Dear Ms Hillier


Further to the Government’s response to the Committee’s report on the first sale of the income contingent student loan book, and in accordance with the Committee’s recommendations, I am writing to you to provide an update on the Transitions Based Earnings and Repayments model (TERM). I also feel it is important to provide responses to some of the conclusions that the Committee reached on TERM.

Although the complexity involved in modelling the future repayments of these loans should not be understated, the Government is confident that it has put in place a robust model that is fit for purpose.

Testing the Model’s Accuracy

Lee Rowley MP noted in the September 2018 evidence session, that ‘models are never right’. We agreed: any model, projecting uncertain cashflows long into the future, will never be perfectly accurate because it will make predictions based on past data, which may not be repeated in the future. This does not, however, preclude the design of a model to project future cash flows at the point of sale with a sufficient degree of confidence to allow us to produce an appropriate valuation of the loan book. We remain confident that TERM is robust and fit for purpose, a view based on the rigorous analysis and testing to which TERM has been subject to.

- The sale model was selected through a competition between the Government Actuary’s Department (GAD) and private sector specialists, who both built prototype models that were then compared. GAD is the Government’s specialist actuarial adviser and is highly experienced in providing specialist financial and demographic modelling advice.
- These two models used different approaches and assumptions to project the loans. TERM was selected as the successful model through a series of multi-criteria decision analysis workshops that reviewed the robustness of the models. These workshops called on expertise from UKGI project team (financial experts, statisticians, operational risk analysts and actuaries with public and private sector experience) as well as the work of a separate model quality assurance team from the former Department for Business, Innovation and Skills.
- In particular, the model was assessed on its ‘back-testing’ performance to assess its reasonableness and fitness for purpose. This process involves comparing the model’s projected earnings results to historic known outturns. To do this, the model was set to begin projecting from 2005/6 and the forecast results were compared with known actual results from the sale pools. This meant that there were multiple years of data against which TERM was tested and assessed as fit for purpose prior to launching the sale programme.
- Our review involved examining not only headline figures, but also results broken down by earnings decile and cohort to ensure that the average results were not subject to underlying biases.
- The model was also subject to detailed review by various experts prior to each sale. HMG’s advisors helped scrutinise the model in advance of both Sale 1 and Sale 2. In addition, TERM was subject to the model validation processes of the Ratings Agencies (including the back-testing data) and was subject to a model audit and an “Agreed Upon Procedures” audit (both external) to ensure that it had been constructed correctly. It was also closely scrutinised by a number of sophisticated institutional investors as part of the sale process.
Maintaining the Model

Prior to launching the sale programme, TERM was formally signed off by the project SRO as having undergone appropriate quality assurance to meet Government standards, in line with HMG guidance (Aqua Book) on producing quality analysis for Government. Current processes have been reviewed to ensure they remain consistent with the Aqua book and are also aligned with revised actuarial quality assurance standards (July 2017 Technical Actuarial Standards).

A permanent governance framework around the model has been established, which includes a dedicated model SRO and Model Steering Group accountable for ensuring that TERM is fit for purpose. The Steering Group consists of senior officials involved in the project from DfE, UKGI, GAD and an independent member from BEIS. The group supports the SRO in meeting their responsibilities and provides strategic oversight of model development across the sale programme.

Model Performance

In your report, the Committee stated that the model '...has over-estimated actual cash-flows by 0.9% in one test using annual data and under-estimated them by 4.9% in another using interim data; this fluctuation in accuracy highlights the uncertainty of the model’s estimates’. While we note that the model will likely always be subject to fluctuations, we consider that TERM’s performance since the launch of the sale programme is acceptable.

Post-sale we have continued to monitor the model’s accuracy by comparing model-forecast cashflows with actual cash flows twice a year (an interim collections report is prepared each January based on most recent data which - by definition - is incomplete, and a full servicing report is prepared each July). For Sale 1, TERM’s first year forecast underestimated the actual outturn by 4.4%, which we consider to be acceptable. The latest comparison from January 2019 continues to show TERM is performing within reasonable tolerances. Further analysis will be completed at year end.

We consider that it is not appropriate to draw definitive conclusions about the model’s accuracy from only the data points available currently. Loan repayments depend on a range of factors, not only borrowers’ earnings but also whether they make additional voluntary contributions and macroeconomic factors. These factors affect both the timings and the overall value of the repayments. For example, because borrowers can make additional voluntary contributions, an under forecast one year may lead to an over forecast of the next year as this represents repayments brought forward rather than additional repayments. The timing difference in this example does not have a material impact on the value of the loans but illustrates that repayments need to be assessed over a number of years to enable a reasonable comparison between the estimate and actual cashflows.

Sale 1 relates to forecasting five different and relatively mature cohorts which adds complexity when attempting to explain and allocate relative performance. We expect the cohorts to be more homogeneous for subsequent sales which should assist the performance of the model, with other things being equal.

Estimating Cash Flows from the Rest of the Pre-2012 Loan Book

The Committee stated in its report that the Government ‘has no similar model for the other loans issued either before or after 2012’ and has recommend that:

- In developing its strategy for the loan book, the Department must ensure it has a robust sale model for estimating cash flows from both pre, and post, 2012 loans, including the effect on market value of changes to the loan terms, such as an increase in repayment thresholds.

The Government has not made any decision to sell post-2012 loans, the terms and conditions of which are in scope of the Post-18 Education and Funding Review, hence no sale model has been developed for those loans. However, in relation to the pre-2012 (Plan 1) loans it is not correct that the Government has no similar model. As set out in the Government’s response, TERM was suitably adapted well in advance of launching Sale 2. At the
time of the Committee’s report, we had also commenced work on configuring TERM for a third sale and started to explore modelling options for what will be the remaining pre-2012 loan book.

It is not necessary to model the effects on market value of changes to the terms of Plan 1 loans because the Government has no plans to change or consider changing the terms of pre-2012 loans and has excluded them from the Post-18 Review.

Timing of the Future Sales Programme

TERM is fully tested, fit for purpose and will remain under continual review throughout the sales programme. As such, the sale programme does not need to be delayed to further consider the accuracy of the model. Government is clear that it would not proceed with the sales if it could not robustly project the cash flows. This was the motivation for building a bespoke sale model ahead of launching Sale 1.

The Government re-affirmed its commitment to a sale programme, targeting £15 billion in total proceeds, from the Plan 1 loan book by 2022-23 in the October 2018 Budget. The shape of future sales in the programme necessarily remain flexible to ensure we can maximise proceeds at each stage, based on market conditions and practical considerations around defining a sale pool of loans. Each sale will be subject to value for money which, as set out in the Government’s response, includes three tests: that i) an efficient market exists; ii) the sale is structured to achieve efficient pricing; and iii) the sale price exceeds the retention value or is at least broadly neutral.

Sale 1 Projected Cash Flows and Recouping the £1.7bn

In the Government’s response, we set out that our own analysis does not show that the Government ‘could have expected to recoup the £1.7 billion sale price in only eight years’. The chart that we shared with the Committee showed the Government receiving £1.7bn in undiscounted cashflows within ten years rather than eight. Given that we have not had sight of the Committee’s workings it is not clear whether the approach taken correctly excluded 5% of the total forecast cashflows which would be retained by Government as part of the EU Risk Retention Regulations.

Notwithstanding this difference, the sum of raw, undiscounted forecast cashflows is not a meaningful way to assess the value of these loans to Government today nor would it represent the value of the loans to investors or other stakeholders. A meaningful comparison must take into account the riskiness inherent in the cash flows, the opportunity cost of having capital tied up in these loans rather than being used for other purposes and the impact of inflation. To account for each of these factors Government applies a discount rate to the future cash flows to assess the value of them today. This reflects the principle that £1 in hand today is worth more than £1 in the future, a widely accepted principle in economic and financial theory and practice.

After adjusting for these factors, the Government’s value for money analysis demonstrates that the £1.7bn proceeds exceeds the value of the future cash flows to Government if it did not sell the loans.

I hope the Committee finds this information helpful in addressing their concerns. I am copying this letter to Charles Roxburgh, Second Permanent Secretary HM Treasury, Sir Amyas Morse, Comptroller and Auditor General and Richard Brown, Treasury Officer of Accounts.

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