Financing Infrastructure with Private Participation

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I. Executive summary

Section II explains that infrastructure is a necessary condition for economic development by enhancing productivity, stimulating growth, and improving the quality of life. The Global Infrastructure Outlook, a G20 initiative, estimated that the global infrastructure investment gap between 2016 and 2040 is US$ 18 trillion (0.7% of GDP). Developing infrastructure requires allocating resources that could be used otherwise for consumption and other forms of investment. Infrastructure could be developed and pay by the private sector, the public sector or by private-public partnerships (PPP).

The World Bank's Private Participation in Infrastructure (PPI) Project Database reveals that equity represented 25% and debt 75% of the financing sources for infrastructure project with private participation in 2023. Public equity represented 24%, while private equity only financed 1% of total infrastructure investment. Out of the 75% of total infrastructure investment financed with debt, 40% was financed by international debt and 35% by local debt. Out of the international debt, 20% of total investment was financed with development financial institutions (DEFI) debt, with 14% coming from multilateral institutions and 16% from bilateral institutions. The other half of international debt, 20% of total investment, came from commercial non-DEFI lenders. Out of local debt, 23% of total investment came from commercial lenders, 12% from public lenders and only 0.7% from institutional investors. Therefore, 13% came from public sources, 67% from private sources and 20% from DEFI sources.

Recent data from IJGlobal Market Analytics, a database that tracks 55,000+ transactions, shows that commercial loans accounting for US$ 2,701 billion, equivalent to 43.4% of total financing, have represented the main source of financing. Bonds accounting for US$ 2,365 billion, is equivalent to 38% of financing. Equity accounting US$ 813 billion represented 13.06% of global infrastructure finance, while development finance lending added US$ 345 billion, equivalent to 5.54%. By financing purpose, additional facilities have taken US$ 2,617 billion, equivalent to 33% of the financing, mergers and acquisitions (M&A) represented US$ 2,244 billion, equivalent to 28.3%, refinancing accounted for US$ 1,553 billion or 19.6% and primary financing accounted for US$1,515 billion, or 19.1% of the financing.

Section III discusses the public sector's participation in an investment project and its financing options. It explains that, at a project-level, a country should evaluate if the analyzed project has a positive economic or social net return. Then it should evaluate whether investment is better made by the private sector, or if there is a clear rationale for the public sector's involvement, either in support of the private sector or doing it by itself. Then, a country should verify if, given preferences and resources constraints, the project represents the best available use of resources based on the ratio of economic/social net return relative to the size of the required investment. If the project represents the best use of resources, the country needs to determine how to execute the project, including if the investment should be financed only with own

resources or borrowing is required. The debt management strategy requires covering the funding needs at the minimum borrowing costs with an acceptable level of risk.
Infrastructure investment requires funding – the long-term sources of payment for the project, and financing – the upfront capital needed to cover the initial costs of the project. Funding and risk determine financial viability and bankability, which in turn determine the financing options available. Required preconditions before considering financing options include a complete feasibility study of the infrastructure project, providing evidence that the project is economically viable. If the project is not economically viable, then it is not a good investment regardless of the financing. Financing options for an infrastructure project ultimately depend on the projects funding and risk profile.

Once the funding arrangements and risk profile are clearly defined, the project can be assessed for financial viability (whether expected revenues cover expected costs plus a return on investment) and bankability (its appeal to financiers based on the expected risk and return profile). Financial viability and bankability then determine the types of financing options accessible for the project as follows:

i. If the project is not financially viable, then the project originator can't borrow against the project directly or even indirectly. In most cases, they will need to borrow against the government balance sheet. If the project owner is a state-owned-enterprise (SOE) or special purpose vehicle (SPV), then the government would need to on-lend. Options include government bonds, DEFI loans, and thematic bonds available to governments. If the project owner is an SOE with an existing brownfield asset with a stable revenue stream and no outstanding finance, then they can borrow against this revenue stream through. Additional options include securitization.

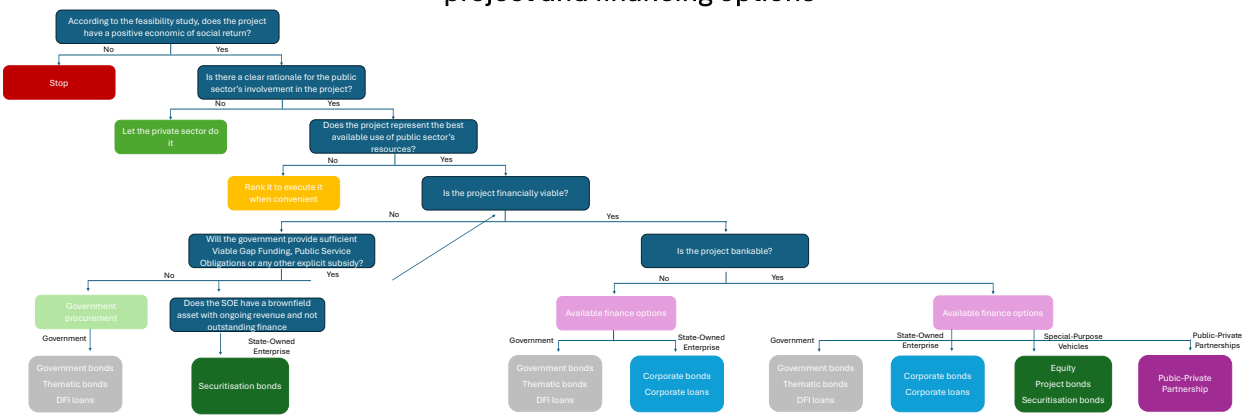
ii. If the project is financially viable but not bankable, and the project originator has a healthy balance sheet and other sources of revenue, then the project originator may be able to borrow against this balance sheet and revenue, but not directly against the project. The project originator would need to be an established SOE. Additional options include corporate loans or bonds.

iii. If the project is financially viable and bankable, then project finance is possible. Project finance is debt or equity with a direct claim to project revenue. Additional options include project infrastructure bonds (the project owner would need to be an SPV), PPPs (note that PPP procurement should only be pursued when it is likely to result in greater value for money by enhancing cost-effectiveness, efficiency, or risk management).

Once the project financing method is decided, the project must be fully developed to be investment ready and secure finance. If multiple financing options are possible for a project, then the government can select among them based on tenor, currency, cost (interest rate), and other factors. The government could also consider combinations of finance options; however, this comes at the cost of higher complexity. SOEs/SPV won't fully insulate the government from financial risks.

The following figure provides a flow diagram of decision related to the public sector's participation in an investment project and its financing options, summarizing the information from Section III.

Figure 0: Flow diagram of decisions related to the public sector's participation in an investment project and financing options



Source: own elaboration

Section IV provides a summary comparison of key elements of equity, loans and bonds financing. Key differences include that equity gives up ownership, while loans and bonds do not. Loans are more flexible and customizable than bonds. Bonds have longer terms and fixed rates compared to typical bank loans. Equity has no repayment obligation, while loans and bonds do. Loans often require collateral, while bonds are usually unsecured. Bonds allow raising larger amounts from capital markets compared to bank loans. The optimal choice depends on factors like the company's stage, cash flows, growth plans, and desire for control. Many companies use a mix of these financing types as they grow and evolve.

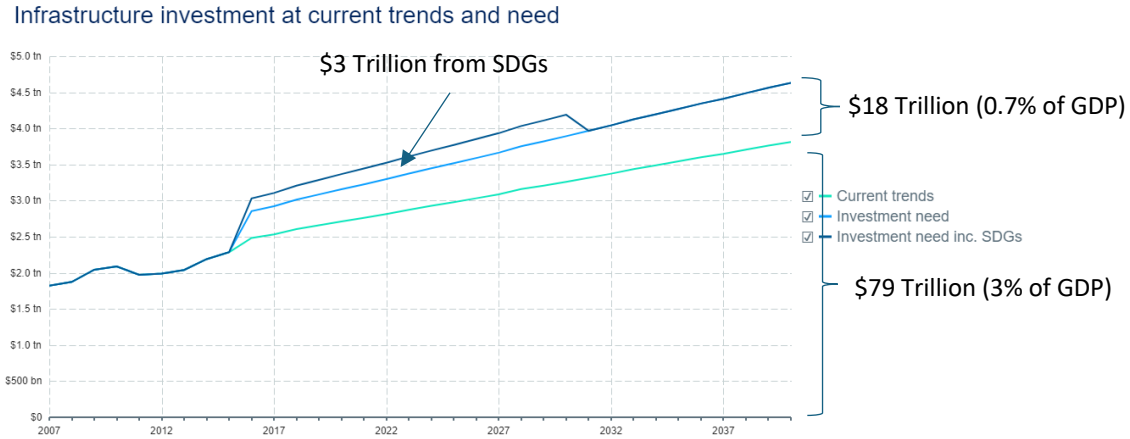
Section V describes in more detail different forms of financing infrastructure with private participation. It covers 1. equity, including a. private equity and b. public equity, 2. loans, including a. commercial bank loans, b. development bank loans, c. government loans, d. syndicate loans, and e. investment loans, 3. bonds, including a. corporate infrastructure bond, b. project infrastructure bond, c. securitization infrastructure bond, d. retail saving bonds, e. thematic bonds, 4. blended finance, and 5. public-private partnership (PPP).

II. Introduction

Infrastructure could contribute to economic development by enhancing productivity, stimulating growth, and improving the quality of life. Infrastructure increases productivity by reducing operation costs and by facilitating logistics, interactions, and transactions. Good infrastructure attracts domestic and international investments boosting economic growth. Infrastructure could promote trade of goods and ideas, broaden markets and improve efficiency, leading to increased competitiveness and innovation. Infrastructure development creates jobs during construction and afterwards with the economic activities it produces. Infrastructure improves the quality of life with more efficient transportation systems that reduces travel time and costs, improving access to jobs, education and healthcare. Quality of life is also improved with energy and water supply systems that cover basic needs, enhancing living standards and fostering human capital development. In addition, advanced communication infrastructure connects communities, promoting social inclusion and cohesion.[2]

The Global Infrastructure Outlook, a G20 initiative, estimated that the global infrastructure investment needs between 2016 and 2040 are US$ 97 trillion (3.7% of global GDP)[3], while current investment trends account to US$ 79 trillion (3% of global GDP[4]), which creates a US$ 18 trillion gap (0.7% of global GDP), which is represented in Figure 1.

Figure 1. Global infrastructure investment: current trends and need



Source: Global Infrastructure Outlook.

[2] Challoumis, Constantinos, The Role of Infrastructure in Economic Development (August 04, 2024). Available at SSRN: https://ssrn.com/abstract=4915778 or http://dx.doi.org/10.2139/ssrn.4915778

[3] Global Infrastructure Outlook, a G20 Initiative. https://outlook.gihub.org/. These estimates assume that global infrastructure investment will reach US$ 3.8 trillion in 2040, an increase of 67% over the 2015 value, in real terms. US$ 3 trillion are due to United Nation's Sustainable Development Goals.

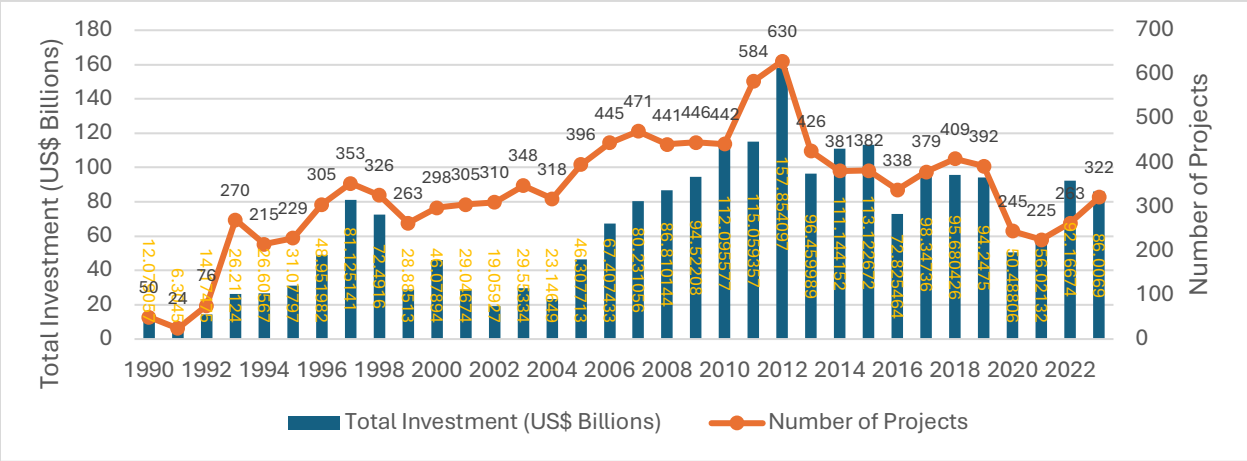
[4] Between 2007 and 2015, infrastructure investment averaged 12% of total global investment and 3% of global GDP. Therefore, total global investment averaged 25% of global GDP.

By sector, spending needs are greatest for electricity and roads, which together account for 65% of global infrastructure investment for the forecast period under the current trends scenario, or 67% under the investment need scenario. The gap between the two scenarios is proportionately greatest in the road and port sectors, where investment needs are just over 30% greater than the estimated spending under current trends. The gap is also relatively large for airports, where the spending requirement is 26% greater under the investment need scenario than under current trends. In absolute terms, the Global Infrastructure Outlook finds that almost three-quarters of the US$ 18 trillion global infrastructure gap between the two scenarios is attributable to the road and electricity sectors.

Developing infrastructure requires allocating resources that could be used otherwise for consumption and other forms of investment, as machinery and equipment. Infrastructure could be developed and pay by the private sector, the public sector or by private-public partnerships (PPP). Resources to finance infrastructure could come from savings and / or borrowing through equity or debt through bonds or loans. The origin of resources could be domestic and / or foreign.

Figure 2 shows the evolution of the private participation in infrastructure from 1990 to 2023 with information from the World Bank's Private Participation in Infrastructure (PPI) Project Database, which has data of 11,340 infrastructure projects in 137 low- and middle-income countries for a total accumulated investment of US$ 2,249 billion.[5]

Figure 2: Evolution of the Private Participation in Infrastructure 1990 – 2023



Source: World Bank's Private Participation in Infrastructure (PPI) Database

Table 1 shows the distribution of these projects across sectors, showing the amount invested and the number of projects in the 1990 – 2023 period. Electricity leads the list, accounting for 47.13% of the total US$ invested and 49.74% of the number of projects. Roads, railways, airports, information and communications technologies, water and sewerage, natural gas, and ports follow in importance using resources.

[5] Out of the 11,340 projects, 10,498 are active, 228 are concluded, 354 were cancelled and 260 were distressed.

Table 1. Distribution across sectors of Private Participation in Infrastructure 1990 – 2023

Sector	PPI (US$, billions)	Projects	Share US$ (%)	Share Projects (%)
Electricity	1,060.11	5,640	47.13	49.74
Roads	415.67	1,394	18.48	12.29
Railways	156.59	300	6.96	2.65
Airports	130.46	247	5.80	2.18
ICT	133.38	585	5.93	5.16
Water and sewerage	105.27	1,305	4.68	11.51
Natural gas	101.12	743	4.50	6.55
Ports	101.21	666	4.50	5.87
Treatment / Disposal	22.91	300	1.02	2.65
Collection and transport	9.45	76	0.42	0.67
Integrated MSW	7.17	50	0.32	0.44
Vehicle charging station	0.33	3	0.01	0.03
Other	5.53	31	0.25	0.27
Total	2,249.19	11,340	100	100

Source: World Bank's Private Participation in Infrastructure (PPI) Database

Table 2 shows the type of PPI project, where 62.49% of the resources and 56.74% of the projects correspond to greenfield projects, while 24.77% of the resources and 27.19% of the projects in the 1990 – 2023 period have been brownfield projects. Divestiture has received 11% of the resources and 11.69% of the projects, while management and lease contract have received 1.65% of the total PPI resources in 4.25% of the projects.

Table 2. Type of Private Participation in Infrastructure 1990 – 2023

Type of PPI	PPI US$, billion	Number of Projects	Share US$ (%)	Share Projects (%)
Greenfield project	1,405.62	6,434	62.49	56.74
Brownfield	557.14	3,083	24.77	27.19
Divestiture	247.40	1,326	11.00	11.69
Management and lease contract	37.04	482	1.65	4.25
Other	1.99	15	0.09	0.13
Total	2,249.19	11,340	100	100

Source: World Bank's Private Participation in Infrastructure (PPI) Database

Table 3 reports the distribution of PPI across regions. Latin America and the Caribbean leads the share of US$ and number of projects with 34.24% and 36.14%, respectively, followed by East Asia and the Pacific with 28.52% and 28.17, respectively, and South Asia with 15.85% and 14.63%, respectively.

Table 3: Distribution across regions of Private Participation in Infrastructure 1990 – 2023

Region	PPI US$, billions	Number of Projects	Share US$ (%)	Share Projects (%)
East Asia and the Pacific	641.46	3,194	28.52	28.17
Europe and Central Asia	291.57	1,352	12.96	11.92
Latin America and the Caribbean	770.08	4,098	34.24	36.14
Middle East and North Africa	75.91	263	3.38	2.32
South Asia	356.51	1,659	15.85	14.63
Sub-Saharan Africa	113.66	774	5.05	6.83
Total	2,249.19	11,340	100	100

Source: World Bank's Private Participation in Infrastructure (PPI) Database

Table 4 shows the sources of financing for infrastructure project with private participation in 2023.[6] All figures in the table are expressed as a percentage of total investment. From the table we see that 25% of total infrastructure investment was finance with equity and 75% with debt. Note that in 2023, subsidy was not present as in other years, for example in 2022 it represented 9%. Public equity financed 24%, while private equity only financed 1% of total infrastructure investment. Out of the 75% of total infrastructure investment financed with debt, 40% was financed by international debt and 35% by local debt. Out of the international debt, 20% of total investment was financed with development financial institutions (DEFI) debt, with 14% coming from multilateral institutions and 16% from bilateral institutions. The other half of international debt, 20% of total investment, came from commercial non-DEFI lenders. Out of local debt, 23% of total investment came from commercial lenders, 12% from public lenders and only 0.7% from institutional investors. Therefore, 13% came from public sources, 67% from private sources and 20% from DEFI sources.

Table 4. Sources of financing for infrastructure projects with private participation in 2023

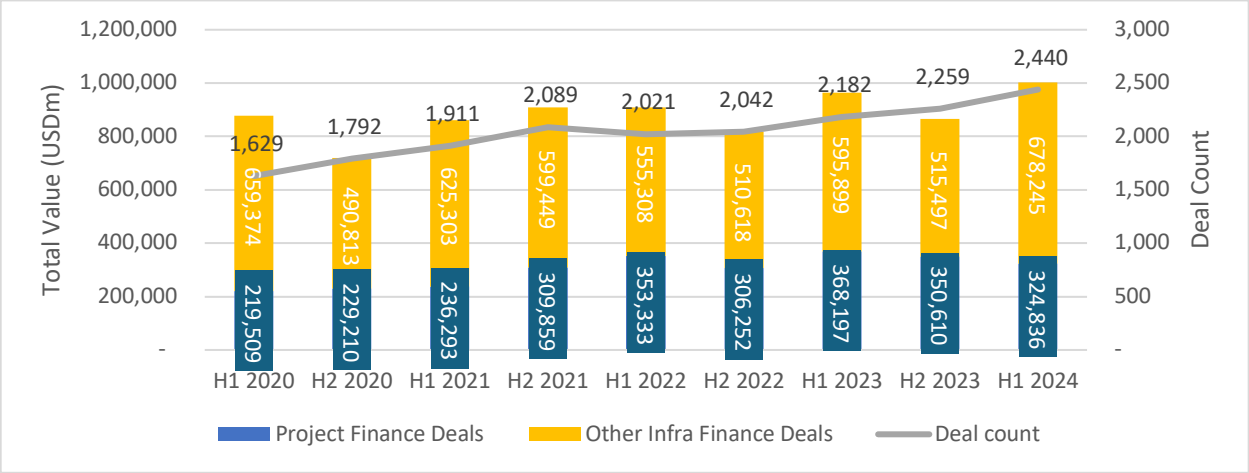
Total investment 100%						
Equity 25%		Debt 75%				Subsidy 0%
Private equity 1%	Public equity 24%	International debt 40%			Local debt 35%	
		DEFI debt 20%		Non DEFI debt 20%		
		Multilateral 14%	Bilateral 16%	Commercial 43%	Public 12%	Institutional 1%

Source. World Bank's PPI 2023 Annual Report with data from the PPI Database, as of January 2024

[6] PPI investment in 2023 amounted to US$ 86 billion, representing 0.2% of the GDP of all low-and middle-income countries. This represents a decrease from US$ 91.3 billion in 2022, but it is above the 2018-2022 average of US$ 85.5 billion.

To complement this information, we review the IJGlobal Market Analytics database that tracks 55,000+ transactions, updated live, allowing for the most up to date view of the infrastructure financial market.[7] Figure 3 reports on the evolution of global infrastructure finance reporting project finance deals and other infrastructure finance deals together with deal count every semester from the first half of 2020 to the first half of 2024. Infrastructure finance is a catch all category that is designed to incorporate all private investment into infrastructure and energy, including primary finance, refinance and restructurings. It takes in all project finance, broader debt vehicles, including bonds, as well as all equity invested across the global infra / energy sectors. Figure 3 shows 9 semesters with accumulated 18,365 deals for US$ 7,929 billion, with project finance deals accounting for US$ 2,698 billion, representing 34% of the total value of global infrastructure finance, while all other infrastructure finance deals accounting for US$5,231 billion, equivalent to the remaining 66%. In the first half of 2024, total value exceeded for the first time US$ 1 trillion, with 32.4% representing project finance deals and 67.6% other infrastructure finance deals in 2,440 deals.

Figure 3: Global Infrastructure Finance Value ($m) and Volume 2020 - 2024

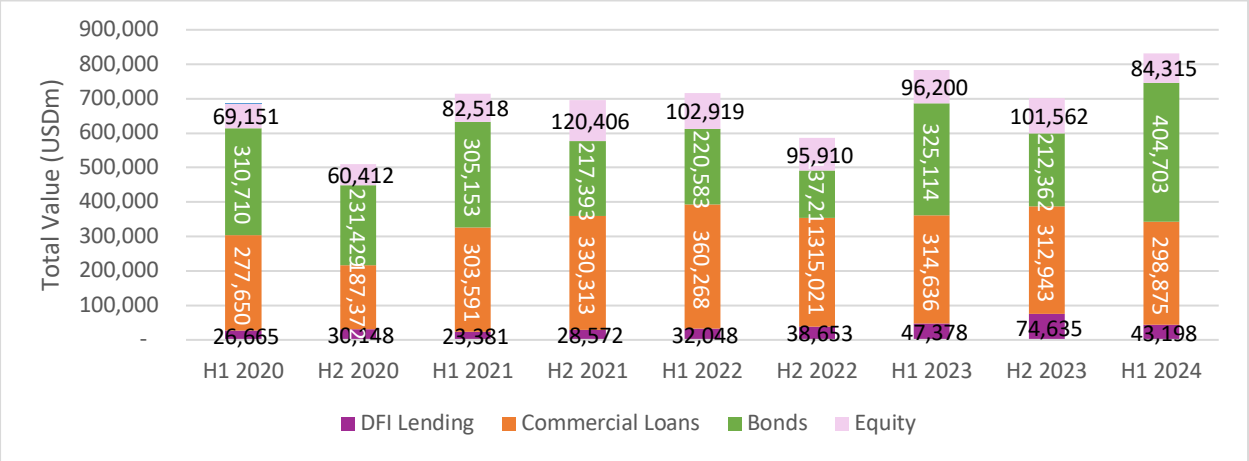


Source: IJGlobal Market Analytics

Figure 4 reports on the evolution of global infrastructure finance by source of funding. Commercial loans, accounting for US$ 2,701 billion, equivalent to 43.4% of total financing, have represented the main source of financing. Bonds accounting for US$ 2,365 billion, is equivalent to 38% of financing. Equity accounting US$ 813 billion represented 13.06% of global infrastructure finance, while development finance lending added US$ 345 billion, equivalent to 5.54%.

[7] In 2023, IJGlobal Market Analytics database tracked 4,441 transactions for US$ 1,830 billion, while the World Bank PPI data covered only 322 projects for US$ 86 billion.

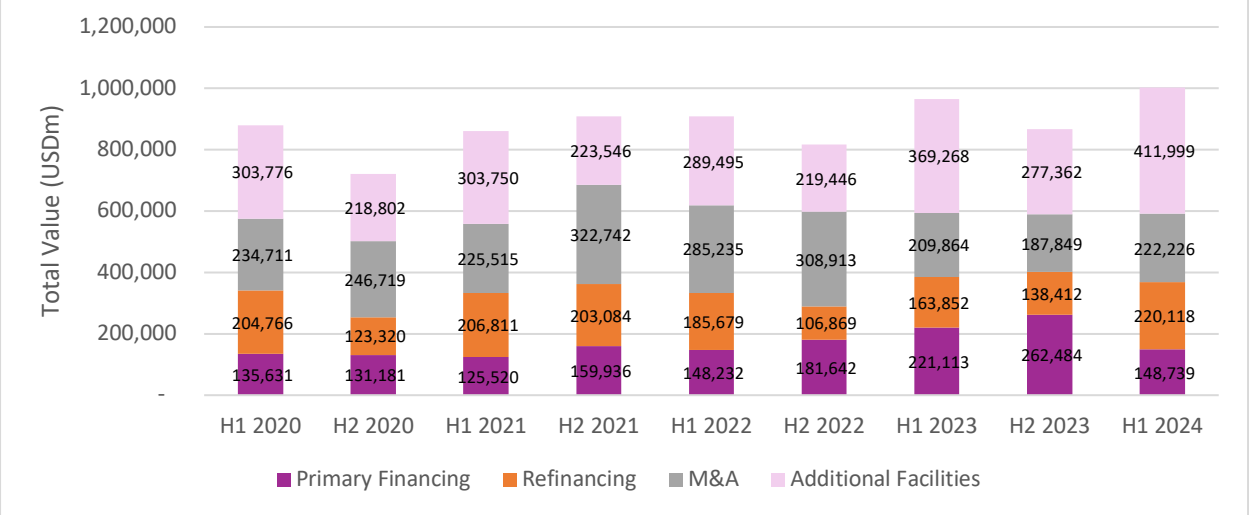
Figure 4: Global Infrastructure Finance by Source of Funding 2020 - 2024



Source: IJGlobal Market Analytics

Figure 5 reports on the evolution of infrastructure finance by financing purpose including primary financing, refinancing, mergers and acquisitions (M&A) and additional facilities for the 2020 to 2024 period. In descending order, additional facilities have taken US$ 2,617 billion, equivalent to 33% of the financing, mergers and acquisitions represented US$ 2,244 billion, equivalent to 28.3%, refinancing accounted for US$ 1,553 billion or 19.6% and primary financing accounted for US$1,515 billion, or 19.1% of the financing.

Figure 5: Infrastructure Finance by Financing Purpose 2020 -2024

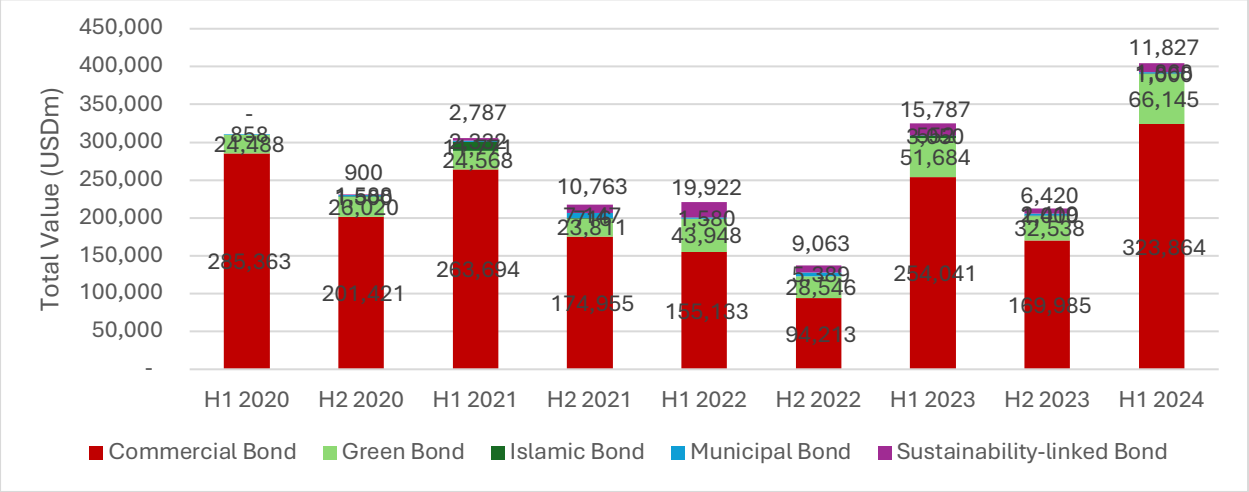


Source: IJGlobal Market Analytics

Figure 6 reports on the evolution of the US$ 2,365 billion of the global bonds market, distinguishing between commercial bonds, green bonds, Islamic bonds, municipal bonds, sustainability-linked bonds for the 2020 to 2024 period. In descending order, commercial bonds are the dominant type of bond representing US$ 1,923 billion or 81.3% of total bond financing, with green and sustainability-linked bonds gaining importance over time, accounting

US$ 322 billion and US$ 77 billion, representing 13.6% and 3.3%, respectively, of total bond financing.

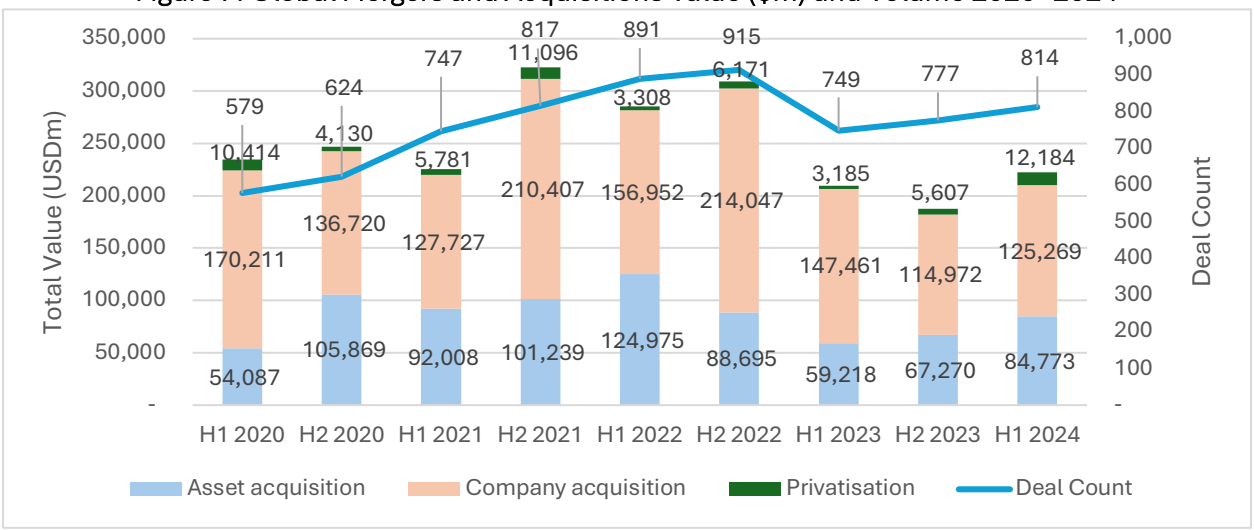
Figure 6: Global Bonds Market 2020 -2024



Source: IJGlobal Market Analytics

Figure 7 shows the global mergers and acquisitions in infrastructure representing 6,913 deals for US$ 2,244 billion. Company acquisitions used US$ 1,404 billion, equivalent to 62.56% of the resources, while asset acquisitions for US$ 778 billion, represented 34.68%, and privatization for US$ 62 billion or 2.76% of M&A, respectively.

Figure 7: Global Mergers and Acquisitions Value ($m) and Volume 2020 -2024

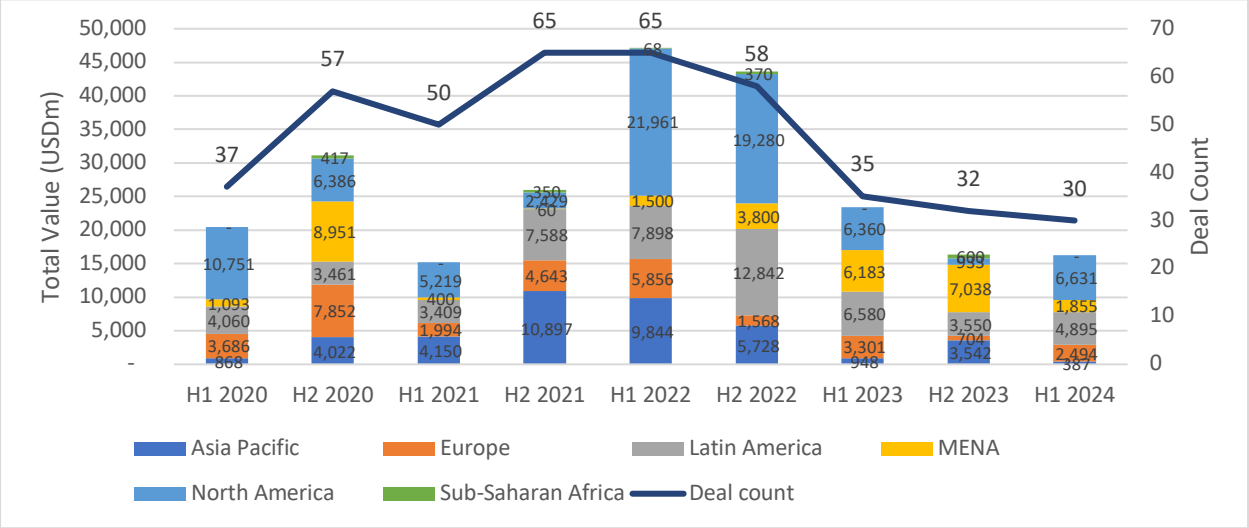


Source: IJGlobal Market Analytics

Figure 8 reports the PPP primary financing closed deals in the 2020 to 2024 distinguishing by region. The figure reports the total value of US$ 239 billion in 429 deals. North America with PPP financing for US$ 80 billion accounts for 33.4%, Latin America with US$54.2 billion for 22.67%,

Asia Pacific with US$ 40.4 billion accounts for 16.9%, Europe with US$ 32.1 billion accounts for 13.4% and MENA with US$ 30.9 billion accounts for 12.9% of PPP financing.

Figure 8: Global PPP Primary Financing Closed Deals 2020 -2024



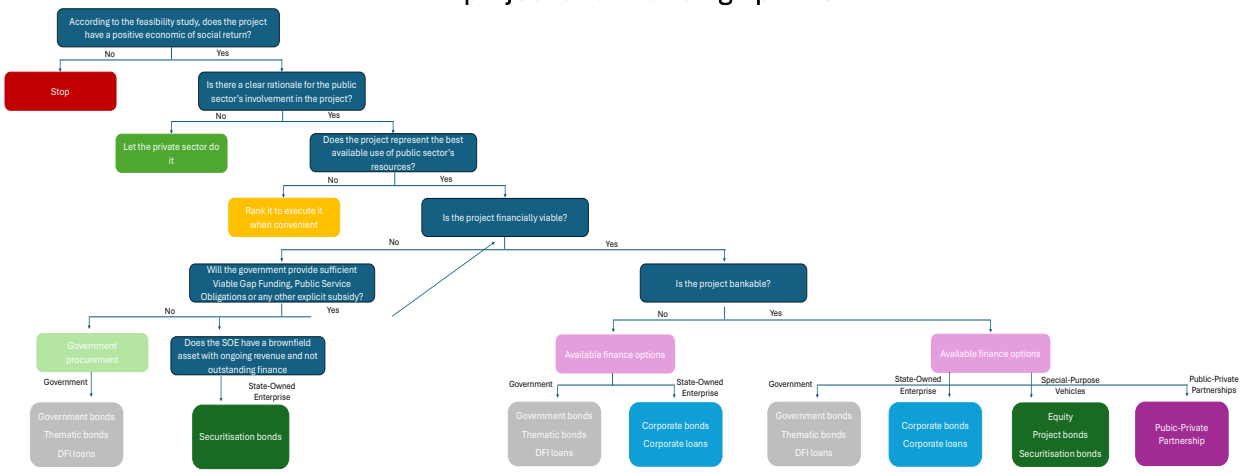
Source: IJGlobal Market Analytics

Annex 1 presents tables with the main participants and projects in infrastructure investments.

III. Public sector's participation in an investment project and financing options

At an aggregate level, most countries have an observed capital to output ratio below its optimal level, and a marginal productivity of capital above its replacement cost, therefore giving a rationale for further capital accumulation. At a project-level, a country should evaluate if the analyzed project has a positive economic or social net return. Then it should evaluate whether investment is better made by the private sector, or if there is a clear rationale for the public sector's involvement, either in support of the private sector or doing it by itself. Then, a country should verify if, given preferences and resources constraints, the project represents the best available use of resources. In this sense, to determine which investments should be carried out first, it is important to prioritize projects based on the highest economic/social net return, relative to the size of the required investment. If the project represents the best use of resources, the country needs to determine how to execute the project. Figure 9 shows a flow diagram summarizing these decisions related to the public sector's participation in an investment project and its financing options as explained below.

Figure 9. Flow diagram of decisions related to the public sector's participation in an investment project and financing options

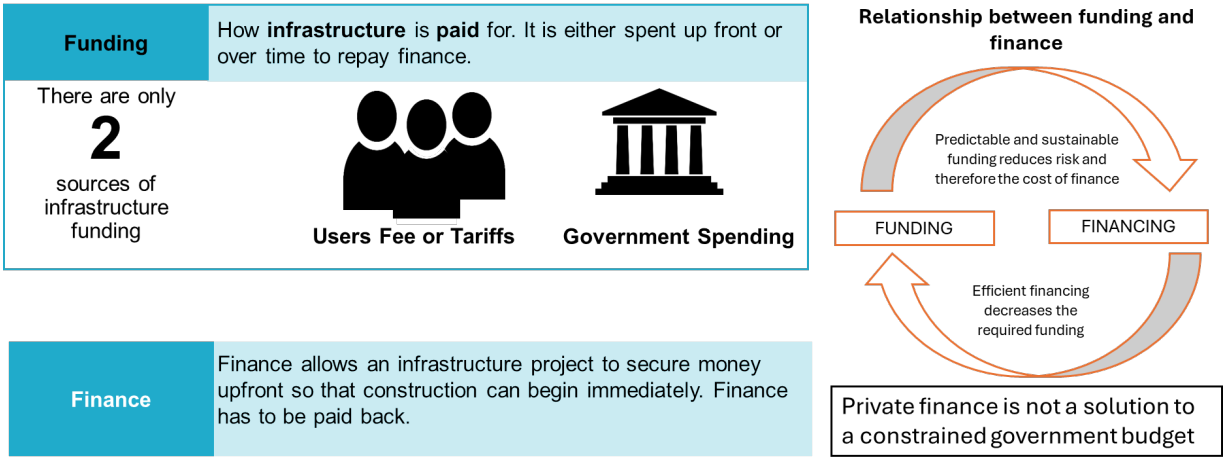


Source: own elaboration

If the public sector decides that it is in the country's best interest to participate in the project, it should determine if the selected investment should be financed with the public sector's own resources or if it needs to borrow to cover the unmet requirements. It needs to consider the opportunity cost of using the resources, which is part of the cost-benefit analysis of the project selection process. If borrowing is needed, it should evaluate the available options to select the most convenient one. The debt management strategy requires covering the funding needs at the minimum borrowing costs with an acceptable level of risk. This requires selecting a debt portfolio according to preferences considering the cost-risk trade-off.

Infrastructure investment requires funding and financing. On one hand, infrastructure funding pertains to the long-term sources of payment for the project. Funding can only come from two sources: users of the infrastructure (from user fees such as tolls or other usage charges), and government (from tax and non-tax revenue). It represents the revenue streams that will repay the upfront financing over time. On the other hand, infrastructure financing involves securing the upfront capital needed to cover the initial costs of the project. Financing can come from various sources, including debt, equity, or a combination of both, and needs to be repaid with interest over time, drawing on the projects funding sources. Figure 10 summarizes the relationship between funding and financing.

Figure 10. Funding and financing



Funding and risk determine financial viability[8] and bankability[9], which in turn determine the financing options available. Required preconditions before considering financing options include a complete feasibility study[10] of the infrastructure project, conducted by a credible and neutral party. The feasibility study should provide evidence that the project is economically viable[11]. If the project is not economically viable, then it is not a good investment regardless of the financing. Financing options for an infrastructure project ultimately depend on the projects funding and risk profile:

[8] Financially viable means that the expected revenues (from user fees or government subsidies) cover the expected costs plus a return on investment. This viability is documented by the feasibility study.

[9] Bankable means that investors are willing to bear the risks associated with the revenues and costs at the expected rate of return on investment.

[10] A feasibility study for an infrastructure project is an in-depth analysis that assesses the technical, financial, economic, and operational viability of the project. It evaluates factors like cost, potential revenue, environmental impact, regulatory requirements, and risk. The study's findings help decide if and how to proceed with the project, including which procurement and financing method(s) to use.

[11] Economically viable means that the expected benefits to society are greater than the expected costs. This viability is documented by the feasibility study.

• Funding arrangements: This refers to how the project will be paid for over time, encompassing the sources of revenue that will service the debt and provide returns to investors. Revenue can come from user fees or direct government subsidies (like Viability Gap Funding – VGF, availability payments, or Public Service Obligations – PSOs).

• Risk identification, evaluation and allocation: This involves determining how the financial and operational risks associated with the project will be managed and distributed among the project owner, financiers, and other stakeholders. Government guarantees or other support can be used to reduce risk for investors.

Once the funding arrangements and risk profile are clearly defined, the project can be assessed for financial viability – whether expected revenues cover expected costs plus a return on investment and bankability – its appeal to financiers based on the expected risk and return profile. Financial viability and bankability then determine the types of financing options accessible for the project as follows.

i) If the project is not financially viable then the project originator can't borrow against the project directly or even indirectly. In most cases, they will need to borrow against the government balance sheet. If the project owner is an SOE or SPV[12], then the government would need to on-lend. Options include government bonds, DFI loans, and thematic bonds available to governments. If the project owner is an SOE with an existing brownfield asset with a stable revenue stream and no outstanding finance, then they can borrow against this revenue stream through. Additional options include securitization.

ii) If the project is financially viable but not bankable, and the project originator has a healthy balance sheet and other sources of revenue, then the project originator may be able to borrow against this balance sheet and revenue, but not directly against the project. The project originator would need to be an established SOE. Additional options include corporate loans or bonds.

iii) If the project is financially viable and bankable, then project finance is possible. Project finance is debt or equity with a direct claim to project revenue. Additional options include project infrastructure bonds or PPPs.

Once the project financing method is decided, the project must be fully developed to be investment ready[13] and secure finance. If multiple financing options are possible for a project,

[12] The project originator is a government agency or an government-owned company (SOE) that initiates the project. The project originator can also be the project owner, or they can set up an SPV to separate the project's finances from those of the originator.
[13] Investment ready means the project is prepared for immediate financing and implementation. This includes:
• Securing necessary regulatory approvals, permits, and clearances.
• Defining and modelling a clear financial structure.
• Completing financial and legal due diligence, establishing contractual terms, and preparing standard documents.
• Completing an environmental and social impact assessment and establishing mitigation plans to manage risks and meet regulatory requirements.

then the government can select among them based on tenor, currency, cost (interest rate), and other factors as outlined in Table 5 below. The government could also consider combinations of finance options, however this comes at the cost of higher complexity.

SOEs/SPV won't fully insulate the government from financial risks. While SOE financing can provide a layer of separation that may benefit the government's balance sheet and enable more efficient management, it does not fully insulate the government from project-related risks. Governments are often still exposed to contingent liabilities, implicit guarantees, and reputational impacts associated with SOE-managed infrastructure projects.
Some additional remarks on funding and risk are useful. Infrastructure projects require both funding and financing. A project cannot secure finance unless it is fully funded. Infrastructure projects pose significant risks to financiers due to uncertainties in:

- Revenue streams: Project revenues are based on estimated user fees, which may vary due to factors like demand fluctuations and economic conditions.

- Cost estimation: Both the timing and magnitude of costs are only approximations, with potential for overruns due to unforeseen circumstances.

- External factors: Regulatory changes, natural disasters, fluctuations in interest rates, and other unforeseen events can further impact project finances.

The higher the perceived risks, the greater the financial returns financiers will demand to compensate for providing upfront capital.

IV. Summary comparison of equity, loans and bonds financing

Recalling that Figure 4 and Table 4 report the sources of infrastructure funding, being the most important commercial loans, bonds and equity. Following this evidence, Table 5 provides a summary comparison of equity, loans and bonds financing among key dimensions.

Table 5. Summary comparison of equity, loans and bonds financing

Key dimensions	Equity	Loans	Bonds
Relation to investors	Involves selling shares / ownership in the company to investors.	Involves borrowing money from financial institutions.	Debt instruments sold to investors in financial markets.
Repayment obligations	No repayment obligations or interest payments.	Borrowed money must be repaid with interest. Often with floating interest rates.	Fixed interest rate payments (coupons) and repayment of principal.
Ownership and control	Gives up partial ownership and control of the company.	Allows company to retain full ownership and control.	No ownership dilution for the company.
Cost	Can be more expensive than debt in the long run if company grows significantly	Payment is usually fixed, no state-contingent.	Higher interest rates than bank loans due to longer terms and less security.
Access to investors, collateral, covenants and terms flexibility	Provides access to investors expertise and connections.	Requires collateral and have more restrictive covenants. More flexible terms that can be renegotiated.	Less restrictive covenants than bank loans. Less flexible terms than loans. Harder to prepay or renegotiate terms.
Ease to obtain	Harder to obtain than loans for established companies. Well-suited for early-stage companies without steady cash flows.	Easier to obtain for established companies with assets / cash flows.	Requires that investors have more references about the issuer. Allow companies to raise large amounts of capital.
Tenor	No expiration.	Usually shorter-term than bonds (3 to 7 years).	Can be long-term (10 to 30 years).

Source: own elaboration with multiple sources.

Therefore, key differences include that equity gives up ownership, while loans and bonds do not. Loans are more flexible and customizable than bonds. Bonds have longer terms and fixed rates compared to typical bank loans. Equity has no repayment obligation, while loans and bonds do. Loans often require collateral, while bonds are usually unsecured. Bonds allow raising larger amounts from capital markets compared to bank loans. The optimal choice depends on factors like the company's stage, cash flows, growth plans, and desire for control. Many companies use a mix of these financing types as they grow and evolve.

V. Financing infrastructure in more detail

In this section, we describe in more detail different forms of financing infrastructure with private participation. We cover 1. equity, including a. private equity and b. public equity, 2. loans, including a. commercial bank loans, b. development bank loans, c. government loans, d. syndicate loans, and e. investment loans, 3. bonds, including a. corporate infrastructure bond, b. project infrastructure bond, c. securitization infrastructure bond, d. retail saving bonds, e. thematic bonds, 4. blended finance, and 5. public-private partnership (PPP).

1. Equity

Equity refers to the practice of raising capital by selling ownerships stakes in a company to investors. Equity can be privately or publicly traded. With private equity, companies' shares are not traded on public stock exchanges, while with public equity they are traded. Here we describe in more detail private and public equity.

a. Private equity

Private equity firms raise funds from investors and use that capital to buy stakes in or acquire private companies. The investors who purchase these stakes are typically private equity firms, venture capital firms, angel investors, or other institutional investors. They aim to improve the company's operations and profitability over several years before selling their stake at a profit. Common strategies include leveraged buyouts, growth capital investments, and turnarounds of distressed companies.

Advantages include the provision of an alternative source of funding to debt financing, especially for startups that may not qualify for bank loans. Investors typically have a long-term focus and don't expect immediate returns. Can provide valuable expertise, business contacts, and operational support in addition to capital.

Disadvantages include company owners must give up some ownership and control. Can be more expensive than debt financing in the long run, as investors expect high returns. In some countries as the US, less tax-advantaged compared to debt as interest payments are tax-deductible, while dividends are not.

Examples of successful private equity investments include Uber that received early investments from venture capital firms like Benchmark, enabling rapid global expansion; Airbnb that secured seed funding from Sequoia Capital, supporting its growth into a major disruptor of the hospitality industry; and SpaceX that attracted significant private equity funding to develop groundbreaking space technologies.

In infrastructure there is limited use of private equity, especially for greenfield projects. However, private equity funds collected a total of US$ 120.7 billion globally in 2021, above the US$ 77.1 billion raised in 2017.[14] Among the most active private equity investors in the infrastructure sector by deal count and US$ in the 2017 – 2021 interval are BlackRock with 18 investments for US $10 trillion, Blackstone with 17 investments for US$ 915 billion, EIG Global Energy Partners with 14 investments for US$ 25 billion, Caisse de dépôt et placement du Québec with 14 investments for US$ 420 billion, Tailwater Capital with 13 investments for US$ 4 billion, ArcLight Capital Partners with 13 investments for US$10 billion, Ardian with 13 investments for US$ 125 billion, KKR with 13 investments for US$ 471 billion, EnCap Flatrock Midstream with 12 investments for US$ 9 billion, and the Carlyle Group with 12 investments for US$ 301 billion.

Private equity can be a powerful tool for companies to access capital and expertise, but it requires careful consideration of the tradeoffs involved in giving up some ownership and control. Private equity has the potential to fuel rapid growth and innovation. Priority functions of public development banks include the provision of counter-cyclical financing, support countries and regions within countries that lag behind in the development process, improve social development, enhance financial inclusion, promote innovation and structural transformation, finance infrastructure investment, and support the provision of public goods. Among the available tools are subsidies, long-term capital, guarantees, equity, technical assistance and research and development.

b. Public equity

Public equity refers to ownership stakes in companies that are publicly traded on stock exchanges. When a company "goes public" through an initial public offering (IPO), it allows the general public to purchase ownership stakes. Public equity shares can be freely bought and sold by investors on stock exchanges.

Characteristics of public equity include high liquidity, as shares can typically be traded easily and quickly, requires that companies disclose financial information regularly, share prices fluctuate based on market forces, are accessible to both retail and institutional investors, and are regulated by government agencies.

Advantages of public equity include providing companies access to large amounts of capital, allows early investors and employees to cash out, it increases visibility and credibility of the company, shares can be used as currency for acquisitions, and provides liquidity for shareholders.

Disadvantages of public equity include losing control as ownership is diluted, pressure to meet quarterly earnings expectations, increased regulatory and reporting requirements, vulnerability to hostile takeovers, and the costs associated with being a public company.

[14] Pitchbook data https://pitchbook.com/news/articles/pe-most-active-investors-infrastructure

Some of the key differences of public versus private equity include the fact that public equity is openly traded, while private equity is not, public companies face more regulations and disclosure requirements, private companies have more flexibility in decision-making, public equity is generally more liquid than private equity, and private equity often involves more active ownership and management.

Some of the largest and most successful public equity offerings include Visa, which raised $17.9 billion in its initial public offering (IPO) in 2008, General Motors, which raised $20.1 billion in its IPO in 2010, Facebook, which raised $16 billion in its IPO in 2012, and Alibaba, which raised $25 billion in its IPO in 2014.

In infrastructure, global listed infrastructure companies own and operate physical infrastructure assets such as toll roads, airports, and energy networks. The S&P Global Infrastructure Index is composed of 75 of the largest publicly listed companies in the global infrastructure industry. The index has balanced weights across three distinct infrastructure clusters: energy (42%), transportation (37.4%), and utilities (20.6%). The index has 74 constituents from 17 countries for a total market capitalization of US$ 1,820 billion. The US has 72 constituents with a total market capitalization of US$ 1,089 billion, Australia has 4 constituents for US$ 39 billion, Canada has 5 constituents for US$ 165 billion, Spain has 2 constituents for US$ 121 billion, Mexico has 3 constituents for US$ 17.8 billion, France has 4 constituents for US$ 71 billion, and China has 16 constituents for US$ 57 billion. The other countries can be consulted in Table A1.2 in the Annex.

The top 10 constituents by index weight are NextEra Energy Inc in utilities, Transurban Group NPV in industrials, Aena SA in industrials, Enbridge INC in energy, Southern Co in utilities, Duke Energy Corp in utilities, Iberdrola SA in utilities, Grupo Aeroportuario del Pacífico, S.A.B. de C.V. ADR in industrials, the Williams Companies Inc in energy, and the Auckland International Airport Ltd in industrials.

Another important private equity index in infrastructure is the MSCI World Index, which represents large- and mid-cap stocks across 23 developed market countries worldwide. The index covers approximately 85% of the free float-adjusted market capitalization in each country.

Public equity remains a key mechanism for companies to raise capital and for investors to participate in corporate ownership and growth. However, it comes with tradeoffs that companies must carefully consider before going public.

2. Loans

In this section we review different types of loans including those provided by commercial banks, development bank, and governments. We also review syndicated loans and investment loans. According to the World Bank, in 2023, domestic credit represented 147% of World's GDP.

a. Commercial bank loans

Commercial banks are a common source of infrastructure financing, offering long-term loans with flexible terms tailored to project needs. Usually, infrastructure loans are large, proportional to the investment size, with long terms and often include grace periods during the construction phase. Loans could be provided by individual lenders or may be structured as syndicated loans involving multiple banks for large projects (more details below). Commercial bank loans require thorough project assessment and typically finance revenue-generating infrastructure like toll roads or bridges.

Advantages of commercial bank loans include a relatively simple procedure, long maturities, and flexible financial products. Disadvantages can include higher interest rates and strict monitoring requirements. Local banks in many developing countries may lack the technical capacity or willingness to finance complex, long-term infrastructure projects.

b. Development bank loans

Development banks, both national and international, play a major role in infrastructure financing. Development banks offer long-term loans at competitive rates and provide technical assistance and advisory services. Development bank loans are often cheaper than commercial loans and come with valuable expertise.

There are several definitions of development banks, for example Xu et al. (2021) define Public Development Banks (PDB) and Development Financing Institutions (DFI) as financial institutions initiated and steered by governments with the official mission to proactively orient their operations to pursue public policy objectives.[15] These institutions use market means to achieve development goals. Xu et al. (2021) set a five elements qualification criteria that should be simultaneously met to qualify an entity as a PDB or DFI: 1) being a stand-alone entity, 2) using the fund-reflow-seeking financial instruments (loans, equity investments, guarantees) as main products and services, 3) funding sources going beyond the periodic budgetary transfers, 4) have proactive public policy orientation, and 5) government steering of their corporate strategy.

Fernandez Arias et al (2020) define development banks as government-owned financial institutions that have the objective of fostering economic or social development by financing activities with high social returns.[16] Development banks could address financial market failures such as procyclicality of credit, credit misallocation due to imperfect information, lack of

[15] Xu, Jiajun, Régis Marodon, Xinshun Ru, Xiaomeng Ren, and Xinyue Wu. 2021. "What are Public Development Banks and Development Financing Institutions? — Qualification Criteria, Stylized Facts and Development Trends." China Economic Quarterly International.
[16] Eduardo Fernandez-Arias, Ricardo Hausmann and Ugo Panizza (2020), Journal of Industry, Competition and Trade.

financing to high-uncertainty and high-risk innovative activities, and underfinance of activities with large externalities, social orientation and public goods provision.[17]

Xu et al. (2021) have a database with 528 PDB and DFI with total assets in 2020 for USD 22,282 billion, equivalent to 26% of World's GDP. Development banks are present in 150 out of the 193 countries in the World, with 8 global multinational development banks, 100 banks in Africa, 118 banks in America, 148 banks in Asia, 134 banks in Europe, and 20 banks in Oceania. The 8 global banks have combined assets for USD 675 billion or 3% of total assets. The 100 banks in Africa have combined assets of USD 188 billion, equivalent to 1% of total assets and 8% of the continent's GDP. The 118 banks in America have combined assets of USD 8,845 billion, equivalent to 40% of total assets and 33% of the continent's GDP. The 148 banks in Asia have combined assets of USD 7,275 billion, equivalent to 33% of total assets and 22% of the continent's GDP. The 134 banks in Europe have combined assets of USD 5,288 billion, equivalent to 24% of total assets and 25% of the continent's GDP, while the 20 banks in Oceania have combined assets of USD 11 billion, equivalent to 0.05% of total assets and 1% of the continent's GDP.

Classified by geographical ownership, there are 47 multinational, 370 national and 111 subnational development banks. Classified by geographical operation, there are 8 global, 13 regional, 34 subregional and 473 national and subnational development banks. Classified by official mandate, there are 190 banks with a general development flexible mandate, while there are 338 banks with a specific mandate, which include 35 focused in rural and agricultural development, 55 in export promotion, foreign trade and overseas investment, 35 in social housing, 31 infrastructure, 30 in international financing of private sector development, 17 in local government and 135 in micro, small and medium-sized enterprises.

c. Government loans

Government loans refer to the credits provided by the government to state-owned enterprises, public institutions, state minority owned companies, and banking and financial institutions for the purpose of supporting socioeconomic development. Government lending is categorized into 2 forms which are: Direct lending that provides credit using government budget and On-lending that provides credit using financing from government's borrowing.

d. Syndicated loans

A syndicated loan is a loan provided by a group of lenders to a single borrower. In syndicated loans a group of banks or financial institutions form a syndicate to provide the loan, which spreads the risk among several lenders. The syndicate allows for the provision of large loans that are too big for a single lender to provide. One bank act as the lead arranger or agent, coordinating the syndicate and managing the loan. There is one loan agreement for the entire

[17] José Antonio Ocampo and Victor Ortega (2022), The Global Development Banks' Architecture, Review of Political Economy, 34:2.

syndicate, though each lender´s liability is limited to their share. Syndicated loans are often used to finance large corporate projects and increases the market visibility of the borrower. Syndicated loans can be more cost-effective than multiple bilateral loans, but they can be more complex to arrange and administer. Also, they can have higher fees due to multiple parties involved and the negotiation process can be time-consuming.

The syndicated loan market has evolved significantly, with non-bank lenders like hedge funds and collateralized loan obligations (CLOs) now being major investors alongside traditional banks. This has increased liquidity and funding options in the market.

Overall, syndicated loans are an important financing tool for large corporations and projects, allowing access to substantial capital while managing risk for lenders through diversification.

e. Investment loans

Investment loans are a type of financing used to purchase properties that generate income, typically through rental payments. The main types of investment loans include: 1. Conventional loans: Standard loans for investment properties, usually requiring 15-25% down payment, 2. FHA Loans: Allow purchasing multi-unit properties if you live in one unit, 3. VA Loans: For eligible military borrowers to buy multi-unit properties, 4. Non-QM Loans: Alternative loans with less strict documentation requirements, 5. Commercial Property Loans: For purchasing commercial real estate, and 6. Bridging Loans: Short-term loans to bridge financing gaps.

3. Bonds

a. Corporate infrastructure bond

A corporate bond is issued as an on-balance sheet financing by a company. Bondholders have recourse or rights to all the company revenue sources and assets based on seniority of the bond tranches. Contrary to general purpose corporate bonds, where corporations could use the bonds' proceeds for any authorized purposes, corporate infrastructure bonds limit the use of proceeds for specific investments as 1) finance new infrastructure projects, 2) refinance existing debt, 3) upgrade and modernization existing infrastructure assets, 4) maintenance and operation of infrastructure assets, 5) expansion of infrastructure networks, 6) environmental and sustainability initiatives, 7) meeting regulatory compliance, 8) Public-Private Partnership (PPP) initiatives, 9) community development, and / or 10) efficiency improvement.

Assets underlying the infrastructure bond should belong to at least one of the following infrastructure sectors: 1) transport, 2) renewable energy generation, 3) non-renewable energy generation, 4) energy storage, transmission, and distribution, 5) energy resource processing, 6) energy in general, 7) social, 8) communications, 9) water, 10) waste, or 11) environment.[18]

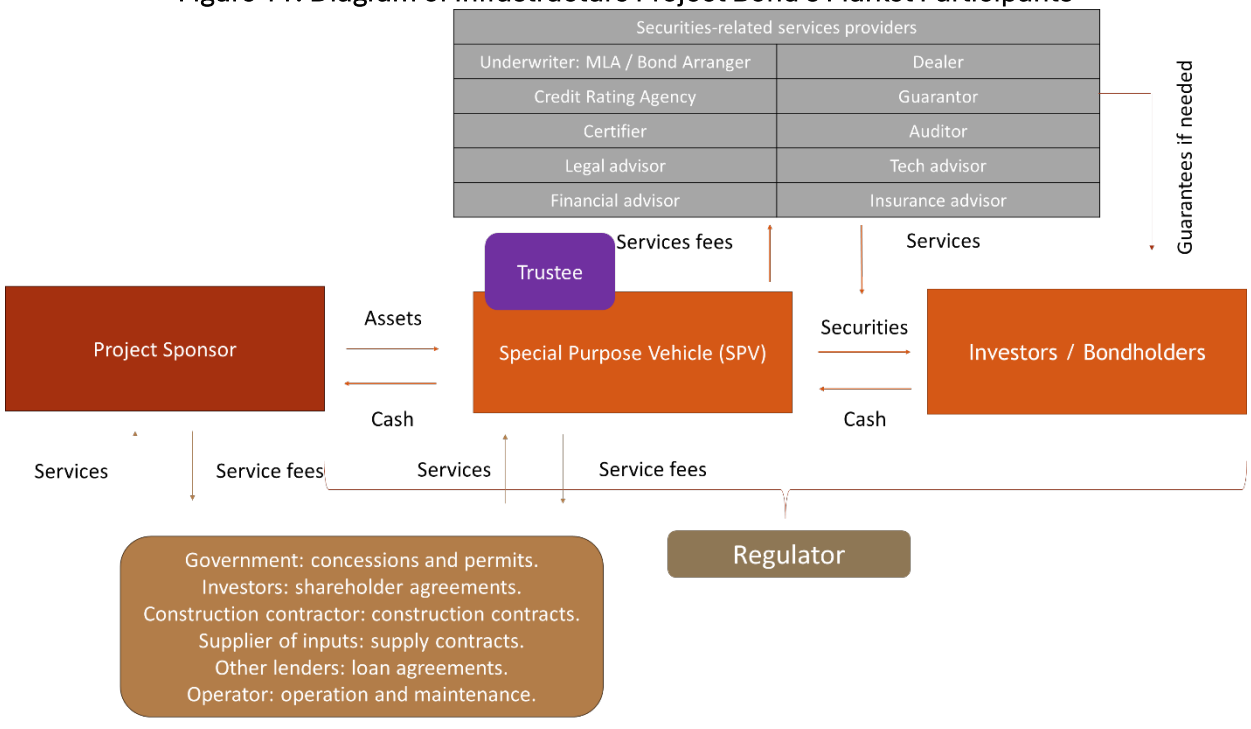
[18] Sectors and assets from the Global Infrastructure Hub https://infrastructure-transition.gihub.org/

b. Project infrastructure bond

A project infrastructure bond is issued by an infrastructure company established as a special purpose vehicle (SPV) by the project Sponsor for the specific purpose of carrying the project asset. The underlying project asset may be a greenfield, a brownfield, or a secondary stage asset. The bond may be a limited-recourse or non-recourse debt securities. In case of the latter, bondholders' recourse or right is ring-fenced to the cash flow and equity invested in the SPV. Due to the limited or non-recourse nature of a project bond, a transaction usually involves multiple counterparties with complex contractual arrangement and risk allocation. In addition, depending on the project financing structure, a project bond may be ranked as senior or subordinated debt securities.

Project bonds are used to finance specific infrastructure or development projects. They are typically backed by the cash flows generated from a specific project. The risk is associated with the success and cash flow generation of the financed project. Often involves fixed-rate instruments with a defined maturity aligned with the project's timeline. Attracts investors interested in infrastructure and long-term projects as insurance companies and pension funds. They may require credit enhancement to make them more attractive to investors. Liquidity is generally tied to the specific project's lifecycle.

Figure 11. Diagram of Infrastructure Project Bond's Market Participants



Source: own elaboration.

There are several key participants of infrastructure project bond. The project's sponsor is the entity that initiates the infrastructure project, and it is key to provide a clear business

justification. The special purpose vehicle (SPV) refers to an independent corporation with nominal capital which is a party to a project financing for purposes of holding title as a nominee or acting as a conduit of funds. Investors are bondholders who provide capital by buying bonds (institutional investors [pension funds, insurance companies, credit institutions], banks, infrastructure funds, mutual funds, private equity firms). Operations providers include government, non-bondholders' investors, construction contractors, supplier of inputs, other lenders and operators. Securities-related services providers: underwriters, mandated lead arrangers, bond arranger, dealer, credit rating agency, guarantor, certifier, auditor, legal advisor, tech advisor, financial advisor, insurance advisor. Figure 11 summarizes the main participants in the project bond's market and their relationships.

In more detail, an SPV is a subsidiary created by the parent company to undertake a risky project while protecting the parent company from risks of its failure. SPVs allows to transfer assets that are difficult or impossible to transfer, it serves to secure funding for a new venture without directly affecting the parent company's financials and could be an effective way to raise capital at more favourable rates than those faced by the parent company.

Advantages of SPVs include 1) risk management by isolating higher-risk projects, protecting the parent company and the broader corporate group from potential financial liabilities, 2) operational freedom to explore otherwise untapped opportunities, 3) flexibility as SPVs can be adapted or modified to suit different corporate structures and ventures, 4) SPVs can be used to raise capital, with creditworthiness determined by the collateral of the SPV, 5) SPVs can facilitate the transfer of assets that are difficult to transfer, saving costs and avoiding problems during sales, mergers, or acquisitions, 6) tax optimization as SPVs can be used to reduce tax burdens, especially on property sales, 7) isolated financial risk as a separate legal entity, SPVs can carry on their obligations even if the parent company goes bankrupt, 8) SPVs allow companies to have direct ownership of a specific asset, which can be beneficial for various financial strategies, and in certain jurisdictions, the inheritance procedures for assets held within an SPV can be greatly simplified compared to personal ownership.

There are several risk factors associated with SPVs including 1) lack of transparency as SPVs can be complex and opaque, making it difficult for investors to fully understand the risks involved. This lack of transparency can lead to investors not being fully aware of the financial health of the SPV or the underlying assets, 2) limited regulation as SPVs may not be subject to the same level of regulatory scrutiny as other investment vehicles, which can increase the risk of fraud or misuse of the entity, 3) concentration risk since SPVs often focus on a single project or asset, investors face concentration risk, 4) counterparty risk as the financial health of the parent company or the originator can impact the SPV, 5) market risk as the assets held within an SPV are subject to market risks, including interest rate fluctuations, currency exchange rates, and changes in market conditions that can affect the value of the investment, 6) liquidity risk as SPVs may have limited liquidity, making it difficult for investors to exit their positions when desired, 7) legal and structural complexity of SPVs can lead to misunderstandings and disputes over investor rights and obligations, 8) risk of misalignment of interests between the investors and the managers of the SPV, especially if the managers earn fees regardless of the SPV's

performance, 9) reputational risk if the SPV is involved in unethical practices, a financial scandal or mismanagement, it can negatively impact the reputation of the parent company, and 10) regulatory changes that can impact the operations and viability of SPVs, making them a less stable investment option. Investors must conduct thorough due diligence and understand the specific risks associated with the SPV they are considering investing in. It is also crucial for investors to assess the track record and reputation of the SPV's managers and the quality of the underlying assets or projects.

SPV's do not have independent management and are instead administered by trustees that follows defined rules to manage the assets and safeguard the rights and interests of the investors who purchase the securities issued by the SPV. Trustees are responsible for administering the SPV or the trust that holds the securitized assets. They oversee the receipt and disbursement of cash flows as prescribed by the transaction agreements. Trustees monitor the compliance with the transaction's covenants by all parties involved. Trustees ensure that the SPV has clear title to the assets and that these assets are free of an claims or charges. Trustees are involved in vetting legal documents, ensuring compliance with relevant regulations, and managing any legal or financial issues thar arise during the life of the SPV. In the event of a default or breach of obligations, trustees take an active role in notifying investors and coordinating with other parties to address the issues. They may replace the servicer if it fails to perform duties.

In the case of securitization, trustees coordinate with servicers, who are responsible for collecting payments on the underlying assets and providing regular reports. Trustees review these reports to ensure that the assets generate sufficient cash flow to meet the SPV's obligations to investors.

Operations of the SPV are limited to the acquisition and financing of specific assets, and the separate company structures serves as a method of isolating the risk of these activities. SPVs have more operational freedom because they aren't burdened with as many regulations as the parent company. Depending on the subsidiary project, the parent company may choose to create an SPV as a limited partnership, a limited liability company, a trust fund or a corporation.

c. Securitization infrastructure bond

A securitization bond is debt securities issued by an SPV established by an infrastructure company, referred to as the "Originator". The Originator has a single or a pool of receivable payment contract(s) obliged to pay by project off-taker(s) or consumers referred to as the "Obligator". The receivable contracts generate cash regularly and predictably in such forms as availability payment, tolls or fares, deferred payment, or offtake payment. The pool of receivables could be generated from a project within a single owner or multiple projects within multiple owners in a jurisdiction. The Originator establishes an SPV and transfers all the rights and obligations associated with the assets to the SPV. Credit enhancement, if any, is based on the credit quality of the SPV. Bondholders' recourse or right is ring-fenced to the cash flow

available for the SPV. The Originator may use the bond proceed to refinance the existing debt and equity partly or fully, and/or to finance new infrastructure investment.

Securitization bonds pool various income-producing assets into marketable securities. They are backed by a diversified pool of assets such as mortgages, loans, or receivables of goods and services. The risk is spread across multiple assets, reducing exposure to failure of any single assets. They are structured into tranches with varying levels of risk and return, offering flexibility to investors. They appeal to investors seeking diversified exposure to different types of asset-backed securities. They are often structured to include credit enhancements like tranching to manage risk and appeal to different risk appetites. They are typically more liquid than project bonds, as securities are traded in secondary markets.

Securitization is a financial process that involves pooling various types of income-producing assets, such as mortgages, auto loans, credit card debt or goods and services' receivables, and transforming them into tradeable securities. These securities are then sold to investors. The process allows for the conversion of illiquid assets into liquid ones, providing the originators with immediate capital and enabling investors to purchase a diversified set of financial products.

The assets involved typically have predictable cash flows, which are used to pay interest and principal to the investors who purchase the securities. This practice allows financial institutions to remove these assets from their balance sheets, thereby freeing up capital for further lending.

Among the main benefits of securitisation for investors include 1) diversification, 2) risk management, 3) attractive returns, 4) liquidity, 5) access to a broader range of investments, and 6) no need for direct asset management. Overall, securitisation allows investors to achieve a balance between risk and return while providing access to a diverse range of investment opportunities.

The originator is the entity that originally holds the assets being securitized, such as a bank with mortgage loans or credit card receivables. The originator sells or transfers the assets to a Special Purpose Vehicle (SPV) as part of the securitization process. Originators can include banks, financial companies, commercial lenders, and manufacturers. The originator often continues to service the assets after selling them to the SPV.

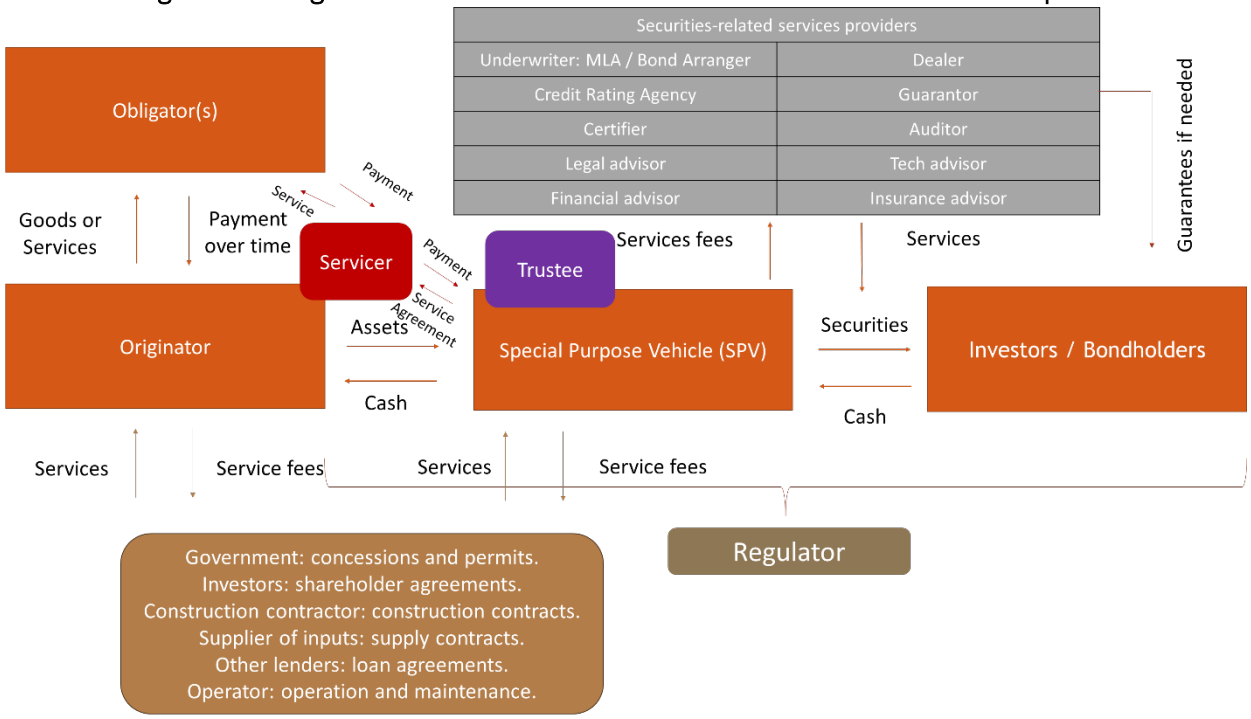
The servicer collects payments and monitors the assets that are part of the securitization deal. The servicer is often the same entity as the originator. Key servicer responsibilities include 1) collecting principal and interest payments from borrowers, 2) administering the asset portfolio, 3) customer service and payment processing, 4) default management and collateral liquidation if needed, and 5) preparing monthly reports. The servicer is typically compensated with a fixed servicing fee. A backup servicer may be designated to take over if the original servicer defaults.

The obligor refers to agents that owe the originator payments on the underlying loans / assets.

Therefore, the originator initiates the securitization by selling assets to the SPV, while the servicer manages ongoing administration of those assets. Separating origination from servicing allows the originator to transfer credit risk and free up capital. The originator may retain some interest in the securitization through subordinated tranches. Proper servicing is critical to ensure cash flows from the assets to make payments to investors. In summary, the originator creates and sells the assets being securitized, while the servicer (often the same entity) manages those assets on an ongoing basis to generate cash flows for investors. This separation of roles is a key feature of securitization structures.

Figure 12 summarizes the main participants of Infrastructure securitization bond's market.

Figure 12. Diagram of Infrastructure Securitization Bond's Market Participants



Source: own elaboration.

Table 6 summarizes the differences between project bonds and securitization bonds in the following aspects: purpose, underlying assets, risk profile, structure, investor appeal, credit enhancement, and liquidity. In summary, project bonds are specifically designed to fund individual projects and are directly linked to the project's performance, while securitization bonds involve pooling various assets to create diversified securities, spreading risk across the asset pool.

Table 6. Differences between project and securitization bonds

Aspect	Project bonds	Securitization bonds
Purpose	Used to finance specific infrastructure or development projects.	Used to pool various income-producing assets into marketable securities.

Underlying assets	Typically backed by the cash flows generated from a specific project.	Backed by a diversified pool of assets such as mortgages, loans, or receivables.
Risk profile	Risk is associated with the success and cash flow generation of the specific project.	Risk is spread across multiple assets, reducing exposure to the failure of any single asset.
Structure	Often involves fixed-rate instruments with a defined maturity aligned with the project's timeline.	Structured into tranches with varying levels of risk and return, offering flexibility to investors.
Investor appeal	Attracts investors interested in infrastructure and long-term projects.	Appeals to investors seeking diversified exposure to different types of asset-backed securities.
Credit Enhancement	May require credit enhancements to make them more attractive to investors.	Often structured to include credit enhancements like tranching to manage risk and appeal to different risk appetites.
Liquidity	Generally less liquid, as they are tied to the specific project's lifecycle.	Typically more liquid, as they are traded in secondary markets.

Source: own elaboration.

d. Retailed saving bonds

Retail savings bonds are government-issued bonds designed to encourage savings among citizens. They are usually offered with a competitive, market-related fixed interest rate or inflation-linked. Tenors are usually 2-year, 3-year, 5-year and 10-year terms. They often require a low minimum investment. Credi risk is that of the issuing government. Usually there are no fees, commissions, or charges for buying these bonds. Interest is typically subject to federal income tax, but depending on the country, they are sometimes exempt from state and local taxes. Early withdrawal is often allowed after a certain period, usually with some penalties. They usually have maximum investment limits and may not be transferable or used as collateral.
Retail savings bonds offer a safe, accessible, and often tax-advantaged way for individuals to save and invest while helping to fund government operations.

e. Thematic bonds

Thematic bonds are fixed-income instruments in which proceeds are used to finance or re-finance a combination of expenditures that support a positive contribution to or improve outcomes aligned with development (green, social or sustainability) objectives[19]. The intention of these instruments is to mobilise the investment demand for positive environmental and social outcomes and maximise the impact of proceeds. The global financial markets have adopted formal guidelines for the issuance of four types of thematic bonds – Green, Social, Sustainability and Sustainability Linked. Table 7 below provides an overview of each thematic bond along

[19] UNDP (2020): Thematic Bonds 101: Macro Environment, Market Dynamics, and Steps to Issuance. Available at: https://sdgfinance.undp.org/sites/default/files/UNDP_Thematic%20Bonds%20101.pdf

different key dimensions.

Key features of thematic bonds include that proceeds are earmarked for specific eligible projects or activities, issuers must disclose and report on the use of proceeds, they are often aligned with principles set by the International Capital Market Association (ICMA), may require external review or certification.

Benefits of thematic bonds include allowing issuers to access sustainability-focused investors, they can potentially lower funding costs for sustainable projects, they can enhance issuer's reputation and demonstrate commitment to sustainability, and they provide investors with opportunities to support sustainable development.

Table 7: Breakdown of Thematic Bonds

Type of Bond	Green	Social	Sustainability	Sustainability-linked
DESCRIPTION	Underlying projects that are green eligible	Underlying projects that are social eligible	Finance a combination of both green and social projects	Incentivizes the borrower's /sub-borrower's achievement of ambitious, predetermined sustainability performance objectives
INTENT	Finance eligible green projects, e.g. investments in renewable energy, energy efficiency, green buildings, clean transportation, climate-smart agriculture & forestry, waste and wastewater, adaptation to climate change	Finance eligible social projects, address or mitigate a specific social issue and/or seek to achieve positive social outcomes especially but not exclusively for a target population(s)	For social projects, address or mitigate a specific social issue and/or seek to achieve positive social outcomes especially but not exclusively for a target population(s). For green projects, refer to green bond intent	Finance eligible green and social projects. Bond coupons may be linked to sustainability performance
PRINCIPLES OR GUIDELINES	ICMA Green Bond Principles, CBI Taxonomy, IFC Climate Definitions	ICMA Social Bond Principles, CBI Taxonomy	ICMA Green Bond Principles, ICMA Social Bond Principles, ICMA Sustainability Bond Guidelines, CBI Taxonomy, IFC Climate Definitions	ICMA Sustainability-linked Bond Principles

Source: UNDP (2023), Cambodia - Thematic Bond Issuance Feasibility Study and Roadmap following information from the International Capital Markets Association (ICMA) and Climate Bonds Initiative (CBI).

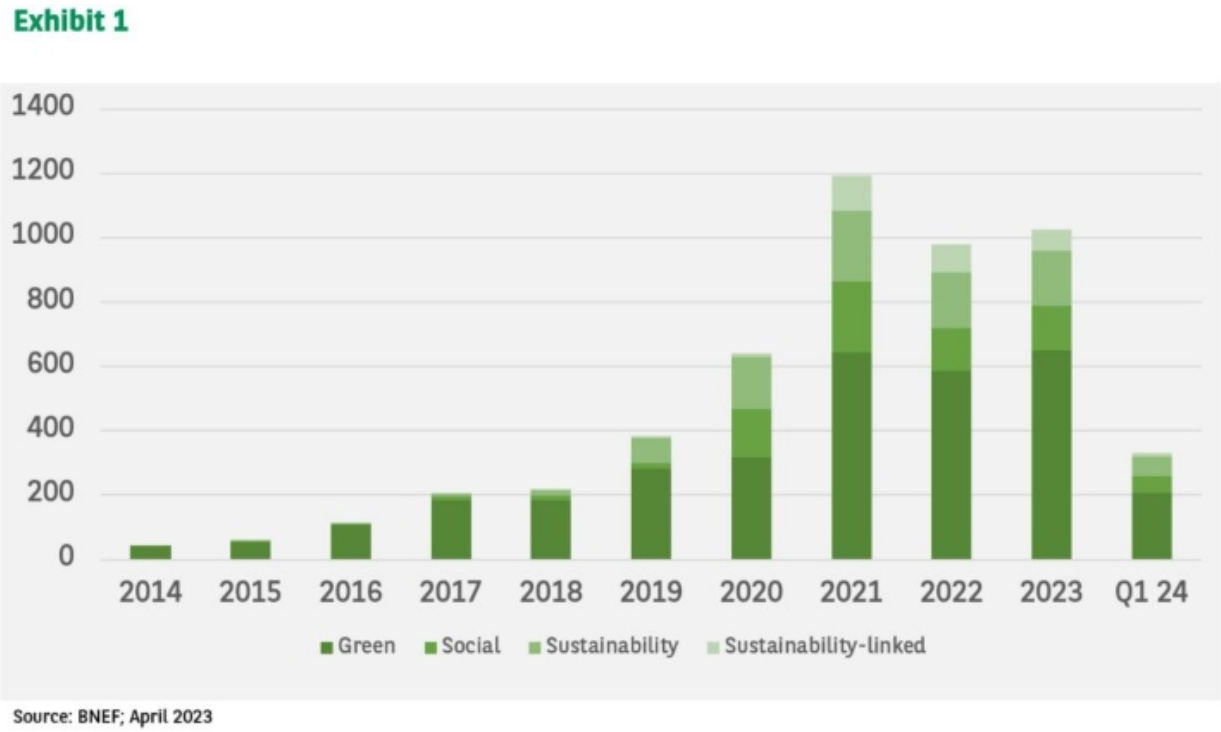
Challenges of thematic bonds include concerns about "greenwashing" and additionality of

projects, the need for standardization of definitions and reporting and the need to ensure transparency and credibility of bond frameworks.

Figure 13 shows green, social and sustainable (GSS) bonds from 2014 to 2023 and 2024 Q1. It shows that GSS bonds issuance has increase rapidly but not steadily. GSS bond issuance was resilient in 2023, rising by 2% year-on-year despite sluggish economic growth. BNP Paribas reports that while they consider that the GSS bond market is unlikely to rebound to 2021's record USD 1.1 trillion in issuance, they expect it to hold up well even with challenges such as higher-for-longer interest rates and moderating growth. Moody's projects green, social and sustainable bond issuance could reach USD 950 billion in 2024, slightly higher than 2023's USD 946 billion, while S&P forecasts issuance could rise to above the USD 1 trillion mark.

Thematic bonds are seen as an important tool for channeling capital towards sustainable development goals and addressing global challenges like climate change. However, maintaining market integrity and demonstrating real impact remain key priorities for the further development of this market.

Figure 13. Green, social and sustainable bonds 2014 – 2023 and 2024 Q1



Source: BNP Paribas

4. Blended finance

Blended finance is an innovative financial approach that combines public, private, and philanthropic capital to mobilize additional investment for sustainable development projects.

It is particularly focused on addressing market failures and creating opportunities for private investors to support social and environmental goals, especially in emerging markets.

Key components of blended finance include the public sector's involvement, where governments, development finance institutions (DFIs), and multilateral development banks (MDBs) provide concessional funds, guarantees, and other support to reduce the risk for private investors. The private sector's participation is also important, where institutional investors, such as pension funds and private equity firms, contribute the majority of capital, often seeking market-rate returns. It is complemented with philanthropic contributions, where foundations and non-profit organizations provide grants and flexible financing to support project viability. Implementing entities include non-government organizations (NGOs), social enterprises, and private companies that execute the projects on the ground.

Benefits of blended finance include the mobilization of capital, as it attracts private sector investment by improving the risk-return profile of projects that might otherwise be too risky. Also, public and philanthropic funds help mitigate risks, making investments more attractive to private investors. By targeting sectors like infrastructure, energy, healthcare, and education, blended finance helps bridge the financing gap for Sustainable Development Goals (SDGs). It also encourages innovation and entrepreneurship through supporting the development of new technologies and business models to address global challenges.

Blended finance deals often involve complex structures requiring coordination among multiple stakeholders. Ensuring that public resources are used effectively and that private sector actors adhere to environmental, social, and governance (ESG) standards is crucial. There is a risk of market distortions if public resources are not used effectively or if private sector actors take undue advantage of concessional financing.

Blended finance is expected to grow as a tool for sustainable development, with increasing involvement from multilateral development banks and development finance institutions. However, addressing challenges such as scalability, alignment of interests, and regulatory barriers will be essential for maximizing its impact.

5. Public-Private Partnership

Public-Private Partnership (PPP) is an agreement between the State and one or more private partners to restore, repair, expand, build, operate and/or maintain public infrastructure, project assets or to provide public services within a certain period of time, under which the private partner shall invest, bear risks and receive benefits based on performance and all of which shall be stipulated in the PPP contract.

There is always a public component to a PPP. The form that this component takes will depend on the country and the project and can range from financial support to indirect or contingent support, to in kind support (such as provision of land or equipment), to broader financial

mechanisms that can support the country's PPP program or encourage the financial markets to lend into projects.[20]

Funded support: the government may decide to provide direct support for the project, for example through subsidies/grants, equity investment and/or debt. These mechanisms are particularly useful where the project does not in its own merit achieve bankability, financial viability or is otherwise subject to specific risks that the private investors or lenders are not well placed to manage. In developing countries where private finance is most needed, these constraints may necessitate more government support than would be required in more developed countries. Funded support involves the government committing financial support to a project, such as:

- direct support – in cash or in-kind (e.g. to defray construction costs, to procure land, to provide assets, to compensate for bid costs or to support major maintenance);
- waiving fees, costs and other payments which would otherwise have to be paid by the project company to a public sector entity (e.g. authorising tax holidays or a waiver of tax liability);
- providing financing for the project in the form of loans (including mezzanine debt) or equity investment (or in the form of viability gap funding); and
- funding shadow tariffs for roads and topping up tariffs to be paid by some or all consumers (in particular, those least able to pay) say in water and electricity projects to reduce the demand risk borne by the project company[21].

Few PPP projects are viable without some form of government technical or financial support. Efficient financing of PPP projects can involve the use of government support, to ensure that the government bears risks which it can manage better than private investors and to supplement projects which are economically but not financially viable.

Contingent products: the government may choose to provide contingent mechanisms, i.e. where the government is not providing funding, but is instead taking on certain contingent liabilities, for example providing:

- guarantees, including guarantees of debt, exchange rates, convertibility of local currency, offtake purchaser obligations, tariff collection, the level of tariffs permitted, the level of demand for services, termination compensation, etc.;
- indemnities, e.g. against non-payment by state entities, for revenue shortfall, or cost overruns;
- insurance;

20 World Bank https://ppp.worldbank.org/public-private-partnership/government-support-financing-ppps

[21] Some of this is supported by output based aid – for more on this, see The Global Partnership for Results-Based Approaches (GPRBA) which is a facility that supports output based solutions (The Global Partnership for Results-Based Approaches (GPRBA), formerly known as the Global Partnership on Output-Based Aid (GPOBA) until February 2019, is a global partnership program in the World Bank Group.)

- hedging of project risk, e.g. adverse weather, currency exchange rates, interest rates or commodity pricing; or
- contingent debt, such as take-out financing (where the project can only obtain short tenor debt, the government promises to make debt available at a given interest rate at a certain date in the future) or revenue support (where the government promises to lend money to the project company to make up for revenue short-falls, enough to satisfy debt-service obligations).

For example, on the Zagreb-Macelj toll road, the government provided in-kind support in the form of land and contingent debt drawn down whenever revenues were insufficient to cover debt service.[22] Thus, lenders were protected, but the risk remained with the equity holders.

The government will want to manage the provision of government support, and in particular any contingent liabilities created through such support mechanisms. Governments seek a balance between supporting private infrastructure investment and fiscal prudence.[23] Striking this balance right will help the government make careful decisions about when to provide public-money support and manage the government liabilities that arise from such public-money support, while still being aggressive in encouraging infrastructure investment. Government assessment of projects receiving such support is doubly important given the tendency of lenders to be less vigilant in their due diligence when government support is available, since this reduces lender risk and exposure.

Governments actively managing fiscal risk exposure face challenges associated with gathering information, creating opportunities for dialogue, analyzing the available information, setting government policy and creating and enforcing appropriate incentives for those involved. Given the complexity of these tasks, it is becoming more popular for governments, and in particular ministries of finance, to create specialist teams to manage fiscal risk arising from contingent liabilities, in particular those associated with PPP. This is often achieved through debt management departments, which are already responsible for risk analysis and management. The government may also consider creating a separate fund to provide guarantees, allowing the government to regulate better this function and ring fence the associated government liabilities.[24]

Financial intermediaries: the government may wish to use its support to mobilize private financing (in particular from local financial markets), where that financing would not otherwise be available for infrastructure projects. The government may want to mobilize local financial capacity for infrastructure investment, to mitigate foreign exchange risk (where debt is denominated in a currency different than revenues), to replace retreating or expensive foreign investment (for example, in the event of a financial crisis) and/or to provide new opportunities in local financial markets. But local financial markets may not have the experience, or risk

[22] See https://ppp.worldbank.org/public-private-partnership/library/zagreb-macelj-toll-road
[23] For further discussion of this issue, see Irwin, Government Guarantees: Allocating and Valuing Risk in Privately Financed Infrastructure Projects (World Bank, 2007).
[24] For more, see Management of Government Risk.

management functions, needed to lend to some sub-sovereign entities or to private companies on a limited recourse basis.

To overcome these constraints, the government may want to consider the intermediation of debt from commercial financial markets, creating an intermediary sufficiently skilled and resourced to mitigate the risks that the financial markets associate with lending to infrastructure projects. To achieve this, the government may want to use a separate mechanism (the "intermediary") to support such activities without creating undue risk for the local financial market, for example, by:

- using the intermediary's good credit rating to borrow from the private debt market (e.g. providing a vehicle for institutional investors who could not invest directly in projects) then lend these funds to individual entities or projects as local currency private financing of the right tenor, terms and price for the development of creditworthy, strategic infrastructure projects;
- providing financial products and services to enhance the credit of the project and thereby mobilize additional private financing, for example by providing the riskiest tranche of debt, providing specialist expertise needed to act as lead financier on complex or structured lending, syndication, credit enhancement, and specialist advisory functions; and/or
- providing support to finance or reduce the cost or improve the terms of private finance for key utilities. These entities may need first to learn gradually the ways of the private financial markets, and the financial markets may need to be comfortable with lending to infrastructure operators. This mechanism can help slowly graduate such sub-national entities or state-owned enterprises from reliance on public finance to interaction with the private financial markets.

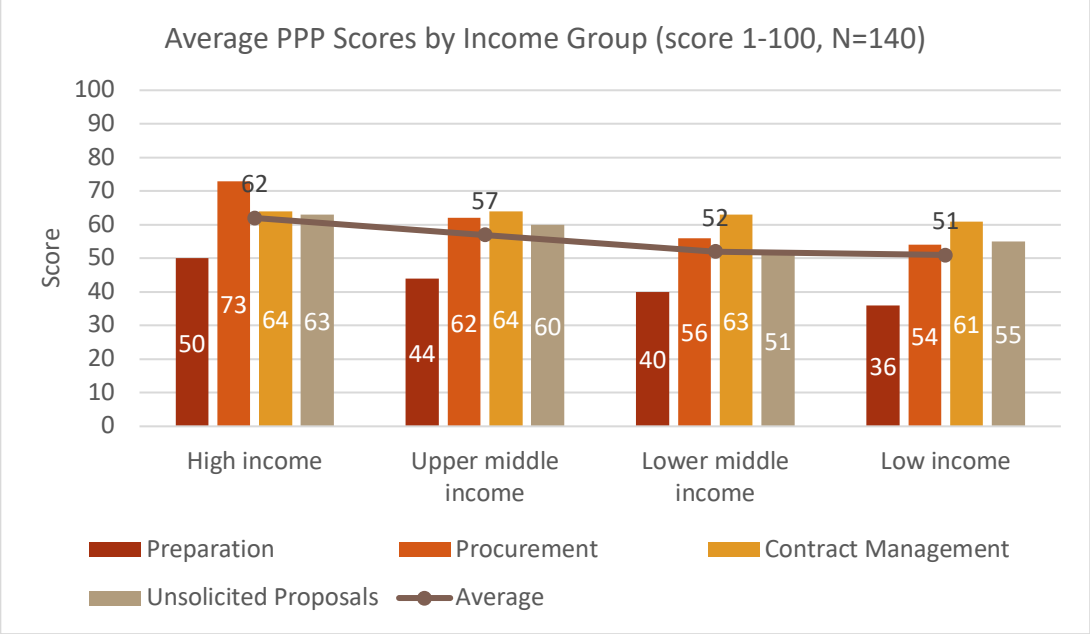
Current best practice indicates that such intermediaries should be private financial institutions with commercially oriented private sector governance. Intermediaries meant to create space in an existing financial market must have commercial incentives aligned to this goal, with appropriately skilled and experienced staff, and a credit position sufficiently strong to mobilize financing from the market. Existing private financial institutions with appropriate skills and capacity can help to perform this function. However, private entities often suffer from conflicts of interest (e.g. holding positions in the market such that their interests are not aligned with the role of intermediary) or would be constrained from taking positions in the market due to its role as intermediary (crowding out vital market capacity). The government may therefore want to create a new private entity to play this role.

Project development funds: the government may wish to develop a more or less independent project development fund (PDF), designed to provide funding to grantors for the cost of advisers and other project development requirements. The PDF may be involved in the standardization of methodology or documentation, its dissemination and monitoring of the implementation of good practices. It should provide support for the early phases of project selection, feasibility studies and design of the financial and commercial structure for the project, through to

financial close and possibly thereafter, to ensure a properly implemented project. The PDF might focus on specific sectors or projects in a region or nationally, but needs to have a broad scope to address the different forms of PPP to respond to sector needs. The PDF may provide grant funding, require reimbursement (for example, through a fee charged to the successful bidder at financial close) with or without interest, or obtain some other form of compensation (for example, an equity interest in the project), or some combination thereof, to create a revolving fund. The compensation mechanisms can be used to incentivize the PDF to support certain types of projects.[25]

Trends and highlights from the World Bank's PPP data: Public-Private Partnerships (PPPs)
To further complement the discussion, we present some trends and highlights from the World Bank's PPP data: Public-Private Partnerships (PPPs). Appropriate and effective regulatory frameworks remain crucial for ensuring that investments in infrastructure are done strategically and efficiently. Benchmarking Infrastructure Development 2020 assesses the regulatory quality for preparation, procurement, and management of large infrastructure projects through both Public-Private Partnerships (PPPs) and Traditional Public Investments (TPIs). Figure 14 shows the average PPP scores by income group in a 1 to 100 scale for 140 countries.

Figure 14: Benchmarking Infrastructure Development PPP



Source: World Bank, Benchmarking Infrastructure Development 2020.

Among the findings are:

- The higher the income level of the group, the higher the performance in the assessed thematic areas.

[25] The World Bank Group published a primer titled 'Project Development Funds (PDFs) - Supporting Project Preparation to Structure Successful Public-Private Partnerships (PPPs)' to help better understand how to establish and operate PDFs.

- Regulatory frameworks have evolved since the 2018 edition of the report, but these reforms have a different impact on the regulatory environment.
- PPP preparation is the thematic area in which a significant share of economies reformed their regulatory frameworks.
- The establishment of PPP units remains a common feature of institutional frameworks for PPPs. Eighty-four percent of the surveyed economies have established a dedicated PPP unit.
- Preparation is the thematic area with room for improvement across all regions and income groups—but particularly for low-income economies.
- High-income economies perform closer to recognized good practices in the procurement phase, but there are still plenty of good regulatory practices not followed in low- and lower-middle-income economies.
- Further alignment with good regulatory practices is still possible in PPP contract management for all regions and income groups.
- Proper regulation of unsolicited proposals is required to ensure that they are pursued transparently and for the right reasons.
- Most economies adhere to international good practices in terms of disclosure of information to the public in the procurement phase, but do not adopt such disclosure practices during the preparation phase and contract management.

VI. Conclusions

Successful infrastructure financing with private participation is not merely a matter of capital availability, but requires sophisticated institutional frameworks, appropriate risk management, and strategic government involvement to create sustainable, bankable projects that serve both public interest and private investor requirements.

Infrastructure development emerges as a fundamental driver of economic growth, with the capacity to enhance productivity, stimulate investment, and improve quality of life across diverse economic contexts. The Global Infrastructure Outlook's estimation of an US$ 18 trillion investment gap between 2016 and 2040 underscores the magnitude of the financing challenge confronting both developed and developing economies. This substantial gap, representing 0.7% of global GDP, necessitates innovative approaches to mobilize capital from multiple sources, including private sector participation, public sector involvement, and hybrid financing mechanisms.

The empirical evidence presented in this analysis reveals that debt financing dominates infrastructure projects with private participation, accounting for 75% of total financing in 2023, while equity represents only 25%. Within the debt component, the predominance of commercial loans (43.4% of total financing) and bonds (38% of total financing) reflects the market's preference for structured debt instruments over equity participation. The relatively modest contribution of private equity (1% of total investment) compared to public equity (24%) demonstrates the continued significance of government involvement even in ostensibly private infrastructure projects. This financing structure suggests that infrastructure development remains fundamentally dependent on debt markets and government support mechanisms.

The analytical framework for evaluating infrastructure financing options must begin with rigorous assessment of economic viability and social returns. Projects lacking positive net economic returns cannot be salvaged through innovative financing structures, regardless of their complexity or sophistication. The sequential evaluation process—from economic viability to public-private participation decisions to financing mechanism selection—provides a systematic approach for determining optimal resource allocation. This process recognizes that financing options are ultimately contingent upon project funding sources and risk profiles, with financial viability and bankability serving as determining factors for accessible financing alternatives.

Commercial bank loans, development bank loans, and government loans each serve distinct functions within the infrastructure financing ecosystem. Commercial bank loans offer flexibility and customization but typically require collateral and impose restrictive covenants. Development bank loans provide counter-cyclical financing and support for underserved regions, though they may carry policy conditions. Government loans enable direct public sector participation but create fiscal liabilities that must be carefully managed within broader debt

sustainability frameworks. The optimal loan structure depends on project characteristics, government capacity, and market conditions.
Bond financing presents particular advantages for large-scale infrastructure projects, offering access to capital markets and longer-term funding horizons. Corporate infrastructure bonds allow established entities to leverage existing balance sheets, while project infrastructure bonds enable direct claims on project revenues. Securitization infrastructure bonds provide risk diversification through asset pooling, though they introduce complexity in risk assessment and management. The emergence of thematic bonds—including green, social, and sustainability-linked instruments—reflects growing investor interest in environmental and social impact, though these mechanisms require robust frameworks to ensure credibility and prevent greenwashing.

Blended finance mechanisms represent an innovative approach to mobilizing private capital for infrastructure projects that might otherwise be considered too risky for commercial investment. By combining public, private, and philanthropic capital, blended finance can improve project risk-return profiles and attract additional private sector participation. However, the complexity of these arrangements requires careful attention to incentive alignment, risk allocation, and governance structures to ensure effectiveness and value for money.

Public-Private Partnerships emerge as a sophisticated financing mechanism that can leverage private sector efficiency while maintaining public sector oversight and control. The evidence suggests that few PPP projects achieve financial viability without some form of government support, whether through direct subsidies, guarantees, or risk-sharing arrangements. The success of PPP arrangements depends critically on appropriate regulatory frameworks, transparent procurement processes, and effective contract management throughout the project lifecycle.

The analysis of regional patterns reveals significant variations in private infrastructure participation, with Latin America and the Caribbean leading in both investment value (34.24%) and project count (36.14%), followed by East Asia and the Pacific and South Asia. These regional differences reflect varying levels of regulatory development, market maturity, and government capacity to support private infrastructure investment. The predominance of greenfield projects (62.49% of resources) over brownfield investments suggests that private sector participation is particularly valuable for new infrastructure development rather than rehabilitation of existing assets.

Risk management emerges as a central theme throughout infrastructure financing, with revenue uncertainties, cost estimation challenges, and external factors creating significant exposures for financiers. The higher the perceived risks, the greater the financial returns demanded by investors, emphasizing the importance of government guarantees, insurance mechanisms, and appropriate risk allocation between public and private partners. Special Purpose Vehicles offer advantages in risk isolation and operational flexibility but introduce complexity and potential transparency issues that require careful oversight.

The regulatory and institutional framework surrounding infrastructure financing proves crucial for attracting private investment while protecting public interests. The World Bank's Benchmarking Infrastructure Development findings demonstrate that higher-income economies generally achieve better regulatory performance, and that preparation, procurement, and management frameworks require continuous improvement across all regions and income groups. The establishment of dedicated PPP units and adherence to international good practices in disclosure and transparency represent essential elements of effective infrastructure governance.

Looking forward, the infrastructure financing landscape continues to evolve with emerging instruments and approaches. The growth of sustainability-linked financing, the development of securitization mechanisms, and the increasing sophistication of blended finance arrangements suggest that the future of infrastructure financing will likely involve increasingly complex combinations of public and private capital. However, the fundamental principles of economic viability, appropriate risk allocation, and effective governance remain constant regardless of the specific financing mechanisms employed.

The evidence presented in this analysis demonstrates that successful infrastructure financing with private participation requires a balanced approach that leverages the strengths of both public and private sectors while managing the inherent risks and complexities of infrastructure investment. Governments must maintain their role as facilitators and risk managers while creating space for private sector efficiency and innovation. The ultimate success of these arrangements depends on careful attention to project preparation, transparent procurement processes, and effective contract management throughout the infrastructure lifecycle.

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Annex 1. Infrastructure Investment League Tables

Table A1.1. Top 30 global infrastructure projects by asset capital expenditure

Asset Name	Asset Type	Asset Sub-type	Asset Stage	Asset Capex ($m)	Capacity	Capacity Unit	Asset Region	Asset Country/Region	Asset State	Asset Sector	Asset Sub-sector	Current Owners	EPC	Latest Event
Sydney-Melbourne High Speed Rail (915KM)	Greenfield	New	Pre-construction	150,463.05	915	Kilometres	Asia Pacific	Australia	Canberra	Transport	Heavy Rail	Government of Australia (100.00%)		Project Announced
North Atlantic Rail	Greenfield	New	Pre-construction	105,000.00	0		North America	United States	Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont	Transport	Heavy Rail	Government of the United States of America (100.00%)		Project Announced
US GSA Networx Telecommunications Technology Upgrade	Brownfield	Expansion	Construction	68,000.00	0	Units	North America	United States		Telecoms	Mobile	Government of the United States of America (100.00%)		Project Announced
Western Green Energy Hub (50GW)	Greenfield	New	Pre-construction	67,237.02	50,000.00	Megawatts	Asia Pacific	Australia	Western Australia	Renewables	Onshore Wind, Solar PV	InterContinental Energy (34.00%), CWP Global (33.00%), Mirning Traditional Lands Aboriginal Corporation (33.00%)	KEPCO	EPC Contract
London Britannia Airport	Greenfield	New	Pre-construction	62,355.00	##########	People	Europe	United Kingdom	England	Transport	Airports	Transport for London (100.00%)		Project Announced
UK High Speed 2 Rail (HS2) Phase II B	Greenfield	New	Cancelled	54,767.17	339.57	Kilometres	Europe	United Kingdom	England	Transport	Heavy Rail	Department for Transport (UK) (100.00%)		Cancelled
Tel Aviv Metro (150KM)	Greenfield	New	Pre-construction	54,685.90	150	Kilometres	MENA	Israel		Transport	Transit	Government of Israel (100.00%)		Next Milestone
Gorgon Downstream Facility (LNG)	Greenfield	New	Operational	52,000.00	##########	Tonnes Per Annum	Asia Pacific	Australia	Western Australia	Oil & Gas	LNG, Upstream	Chevron (47.00%), Shell (25.00%), ExxonMobil (25.00%), Osaka Gas (1.00%), Chubu Electric Power (1.00%), MidOcean Energy (1.00%)		Ownership Change
Hyrasia one Green Hydrogen Plant (20GW)	Greenfield	New	Pre-construction	50,000.00	20,000.00	Megawatts	Asia Pacific	Kazakhstan		Renewables	Hydrogen	Svevind Holding (100.00%)		Other Contracts
Nicaragua Canal (286KM)	Greenfield	New	Construction	50,000.00	286	Kilometres	Latin America	Nicaragua		Oil & Gas, Transport	Maritime Transport, Midstream, Ports	Government of Nicaragua (100.00%)		General Announcement
South Stream Gas Pipeline	Greenfield	New		50,000.00	##########	Cubic Meters	Europe	Russia		Oil & Gas	Midstream, Upstream	Gazprom (100.00%)		Cancelled
Kashagan Oil Field	Greenfield	New	Operational	50,000.00	400,000.00	Barrels Per Day	Asia Pacific	Kazakhstan		Oil & Gas	Upstream	KazMunayGas (17.00%), Eni SpA (17.00%), ExxonMobil (17.00%), Shell (17.00%), TotalEnergies (17.00%), Energy Development Corporation (8.00%), Inpex (7.00%)	Saipem	Operational
US Nationwide Public Safety Broadband Network (NPSBN)	Greenfield	New	Pre-construction	46,500.00	0	Kilometres	North America	United States	Alabama, Alaska, Arizona, ..., Wisconsin, Wyoming	Telecoms	Internet	First Responder Network Authority (100.00%)		General Announcement
Libra Oil Field Project	Greenfield	New	Pre-construction	46,000.00	##########	Barrels	Latin America	Brazil	Rio de Janeiro, São Paulo	Oil & Gas	Upstream	Petrobras (40.00%), Shell (20.00%), TotalEnergies (20.00%), China National Petroleum Corporation (10.00%), CNOOC (10.00%)		General Announcement
Ruwais Refinery	Brownfield	Expansion	Construction	44,900.00	600,000.00	Barrels Per Day	MENA	United Arab Emirates		Oil & Gas	Downstream, Upstream	Abu Dhabi National Oil Company (ADNOC) (100.00%)	SK Group	Other Contracts
Moscow-Ekaterinburg High Speed Rail (BCM-2)	Greenfield	New	Construction	44,600.00	0		Europe	Russia		Transport	Heavy Rail	JSC Russian Railways (100.00%)		General Announcement

Asset Name	Asset Type	Asset Sub-type	Asset Stage	Asset Capex ($m)	Capacity	Capacity Unit	Asset Region	Asset Country/Region	Asset State	Asset Sector	Asset Sub-sector	Current Owners	EPC	Latest Event
Ratnagiri Oil Refinery	Greenfield	New	Pre-construction	44,000.00	##########	Tonnes Per Annum	Asia Pacific	India	Maharashtra	Oil & Gas	Downstream	Saudi Aramco (50.00%), Indian Oil Corporation (25.00%), Bharat Petroleum Corporation (12.50%), Hindustan Petroleum Corporation (12.50%)		Project Announced
Crossrail 2 (36KM)	Greenfield	New	Pre-construction	43,470.72	36	Kilometres	Europe	United Kingdom	England	Transport	Transit	Transport for London (100.00%)		General Announcement
Grand Paris Express (200KM)	Greenfield	New	Pre-construction	42,406.02	200	Kilometres	Europe	France		Transport	Transit	Societe du Grand Paris (100.00%)		General Announcement
AMAN Green Hydrogen Project (30GW)	Greenfield	New	Pre-construction	40,000.00	30,000.00	Megawatts	Sub-Saharan Africa	Mauritania		Renewables	Hydrogen, Onshore Wind, Solar PV	Government of Mauritania (100.00%)		General Announcement
Alaska LNG	Greenfield	New	Pre-construction	38,700.00	##########	Tonnes Per Annum	North America	United States	Alaska	Oil & Gas	LNG	State of Alaska (51.00%), CIC Capital (49.00%)		Other Contracts
6500MW Severn Barrage	Greenfield	New	Pre-construction	37,900.00	6,500.00	Megawatts	Europe	United Kingdom	Wales	Power, Water	Distribution, Hydro	Hafren Power (100.00%)		Delay
Carajas Iron Ore Mine	Brownfield	Expansion	Pre-construction	37,000.00	##########	Tonnes Per Annum	Latin America	Brazil	Pará	Mining	Base Metals	Vale (100.00%)		Approval
National Broadband Network (NBN)	Greenfield	New	Construction	37,000.00	##########	People	Asia Pacific	Australia	Tasmania	Telecoms	Mobile, Terrestrial	NBN Co (100.00%)		General Announcement
Pacific NorthWest LNG	Greenfield	New	Cancelled	36,000.00	##########	Tonnes Per Annum	North America	Canada	British Columbia	Oil & Gas	LNG, Midstream	PETRONAS (62.00%), Sinopec (15.00%), Indian Oil Corporation (10.00%), Japan Petroleum Exploration Co (10.00%), Brunei National Petroleum Co (3.00%)	Bechtel Group	Cancelled
Denali Alaska Natural Gas Pipeline	Greenfield	New		35,000.00	##########	Cubic Meters	North America	Canada, United States	Alaska	Oil & Gas	Midstream, Upstream	BP Global (50.00%), ConocoPhillips (50.00%)		Cancelled
VindO Wind Energy Island (3GW)	Greenfield	New	Pre-construction	33,149.43	3,000.00	Megawatts	Europe	Denmark		Renewables	Offshore Wind - Fixed	Government of Denmark (100.00%)		General Announcement
Melbourne Suburban Rail Loop	Greenfield	New	Construction	32,643.82	26	Kilometres	Asia Pacific	Australia	Victoria	Transport	Transit	State Government of Victoria (100.00%)		Construction
Baihetan Hydropower Plant (16GW)	Greenfield	New	Construction	32,171.41	16,000.00	Megawatts	Asia Pacific	China – Mainland		Power	Hydro	China Three Gorges Renewables Group (100.00%)		Operational
Asian Renewable Energy Hub (26GW)	Greenfield	New	Pre-construction	31,742.22	26,000.00	Megawatts	Asia Pacific	Australia	Western Australia	Renewables	Onshore Wind, Solar PV	BP Global (63.57%), InterContinental Energy (26.39%), CWP Energy Asia (10.04%)		Ownership Change

Source: IJGlobal Market Analytics

Table A1. 2. S&P Dow Jones Industrial Index

Country	Number of Constituents	Total Market Cap US$ million	Index Weight
United States	22	1,089,186.29	43.0%
Australia	4	39,118.65	8.8%
Canada	5	164,891.90	8.4%
Spain	2	121,467.55	7.8%
Mexico	3	17,820.36	6.1%
France	4	71,325.00	6.1%
China	16	57,019.81	4.4%
New Zealand	1	7,024.53	2.7%
Italy	2	79,633.05	2.7%
Germany	2	42,131.91	2.0%
United Kingdom	1	67,250.78	2.0%
Switzerland	1	7,182.92	1.9%
Singapore	3	7,316.22	1.7%
Japan	1	3,215.82	1.4%
Brazil	5	38,216.11	0.8%
Luxembourg	1	2,458.14	0.2%
Norway	1	5,445.67	0.2%
Total	74	1,820,704.71	100%

Source: S&P Global Infrastructure Index

Table A1. 3. Global Infrastructure MLAs in H1 2024

Rank H1 2024	Rank H1 2023	Name	Value ($m) H1 2024	Value ($m) H1 2023
1	1	MUFG	9,748	13,427
2	8	BNP Paribas	8,603	7,613
3	2	SMBC	8,128	11,733
4	6	ING Bank	7,684	8,717
5	11	Natixis	7,383	5,839
6	4	Credit Agricole	7,174	9,396
7	7	Societe Generale	7,122	8,212
8	3	Santander	6,442	11,295
9	5	Mizuho	5,066	9,222
10	12	Deutsche Bank	5,030	5,593
11	9	JP Morgan	4,742	6,614
12	26	Citigroup	4,374	2,895
13	21	RBC	4,334	3,359
14	31	Wells Fargo	4,136	2,512
15	24	Intesa Sanpaolo	4,126	3,215
16	19	Bank of America	4,114	3,626
17	14	BBVA	3,774	4,341
18	40	TD Bank	3,453	1,792
19	20	Standard Chartered	3,275	3,369
20	27	Rabobank	2,966	2,669

Source: IJGlobal Market Analytics

Table A1. 4. APAC Infrastructure MLAs in H1 2024

Rank H1 2024	Rank H1 2023	Name	Value ($m) H1 2024	Value ($m) H1 2023
1	1	SMBC	1,423	3,331
2	2	MUFG	911	2,831
3	11	Westpac	854	1,140
4	10	Standard Chartered	827	1,203
5	33	State Bank of India	787	330
6	4	DBS Bank	755	1,927
7	9	ING Bank	665	1,282
8	19	Deutsche Bank	646	703
9	17	OCBC Bank	587	847
10	N/A	Commerzbank	586	N/A
11	7	Societe Generale	577	1,471
12	3	Mizuho	575	2,355
13	24	BNP Paribas	497	470
14	16	ANZ Bank	487	866
15	8	CBA	441	1,402
16	18	Bank of China	408	712
17	N/A	RCBC	377	N/A
18	N/A	Krung Thai Bank	351	N/A
19	26	Intesa Sanpaolo	332	460
20	13	Natixis	324	999

Source: IJGlobal Market Analytics

Table A1. 5. Global Infrastructure Financial Advisers in H1 2024

Rank H1 2024	Rank H1 2023	Name	Value ($m) H1 2024	Value ($m) H1 2023
1	4	Rothschild	24,333	22,070
2	3	JP Morgan	21,540	23,055
3	19	Citigroup	19,241	9,303
4	8	RBC	18,231	15,608
5	20	Santander	17,105	7,982
6	13	BNP Paribas	14,371	11,594
7	12	Macquarie	13,292	12,266
8	27	Deloitte	12,237	5,977
9	1	Morgan Stanley	12,231	27,198
10	28	Bank of America	10,506	5,608
11	33	MUFG	10,010	3,709
12	2	Barclays	9,898	24,275
13	46	DC Advisory Partners	7,769	1,920
14	74	CIBC	7,679	458
15	18	EY	7,003	9,719
16	5	Societe Generale	6,419	20,306
17	51	BBVA	6,260	1,305
18	34	KPMG	5,751	3,342
19	N/A	TD Bank	5,688	N/A
20	43	Wells Fargo	5,465	2,000

Source: IJGlobal Market Analytics

Table A1. 6. APAC Infrastructure Financial Advisers in H1 2024

Rank H1 2024	Rank H1 2023	Name	Value ($m) H1 2024	Value ($m) H1 2023
1	6	Macquarie	7,038	4,711
2	N/A	ADB	3,956	N/A
3	17	RBC	3,222	732
4	5	Rothschild	3,200	5,607
5	N/A	Morgan Stanley	2,528	N/A
6	30	JP Morgan	2,365	225
7	12	Barclays	2,149	1,280
=	N/A	Barrenjoey	2,149	N/A
9	24	MUFG	1,588	475
10	27	KPMG	1,330	298
11	9	State Bank of India	1,242	2,408
12	11	Citigroup	617	1,305
13	N/A	Lazard	563	N/A
=	N/A	Chatham Financial	563	N/A
=	N/A	Aurora Advisors	563	N/A
16	25	ICA Partners	555	338
17	N/A	Fubon Group	507	N/A
18	16	Gresham Partners	484	793
19	N/A	Greenhill & Co	390	N/A
20	15	UBS	370	856

Source: IJGlobal Market Analytics

Table A1. 7. Top 10 Infrastructure Finance Deals in H1 2024

Transaction Name	Transaction Location	Transaction Sector	Transaction Value ($m)	Financial Close Date
Axpo Holding Sustainability-linked Refinancing	Europe	Renewables, Power	7,570	2/21/2024
CoreWeave Loan	North America	Telecoms	7,500	5/20/2024
DigitalBridge's and Silver Lake's Investment in Vantage Data Centers	North America	Telecoms	6,400	3/6/2024
Nationalisation of 55% in Iberdrola's Mexico Power Assets (8539MW)	Latin America	Renewables, Power	6,260	2/27/2024
EDF Green Loan (May)	Europe	Power	6,256	5/14/2024
Xp Fibre Refinancing	Europe	Telecoms	6,254	3/27/2024
ArcelorMittal Revolver Refinancing	Europe	Mining	5,500	5/29/2024
Diamondback Energy Bond (April)	North America	Oil & Gas	5,500	4/9/2024
Acquisition of 15.25% in Asian Renewable Energy Hub (26GW)	Asia Pacific	Renewables	5,456	3/13/2024
Acquisition of Vodafone Spain	Europe	Telecoms	5,409	5/31/2024

Source: IJGlobal Market Analytics

Table A1. 8. Top 10 Project Finance Deals in H1 2024

Transaction Name	Transaction Location	Transaction Sector	Transaction Value ($m)	Financial Close Date
CoreWeave Loan	North America	Telecoms	7,500	5/20/2024
Nationalisation of 55% in Iberdrola's Mexico Power Assets (8539MW)	Latin America	Renewables, Power	6,260	2/27/2024
Coastal GasLink Pipeline (670KM) Bond Refinancing	North America	Oil & Gas	5,214	6/13/2024
Boden Green Steel Plant	Europe	Renewables, Mining	4,776	4/24/2024
Automotive Cells Company (ACC) Germany & Italy & France Battery Gigafactories	Europe	Renewables	4,748	2/12/2024
Cedar Floating LNG Terminal	North America	Oil & Gas	4,584	6/24/2024
Brightline Florida High-Speed Rail Line (377.5KM) Bond Refinancing	North America	Transport	4,574	5/13/2024
Woodfibre LNG	North America	Oil & Gas	3,758	2/29/2024
Acquisition of 30% in FirstEnergy Transmission	North America	Power	3,500	3/25/2024
Privatisation of Eshkol Power Plant (1692MW)	MENA	Power	3,127	5/29/2024

Source: **IJGlobal Market Analytics**

Table A1. 9. Top 10 Infrastructure Finance Deals Bonds in H1 2024

Transaction Name	Transaction Location	Transaction Sector	Bond Value ($m)	Financial Close Date
Diamondback Energy Bond (April)	North America	Oil & Gas	5,500	4/9/2024
Coastal GasLink Pipeline (670KM) Bond Refinancing	North America	Oil & Gas	5,214	6/13/2024
Brightline Florida High-Speed Rail Line (377.5KM) Bond Refinancing	North America	Transport	4,469	5/13/2024
NextEra Energy Bond (January)	North America	Power	4,400	1/29/2024
TotalEnergies Bond	Europe	Oil & Gas, Renewables	4,250	4/2/2024
Glencore Bond (March)	Europe	Mining	4,000	3/26/2024
Energy Transfer Bond Refinancing (January)	North America	Oil & Gas	3,800	1/10/2024
PacifiCorp Mortgage Bond	North America	Power	3,800	1/3/2024
Enbridge Bond (April)	North America	Oil & Gas	3,500	4/2/2024
Comcast Bond Refinancing (May)	North America	Telecoms	3,250	5/20/2024

Source: IJGlobal Market Analytics

Table A1. 10. Top 10 Project Finance Bonds in H1 2024

Transaction Name	Transaction Location	Transaction Sector	Bond Value ($m)	Financial Close Date
Coastal GasLink Pipeline (670KM) Bond Refinancing	North America	Oil & Gas	5,214	6/13/2024
Brightline Florida High-Speed Rail Line (377.5KM) Bond Refinancing	North America	Transport	4,469	5/13/2024
JFK International Airport New Terminal 1 Bond Refinancing PPP	North America	Transport	2,550	6/27/2024
NGL Energy Partners Secured Refinancing	North America	Oil & Gas	2,200	1/25/2024
Engie Bond (February)	Europe	Power	2,167	2/29/2024
Telefonica Green Bond (January)	Europe	Telecoms	1,902	1/17/2024
ADIF Alta Velocidad Bond	Europe	Transport	1,647	1/11/2024
Digicel Additional Facility	North America	Telecoms	1,619	2/2/2024
First Quantum Minerals Note Refinancing (February)	North America	Mining	1,600	2/29/2024
Southern California Edison Project Bond (February)	North America	Power	1,600	2/27/2024

Source: IJGlobal Market Analytics

Table A1. 11. Top 10 PPP Deals in H1 2024

Transaction Name	Transaction Location	Transaction Sector	Transaction Value ($m)	Financial Close Date
Bogota Metro Line 1 (23.9KM) PPP	Latin America	Transport	3,090	4/23/2024
Surrey Langley SkyTrain (16KM) Extension PPP	North America	Transport	2,962	3/7/2024
R4 West East Road Upgrade PPP	Europe	Transport	1,219	5/8/2024
Puerto Salgar – Barrancabermeja and Sabana de Torres – Curumani Corridors (532KM) PPP	Latin America	Transport	1,143	4/9/2024
Centre for Addiction and Mental Health (CAMH) Redevelopment Phase 1D PPP	North America	Social & Defence	985	2/20/2024
Mississauga Trillium Health Centre Redevelopment P3	North America	Social & Defence	962	2/26/2024
Tanajib Residential Compound Expansion Housing PPP	MENA	Social & Defence	787	4/4/2024
Rodoanel Mario Covas Highway Northern Section (44KM) PPP	Latin America	Transport	575	2/5/2024
San Juan Cruise Port Redevelopment PPP	North America	Transport	537	2/15/2024
University of Milano Innovation District Campus PPP	Europe	Social & Defence	489	5/21/2024

Source: IJGlobal Market Analytics

Annex 2. Examples of Maritime Transport Infrastructure Projects

Canal del Dique is a 115 km canal located in the north Colombia. It connects the Magdalena River, in the Bolivar Department, and Cartagena Bay. The project requires estimated investments of COP 3.1 trillion, including around COP 2.2 trillion of capital expenditure and COP 900 billion of operation expenditure.

Nicaragua Grand Canal is a proposed 172-mile waterway, 230 to 520 meters wide and 27.6 meters deep, making it longer, wider and deeper than the 51-mile Panama Canal to the south. Based on the project design, it should include 6 sub projects: the Canal (including locks), 2 ports, a free trade zone, holiday resorts, an international airport and several roads. In addition, there will be construction of a power station, cement factory, steel factory and other related facilities.

The Buenaventura port access canal will give access to the Buenaventura port, located in the Valle del Cauca department. The project will include a channel with a 12.5m depth in the internal bay and 13.5m in the external bay.

The new deep-water port at Isla Margarita is located on the Panama Canal in the Colon presence. The modern and efficient deep-water port will have a terminal, a logistics park and four container berths and an annual capacity of 300 million TEUs.

The 72KM branch canal is located in Punjab, south-eastern Pakistan. It is part of the Choubara system – of the Greater Thal Canal water irrigation system. It will increase agricultural productivity and food security in the Punjab province.

The Manchester Ship Canal (England) was opened in 1894 by Queen Victoria. It is an important trading hub for bulk liquids and dry bulk cargo with 7.5 million tons passing through each year.

The Canal Istanbul, or the so-called 'second Bosphorus', is envisaged to stretch across the Turkish capital's Western side. It will link the Black Sea and the Sea of Marmara passing through Istanbul's districts of Kucukcekmece, Sazlidere and Durusu. The canal will be 45km long and will include three underwater tunnels for road traffic. The 45-km Küçükçekmece-Sazlıdere-Durusu corridor will have a base width of 275m, while the 20.75m deep canal would generate 1.17 billion cubic meters of excavated material, 80% of which could be used as fill.

The Red Sea–Dead Sea Conduit (Canal), also known as the Two Seas Canal, is a 176 km conduit (pipes and brine canal) which would run from the Red Sea to the Dead Sea. Water would be pumped from the Red Sea at Aqaba in Jordan, raised 230 meters above sea level and then allowed to descend to the Dead Sea which lies at 420 meters below sea level. It includes water desalination plants and a hydropower plant and would provide 850 million cubic meters of freshwater per year.

The initial project was proposed in 2005, has since been scaled down significantly and will be implemented in 5 phases. First phase involves building the first pipe to transfer 300 million cubic meters of water from the Gulf of Aqaba on the Red Sea to the Dead Sea on the Jordanian side. Some of the Red Sea water would be used to help refill the Dead Sea. The rest of the water would be desalinated and shared with Israel and the Palestinian Authority. This phase also includes a

desalination plant in Aqaba to provide fresh water to Jordan, Israel, and Palestine for agriculture and drinking purposes. The brine byproduct from the plant will be sent north via a 112-mile pipeline – passing through a hydroelectric power station – to the Dead Sea. The reverse osmosis seawater desalination plant will have an initial capacity of 65 million cubic meters of desalinated water per year, eventually rising to 85 million cubic meters of capacity per year, with Israel and Palestine off taking the fresh water.

The project entails the expansion of Panama Canal. It comprises excavation of a dry channel that will connect the new third set of locks on the Pacific end of the canal with the existing Gaillard Cut. This expansion of the canal is the second project which forms part of a larger programme to build a new lane of traffic along the canal. The project will involve removing 7.5 million cubic meters along a stretch of 2.4km. The widening of the Panama Canal is set to boost US exports of LNG gas to Asia market by providing an alternative, shorter route, for larger LNG vessels.

The Seine-Nord Europe Canal scheme includes the development of a 106km stretch of canal between Compiègne and Aubencheul-au-Bac, near Cambrai. When complete, it will connect the Seine and the ports of Paris and the Nord-Pas de Calais region with 20,000km of navigable rivers, and allow it to be accessed by 4,500-ton barges. It also includes the construction of slices, canal bridges, transshipment quays and embankments with boating facilities as well as multimodal platforms. The average cost of transporting a ton of goods on such barges over 350km is €12, compared to €21 by lorry and €22 by train. The French government wants to increase the proportion of non-road freight carried by water from 12 per cent to 25 per cent by 2022. The canal has been declared a European Priority Plan and forms a junction between France and both Belgium and the Rhine basin.

Table A2. Maritime Transport Infrastructure Projects

Asset Name	Canal del Dique	Nicaragua Canal (286KM)	Buenaventura Port Access Canal	Panama Canal Container Port	Choubara Water Branch Canal (72KM)	Manchester Ship Canal	Canal Istanbul (45 KM)	Red Sea-Dead Sea Canal (RSDSC)	Panama Canal Extension 2	Seine-Nord Europe Canal
Asset Type	Brownfield	Greenfield	Greenfield	Brownfield	Greenfield	Greenfield	Greenfield	Greenfield	Brownfield	Brownfield
Asset Sub-type	Refurbishment	New	New	Redevelopment	New	New	New	New	Expansion	Refurbishment
Asset Stage	Pre-construction	Construction	Construction	Pre-construction	Pre-construction	Operational	Pre-construction	Pre-construction	Construction	Construction
Asset Capex ($m)	735.53	50,000.00	5.07	1,400.00	200	0	16,000.00	10,000.00	5,000.00	5,675.00
Capacity	115 kms	286 kms	0	300,000,000.00	72 kms	7,500,000.00	45 kms	176 kms	2.4 kms	106 kms
Current Owners	Sacyr Concesiones (100.00%)	Government of Nicaragua (100.00%)	Invias (100.00%)	Notarc Management Group (100.00%)	Government of Pakistan (100.00%)	Peel Ports (100.00%)	Government of Turkey (100.00%)	Government of Jordan (50.00%), Government of Israel (50.00%)	Government of Panama (100.00%)	Voies Navigables de France (100.00%)
Contract	Unknown	DBFO	Unknown	Unknown	N/A	N/A	N/A	BOT	N/A	N/A
Project Country/Region	Colombia	Nicaragua	Colombia	Panama	Pakistan	United Kingdom	Turkey	Israel, Jordan, Palestine	Panama	France
Project Sector	Transport	Oil & Gas, Transport	Transport	Transport	Water	Transport	Transport	Power, Transport, Water	Transport	Transport
Project Sub-sector	Maritime Transport	Maritime Transport, Midstream, Ports	Ports	Ports	Distribution	Ports	Maritime Transport	Desalination, Distribution, Hydro, Maritime Transport	Maritime Transport	Maritime Transport
Project Latest Event	General Announcement	General Announcement	General Announcement	Ownership Change	Primary Financing Closed	General Announcement	General Announcement	General Announcement	General Announcement	Delay

Asset Name	Canal del Dique	Nicaragua Canal (286KM)	Buenaventura Port Access Canal	Panama Canal Container Port	Choubara Water Branch Canal (72KM)	Manchester Ship Canal	Canal Istanbul (45 KM)	Red Sea-Dead Sea Canal (RSDSC)	Panama Canal Extension 2	Seine-Nord Europe Canal
Latest Event	Colombia's Canal del Dique PPP formally awarded	Nicaragua plans reviving USD50mn canal project	Colombia shelves canal dredging PPP	Panamanian port project changes hands	ADB approves $200m for Pakistan water	Investor trio acquires stake in Peel Ports	Environmental concerns over Turkish tunnel PPP	Red Sea-Dead Sea lives on	ACP and GUPC finally sign Panama Canal expansion resolution	France's Canal Seine Nord PPP hits roadblock
Project Latest Event Date	2/6/2023	15/09/2022	22/07/2022	19/05/2022	14/12/2021	2/11/2021	30/06/2020	30/01/2018	5/8/2014	18/09/2012
Transaction Name	Canal del Dique Rehabilitation PPP	Nicaragua Canal (286KM) PPP	Buenaventura Port Access Canal PPP	Acquisition of Panama Canal Container Port PPP	Choubara Water Brank Canal System Portfolio	Acquisition of 25% in Peel Ports	Canal Istanbul (45KM) PPP	Red Sea-Dead Sea Canal (RSDSC) Phase 1 PPP	Panama Canal Extension	Seine-Nord Europe Canal
SPV	Ecosistemas del Dique, S.A.S.	Empresa Desarrolladora de Grandes Infraestructuras (EDGI)							Grupo Unidos por el Canal (GUPC)	
Finance Type	Project Finance	Project Finance	Project Finance	Corporate Finance	Non-Commercial Finance	Corporate Finance	Project Finance	Project Finance	Non-Commercial Finance	Project Finance
Transaction Type	Primary Financing	Primary Financing	Primary Financing	Asset acquisition	Portfolio Financing	Company acquisition	Primary Financing	Primary Financing	Primary Financing	Primary Financing
Transaction Stage	Financial close	Financing	Pre-financing	Financial close	Financial close	Financial close	Pre-financing	Pre-financing	Financial close	Pre-financing
Procurement Stage	Preferred Bidder	Preferred Bidder	Pre-tendering				Pre-tendering	Tendering	Unknown	Unknown
Transaction Value ($m)	84.54	50,000.00	4.26	0	200	1,198.95	16,000.00	900	5,250.00	8,586.74
Transaction Debt ($m)	84.54				200				2,300.00	
Transaction Equity ($m)	0				0				2,950.00	
Debt/Equity Ratio	100:00:00				100:00:00				44:56:00	0:00
Sponsors	Sacyr Concesiones	HK Nicaragua Canal Development Investment Co. Ltd		Notarc Management Group	Government of Pakistan	AustralianSuper			Government of Panama	
Debt Providers	Santander				Asian Development Bank				Japan Bank for International Cooperation ,Sumitomo Mitsui Banking Corporation, MUFG Bank,European Investment Bank,Inter-American Development Bank,World Bank,Corporacion Andina de Fomento	European Investment Bank,Caisse des Depots et Consignations
Financial Advisers	World Bank,Bonus Banca de Inversion					HSBC,Deloitte,Rothschild		Beta Finance,Lazard	Mizuho Financial Group	Royal Bank of Canada
Legal Advisers	Cuatrecasas					Freshfields Bruckhaus Deringer,Linklaters		Levy Meidan & Co,Dar Group,Gide Loyrette Nouel	Galindo, Arias & Lopez,Morgan & Morgan,Clifford Chance,Mayer Brown,Shearman & Sterling (pre-merger)	Allen & Overy (pre-merger),Gide Loyrette Nouel

Asset Name	Canal del Dique	Nicaragua Canal (286KM)	Buenaventura Port Access Canal	Panama Canal Container Port	Choubara Water Branch Canal (72KM)	Manchester Ship Canal	Canal Istanbul (45 KM)	Red Sea-Dead Sea Canal (RSDSC)	Panama Canal Extension 2	Seine-Nord Europe Canal
Technical Advisers	Gomez Cajiao,Royal HaskoningDHV					Arup		Adan		
Latest Transaction Event	Financial Close Transaction	General Announcement	General Announcement	Financial Close Transaction	Financial Close Transaction	Financial Close Transaction	Risk Alert	General Announcement	Financial Close Transaction	General Announcement
Latest Transaction Event Date	1/11/2023	21/03/2016	22/07/2022	18/05/2022	14/12/2021	23/07/2020	30/06/2020	30/01/2018	9/12/2008	26/02/2015
Financial Close Date	1/11/2023			18/05/2022	14/12/2021	23/07/2020			9/12/2008	
PPP	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No

Source: IJGlobal Market Analytics