

STUDY

Squaring the circle - Improving European infrastructure financing

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Executive summary

Investments in infrastructure are key to making Europe more competitive. But public investments in infrastructure by EU member states have seen massive cuts over recent years. On the other hand, Europe's capital markets are currently experiencing historically high levels of liquidity as a result of the ECB's expansive monetary policy. This market environment makes it increasingly difficult for investors – especially commercial banks and institutional investors such as insurance companies and pension funds – to find suitable avenues for investment with attractive rates of return as an alternative to the extremely low interest rates offered by government bonds.

At first sight, investments in infrastructure would appear to be the obvious solution. Infrastructure projects, with their regulated business models, typically offer stable and sometimes even guaranteed cashflows over a long-term investment horizon, and are generally unaffected by economic fluctuation and market risk. Yet private investment in infrastructure in Europe remains obstinately low.

The Investment Plan for Europe, of which the European Fund for Strategic Investments (EFSI) forms the centerpiece, is a political response by the European Commission to the paradox that few private investors are willing to finance infrastructure projects despite the enormous amounts of liquidity on the capital markets¹. Private investments in projects that add enormous value never get off the drawing board because they simply look too risky – with dramatic consequences for Europe's economies. This is where the EFSI comes in. It aims to use public funds intelligently for the purpose of de-risking and, in so doing, to leverage a larger number of private investments. The EFSI can create the necessary momentum for new growth in infrastructure investments in Europe. But it will only do so if it solves the following problems that beset investments in infrastructure projects:

- > Risk structure and expected yields are not aligned
- > Regulation in the EU is too complex, unpredictable and fragmented across countries
- > Supervisory requirements for banks and insurance companies pose certain obstacles
- > Governance mechanisms fail to meet investors' requirements
- > Standardized projects are few and far between

Our suggestion is therefore to make the EFSI part of an overall "European Infrastructure Investment Model" that addresses the barriers to investment in a holistic and systematic fashion. The model we propose comprises six key elements:

1. Create a pipeline of investment-grade projects
2. Stock the pipeline with current projects to kick-start the market
3. Tailor risk-return profiles to different types of investors
4. Make private infrastructure investments financially viable
5. Establish a robust ownership and governance model
6. Actively manage project risks

¹ In addition to supporting infrastructure and innovation financing, the EFSI also seeks to mobilize private investment in SMEs and mid-cap companies across Europe to boost job creation. The analysis put forth in this paper, however, focuses exclusively on the structural challenges to infrastructure project investments in the EU and the EFSI's potential role in overcoming these barriers.

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1. The case for more private-sector infrastructure investment

Infrastructure: The basis for long-term competitiveness and growth

Investments in infrastructure – the facilities that a country needs in order for it to function properly and its economy to develop – are the key to making Europe more competitive. That includes roads, railroads, airports, electricity grids, telecommunications and IT networks and broadband connections.

Improving European infrastructure is not only crucial for general economic development. It is also paramount to completing the single European market, improving energy security and strengthening European innovation. Modern digital services require affordable, high-speed connections. New technologies such as zero-emission vehicles and smart grids require new types of infrastructure.

Several key EU projects focus on building and improving trans-European infrastructure, including the Paris-Bratislava railway axis, the Motorways of the Sea of Western Europe (connecting Portugal and Spain to the Irish Sea and the Baltic) and the Trans-European Energy Network.

**Public investment in infrastructure in the EU-28:
Down approx. 11% since 2010**

Projects are also urgently needed at a national level to expand and upgrade existing infrastructure.

Significant reduction in public investment

Few would disagree that infrastructure investments are a matter of strategic importance. However, public investment in infrastructure by EU member states has fallen dramatically in recent years. This holds in particular for the EU member states most heavily affected by the European sovereign debt crisis and the ensuing austerity programs. Spending in Portugal, Spain and Cyprus shrank by more than 20 percent each year between 2010 and 2013, for example. Overall, the governments of the EU-28 invested just under EUR 400 billion in 2013 – around 11 percent less than in 2010.²

Infrastructure is crumbling ...

The current environment of austerity and strict caps on government spending has led to underinvestment in infrastructure. Signs that infrastructure is suffering as a result are visible across the EU. For example, the availability of fast broadband internet still falls short of the target level in many rural parts of Europe, affecting the ability of EU businesses to tap the benefits of the digitized economy. While the global ranking of average internet connection speeds (measured in Mb/s) is led exclusively by advanced Asian economies, with South Korea, Hong Kong and Japan in the top three positions, many of the EU's most populous economic heavyweights such as Germany (rank 31), France (rank 45), and Italy (rank 51) lag far behind.³

A World Economic Forum ranking of the quality of global infrastructure comparing aspects such as the quality of road, railroad, port, electricity and telecommunication infrastructures across different countries reveals serious shortcomings in many EU countries' core infrastructures.

² Eurostat database (2015): Public investments in infrastructure. Government gross fixed capital formation used as a proxy for public infrastructure investments

³ Akamai (2015): The state of the Internet (Q3 2014)

EU member states such as Greece (rank 36) and Italy (rank 26) are positioned only midway down the global ranking when it comes to the quality of infrastructure, far below highly developed Asian economies such as Hong Kong (rank 1), Singapore (rank 2), Japan (6), and Taiwan (rank 11). Even EU member states with historically good infrastructure – such as France and Germany – have slipped down the ranking in recent years. Germany dropped from 3rd place in 2013-2014 to 7th place in 2014-2015. Similarly, France's position in the ranking deteriorated from 4th place to 8th place in the same period.⁴

According to recent estimates, total infrastructure investment needs in the EU member states over the next three years amount to approximately EUR 1 trillion.⁵ For transport infrastructure alone, more than EUR 1.5 trillion in investments is needed across the EU by 2030 to match projected demand.⁶ In the EU's energy system, around EUR 1 trillion must be invested by 2020 in order to meet energy policy objectives and climate goals according to official EU projections⁷.

... where it should be growing

The case for investing in infrastructure is strong. The International Monetary Fund (IMF) recently analyzed the extent to which infrastructure investments influence growth, both directly and indirectly. According to their calculations, a 1 percent increase in infrastructure investments as a share of GDP leads to a direct increase of 0.4 percent in annual economic growth. The full impact of the indirect effect is seen within four years, with additional growth in GDP potentially reaching 1.5 percent a year.⁸

This effect also works in the other direction, however: According to the European Commission, most of the decline in GDP in the EU between 2007 and 2013 was due to the drop in investment by public and private players.⁹

Reversing this trend would provide a welcome boost to Europe's economies. According to a recent analysis by Linklaters and Oxford Analytica, additional infrastructure investments of about EUR 900 billion over the next decade could be expected to have a cumulative impact on the EU's GDP of between EUR 1.2 trillion and EUR 2.8 trillion by 2023. This corresponds to a 1.4% improvement in the EU's annual GDP between 2014 and 2023.¹⁰

Finding useful investment avenues for surplus capital and liquidity

Historically, the large current-account surpluses in Germany, Benelux and other EU countries have caused two problems. First, capital moved abroad rather than being channeled into the necessary infrastructure investments. Second, markets were flooded with cheap money, ultimately leading to a sovereign debt crisis. In the coming years, it is unlikely that thriving countries will voluntarily reduce their current account surpluses. However, many eurozone countries are already stretched to the limit with regard to public debt. Europe now needs a framework for usefully employing surplus capital. Infrastructure is the obvious solution, promising as it does a considerable boost to the EU's economic power.

⁴ World Economic Forum (2014): The Global Competitiveness Report

⁵ Standard & Poor's (2015): Global Infrastructure Investment: Timing Is Everything (And Now Is The Time)

⁶ European Commission (2011): White Paper - Roadmap to a Single European Transport Area

⁷ European Commission (2010): Energy infrastructure priorities for 2020 and beyond

⁸ International Monetary Fund (2014): The Time Is Right for an Infrastructure Push

⁹ European Commission (2014): Why does the EU need an investment plan? (Factsheet 1)

¹⁰ Linklaters (2014): Set to revive: Investing in Europe's infrastructure

What is holding us back: Lack of experience, political reservations

There can be little doubt that encouraging infrastructure spending would create an important engine for growth in the flagging eurozone economy. Spending would stimulate demand from both businesses and private households. Investments in digital infrastructure in particular can be an important factor in determining whether a country successfully makes it through the next industrial revolution or not.

Public finances in many countries are at breaking point. Unfortunately, few models exist for private investors to finance infrastructure projects. The total number of public-private projects remains low and the deal flow modest. The United Kingdom is an exception, with more than 30 projects concluded in 2013, representing a total volume of EUR 6 billion – compared to Germany's 10 projects and total volume of less than EUR 1 billion. The trend across all EU countries is negative: Since 2007 the number of public-private partnerships in Europe has fallen by almost half.¹¹

Many reasons exist for this decline: Public-private partnerships have often not lived up to expectations, with overly complex contracts and excessive restrictions and caveats on the part of state institutions. The business case for infrastructure projects often depends strongly on political and governmental factors. Past financing models, hailed at the time as ideal solutions, have all too often gone awry – and usually the public sector ends up carrying the can. Inevitably, these negative experiences have left their mark on how public-private partnerships are perceived.

The European Fund for Strategic Investments: A good start ...

In an attempt to remedy this situation, the European Commission has made a bold move, seeking to provide member states with more support in financing and implementing their infrastructure projects¹². At the core of the proposed approach lies the idea of leveraging scarce public funds with private-sector capital, using these resources to fund worthy infrastructure projects.

The Commission and member states have already identified some 2,000 illustrative projects, with a total investment volume of approximately EUR 1.3 trillion,¹³ that could be considered for financing via the capital markets.

With the initiative for setting up the European Fund for Strategic Investments (EFSI) the President of the EU Commission, Jean-Claude Juncker, has put forth an initial proposal. We consider this initiative an important contribution to the discussion. But we believe that it must go rather further if it is to have the desired effect.

¹¹ European PPP Expertise Centre (2014): Market Update Review of the European PPP Market in 2013

¹² In addition to supporting infrastructure and innovation financing, the EFSI also seeks to mobilize private investment in SMEs and mid-cap companies across Europe to boost job creation. The analysis put forth in this paper, however, focuses exclusively on the structural challenges to infrastructure project investments in the EU and the EFSI's potential role in overcoming these barriers.

¹³ European Commission (2015): The European Fund for Strategic Investment: Questions and Answers

... but much remains to be done

The new "European Fund for Strategic Investments" will provide targeted, catalytic risk bearing capacity for economically viable investments [...]. This will be accompanied by other initiatives such as lifting regulatory hurdles and putting in place an investment advisory service to boost project development and preparation across Europe."

Werner Hoyer, President of the European Investment Bank (EIB)

In this study, we look at exactly where the biggest obstacles to financing European infrastructure projects lie. We examine why the capital in the markets all too often fails to connect with the infrastructure investment requirements. To help overcome the obstacles, we

develop possible approaches and building blocks for a new "European Infrastructure Investment Model" – a model that can mobilize the private capital available for investments in infrastructure. Our approach is implementation-oriented: We look at what needs to be done in practical terms, beyond establishing the EFSI as a financing instrument. Some of our ideas comprise activities that are outside the mandate (and the "comfort zone") of existing EU institutions, i.e. a strong role in defining governance models or supporting project origination and early-stage project development. We are aware that these tasks are not part of the legacy alignment of EU institutions. However, we consider it absolutely necessary to establish such capabilities (and to ensure the will to use them in cooperation with member states) if origination, planning and implementation of privately (co-)financed projects on a meaningful scale is to be achieved in all EU member states over the next 3-5 years. We see these ideas not as a rigid blueprint for a solution, but as a contribution to an inspiring – and open – discussion.

2. Why the circle does not square

Markets are awash with money ...

Private funds available for European infrastructure over the next ten years:¹⁵

Approx. EUR 900 billion

As a result of the ECB's expansive monetary policy, Europe's capital markets are currently experiencing historically high levels of liquidity. This makes it

increasingly difficult for investors – especially commercial banks and institutional investors such as insurance companies and pension funds – to find suitable avenues for investment with attractive rates of return as an alternative to the extremely low interest rates offered by government bonds.

At first sight, infrastructure would appear to be the obvious answer. Infrastructure projects, with their regulated business models, typically offer stable or sometimes even guaranteed cashflows over a long investment horizon, and are generally unaffected by economic fluctuation and market risk. The global fund management industry has approximately USD 146 trillion in assets under management. Conventional funds alone – pension funds, mutual funds and insurance companies – account for USD 97.2 trillion of this.¹⁴ A growing part of this capital could be used for infrastructure projects, if only the conditions for investment were more attractive. Recent

¹⁴ The City UK (2014): UK Fund Management 2014

analyses found that global institutional investors (i.e. pension funds, insurance funds, sovereign wealth funds and other family-based funds) have capital amounting to approximately EUR 900 billion at their disposal for investments in European infrastructure assets over the next 10 years.¹⁵

...but not for infrastructure. Why?

Yet private investment in infrastructure in Europe remains obstinately low. Mobilizing private financing for infrastructure investment across the EU is a slow and cumbersome process. Why? While there is considerable variation across different EU countries in terms of investment frameworks, project quality and private investors' level of activity, the overall picture points to structural hurdles that currently impede large-scale private infrastructure investments. Clearly, there is a mismatch in Europe between, on the one hand, investment capital looking for investment opportunities and, on the other, infrastructure projects in need of private financing. Let's look at the details.

1. Risk structure and expected yields are not aligned

The risk profile of a typical infrastructure project changes significantly across the project lifecycle, and some characteristics prevent investment altogether:

- > During the preparation, planning and approval phases, which can last several years, costs are high and revenues non-existent. At this stage the project can still be derailed completely – if approvals are denied or technical problems arise, for instance. This makes this phase very risky and investors need to accept extended periods without cashflows.
- > The biggest cost blocks – and with them the biggest budget and schedule risks – arise in the construction and commissioning phases. Revenues are still zero.
- > The operation phase is when things begin to look up. The project generates regular revenues, while the cost of operating and maintaining the infrastructure is generally stable and hopefully in line with forecasts.

What does this mean for capital investors?

- > Investing during the planning phase calls for a certain appetite for risk and a willingness to put up with several years of zero cashflow. Investors need expertise in project development and approval management to get involved at this stage.
- > Getting involved during the construction phase requires a readiness to make large investments and acceptance of the risk of cost overruns and delays. Again, investors cannot count on regular cashflows. A high level of technical expertise is needed in order to evaluate the risks correctly.
- > Investments only become interesting for traditional institutional investors once the infrastructure is up and running. In classical network infrastructures – natural monopolies – the operators' revenue streams consist of regulated returns in the form of inflation-indexed availability fees or contractually agreed long-term take-off agreements (e.g. "take

¹⁵ Linklaters (2014): Set to revive: Investing in Europe's infrastructure

or pay"), for example. The cashflows that the assets generate provide investors with a high level of predictability and stability.

Here, we see the first basic mismatch. Because of the substantial risks, private investors can only be mobilized in the planning and construction phases by the prospect of high levels of return. This is especially important in projects with a high level of technical complexity. But the desired levels of return cannot be achieved in most infrastructure projects in Europe because of their limited "regulated returns" and political reluctance to pay financing costs of more than ten percent a year. This makes investing in the planning and construction phase unappealing for private investors.

In the operating phase, when the returns become more interesting for conservative investors, the infrastructure is typically already in public hands and no longer available to private investors looking for a safe home for their capital.

2. Regulation of infrastructure in the EU: National, complex and unpredictable

Regulatory conditions determine the economic viability or profitability of many infrastructure projects. Such projects rely on complex compensation mechanisms that are fixed or overseen by regulators, such as toll payments, system tariffs for transmission and distribution system operators (energy, telecommunications) and track charges for railroad networks. In principle, that's a good thing: It prevents "monopoly rents" for infrastructure operators.

However, the complexity and fragmentation of the EU's legal framework is a major hurdle for the private financing of infrastructure projects. Potential investors need an in-depth understanding of the permanently evolving regulatory system in order to be able to assess the potential financial benefits and risks of investment projects with any degree of certainty. They also need to be able to estimate the impact of regulation on the business model. Building up such expertise is an expensive undertaking, and for many potential investors an unattractive one. It may be worthwhile to dig deeply into the regulatory frameworks of the larger EU member states, which represent sizeable markets with a broad spectrum of potential investment opportunities. In many smaller EU countries, however, potential investors are very quickly turned off by the complexity of the regulatory situation.

"The patchwork of national regulatory regimes and the frequency of changes in the regulatory framework in some member states have created unnecessary administrative and transaction costs, thus failing to provide a solid basis for needed investments."

European Commission, 2014: Report on progress towards completing the Internal Energy Market

Attempts to harmonize the legal framework for key economic infrastructure, especially in the area of energy and telecommunications, are making slow progress. The EU infrastructure market remains a jumbled patchwork in terms of regulation.

The uncertainty caused by constant changes to the regulatory framework is another problem that needs to be resolved in order to attract private investment. Regulatory changes often have a direct impact on projects' cashflows, without investors having the option of pulling out. The associated risk to project financing is almost impossible to manage. Examples include the latest changes to feed-in tariffs for renewables in the Spanish and German electricity markets, which investors argue unduly affect investments that are already in place.

3. Regulation of the financial sector is a further obstacle









The regulation of banks and insurance firms has a significant impact on the ability of private market actors to participate in infrastructure investments. We refer here in particular to the latest reforms in banking supervision (Basel III) and the upcoming changes to insurance supervision (Solvency II).

Basel III was a reaction to the global financial crisis of 2007. It made comprehensive reforms to international banking regulation. The package that came into force in the EU in 2014, allowing for various transition periods, focused on strengthening banks' capital adequacy and liquidity, as a way to avoid future financial crises. Among other things, banks were required to carry out "asset and liability matching": Long-term investments had to be backed up with equivalent long-term liabilities. As banks mainly finance themselves through short-term borrowing, this has tangibly impaired their ability to finance infrastructure projects through long-term lending.

Solvency II represents a paradigm shift in the regulation of insurance firms. It will have a major effect on the role of insurance firms, including those offering life insurance, in the area of infrastructure financing. Given their long-term, predictable liabilities and focus on investments offering secure, stable capital flows and returns, insurance firms are seen as the natural partner for investments in long-term infrastructure assets offering regular returns. However, Solvency II will make investing in infrastructure projects considerably more difficult, as infrastructure is relatively illiquid and must be backed up with significant amounts of capital. The better risk profile of infrastructure investments compared to corporate debt, thanks to their stable capital flows, is not taken into account when calculating the capital requirements.

This is not to say that the regulations have to be dismantled; they have been drafted to overcome real shortcomings in the system and prevent future financial crises. However, unless things change somewhere – either with the regulation or with current financing practices – the money for the necessary infrastructure investments simply will not be available.

Figure 1: Indicative profiles of potential infrastructure investors

	Commercial banks	Infrastructure funds	Institutional investors (life insurers, pension funds)	Private equity
Capital	Debt	Equity	Debt, equity to a limited extent	Equity
Risk orientation				
Investment horizon	< 5 years	5->8 years	>8-10 years	5->8 years
Average investment volume [EUR]	N/A	Unlisted infrastructure funds: EUR >5-10 m	At least EUR 1 m per fund	Unlisted infrastructure: EUR 100 m per asset
Return rate	Infrastructure credits: 2-5%	Direct investments: Early phase: 10-15%, later stage: 7-9%	Government: 3-7%, corporate: 4->10%	Brownfield (existing projects): 6-13%, greenfield (new projects): 13%+
Regulatory framework	Liquidity requirements in Basel III can limit risk taking	Limited restrictions, depending on fund's type	Liquidity requirements in Solvency II can limit risk taking	Limited restrictions, depending on type of involvement (equity share vs. fund)
Need for standardized structures				

Source: Deka, Steinbeis Hochschule Berlin, Solutio AG, Roland Berger

4. Governance mechanisms need a profound overhaul to meet investors' requirements

Traditional infrastructure for basic services – access to water, gas and electricity, public transit systems, etc. – has traditionally been financed and managed by governments. In many EU countries, political control over national infrastructure still plays an important role and is regularly used by governments as a political instrument. Even where infrastructure operators are officially separate legal entities, control often remains with the government through complete or majority shareholder ownership.

Involving private investors in financing infrastructure projects calls this principle into question. To mobilize private investors, the governance framework for investment projects must guarantee a certain level of transparency and the legally binding status of agreed business models. Where assets remain under full state control, investors will demand information rights during the pre-project due diligence and ongoing project monitoring. They will also hold the management of the infrastructure developer or operator accountable for the success of the project and hence the profitability of their investment.

If private financing is to be mobilized, the state must hand over some control to investors. This can be problematic: In many countries, there are serious reservations about privatization or private-sector control of strategic assets. This is partly because private actors have not always delivered on their promises in the past. In some cases, privatized assets have not seen the expected extra investment, or utility prices have ended up being higher than if the project had remained in the public sector.

At the same time, the current restrictions on government spending limit the potential upgrading of infrastructure. In some cases, there is not even enough money to maintain it at its present level. Consequently, economic development is being held back.

What is needed is a pragmatic model for joint investment by the private and public sectors. The philosophical and political conflict relating to the private control of strategic assets and basic services is likely to remain to some extent, but we need to find a way of making things work.

5. Standardized projects are few and far between – and unattractive for major investors

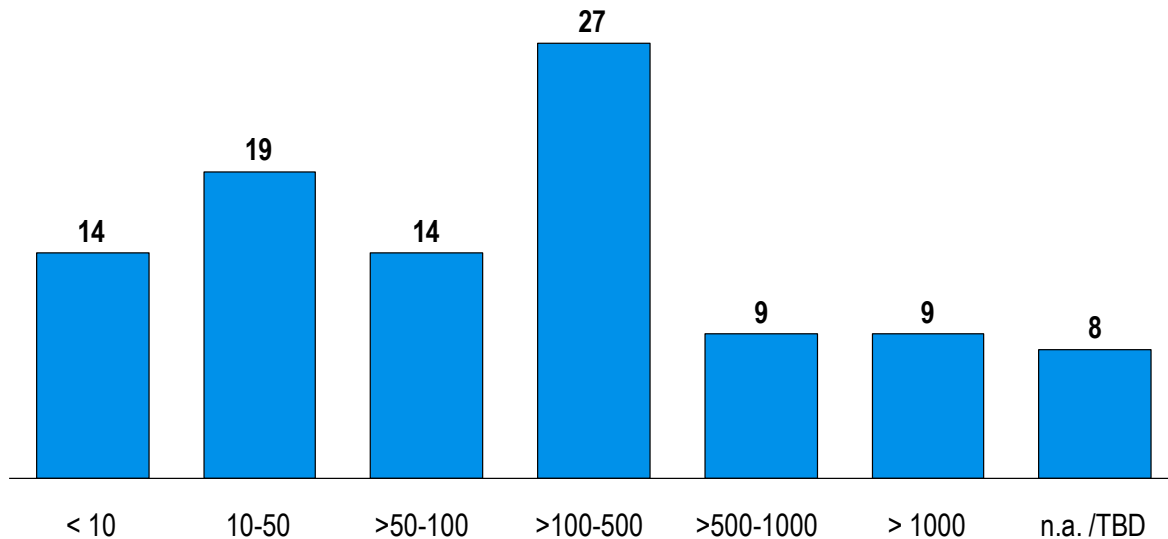
Depending on their business strategy and the volume of investment capital they manage, investors are typically on the lookout for investment opportunities of a specific financing volume or "ticket size". To build a successful business, specialized investors need a certain deal flow. In other words, projects of the right size and nature must be available on the market.

Investors also typically require more or less standardized contractual models – for de-risking, guaranteed returns, and so on. At the moment, such standards are lacking for private-sector investment in infrastructure, not to mention for everyday corporate lending to infrastructure operators.

The infrastructure projects on the list submitted to the EFSI are of widely varying sizes and types, even allowing for differences in national regulation. There is no clear flow of investment opportunities in comparable projects with a certain ticket size and risk level. In other words, there is no European market for infrastructure investment as yet. This makes it very hard for investors to specialize in infrastructure: It is simply too hard to predict whether the targeted type of projects will actually be available or not.

Figure 2: Heterogeneity of projects

Distribution of projects by volume [Total investment cost in EUR m; %]



Source: Roland Berger analysis based on project lists submitted for EFSI

A worrying glance at the project list

An initial examination of the 2,000 or so project proposals that the governments of member states have submitted for the European Fund for Strategic Investments (EFSI) confirms that the problem is by no means illusory. Our investigation is not exhaustive – the lists are provisional and in some instances incomplete – but it throws up some interesting findings:

- > Around 32 percent of current proposals are classified as "public". That includes typical public road construction projects, for example.
- > Just 18 percent of proposals are classified as "private", and 11 percent as "public/private".
- > Almost 40 percent of projects are unclassified.

It remains unclear how traditional public infrastructure projects are going to generate the sort of revenue streams required in order to secure private-sector involvement. A general understanding is needed that the EFSI is not just another European subsidy fund handing out grants for public-sector investments. Using the EFSI to finance state assets in return for a contribution from national budgets would also represent little progress compared to classic sovereign debt. What is needed is a market-based financing instrument that can draw on a high-quality pipeline of "investment-grade" projects.

3. The European Fund for Strategic Investments at a glance

The "Investment Plan for Europe"¹⁶ proposed by Jean-Claude Juncker is the European Commission's response to the current deadlock in European infrastructure financing. At the heart of the initiative lies the European Fund for Strategic Investments (EFSI). Its aim is to bridge the gap between the abundant liquidity on the capital markets and the pressing need for investment in infrastructure, innovation, SMEs and mid-caps (we focus on infrastructure in this study). The EFSI builds on an important finding with far-reaching implications: In the current market environment, characterized by uncertainty and low investor confidence, investors seeking a safe haven for their funds tend to shy away from the risks associated with infrastructure investments. In response, the EFSI seeks to provide initial risk-bearing capacity to mobilize private investment and channel liquidity into viable infrastructure projects.

How the EFSI is supposed to work

The EFSI aims to tackle the issue of low confidence and limited risk appetite on the part of investors by using public funds to absorb some of the risks involved in infrastructure projects. It builds on a guarantee of EUR 16 billion from the EU budget and EUR 5 billion in capital from the European Investment Bank (EIB). This initial contribution of EUR 21 billion will serve as the basic risk buffer, enabling the EIB to then provide financing to infrastructure projects with a high risk profile, primarily through subordinated debt. This initial risk absorption by the EIB which is backed by the EFSI's guarantees, in turn, is expected to catalyze large-scale additional investments from private investors into more senior tranches of infrastructure debt with lower risk exposure. According to estimates by the European Commission, this leverage mechanism is expected to reach a blended multiplier effect of up to 1:15. In other words, every EUR 1 of public funds provided as guarantee for risk protection will catalyze a total investment of EUR 15, adding value in the real economy.

What the money will be spent on

Based on the leverage ratio of 1:15, the initial EUR 21 billion in public contributions is expected to mobilize a total of EUR 315 billion over the next three years (2015-2017). Of this overall amount, approximately EUR 240 billion is earmarked for long-term strategic investments of European significance in the following key areas of infrastructure and innovation:

- > Broadband
- > Energy networks
- > Transportation infrastructure
- > Education, research and innovation
- > Renewable energy and energy efficiency

The remaining EUR 75 billion of the anticipated investment capacity will be dedicated to financing SMEs and mid-cap companies across Europe.

¹⁶ Our analysis is based on publicly available information regarding the proposed European Investment Plan and the legislative proposal on the European Fund for Strategic Investments put forth in January 2015 (COM(2015) 10). Please note that the discussion surrounding the EFSI is still evolving and is subject to continuous amendments in the course of the ongoing legislative process.

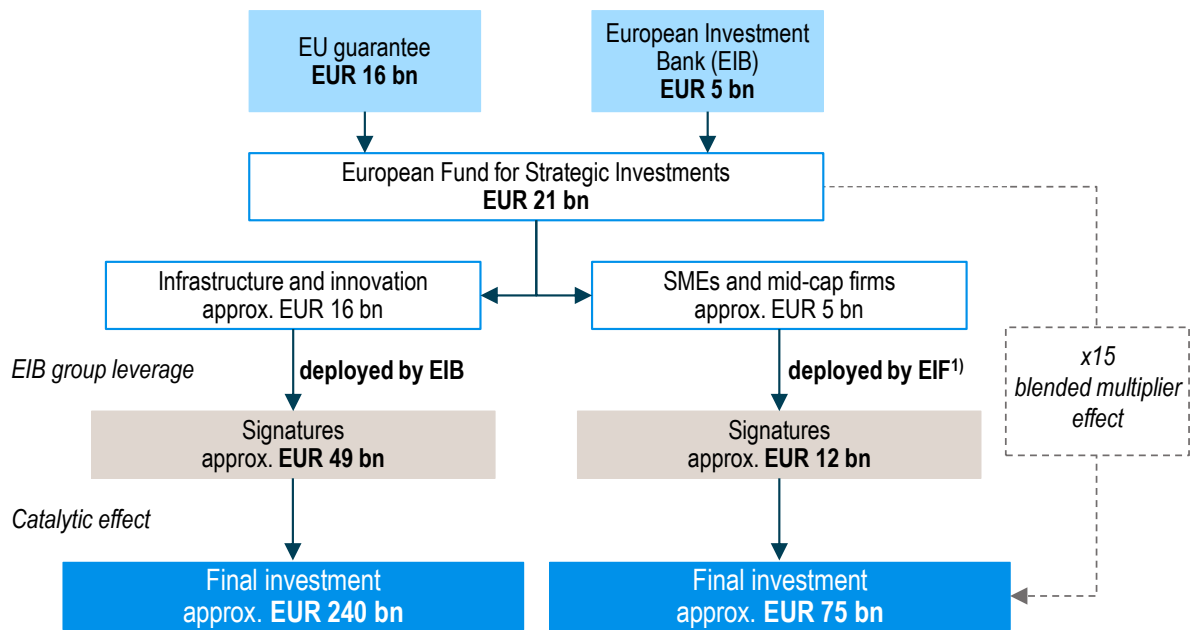
How the EFSI will be managed

According to the legislative proposal currently under discussion, the EFSI will be set up within the EIB Group. All EFSI operations will be implemented within existing EIB Group structures and will be subject to standard due diligence by EIB staff.

The overall strategic direction of the fund will be determined by the EFSI's Steering Board, which will be made up of representatives from the European Commission and the EIB. Most importantly, this body will develop general investment guidelines defining which types of projects the EFSI will finance in line with its overall objectives.

An independent Investment Committee will be in charge of deciding which specific projects will receive financing support through EFSI guarantees. The Committee will be made up of six independent market experts and a Managing Director to be appointed by the Steering Board. According to the current draft regulation, the body's investment decisions will be based exclusively on an independent assessment of the quality and economic viability of projects seeking financing, without geographical or sectoral quotas.

Figure 3: The European Fund for Strategic Investments at a glance



1) European Investment Fund as part of the EIB Group

Source: European Commission

4. Squaring the circle: A new approach to European infrastructure financing

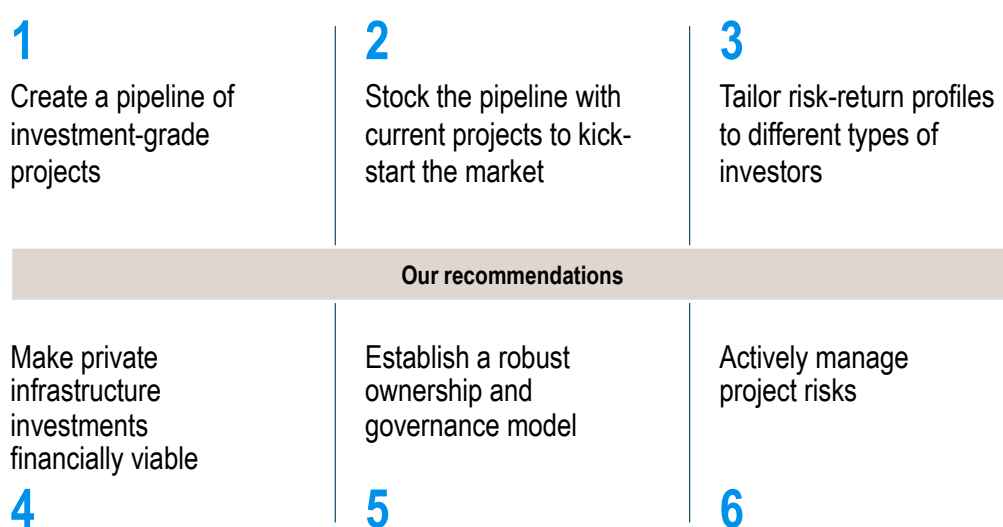
The Investment Plan for Europe, of which the European Investment Fund (EFSI) forms the centerpiece, aims to tackle the paradox that few private investors are willing to finance infrastructure projects despite the enormous amounts of liquidity on the capital markets. It aims to facilitate a large number of projects that would otherwise never get off the ground due to a lack of funding, and in so doing to provide significant impetus for the economies of Europe.

We believe that the plan can work. The EFSI can create the necessary momentum for new growth in European investments. But it can only do so if it solves the many practical and structural problems that beset investments in infrastructure projects. Our suggestion is to embed the EFSI in an overall "European Infrastructure Investment Model" that addresses the barriers to investment in a holistic and systematic fashion.

We are aware that some of our ideas will not fit in with existing mandates (and interpretations of mandates), especially for EU institutions. However, we believe that to get the actual implementation right in the given timeframe, it is worthwhile thinking outside the defined roles and comfort zones of existing institutional arrangements. We are convinced that the existing capabilities and capacity in member states and on the EU level will not be sufficient to put the EFSI funds to good use throughout Europe without further targeted efforts (especially beyond countries that already have good ratings and established project financing practices). The EFSI would thus not be able to realize its full potential – a price that is too high given the urgent need for investment.

The model we propose comprises six key elements, which we present in the form of the following recommendations.

Figure 4: Six key levers of a "European Infrastructure Investment Model"



Source: Roland Berger

1. Create a pipeline of investment-grade projects

To secure private capital for investments in infrastructure projects, a broad pipeline of high-quality, "investment-grade" projects is required. The pipeline would present potential investors with a choice of project proposals that are "ready to invest" and that meet their minimum requirements. Given the limited experience of Europe's governments with project finance, de-risking and designing infrastructure-based business cases, this is not a trivial task. It requires the following steps:

- > **Define cashflow models:** Defining robust cashflow and revenue models for infrastructure is a prerequisite for developing investment-grade project proposals. Various potential sources of revenue for infrastructure, such as user fees, budget-financed availability fees and national and EU subsidy programs (e.g. structural funds, horizon 2020 funds, social funds), potentially combined with each other, must be used in order for projects that lack a solid, regulated revenue base to be successful. This applies in particular to infrastructure that is based on innovative technology or new business models (e.g. broadband rollout, smart networks, innovative charging station networks for zero-emission mobility). For regulated infrastructures, it will be crucial to provide regulated returns that are high enough to attract and mobilize private investment, while maintaining incentives for efficiency enhancements. In some cases, governments and regulators may be required to revisit overly restrictive regulatory compensation models and allow higher returns for infrastructure investors.
- > **Secure projects against the risk of cashflows not materializing:** In an environment of low investor trust, it may be necessary to introduce additional de-risking measures as a buffer against the risk of cashflows not materializing, at least for some tranches of the investment. This could include risk-absorbing investments in subordinated debt instruments or "first-loss pieces" by the EIB (and/or national sponsors) within the framework of the EFSI, and potentially state guarantees by sponsoring governments for projects with high risk profiles, funded either by the EU or by national budgets. Risk absorption by the EIB, however, should strictly leave political/regulatory risks in the national domain, e.g. by facilitating national guarantees on agreed revenues to protect against changes in regulation. De-risking should also be limited to senior debt tranches, while equity investors should not benefit from public de-risking in order to maintain sound financial incentives for project owners (and their returns on equity). Equity providers can be supported indirectly through advisory services and capacity building (through separate vehicles).
- > **Standardize contracts:** To create a market for infrastructure projects, the underlying contracts and compensation models should be standardized in line with international models. This is the only way to create a European market and a reliable deal flow for infrastructure projects, a prerequisite for lasting investor interest.
- > **Contractually decouple projects from changes in national regulation:** To mobilize private financing, projects (cashflows, business cases) must be protected contractually from changes in national regulation which could jeopardize the economic viability of projects. The level of knowledge required to assess risks must be kept to a minimum, as must the risk of regulatory change affecting projects that have been underwritten. This can be achieved by the sponsoring government guaranteeing minimum cashflows regardless of regulatory adjustments or by establishing a governance or oversight structure for contracts on a European level.

Most EU member states have little experience when it comes to large-scale private investments in infrastructure. Practical support in setting up structures and bringing projects to maturity will therefore be at least as important as the conceptual work. Member states require hands-on support. At the same time, the line must not be blurred between advisory work and the decisions of the Investment Committee. The Committee must always have the freedom to reject projects that do not meet its requirements.

Figure 5: Requirements for a pipeline with investment-grade projects

Provide viable cash flow models	De-risk business cases	Standardize contract frameworks	Decouple projects from national regulation & politics
<ul style="list-style-type: none"> > Ensure reliable revenues > Link projects to EU funds where possible 	<ul style="list-style-type: none"> > Keep first loss piece with EIB (equity or subordinate debt) > Provide additional guarantees for some types of revenues 	<ul style="list-style-type: none"> > Use standard international contracts > Create an "asset class" with similar contracts to reduce transaction costs 	<ul style="list-style-type: none"> > Isolate financing from regulation > Shield projects against political/regulatory risks
<p>E.g. combine a grant from Connecting Europe Facility and revenues from the network to facilitate investment in a private rural broadband network</p>	<p>E.g. provide government guarantees for debt repayment of SPV¹⁾ for deployment of a basic hydrogen refueling network</p>	<p>E.g. develop a contractual blueprint for investments in electricity distribution grid projects and consistently use it in all EFSI projects</p>	<p>E.g. facilitate transmission grid investment contracts that guarantee revenues in line with current grid fees regardless of future changes in regulation</p>

Defining a working project pipeline will require significant joint effort by the EIB and national governments – EIB must provide strong advisory support

1) Special Purpose Vehicle

Source: Roland Berger

2. Stock the pipeline with existing infrastructure assets to kick-start the market

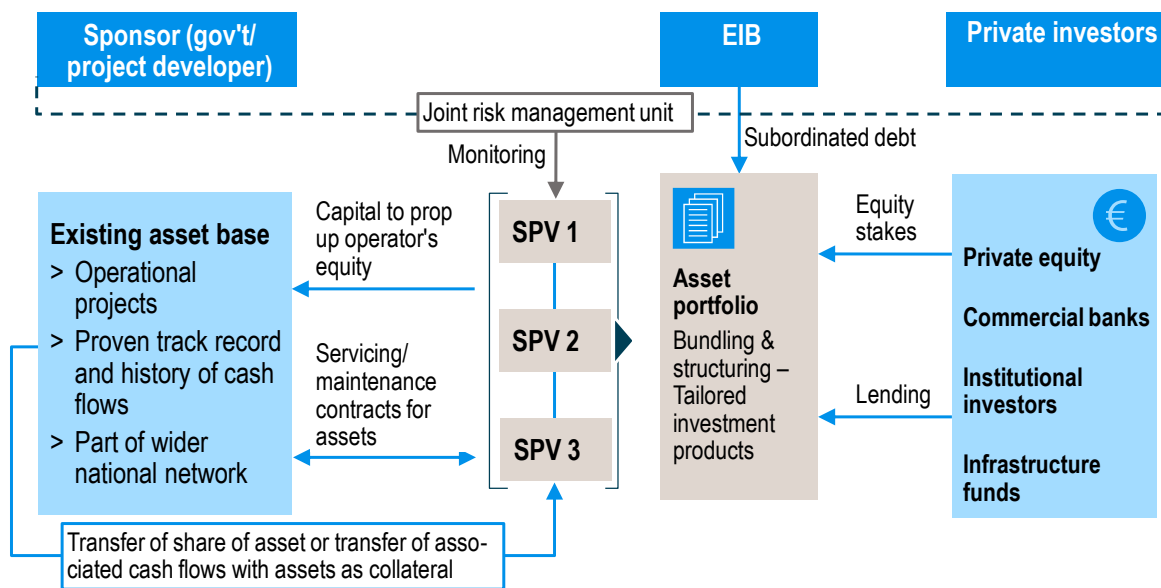
Given typical project lifecycles and the goal of the EFSI to enhance additional investments, managing the project pipeline will represent a major challenge. If only new projects are considered, the first two to three years will not see significant investment, as projects need to be planned, de-risked, authorized and built. During this phase some openings will exist for investors with a greater appetite for risk. But there will be few opportunities for institutional investors and typical infrastructure investors.

Our suggestion is to take a more holistic – and flexible – view on "additionality". Quite a few state-owned infrastructure operators in Europe are faced with stretched balance sheets. For them, the bottleneck hindering more investment is the lack of equity to leverage lending – and public shareholders' current inability to provide additional equity. Finding a way for those infrastructure operators (e.g. transmission system operators) to offload existing projects or parts of their operational assets onto the EFSI in exchange for additional equity could achieve several goals at the same time:

- > It would create an initial deal flow for the pipeline, raising interest among investors (equity and debt) and allowing meaningful investments to begin straight away. Assets that are already up and running, especially in regulated industries, are easier to assess as they have a track record of revenues and costs. This puts them more in line with institutional investors' risk profiles.
- > It would allow the infrastructure operator to pursue new projects in their normal manner. This is potentially much quicker than going through the full process of defining, de-risking and financing projects.
- > It would reduce transaction costs, as it is easier to allow investors to take control of a share of existing assets (or cashflows) than to set up a governance structure for overseeing the construction and commissioning of new projects. Existing assets provide a considerable volume for investment, even if investors are only given minority stakes – which is often politically more acceptable.

To ensure additionality, offloading onto the EFSI could be made conditional on a concrete investment plan and implementation milestones to make good use of freed-up equity.

Figure 6: "Offloading" existing network assets



Source: Roland Berger

3. Tailor risk-return profiles to different types of investors

For the European Investment Model to be successful, there is a strong need for a central financial intermediary and market maker, a body that creates transparency, reduces complexity and translates individual projects into marketable investment products. It can achieve this as follows:

- > **Pool investment projects:** Individual projects should be pooled into a set of straightforward, manageable investment products based on contractual blueprints (see also point 1). This will create a market for infrastructure investments that enables a broad investor base to invest in various projects.
- > **Structure assets:** Projects should be structured according to the risk-return profiles of different types of investors (e.g. private equity players with high risk appetites and yield expectations vs. institutional investors with low risk appetites and a focus on stable capital flows). Structuring projects into such "risk-return adjusted slices" will allow a wide variety of investor types to participate in infrastructure projects through investment products tailored to their specific risk appetites and yield expectations.
- > **Take regulation into account:** The structuring of assets and creation of investment instruments should take into account the current regulations on capital adequacy and liquidity that affect different types of investors (Basel III for banks, Solvency II for insurance firms). Tailored investment models are required, facilitating attractive infrastructure investments for different types of investors in line with the relevant regulatory requirements.
- > **Ensure liquidity:** As a result of Basel III and Solvency II, the level of liquidity of assets is of crucial importance to banks and insurance firms. These organizations are required to show that they have sufficient liquidity in their portfolio, which limits them with regard to infrastructure investments. Particularly in the initial stage, therefore, it is vital to ensure a sufficient level of liquidity in the market for infrastructure investment securities in Europe. One option here would be to introduce a "buy-back" option under which investors could sell their infrastructure investments back to the EIB flexibly, for a predefined price (including a discount, where appropriate). This would limit the liquidity risk and at the same time stop investors demanding an "illiquidity surcharge" because of their limited experience with the asset class.

4. Make private infrastructure investments financially viable

In the current financial market environment, it will not be easy to define a financing mechanism that both provides the sort of returns that private investors are looking for – typically in excess of five or six percent a year – and gives governments a good deal at times of historically low interest rates on government bonds in most European countries.

In the end, both sides will need to give some ground. Private investors will have to settle for an interest rate that is in line with market conditions, given that central bank interest rates are close to – or even below – zero. And governments will have to accept that the current level of interest rates is part of the problem: Providing sensible targets for investments that create value in the real economy at reasonable return rates is a necessary step toward fixing the fundamental imbalances of financial markets and European economies.

To ease the pain on both sides, the EIB and member states must do their bit to keep the financing costs as low as possible. It will be essential to find de-risking measures that allow private investors to lower their expected returns. This could include first-loss pieces of subordinated debt with the EIB, cashflow guarantees from sponsoring member states where there is political risk, and project selection and fund governance mechanisms that build trust with investors.

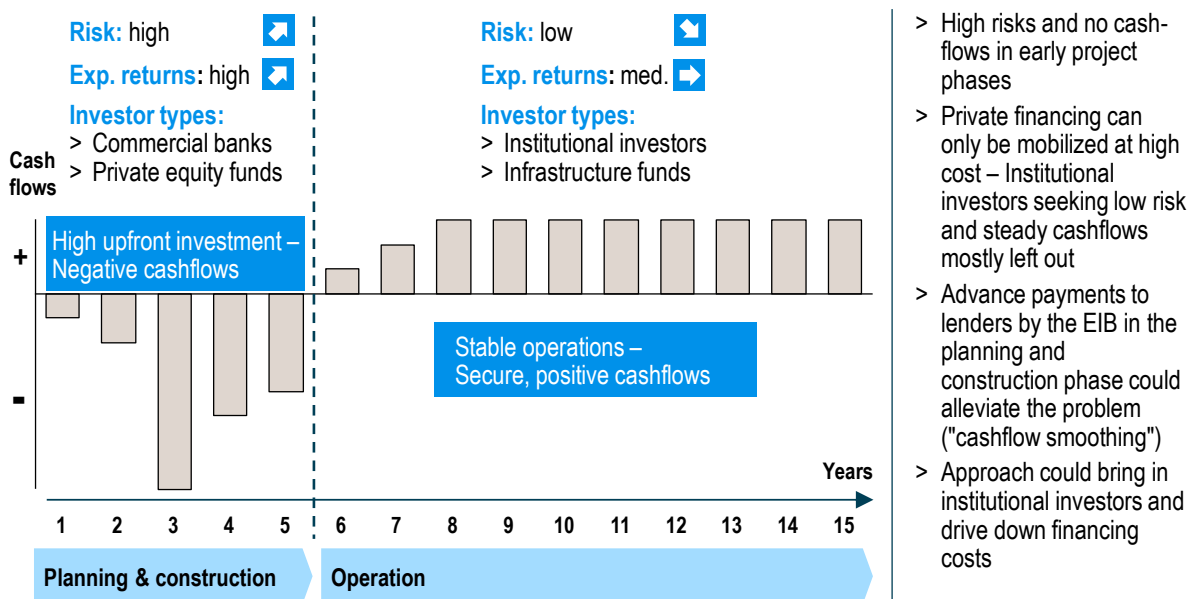
Another aspect is to bring in investors with low yield expectations as early as possible – and not to finance planning and construction phases with high-risk investors that expect returns above

10%. One preliminary idea worth discussing and further exploring when the specifics of the EFSI are fleshed out could be to smooth cashflows over the project lifecycle, with the EIB providing cashflows to private lenders during the early years. This approach would reduce available cashflows for private investors in later years, but it would get more conservative players on board early on. Alternatively, subordinate debt provided by the EIB to finance the risky construction phase of infrastructure projects could be used to channel private investment into more senior debt tranches with reduced risk exposure.

While this approach could provide a powerful lever to involve private investors in earlier project stages, it is important to keep in mind that there are limitations to the EIB's ability to absorb risks. Eventually, private investors seeking attractive returns in a low-interest-rate environment will have to bear part of the risks associated with infrastructure investments. This holds in particular for equity investors.

Figure 7: Typical infrastructure investment lifecycle – Illustration

Typical infrastructure investment lifecycle – Illustration



Source: Roland Berger

5. Establish a robust ownership and governance model

To tap the potential of private investments, a future European Infrastructure Investment Model needs to provide a transparent and binding governance framework that sets out the rights and obligations of national governments, private investors and the EIB in its role as facilitator and intermediary. Specifically, this entails designing a governance model for privately financed infrastructure projects that does three things:

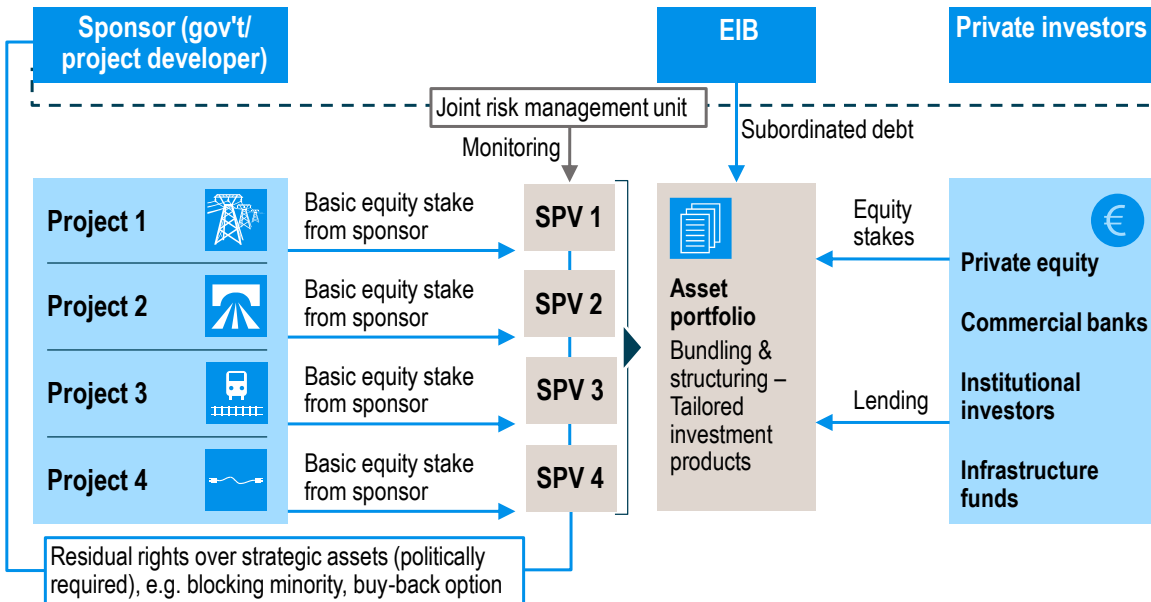
- > It must allow private investors to assess risks and provide transparency on returns and costs on their investment.

- > It must avoid political opposition to private-sector ownership of strategic assets and basic services in member states
- > It must enable the EIB to protect its anchor investments and act as an "honest broker" between national governments and private investors.

This governance model will need a contractual backbone containing clear rules for transparency and clear responsibilities distributed between the EIB, private-sector investors and national governments (or project developers). This has the following implications:

- > For investors, full transparency regarding returns and costs, and clear rules on how to deal with deviations from expected returns.
- > For governments, control of strategic assets, including eventual buy-back options.
- > For the EIB, clear rules about what to do if costs overrun or returns are lower than expected. Since the EIB will take first-loss pieces via subordinated debt instruments on many occasions, it must be able to participate in managing the risks – including by risk-sharing with the project developer or sponsoring national government in the event of culpable deviation from the agreed objectives.

Figure 8: Ownership and governance model for new investment projects – Stand-alone assets



Source: Roland Berger

It is likely that the EIB – jointly with national project sponsors and private investors – will have to take an active role in this. From a political perspective, too, national governments will find it easier to accept continuous in-depth scrutiny of the status and progress of the project when the EIB is involved alongside private investors. The EIB can build pressure through the Commission or agreements at national level much more easily than individual investors. However, it will be

important to ensure that national governments and state-owned operators are not able to change their mind about honoring investment agreements based on political discretion.

Establishing such blueprints for governance solutions through the EIB (or other EU-supported institutions) will be vital to enable smaller countries with less experience in private infrastructure financing and a relatively small market size to participate in the EFSI, since investors will most likely focus on larger markets with more established counterparts in the first waves of implementation.

6. Actively manage project risks

The planning and construction phases of infrastructure projects involve technical risks and risks related to approvals and permits. Public infrastructure projects have a history of ending up behind schedule and out of budget. The underlying causes are manifold, including overly ambitious planning, sloppy preparation of permitting documents, optimistic budgeting and a lack of experience with project management. And the list goes on.

With the EIB becoming a partner in financing – indeed, taking on a relatively risky share of project financing – it is paramount that it establishes adequate structures and processes for managing risk. This should include early detection of potential problems and vigilant monitoring on an ongoing basis, in addition to rules and resources for intervening in the event of projects going off-track. Given the EIB's high exposure to the risks associated with the projects in the EFSI's portfolio – e.g. through subordinated debt and potential other means of risk absorption such as cashflow smoothing – monitoring activities will have to go well beyond conventional financial controlling exercises. Indeed, there is a strong case for hands-on involvement in individual projects and for comprehensive monitoring activities that provide ongoing, in-depth scrutiny on a deep operational level in the planning, permitting and construction phases. This is an area where the EIB can draw on existing experience, but it will also have to build up significant additional expert capacity to cope with the comprehensive project pipeline envisioned for the EFSI. Options for supporting the EIB in its oversight activities – e.g. through specialized technical staff from the European Commission to handle operational project controlling on the ground – should also be considered.

However, the crucial monitoring and risk management functions cannot and should not be performed by the EIB alone. Keeping in mind that the EIB will typically give subordinated loans rather than provide equity for individual projects, equity will have to be contributed by private investors or sponsors (e.g. national governments or project developers). Since the equity investors assume the riskiest part of financing and will ultimately bear the losses when projects fail, they should have a strong interest in playing an active role in risk management. Setting up joint monitoring units in close cooperation with the EIB's experts could be a viable path for involving private investors in hands-on project oversight. Technical assistance could be provided for such a vehicle through the advisory hub or other European institutions.

The EIB's participation in actively managing project risks through rigorous monitoring and intervention is necessary not only to protect the EIB's investments backed by the public guarantees which underpin the EFSI. EIB risk management can also be expected to have a powerful signal effect for potential investors. Close EIB scrutiny can help to increase private investors' confidence in the soundness of projects financed under the EFSI and thus support the effective mobilization of additional financing.

Moreover, the EIB needs to coordinate its efforts with national governments and project developers. In this way it can leverage their experience and resources and, if possible, prevent

risks from arising in the first place. This is – again – stretching the EIB's role. However, we consider this implementation perspective a vital precondition for developing projects in countries where private sector financiers would probably not look for opportunities in the first wave. If the Investment Plan is to work across EU-28, someone will have to assume such a role, strengthening the capacity of national governments or state-owned project developers and providing a layer of established, trusted reporting and risk management procedures. Besides the EIB, the EU commission and their agencies could conceivably also take an active role.

Outlook

Our "European Infrastructure Investment Model" in no way conflicts with the Juncker plan or the EFSI. Above all, we focus on the practical aspects of implementing the EFSI. It is our belief that, in order to succeed, a holistic perspective is needed. To facilitate the private financing of infrastructure, we need the EFSI as a financial instrument. But we also need to build structures, capabilities and governance rules, supported by practical implementation resources. Our aim is to contribute to the discussion on how to enable private infrastructure financing in Europe – and thus generate the economic impetus that Europe's economies need right now.

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We welcome your questions, comments and suggestions.



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