Ahead of the gain

Edward Yescombe of Yescombe Consulting looks at the myths and realities of calculating refinancing gains in PFI contracts

The topic of 'gains' made by investors from refinancing PFI contracts has received a lot of attention over the last few years. However there is still widespread misunderstanding about what refinancing, and refinancing gains, are really all about. Various 'urban myths' on the subject are frequently repeated, such as: "The contractor has saved money by refinancing his loan more cheaply because interest rates have gone down", or "The contractor has made a windfall gain of £x million by increasing his loan by £x million".

The purpose of this note is therefore to try to make clearer the nature of the 'gain' to which PFI refinancings give rise, and how the provisions in the Office of Government Commerce's update of 'Standardisation of PFI Contracts' (SoPC), requiring the public sector to share 50% of refinancing gains, actually work.

PFI refinancings usually take place after the construction phase of the project is complete, and an initial operating record has been established. At that point, lenders are willing to improve the financing terms, taking into account this reduction in risk and greater certainty of project cash flow. There has also been-at least until recently-a gradual improvement of terms in the PFI market generally as the market has matured, which is again reflected in improved refinancing terms for older loans.

To deal with the first of the urban myths mentioned above, refinancing is generally not a product of the fact that base interest rates have reduced since the loan was originally signed. This is because most PFI projects are financed on a fixed-rate basis, using interest rate swaps in the case of bank loans. If interest rates go down compared to the rate at which the swap was originally fixed, the swap provider incurs a loss if the swap is terminated which has to be reimbursed by the project: allowing for transaction costs this loss would be greater than the benefit to the project of reborrowing the money on the market at the lower interest rate.

The primary purpose of a PFI refinancing is likely to be raising additional 3rd party (senior) debt against the project cash flow, using these funds to repay shareholder funding (i.e. equity or shareholder-provided subordinated debt). This can be achieved, even if the cash flow remains as originally projected, if lenders are willing to accept lower cover ratios on their debt, reflecting the reduction in risk at that time. A lower annual debt service cover ratio (ADSCR)-i.e. the ratio in each future year of the projected project cash flow before debt service (i.e. interest payments and principal repayments) to the debt service due during that year-creates the capacity to raise more debt. Table 1 looks at a simplified cash flow for a refinancing.

RESULTS

How can the refinancing 'gain' to the investors be calculated from the results in the example?

- The gain is not the reduction in interest rate, as the total interest paid has gone up not down.
- It is not the increase in the loan (ie £70), since this is partly counter-balanced by the later increases in debt service-after all if someone borrows an extra £100 they are not £100 richer. (Hence the second 'urban myth' mentioned above is also not relevant.)
- The gain cannot be calculated by splitting the change in cash flow between the public and private sector-using the example this would result in a payment to the public sector authority (assuming a 50% share) of £35 in Year 4, followed by the authority paying back £1 annually for the remainder of the contract term. The authority is thus in effect borrowing money from the project, which clearly does not make sense.
- And the investors do not make more money after the refinancing. As can be seen, the total cash flow to the investors over the life of the project has gone down, from £297 to £234; this is a product of the increased amount of interest paid on the larger and longer-term loan (an increase from £284 to £347).

What the refinancing is doing is accelerating the cash flow to investors, who prefer to have cash today, even at the expense of a lower total cash flow over the whole project life. This has the effect of increasing the investors' projected equity IRR (internal rate of return) over the project life-in the example this goes up from 17.5% to 28.8%-and it can thus be said that an increase in the investors' IRR is the best indicator that investors are benefiting from a refinancing.

However, an increase in IRR does not produce a definite sum of money which represents the investors' refinancing gain, from which the public sector's 50% share of the gain can be paid. A method has to be found to convert this percentage rate improvement to a lump sum of money which can then be divided up.

The amount of the refinancing gain could be calculated by 'splitting the difference' of the pre- and post-refinancing IRRs, i.e. in the example, calculating the sum of money which, if paid out to the Authority, would produce an IRR for the investors half-way

between the pre- and post-refinancing IRRs [i.e. 17.5% + (28.8% -17.5%) ÷ 2]. But using IRRs as a basis for calculating payments of money is dangerous, as the IRR calculation tends to overvalue early cash flow and undervalue later cash flow.

SoPC therefore defines the refinancing gain as the net present value (NPV) of the difference between the post-refinancing and pre-refinancing cash flows. (It should be noted that SoPC does not require the refinancing gain to be shared with the Authority unless and until the investors are projected to receive their originally projected base case equity IRR- thus if the project has performed badly, but then improves and is able to refinance, the investors can 'catch up' with their earlier reduced returns before having to share any of the refinancing gain with the public sector.)

OGC's 'Guidance Note' of July 2002 recommends using the original base case equity IRR as the discount rate for this NPV calculation; using a discount rate of 17.5% for the results in the example gives a refinancing gain of £51, 50% of which would be due to the authority. If a discount rate lower than the base case equity IRR is used, the refinancing gain becomes smaller - e.g. at a 12% discount rate the gain becomes £38 in the example. This is somewhat counter-intuitive, because a higher discount rate normally leads to a lower NPV. But here the future numbers which are being discounted are negative (i.e. the reduction in case flow due to the higher debt service payments), and therefore a higher discount rate has the opposite effect.

OGC's arguments for discounting at the base case equity IRR are:

- the Authority does not share in the refinancing gain until the investors are projected to achieve the original base case equity IRR, so it is reasonable to use this as the discount rate as well
- this is the rate the investors expected to earn from capital invested in the project, so the benefit of refinancing should be evaluated against that benchmark; and
- it provides a clear and objective basis for calculation which is known in advance

Having thus established the amount of the refinancing gain, and the Authority's 50% share, it still remains to be determined how and when the Authority's share should be paid out. Where the amount of the debt is being increased-which as said above applies to most refinancings-the authority's 50% share can be paid out of the immediate increase in cash flow generated by the refinancing. SoPC thus states that the authority's share can be paid as such a lump sum at the time of the refinancing, provided the public sector is not being paid any faster than the investors. In the example the immediate increase in cash flow from the refinancing is £70, and the authority's share is £25, so there is no problem about paying this share immediately.

But an alternative method of paying the authority's share of the gain in instalments over time is also needed as:

- there may be no cash available from the refinancing to pay an up-front lump sum (e.g. because the refinancing just takes the form of an extension of the loan maturity); or
- the authority may prefer to take its share of the gain over time (eg for budgetary reasons)

If this payment is made contingent on the performance of the project, it puts the authority in the position of taking an equity risk on the project without the control over its activities which comes from being a shareholder. SoPC therefore requires such a deferred payment to be fixed in advance, and paid by an even reduction of the Unitary Charge payments over the remaining life of the PFI contract, with a return on this deferred payment of the authority's share of the refinancing gain which reflects the lower risk.

However there is a problem with this deferred payment approach-the ADSCR goes down, compared to the level at which the refinancing was agreed. This is because the reduction in the Unitary Charge reduces project cash flow and hence the numerator of the ADSCR calculation-i.e. the effect of paying the refinancing gain over time via reduction of the Unitary Charge is to reduce the refinancing gain to be shared in the first place. In reality, therefore, the Unitary Charge cannot be reduced to this extent, and, roughly speaking, the refinancing gain to be shared may be reduced by about 30% by this method of payment.

Given the lower return on deferral, paying out the authority's share of refinancing gain as a long-term reduction of the Unitary Charge rather than via a lump sum payment is also far more beneficial to the investors, and thus it is evident that it makes more financial sense for the authority to take its share of the refinancing gain as an up-front lump-sum payment where possible.

It may seem surprising to those new to the subject that such an apparently simple topic as sharing a refinancing gain appear to be so complex. But as this note illustrates, this apparent simplicity is rather deceptive.

Table 1 - Refinancing Cash Flow (NB: Figures rounded to whole numbers)

Key assumptions -

Project capital cost	£580, expended over 2 years
PFI Contract term	20 years
Initial debt : equity ratio	90% : 10% , drawn pro rata during construction
Initial interest rate	6.0%
Initial debt term	15 years from completion (17 years in total); level debt service payments
Additional debt	£70, in year 4; debt maturity extended 2 years
Refinancing interest rate	5.8%

	Year:	0	1	2	3	4	5	...	19	20	Total
Original cash flow											
Project cost	(a)	-193	-193	-193							-580
Project cash flow	(b)				65	65	65	...	65	65	1161
Debt drawings / payments	(c)	174	174	174	-54	-54	-54	...			-284
Investors' cash flow	(a)+(b)+(c)	-19	-19	-19	11	11	11	...	65	65	297
ADSCR	[(b)÷(c)]:1	= 1.20 (from year 3)									
	Investors' IRR	**= 17.5%**									
Refinancing											
Project cost		-193	-193	-193							
Project cash flow					65	65	65	...	65	65	1161
Additional debt						70					70
Debt drawings / payments		174	174	174	-54	-54	-55	...	-55		-417
Investors' cash flow		-19	-19	-19	11	81	9	...	9	65	234
ADSCR		= 1.16 (from year 5)									
	Investors' IRR	**= 28.8%**									