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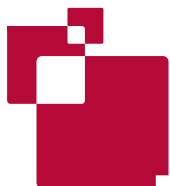
PRIVATE LONG-TERM INVESTMENT IN UNCERTAIN TIMES

GEORG ZACHMANN

Highlights

- The economic and financial crisis in Europe is affecting the financing of long-term infrastructure investment. There are multiple clearly identifiable channels: reduced demand for long-term investment, a tightening prudential framework for lending, upward adjustment of risk perception, complex transition of the financial system, and increasing macroeconomic, sovereign and regulatory risk. Some of the identified channels are potentially dangerous spillovers from the crisis that entail the risk of a downward spiral (eg increasing regulatory risk), while others are efficient market responses (eg reduced investment demand, correction of pricing of risk). Consequently, public policy instruments should not address the accessibility of long-term finance *per se*, but should explicitly target the critical channels.

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PRIVATE LONG-TERM INVESTMENT IN UNCERTAIN TIMES

GEORG ZACHMANN, DECEMBER 2012

IN TIMES OF MOUNTING SOVEREIGN DEBT AND ECONOMIC CRISIS, the need for austerity and anti-cyclical social spending (eg unemployment insurance) reduces governments' room for manoeuvre when it comes to public investment. As a consequence, government investment spending is expected to decline in much of Europe beyond 2010 (see Figure 1). But, the current economic and financial crisis has also reduced the attractiveness of private investment. Private-sector investment fell significantly during the crisis and is only expected to recover to 2008 levels after 2014 (see Figure 2).

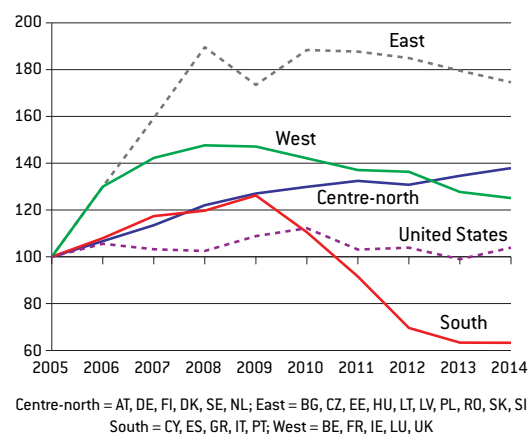
In this paper we focus on one important component of investment: infrastructure investment. Modern economies are built on the basis of massive investments in capital intensive infrastructure. Appropriate transport, telecommunication, water and energy networks, power plants, airports and high-speed trains are preconditions for individual well-being and economic growth in modern societies. These assets share four important characteristics: (1) they feature a high capital-specificity, ie they cannot be easily used elsewhere; (2)

they have long economic lifetimes (up to 60 years for some power plants); (3) many of the corresponding investments are supposed to be provided by private companies; and (4) due to their importance for the economic development of countries and for the externalities they generate, governments often intervene in their provision.

The immediate effect of the crisis on private infrastructure investment is not straightforward to identify in the data. There is no clear trend in investment in electricity, gas and water supply; sewerage, waste management and remediation activities (see Figure 3). At the same time, investment in non-residential construction and civil engineering declined steeply after 2008, and is not expected to recover to pre-crisis level before 2014 (apart from in the centre-north countries – see Figure 4). Thus private investment in non-residential construction and civil engineering follows the same pattern as private investment overall.

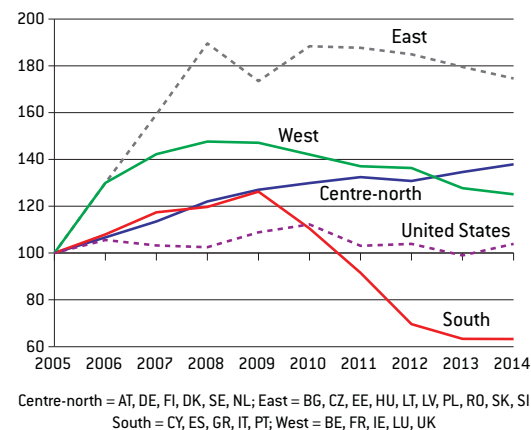
In this Policy Contribution we distinguish the possible channels responsible for lower private infrastructure spending. While some of the effects are observable in all European Union member

Figure 1: Gross fixed capital formation at current prices in euros: general government (2005=100)



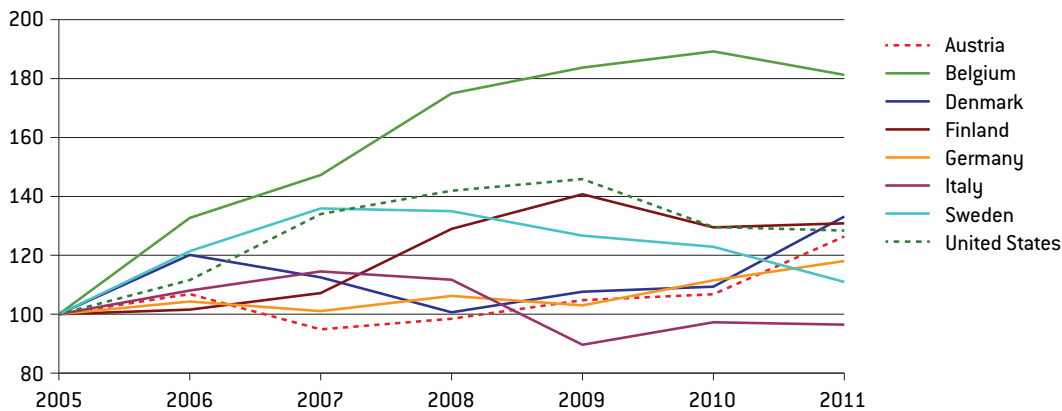
Source: European Commission AMECO database as of 7 November 2012.

Figure 2: Gross fixed capital formation at current prices in euros: private sector (2005=100)



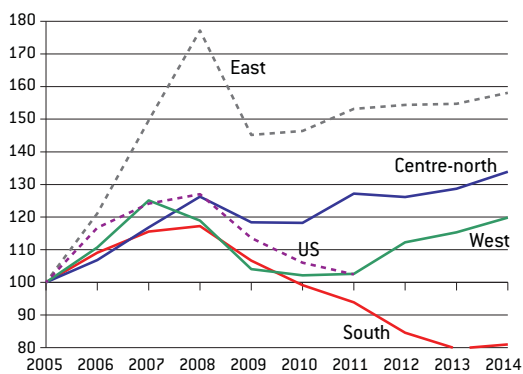
Source: European Commission AMECO database as of 7 November 2012.

Figure 3: Volumes of gross fixed capital formation in electricity, gas and water supply, sewerage, waste management and remediation activities (2005=100)



Source: OECD Structural Analysis (STAN) Databases.

Figure 4: Gross fixed capital formation at current prices in euros: non-residential construction and civil engineering (2005=100)



Centre-north = AT, DE, FI, DK, SE, NL; East = BG, CZ, EE, HU, LT, LV, PL, RO, SK, SI
South = CY, ES, GR, IT, PT; West = BE, FR, IE, LU, UK

Source: European Commission AMECO database as of 7 November 2012.

states, others are only present in the countries most affected by the crisis.

LOWER BENEFITS

After 2008, the expectations for future economic growth in many European countries were reduced dramatically. As the consumption of telecommunication, transport and energy services depends on economic development, future demand for corresponding infrastructure might be less than anticipated. Thus, some of the reduced investment in corresponding infrastructure is certainly due to sensibly adjusted demand predictions.

Furthermore, public support for new private infrastructure – for example new clean energy

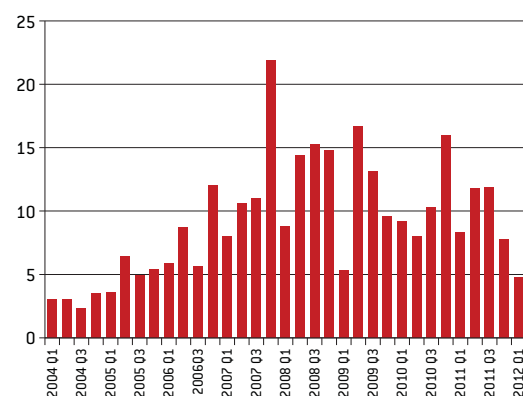
(see Figure 5) – was affected by actual and expected cuts in support levels resulting from the difficult budgetary situation.

Consequently, it is difficult to establish to what degree reduced lending to the real-economy in vulnerable countries (see Figure 6 on the next page) is due to the financial sector reducing the supply of lending, or to the real economy demanding less capital.

HIGHER COST

The economic crisis is also a crisis of the financial sector. One lesson financial regulators have drawn from the fragility of the system that was exposed by the crisis was that more prudent lending strategies should be required. For example, the Basel III reform of banking regulation rules that is set to be transposed into EU regulation and the

Figure 5: Investment in clean energy in Europe (\$ billions)



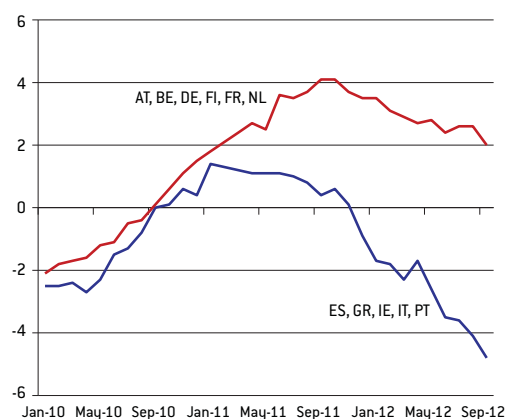
Source: Bloomberg New Energy Finance.

Solvency II Directive (2009/138/EC), which will take effect after 2013, will increase the liquidity and solvency requirements for financial institutions. In anticipation, this will *inter alia* force the financial institutions to back up their long-term lending with more capital.

While regulators responded to the fragility of the financial sector by tightening the prudential framework, the market also reacted by punishing overly risky strategies. This was a probably necessary adjustment because many market participants perceived risks to be underpriced before the crisis.

Some banks that were engaged in risky lending activities faced difficulties in refinancing and had to scale down their exposures (eg Dexia). In the uncertain times, markets valued quickly-sellable assets higher than long-term illiquid investments. This 'premium on liquidity' makes some long-term investments more expensive for financial institutions compared to other assets. Furthermore, the 'monoline' credit insurance system virtually collapsed. Monoliners are companies whose sole line of business is to insure (typically municipal and infrastructure) bonds. They thus essentially put a price on the risk of default of the underlying asset. The corresponding rates requested before the crisis are now considered to have been overly advantageous, and the corresponding underpricing of risk is seen as one of the reasons for the financial sector's difficulties.

Figure 6: Euro-area lending growth to private non-financial companies (% change)



Source: Bank of England, Financial Stability Report, November 2012.

Changes in risk-perception on the part of both regulators and markets translate into higher costs of capital for financial institutions lending in these markets. The higher financing cost is passed-through to investors and might make some projects unprofitable that would have been deemed (barely) profitable in 2007. At the same time, basic interest rates are at historically low levels. As discussed in the next section, this big advantage in capital cost is in many countries overcompensated for by increasing risk premia.

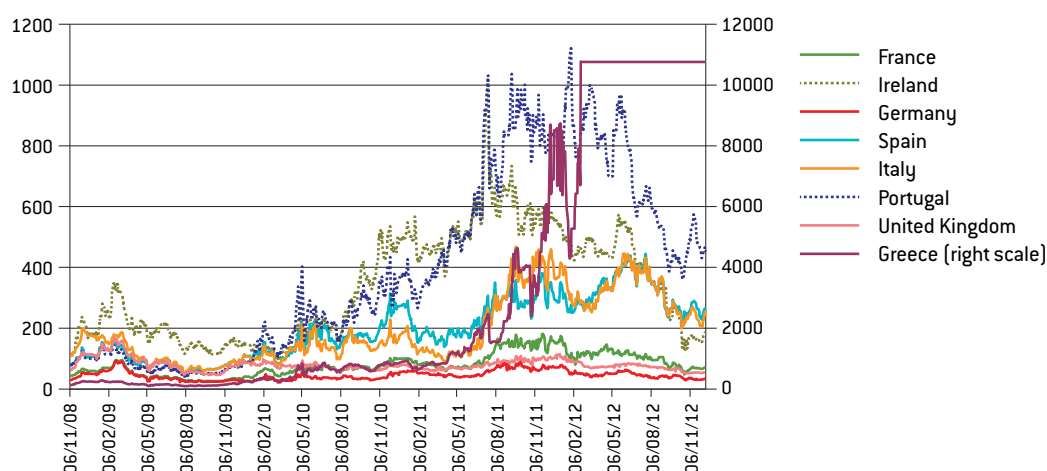
HIGHER RISK

While a (sensible) upward adjustment in risk perception on the part of markets and regulators increases the costs of long-term investment finance, the risks themselves have also increased. In the following, we identify three important (and partly interlinked) sources of risk for long-term investment, which have become more influential because of the crisis.

First, there is no consensus on the length and depth of the crisis. The crisis has increased uncertainty bands for all major macroeconomic variables (growth, unemployment, inflation, exchange rates). If, for example, the crisis is going to worsen in some of the peripheral countries, reduced industrial production and labour migration to other countries might reduce the consumption of energy and transport services in some countries. Consequently, demand for infrastructure services is becoming less certain. Furthermore, even the trust in important economic institutions has been affected by the crisis. The possible exit of certain countries from the euro area, a breakup of the euro area as a whole, and even the integrity of the single market have been raised in the media. The crisis is perceived to have increased the likelihood of these events and has made investors more aware of such tail risks. Thereby, investment in infrastructure is particularly at risk. Because of the high capital specificity and long economic lifetimes of such infrastructure, it is more affected than investment in movable and/or quickly depreciating assets.

Second, the crisis was linked to an obvious increase in the country risk of several member states. Downgrading of countries and increasing

Figure 7: Credit default swap premia in basis points (10 years)

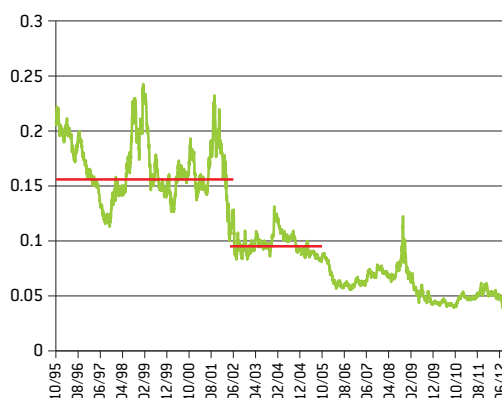


Source: Datastream.

risk spreads clearly illustrate the dramatically reduced trust in the abilities of national and regional governments to repay their debts (see Figure 7). Companies are rarely better rated than their home countries (typically one or two notches below). Through such 'sovereign ceilings', worsening sovereign ratings directly translate into worsening credit conditions for state-owned and private companies. This is sensible because the financial health of companies is contingent on the financial health of the state. The business model of many infrastructure projects depends on governments' ability to engage as a client in long-term contracts with the provider and/or provide (implicit) government guarantees for large-scale projects. Furthermore, infrastructure projects with their high capital specificity might be particularly exposed to cascading defaults caused by a government default (see Figure 8 for an illustration from the 1999-2002 economic crisis in Argentina). Lower sovereign ratings imply an increase in the risk of countries defaulting on such formal obligations.

Third, the political and regulatory risk for infrastructure projects is increasing¹. Infrastructure investment is typically subject to the time-inconsistency (Helm, 2010) of public policies. Governments like to provide incentives for private investment in infrastructure because it creates jobs and improves the quality of life. In order to attract investment, governments set up favorable regulatory frameworks that would allow investors to generate a positive rate of return over the lifetime of the project. Such framework

Figure 8: Argentinian utility stock price index divided by Merval* before and after default



Source: Bruegel. *Merval = Merval Index, Buenos Aires Stock Exchange.

conditions have manifold dimensions including taxation, regulation of natural monopolies, support schemes and market design.

Investment in infrastructure involves long economic lifetimes and high capital specificity. Consequently, governments are constantly tempted to (implicitly) renege on their former (or their predecessors') commitments once the projects are completed. Investors cannot react to 'Robin Hood' taxes, retroactive changes to support schemes, unforeseen reductions in regulated tariffs or other measures that improve public or final customers' budgets as long as the government measures are sophisticated enough not to be in conflict with the law. Provided that the remaining cash-flow still covers the variable cost, investors cannot withdraw from projects without a further loss. The main force counteracting this is

1. On the other hand, (well) regulated businesses are typically less cyclical than other industries.

that such 'expropriatory' measures on the part of governments scare off future investors, or make them demand formal guarantees and higher rates of return to compensate them for the risk. In times of economic crisis, such political and regulatory risk increases. The immediate pressures of the crisis and the general loss of credibility, make it more likely that governments adopt changes to the legal and regulatory framework that are detrimental to locked-in companies. This even makes sense from a static viewpoint, as investors cannot respond by withdrawing, and hence increased public income is not linked to reduced private output (as for labour tax rates).

Overall, risk and risk perception for long-term investments appears to have increased substantially².

DISCUSSION

We argue that the economic crisis reduces the benefits to be derived from investment in infrastructure, while increasing both the costs and the risks of investment. However, the size of an eventual reduction in private infrastructure investment and its long-term economic effect are difficult to quantify. The scope for reasonable public intervention is even more difficult to establish. In fact, declining investment in infrastructure might be for good reasons, such as a correction of prior incorrect pricing of risk, or sensible adjustment to revised demand. Consequently, we restrict our conclusion to an open discussion about the scope for public intervention in order to bolster infrastructure investment.

[1] Transformation in financial markets?

On-balance-sheet bank lending to infrastructure projects has been a major source of finance for infrastructure projects in Europe. Unlike their counterparts in the US, Canada and Australia, European banks have been strongly engaged in long-term infrastructure lending, typically for the duration of the project. Bank lending for 25 to 30 years at margins well below 100 basis points was not exceptional. Some of the loans were repackaged and sold on to institutions such as Dexia and Depfa³, which are no longer there to play

that role. Patterns of financial intermediation in Europe are changing. European banks started to withdraw from on-balance-sheet lending at very low rates. While many market players believe that the best match for long-term infrastructure finance needs is long-term capital provided by the likes of insurance companies, pension and sovereign wealth funds, the role of banks and financial markets in the intermediation system of the future is still uncertain.

Some form of institutional intermediation is likely to be necessary as matching the timelines of two closings (the project and the financing) with many uncertainties does not promise stable outcomes – the financing conditions are typically only guaranteed for a short time-window, while the approval of the project might take long time and is contingent on the approved financing. Furthermore, new projects typically do not yet have ratings (needed by some investors, such as insurance companies) and the structure of cash-flows might not fit into the portfolio of an individual long-term capital provider (insurance companies, for example, tend to prefer fixed rates). Different, already-existing channels might develop further: (1) banks finance projects for some time and refinance through the markets; (2) capital markets establish institutions that structure infrastructure projects into capital market products (investment funds); (3) large companies self-finance projects and refinance through capital markets; and (4) sufficiently large sources of capital engage in infrastructure projects themselves (but they will typically only buy completed projects). It is, however, clear that this transition will take time because the entire system will have to move and new capabilities will need to be built up. For example, the presence of advanced credit-analysis capabilities as in the US, would be a prerequisite for scaling up long-term financing through capital markets in Europe.

One straightforward question is if during this transition period financing will be more difficult and/or expensive. In this case, could public banks assist the transition? This might happen first by investing in knowledge (innovative legal and financial solutions), people, and even financial infrastructure to assist the new intermediation system. These investments are to some degree

2. Anecdotal evidence reported by participants in the 12 September 2012 Bruegel workshop on infrastructure financing pointed to increasing margins (from 100 to 300 basis points) and a shortening of maturities (from more than 15 years to less than 10 years for the same price).

3. EPEC (2010).

public goods. Second, public banks might help to fill a temporary financing gap for infrastructure projects. However, a cautious approach is needed in case public banks do ‘too much of a good thing’. Overly well-functioning intermediation by public banks, potentially even with (implicitly) subsidised interest rates, might make the new segment of long-term infrastructure finance unattractive for private financial companies, essentially slowing down the transformation.

(2) The fair price of risk?

Mispricing of risk has been a major cause of the financial crisis. All discussions about reducing private investment risk by shifting some risk from the private sector to the public sector imply that the privately-optimal level of risk-taking is lower than the socially-optimal level. Considering the previously noted time-inconsistency problem this might well be true. The question remains: what is the fair price of risk? Industry and policymakers often indicate the right level to be the one at which the projects they have in mind still happen. This would imply that sectors that do not invest for whatever reason need to obtain subsidised interest rates. Such an approach is certainly distorting.

The big challenge is how to ensure that the partly dysfunctional financial sector in times of massive government intervention (eg artificially reducing the risk-spreads of certain government bonds) is again provided with reliable signals to optimally conduct risk-return arbitrage between different assets and asset classes.

(3) Self-fulfilling prophecies?

To reduce the risk in different sectors, certain strategies can be proposed. On the EU level, the discussion about project-bonds – essentially government guaranteed infrastructure financing vehicles – has gained some traction, even though the pilot-phase volumes are comparatively small (up to €230 million⁴). At larger scale, a corresponding instrument could reduce the cost of borrowing for infrastructure projects by shifting some of the risks from investors to the public. In the electricity sector the introduction of capacity mechanisms in order to remunerate power plants

not only for the energy they generate but also their reliability are considered. This would reduce both the price and risk for investors. Such mechanisms are designed to provide additional incentives for new investment.

There is a risk that at some point the discussion about public initiative becomes self-fulfilling. If all market actors are awaiting the implementation of more attractive financing instruments in the near future, they will delay projects. For the long-term infrastructure projects discussed in this paper, waiting for years is an option. Consequently, the withholding of investment (anticipatory or even strategic) might force policymakers to implement second best policies.

(4) Economic framework for investment

Furthermore, certain industries argue that competition rules and sector regulation in Europe should recognise that the revenue situation in an industry is important for attracting capital for investment from increasingly global financial markets. Thus revenue growth is seen as vital to make certain future projects viable and to improve the ability of companies to self-finance. According to this argument, the low financing cost before the crisis concealed the investment-unfriendly regulatory framework in some industries. But with rising financing cost, there is a risk that investment will decline. Infrastructure providers in particular outlined the investment-corrosive effects of the legal limits to risk-mitigating devices such as vertical integration and long-term contracts, as well as the asymmetric (and thus highly unattractive from an investor's standpoint) nature of cost-orientated price regulation (which also tends to undermine the scope for price segmentation). The trade-off between static economic efficiency and investment/dynamic efficiency gains is complex, but, according to industry, the status quo places excessive emphasis on the former at the expense of the latter.

A particular concern in infrastructure industries is that national regulators and policymakers do not consider the positive spillovers of cross-border and innovative infrastructure. If corresponding projects are only remunerated for their direct national benefits they might not break even and

4. http://ec.europa.eu/economy_finance/financial_operations/investment/europe_2020/index_en.htm [accessed 19 December 2012].

will thus not be provided, even though their total benefits (including the spillovers) exceed their costs. European funds partly addressed at remunerating these spillovers are an important part of the Multi-Annual Financial Framework proposal by the European Commission (for example, €50 billion for the Connecting Europe Facility), though this is at risk of being severely cut in the budget negotiations. As long as more fundamental remedies for the structural undervaluation of projects are not in place, discretionary budgetary incentives such as the Connecting Europe Facility are helpful for certain projects with substantial positive spillovers.

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