Potential dangers of public sector investment in hub sub debt
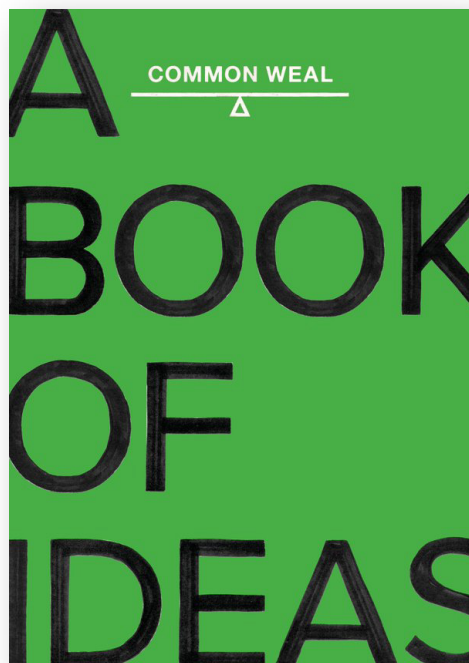
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Key Points

- Hub is a form of public-private partnership set-up by Scottish Futures Trust which uses private finance to fund the building of public projects now to then be paid back based on future revenue payments (and is therefore off the current Scottish Government's balance sheet). Over £2 billion of Hub investment is currently 'live'.

- 90% of Hub capital is raised from senior debt – commonly bank loans. 10% comes from subordinate debt, which is the risk capital of the project and therefore raises a higher rate of return than sub-debt (currently 10-11%). 40% of this sub-debt can be invested in by the public-sector or bodies allied to the public-sector.

- The likely purpose of investing in the Scottish Government's own debt is the potential to sell the sub-debt holdings on the secondary market. This offers attractive possibilities for the public-sector, but also potential dangers.

- The attraction of this is that it can act as a 'concealed' form of borrowing, as the secondary market investment can create a cash flow that can be used now. Additionally, the capital sum received by the public sector bodies from the secondary market could total somewhere in the region of 2 to 2.7 times the original investment.

- However, there is also potential dangers of this approach. First, a perverse incentive could arise since the greater the difference between the original interest rate on sub debt, and the secondary market rate, the greater the capital return on a secondary market sale. This might mean the public sector may not adequately scrutinise the original rate of interest on sub debt, resulting in it being set too high. Private financiers on the original investment would therefore be making excessive, unearned profits. Second, the 'concealed' borrowing rate from the secondary market may be higher than what it would cost the government to borrow from elsewhere. Finally, this form of borrowing could operate outside of the normal prudential scrutiny on government borrowing, raising potential dangers in how the money is used and whether the public interest is being served.

- In order to address this, mechanisms should be established for monitoring. First, the internal rates of return and the phasing of payments on Hub sub-debt should be published. Second, there should be mechanisms for evaluating whether sub-debt interest rates are too high. Third, any sales of Hub sub-debt on the secondary market from any public-sector (or public-sector allied) bodies should be made open, including both the capital value realised and the implicit internal rate of return.

- There should also be active arrangements for assessing the results of such monitoring, including the potential for active government intervention to change course if necessary. This requires ministerial responsibility and Scottish Parliamentary oversight, through the Finance Committee. There should also be an active debate now about what sort of performance the public-sector should expect from Hub sub-debt, in order to assess success criteria.

Introduction

The Hub network set up by the Scottish Futures Trust, (SFT), is one of the innovative approaches designed by the Scottish Government to allow public sector investment to be funded from future revenue payments, without counting against the Scottish Government's capital budget. Hubs are a significant conduit for capital investment – over £2 billion of Hub investment is currently 'live' (SFT, 2016).

A typical Hub project will raise its capital from two main sources. The majority, (90%), comes in the form of senior debt – commonly bank loans. The other major source of finance, subordinate debt, accounts for 10% of funding: this is the risk capital of the project and therefore attracts a higher rate of return than senior debt: (the current rate of return on sub debt is in the range 10-11%). There is also a small amount of equity capital invested by the sub debt holders.

One particular feature of sub debt funding is that the public sector has the right to invest in a portion of the sub debt finance for Hub projects. According to the SFT (SFT, 2015) it can take up to 10% of the sub debt in a Hub project: the public sector client can also take up 10%: and the special charity being set up in relation to Hub projects, the Hub Community Foundation, (HCF), can take up 20% of the sub debt. (The HCF was set up as part of the changes in the structure of Hub projects designed to ensure that such projects were classified as "off the books" by the Office for National Statistics. Its purpose is the advancement of health, education, community facilities, etc. For more detail, see (SFT, 2015).) For present purposes, the HCF is regarded here as a body allied to the public sector.

What the above funding structure means is that 40% of Hub sub debt can be held by public sector bodies, or bodies allied to the public sector. On the face of it, this looks surprising. For one thing, what is the point of the public sector investing in a relatively high yielding asset – when the return on that asset is paid for by the public sector itself, via the unitary charge payments which provide the ultimate finance for the scheme. This looks very much as if the public sector is simply transferring funds out of one pocket into another. Further, since sub debt is the risk capital for Hub projects, public sector investment in sub debt diminishes the amount of risk transferred to the private sector – hence weakening one of the fundamental principles that risk should be transferred to the private sector in public private partnership type schemes.

This note suggests that the answer to this apparent paradox may lie in the potential for the public sector to sell its sub debt holdings in the secondary market. It is not clear at present whether a significant secondary market for public sector holdings of sub debt will arise. If such a market does arise, it would certainly have very attractive features for public sector holders of sub debt – as this note explains. But there would also be several potential downsides, and significant dangers for the public sector. This note argues, therefore, that there is now a need for open debate on the

issues involved in public sector investment in Hub sub debt: and also that much better monitoring of various aspects of Hub operations is required, if the pitfalls associated with public sector investment in sub debt are to be avoided.

How sale of public sector sub debt is actually equivalent to borrowing

Suppose that the public sector client, (i.e., the health board or local authority), invests £x million in the subordinate debt of one of its own Hub projects. The interest rate on sub debt in Hub projects is currently in the range 10-11%: and the public sector body will be due to receive a stream of payments of interest, and repayments of principal, through the life of the project: (and it will, of course, be funding this stream of payments through part of the unitary charge payments it has contracted to make.)

Suppose also that, once the construction phase of the project is over, the public sector body goes to the secondary market, and offers to sell its sub debt holding, and the associated stream of payments it is due to receive. With the project now safely operational, this will be attractive for investors, like pension funds, who are looking for a relatively safe investment. Such an investor will value the stream of payments by calculating its net present value, discounting at the investor's target rate of return. Since the target rate of return sought by a pension fund is likely to be a good deal less than the original interest rate on sub debt, the price the secondary investor will be willing to pay, (£y million, say), is likely to be a good deal more than the £x million originally invested by the public sector body. (See the Annex for an algebraic explanation of why this is so, and a formal definition of terms like "net present value".)

Overall, therefore, the above set of transactions can be summarised as follows. The public sector body has invested £x million in the project, and one of the things it has benefitted from in return is £x million investment in the physical asset. It has also got a sum of £y million cash in hand: and has contracted, as part of its unitary charge payments, to fund the stream of payments which the secondary market investor will now receive.

But receiving a capital sum of £y million now, (or, more correctly, at the end of construction), in return for contracting to make a future stream of payments is, essentially, equivalent to borrowing £y million: moreover, the interest rate at which the £y million is being borrowed is the target rate of return at which the pension fund buyer has valued the stream of payments: (for a technical explanation, see the Annex.)

So another way of looking at a public sector sale of Hub sub debt is that the public sector has made a capital grant, of £x million, towards the construction of the project: and has also borrowed £y million, at the target interest rate of the buyer

in the secondary market. And this £y million is now available to the public sector body to use for whatever purpose it chooses: e.g., investing in further projects.

The above description has been from the point of view of a local authority or health board investing in Hub sub debt. But from the point of view of the broader public sector, similar principles apply if the SFT, or HCF, were to sell their sub debt stakes in a Hub project.

Viewing sales of Hub sub debt held by public authorities in this light, as a concealed form of borrowing, provides an answer to the apparent paradox noted earlier: why would the public sector want to invest in its own sub debt? If the implicit interest rate in the secondary market is a good deal less than the original 10-11% interest rate on sub debt, then the amount which the public sector body can "borrow", (namely, the £y million above), might be a good deal larger than its original investment, (the above £x million.)

Suppose, for example, that the profile of payments on the original sub debt investment had been broadly flat, (like a mortgage): and that, in the secondary market, the prospective buyer had been setting a target rate of return of about half the original interest rate on sub debt: then the capital sum received on the secondary market sale would be about double the amount of the original sub debt investment. In fact, it is clear that even larger returns are quite feasible. The example given in the Annex illustrates the scale of return on secondary market sales under a number of different scenarios. In addition, see (Aberdeen City Council, 2015), where, in putting the case to the council for permission to invest in Hub sub debt, it was envisaged that a possible sale in the secondary market might yield 2.7 times the capital originally invested.

It thus appears clear that the sale of public sector holdings in Hub sub debt is likely to yield quick cash returns significantly greater than the capital originally invested. This opens up the potential for a "snowball" type effect, where the public sector organisations receiving these returns could make further sub debt investments in future projects, and so on.

There are, however, a number of potential pitfalls: and these are examined in the next section.

Potential Dangers

The first potential danger is that, if the public sector is benefitting from the sale of its Hub sub debt holdings, then this opens up a perverse incentive for the public sector to agree to too high an initial interest rate on Hub sub debt. The capital sum which will be realised on a secondary market sale of sub debt will be greater, the greater the difference between the original interest rate on sub debt, and the target interest rate of the secondary market buyer. One way to increase this difference is to increase the original interest rate paid on Hub sub debt. So the potential for secondary market sales might lead to a situation where the broader public sector does not play a sufficiently active and critical role in the process of questioning the original

interest rate set for sub debt.

This means that there could well be a danger that the interest rate on Hub sub debt is set too high. If so, (and remembering that 60% of original Hub sub debt is held by private sector participants), the private sector would be able to realise excessive, unearned, profits on their investments in Hub projects.

There is, actually, strong circumstantial evidence to suggest that the interest rate for the sub debt in Hub projects is indeed too high. In the SFT document describing the revised structure for the Hubs which is required in order to secure "off balance sheet" status, (SFT, 2015), one of the sources of income for the new HCF charity is proposed to be "fees received in return for passing on subordinated debt investment opportunities." What this statement really means is that the market would be willing to pay a fee in order to invest in Hub sub debt at current sub debt interest rates – which is equivalent to saying that the current sub debt interest rate is higher than it needs to be in order to attract investors in sub debt.

The second danger is that the "concealed" form of public sector borrowing represented by secondary market sales of public sector holdings of Hub sub debt may itself be unduly expensive. As noted above, this "concealed" borrowing is taking place at an interest rate represented by the target interest rate of the secondary market purchasers. This could be a good deal higher than the interest rates at which the public sector can currently borrow.

The third danger is that sales of public sector holdings of Hub sub debt might erode the normal controls on borrowing. This could happen both at the "macro" level, so to speak – where the Scottish Government would possibly be able to over-ride the constraints on its conventional borrowing by the use of "concealed" borrowing implicit in sub debt sales. And it could also happen at the "micro" level, i.e., at the level of an individual authority or health board: since the capital involved is becoming available apparently from an asset sale, it might then be utilised for purposes which would not survive the level of prudential scrutiny which would surround conventional borrowing.

Recommendations and Conclusion

It is not clear at present how far the secondary market in public sector holdings of Hub sub debt has developed. But it is quite clear from the available evidence that this is a market which is likely to develop. One piece of evidence pointing in this direction is the statement already referred to in the Aberdeen City document, (Aberdeen City Council, 2015)), about the large return which might be expected on sale of sub debt. Another piece of evidence is a statement in the SFT document, (SFT, 2015), talking about likely sources of income for the new HCF charity: it is stated there that HCF income will include "income from any subordinate debt investments that HCF sells on the secondary investment market."

Given this, and given how serious the issues identified in the preceding section could be, there need to be mechanisms in place for monitoring and addressing these issues. What would this involve?

First of all, there should be much more openness about the returns being earned on Hub sub debt, (and also by way of dividends). This should involve openness not just about the implicit internal rates of return on sub debt and equity: but also on the projected phasing of the relevant payments, (of interest and principal). This latter aspect is important, because, (as the material in the Annex illustrates), the phasing of returns is critical in determining what capitalised value is likely to be realised in a sale in the secondary market: and hence what scale of windfall profit the original sub debt holders might receive on such a sale.

Second, there should be mechanisms for determining whether sub debt interest rates are too high. One piece of evidence, for example, which should be publicised, and assessed, is what scale of fees the HCF is able to command, if it is selling its right to invest in Hub sub debt.

Third, there should be openness about any sales of Hub sub debt undertaken by the public sector, (including here not just the client health board or authority, but also the SFT and the HCF.) And this openness should extend, not just to the capital value realised on such sales – but also to the implicit internal rate of return involved in the transaction. (The public sector body knows both the stream of payments it is selling, and the price it is receiving: so it can work out the implicit IRR used by the purchaser in valuing the stream of payments.) This information will enable not just the scale of the "concealed" public sector borrowing implicit in sub debt sales to be assessed: but also the critically important aspect of the interest rate the public sector is paying on this borrowing.

However, putting improved monitoring arrangements in place on the above aspects would not, in itself, be enough. There also needs to be in place active arrangements for assessing the results of such monitoring: and for intervening if it becomes apparent a change in course is required. It is difficult to see how Scottish Government ministers can avoid responsibility for taking on such a role – and for reporting regularly to the Scottish Parliament, in the shape of the Finance Committee, for their discharge of this role. This would represent a very welcome change from the present situation, where the SFT is apparently able to operate the Hub programme with little active oversight, and with key aspects of the programme shrouded in secrecy.

In addition, there also needs to be an active debate now, about what kind of performance the public sector should attain from sales of Hub sub debt. Without such a debate, it would be impossible to set success criteria in advance: and what we might be left with is a situation where sub debt sales turn out to be an expensive way of over-riding normal prudential controls on borrowing and investment.

References

Aberdeen City Council, (2015): "Purchase of Subordinate Debt": Report to Finance, Policy and Resources Committee, no. CG/15/48: 23 April 2015.

Scottish Futures Trust, (2015): "Briefing for Hub Territories: Revised Structure for Design Build Finance and Maintain Projects": Scottish Futures Trust, June 2015.

Scottish Futures Trust (2016). '2015/2016 Business Plan.' Scottish Government. http://businessplan2015.scottishfuturestrust.org.uk/

Annex: The algebra of sales in the secondary market

Aberdeen City Council, (2015): "Purchase of Subordinate Debt": Report to Finance, Policy and Resources Committee, no. CG/15/48: 23 April 2015.

SFT, (2015): "Briefing for Hub Territories: Revised Structure for Design Build Finance and Maintain Projects": Scottish Futures Trust, June 2015.

1) This paragraph contains standard theory on net present value, (NPV), and internal rate of return, (IRR), which is relevant to understanding the issues driving secondary market sales.

Let $\mathbf{a} = (a_0, a_1,..., a_n)$ be a vector of positive or negative terms representing a transaction taking place over the time periods 0 to n. Here negative terms represent amounts invested by an investor: and positive terms represent payments, (of capital and interest) to the investor. The following will be concerned with transactions which take a particularly simple form, where negative terms precede positive terms: that is, the initial term a_0, and perhaps some succeeding terms, are negative, representing investment by the investor: and succeeding terms are then all positive, (or perhaps zero), representing payments of interest and capital.

Let u be a discount rate, expressed as a fraction; (so a discount rate of 5% corresponds to u = 0.05.)

Then the net present value , (NPV), of the transaction $\mathbf{a}$, calculated at discount rate u, is defined as

$$NPV(\mathbf{a}, u) = \sum_{j=0}^{n} a_j(1 + u)^{-j} :$$

(In other words, the NPV is the sum of the individual terms in the transaction, each term being discounted by dividing by successively larger powers of the discounting factor (1+u).)

An *internal rate of return*, (IRR), of the transaction is defined as any discount rate, u, such that NPV($\mathbf{a}$, u) = 0.

For the simple types of transaction considered here, there always exists an IRR, and it is unique.

The IRR of a transaction is equivalent to the interest rate being earned on the capital sums invested.

2) Now suppose that an investor decides, at a particular point in time which we arbitrarily denote time 0, to sell off in the secondary market a series of positive returns which they are due to receive on their investment over the succeeding time periods 1 to n. Denote these terms which are being sold in the secondary market as $b_1, ... , b_n$.

Suppose that a secondary market investor values the stream of returns $b_1, ... , b_n$ by calculating the NPV of the stream of returns, at a particular discount rate r: so the value the secondary investor puts on the stream of returns is $\sum_{j=1}^{n} b_j(1 + r)^{-j}$.

So if the secondary investor pays this amount in time 0, the overall transaction from the point of view of the secondary investor is represented by the vector:

$$(-\sum_{j=1}^{n} b_j(1 + r)^{-j}, b_1, ... , b_n)$$

that is, an initial negative term representing the purchase price, which is $\sum_{j=1}^{n} b_j(1 + r)^{-j}$, followed by positive receipts of b_1 to b_n in succeeding periods.

But the net present value of the secondary investor's transaction, calculated at discount rate r, is equal to

$$-\sum_{j=1}^{n} b_j(1 + r)^{-j} + \sum_{j=1}^{n} b_j(1 + r)^{-j} = 0$$

on applying the definition of NPV given in paragraph 1.

That is, the internal rate of return of the secondary investor's transaction is *r*: i.e., the secondary investor is receiving an interest rate of *r* on their investment.

So, in other words, what has been established is the following rule for secondary investors: in order to earn a target interest rate *r*, they should calculate their purchase price as the net present value of the stream of returns they are purchasing,

calculated at discount rate r.

Note too that, from the point of view of the secondary market seller, they are receiving an amount of capital

$$\sum_{j=1}^{n} b_j(1 + r)^{-j}$$ now, at a cost of the future stream of payments $b_1, \ldots, b_n$: which is equivalent to borrowing

$$\sum_{j=1}^{n} b_j(1 + r)^{-j}$$ at an interest rate of r.

3) The rule for secondary investors has a number of important implications.
- Each of the terms $b_j(1 + r)^{-j}$ is a decreasing function of r, (because the b_j terms are positive). This means that the price paid by the secondary market investor, that is,

  $$\sum_{j=1}^{n} b_j(1 + r)^{-j}$$, is a decreasing function of r. So the lower the target rate of return of the secondary investor, the higher the price they will be willing to pay.
- The price paid in the secondary market will be greater, the more the stream of payments which is bought is skewed towards later years. (This fact is not proved here, but is illustrated in the following example.)

Example
Suppose that, in year 0, a public sector body makes an investment of £1 million in the sub debt of a Hub project, where this investment earns a rate of return of 10%. Suppose that there is a two year construction phase for the project, during which the interest on the sub debt loan accumulates: and that payments on the loan start to be made in year 3, and continue for the 30 year life of the project. (For simplicity, any dividend due to be paid to the sub debt holder is ignored for the purposes of this example.)

Suppose that, at the end of the construction period, i.e., at the end of year two, the public sector sub debt holder decides to sell in the secondary market the 30 year stream of payments on their sub debt holding. The following table illustrates six different cases, representing different combination of loan type for the original loan, and target interest rate for the secondary market buyer.

The different loan types considered are:-

a) Equal Instalment of Principal, (EIP): in this case, the holder of the sub debt receives each year, from year 3 for 30 years, a repayment of one thirtieth of the outstanding principal at the end of year 2, plus interest of 10% on the outstanding principal at the beginning of the year in question.

b) Mortgage type loan: in this year, the holder of the sub debt receives an equal payment each year from year 3 for 30 years, calculated so that, when the final payment has been made, the holder has had their original investment repaid, and has earned a return of 10%.

c) Bond type loan: in each year from year 3, for 29 years, the sub debt holder receives interest earned that year on the outstanding loan: but none of the loan itself is repaid. In year 30, the sub debt holder receives the same interest payment, plus the entire amount of capital outstanding.

Note that the payments made under EIP decrease through time: those under the mortgage scheme are flat: and those under the bond type scheme are flat for 29 years, but then there is a large final payment. So payments made under these schemes are progressively shifted towards later years, (though the interest rate is 10% in each case.)

The two target interest rates for the secondary buyer which are illustrated are 5% and 3%.

Then the following table shows the price which a secondary market buyer would pay, for each of the six different possible combinations of loan type and target interest rate.

Price paid by secondary market buyer: £ million		
	EIP	Mortgage	Bond
5% target interest rate	1.80	1.97	2.14
3% target interest rate	2.19	2.51	2.87

This table illustrates how the price in the secondary market does indeed increase, as the target interest rate becomes lower: and also increases, the more the payments under the loan scheme are shifted towards later years.

But the really interesting thing about this example is that it illustrates that very large capital gains can be made on secondary market sales, even under the quite modest assumptions considered in this example. Even larger potential gains could be made if the original interest rate on the sub debt loan were higher: if the construction period during which interest is rolled up were longer: or if sub debt payments were further skewed toward later years. (Such conditions were in fact met in several early PFI deals.) This reinforces the need for very careful monitoring of the terms under which Hub sub debt loans are structured.

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