An Open Quadrant: *High-Yield, Long-Term Institutional Project Loans*

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This article is about a type of senior debt capitalization that currently does not really exist but which will likely develop soon—long-term, high-yield project finance loans for infrastructure in Organization for Economic Cooperation and Development (OECD) countries.

Certainly there are other senior debt options very much in existence for a range of OECD infrastructure projects. For construction lending and partial-amortization, medium-term ("mini-perm") financing, a number of traditional European project finance banks are still leading and lending into syndicated transactions. For higher risk, post-construction projects, there is the high-yield, sub-investment-grade leveraged loan market, where project "Term B" loans can provide low-amortization, medium-term financing. And for investment-grade, fully contracted projects, there continue to be a few buy-and-hold banks and insurance companies making traditional long-term amortizing loans.

These options are now well supplied—or even over-supplied—with lenders and lending capital, relative to the current volume of project transactions. In the difficult days after the financial crisis of 2008, it was of course a different story. Like the rest of the credit markets, project finance lending was sharply curtailed, and one option, monoline insurance, was nearly eliminated altogether. But because of a partial rebound of OECD economies and (perhaps more importantly) unprecedented central bank monetary intervention, project finance lending capacity is approximately back to pre-crisis levels.

However, the mix of project finance lenders and lending products is now significantly different. For decades prior to 2008, project finance lending was dominated by commercial banks making very illiquid, very long-term loans, far beyond the usual medium-term tenor for bank loans and not an optimal match for institutions with relatively short funding liabilities. The crisis and its associated regulatory changes have exposed the real cost of this mismatch and driven most wholesale-funded banks away from long-tenor lending.[1]

Project finance is still a good business line for banks—hence the rise and current ubiquity of mini-perms, which are medium-term loans that can be efficiently held by wholesale-funded banks. And for the few banks that have a rare combination of an extensive retail funding source (through a stable deposit base), large-scale project finance specialty skills and decent capital levels, conservative long-term lending is still an option.

Still, it is likely that long-term project finance lending from commercial banks has reached an evolutionary dead-end. The real story now, in terms of growth and innova-

tion, is mainly about institutional investors, many of whom (unlike banks) are perfectly suited to do long-term lending. Pension funds, insurance companies, endowments, and foundations need to invest a constant flow of money on a long-term buy-and-hold basis in order to meet their long-term objectives.

Institutional entry into project finance is arriving just in time. Project and infrastructure financing volume may need to rise substantially in the next decade due primarily to another fallout from the 2008 crisis—the need for many fiscally challenged OECD governments to rely on private-sector financing for much-delayed infrastructure renewal and development. This is in addition to a growing volume of private-sector transactions for new energy infrastructure development, related to both shale gas and renewable energy sources.[2]

Institutional investment in project finance is a compelling story—in theory. The pragmatic developments so far have been less exciting.[3] Institutions are beginning to participate in project finance—but in ways that probably do not exploit their full capabilities as non-bank investors. Most leveraged-loan buyers are (directly or indirectly) institutional, but the relative liquidity and medium-term tenor of Term B loans do not present an opportunity for a long-term buy-and-hold lender to earn non-risk-based premiums for illiquidity and long-tenor. In contrast, a handful of U.S. insurance companies do offer illiquid and long-term private placement financing for projects—but the U.S. insurance regulatory framework in effect limits risk taking to investment grade. As a result, these lenders end up competing squarely with those (similarly regulated and risk-averse) retail-funded commercial banks that can also offer long-term project loans.

What institutions are not doing—yet—is lending to projects in which they have the ability to hold senior project finance loans that are both long term *and* sub-investment grade, and in which they can earn both an illiquidity premium *and* a higher yield. Existing project finance lenders are precluded for one reason or another from offering this combination. As defined in the next section, there is an "open quadrant" in this capital market for long-term, high-yield loans. But specific institutional investor classes, mainly pension funds, endowments, and foundations, are not similarly precluded from becoming long-term, high-yield project finance lenders, and in many cases, they could better achieve their investment objectives by doing so.

This article predicts that a subset of institutional investors will in fact fill this open segment of the project finance loan market, because senior, secured, long-term, high-yield loans will meet many of their investment objectives while utilizing their capabilities and providing them with a competitive advantage. We also predict that a number of project owners and sponsors will demand this loan product once available, because it can support their specific senior capitalization objectives, especially with respect to minimizing refinancing risk while optimizing leverage and flexibility.

We outline the main concepts behind this prediction in the following sections:

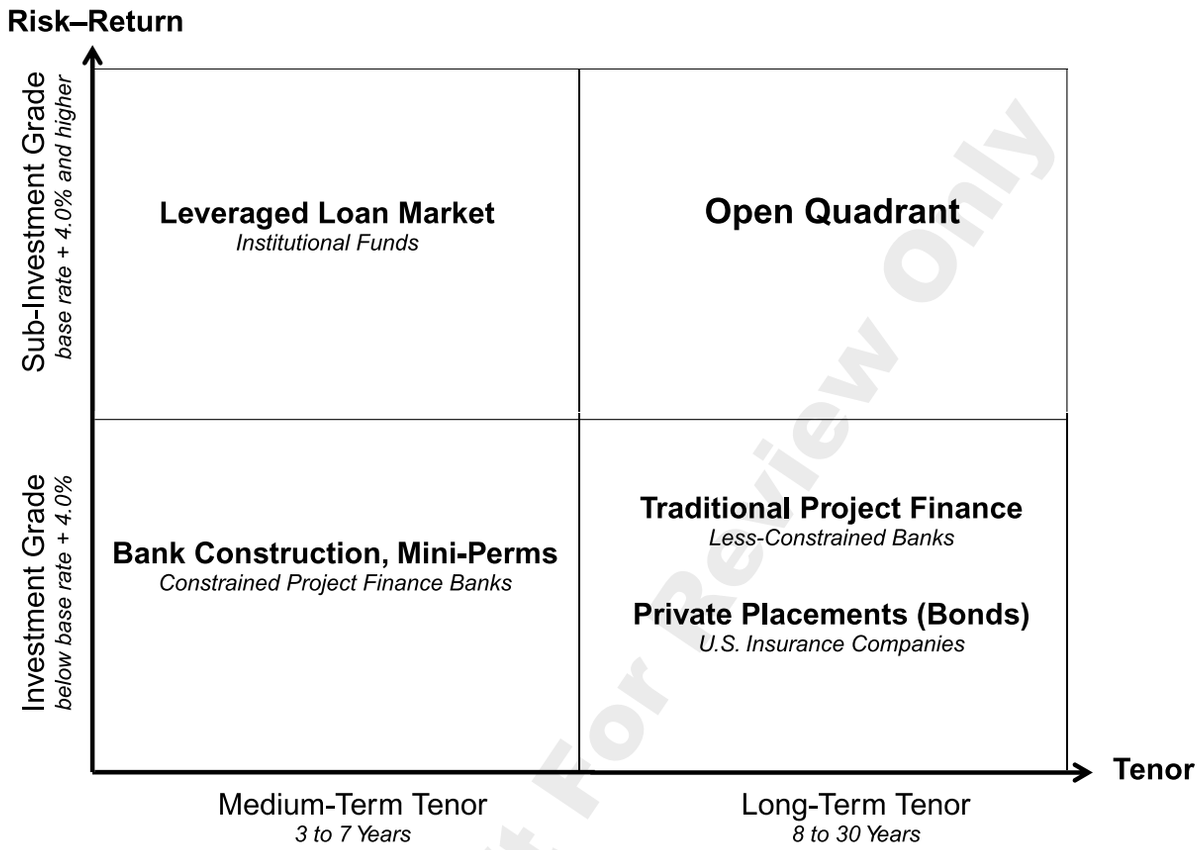
- *Definition*—a brief overview of the "quadrants" of the project finance senior debt market, and where the "open quadrant" is positioned and defined for our purposes;
- *Primary forces*—within the context of macroeconomic factors, the objectives and capabilities of the potential borrowers and lenders in the open quadrant and the nature of transactions financed there;
- *Form of transaction*—a summary of the main project finance loan precedents that are likely to apply to long-term, high-yield project loans and an outline of a specific form of loan transactions that reflects an optimal synthesis;
- *Scale*—an estimate of the potential size of the open quadrant niche in the project finance market;
- *Some policy observations*—in this final section, some brief observations of the purpose of government policy with respect to open quadrant development, including some illustrative examples.

DEFINING THE OPEN QUADRANT

The project finance senior debt market can be divided into four quadrants along axes of tenor and risk–return, as illustrated in Exhibit 1. The dividing lines of the quadrants are approximate but not arbitrary. There is a significant practical difference among investors for investment terms between medium-term tenor (seven years or less) and long-term tenor (eight years and beyond) and for credit quality and associated yields between investment grade and below investment grade.[4]

EXHIBIT 1

Project Finance Senior Debt Market Segments



Currently, three of four quadrants are fairly active with respect to a range of project finance senior lenders and transactions, leaving the fourth quadrant open:

- *Upper-left quadrant*. Higher-risk projects can be financed on a medium-term basis with "Term B" loans in the leveraged loan market;
- *Lower-left quadrant*. More traditional project financings (including related construction loans and other liquidity products) can be done as medium-term "mini-perm" syndicated loans by a group of long-standing project finance banks that are continuing in the business even though they are constrained with regard to long-term lending;
- *Lower-right quadrant*. Investment-grade projects with fully contracted revenues and other low-risk characteristics can still be financed on a long-term basis by a few project finance banks that are less constrained in long-term lending, or with a limited number of specialized groups within the U.S. insurance private placement market;
- *Upper-right quadrant*. This quadrant, high-yield/sub-investment-grade, long-term senior project finance debt, is an "open" quadrant—there are very few if any active lenders or transactions involved in this kind of financing.

Our specific definition here for open quadrant loans is as follows: senior secured project finance loans for social, transportation and energy infrastructure projects in the OECD region that are 1) over 7 years in final term, and more usually around 20 years, and 2) have a rating (or rating equivalent for unrated private project finance loans) of at least one notch below investment grade, with a commensurate "high yield" (as the latter term is used in the bond market).

PRIMARY FORCES

Nature might abhor a vacuum, but financial markets do not. The open quadrant of the project finance debt market will not develop just because it can be defined. Strong and consistent forces, originating from fundamental factors in the economy but precisely directed to this quadrant, are needed to make it happen. In this section, we will describe the way these forces might look and why they would lead to the development of the open quadrant. We start with the relevant macroeconomic context.

There is currently a great deal of uncertainty and heated debate about economic issues in the OECD region and especially about what economic policies might or might not be effective to address these issues. Although the outcome of many of these controversies of fact and opinion will certainly have an impact on all debt capital markets, not just the open quadrant, it is not possible to make any meaningful predictions about most of them in the context of our specific prediction concerning the development of this project finance loan market segment.

However, there are some relevant long-term factors in OECD economies that are either straight forwardly factual or are within a non-controversial consensus. These are important as basic elements of the framework within which the primary open quadrant forces are operating. There appear to be four:

1. *Demographics*—it is simply a fact (and a very significant one) that OECD populations are, on average, aging.
2. *Deleveraging*—although some deleveraging has occurred in the private sector since 2008, much of the debt has been taken on by the public sector in one form or another, with more likely to come in the near term. Overall limits of indebtedness are probably close. At some point, in some way, this will start to be reversed within the medium term.
3. *Market volatility*—developments in technology, regulatory frameworks, institutional size, emerging economies, and central bank monetary policy have made financial markets big, global, and prone to volatility. This is unlikely to change materially in the foreseeable future.
4. *Lower long-term growth possible*—it is entirely possible that OECD growth levels will not revert to historic long-term trends even after the current post-crisis recessions or periods of flat growth are finished. Making predictions about growth for decades hence is clearly dangerous—from the depths of the Great Depression, the postwar prosperity of the 1950s and 1960s would have seemed a stretch. The way the Great Moderation ended in 2008 speaks for itself. Still, the historical perspective we now have suggests that the relatively high growth rates in OECD economies in the 20th century may have been the result of specific non-permanent positive factors, not intrinsic conditions. So, although a reversion to the mean (or even higher) growth rate is of course possible and would be welcome, there is a clear consensus that prudent investors should be prepared for lower growth.[5]

All loan markets have three elements: borrowers, lenders, and a purpose for the loan. In effect, these are the primary motivating forces that drive the development of a new market within the larger context of the economic environment. The balance of this section describes the most likely candidates for the specific forces that could develop loan volume in the open quadrant:

- intensively leveraged borrowers,
- defeasance-oriented investors,
- higher-yield projects.

INTENSIVELY LEVERAGED BORROWERS

By definition, in this article, "borrowers" are infrastructure project owners or sponsors that use leverage in some form of non-recourse project financing. The modifier "intensively" is added to describe a subset of this group—project owners that will be motivated to develop or use the open quadrant.

The word "intensively" is meant to convey the high degree of importance of leverage to these borrowers in terms of optimizing the value of their equity investments.

Characteristics of intensively leveraged borrowers would include the following:

- They are using non-recourse debt because they are institutionally unable or unwilling to borrow to finance projects on an unsecured or secured recourse basis.

- A high leverage ratio is very important, primarily in order to minimize project equity investment, due to limited borrower resources, difficulty in achieving equity return targets otherwise, or a combination of both.
- The project assets have a relatively higher degree of intrinsic risk (technological, market, regulatory, and so on), as well as a related need for more active and skillful management, than typical low-risk infrastructure projects.
- Although medium-term non-recourse debt financing is often currently in place for their project (e.g., arranged between 2008 and 2012 to construct or acquire the project), intensively leveraged borrowers are now more seriously concerned about refinancing risk, either due to project specific factors or macroeconomic expectations. Their assumptions about deleveraging and financial market volatility may heighten this concern.[6]

By definition, a loan sourced in the open quadrant will be more expensive than what might be available in the other project finance loan market quadrants. Even for relatively risky projects, there are likely to be financing options (albeit limited with respect to tenor or leverage) in at least one of the non-open quadrants.

However, our contention here is that ability to achieve certain objectives by arranging senior debt from the open quadrant—uniquely achievable there in a combined form—will be especially useful to an intensively leveraged project borrower. These objectives include the following:

- Most fundamentally, an intensively leveraged borrower would seek the maximum possible debt tenor and its corollary, minimum amortization, in the context of the asset's useful economic life. Maximum tenor eliminates refinancing risk. This is important regardless of how long the borrower intends to own the project. In fact, the shorter the ownership horizon, the greater the need to avoid correlation between the equity value and potential credit market disruption. Lower amortization will improve equity cash yield. Both of these features may be especially important when the project owner is a closed-end infrastructure private equity fund with a medium-term exit target.
- Symmetrically with their own focus and active engagement, intensively leveraged borrowers would likely seek relationship-oriented, buy-and-hold investors within a stable club or small syndicate to be long-term project lenders. In any project financing, adjustments, amendments, and waivers are likely to be necessary, a likelihood that rises to a virtual certainty in a long-term timeframe. These modifications, as well as post-default workouts, have a far better chance of success for both sides when project lenders are known and actively involved. When senior lenders have a mindset of long-term "partnership" with the borrower, more equity value may be preserved in the course of resolving project problems.
- Although relationships with lenders are important, the option to pre-pay the debt at par at any time is valuable to intensively leveraged borrowers that expect to need the ability to sell the project (due to strategy, unexpected opportunity, or borrower liquidity requirements). The ability to prepay debt at par may enhance equity value, especially when a potential buyer has its own capabilities or strategies for senior debt capitalization.

If the previous three objectives are achieved, then a fourth—maximum possible leverage—becomes more feasible.

- High leverage can improve equity returns. This will be a critical part of the reason an intensively leveraged borrower would pay for higher-yielding senior debt, because expensive debt is cost-effective when it can displace even more expensive equity. In addition, maximum possible leverage at an early stage of a project's life can reduce the need to access credit markets in the future (as the project deleverages), thus avoiding market conditions that are at best uncertain and likely to be worse than now.

Intensively leveraged borrowers would likely include the following types of project owners:

- smaller project developers, especially in the renewable energy and gas-fired generation sectors;
- closed-end private-equity infrastructure funds whose investment strategies are limited to OECD regions and secondary acquisitions of primarily

brownfield projects and who have medium-term investment realization horizons;
- Financially stressed public sector entities—that is, regional or local government authorities that need to raise private-sector financing using infrastructure assets but are severely limited with respect to credit rating, borrowing authority, fiscal budget, and so on.

DEFEASANCE-ORIENTED INVESTORS

Non-bank institutional investors will likely be the only lenders in the open quadrant, for reasons described earlier. That potential universe is further narrowed to those institutional investors that can buy private, illiquid, and sub-investment-grade senior secured loans.

But this is still a large group. A subset of institutional investors that might be especially motivated to develop or seek opportunities in the open quadrant will have a common feature—they are "defeasance-oriented," by which is meant that they have a primary motivation to acquire long-term assets in order to defease long-term future liabilities. Such investors have an intrinsically long-term investment horizon but also very specific obligations in the future for which they must be credibly and safely provided at the lowest possible cost today.

Characteristics of defeasance-oriented investors would include the following:

- Defeasance-oriented investors have highly defined future liabilities that are based on external contractual obligations (e.g., pensions) or long-term planning targets (e.g., university endowments) that stretch over a very long-term time horizon (20 years or more).
- A basic investment plan for these investors will include a significant amount of investments in long-term assets that can be confidently predicted to yield a meaningful and non-volatile above-market return and that can withstand or rebound from negative events.
- The investors' liabilities are significant, but they are known and not prone to unexpected acceleration (e.g., they are actuarially determined or discretionary with respect to timing). In addition, these investors would be managing basically unleveraged funds. They face little cost or risk associated with holding highly illiquid investments for very long periods.
- Although their investment portfolios are also large in scale, the investors' internal transactional capabilities are often quite limited, requiring relatively large investment sizes for cost-efficiency.

In general, assumptions about demographic and growth trends will put pressure on the investment plans of defeasance-oriented investors.

The defeasance-oriented investors that are especially likely to be interested in the open quadrant will include those that have already invested or expressed serious interest in infrastructure equity, primarily in the context of a relatively small "alternative" allocation. Investors that are willing to accept the risk profile, the uncertain (but possibly very long) tenor, and the illiquidity of idiosyncratic private equity infrastructure investment should also be quite well suited to handle the same features in high-yield, long-term pre-payable infrastructure project loans.

This is a significant group—institutions investing in infrastructure private equity include a number of large and medium pension plans and endowments, and many more are actively considering allocations for this purpose—and so it worthwhile to examine them.[7] As an analytical framework for that examination here, "defeasance-orientation" describes the investors' main *objectives*, while the features of infrastructure equity investment demonstrate the investors' *capabilities*.

Defeasance-oriented objectives in this context are straightforward. Infrastructure equity investments offer a relatively high yield that is predictable and non-volatile. In addition, the investments are inflation-defensive, long-term, and based on the operation of long-lived assets with intrinsic economic value. Hence, there is a credible combination of long-term income potential with risk-reducing features—exactly what is required for defeasance of long-term liabilities.

With respect to capabilities, investors that can accept the risk profile, illiquidity, and indefinite (but potentially very long term) investment horizon of infrastructure equity could clearly handle the relatively less difficult level of these characteristics in a high-yield, long-term senior project finance loan. In a sense, the demonstrated capability of investing in infrastructure equity will subsume the capabilities required to invest in the open quadrant.

However, capability in itself does not lead to motivation. Institutional investors in infrastructure equity will be equally (or more) motivated to invest in long-term, high-yield project finance loans if those loans will realize their defeasance objectives equally well—or better—by a more-effective utilization of their capabilities. This would appear to be a likely outcome when the following specific factors are considered comparatively:

- *Yield*. In general, debt instruments are always a more natural investment for defeasance purposes than equity. But in the current economic environment, defeasance-oriented investors require higher yields for private, illiquid loans than are available in the existing infrastructure project finance market, which is a primary reason why infrastructure equity (not debt) is currently sought. But if high-yield, long-term project finance debt *were to become available* at or close to target returns (which should be possible in the open quadrant), the stability and downside protection of this form of infrastructure investment should outweigh the higher but more volatile yield potential of project equity for many investors.
- *Risk*. In contrast to upside-seeking investors, defeasance-oriented investors should be primarily focused on downside protection. Although infrastructure equity has many more risk-mitigating characteristics than other speculative private equity investments, equity is fundamentally exposed to loss as a trade-off for upside. In contrast, senior project finance debt has excellent recovery characteristics. In effect, the asset-intrinsic factors that make infrastructure equity less risky are beneficially multiplied in the case of infrastructure debt.
- *Tenor.* Infrastructure equity and pre-payable project finance loans are both potentially (but not necessarily) long-term investments. However, a floating-rate debt investment does not require a sale to realize its full yield potential, while medium-term liquidation is often the plan for private equity investment.
- *Illiquidity.* In almost all circumstances, an infrastructure equity investment will be more illiquid than a senior debt investment in the same project. More importantly, in light of the buy-and-hold objectives of defeasance-oriented investors, relative illiquidity with respect to other fixed-income investments can earn an explicit premium in the case of a project finance loan. There is no clear analog of this premium for an equity investment.
- *Pre-payment*. As with illiquidity, the borrower's pre-payment option can be explicitly valued and priced in an open quadrant loan.
- *Scale.* One of the biggest challenges for defeasance-oriented investors is efficiently sourcing a sufficient volume of attractive investments to meet their large-scale future liabilities. Because most infrastructure projects will be highly leveraged, by definition, far more infrastructure debt will be available than infrastructure equity.

Defeasance-oriented investors would likely include the following types of institutional investors, many of which are currently already invested or expressing interest in infrastructure assets:

- larger and more-sophisticated private and public pension plans as potential direct lenders, with smaller pension plans lending indirectly through debt funds;
- larger and more-sophisticated endowments and foundations, probably mostly on a direct basis;
- financially stressed public pension plans for regional and local authorities that face serious funding gaps (i.e., a significant relative shortfall between plan assets and liabilities) but whose public sector funding obligors are severely constrained by credit, fiscal or budget issues.

HIGHER-YIELD PROJECTS

Infrastructure projects that are financed in the open quadrant will—by definition—be paying a higher yield for their debt capitalization than most other projects. The higher cost of debt financing is the due to those projects' higher risk profile, which in turn may be the result of either 1) intrinsically high risk and marginal return profile for the project itself or 2) the needs or credit limitations of the project borrower, sponsor, or off-taker.

Despite all of the economic policy attention the topic receives, most potential social and transportation infrastructure projects in OECD economies do not have

a high marginal return, as calculated in terms of total social cost/benefit.

Building a new highway between a port and a factory town in an emerging market economy could really add a lot to that economy's potential output. In contrast, repaving or widening an existing highway between the city and suburbs in an OECD economy might make the commute more pleasant and office workers a little more productive, but even counting temporary uplift of construction jobs there really isn't much extra growth associated with this type of project. The work often needs to be done, but in many cases, the cost will approximately equal or even exceed the benefit.

As a result, many potential infrastructure renewal and development projects in OECD economies are similarly low risk and low return—and should be financed to reflect that fact, in a low-cost way. This means most projects should simply stay with the public sector, either directly or using (for budgeting purposes) contractual arrangements that are in fact basically full-recourse.

That is not to say that some public services and the operation of some public-sector assets could not be improved by creating a large role for the private sector. That is obviously true, but it does not necessarily follow that the project asset needs to be *owned and financed* by the private sector. When ownership and operation of an infrastructure asset are intrinsically intertwined (like an airport or similar retail transportation facilities), then that "asset" might be more of a "business" than a "project," and probably should be financed as such with respect to debt capitalization (i.e., closer to medium-term corporate finance, as opposed to long-term project finance). This would preclude the open quadrant as an efficient funding source.

OECD infrastructure assets that are not like intensively managed businesses (e.g., large-scale highways) are often more efficiently financed on a long-term basis with a large degree of public-sector support, regardless of nominal ownership structure. In practical terms, this usually means that project debt will have a credit rating that reflects that of its public sector sponsor—and in the OECD, that is frequently investment grade. This high credit rating would also preclude the open quadrant usage.

Nevertheless, although most public sector entities have relatively strong credit ratings, some are increasingly subject to severe fiscal and budget constraints. There may be a need for reduced public-sector support for a project, and more creative (and therefore higher risk) financings may be considered. In many cases, the infrastructure asset is intrinsically valuable enough (e.g., through monopoly market power in a still-prosperous region) that an infrastructure financing transaction will be able to obtain investment-grade, long-term debt, even on a relatively standalone basis.[8]

But there will be a subset of transactions where those conditions do not apply, and a public-sector authority will need to consider the open quadrant. Despite the higher interest rate that (by definition) will prevail in the open quadrant, other aspects—more flexible amortization, relationship lenders (perhaps including local public pension plans), floating-rate and pre-payable bases, and so on—could be important in managing a situation that is not exactly prompted by choice.

In contrast to social and transportation infrastructure projects, much energy infrastructure in some OECD countries (U.S. in particular) has been, in fact, a focus of new high-margin development activity since 2008, albeit for completely different reasons. Projects related to natural gas power generation, midstream transport and storage, petrochemical processing, and so on, are the result of new technology of resource extraction, making natural gas much cheaper and more abundant than previously. Renewable energy-based power generation projects and related infrastructure are, in contrast, primarily the result of a broad array of new government policies. But, for both types, the end result is the same—more new projects, often in the mid/upper range of project size.

For various reasons, the development and construction of many of these energy projects have been financed in the medium-term loan market—bank miniperms and leveraged loans—even though the project assets have long useful lives.

Many of these medium-term loans will need to be refinanced in the next three to four years. Some, of course, will remain or become solidly investment grade (large-scale solar in particular) and end up in the long-term, investment-grade quadrant. And more confident (or just better-capitalized) project owners will continue to roll their loans over in medium-term tenors.

But a significant subset of these refinancing loans could be prime candidates for the open quadrant, because they will be optimally financed with higher leverage,

but the projects are intrinsically risky enough (especially when non-contracted revenue streams are considered) to make any further refinancing uncertain.

These two groups of transactions are by no means exhaustive, of course. As a general principle, any project that is based on an infrastructure asset with a long useful life but 1) for one reason or another must incorporate an element of risk in its debt capitalization that precludes an investment-grade rating and 2) must be debt financed on a long-term basis to avoid refinancing risk will be a candidate for the open quadrant.

The theoretical scope of that principle is quite broad. In light of the negative economic factors noted above (demographics, deleveraging, volatility, and low growth), it would seem likely that many corresponding practical applications will arise if high-yield, long-term project finance debt becomes available.

FORM OF TRANSACTION

Ultimately, a match between the objectives and capabilities of borrowers and lenders requires a specific form of documented agreement for an actual debt transaction to occur. In established markets, this is straightforward. But for a new market segment like the project finance open quadrant, where many different approaches might in theory be possible, defining a specific form at the outset might be an important part of segment development.

As a practical matter, any structural aspect of project finance debt in the open quadrant will have a more-or-less direct precedent in one of the active quadrants. This assumption sets some general characteristics common to most project finance debt:

- Non-recourse—that is, recourse only to the assets of a project company SPV, including a large long-lived asset that has some clear economic function, and associated contracts and intangible rights;
- Highly developed documentation and analytical package—because the cash flow from project assets is the only source of debt service, it must be carefully assessed, forecast and captured;
- The most senior, and almost always the largest, debt layer of project capitalization, and secured on a perfected first-lien basis by all significant project assets;
- Private form, excluding public exchange listing, but including shelf registration (144a) and electronic DTC-type book-entry registration.

Note we are assuming that some possible forms like public bonds (direct or monoline-backed) and CMBS-type securitization pools are excluded, because it is unlikely that development of a new segment of the debt capital market would begin with instruments that require scale and uniformity or are especially complex.

With respect to a specific form (including basic terms and conditions), a synthesis of the relevant elements from the high-yield and the long-term quadrants would seem to be a natural and efficient outcome. This would result in a institutional project loan combining elements of a leveraged loan (risk profile, flexibility, pricing) with traditional long-term project finance bank lending (tenor, amortization, relationship-oriented).[9]

Specific terms in such a combination would include the following:

- basic form of standard, high-quality long-term project finance senior secured bank loan, as modified for specific classes of institutional investors;
- minimum size of approximately $100 million;
- pre-payable at par with floating-rate interest base—three-month LIBOR or U.S. CPI;
- private, non-registered, illiquid, not publicly rated—intended to be bought on "buy-and-hold" basis with restricted non-default trading;
- generally syndicated in "club style" and relationship-oriented;
- tenors of 8 to 30 years (in accordance with useful life of project asset and revenue base), amortizing on customized schedule, potentially including interest-only initial phases and some balloon repayment;
- risk profile reflecting sub-investment-grade range of probability default (BB+/Ba1 or lower in context of standard rating agency project finance criteria) but strong post-default recovery metrics based on specific project asset evaluation;
- pricing reflecting institutional objectives, including 1) minimum spread of approximately 4.0% over floating-rate interest base (i.e., a current definition of "high-yield") and 2) benchmarking to achieve relative value with respect to credit risk, illiquidity premium, and prepayment option.[10]

POTENTIAL SCALE

For new capital segments, the potential scale of the segment in terms of number of transactions and financing volume is an important question, not only for market principal participants but for intermediaries and advisers as well. Our prediction here is that if the institutional open quadrant does indeed develop over the next decade, the number and volume of long-term, high-yield project finance loans will likely be in the scale of an important, but limited, niche of the overall project finance market.

This is not to say that project finance debt volumes overall, or institutional lender involvement in the market, will be limited in terms of growth. In fact, the opposite is more likely. There are at least two broad drivers, noted in a prior section, for this in the U.S. and Europe—the need for infrastructure investment and the development of new energy sources.

The scale of these drivers is actually quite big. Required transport and social infrastructure investment just to address deferred maintenance and keep the stock up to par is estimated to be in the trillions of dollars by various policy and engineering groups. The numbers only rise if potential stimulus-oriented policies related to employment and increased logistical competitiveness are added.[11]

Much of this public infrastructure will stay directly with the public sector. But due to multiple levels of public sector budget and debt-volume constraints, Public–Private Partnership (PPP) transactions involving private-sector capital (primarily debt) will doubtless start to provide and increasing share of the total.

As noted earlier, new energy infrastructure investment arises from two different sources—new shale gas resources in the U.S. and renewable energy development in the U.S. and Europe. But the basic effect is much the same—more long-term project financings related to energy resource extraction, mid-stream activity, power transmission and generation, and downstream processing. The vast majority of this financing, which will likely total in the hundreds of billions of dollars, will be done in the private sector.

Assuming that the pressure of these drivers results in relatively high growth in the project finance markets in North America and Europe over the next decade, despite a likely background of slower GDP growth, a consistent 8% incremental volume growth in real terms per year (*including* the effect of a newly available long-term, high-yield debt product in the open quadrant) until 2023 is probably the optimistic-case upper bound for project finance debt.

Project finance debt volume in North America and Europe was approximately $65 billion in 2012.[12] A decade of 8% growth would approximately double this annual volume (in 2012 dollars) to about $130 billion across all four quadrants.

How might this volume be divided across the quadrant a decade from now, assuming that the open quadrant has experienced development? The first prediction we will make here is that the open quadrant will not get a pro-rata, 25% share (or about $33 billion); it will be less, probably significantly.

A prediction of a modest scale even within the four quadrants of project finance is not—as you might expect—based in any way on the relative newness or risk level of the open quadrant. Financial markets can develop quickly. A more specific example, and one that reflects risk appetite, is the explosive growth rate of the leveraged loan market. Since 2002, for example, that market has grown by nearly 12% a year.[13]

Instead, we are applying what is likely to be a fundamental principle: transactions done in the open quadrant will always represent the *exception*, not the rule, in project finance.

Because most borrowers are not "intensively leveraged" and most projects are not "high yield," even with an available loan option in open quadrant, 1) most high-yield project finance loans will be placed on a medium-term basis in the leveraged loan or bank mini-perm markets, and 2) most long-term financings will be optimized using investment-grade senior debt and therefore will be placed in the constrained bank and U.S. private placement markets. Only the exceptions will go to the open quadrant.

What might these exceptions look like? Two likely exceptions, PPP transactions with financially stressed public-sector sponsors and energy-related project refinancings for intensively leveraged borrowers, were described in a previous section. There are two others worth highlighting in connection with estimating potential open quadrant scale.

The first involves transactions that are "parked" in the open quadrant as a "safe haven" for projects that may ultimately be capitalized in the long-term, investment-grade market (including public debt when that becomes

available), but the timing has become very uncertain and refinancing risk must be avoided. High-yield, long-term private debt that could perhaps be arranged quickly and be pre-paid at par could provide flexibility and insurance in choppy financial conditions, albeit at a price. Potential volume for this purpose will of course be related to perceptions of market volatility.

Second, there are "known unknowns"—risk elements in almost any project financing that can make an investment-grade rating difficult to achieve even though the overall risk profile of the project is not too high. These include risks associated with construction, technology, specific regulatory framework, market analyses, and so on, where the metrics might just fail to achieve investment-grade parameters. The open quadrant would be a natural catchment area for such "non-conforming" deals that otherwise might not proceed.

Within each of these four sources, it's not hard to visualize about three or four medium-sized transactions a year, for a total volume of between $5 and $10 billion annually, or less than 10% of the overall volume. Of course, this specific prediction could turn out to be wildly inaccurate (either on the high or low side), but it is very likely that if the fundamental factors outlined in this article are basically correct, the open quadrant will remain a small, but potentially important, specialty niche in the project finance loan market.[14]

SOME POLICY OBSERVATIONS

Government economic policies for supporting infrastructure renewal and development are prevalent in OECD countries, although perhaps more in terms of discussion and proposals than actual implementation. Most policies that pertain to financing are directed toward encouraging long-term and cost-effective options for public- and private-sector entities, and some are also specifically focused on senior debt in infrastructure project financings.

There is apparently little or no discussion about policies to assist the development of long-term, *high-yield* project loan options, however. This is not simply because the open quadrant is as yet almost completely undeveloped; after all, it is often precisely the purpose of government economic policy to provide the early impetus for new markets. A more important reason is probably that the purpose of encouraging activity in the open quadrant in the context of some sort of social benefit is not clear. In fact, the descriptor "high-yield" in itself implies speculation and windfall profits.

Nevertheless, on closer examination, there may be a number of situations where the availability of long-term, sub-investment-grade project debt will make a crucial difference to the realization of socially desirable outcomes—albeit at a higher cost—that would not otherwise happen. The following are some examples that highlight different policy aspects:

- A national government could assist a regional public-sector entity that was financially stressed with a partial loan guarantee for a much-needed local infrastructure project even when the unguaranteed portion of the project's debt was sub-investment-grade, if open quadrant lenders could provide that portion. The much lower cost of the guaranteed portion (in effect, reflecting a subsidy to the local users) will mitigate the higher cost of the sub-investment-grade debt, and the inclusion of private-sector lenders will help validate the economic value of the project.[15]
- In the U.S., renewable energy developers would benefit from sources of senior long-term debt that could lend to riskier "merchant" (i.e., non-fully-contracted revenues) projects, and the projects themselves would be more financially stable, due to the mitigation of refinancing risk. Although some sort of subsidy policy is a direct route to encouraging potential open quadrant lenders for this purpose, perhaps non-subsidy-based, indirect policies might work as well (e.g., faster permitting for merchant plants that used long-term loans instead of medium-term financing).
- The "parking" potential of the open quadrant described in the prior section might be useful with respect to implementing economic stimulus policies that involve infrastructure. Lending capacity in the open quadrant could help projects move into development faster (which presumably is an important aspect of a stimulus policy) because less certainty about a project's ultimate credit rating would be necessary. In addition, if fast-tracked projects had long-term financing in place at an early stage, a hard "cliff" of required refinancings (which might occur if shorter-term financing was used) could be avoided. In effect, the open quadrant would help

smooth the policy transmission mechanisms for infrastructure-based stimulus.

- Many U.S. public pension funds are facing serious challenges with respect to under-funding, which is a matter of growing concern for not only regional governments but the U.S. federal government as well.[16] Although the scale of the problem is far outside any single solution, one part of a path forward would certainly be to increase the availability of higher-yield and long-term, but still relatively safe, investment assets. As described in a prior section, the most likely lenders into the open quadrant, defeasance-oriented investors would clearly include U.S. public pension funds. Policies that accelerated their ability to invest in high-yield infrastructure projects might include specific enabling modifications to other infrastructure support programs described previously, or the creation of special "rights of participation" for stressed public pension funds to make debt investments in local infrastructure on a preferential basis.

More generally, in light of the challenging macroeconomic factors described at the beginning of this article, new debt capacity in the open quadrant that offers increased flexibility and long-term stability for infrastructure projects will almost certainly be of interest to policymakers searching for innovative solutions to difficult problems.

ENDNOTES

[1]From a roundtable discussion earlier this year, the following quote from a senior project finance bank lender succinctly summarizes the change: "The shortening [to medium-term tenors by bank lenders] really was a sea change as a consequence of the re-pricing of capital and liquidity problems, particularly among European banks. Borrowers have accepted mini-perm features. The shortening of tenors is creating opportunities for institutional lenders, and they have been stepping up. I think it is a permanent shift" (Chadbourne [2013]). Note that while project finance bank term and lending capacity have fluctuated in response to various market conditions in the past, the perception is that post-2008 conditions are "permanent," which is unprecedented.

[2]For example, a recent report from the McKinsey Global Institute considers public infrastructure renewal and energy infrastructure development to be two of five "game changers" for near-term growth and renewal in the U.S. economy (Lund et al. [2013]).

[3]Fundraising for institutional infrastructure debt funds has proved slower than expected, as has the development of a larger transaction pipeline. For example, a recent article in a leading online news magazine for private debt discusses various factors behind slower development. ("Laying the Foundations" [2013]) However, confidence appears to remain that ultimately institutional investors will have a central role in providing long-term infrastructure debt.

[4]In the context of commercial bank loans (which in addition were the origin and provide the basic form of leveraged loans) the tenor "medium-term" is usually defined as between 5 and 10 years. To describe the quadrant here, we are using seven years as a specific limit, which is roughly the most frequent tenor. For example, an S&P analyst made the following statement in connection with a discussion on infrastructure debt: "There is a general reluctance from banks to lend on long-term projects of anything beyond seven years… ." The analyst added "that the withdrawal of bank funding for long-term infrastructure projects has given rise to considerable appetite from insurance companies and pension funds to fill the hole" ("Refinancing Infra Debt" [2013]). The investment-grade and sub-investment-grade demarcation as representing significantly different investment types is a widely recognized fact in terms of investment strategy, policy, and regulatory requirements.

[5]The main importance of low economic growth in an open quadrant context is the correspondingly low real returns on long-term debt and equity investments. For example, Paul Marsh, a London Business School researcher and author of the Credit Suisse Global Investment Returns yearbook (Dimson et al. [2012]), predicts in a recent interview that real yields for bonds and equities to be about 1% and 3.5% respectively for the next 20 years, adding "Other academic figures agree with us. We might be gloomy in our predictions, but we are not alone" (Rundell [2013]).

[6]For example, here is a quote from the head of a leading U.S.-based infrastructure debt fund regarding borrower objectives: "If you've got an infrastructure asset with three year debt on it, you're very exposed to the gyrations of the capital markets." The executive continued, "Your asset may be performing wonderfully, but you may get caught out on a liquidity event in the banking market. Whereas, if you have a long-term debt capital structure which institutional investors can provide, we're really able to provide that robust and stable infrastructure that everyone wants" ("Growing Pains" [2013]). Liquidity events are not likely to become a hypothetical concern. At the least, the prospect of U.S. Federal Reserve policy changes in the near future (e.g., the start of quantitative easing "tapering") has already unsettled debt

markets earlier in the year and will likely create even more volatility as the changes are actually implemented.

[7]In the U.S. alone, the Infrastructure Investor database (see www.infrastructureinvestor.com) of LPs that are actively investing or considering investing in infrastructure equity funds lists as of April 2013 more than 100 (mostly public) pension funds and more than 50 each of major university endowments and foundations. The interest also continues to grow. A recent survey by Preqin Ltd., a leading private equity analytical firm, found that 1) 63% of institutional investors surveyed had increased their infrastructure allocation over the past 12 months and 2) that 98% expected to maintain or grow this allocation over the long term (Preqin [2013]).

[8]For example, a small city in Pennsylvania was able to raise long-term debt against a water system concession (i.e., a type of non-recourse project finance) that received a better credit rating than that of the city itself and (because the proceeds of the concession sale were used to reduce the city's recourse obligations) was considered a "credit positive" event by the city's rating agency (Varghese [2013]).

[9]Such a synthesis would be consistent with the history of leveraged loan market. Leveraged loans originated in the mid-1990s with bank loans that were more actively traded due (in part) to their risk profile. The trading objective required a more liquid form and a restricted tenor than bank loans held at banks at that time, and precedents for these purposes were borrowed from the high-yield bond market. Now, starting with the widely accepted risk profile of leveraged loans, an evolution in a different direction for open quadrant purposes—toward less-liquid, relationship-based, and long-term forms, in effect returning to part of their bank history—is easy to envisage as a relatively "organic" development using existing project finance loan syndication precedents and other standard features.

[10]Year-to-date return index for leveraged loans is about 5.0%. Assuming that this index reflects a standard LIBOR floor of about 1.0% (applicable for all 2013 so far), the approximate 'high-yield' spread is about 4.0% (source: Loan Market at a Glance at www.leveragedloan.com; accessed September 8, 2013). Another, even more direct, data point is from an 2012 investment strategy paper from a major public pension fund, the California Public Employees Retirement System (CalPERS) that includes target terms for infrastructure debt. CalPERS' minimum spread over either a LIBOR or CPI-based index is 4.0% (CalPERS [2012, pp. 33-34]). Because CalPERS is very much a leader among public pension funds, this target is likely to be indicative for many other U.S. institutional investors in infrastructure debt.

[11]The McKinsey Global Institute estimates that 1) investment of $1.2 trillion to $1.4 trillion in energy infrastructure is needed to unlock the potential of shale gas and tight oil and 2) approximately $1.2 trillion will be required over the next decade for social and transportation infrastructure (McKinsey [2013]).

[12]Definitions of "project finance" and "infrastructure" vary, of course. The estimate here is based on a Thomas Reuters 2012 market summary report wherein the categories seem consistent with our purposes in this article (Thomson Reuters [2013]).

[13]As with many other segments of the capital markets, leveraged loan volume experienced a very rapid increase to over $500 billion in 2007, followed by a crash in the following years. However, volume is now back to similar levels ($465 billion in 2012) with an even higher trend line for 2013. These rapid rises and fluctuations underscore the point that even new financial markets can change quickly. (See the Leveraged Loan Primer at www.leveragedloan.com/primer/#!refigcpbuild-outs, accessed September 8, 2013.)

[14]As an analogy, the institutional tax-equity market in the U.S. (which provides a complex form of long-term debt-like capital that monetizes project tax benefits and credits) is a critical component for renewable energy project development, although in size (approximately $3.6 billion in 2011) it remains a small niche (USPREF [2011]).

[15]Although a national government loan guarantee for a project is clearly more valuable with respect to reducing the cost of debt for a riskier, sub-investment-grade project, the involvement in such debt of private-sector lenders in a "financial public–private partnership" is perhaps even more important to ensure that taxpayers are receiving "value for capital." These concepts are explored by the current author in a prior article (Ryan [2011]). The important point here is that the overall social cost of a loan guarantee program which includes a tranche for open quadrant institutional investors might be lower even as higher-yielding opportunities are created for investors.

[16]The scale of the public pension fund funding gap in the U.S. is mind-boggling. The center for retirement estimates shortfalls of approximately $*2.7 trillion* (Munnell et al. [2013]). In light of the size and scope of the potential impact on the overall economy, not to mention alleviating specific areas of extreme distress, federal government involvement is considered inevitable. But a relatively subtle and "low-impact" form of assistance will be important with respect to the U.S. own balance sheet and budget constraints (Riordan and Rutten [2013]). The open quadrant will be a useful location for innovative long-term solutions based on infrastructure.

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