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The Evolution of DBFO Payment Mechanisms: One More for the Road?

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(Editor's note: This commentary article, which was originally issued on Nov. 15, 2002, has been updated to revise and clarify information in the sidebar at the end of the piece. An amended version follows.)

The risks related to private finance initiative (PFI) highway projects in the U.K. have become more challenging to assess through the rapid introduction of ever-more sophisticated payment mechanisms. However, the overall effect to date has been to actually reduce the uncertainty associated with the payment stream and, in some cases, lower credit risk, a study by Standard & Poor's Ratings Services has concluded.

As with all limited-recourse project financings, the strength and dependability of the project's revenue stream is a key credit determinant. In early generation design, build, finance, and operate (DBFO) projects, that revenue stream was traffic-dependent. This presents analytical challenges given uncertainties that exist about the reliability of future-year traffic and revenue predictions (see commentary article entitled "Credit Implications of Traffic Risk in Start-Up Toll Facilities," published on RatingsDirect, Standard & Poor's Web-based credit research service, on Aug. 15, 2002).

Arguably those challenges have now intensified as the DBFO payment mechanism has i) become more sophisticated, and ii) moved from shadow tolls to asset availability/performance. However, the particular circumstances under which the newer payment mechanisms have been applied in many ways have reduced the probability (and magnitude) of interruptions to projected revenues. Under broader circumstances, this may not have been the case.

However, there remains a key area of risk pertinent to the design, application, and evolution of the DBFO payment mechanisms--simply put, the relative novelty of such mechanisms. The more recent structures are new and largely untested. There is little history of them working, particularly when stressed or under circumstances that could be disputed.

Summary Conclusions

Standard & Poor's retrospective on the evolution of the U.K.'s DBFO payment mechanism has drawn the following conclusions:

- A reduced emphasis on vehicle usage has been accompanied by increased emphasis on asset availability and performance, and, to a lesser extent, safety and environmental issues. First, private cars and then, subsequently, all vehicle types were removed from the equation. These are, therefore, no longer "shadow toll roads" in the narrow definition of the phrase.
- The concept of asset availability reflects a more general drive by procuring agencies to make better use of existing resources--in the main, through more effective asset management. This concept has been extended to embrace associated highway infrastructure and the quality of the roadway itself.
- This broad definition of asset availability puts service consumers at the heart of the process. This customer focus sits comfortably with the output-specification ethos prevalent in other PFI sectors.
- As procuring agencies have learned and benefited from their experiences and as central government thinking has evolved, payment mechanisms have become increasingly focused and sophisticated, reflecting both local strategic

and national policy objectives.

- A sophisticated payment mechanism may necessitate sophisticated monitoring arrangements. The monitoring implications may be considerable, but can bring additional incident-management and safety-related benefits.
- It is probably not possible nor desirable to develop a single payment mechanism that would be optimal under every circumstance. Although there are some generic considerations (reflecting, for example, national policies), if payment mechanisms are to reflect local circumstances and objectives, there may continue to be differences on a scheme-by-scheme basis.

Commentary

With the more recent DBFO payment mechanisms, although traffic volumes have no direct link to revenues, there remain important indirect links. The congestion payment philosophy, for example, relies first on the preparation of accurate traffic forecasts and second on the determination of how, where, when, and for how long the resulting traffic volumes cause congestion on the project road to the extent that the penalty system is triggered. The penalties are then aggregated, including those relating to asset unavailability, poor safety performance, and so forth, before the net revenue stream can be calculated (under different scenarios). All of this involves the rating analyst in ever-deeper layers of project scrutiny, as the detail of the project's risk profile intensifies.

However, the compounded challenge faced by the rating analyst has been offset considerably by the nature (and, indeed, location) of particular project roads. The A1 Darrington-to-Dishforth road (a project that is 'AAA' monoline guaranteed, with a Standard & Poor's underlying investment-grade rating), for example, is a relatively lightly trafficked motorway traversing largely rural parts of northern England. Congestion is restricted to i) a limited number of sections of the project road, and ii) very tightly defined periods of the day. In short, the payment mechanism specified for use with this particular road is unlikely to affect significantly upon the projected gross revenue stream. This would not necessarily be the case for other roads with different usage profiles.

Having had direct traffic risk largely removed from the equation, lenders have advocated the blanket use of ever-more aggressive financing plans in the belief that the overall risk allocation matrix had been reduced in size. Nowhere is this more evident than in the debt service coverage ratio profiles recently resulting from these plans. Standard & Poor's believes that, ceteris paribus, future U.K. DBFO roads are likely to have to demonstrate at least equal or in some cases even higher coverage ratios if they wish to attain investment-grade ratings.

Future DBFO payment mechanisms have to tread a fine line between being sophisticated enough to ensure that concessionaires are aligned with broad policy objectives, while remaining relatively straightforward to communicate, apply, and evaluate. Increasing sophistication is unlikely to achieve these twin objectives. It is, at any rate, unlikely to remain attractive to bidders, lenders, insurers, and so forth. The same may hold for payment mechanisms that, as opposed to evolving gradually, depart in substance from their precursors. At the extreme, highly complex payment mechanisms may increase a particular project's risk profile to such an extent that the added uncertainty could itself start to erode any value-for-money benefits that schemes were designed to exploit from the outset.

Sitting alongside the evolving sophistication of the payment mechanism is a requirement for effective performance monitoring. Indeed, effective monitoring may be a practical constraint in terms of the targets, thresholds, or other criteria that can be incorporated in any payment mechanism. This has been witnessed already. The use of vehicle length as a proxy for weight demonstrates a second-best approach to monitoring, reflecting the practical challenges and, indeed, desirability of implementing cost-effective, weigh-in-motion technologies.

Looking forward, a central issue for further incarnations of the payment mechanism is the extent to which they try to cover all possible future outcomes. To a certain extent, incentivising structures focused on on-going congestion management could be argued to reflect such concerns. However, it remains challenging to foresee every eventuality that may arise during a contractual relationship lasting 30 years. Here the role of benchmarking may have an increased role to play. Instead of fixing a structure--for example, defining a payment mechanism--on day one, it is perfectly possible to index performance against appropriate comparators. This is already the approach taken in terms of the safety component of today's payment mechanism, and could be extended to cover other elements of asset performance.

Another "new" source of project risk that procuring agencies have considered and could introduce in the future involves the possible award of contingent highway schemes. These are road projects that have yet to pass through all stages of the statutory planning process. The advantage, for the procurer, is that the private sector is exposed to such schemes before final design has been completed. Innovation in design is one area where the benefits of private sector involvement have realized considerable savings in other sectors. Save for the M6 Toll (Birmingham Northern Relief Road), this approach has not been used on any DBFO road project to date. However, the downside of such an approach, in terms of being able to successfully and quickly steer a highway scheme through statutory planning scrutiny, is that project risk may cross bidders' acceptability threshold unless satisfactory remedial and/or compensatory mechanisms can be developed.

The U.K. government remains committed to Transport 2010 (its 10-year national transport plan) with its allocation of £21.0 billion ($33.7 billion) for total expenditure on the strategic highway network. A stated objective in the plan is that 25% of all major schemes will involve private finance. This equates to a private sector investment of around £2.5 billion over the next 10 years. In the short- to mid-term, Standard & Poor's believes this investment will be focused generally on motorway-widening contracts rather than on further road construction or maintenance.

As part of our ongoing surveillance of the European toll-roads sector, Standard & Poor's continues to monitor the evolution of payment mechanisms such as those currently employed in the U.K. The revenue effect of many payment mechanisms can only be assessed against the specific attributes of and demand characteristics for the project roads themselves. For this reason, determination of the associated implications for project risk will continue to rely upon careful analysis on a case-by-case basis.

Sidebar: The History of DBFO Payment Mechanisms

The U.K. government introduced its PFI program in 1992 and the first PFI roads were rolled out in 1994. To date, 14 DBFO roads have been brought to financial close (see table 1). Moreover, DBFO road projects introduced concession contracts that govern construction works and operation and maintenance commitments for 30-year terms. These projects also outlined the first- and second-generation, and active management payment mechanisms that are discussed below:

First-generation payment mechanism.
This mechanism incorporated traffic usage (the shadow toll component), service availability, and scheme performance. Specifically, it covered:

- Traffic "bands." Bidders specified bands that would attract different payment amounts. The top band generated no additional return for the concessionaire, thus capping the procuring agency's funding exposure.

- Vehicle size. For payment purposes, traffic was divided into vehicles of less than 5.2 meters in length (that is, cars) and those of more than 5.2 meters (trucks and buses) as a proxy for axle loadings, which have highway maintenance implications.
- Service availability. This component was designed to incentivise contractors to complete construction work on, or ahead of, time.
- Scheme performance. To assess this aspect, the mechanism reflected lane-closure charges (relating to the number of lanes closed, when, and for how long) and highway safety considerations. Concessionaires were entitled to bonus payments for safety improvements.

Second-generation payment mechanism.

The second-generation payment mechanism related specifically to an urban highway with economic development objectives. The resulting payment mechanism reflected these attributes and lessons learned from earlier procurement experience. As a result:

- The shadow toll component was reduced in significance in terms of its contribution to the revenue stream, and was restricted to vehicles of more than 5.2 meters in length (that is, commercial vehicles).
- Availability became the primary repayment criterion. The earlier definition of "availability" was extended to incorporate attendant infrastructure associated with the project road. Additionally, it was strengthened to reflect the condition of the road itself. Finally, availability was defined in ways that would motivate the concessionaire to ensure that the highway was kept fully operational during predetermined (mainly peak) periods.
- The safety component was broadened to allow for both bonus and penalty payments.

Active management payment mechanism.

As the most recent payment mechanism, active management has arguably more in common with the facilities management emphasis found in other PFI sectors than it does with earlier DBFO road projects. Specifically:

- There is no longer a shadow toll component (that is, no direct link between vehicular use and the revenue stream).
- A new component--congestion management--marks the most significant departure from earlier payment mechanisms. Congestion management is now the principal driving force behind the payment mechanism. In operation, payments to the concessionaire are reduced if users experience congestion. That said, the causes of congestion are defined such that the concessionaire is not penalized for situations over which the company has little or no control. Nevertheless, the congestion management formula itself is particularly detailed and complex, and relies on a dynamic combination of indicators relating to vehicular flow and speed. This represents the most sophisticated payment "trigger" to be developed to date.
- Another new component--service management--reflects the attainment of specific goals and targets set out in five-year management plans by the concessionaire. It is a minor component of the overall payment stream.
- Safety performance criteria remain unchanged and, as above, remain a minor component of the concessionaire's income.

In late December 2002, the Highways Agency launched a consultation exercise designed to update and enhance the DBFO contract procurement process. Suggested ideas for improvement include earlier contractor involvement to explore added scope for innovation during scheme development and to speed up the delivery process. The Agency is also looking to increase contract flexibility and to address a long-standing industry concern, namely the magnitude of bidding costs. Standard & Poor's will be monitoring carefully the credit implications of such changes.

Table 1

U.K. DBFO Road Schemes 1996-2002

Scheme	Contract award date	Concessionaire (DBFO Co.)	Cost (mil. £)	Summary description
Highways Agency Schemes				
Tranche 1				
A69 Newcastle – Carlisle	January 1996	Road Link Ltd.	9	Project length = 84km. Construction of a 3.5km bypass.
A1(M) Alconbury – Peterborough	February 1996	Road Management Services Ltd.	128	Project length = 21km. Motorway widening.
A417/A419 Swindon – Gloucester	February 1996	Road Management Services Ltd.	49	Project length = 52km. Construction of three new sections of road.
M1-A1 Motorway Link	March 1996	Yorkshire Link Ltd.	214	Project length = 30km. Construction of new motorway, motorway widening and new interchange.
Tranche 1A				
A50/A564 Stoke – Derby Link	May 1996	Connect Ltd.	21	Project length = 57km. Construction of a 5.2km bypass.
A30/A35 Exeter – Bere Regis	July 1996	Connect Ltd.	75	Project length = 102km. Construction of two new sections of road and a 9km bypass.
M40 Denham – Warwick	October 1996	UK Highways Ltd.	65	Project length = 122km. Motorway widening.
A168/A19 Dishforth – Tyne Tunnel	October 1996	Autolink Concessionaires Ltd.	29	Project length = 118km. On-line widening.
Tranche 2				
A13 Thames Gateway*	April 2000	Road Management Services Ltd.	146	Project length = 24km. On-line upgrade and improvement schemes.
A1 Darrington-Dishforth	September 2002	Road Management Services Ltd.	240	Project length = 22km. Construction of two new sections of motorway and communications.
Scottish Office Schemes				
M6/A74	December 1996	Autolink Concessionaires Ltd.	96	Project length = 90km. Construction of new sections of motorway and trunk road (for non-motorway traffic).
Welsh Office Schemes				
A55 Llandegai-Holyhead	December 1998	UK Highways Ltd.	120	Project length = 50km. Construction of section of trunk road.
Local Authority Schemes				
A130 (A12-A127)	October 1999	CountyRoute	75	Project length = 15km. Chelmsford bypass.
Newport Southern Distributor Road	June 2002	Morgan Vinci	50	Project length = 9.3km. New crossing of the R. Usk.
Total capital value			1,317	

*In July 2000, project responsibility passed from the Highways Agency to Transport for London (TfL).

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