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Infrastructure:

Opportunity for yield and diversification

Heather L. Davis
President and Chief Investment Officer
TIAA Private Investments

John Goodreds
Head of Alternative Solutions
Nuveen / TIAA

Marietta Moshiashvili
Head of Private Energy &
Infrastructure Asset Management
Nuveen / TIAA

Jay Rosenberg
Head of Investments for Real Assets
Nuveen Asset Management

Derek Wolff, Ph.D.
Head of Strategic Product Development
Nuveen Asset Management

Infrastructure is a real asset offering institutional investors distinct advantages over traditional and alternative asset classes.

The asset class can be accessed through different parts of the capital structure to obtain a range of potential benefits: higher yield and total return, lower volatility, and low correlations to improve overall portfolio risk-adjusted returns. What distinguishes infrastructure from other alternatives is long-term stability of high income returns that are less sensitive to economic cycles. The yield advantage of this asset class is defined

EXECUTIVE SUMMARY

- Infrastructure is a real asset offering institutional investors distinct advantages over traditional and alternative asset classes: potential for higher yield, lower volatility, and low correlations.
- Benefits reflect infrastructure's unique characteristics: location-specific natural monopolies generating predictable high income through long-term contracts for essential services.
- Infrastructure spans four categories—private and public investments in equity and debt—with diverse characteristics allowing investors to customize a portfolio's risk-return profile.
- Analysis of historical performance showed that each category improved risk-adjusted returns when added to traditional stock-bond portfolios—and benefits increased by adding multiple categories.
- Institutional investors should consider a dedicated allocation to infrastructure investments based on diversification benefits not available from other asset classes.

by its unique characteristics: mostly location-specific natural monopolies that generate usage fees through long-term contracts for essential services, such as energy, transportation, and water. Another key benefit is a record of lower volatility and risk relative to traditional asset classes, based on a combination of government or contractual guarantees, steady income often indexed to inflation, and high barriers to entry.

Infrastructure isn't monolithic. The diversity of opportunities—spanning a range of markets, sectors, and funding sources—supports customizing portfolios to a desired risk-return profile. The asset class can be divided into four categories consisting of private and public investments in equity and debt. Selecting among the four categories allows investors to tailor portfolio characteristics, such as income, total return, duration, liquidity, and capital commitment. Although institutions have historically favored private investments, public investments—including municipal bonds—offer exclusive access to certain infrastructure assets and provide liquidity. Investing across the four categories allows investors to assess which offer better relative value, based on desired investment profile, the economic cycle and local market conditions. Moreover, combining investments in multiple categories offers the potential to improve portfolio diversification based on infrastructure's attractive risk-adjusted returns and low correlations among the four categories.

Investment opportunities are expanding globally with powerful trends—demand for sustainable energy and the critical need to replace roads, bridges, schools and other facilities vital to healthy economies. The World Economic Forum estimates a $1 trillion annual shortfall in global spending on basic infrastructure,[1] while The Boston Consulting Group estimates that governments can fund less than half of the $35 to $40 trillion in infrastructure spending required over the next 20 years.[2]

INFRASTRUCTURE CATEGORIES

Infrastructure's four categories—equity and debt, both private and public—offer investors the opportunity to customize a portfolio's risk-return profile by incorporating diverse investment characteristics.

Equity

Infrastructure equity offers reliable cash flows—often generated by long-term contracts—and returns less sensitive to economic cycles than other investments. Despite higher volatility of total returns, predictable cash-flow yields often in high single digits are attractive to institutional investors for asset-liability matching. Unlike bonds with static yields, equity cash flows can grow with the economy, providing a hedge against inflation. Cash flows represent a much higher percentage of total returns than other equities. As a result, infrastructure has typically returned a larger share of the market's upside than the downside, providing better upside/downside capture ratios than traditional equity investments. Institutional investors often use both private and public equity for diversification—the mix depending on desired yield, maturity, and volatility.

Private equity

Private equity represents direct investments in unlisted companies or private investments in public companies. This category generally offers higher yields than typically available in public equity investments, lower volatility, and greater potential for capital appreciation and competitive returns. A key advantage is the ability to customize by selecting specific assets in particular sub-sectors matching client needs for yield, growth, duration, and asset-liability matching. In addition, the opportunity to influence governance through covenants provides greater control over strategy, growth opportunities, and risk management.

Private equity investments generally require large capital commitments, often $50 million or more. Investors must be able to tolerate limited liquidity, due to lock-ups that can run as long as 12 years, and the lack of a public market for investors who want to sell.

Opportunities representing core investments with stable income streams include contracted renewable energy, midstream pipelines with volume guarantees, liquefied natural gas storage, regulated utilities, and transportation. One example is a privately-operated toll road, I-595 Express LLC in southeast Florida used by more than 180,000 vehicles daily. Built through a public-private partnership, the highway includes express lanes that charge tolls, with predictable cash flows to investors specified in a 35-year concession agreement that reduces traffic demand risk.

Infrastructure equity's predictable high cash-flow yields are attractive to institutional investors for asset-liability matching.

Core-plus investments, such as telecommunication towers, offer higher yields, growth potential, and more risk. Data centers, for example, can offer a combination of predictable cash flows from long-term contracts and capital appreciation potential as demand for cloud computing increases.

Despite strong returns in recent years, heavy demand for infrastructure assets is bidding up prices and potentially eroding future returns. Unlisted infrastructure fundraising set records in 2016, including $59 billion raised by funds reaching a final close.[3] Assets under management increased from $24 billion in December 2005 to $373 billion in June 2016.[4] According to Preqin, "asset pricing is a key issue for the industry in 2017, with high prices potentially eating into the eventual returns investors will see from their infrastructure portfolios."[5]

Nonetheless, major pockets of attractive risk-return opportunities are available, particularly for experienced investors with execution capabilities and industry contacts providing access to private "club" deals not sold through public auctions. The ability to access proprietary deal flow and secure investments at attractive valuations depends on governance, regulatory and execution related factors.

Public equity

Public equity investments—listed on stock exchanges—appeal to investors seeking high returns, growth potential, and diversification. Despite higher volatility, infrastructure stocks have defensive characteristics, including higher yield and lower beta that historically have captured more of the market's upside and less of the downside compared to global equities.

Investors might choose public over private equity investments if they wish to make a lower initial capital outlay or take advantage of greater liquidity and the ability to diversify across regions and sectors. In addition, projects may trade at a discount relative to their private equity counterparts, depending on the stage of the business cycle. An example is a China-based integrated environmental services provider addressing burgeoning demand for pollution control facilities, including waste-to-energy, water purification, and hazardous waste treatment. The company offers high growth potential based on increasing project awards from China's government agencies.

Although institutional investors traditionally favored private over public equity, listed infrastructure stocks are receiving increased consideration. In fact, access to some assets is available only through public stock exchanges, including certain privatized airports, toll roads, and subways in Europe, Australia, and Asia.

Demand for infrastructure investments has increased privatization through public-private partnerships. Listing privatized assets on public exchanges—examples include a toll road operator in France and an airport manager in Spain—increases infrastructure investment opportunities in public markets.

Debt

Institutions seeking stable long-term cash flows may favor public or private infrastructure debt, which offers lower risk than equity due to its higher position in the capital structure. Infrastructure debt historically has provided higher yields than similarly rated corporate bonds. Another important advantage is very low default rates. Moody's found that infrastructure debt had substantially lower default and loss rates, compared to non-financial corporate (NFC) issuers. Infrastructure bond ratings were only 40% as volatile and lost only 0.3% and 0.4% of their face value over 5- and 10-year time periods, compared with 6.0% and 8.9% for NFC bonds.[6] Institutions seeking higher yield and capital appreciation potential, but sensitive to volatility, may favor hybrid investments. Convertible bonds, for example, offer a higher yield that can increase with economic growth, and potential for capital appreciation if the underlying company's value rises.

Investors can select private debt in specific sectors and across the capital structure to customize a desired risk-return profile.

Private debt

Private debt—not offered publicly—has typically offered higher yields as a tradeoff for limited liquidity, compared to public debt. Strict governance through covenants has reduced default and loss rates below levels suggested by the higher yield. Investors may choose private debt in specific sectors if they seek to customize the yield or match the duration of long-dated liabilities. Subordinated private debt, such as mezzanine capital, offers higher yield with higher risk and shorter tenors.

Two segments offering attractive spreads over equivalent public bonds are U.S. student housing and renewable energy. Loans to renovate or construct new student housing are a rapidly growing market, offering a captive audience and high occupancy rates with protections against overbuilding. For example, Howard University in 2016 signed a 40-year contract to renovate and manage dormitories with 2,200 beds, offering attractive yield, long duration, and covenants to reduce risk. In renewable energy, hydroelectric facilities lasting up to 100 years offer stable income and can make money even in low-flow years because they tend to be the lowest-cost producers of electricity.

Investing in more attractive private debt opportunities often requires an experienced partner. Demand for private debt has been strong, with traditional bank-driven deals significantly oversubscribed and offering small allocations to investors. The most attractive opportunities are available through "club" deals offered to as few as 10 investors with established relationships and strong track records of working well with operators and investors.

Public debt

Although public debt includes corporate bonds and hybrid securities, municipal bonds represent the largest market, funding most U.S. public infrastructure. Infrastructure financed by municipal bonds consists largely of investment-grade quality, fee-generating public projects, such as water and sewer systems.[7] Advantages include geographic exposure across the U.S. in a highly liquid market considered quasi-sovereign based on its high credit ratings—typically AA—and historically low default and loss rates. An example is $2.5 billion in municipal bonds issued in 2016 for reconstruction at New York's LaGuardia Airport and funded by airport revenues.

Municipal bonds are particularly attractive to non-U.S. institutional investors facing near zero or negative yields on their domestic sovereign debt. Compared to similarly rated corporate bonds, municipal bonds offer similar yields with more stable credit ratings and much lower default and loss rates.

Credit research is vital to successful investment in the municipal market because of pricing inefficiencies and a concentration of credits among the highest rating categories despite variation in quality. For example, yields can range from 1.5% to 4.5% for 10-year bonds with the same credit rating and duration. In addition, strong global demand for bonds from widely followed issuers, such as the states of New York and California, have driven up prices and compressed yields. Skilled credit research can identify better value with similar risks from tens of thousands of other less well-known issuers and less-followed sectors.

Exhibit 1: Infrastructure's four categories

Selection among the four categories will depend on preferences for different characteristics, such as liquidity, return, volatility, and investment size. Depending on their goals, investors may include infrastructure in their allocations to real assets, fixed income or global equities.

	PRIVATE	PUBLIC
EQUITY	**BENEFITS:** • Higher yields than general public equities • Growth potential • Low correlations to other asset classes • Lower volatility than public equity • Inflation/deflation hedge **RISKS:** • Volatility • Illiquidity • Operational, regulatory **INVESTORS:** Qualified institutional investors	**BENEFITS:** • Higher yields than general public equities • Growth potential • Diversification • Highly liquid (daily valuation) • Inflation/deflation hedge **RISKS:** • Volatility • Security and sector risks • Operational, regulatory, market **INVESTORS:** Institutional and individual investors
DEBT	**BENEFITS:** • Higher yield than equities and public debt • Relatively stable returns—lower volatility than equity • Lower risk of losses—higher in capital structure, covenants for governance **RISKS:** • Illiquidity • Operational, regulatory • Inflation • Duration (interest-rate risk) **INVESTORS:** Qualified institutional investors	**BENEFITS (MUNICIPAL BONDS):** • Yields comparable to corporate bonds • Very low default and loss risk • Highly liquid, $3.7 trillion market • Broad sector diversification • 30-year bond availability to match long liabilities **RISKS:** • Interest-rate risk • Inefficient market • Operational, regulatory, market **INVESTORS:** Institutional and individual investors

DIVERSIFICATION THROUGH LOW CORRELATIONS

Infrastructure's low correlations with traditional and alternative asset classes historically have provided strong diversification benefits. The high income component of total returns and steady long-term cash flows tend to reduce correlations and volatility, helping to support portfolio asset-liability matching. For example, the four infrastructure categories have been excellent diversifiers of investment-grade U.S. bonds, with correlations ranging from -0.30 to 0.38, and a moderate diversifier of U.S. and non-U.S. equity (Exhibit 2). The four types also have generally low correlations to each other, providing added diversification benefits when combined in a portfolio. Reflecting how it differs from other real assets, infrastructure has generally low or negative correlations with private real estate.

Infrastructure's low correlations with other asset classes historically have provided strong diversification benefits.

Exhibit 2: Infrastructure's generally low correlations with other asset classes

Highlighted cells show low or negative correlations with investment-grade U.S. bonds

Annualized		Infrastructure indexes					Investment-grade U.S. bonds	U.S. equity	Non-U.S. equity	Private real estate
		Private equity	Public equity	Private debt (DJB BBB)	Private debt (S&P BBB)	Public debt (municipal)				
Infrastructure indexes	Private equity	1.00	0.76	0.23	0.08	0.03	-0.30	0.61	0.64	0.58
	Public equity		1.00	0.66	0.50	0.39	-0.09	0.78	0.91	0.27
	Private debt (DJB BBB)			1.00	0.88	0.72	0.31	0.61	0.73	-0.41
	Private debt (S&P BBB)				1.00	0.83	0.38	0.52	0.61	-0.42
	Public debt (municipal)					1.00	0.38	0.32	0.46	-0.26
Broad-market indexes	Investment-grade U.S. bonds						1.00	-0.43	-0.22	-0.17
	U.S. equity							1.00	0.86	0.15
	Non-U.S. equity								1.00	0.07
Real estate	Private real estate									1.00

Sources: Cambridge Associates, Morningstar Direct, Nuveen, LLC. Correlations are based on annual returns for the following indexes for the 15-year period, 2002-2016, except where noted. Infrastructure private equity (Cambridge Associates index of 86 infrastructure private equity funds covering vintage years 2002-2015, based on net internal rate of return (IRR) to limited partners; infrastructure private debt (two public indexes with equivalent credit ratings serve as proxies: Dow Jones Brookfield Global Infrastructure Corporate Bond BBB Index, 2004-2016, and S&P 500 BBB Investment Grade Corporate Bond Index; infrastructure public equity (S&P Global Infrastructure Index); infrastructure public debt (Bloomberg Barclays Revenue Bond Index); investment-grade U.S. bonds (Bloomberg Barclays U.S. Aggregate Bond Index); U.S. equity (S&P 500 Index); non-U.S. equity (MSCI All Country World ex USA Index); private real estate (NCREIF Property Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs. Results may be significantly different for other time periods.

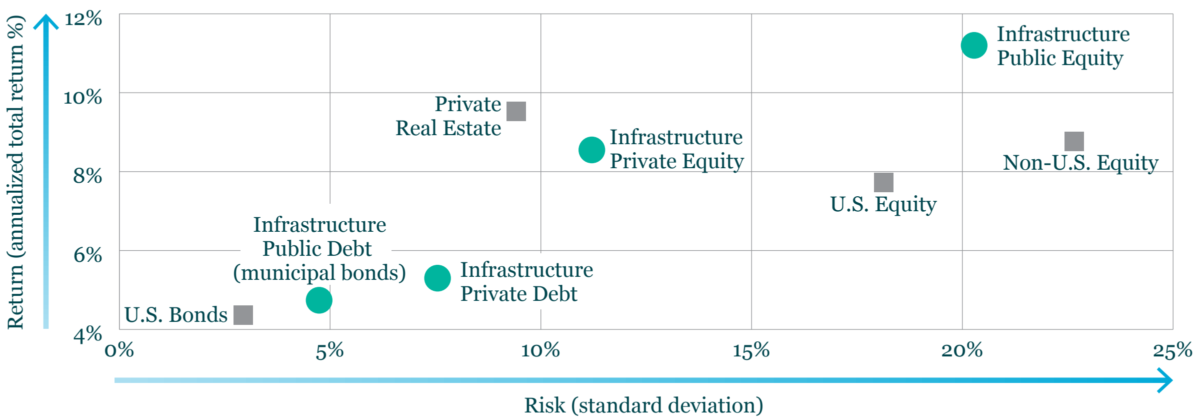
ATTRACTIVE RISK-ADJUSTED RETURNS

Infrastructure's historical performance overall has been superior to traditional asset classes. The four categories generally have offered higher absolute and risk-adjusted returns reflecting lower volatility than most asset classes. Two comparable categories, investment-grade U.S. bonds and private real estate, show low correlations with infrastructure investments.

Infrastructure public equity offered the highest return, 11.2%, with high volatility, 20.3%, exceeded only by non-U.S. equity (Exhibit 3). Infrastructure private equity offered significantly lower volatility and higher risk-adjusted return based on Sharpe Ratio. The two debt categories offered higher returns than traditional investment-grade U.S. debt, but with higher volatility reflecting lower credit ratings traditionally assigned to the category, despite lower default and loss rates.

Exhibit 3. Infrastructure's risk-return profile vs. major asset classes

Annualized return and standard deviation: Infrastructure vs. asset classes (2002-2015)



Performance and risk measures for infrastructure and major asset classes

Annualized returns, standard deviation, and Sharpe Ratio (2002-2015)

Annualized	Infrastructure indexes				Investment-grade U.S. bonds	U.S. equity	Non-U.S. equity	Private real estate
	Private equity	Public equity	Private debt	Public debt (municipal bonds)				
Annualized returns	8.55%	11.20%	5.30%	4.74%	4.36%	7.73%	8.76%	8.83%
Standard deviation	11.21%	20.28%	7.55%	4.74%	2.94%	18.13%	22.65%	9.42%
Sharpe Ratio	0.62	0.47	0.49	0.67	0.95	0.34	0.32	0.77

Sources: Cambridge Associates, Morningstar Direct, Nuveen, LLC. Performance reflects quarterly returns, standard deviation, and Sharpe Ratio for the 14-year period, 2002-2015. Sharpe Ratio uses 1-year Treasury rate as risk-free rate. Performance is based on the following indexes: Infrastructure private equity (Cambridge Associates index of net internal rate of return (IRR) to limited partners for 86 infrastructure private equity funds covering vintage years 2002-2015); infrastructure private debt (two public indexes with equivalent credit ratings serve as proxies: Dow Jones Brookfield Global Infrastructure Corporate Bond BBB Index, 2004-2016, and S&P 500 BBB Investment Grade Corporate Bond Index, 2002-2003); infrastructure public equity (S&P Global Infrastructure Index); infrastructure public debt (Bloomberg Barclays Revenue Bond Index); investment-grade U.S. bonds (Bloomberg Barclays U.S. Aggregate Bond Index); U.S. equity (S&P 500 Index); non-U.S. equity (MSCI All Country World ex USA Index); private real estate (NCREIF Property Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs. Results may be significantly different for other time periods.

PORTFOLIO BENEFITS

Adding infrastructure to a traditional stock-bond portfolio offers the potential for meaningful improvements in return and risk. We address the impact of the four categories individually and combined, illustrating the potential to customize a risk-return profile with different mixes of equity and debt. The analysis is based on a range of fixed allocations to indexes representing infrastructure and traditional stocks and bonds, using returns for the 14-year period 2002-2015. Portfolio analysis excluded data for 2016 because private equity index data was not yet available for the full year. To assess time period dependency, we also tested a shorter time period, 2006-2015, and found similar results. Risk was measured by standard deviation and risk-adjusted returns by Sharpe Ratio.

Scenario 1: Adding infrastructure equity to a public equity portfolio

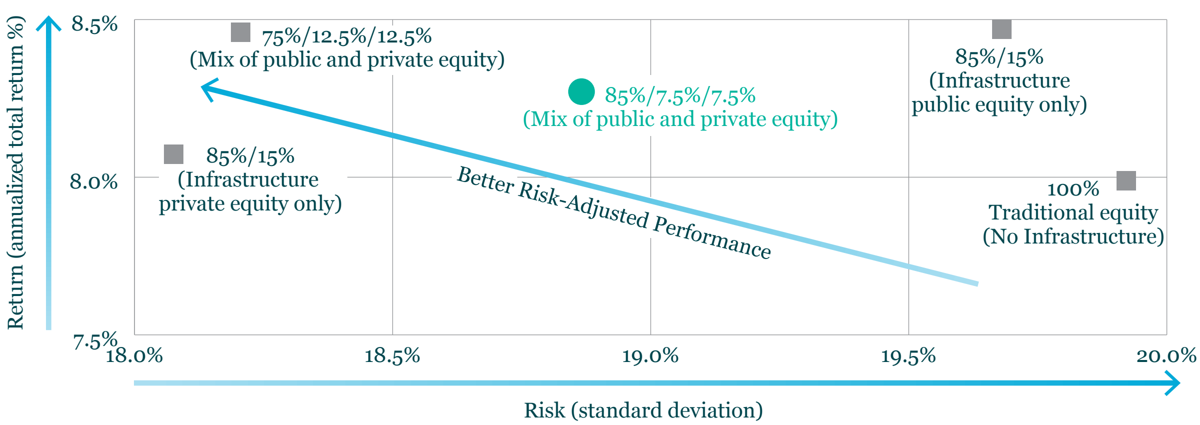
This analysis compared the risk-return profiles of portfolios containing 15% allocations to infrastructure equity—private, public, and combined—with a 100% traditional equity portfolio.

RESULTS

- Infrastructure equity improved returns and reduced risk, producing higher risk-adjusted returns when added individually and in combination.
- Adding 15% private equity increased returns only slightly, but significantly reduced risk.
- Adding 15% public equity significantly increased returns and slightly reduced risk.
- Adding a combination—15% split between private and public equity—increased returns by 31 basis points, from 7.99% to 8.30%; reduced standard deviation by 102 basis points, from 19.92% to 18.90%; and improved Sharpe Ration from 0.32 to 0.35.
- Although additional increases to infrastructure equity allocations would further improve the risk-return profile, most investors would prefer to constrain allocations within reasonable limits.

Exhibit 4: Adding infrastructure equity to a traditional public equity portfolio

Comparing risk and return: Traditional equity portfolio vs. adding 15% infrastructure equity



Sources: Cambridge Associates, Morningstar Direct, Nuveen, LLC. Performance data reflect annualized returns and standard deviation for the period 2002-2015, based on the following indexes: Private equity (Cambridge Associates index of 86 infrastructure private equity funds covering vintage years 2002-2015, based on net internal rate of return (IRR) to limited partners); public equity (S&P Global Infrastructure Index); Traditional equity (MSCI All Country World Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs. Results may be significantly different for other time periods.

Scenario 2: Adding infrastructure debt to a public debt portfolio

This analysis compared the risk-return profiles of portfolios containing 15% allocations to infrastructure debt—private, public, and combined—with a traditional 100% U.S. investment-grade debt portfolio.

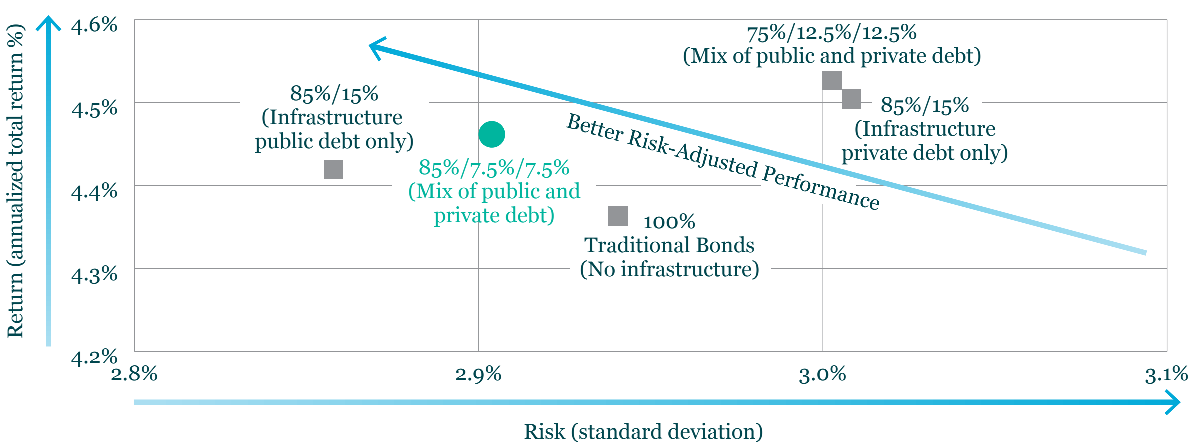
RESULTS

- Infrastructure debt improved returns with either less or only slightly higher risk, producing higher risk-adjusted returns when added individually and in combination.
- Adding 15% private debt increased returns and risk, although returns more than compensated for incremental risk.
- Adding 15% public debt slightly increased returns and reduced risk.
- Adding a combination—15% split between private and public debt—increased returns by 10 basis points, from 4.36% to 4.46%; reduced standard deviation by 4 basis points, from 2.94% to 2.90%; and improved Sharpe Ratio from 0.95 to 0.99.
- Although additional infrastructure debt allocations would further improve the risk/return profile, most investors would prefer to constrain allocations within reasonable limits.

Infrastructure debt improved returns with either less or only slightly higher risk, producing higher risk-adjusted returns when added individually and in combination.

Exhibit 5: Adding infrastructure debt to an investment-grade U.S. bond portfolio

Comparing risk and return: Traditional bond portfolio vs. adding 15% infrastructure debt



Sources: S&P, Morningstar Direct, Nuveen, LLC. Performance data reflect annualized returns and standard deviation for the period 2002-2015, based on the following indexes: Infrastructure private debt (two public indexes with equivalent credit ratings serve as proxies: Dow Jones Brookfield Global Infrastructure Corporate Bond BBB Index, 2004-2015, and S&P 500 BBB Investment Grade Corporate Bond Index, 2002-2003); infrastructure public debt (Bloomberg Barclays Revenue Bond Index); traditional investment-grade U.S. bonds (Bloomberg Barclays U.S. Aggregate Bond Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs. Results may be significantly different for other time periods.

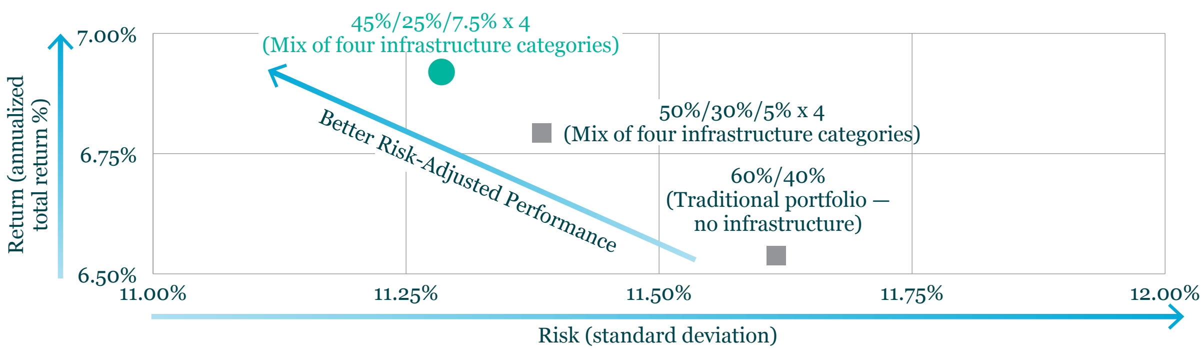
Scenario 3: Adding infrastructure equity and debt to a traditional 60% / 40% portfolio of public stocks and bonds

This analysis compared the risk-return profile of a portfolio containing all four infrastructure categories—15% equity and 15% debt, evenly split between private and public—with a traditional 60% / 40% portfolio of public stocks and bonds.

RESULTS

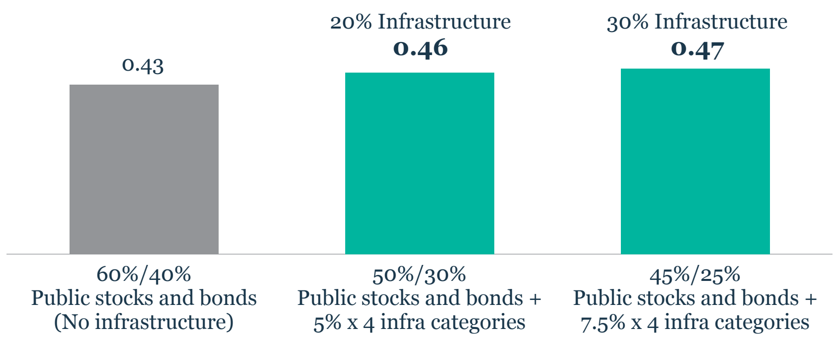
- Adding all four infrastructure categories significantly improved returns and reduced risk, producing higher risk-adjusted returns.
- Returns increased by 38 basis points, from 6.54% to 6.92%; standard deviation dropped 33 basis points, from 11.62% to 11.29%; Sharpe Ratio increased from 0.43 to 0.47.
- Risk-adjusted returns improved with higher allocations to infrastructure equity and debt, but most investors would prefer constrained allocations.

Exhibit 6: Adding four infrastructure categories to a 60% / 40% stock and bond portfolio



Sources: Cambridge Associates, Morningstar Direct, Nuveen, LLC. Performance data reflect annualized returns and standard deviation for the following indexes for the period 2002-2015, except as noted: Infrastructure private equity (Cambridge Associates index of 86 infrastructure private equity funds covering vintage years 2002-2015, based on net internal rate of return (IRR) to limited partners); infrastructure private debt (two public indexes with equivalent credit ratings serve as proxies: Dow Jones Brookfield Global Infrastructure Corporate Bond BBB Index, 2004-2015, and S&P 500 BBB Investment Grade Corporate Bond Index, 2002-2003); infrastructure public equity (S&P Global Infrastructure Index); infrastructure public debt (Bloomberg Barclays Revenue Bond Index); traditional 60% / 40% portfolio (MSCI All Country World Index, 60%, and Bloomberg Barclays U.S. Aggregate Bond Index, 40%. It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs. Results may be significantly different for other time periods.

Comparing Sharpe Ratios: Traditional portfolio vs. adding four infrastructure categories



Sources: Cambridge Associates, Morningstar Direct, Nuveen, LLC. See Exhibit 6 for list of indexes. Sharpe Ratio calculations use 1-year Treasury as risk-free rate. It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs. Results may be significantly different for other time periods.

RISKS

The diversity of risk characteristics across the four infrastructure categories gives investors the opportunity to dial up or dial down exposures to match their desired risk-return profile. In many cases, risks represent tradeoffs for desired benefits. For example, the potential for higher returns often comes with higher volatility or lower liquidity. Fixed-rate debt may offer lower risk of loss, but with interest-rate risk. It's important to note that private equity and debt involve operational and regulatory risks requiring specialized management and legal expertise. The major risks for each infrastructure category are listed below:

Equity

- Private: Illiquidity, operational, regulatory
- Public: Volatility, market, security, regulatory

Debt

- Private: Illiquidity, credit, duration, operational, regulatory
- Public: Credit, duration, regulatory, market

Please note: Infrastructure-related investments involve sector risk and concentration risk, particularly greater exposure to adverse economic, regulatory, political, legal, liquidity, and environmental risks.

MANAGER DUE DILIGENCE

Selecting managers with the right capabilities, experience, and track record is critical in a market where strong demand makes it more difficult to access higher-value opportunities. The following attributes may increase chances for success:

- Coverage of all four infrastructure categories, providing more opportunity to diversify portfolios, assess relative value, and customize to a desired risk-return profile
- Specialized expertise in each category and across sectors, including project finance, contractual law, regulatory environments, risk management, and technical skills, such as engineering
- Access to proprietary deal flow, based on longstanding industry relationships, track record and reputation
- Dedicated teams to monitor investments that may span decades

CONCLUSION

Institutional investors should consider a dedicated allocation to infrastructure investments, based on the asset class' demonstrated potential to improve portfolio risk-adjusted returns. Relatively high and predictable income returns have provided additional diversification not available from other asset classes. Historical analysis using returns for the 14-year period, 2002 to 2015, showed strong diversification benefits when combined with traditional stocks and bonds, or alternative investments, such as private real estate. Although each category improved risk-adjusted returns, combining multiple categories further improved results due to low correlations among the categories. Markets have responded with heavy demand that may compress future returns. Investors can improve their chances of accessing high-value opportunities by selecting managers with specialized expertise and longstanding industry relationships providing access to proprietary deal flow.

For more information,
contact your Global Investment Advisory Services representative, or visit us at nuveen.com/infrastructure

ENDNOTES

1 "The Trillion Dollar Gap," The Economist, March 22, 2014.

2 "The Global Infrastructure Challenge," BCG Perspectives.

3 2017 Preqin Global Infrastructure Report, p. 19.

4 Ibid., p. 24.

5 Ibid., p. 19.

6 Moody's, Infrastructure Default and Recovery Rates, 1983-2015.

7 Municipal bonds include securities that are either tax-exempt or taxable to U.S. individual investors. We refer simply to "municipal bonds" because their tax status is not relevant to institutions.

RISKS AND OTHER IMPORTANT CONSIDERATIONS

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Economic and market forecasts are subject to uncertainty and may change based on varying market conditions, political and economic developments. As an asset class, real assets are less developed, more illiquid, and less transparent compared to traditional asset classes. Investments will be subject to risks generally associated with the ownership of real estate-related assets and foreign investing, including changes in economic conditions, currency values, environmental risks, the cost of and ability to obtain insurance, and risks related to leasing of properties.

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