

Financial PPP and the Age of Deleveraging: A Pragmatic Approach to Loan Guarantees for U.S. Infrastructure Projects

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Until the financial crisis of 2008, the U.S. economy had benefited from several decades of relatively smooth growth in private-sector indebtedness. This trend persisted through many economic cycles and accelerated markedly in its final stages. Since the crisis, however, private-sector debt has fallen by a massive amount, more than 9% of U.S. GDP, with most of the decline occurring in households.¹ Nonetheless, the McKinsey Global Institute estimates that the process of household debt reduction is only one-third complete and that American consumers will continue to reduce debt (by repayment or default) until at least mid-2013.²

Even when U.S. households have finished deleveraging, because of a combination of more difficult credit options and bad memories, credit growth is unlikely to resume a rapid pace. As with the aftermath of the Great Depression, the effects of such a large credit buildup and implosion will likely take years to abate. This huge shift in debt level, with a concomitant shift in consumer and business behavior, obviously has had a major negative impact on the level of aggregate demand, investment, employment, and money supply. The post-2008 slowdown has been described as a “balance-sheet recession,” which is different and more persistent than a normal business down-cycle, primarily because it was caused by a financial crisis.³ This type of

recession does not occur frequently, but when it does, recovery is slow and uncertain—which is exactly the economic environment the U.S. now faces.

Against this background, one would expect that policies to support much-needed U.S. infrastructure development and repair would be relatively noncontroversial. Public works are, of course, seen as a traditional response to high levels of unemployment and a need for economic stimulus. The original theoretical basis of such Keynesian fiscal policy has been questionable for years, and government policy now generally has a greater focus on monetary policy. However, economists have recently begun to reexamine the effectiveness of fiscal policy in the special context of a balance-sheet recession.⁴ Perhaps just as important, a non-theoretical, intuitive sense persists among many politicians and members of the public that the government “ought to do something” that puts people to work.

Even disregarding macroeconomic effects, the low level of interest rates and greater availability of resources due to excess capacity suggest that now is a good time for the U.S. government to undertake and pay for massive infrastructure projects—at least those that need to be done anyway to restore the nation’s aging stock. But despite a public perception that infrastructure projects might provide some benefits for employment and the economy generally and broad agreement that

many infrastructure projects are much needed in the U.S., there is no consensus about how to pay for them. The fear and loathing of debt in the private sector that characterizes the current “Age of Deleveraging” is now seriously constraining U.S. public-sector policymakers as well.

This article outlines a limited approach to U.S. government support for the capitalization of infrastructure projects. Because of the highly contentious debate about the level of U.S. deficits and national debt now occurring, this approach, based on utilizing project finance loan guarantees, seeks to provide a practical framework to address the issues that any new spending proposals face in the U.S. The first part briefly summarizes the important features of the budget debate that pertain to infrastructure spending. The next part outlines why partial loan guarantees of infrastructure project finance debt (a type of financial public-private partnership (PPP) between government and private-sector lenders) might be especially effective as a “middle ground” to defuse, or at least avoid, some of the budget debate issues. This part includes subsections that briefly discuss how the partial guarantee mechanism can help ensure long-term debt management, control risk, assess cost, and add to transactional efficiency, as well as how a guarantee program can be managed with respect to overall debt capacity utilization and political issues. The final part of the article discusses intrinsic elements of potential program usefulness.

U.S. GOVERNMENT DEBT DEBATES

The U.S. private sector was not the only heavily indebted part of the economy going into the financial crisis. The U.S. public sector entered the financial crisis with large deficits that, together with the usual automatic stabilizers and the 2009 American Recovery and Reinvestment Act (ARRA) stimulus program, had driven public debt to about 67% of GDP, the highest level since 1950.⁵ Although the U.S. did not face any chance of a sovereign debt crisis in the short term, the apparent political inability to address long-term structural deficits raised the specter of future insolvency. This threat led to the historic downgrade of U.S. federal creditworthiness by Standard & Poor’s (S&P) in the summer of 2011.

The high level of public debt and (perhaps more important) the fearsome projected result of its apparently intractable rise over the long term has prompted a fierce debate in the U.S. about continued and significant

government deficit spending. The wide-ranging debate involves everything from high-level academic theory and routine political budget negotiations to ideological issues about the fundamental role of government. The questions have been intensified not only by the 2012 presidential election and congressional composition, but also by painful levels of unemployment.

Polarized rhetoric of an imminent sovereign debt catastrophe notwithstanding, U.S. Treasuries trade at historically low prices and remain the risk-free haven of choice, thus completely shrugging off the S&P downgrade. Plenty of borrowing capacity, at very low rates, still exists in the near term at the U.S. federal level (although capacity varies widely among states), which is fortunate; regardless of current budget choices, the U.S. is running an annual deficit of about \$1 trillion in order to pay for its ongoing commitments against a backdrop of lower revenues due to slow growth.

New spending beyond current commitments is possible, at least with respect to borrowing capacity. But is it prudent? That is the central question of the fierce debate now raging. Any new spending will immediately increase the deficit, of course, dollar for dollar, so mathematically, it adds to the long-term problem. But if the proposed new spending actually results in greater growth, either in the short term (through economic stimulus) or long term (through investment), then it could be part of the solution. Higher growth produces more tax revenues and, if sustained over time, can dramatically lower projected values for a focal point of national angst, the U.S. debt-to-GDP ratio.

Spending on infrastructure has elements of both potential stimulus and effective investment. Although there is a widespread, quasi-cultural belief among the public that infrastructure is naturally good at both things (perhaps as an impressionistic legacy of the Great Depression), when it comes to deciding on specific programs, the context of the larger debate about deficit spending now asserts itself on proposals for infrastructure programs as well. Infrastructure projects no longer get a free pass with respect to spending.

Current academic economic theory does not provide a clear answer about whether infrastructure spending results in higher growth. In fact, the discipline is itself quite polarized (even at its highest levels) with respect to the question and many aspects of the theoretical framework needed to answer it. The technical issues generally revolve around a single important

metric, the government-spending multiplier. Evidence from an analysis of Japan's balance-sheet recession (which is arguably a good model for the U.S. situation) suggests that the multiplier is strongly positive in a downturn caused by a financial crisis, and much of Japan's fiscal stimulus was directed toward large infrastructure projects.⁶ But closer to home, the ARRA stimulus program (also in part directed at "shovel-ready" projects) has produced results that are decidedly mixed. It is not at all clear whether the money was spent to good effect—the multiplier may in fact have been zero or negative—but a counterfactual case (e.g., that the recession would have been much worse without ARRA spending) is always difficult to present convincingly.⁷

The profound theoretical disagreement over ambiguous empirical data probably means that macroeconomics will not be able to provide a strong defense for infrastructure spending any time soon. In fact, high-level academic economists on both sides of the debate are now making persuasive but occasionally strident arguments in the mainstream media, so the extent of disagreement is quite visible.

Politicians, of course, usually support infrastructure spending for any number of pragmatic and non-theoretical reasons. But even among this group, the ferocity of the debate about new spending in a time of deficits, further intensified by election-year politics, is changing traditional behavior. Proposals for new spending, however routine or relatively innocuous, are often now being debated in extreme and sometimes ideological terms. The glare of a media spotlight has become unusually intense even for many relatively technical matters (the national debt-ceiling limit, for example), and there is little cover for politics as the art of compromise. The resulting gridlock will certainly persist through this election year—and beyond to some extent—because underlying deficit issues are long term and will need to be addressed by difficult budget decisions for years to come. Massive ARRA-like spending programs for any purpose (including infrastructure) are likely to be non-starters as a practical matter over the next few years, even though they are being proposed often by politicians looking to make a "messaging" statement.

The academic and political uncertainty about infrastructure spending is probably less important than another, more visceral, factor in the debate—the polarization about the fundamental role of government that has recently emerged among the American public.

According to one side, all government is a necessary evil at best, especially in economic matters, and it should be reduced to its barest form by starvation. On the other side, the private sector (especially the financial industry) has been cast as the main villain behind the nation's economic problems, and the government is the only hope of restraining its worst instincts and repairing the damage it has caused.

This part of the debate is, needless to say, more grounded on rhetorical heat than light. Discussions about economic multipliers or technical explanations of necessary appropriations will not make much of an impact on these voters and taxpayers. Infrastructure spending proposals are not especially differentiated from government spending as a general concept, even if the sides might agree about the obvious need to repair the crumbling stock.

In essence, the ideological divide is based on a profound—and symmetrical—lack of trust. Neither faction trusts the other—public or private sectors, respectively—with deploying large enough resources for significant infrastructure investment. Competence, motivation, efficiency, and simple honesty of the other side's sector are all considered questionable, and relevant past examples of failure are repeatedly presented—the more egregious, the better.

The polarization of the public at large is probably the most intractable element of government's current gridlock about infrastructure spending, because it not amenable to a theoretical or technocratic resolution and feeds the politicians' hesitancy. Will the 2012 election prove to be cathartic? Perhaps, but fierce partisan rhetoric during the campaign will likely form lasting impressions that may be difficult to overcome, whichever side wins.

In light of the serious long-term ramifications of continued large deficits, this debate may well be necessary and transformative. As such, it will not lead to agreements about government spending quickly or easily. But it comes at an awkward time for infrastructure policy. Like many other aspects of government spending, new infrastructure programs and funding may remain on hold until some larger consensus—whether political, theoretical, ideological, or some combination thereof—is established.

Yet U.S. infrastructure continues to crumble. At the same time that workers are unemployed, other resources (especially in construction) are underutilized,

and long-term interest rates are at historic lows.⁸ The lack of action appears to be suboptimal by several objective measures with respect to infrastructure project cost. If policies that support infrastructure investment remain stalled, the current situation may well be seen in the future as a significant lost opportunity.

A PRACTICAL PATH FORWARD

In light of the special characteristics of infrastructure and the tangible evidence of need, could there be a practical “middle ground” to fund U.S. infrastructure programs in the near term? Unlike large open-ended spending proposals, the middle ground would involve more modest policies that have a chance to be implemented; they explicitly would not require a resolution of the larger debate, but would still address the most serious concerns of both sides.

Possible answers to this question cannot involve new attempts to establish a middle ground by persuading one side or the other about the merits of government or the private sector, respectively. That just leads to more debate. Instead, both sides’ basic beliefs about the *shortcomings* of both the government and private sector should be accepted, albeit explicitly for the limited purpose of designing a specific program.

One fundamental belief shared by both sides of the debate is that the preferred sector of the other side cannot be trusted. Regardless of validity, this belief needs to be accommodated as a primary component of any new proposal. The infrastructure program design should therefore be based on ironclad restrictions and automatic or inalterable mechanisms. New funding for such a program would be 1) limited in scope and time, 2) narrowly directed to qualified projects in a way that will transparently minimize potential economic or market distortion, including windfall profits, and 3) most important, provided on terms whereby an equal or greater amount of government debt reduction in the future is relatively assured.

These constraints suggest that the middle ground for spending on new infrastructure programs is limited to government loan programs. Grants or other permanent transfers are likely to cause distortions and cannot show a clear path to future government debt reduction (since their rationale relies on some assumption of a multiplier, which would be contentious). Fortunately, debt capitalization is an extremely important element of an

infrastructure project’s feasibility, so a loan program can be an effective form of support for infrastructure.

Even if the constraints immediately disqualify other forms of support, however, a new government loan program will not necessarily escape criticism, especially in light of the recent spectacular failures in the ARRA loan program.⁹ The next sections of this article examine some of the expected objections and possible aspects of program design that could address them.

AUTOMATIC DEBT REDUCTION

When the government spends directly on a project in a time of budget deficits, it incurs not one but two types of risks in connection with managing its overall debt level—project failure *and* mismanagement of the incremental national debt. The risks seem to be understood and reflected at some intuitive level in the budget debates, but the distinction between the risks is not exactly clear, perhaps because in most cases it does not matter much, especially in a rhetorical discussion. But the distinction does make a difference when the form of spending is a loan program for infrastructure, so it is important to elucidate it with some precision.

The first and obvious risk is that the project might fail. In this case, the money loaned is wasted, but the incremental public debt remains and needs to be paid from a marginally smaller base of useful economic assets. The second type of risk arises even when the project is successful, because the government’s overall debt level may still be mismanaged. The money loaned to the project will add to the U.S. government’s cash deficit, which is turn is funded by the government’s own general borrowing. For a large national-level government like that of the U.S., overall funding is obviously not discretely tied to specific projects or programs.

A successful project will directly repay the loan and indirectly add a specific amount of additional tax revenues over its lifetime. If these repayments and revenues are used to reduce the government debt originally incurred (including interest), then deficit spending for this successful project at least ceases to be part of the problem. If more than this incremental amount of government debt is repaid, then the project is actually part of the solution.

But it is entirely plausible (and some on one side of the debate in the U.S. would say likely) that current or future politicians will not be so disciplined. Once

they get their hands on loan repayments and additional revenues generated by the successful project, they may well use them for some consumption-oriented purpose instead of government-debt repayment. In this case, deficit spending for a successful project would be as much a part of the overall debt-level problem as a failed project.

The specific mechanism matters. The temptation for future politicians arises from the disconnection between incremental revenues from a successful project (whose indirect tax revenues cannot really be identified anyway) and the mountain of undifferentiated national debt, which was only marginally increased to fund the loan to the project. Even if the original program terms stipulated that incoming program cash flow be directed to national debt amortization (which is mechanically difficult to accomplish), these terms might be quietly modified—that is, the problem is the *presence* of cash flowing through government channels.

If a successful project automatically repaid at least the national debt incurred to support it through a channel that was beyond the reach or influence of politicians, then an important part of the objection to infrastructure support—that large-scale spending of any kind increases the size of an irresponsible government, regardless of the merits of individual projects—could be addressed. A simple change would address the problem. If the program offered unconditional and irrevocable *guarantees* to support the debt capitalization of qualified projects as opposed to making the funded loans directly, then the guarantee structure could provide an automatic mechanism. This is true even if, substantively, little difference exists between a funded government loan and an unconditional and irrevocable government guarantee; the risk is exactly the same, but the cash flows through different, nongovernmental channels.

When a loan guarantee is used on a successful project, the project's debt is paid off in due course and the guarantee is never called. But in this case, the government does not actually fund the project's loan, so nothing is ever added to the deficit or to the outstanding national debt balance. In effect, the support is in the form of a self-contained “mini-Treasury” issue (e.g., the U.S. guaranteed, private-sector funded loan) that amortizes as underlying project debt.

Of course, if the project fails and the guarantee is called, the government will end up funding the unpaid

balance of the loan by issuing more government debt (in a time of deficit) or redirecting tax revenues that could have been used to repay national debt (in a time of budget balance). For a project that fails, then, the guarantee mechanism is not better than direct funded support in terms of overall national debt management, other than the extent to which the project might have paid some of its debt before it failed and a smaller guarantee amount was therefore called.

Pointing out that a loan guarantee mechanism in place of funded spending can address some of the intrinsic indiscipline of the political classes is a necessary foundation in the context of the budget debates. But it is only a start. The next five sections of this article outline further possible objections to a loan guarantee program for infrastructure projects—and possible ways to address them:

- *Separating Winners and Losers*: The loan guarantee mechanism benefits the overall national debt issue only if the project is successful, not if it fails. How do we address core project-specific risk issues to ensure that a project will likely be successful and also add to economic growth?
- *Managing Cost and Avoiding Windfalls*: The loan guarantee, even if undrawn, is not free at the outset. In addition to the direct credit cost of the guarantee, there can be an opportunity cost to the government when the guarantee is offered at below-market pricing. How are these costs managed?
- *Minimizing Bureaucracy*: A fundamental criticism of government programs is their propensity to be inefficient and bureaucratic. Can this problem be minimized in the specific case of an infrastructure loan guarantee program?
- *Overall Debt Capacity Management*: A loan guarantee is a liability of the U.S. government, and it will utilize overall debt capacity even though it is not directly added to the national debt amount. How is guarantee debt capacity utilization limited?
- *Political Implementation*: Notwithstanding design features that address issues substantively, are there ways to improve the political practicality of implementing a program in a time of gridlock?

SEPARATING WINNERS AND LOSERS

An infrastructure project can fail in a number of ways. The basic technology may not work, or there may be insufficient demand for the project's output to make it even worth operating. Avoiding this kind of failure requires investment competence, and whether a government bureaucracy has the required expertise is not always clear.

But even if there is adequate expertise to avoid obvious failure, the issue remains of the propensity for the government's decisions to become politicized as opposed to being based strictly on economic criteria. A "bridge-to-nowhere" may be unlikely to physically collapse and the toll traffic may cover its basic costs, but such a project has still failed in terms of generating any real economic value over its lifetime.

Both types of failure are part of a central issue in the budget debate about the government's ability or motivation to separate winners from losers. One way to address the perception of the government's weaknesses is to require some amount of private-sector investment, as in a standard PPP approach. The rationale is that the private sector has investment expertise and will bring it to bear in a relatively non-politicized manner.

The simplest structure to implement a PPP approach is to have the project capitalized with 1) private-sector equity and 2) debt that is privately funded but 100% guaranteed by the U.S. government. This simple structure has a significant pragmatic limitation, however. Equity and debt, even in purely private-sector projects, obviously have a shared interest in some level of project success, but their interests diverge beyond that, possibly widely.

More generally, relying on private-sector *equity* investors to provide a check and balance on a government program brings in the other side of the debate, which says that the private sector has its own shortcomings with respect to picking projects that are considered successful from a public perspective. The private sector will emphasize profit above all else, which can be detrimental to the project's overall social utility. Private investors' time frame is usually relatively short term, even for infrastructure projects, if there is a possibility to realize a quick upside profit by sale or refinancing.

A better approach might be to rely more on private-sector *lenders* for helping to guide the program toward successful projects. A simple and straightforward way

would be to limit the government's guarantee to only a part (say, 80%) of the project's debt. Project equity can then be provided by the private or public sector as other objectives (or constraints) might require.¹⁰ Then, the 20% unguaranteed part of the debt must be provided by private-sector lenders who will be fully exposed to the risks of the project debt. These lenders will need to bring to bear the strengths of the private sector (expertise, non-politicized motivation) along with their significant investment.

In contrast to the relationship between debt and equity, a government guarantor and unguaranteed private-sector lenders are almost exactly co-aligned in interests. Both parties want primarily to avoid a defaulted loan, since neither has equity-type upside. The risk objectives of both parties are much the same (albeit for different reasons) with respect to avoiding loss while still allowing good projects to proceed quickly. This approach is an excellent example of a financial PPP, whereby the government and private sector can balance each other by investing in the same part of a project's capital structure.¹¹

In addition, both the government and the unguaranteed lenders need to work with the other's broader, nonproject-specific objectives for the program to be successful; neither sector holds all the cards. The government can impose certain social objectives (with respect to the environment or labor) through its guarantee, but these cannot be so onerous or off-market that private-sector debt becomes unavailable, or else the government program will fail because private-sector lenders will not voluntarily participate. Likewise, private-sector lenders should have a general interest in the program's success, but they will need to agree with some off-market, public-sector-oriented provisions in order to be able to access lending opportunities from the program.

Most fundamentally in the context of the larger debate about government fiscal policy, under a partial loan guarantee approach, neither side has to believe in or even trust the other. The government guarantor and private-sector lenders are clearly co-aligned *naturally* in a partial loan guarantee, even while pursuing their own separate objectives. Natural co-alignment answers the question of how the financial PPP approach can be successful as a type of "unholy alliance," even when the fundamental characters of each partner are described in wholly positive or negative terms by their respective sides of the debate.

MANAGING COST AND AVOIDING WINDFALLS

Even when a government loan guarantee is never called or funded, costs to the taxpayers are associated with it. In essence, two types of costs arise from a loan guarantee on an infrastructure project (ignoring transaction costs or bureaucratic friction): a direct credit reserve cost and an indirect opportunity cost.

The direct credit cost is incurred to fund a credit loss reserve fund, which is a standard concept in private-sector financial institutions and a required budget appropriation for a U.S. government loan guarantee under the Federal Credit Reform Act (FCRA).¹² The methodology is roughly the same for both private and public sectors. The present value of expected loss from making a loan or a loan guarantee is calculated using default and recovery rates, and this amount (which, on a portfolio basis, is expected to be statistically necessary) is set aside in a reserve. For the U.S. government, this cost needs to be appropriated from the current budget in accordance with the FCRA. The direct credit cost of a loan guarantee therefore does add to the deficit as an accounting matter, but it is not funded, so at least initially there is no incremental national debt caused by it. Over time, however, it is statistically likely to become a realized loss (on a portfolio basis) that will need to be funded as part of a called guarantee.

Importantly, for low-risk infrastructure projects, the direct credit cost should be only a small percentage of the loan guarantee. This is especially true for partial loan guarantees, because a significant unguaranteed piece needs to be provided by risk-averse, long-term private-sector lenders, who usually require investment-grade or near-investment-grade credit ratings for infrastructure loans. If the direct credit cost of a loan guarantee is only 10% or 5% of the guarantee amount, then the total volume of possible support to infrastructure capitalization is 10 or 20 times the marginal addition to the national deficit. Also, at these low percentage levels, the project owners (whether private-sector or a non-federal public-sector entity) can be expected to pay for all or part of the credit cost, if necessary. This “self-pay” option not only further reduces current deficit issues for a program, but also increases the likelihood that the projects selected are indeed winners, because investors are willing to back them with more “skin-in-the-game.”

The direct credit cost of a loan guarantee is a clear and standardized concept that is explicitly required by the FCRA to be calculated and paid for. But a more subtle, indirect cost is associated with the U.S. government granting a loan guarantee to a project and charging anything less (in fees and spread) than the full market rate for an equivalent high-quality guarantee provided by the private sector. In the context of the budget deficit debates, it is important to clarify that this is an opportunity cost, not an actual cost to the U.S. taxpayer. Still, the fact that the U.S. is charging less than it could, thereby creating a subsidy for the guaranteed projects, needs to be carefully explained and justified.

One way to look at the opportunity cost of a below-market loan guarantee is that the U.S. has a powerful comparative advantage with respect to private-sector credit capital markets (where a “market” AAA loan guarantee rate would be established). The U.S. government prints the world’s reserve currency and can efficiently tax the world’s largest economy by using one of the world’s best legal systems. Obviously, no private-sector entity comes anywhere close in terms of liquidity and capitalization, notwithstanding the somewhat idiosyncratic downgrade by S&P in 2011.

If a U.S. loan guarantee program were to eliminate its opportunity cost and charge the full private-sector market rate for its “product,” the government would certainly be making a significant profit. But clearly this is not at all related to the fundamental purpose of the program, which is to encourage infrastructure development. To the extent that the program can reduce the opportunity cost (and make some profit) while still achieving its primary objective, this is a straightforward “win-win” outcome. However, the value of loan guarantees for U.S. infrastructure is primarily related to their low cost and only secondarily to their large potential size or unique features that address a specific market failure (although these can be important too). So, significant opportunity cost is likely to be characteristic of an effective infrastructure loan guarantee program.

This does not mean necessarily that the taxpayer’s opportunity cost cannot result in something that many or most taxpayers would favor. Obviously, if the subsidized guarantee rate results in a windfall profit or excess yield for the project’s owners, the opportunity cost cannot be justified. But if a lower cost of debt financing results in a larger, more efficient project or lower user rates for a broad section of the public, then

the cost might not be objectionable.¹³ What is clear is that the opportunity cost for a below-market government loan guarantee should be explicitly calculated for each project as part of the transaction evaluation process, like the legally required FCRA calculation. In addition, once calculated, the opportunity cost should be “traced through” the project’s financial model to identify to the extent possible where it is going—for example, just to create more profit, or for a larger project and lower user fees? Raising the question about opportunity cost and usage upfront and providing a clear and transparent answer could go a long way toward defusing aspects of the budget deficit arguments on the cost aspect of a proposed program.

MINIMIZING BUREAUCRACY

In addition to its other weaknesses in economic matters, government is often considered to be inefficient, slow, and bureaucratic. This issue is especially relevant in the current deficit debate for at least two reasons. First, one alternative to fiscal stimulus as a policy to promote growth is based on the concept that the burden of government is a major impediment, and if it was reduced, the private sector would support growth adequately on its own. In this mindset, often called “expansionary austerity,” the main focus is taxes, but government red tape is also cited. A new government loan guarantee program would be considered to be merely adding to the problem of excess bureaucracy, especially if extensive transactional capability needed to be set up at the outset. Second, to the extent that fiscal stimulus needs to be fast (and seen to be so) to be effective, a slow pace for the implementation of both new program setup and transaction processing would be bad enough. However, when added on top of the often-glacial time frames of infrastructure project development, the combination would be deadly.

Without doubt, government programs are prone to bureaucratic inefficiency, and these issues must be considered seriously. Simply promising that “this time will be different” for a new program would be greeted with skepticism in the current debate. But there is a well-established model in the private-sector capital markets for project finance loans that may be especially relevant to allowing the government to provide partial loan guarantees with efficiency and minimal bureaucracy.

Large project finance loans are always syndicated among many individual banks, but the process is firmly led by one or a few institutions—the lead banks. The participating banks are largely passive, in the sense that they do not interact much with the borrower directly or propose the basic structure or terms. They do not need or have the same level of transactional resources that lead banks require. But the pricing, credit standards, and other terms that the participating banks are willing to accept determine much of what the loan looks like; it is up to the lead banks to design an acceptable deal between the project and loan market. Lead lenders are also expected to “eat their own cooking” by retaining a significant piece of the syndicate loan.

The loan syndication model could address efficiency issues for a partial loan guarantee program for infrastructure project finance by defining the government guarantor’s role as a “super-participant” that is willing to take a large piece of the loan, say, 80%. As participants, the program’s bureaucrats would not design the loan or negotiate directly with the project. Instead, lead lenders would perform their usual role in this capacity and take or place privately the 20% unguaranteed share on the same terms as those offered to the government guarantor (other than pricing, as noted previously).

This approach would allow the program to avoid building a large transactional capability that simply replicates what the private sector can do immediately. Instead, the program’s bureaucrats could focus on setting credit and due diligence standards (to avoid failed projects), as well as ensuring that social criteria are met and opportunity costs are not producing windfalls (to make sure that the program is meeting its policy goals). These are things that civil servants are arguably good at, since they require actions and decisions on behalf of an abstraction, the public interest, as opposed to the immediate mechanics of the commercial transaction.¹⁴

More pragmatically, with the government guarantor as a “super-participant,” a partial guarantee program could be set up quickly, with minimal staffing and clear application of principles and procedures. The private-sector financial institutions would be expected to do the rest. Interestingly, since the guarantee program would take the place of possibly dozens of participant banks, the overall process might be more efficient with government involvement than with the purely private-sector alternative. With respect to the budget debates, this added efficiency would not stem from easier terms

offered by the program. If anything, these terms should be as tough as the private market for credit standards, and with a layer of social and anti-windfall provisions added on top. Rather, the increased efficiency would be a result of the scale of the government's resources and its ability to take huge positions. In effect, a partial loan guarantee program using a loan syndication model concentrates government's true comparative advantage (low-cost capital) into a form of support for infrastructure projects that otherwise minimizes government's classic weaknesses (commercial transaction development and processing).

OVERALL DEBT CAPACITY MANAGEMENT

As noted above, the FCRA requires that the direct credit cost of a government loan guarantee be recognized as the liability of the guarantee and that the liability be fully paid for in the year that the guarantee is executed. Whatever part of the credit cost is not paid for upfront by the infrastructure project itself must be appropriated in the U.S. budget for the year—which currently means an increase in the deficit. But the FCRA does not require that the full principal amount of the guarantee be recorded as part of the national debt. This is true even when the guarantee is completely unconditional and irrevocable, which effectively makes the guarantee as much of a liability as funding the underlying loan itself. The result is an inconsistent treatment between government loan programs that make funded loans and those that are limited to making partial guarantees of loans, even though the *risk* is calculated the same way for both.

For example, assume that a government loan program makes a \$1 billion loan to a project during a time of large U.S. deficits and that a 5% credit cost is required under the FCRA, which is fully appropriated by the program. The total addition to the annual deficit is \$50 million (the credit cost), and to the national debt, \$1 billion (the funded loan), assuming that the credit cost is not realized until some future year. Treasury issuance that year would need to be \$1 billion higher than if the program had not made the loan.

In contrast, if the program makes an unconditional and irrevocable loan guarantee for the same commitment (e.g., \$1 billion with a credit cost of 5%), then the annual deficit impact is the same (\$50 million). Since the loan is funded in the private sector, however, there

is no increase in Treasury issuance or, with respect to its official level, the U.S. national debt. But certainly, from a basic balance-sheet perspective, the U.S. government liability has increased by \$1 billion.

What are the potential implications of such inconsistent treatment? The debt capacity (funded and unfunded) of the U.S. government is large but not infinite, and projections that show hard limits being reached in a few decades are at the heart of the deficit debates. As noted above, a government loan guarantee mechanism (as opposed to a funded loan) does have a valuable “self-liquidating” feature that helps enforce long-term government liability management. But the guarantee mechanism does nothing to limit the level of new guarantee liabilities incurred in the first place.

A binding constraint on program size can be imposed by the budget impact of appropriated credit cost, which is calculated the same way for loans and loan guarantees under the FCRA. But for low-risk infrastructure projects, the credit cost may well be a small percentage of project cost and can be feasibly paid by the project owners themselves. In this “self-pay” case, there is no need for a budget appropriation, and hence no constraint would be imposed from this currently rigorous process.

Two other, primarily numerical, constraints are also avoided by the unfunded nature of the loan guarantee mechanism. The first is the national “debt ceiling,” a technical limit on the total amount of issued Treasury debt. Historically, the ceiling was seen as a book-keeping item, not as an important element of national debt management. Of course, this perception changed in the summer of 2011, when the metric ended up in the center of some extreme political theater surrounding the budget debates, and it was used in the context of brinksmanship about a U.S. government default. Now that such a visible precedent has been set, the technical debt-ceiling limit may remain a controversial point until the budget debates become less heated.¹⁵

In light of the investment orientation of infrastructure and the consensus that U.S. infrastructure needs substantive improvements, both sides would probably agree that an infrastructure loan guarantee program is correctly left out of the debt-ceiling debates. In any case, the debt-ceiling number is not a useful constraint for specific programs.

The second metric where the liability associated with a loan guarantee program is excluded is the U.S.

current and projected government debt-to-GDP ratio. This metric is not theatrical in the way that the debt-ceiling limit has become, but it is also now highly visible, especially throughout world capital markets, where it is used as a relative measure of a country's creditworthiness. There is a real and well-founded concern that the long-term projection for this ratio, which under some scenarios will exceed 100%, will start to impose serious limits on U.S. borrowing capacity.¹⁶ There is no question that it must be managed.

Note that the U.S. liability for a loan guarantee program is *excluded* from the "debt" side of the ratio, but any addition the infrastructure projects might make to national income will be *included* in the "GDP" side. Interestingly, this suggests that an infrastructure guarantee program will automatically help manage the government's debt-to-GDP ratio, as long as the guaranteed projects do not fail, without the need to assume any multipliers or other substantive impact. Far from being a constraint, the positive effect on such an important ratio is likely to be an inducement for bigger and more aggressive programs.

Other than the policymakers themselves (whom many on one side of the budget debate say cannot be trusted), what then are the possible meaningful constraints on the size of an infrastructure loan guarantee program relative to U.S. debt capacity?

At least two features of the program design can act as buffers. The first is the fundamental feature of offering only a partial guarantee (e.g., never a 100% guarantee) of the project's senior debt. This way, the project has to be commercial at some level (to service the unguaranteed private-sector debt), and the number of possible infrastructure projects that can do this, even in the U.S., is limited. This number may be larger than the optimal choice of infrastructure projects in an ideal world with perfect information (since some "bridges-to-nowhere" might still be able to scrape up some debt service capability), but it is not limitless, because absolutely useless projects will not be able to access the program due to the partial guarantee requirement.

The second feature is to include a requirement that the guaranteed debt always be rated by at least one major internationally recognized agency. Obviously, this is prudent as an adjunct to program credit due diligence, even though it should never replace the government's own assessment. Also, for larger projects, the unguaran-

teed tranche will require a rating anyway. Rather, the purpose in this context is to make the agencies aware that the program exists. Naturally, they will seek more information about its policies and limits and actively monitor the program's volume (if only for projections of their own business pipeline). To the extent that the program becomes so large that the aggregate guarantee exposure starts to make an impact on the nation's creditworthiness, the agencies (now highly sensitized to sovereign-debt issues in a post-Eurozone crisis world) will certainly evaluate this growth and include it in their sovereign-debt analysis.

Even if the program is so large that it has alerted the agencies, the story from their perspective may not be so bad. The agencies can take a more balanced view about the value of the infrastructure projects that are supported, relative to the additional U.S. guarantee liability of the program. Transparency, combined with sophisticated evaluation, is probably the best overall constraint for a government economic program in any case.

POLITICAL IMPLEMENTATION

The prior five sections of this article outlined the primary way that a program for supporting infrastructure projects can be designed to help automatically manage U.S. government resources (by using a loan guarantee mechanism instead of funded spending) and four further refinements that help manage risk (a partial guarantee), cost (anti-windfall analyses), efficiency (a syndicated loan participation model), and U.S. debt capacity (limited number of qualified projects). These elements are intentionally designed as an attempt to neutralize the basic objections from either side of the deficit debates.

But the debate is highly polarized and often grounded in ideological rhetoric, not logic. Even a program designed to address perfectly every substantive issue that could arise—a type of "Platonic ideal infrastructure program"—will likely get attacked by one side as "just adding to the government, which is the problem" and by the other as "relying too much on the private-sector, which is the problem."

Only one effective approach is likely in this situation: Keep the new program proposal as low-key as possible. As the contentious debt-ceiling negotiations showed in 2011, even the most technical matter will get enmeshed in an ideological shouting match if suf-

ficient media attention is brought to bear on it. Government support for infrastructure, especially in the highly constrained form outlined in this article, should not be intrinsically controversial, but the spotlight should be avoided nevertheless.

One specific way to ensure that a new proposal is kept very low-key is simply to expand or modify an existing program. Various existing U.S. government-financing programs already have a somewhat flexible legislative framework and mission statement.¹⁷ Of course, politicians naturally would prefer to announce a brand new initiative (with their names featured prominently on it), but it is almost inevitable that anything new and visible will be characterized in ideological terms. An ideological debate would be counterproductive to what this practical approach for a loan guarantee program is trying to accomplish. Perhaps at some time in the future the U.S. political system will be functional enough to permit new major legislation. But that time is not now.

PROGRAM USEFULNESS

The previous sections outlined a pragmatic “middle-ground” approach for a U.S. program to support infrastructure renewal and development. The approach seeks to increase the chance of implementation by imposing a number of constraints on program design to avoid the currently intractable questions of the deficit debates. But such constraints also limit the potential usefulness and scope of the program. Would such a limited program be effective?

The answer to this question should be empirical, not theoretical. Policymakers should seek and carefully analyze actual responses and input from project developers and other possible project owners (including non-federal public-sector entities) early in program development. However, a few points are worth making about possible intrinsic program usefulness. One important observation concerns the value of any government loan program in a time of deleveraging. This would seem on the surface to be a fundamental problem. If the Age of Deleveraging is characterized by creditworthy private-sector entities paying off debt as quickly as possible despite very low interest rates, how can the availability of more debt to creditworthy projects from the public sector be part of the solution?

Project finance debt (the type that would be supported by the guarantee program) has senior and generally exclusive recourse to project assets and cash flows, which is why these types of loans can be sufficiently creditworthy for a low-risk government program. But project finance debt is also usually *non-recourse* to the project owners. A private-sector project development company might be averse to incurring more corporate (recourse) debt in these uncertain times, but it would pursue a development opportunity that can be realized with project finance (non-recourse) debt. Similarly, a cash-strapped state-level entity might not be willing to issue enough bonds to cover the full cost of a project, but it might have sufficient resources to make the necessary equity investment in it.

Not only is project finance debt usually non-recourse, but for typically low-risk and long-lived infrastructure projects, leverage ratios can be much higher than corporate ratios, especially during a time of deleveraging. A company, targeting a conservative debt-to-equity balance sheet ratio of 50:50 in response to uncertainty, may not be willing to incur additional recourse debt for a corporate finance project because the returns are not high enough in relation to the company’s weighted-average cost of capital. But the company might be eager to invest equity in the same project if it is capitalized with non-recourse debt and an 80:20 leverage ratio.

The unique characteristics of project finance debt, however, mean that its source of supply for such debt is limited to specialized areas within some financial institutions and banks, many of which are Eurozone institutions. In addition, even in the best of times in the debt capital markets, the volume of project financing is far smaller than corporate or sovereign issuance. The Eurozone crisis, which is hitting project finance banks especially hard (they are often big sovereign lenders), and the pending imposition of Basel III requirements for long-term and illiquid project finance loans are already limiting potential supply. Although actions by the European Central Bank appear to be mitigating further short-term effects of the crisis, capital for project finance lending may become increasingly scarce. Any further deterioration in the Eurozone or world capital markets will certainly exacerbate the scarcity.¹⁸

Against this background, a loan guarantee program for U.S. infrastructure, implemented in the near term, might be especially valuable simply to increase the supply of project finance debt capacity. As noted in

a previous section, the government guarantor can, in effect, act as a “super-participant” in a syndicated project finance loan, which allows the commercial expertise of the lead banks to be greatly extended. Eurozone project finance lenders have extensive expertise and experience in infrastructure, but potentially very limited lending capacity. A large guarantee program, established for at least a medium-term time frame, would give project developers confidence that their infrastructure projects could be financeable if intrinsically creditworthy, regardless of market conditions.

In one sense, the confidence itself is the loan guarantee’s product. A basis for confidence to proceed with a good project would mitigate the fundamental issue that causes deleveraging, which is pessimistic uncertainty. Beyond simply adding lending capacity (and the assurance of it in the future) as a super-participant, an infrastructure loan guarantee program could support specialized tranches of project finance senior debt in order to address credit market discontinuity or sub-optimality. These “special tranches” can be based on government’s fundamental strengths. For example, many project finance lenders are reluctant to take non-contracted revenue risk, not because the intrinsic risk is too high, but because uncertain revenue means that a specific amortization schedule might not be met. In contrast, the government can take the “long view” and assess the prospect of repayment in a more flexible way—not “when,” but “if.”¹⁹

Special tranches will have intrinsic value even beyond the Age of Deleveraging and related economic issues. But a new program needs to approach such products with caution. There is general co-alignment with unguaranteed private-sector lenders in other project senior debt tranches (much more so than with project equity), but special tranches by definition take special risks, so co-alignment is not exact. The program will need to develop sufficient expertise to ensure that the design and risk profile of special tranche guarantees are limited to deploying unique and intrinsic government strengths to support intrinsically strong projects that are missing a small piece of the needed capital structure, not simply rushing in to a place where the private sector refuses to go at all.

The views expressed in this article are those of the author and do not necessarily reflect the views of Greengate LLC.

ENDNOTES

¹The shift in the private sector from financial deficit (e.g., indebtedness) to financial surplus (net saving) from the 3rd quarter 2007 to the 4th quarter 2011 was approximately 9.3% of nominal U.S. GDP in total, as estimated by Nomura Research Institute using data sourced from the Federal Reserve Board and U.S. Department of Commerce (Koo [2011]).

²McKinsey Global Institute (the macroeconomic research division of McKinsey & Company) published a report of global deleveraging in 2010 and updated it in January 2012. The updated report received considerable media attention. It is worth noting that most of the debt reduction by U.S. households has been due to default on non-recourse mortgage loans. The next phase of household deleveraging will doubtless be more difficult (McKinsey [2012]).

³Richard Koo of the Nomura Research Institute has been developing the concept of a special type of “balance-sheet” recession for many years, but the concept has only recently gained attention as a way to explain the recent apparent ineffectiveness of monetary policy. Koo’s clear summary reportedly went “viral” on the Web (Koo [2011]).

⁴For example, an academic paper by Eggertsson and Krugman seeks to formally integrate the effect of deleveraging on a new Keynesian model (Eggertsson and Krugman [2010]).

⁵The debt-to-GDP ratio used in this article is U.S. federal debt held by the public (e.g., issued Treasuries) against nominal GDP. This debt measure excludes U.S. debt held by the Social Security trust fund, which in effect represents future pension obligations. Some argue that Social Security is an unconditional obligation (and hence that trust fund debt should be included, which raises the debt-to-GDP ratio closer to 80%), but other OECD governments with state pension schemes do not include this liability in their ratios. Since the main value of the debt-to-GDP ratio is a comparative ranking of sovereign creditworthiness, excluding the trust fund debt would seem to make more sense. It is calculated this way in the CBO report (U.S. Congressional Budget Office [2011]).

⁶Koo estimates that although Japan increased government debt by ¥460 trillion or 92% of GDP during the 1990–2005 period, the amount of GDP preserved was ¥2,000 trillion, based on the likely growth in the absence of fiscal stimulus. This suggests that the government spending multiplier exceeds a factor of *four*, although Koo makes it very clear that this is possible only in the special case of a severe balance-sheet recession (Koo [2009]).

⁷A calm assessment of the ARRA programs will likely have to wait until after the 2012 election. There appears to

be some consensus that there were few good alternatives at the time (*New York Times* [February 28, 2012]).

⁸Infrastructure is especially sensitive to the cost of debt capital. The current low interest rates enjoyed by the U.S. are in part driven by flight from the Eurozone, among other temporary factors. They are not expected to last (*New York Times* [February 27, 2012]).

⁹Solyndra Inc. (a solar panel maker) failed completely less than two years after receiving a \$535 million loan from the U.S. Department of Energy's Loan Guarantee Program Office (DOE LGPO). Since the company was touted by the Obama administration in connection with "green" energy programs and the ARRA generally, Solyndra's failure has become a central focus of much political rhetoric. But it is worth noting that Solyndra was a manufacturing project, not an infrastructure project. The DOE LGPO did in fact provide more than \$14 billion of guarantees to renewable energy utility-scale power generation projects (e.g., energy infrastructure), which are performing well, according to an independent assessment ordered by the White House (Allison [2012]).

¹⁰Private ownership of infrastructure that is typically public in the U.S. faces considerable political difficulty in many states. This is a major impediment to using standard PPP structures found in Europe and Australia. Public ownership, but using a private-sector/U.S. federal financial PPP approach for project debt capitalization to reduce cost, might be more acceptable. Many states could certainly use the financial support (Krugman [2012]).

¹¹The financial PPP approach is explained in greater length with respect to both risk and value in a previous article by the current author (Ryan [2011a]).

¹²Under the U.S. Federal Accounting Standards Advisory Board current interpretations, the present value of estimated net cash outflows due to the loan guarantees" (e.g., the credit cost) is recorded as the liability of a loan guarantee, which must offset by the required credit cost reserves, according to FCRA legislation. The full amount of the guarantee itself, however, is not recorded as a U.S. liability. There is broad recognition that the FCRA assessment of cost is somewhat incomplete. In March 2012, the U.S. Congressional Budget Office published an Issue Brief (U.S. Congressional Budget Office [2012]) that demonstrated that the FCRA's specific requirement for discount rates (e.g., U.S. Treasury rates of matching duration for all cash inflows and outflows) could lead to an understatement of the true credit risk cost of a government loan or loan guarantee. The CBO proposes using market debt rates instead. However, this 'fair-market' approach would also understate risk cost when a loan guarantee was structured to have only outflows (calls on the guarantee due to default) and little or no inflows. Since the partial loan guarantees for loans funded by the private sector

for long-term infrastructure projects contemplated by this article would be characterized primarily by such cash outflows and low fee income, the CBO fair-market approach is not appropriate in this case. The approach outlined in this article, which broadly relies on the FCRA to assess direct credit cost but also proposes a separate analysis of opportunity cost (which captures some of the fair-value and market-pricing cost concepts that the CBO Issue Brief focused on), would seem to give a more useful result, since the credit risk cost is conservatively estimated but, in addition, the cost of subsidy is separately elucidated.

¹³The loan amount of a project financing (and therefore the size of some types of infrastructure project) is often limited by a debt service coverage ratio. A lower interest rate due to a government guarantee could translate into a larger project in a specific and measurable way. This was examined in greater detail in a previous article by the current author (Ryan [2011b]).

¹⁴One DOE LGPO guarantee solicitation under the ARRA, the Financial Institution Partnership Program (FIPP), did in fact take this approach at the outset. It reportedly did not work smoothly, mostly due to a lack of understanding about its purpose among temporary DOE employees and political appointees. However, the fact that FIPP was able to execute almost \$6 billion worth of guarantees for low-risk projects in just two years under the circumstances suggests that the loan syndication model could be effective if administered correctly (U.S. Department of Energy [2009]).

¹⁵The prospect of another round of very contentious negotiations is already being raised, as current U.S. Treasury projections indicate that the ceiling may be reached again—possibly around the time of the 2012 elections (*Washington Post* [February 17, 2012]).

¹⁶For example, the U.S. CBO estimates that under certain "alternative" (e.g., realistic) scenarios, the debt-to-GDP ratio will exceed 80% by 2021 and increase rapidly thereafter, to nearly 190% by 2035. A debt-to-GDP ratio of 90% is considered a serious limit to sovereign creditworthiness (U.S. Congressional Budget Office [2011]).

¹⁷An existing U.S. Department of Transportation loan program, the Transportation Infrastructure Finance and Innovation Act (TIFIA) program, is apparently being seen in exactly this way by lawmakers of both parties in Congress. Although the Republicans promptly and scathingly rejected various proposals in 2011 for new infrastructure financing agencies (e.g., the National Infrastructure Bank, the American Infrastructure Financing Agency, and so on), both sides enthusiastically embraced an eight-fold expansion of the TIFIA. Agreement on the merits of expanding the TIFIA appears to be one of the few areas of bipartisan consensus that exists in the current Congress (*Bloomberg News* [February 26, 2012]).

¹⁸Project finance lenders are reacting aggressively to their new circumstances. Credit Agricole, for example, is looking to reduce commitments by selling at least 80% of new project finance loans (*Financial Times* [February 5, 2012]).

¹⁹Two existing government loan programs, the U.S. TIFIA and the program of the European Investment Bank, offer loan products that can accept more transportation revenue risk than the private sector (U.S. Department of Transportation [2009], EIB [2004]).

REFERENCES

Allison, H. "Report of the Independent Consultant's Review with Respect to the Department of Energy's Loan and Loan Guarantee Portfolio." *U.S. Government Printing Office*, January 13, 2012.

Bloomberg News. "With Gas Tax on Empty U.S. Must Find New Way to Fund Roads," February 26, 2012: www.bloomberg.com/news/2012-02-27/with-gas-tax-on-empty-u-s-must-find-new-way-to-fund-roads-view.html.

Eggertsson, G.B., and P. Krugman. "Debt, Deleveraging, and the Liquidity Trap." *Federal Reserve Bank of New York*, November 2010.

EIB. "The EIB's Role in Public-Private Partnerships." *European Investment Bank*, July 2004: www.eib.org/attachments/thenaric/eib_ppp.

Financial Times. "Credit Agricole Launches a New Financing Model," February 6, 2012: www.ft.com/intl/cms/s/0/11d59ae8-4fdb-11e1-8c9a-00144feabdc0.html.

Koo, R.C. *The Holy Grail of Macroeconomics*. John Wiley & Sons (Asia), 2009.

Koo, R.C. "The World in Balance-Sheet Recession: Causes, Cure, and Politics." *Real-World Economics Review*, December 2011: www.paecon.net/PAERreview/issue58/Koo58.pdf.

Krugman, P. "States of Depression." *New York Times*, March 5, 2012: www.nytimes.com/2012/03/05/opinion/krugman-states-of-depression.html?_r=1&hp.

McKinsey Global Institute. "Debt and Deleveraging: Uneven Progress on the Path to Growth." *McKinsey & Company*, January 2012.

New York Times. "A U.S. Boon in Low-Cost Borrowing," February 27, 2012: www.nytimes.com/2012/02/28/business/era-of-low-cost-borrowing-benefits-federal-government.html?scp=1&sq=boon&st=cse.

———. "Stimulus Is Maligned, but Options Were Few" February 28, 2012: www.nytimes.com/2012/02/29/business/economy/republicans-malign-a-stimulus-but-the-plausible-options-were-few-economic-scene.html.

Ryan, J. "Value for Capital: Concepts for Loan Guarantees in Financial PPP Transactions." *The Journal of Structured Finance*, Vol. 17, No. 3 (2011a), pp. 66-77.

———. "An Analytical Framework for Partial Guarantees of Project Finance Loans." *The Journal of Structured Finance*, Vol. 16, No. 4 (2011b), pp. 77-82.

U.S. Congressional Budget Office. "Confronting the Nation's Fiscal Policy Challenges," September 13, 2011.

———. "Fair-Value Accounting for Federal Credit Programs," March 2012.

U.S. Department of Energy. "DOE Loan Guarantee Solicitation Announcement." DE-FOA-0000166, October 2009.

U.S. Department of Transportation. "TIFIA Program Guide," December 2009: www.fhwa.dot.gov/ipd/pdfs/tifia/tifia_program_guide.pdf.

Washington Post. "U.S. Expected to Hit Debt Ceiling before 2013, Geithner Says." February 17, 2012: www.washingtonpost.com/business/economy/us-expected-to-hit-debt-ceiling-before-2013-geithner-says/2012/02/16/gIQAT3McJR_story.html.

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