British International Investment

Blog

Insight

Maximising premiums, minimising subsidies in blended finance

A core principle of concessional blended finance is subsidy minimisation. One of the most popular approaches to mobilising private capital at scale is to create a loan fund structure in which public capital is used to create a 'junior tranche' that protects commercial investors in the 'senior tranche' against risk. A group of researchers at the asset manager Amundi have recently published a technical paper about how to determine the size of the junior tranche in this sort of blended finance debt structure.

This blog will describe Amundi's procedures, and how structuring could mobilise private investment into sub-commercial loans *without* a subsidy. It will also discuss how the subsidy in blended finance debt structures is minimised in practice. What we learn is that precise numerical subsidy minimisation is difficult in the context of blended finance, but good approximations exist, and we should not let the perfect be the enemy of the good in a nascent market.

Maximising leverage

Amundi assume the public sponsor of a blended finance structure wants to maximise the 'leverage ratio', meaning make the junior tranche as small as possible.[1] Maximising leverage does not, in general, translate into minimising the subsidy because the price of a tranche and its size are separate questions. Commentary about blended finance often implicitly suggests higher leverage ratios mean more 'bang for buck', which is not true when higher leverage comes with a larger subsidy.

Even if the nature of the underlying loans and everything else about the structure is held constant, it is possible to increase the size of the junior tranche and compensate by reducing the yield in the senior tranche, leaving any subsidy unchanged. However, if you hold the yield in the senior tranche constant and increase the size of the junior tranche, and hence the level of protection it offers, that increases the premium going to the senior tranche (because risk is going down, but returns are not). If you keep increasing the size of the junior tranche until the senior is getting more of a premium than needed, then there is a larger subsidy than needed.

The relationship between maximising leverage and minimising the subsidy is quite subtle and to understand it, we first need to understand how structuring creates a 'premium' for investors.

1 DFIs are at pains to explain that our objective is not simply to create transactions with high leverage ratios, it is to maximise our development impact. See 'Beyond leverage ratios: a strategic approach to blended finance' for example. The apparent disagreement arises because the Amundi authors mean that once a given investment strategy has been chosen by a DFI to maximise its impact, which involves mobilising private investors to purchase certain assets, then the DFI will wish to minimise the subsidy involved (maximise the leverage ratio). That does not imply that DFIs seek out transactions with the highest possible leverage ratios.

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Mobilisation without subsidies

Structures like these do not necessarily involve any subsidy. In the commercial world they are most common as Collateralized Loan Obligations. If we assume that public money – say from a DFI – goes into the junior tranche to mobilise private investors into the senior, Amundi define the concessionality rate (subsidy) as the difference between a market rate of return on the junior tranche and the return that the DFI is getting.

That concessionality rate is minimised when the commercial investors are getting no more of a return than needed to make them willing buyers.[2] In situations where there are market benchmarks, that would be easily tested. If the senior tranche is AAA rated, we could check how its pricing compares to AAA-rated tranches in similar structures. And if there is a subsidy, knowing that the pricing of the senior tranche matches market benchmarks would also be proof of financial additionality. We would know then that commercial investors would not have financed these assets in the absence of the concessional de-risking provided by the junior tranche.

But this test won't be easy to apply in the context of blended finance, where there are too few other examples, no publicly quoted prices, and the nature of the underlying assets is opaque. Even if we are satisfied that the senior tranche has been sufficiently de-risked to qualify for an AAA rating, the market pricing of AAA bonds is not a clean comparison because investors in structured products would expect some premium to compensate for a lack of liquidity and some uncertainty about the implementation of the structure.[3] I will come back to how subsidies are minimised in practice, later.

Commercial actors create these structures because investors are willing to pay more for tranches tailored to suit their preferences than the market is willing to pay for the underlying assets in their original form.[4] Structuring creates a 'premium' that could be shared between the investors in different tranches – meaning they can get a little more return than normal, relative to the risk they are taking. In a commercial setting, whomever puts the structure together might need to offer a little premium to find buyers but would retain any remaining premium for themselves.

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Rather than allocate the structuring premium to investors, it is also possible to give the investors in each tranche their minimally acceptable return and 'spend' the premium on reducing the yield of the underlying assets. In other words, the premium created by structuring can allow the underlying loans to be offered on modestly concessional terms.[5] In a commercial setting nobody would want to do that, but in a development context with underlying loans and the blended finance structures created by a DFI, they might. This offers the intriguing possibility of a blended structure being used to finance underlying loans that are modestly concessional, and junior tranche being used to mobilise commercial investors into the senior tranche, *without any subsidy*. But because structuring premiums are not very large, there won't be much room for underlying loans to be priced below market rates, before a subsidy would become necessary to mobilise private investors.

2 The size of the subsidy we want to minimise is the concessionality rate multiplied by the size of the junior tranche.

3 Some blended finances structures can be created so that the senior tranche is tradeable, but liquidity will be less than for regular AAA bonds.

4 Structuring is therefore only attractive for assets that, for some reason, investors have relatively low demand for. These tend to be medium risk-return credits, such as BBB or BB+. A very large volume of capital is managed by regulated institutions that are required to buy investment grade assets, while others like the high return, high risk combination in B or CCC. Therefor taking a set of BBB assets and structuring tranches of AAA/A+ and B/CCC creates a premium.

5 Section 4.5.2 of the paper shows an example where all parties benefit – the underlying loans are a little cheaper, the junior sponsor and the senior tranche investor receive a premium.

Minimising the subsidy

The main contribution of Amundi's work is that they show that minimising the size of the junior tranche is equivalent to maximising the structuring premium. This is the subtlety about minimising the subsidy: if you want to give the public sector sponsor in the junior tranche as good a deal as possible, first you must squeeze as much juice from the structure as possible. This structuring premium can then be allocated to different parties. Amundi do not take a stand on that, they just show how to maximise it.

The test of subsidy minimisation is that the private investors in the senior tranche receive no more yield than necessary. Amundi's optimisation procedure gets close to that, because when squeezing juice out of the structure it creates an AAA senior tranche and then uses information about how the market currently prices AAA assets to pin down the yield in the senior tranche before the structuring premium is allocated to anyone. But investors in the senior tranche would want some premium over AAA-rated bonds. The next step, to minimise the subsidy, would be to allocate only as much of the structuring premium to the senior tranche as needed to find a buyer and give the remainder to the public sector sponsor.

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Calculating the optimal structure

The ingredients needed by Amundi's procedure are the loans' default probabilities and expected losses on default, and how these things are correlated amongst the loans.[6] The Amundi paper shows how those correlations make a big difference to the size that the junior tranche must be to create an AAA senior tranche, because correlations increase the likelihood of many loans defaulting at once.

6 To set the yield in the senior tranche, they also need to estimate a curve which shows how risk premiums relate to expected losses – in the terminology of the paper how 'historical' default prices relate to the 'risk-neutral' default prices. This is implicitly capturing the risk aversion of investors.

Unfortunately, in the context of development finance, these parameters will not be known. This is not (just) because of a lack of transparency; it is because the loans that DFIs extend to enterprises in developing markets are often not rated and typically have attributes that would make applying a rating difficult.[7] Publicly traded and rated corporate bonds have a long history from which investors can compute default frequencies and correlations, but few investors would be prepared to make confident assumptions about these statistics for DFI assets. Even if all participants in a structure are willing to make shared assumptions about these parameters, the analysis performed by the Amundi authors shows that we would still not have a user-friendly tool for calculating the minimum junior tranche size.[8]

That is because we would also need to model various possible rules for handling cash flows. There are 'pass through' structures in which income generated by the assets is shared proportionately with the holders of each tranche as it is received, and 'pay through' structures where various rules are applied, and payments are only made in accordance. For example, in a pass-through structure the 'first loss' role of the junior tranche might only apply to losses on the final repayments of principal, but if defaults occur and interest payments are not made then both tranches experience the shortfall as it happens. Pay through structures can be designed to create senior securities with well-defined payments that are very likely to be honoured, at the expense of the junior tranche.[9]

There are also other potential mechanisms to protect investors in the senior tranche, called loss carry forward, dividend sponsorship and cash reserves, which the paper describes. The upshot is that the rules governing cash flow distributions must be encoded into an algorithm and then Montecarlo simulations run to produce estimated distributions of returns and losses from which credit ratings could be inferred and tranche sizes calibrated.[10] Amundi evidently has the technical wherewithal to do that, and other sophisticated investors such as credit hedge funds, who buy mezzanine and junior tranches, will too. But few DFIs will (not having needed it) and institutional buyers of senior tranches probably will not either, being accustomed to taking decisions based on credit ratings and prices.

How subsidies are minimised in practice

Full-blown optimisation, with Amundi's level of sophistication, is usually not plausible. But even if it were, once the minimum junior tranche size has been found it would still be necessary to haggle over how the structuring premium is allocated. Until these things are traded in public markets with quoted prices, negotiation is inescapable. In practice blended finance structures are designed through a combination of simpler modelling and negotiation. There are industry standard CLO modelling tools into which DFIs can enter 'shadow ratings' (in-house ratings created using accepted rating methodologies) of asset risk profiles, and the rating agencies also make available conservative default correlations within and across sectors and countries. The basic behaviour of the cash flow allocation rules can also be modelled. The owners or originators of the underlying loans must also have some idea of how much they are worth to them, and hence what price they would be willing to let them go for, and they must also try to play potential buyers off against either one another to elicit the best offers. Once a deal is on the table, it can be sense checked against market benchmarks.

In practice blended finance structures are designed through a combination of simpler modelling and negotiation.

7 Although full information about the characteristics of DFI loans is not yet publicly available, we can assume that when a blended finance structure is being constructed, prospective buyers are given full information under confidentiality agreements.

8 The structure might also be applied to loans that have not been made yet, or if the loans do already exist then proceeds might be re-invested over the lifetime of the fund. In which case, one would also need to be prepared to make assumptions about the characteristics of future loans.

9 These securities can be tradable and the structure can be actively managed in attempt to liquidate positions before defaults occur, and the cost of that management can itself be built into the structure.

10 A reminder: if we want to minimise the subsidy, then we still need to calibrate how income is shared between tranches, so that the senior tranche gets no greater premium than needed.

BII has run a competition, in partnership with the financial consulting firm Mercer, to solicit proposed blended finance structures using our £100m mobilisation facility. The rigor of the quantitative modelling involved in each proposal was part of the evaluation process. Amundi was one of the five shortlisted entrants.

And while subsidy minimisation is important, we should not exaggerate the importance of small potential errors. In private markets, investments often require negotiation, as when agreeing an equity investment in a business, for example. There is a risk of giving investors some unnecessary excess return but there is also a risk of failing to get a market off the ground because we are too worried about that. We know that private investors will require some premium to invest in these structures, and a simple model-informed negotiation process should limit any excess premium to a few basis points more than merited. That is not a disaster in the early stages of market where private investors are still relatively cautious about participating.

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We often hear calls for blended finance structures to become more standardised. The CLO market shows us the direction of travel. In that market, the nature of the underlying assets is sufficiently easy to observe, and the mechanics of the structures are understood, so that investors can compare the risk and return of structured against bond prices and other assets. The first step in that journey is to define a typology of blended finance structures and a scorecard for evaluating them, as BII and BCG did in our recent report Scaling Blended Finance Practical tools for Blended Finance Fund Design.[11]

11 The debt fund structure studied by Amundi would be type E, diversified mobilisation, in our typology.

This blog is authored by our Head of Development Economics, and covers issues related to development finance. These are personal views and do not necessarily represent the views of British International Investment.

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