Aquila Capital

AT A GLANCE – INFRASTRUCTURE INVESTMENTS

REALIZING ADVANTAGES THROUGH MULTI-MANAGER SOLUTIONS NR. 1

Classification of infrastructure areas

Infrastructure is a central element of modern economies. Economic infrastructure facilities are responsible for the transport, exchange of goods, communication and supply of the essential needs of water and energy. Social infrastructure refers to areas that are of direct social importance, such as hospitals and schools.

The table illustrates the range of services over which the infrastructure areas are spread. These penetrate into almost every area of daily life. High market entry barriers and partly monopolistic market positions determine the type and extent of state involvement.

Infrastructure classification

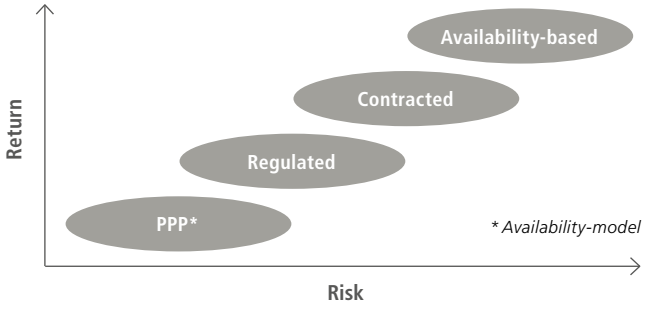
Economic infrastructure				**Social infrastructure**
Transport	**Energy**	**Utilities and waste disposal**	**Communication systems**	
Bridges / Tunnels	Wind energy	Power distribution	Satellites	Hospitals
Toll roads	Photovoltaics	Gas distribution	Broadcasting systems	Sports facilities
Railways / Public transport	Hydropower	Water distribution and treatment	Fibre optics and other networks	Schools / Universities
Air- and Seaports	Energy storage	Waste disposal and recycling	Data centres	Public administration buildings

Remuneration systems

Infrastructure investments differ in particular in the design of the remuneration system based on how an investor is remunerated (from fully contractually agreed and use-independent to demand-based). These different remuneration systems offer complex possibilities for infrastructure investments to meet individual requirements. Depending on the risk/return profile of the investor, different designs are possible, depending on the infrastructure project and the respective state participation.

The figure illustrates the designs that must be fundamentally differentiated in the infrastructure segment. Starting from fixed to variable payment depending on use, offer a wide variety of variants, hybrid forms and combinations – based on the investor's assumption of risk.

Risk-return-profile based on remuneration[1]



Availability-based public-private partnerships have the lowest risk, as the infrastructure measures financed are usually public goods. Their provision, financing and maintenance is partly outsourced by the state to the private sector. In this case, tasks that are sovereign to the state, such as the provision of schools, for example, are outsourced to private investors. They are made available for public use through long-term contracts - comparable to rental or lease agreements. In this case, infrastructure investors act more or less as service providers Risks are minimized by the absence of credit risk due to the participation of the state, as well as cash flows that have already been secured in advance. However, the low risk results in a reduced risk premium.

Monopolistic market positions, which in certain areas of supply are accompanied by privatisation measures, are regulated by the state. Due to the monopoly position of, in particular, grid-bound infrastructure, such as electricity, gas and to some extent water networks, pricing cannot be set by a market mechanism. Instead of being fixed by contract or law, prices are set according to the calculation methods of state regulatory authorities. Within this procedure, the specific plant characteristics are taken into account. These are usually characterised by very long use periods and the associated investment costs as well as maintenance and expansion investments. The aim is to strike a balance between the interests of consumers (infrastructure that is functional and cost-effective in the long term) and the

[1] *Aquila Capital (illustrative)*

AT A GLANCE – INFRASTRUCTURE INVESTMENTS

REALIZING ADVANTAGES THROUGH MULTI-MANAGER SOLUTIONS NR. 1

interests of suppliers (reliable framework conditions for investment and ongoing operation) and to create appropriate incentive mechanisms for investors. As a result, due to the relatively inelastic demand in this area, it is also possible to achieve payment flows that can be planned in the long term and are subject to minor fluctuations.

Even without state participation, it is possible in some areas in the private sector to achieve availability-based remuneration models through contracting. In the renewable energy sector, for example, the market for private power purchase agreements (PPAs) is experiencing enormous growth. Long-term contracts for the purchase of electricity produced from renewable sources offer secure and predictable conditions for both investors and customers thanks to fixed prices. Furthermore, in the private sector, it is possible, for example, to market only part of the electricity via PPAs. As a result, downside risks are limited by a PPA, while upside potential remains available via market prices. The risk premium is based on the creditworthiness of the corresponding customer.

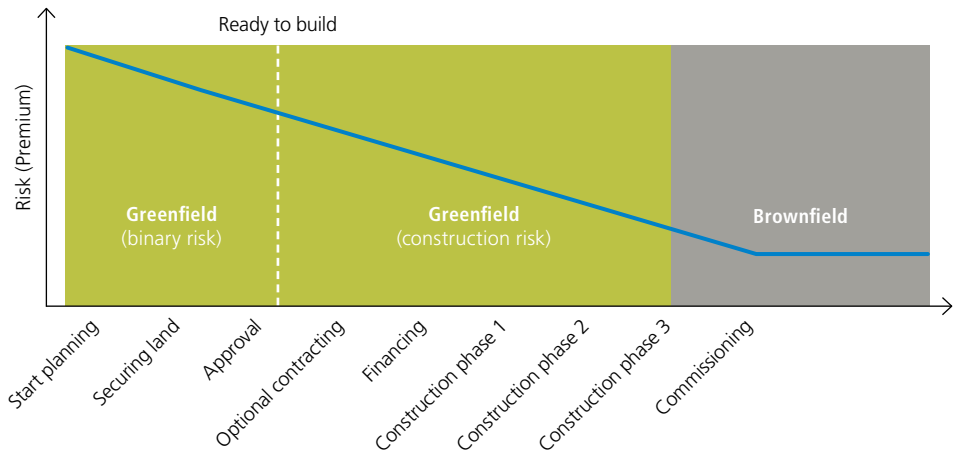
Infrastructure projects with demand-based remuneration models are more volatile. Examples of these models include sea- and airports as well as toll roads. Broad access to this infrastructure is essential, but they show a high correlation with the general economic conditions. High potential in growth phases is offset by corresponding risks in crises and downturns. Correspondingly, equity investors require the highest risk premium in this sector.

Project maturity – Greenfield and Brownfield

Another dimension of differentiation within the infrastructure universe is due to the maturity of the projects. Basically, a distinction is made between greenfield and brownfield projects. Concerning the assumption of risks arising from the development of projects, the expected risk premium varies. Depending on the expectations and the risk appetite of the investor, gradations are possible. The figure illustrates – in an illustrative and simplified way – this relationship.

As construction progresses, the risk to be assumed for the investment decreases and the resulting risk premium develops in parallel. The market for infrastructure funds offers opportunities to invest in different phases.

Risk development with construction progress[2]



Complexity in the infrastructure segment

The number of specific sectors, as well as the variable possibilities of design, lead to a high degree of complexity within the infrastructure segment. Due to this complexity, there is enormous diversification potential. Individual requirements can be met with numerous tailor-made solutions. The figure on the next page illustrates the dimensions of risk assumption, according to which classification can be made into the risk categories from core (low risk) to opportunistic (high risk).

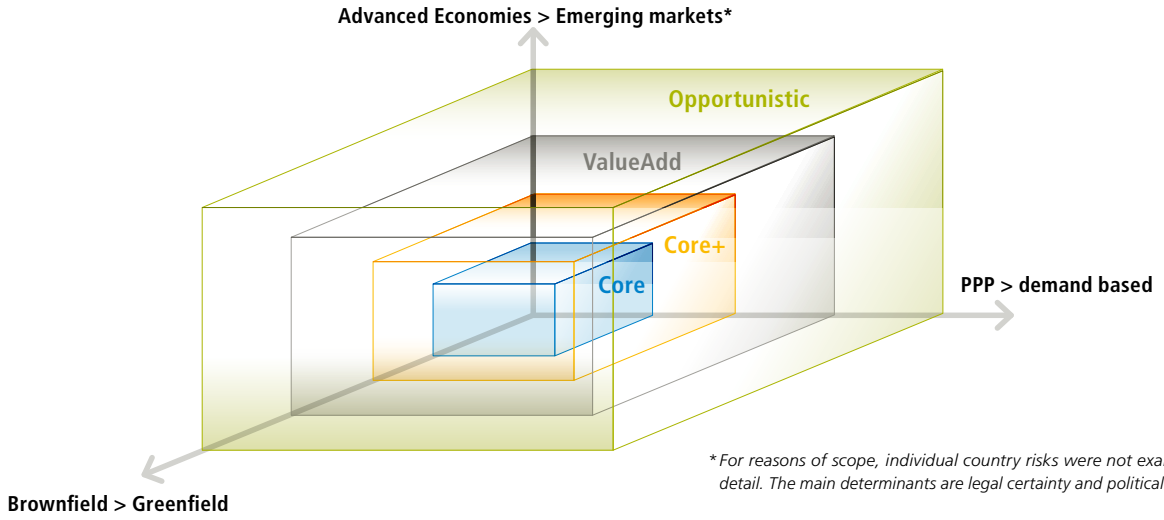
[2] *Aquila Capital (illustrative)*

Aquila Capital

AT A GLANCE – INFRASTRUCTURE INVESTMENTS

REALIZING ADVANTAGES THROUGH MULTI-MANAGER SOLUTIONS NR. 1

Risk dimensions in the infrastructure segment[3]



** For reasons of scope, individual country risks were not examined in detail. The main determinants are legal certainty and political stability.*

Depending on the return requirements and the risk appetite of the investor, there are numerous combinations of portfolio allocations. The complexity of the asset class is both opportunity and risk. Expertise, experience and in particular the manager's access to the market are of decisive importance.

Typically, closed-end funds, i.e. with a fixed fund term (on average 10-15 years), assume higher risks. In analogy to private equity approaches, the fee structure of these funds is increasingly geared to overall performance. Funds with unlimited duration, so-called evergreens, as well as very long-term fund structures (>20 years) usually pursue more defensive strategies. The fees of these funds are more asset-based and focus on long-term, stable payouts. This makes them particularly interesting for conservatively acting institutional and professional investors.

A publication of Aquila Capital Investmentgesellschaft mbH. As of September 2020. Author: Peter Schnellhammer, Christian Brezina

[3] Aquila Capital (illustrative)