LIQUIDITY, THE GOVERNMENT BALANCE SHEET, AND THE PUBLIC SECTOR DISCOUNT RATE

An Executive Summary of Working Paper 19-13
Andrew Coleman

Motu Economic and Public Policy Research

andrew.coleman@otago.ac.nz, info@motu.org.nz

SUMMARY HAIKU

Public investments
should cover borrowing costs
not risk of default

INTRODUCTION

For over forty years the New Zealand government has chosen to evaluate investment projects by comparing a project's costs and benefits with alternative private investment opportunities. This approach involves discounting the flow of costs and benefits by the "weighted cost of capital," where the weighted cost of capital is meant to reflect the returns private sector agents demand from different types of investment. The intention is to ensure the public and private sectors use the same framework to assess investment projects. Until 2015 the New Zealand government used a real discount rate of between 8 and 10 percent, a rate considerably higher than that used by most OECD countries. In 2016 the rate was reduced to 7%.

This paper argues that the current approach needs modification in light of a significant transformation of economist's understanding of how the private sector actually behaves. This reinterpretation, closely identified with the work of Nobel prize winners Eugene Fama, Robert Shiller, and Jean Tirole, argues that when firms evaluate investment opportunities they do so in a two stage process that distinguishes two types of risk and directly links the discount rates they use to the structure of their balance sheets. In the first stage they evaluate the likely returns of a project and discount these using a relatively low discount rate that reflects fundamental earnings risk – the risk that the project earnings will be different than they expect. In the second stage, they decide whether the expected returns are sufficiently high to warrant the liquidity risk that the firm will undertake – the risk that the firm will be unable to borrow or otherwise raise finance to deal with unexpected adverse shocks or investment opportunities that require large cash payments. This second stage liquidity discount depends on the whole balance sheet of the firm as well as the liquidity characteristics of the investment. Firms typically require higher returns for less liquid investments, and alter the mix of financial securities they issue to finance their investments in response to their liquidity characteristics. In turn, the values placed on these securities by households and other private entities differs according to the extent the riskiness of these securities reflects fundamental earnings risks or liquidity risks. Households have a preference for highly liquid securities and are prepared to accept considerably lower returns when they invest in them.

A TWO-STAGE APPROACH

This paper argues that if the government wishes to mimic the private sector it should also adopt a two-stage approach. In the first stage, it should estimate the likely benefits of an investment project and calculate their present value using a relatively low discount rate that reflects their fundamental earnings risk. This stage serves to rank the projects according to their likely benefits or earnings. In the second stage it should impose a liquidity discount that determines the overall quantity of projects the government chooses. Since the government largely invests in illiquid assets such as roads or hospitals, the liquidity discount will primarily reflect the government's balance sheet structure, such as the quantity and

liquidity of its assets, the amount of its debt, and the extent it is prepared to borrow to undertake welfare enhancing investments. Formally, this decision is similar to calculating the real option value associated with issuing additional debt to make an investment that is hard to reverse.

In practice, the New Zealand government already adopts a discounting procedure like this. Projects are first ranked using a high discount rate that reflects the average return to private investments, and then government ministers decide on the total quantity of projects that they undertake according to a variety of criteria such as the government's debt position and its debt target. This rationing process implicitly imposes a 'liquidity' discount that simultaneously determines the overall quantity of investments and links the combined discount rate to the structure of the government's balance sheet. This paper argues that such a process is completely appropriate – except that the first stage discount used to rank projects should not be so high, for it should only reflect the fundamental earnings risks of the project, not the fundamental earnings and liquidity risks. At the moment, the New Zealand government is effectively triple-discounting projects by imposing a first stage discount rate that reflects the combined fundamental earnings and liquidity discounts used by the private sector, and then imposing a second liquidity discount that reflects the government's balance sheet objectives. The paper argues the first stage real discount rate should be reduced to 4 – 5 percent, much closer to international practice. The total discount, including the second liquidity discount, will, of course, be larger. The current process significantly undervalues projects that have long horizon benefits relative to projects that have with benefits that occur in the short run, and thus is biased against long run projects with high investment returns.

SIZE AND DEPENDENCY

If this two-stage procedure is formally recognized, it raises two further questions. The first question concerns whether the size of the liquidity discount should depend on whether the investments are tax-financed or debt financed. The second question concerns how the discount rate should depend on the government's balance sheet. The answer to both questions depends on how easy it for the government, private sector firms, and households to borrow in the face of liquidity shocks. The literature argues that households and firms typically find it much harder than the government to borrow against future income streams, in part because of the government's powers of taxation. This suggests, as an answer to the first question, households will normally be better off if the government's investments are debt rather than tax-financed, because they find it easier to manage their own liquidity positions if government projects are paid off gradually.

The answer to the second question, when government projects are debt financed, is that the liquidity discount should reflect any interest rate premium the government has to pay as its debt increases, the deadweight cost of taxes it imposes on the economy to finance this debt, and the potential costs of not being able to borrow in the event of large future liquidity shocks. These considerations are similar to those currently used to decide the quantity of investments, but the literature places them on a more formal basis.
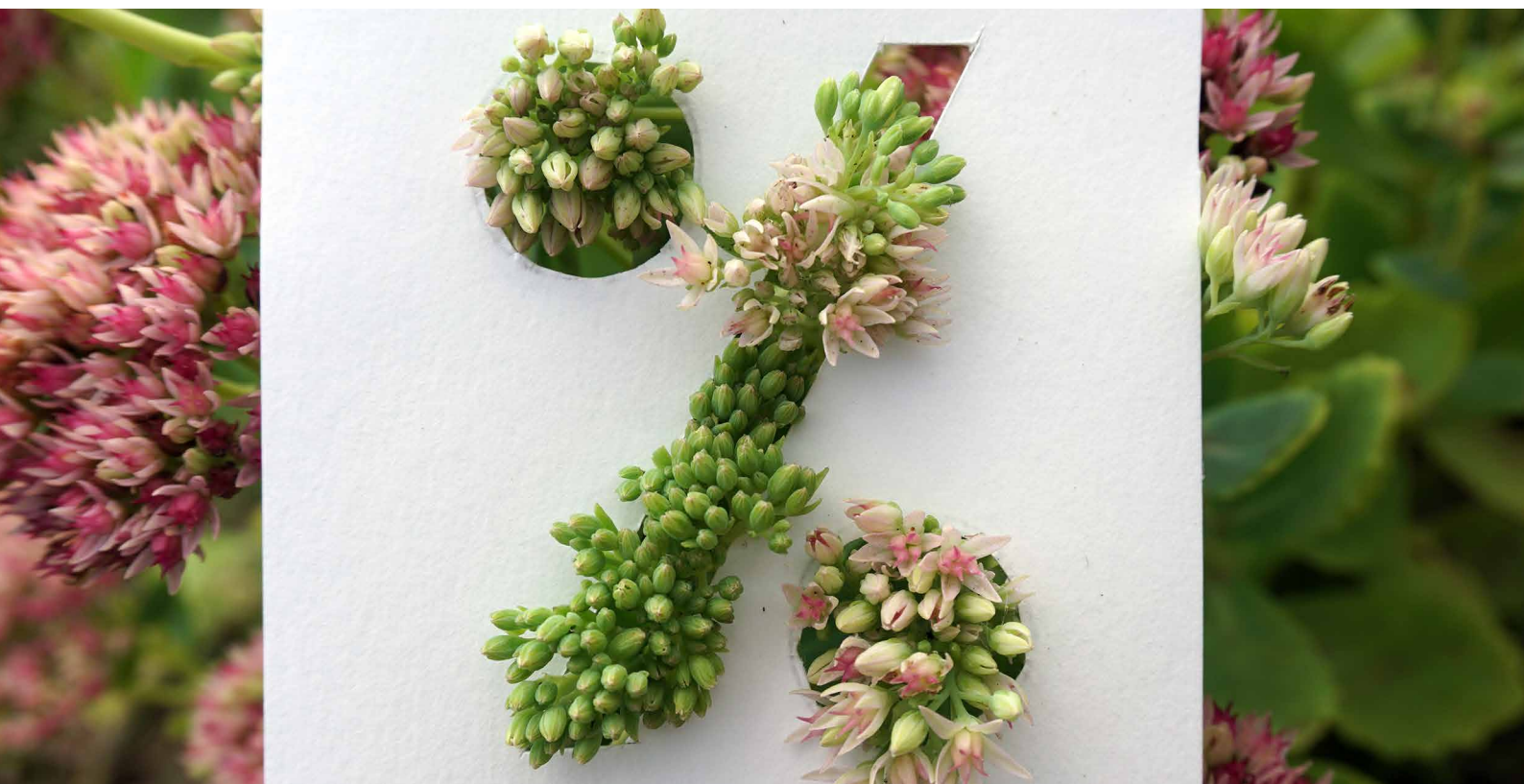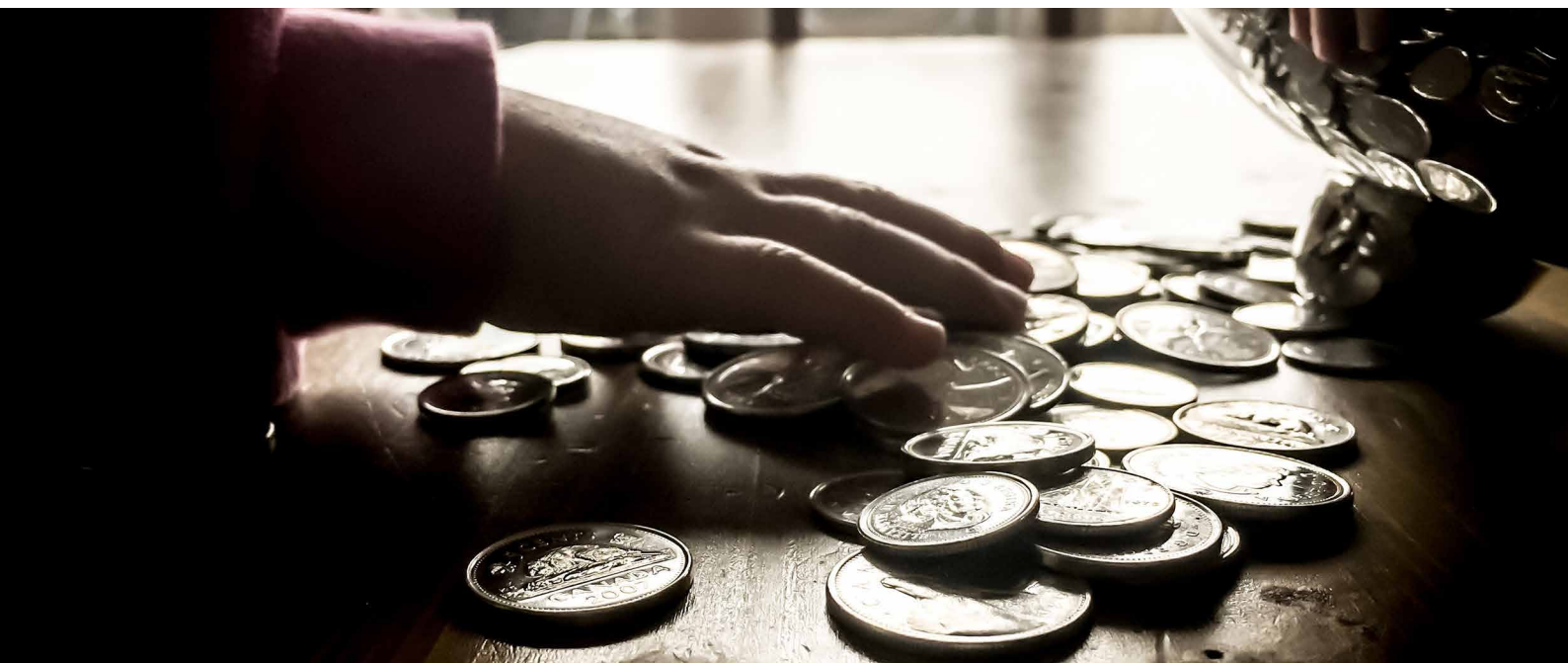
CONCLUSION

The arguments made in this paper make it clear that the public sector discount rate is not determined in a vacuum but reflects the liquidity and overall structure of the government balance sheet, just as the returns firms require from their investments depends on the liquidity and structure of their balance sheets. This insight has implications for the relative size of the public and private sectors. Because households are averse to holding illiquid securities, they will pay a premium to hold securities issued by large, liquid companies even if these firms make investments that have lower expected returns than the investments made by smaller, less liquid firms. Similarly, households are willing to pay a premium to hold the extremely liquid securities issued by the government, and thus can be better off even if the government makes investments that have lower expected returns than those made by the private sector. This does not mean the government should attempt to make investments that have low benefits. However, because private sector firms are more susceptible to liquidity shocks than governments, debt-financed government investments with low yields can raise welfare even if these investments crowd out those by private sector firms.

This paper challenges the traditional discounting practice used by the New Zealand Government. For this reason, much of the paper comprises a review of the developments in the macro-finance literature that have occurred in the last two decades. Nonetheless, the arguments do not advocate a radical new approach. The paper explicitly recognizes that the two-stage discount approach it recommends is similar to current practice. Nor does it advocate that the total discount rate – the combined fundamental earnings discount and the liquidity discount – should be much lower than its current value, although it could be. What it does recommend is that the government should recognize that the second stage of the two-stage process implicitly imposes a liquidity discount that depends on the structure of the government's balance sheet and its balance sheet objectives. This means that the first stage discount used to rank projects should be fundamentally lower than its current value, perhaps 4 - 5 percent not 7 percent. Failure to make this change will perpetuate a bias against long run projects, harming the long run prospects of the economy.

READ THE FULL VERSION OF THE WORKING PAPER AT

HTTP://MOTU.NZ OR CALL US ON 04 939 4250