Betas less than one generally indicate lower risk; betas higher than one indicate higher risk. The bigger the beta, the higher the risk. I looked at the betas of some firms that were in a similar line of business to the proposed casinos. According to Value Line, an investment service, the beta of Harrah's, a gaming and entertainment firm, was 1.1. The beta of International Gaming Technology, who makes slot machines, was also 1.1. I think it's fair to draw the tentative conclusion that the risk of the gaming industry is only slightly riskier than the stock market as a whole. My evidence on this point must be interpreted with care, however, because while Harrah's and IGT are in a related industry, neither is what a finance professional would call a "pure play" for the Maryland casinos.

4. A Big Subsidy for the Racing Industry

Lastly, I'd like to talk about the horse racing industry. I'm an immigrant to Maryland, and I don't understand or appreciate the racing industry like a native. But I am from automobile country, and I understand declining industries very well. We want to save what the market would destroy. The latest information I have indicates that the proposal would give a large subsidy to the racing industry. It would start at roughly \$77 million per year in direct and indirect subsidies to the industry, and grow with time, as the subsidy is linked to percentage of the net revenues from slots.¹¹ This subsidy would transfer income from slot machine players to breeders, owners, and tracks. If the average slot machine customer has income lower than that of the average horse breeder or horse or track owner, it will be regressive transfer in terms of income. It's a big transfer, too. The horse industry states that it employs 20,000 people, although whether that number is limited to direct employment, or more broadly to include indirect employment, is unclear. In any case, that is a subsidy of \$3,850 per job. It's an even bigger subsidy when you look at the dollars per Maryland racing-horse breeder, or even per Maryland racing horse. For example, the Maryland Equine Census states there were 38,400 racing breed horses in Maryland in 2002. A fair estimate of the number of active racing horses might be those quartered at racing and race related facilities. There were 13,700 of those horses. That translates to a subsidy of roughly \$5,600 per racing horse.

Economists generally don't like subsidies to prop up declining industries. Subsidies tend to distort the allocation of resources. If the horse industry requires a subsidy, then the resources in the industry should, over time, be redeployed to other uses with higher returns. There are some exceptions to this general principle, which rely on the industry to have large spillovers or rely on considerations of equity. Education is a good, and often used, example of an exception as are industries vital to national defense, or the rural delivery of mail. Employing a large number of people or having a historic tie to an area are not necessarily justifications for a government subsidy, as autoworkers in Michigan, miners in West Virginia, and steelworkers in Pennsylvania know all too well.

¹¹ Source: Magna Corp. presentation to the Senate Budget and Taxation Committee, March 14, 2003.

5. Concluding Remarks

Slot machines do not appear to be a “magic potion” that will cure or prevent a state’s fiscal troubles. The Magna Corp. presentation contains a table showing six states that combine horse racetracks with slots, and eight states that allow riverboat or land-based casinos. I examined a report by the Center on Budget and Policy Priorities that contained estimated state budget deficits for FY 2004. Of the 14 states allowing gambling listed in the Magna presentation, I found information on estimated FY 2004 budget deficits for eight of them. The estimated deficits for these eight states averaged 14.6% of the state’s budget. According to the report, the average estimated deficit for all states reporting information was 12.9 to 17.9% of the state’s budget¹². The conclusion I draw from this is that states allowing gambling aren’t weathering the current fiscal storm appreciably better than states that don’t.

The basic question before the state of Maryland is whether the benefits of slot machines exceed their costs. The facts suggest that the long-term benefits to Maryland are unlikely to be nearly as large as we might expect. Competition between the states for gambling revenue will reduce the long-term returns from slots. In addition, the impact of new versus reallocated spending has not been previously considered. This impact, however, is potentially very important. Because the return to the state from spending reallocated toward slots is lower than the sales tax rate or the state’s return on the lottery, slot machines will probably not help as much as we might hope to solve the state’s budget problems over the long term. Attracting out-of-state gamblers or enticing Maryland gamblers to stay home avoids the problems of reallocated spending. Little information, however, is available on the mix of reallocated versus new spending or the mix of in-state versus out-of-state gamblers.

With the prospect for the almost complete elimination of license fees for the casinos, slots are also almost certain to do nothing in the short term to help with the state’s fiscal mess. Moreover, the fact is that a license to run a slot machine monopoly in Maryland is very valuable. The low price of the license set by the state in the current proposal, in combination with the current revenue distribution, will almost surely transfer several hundreds of millions of dollars of value from the people of Maryland to the casino owners. Simply put, the state has left a great deal of money on the table. On the other hand, the current license structure is a very good deal for the casinos.

To make a good decision about slots requires complete understanding of the economic and financial details of the proposal. This paper is among the first to apply the principles of economics to independently analyze several important elements of the slots issue. It should certainly not be the last.

¹² Source: Center on Budget and Policy Priorities, “State Budget Deficits for Fiscal 2004 are Huge and Growing,” December 23, 2002.