Landbay Macroeconomic Stress Test
An Overview
October 2015
What is a Stress Test?

A stress test is an exercise performed to see how a business would weather poor economic conditions. In financial services the most well-known stress tests are performed on banks, although naturally insurance companies and many other firms also will do pertinent tests to ensure that they can survive tougher times.

The stress test is a modelling exercise which consists of applying a “bad weather” macroeconomic/market forecast to a given business and quantifying what the outcome would be in those circumstances.

The Quality of a Stress Test is Critical

You could do a “stress test” of what would happen to your house price if the market fell by say 10%. This would, naturally, be a very simple stress test. It would also be simplistic as the –10% is a figure across every property in England and yours might fall more or less.

What is an External Stress Test?

Not all Alternative Finance platforms do stress testing. Most of the ones who do so perform an “internal stress test”. This is to say they do it themselves.

Naturally in these circumstances the quality of the test is unclear. As above you can do one in your head, or with a little more sophistication in a spreadsheet. Furthermore, the set of macroeconomic or market assumptions that are used is unclear. And, naturally, it is not independent.

Thus Landbay chose to conduct an external stress test. That is to say, the platform hired an expert firm to independently model and assess its portfolio against a publicly recognised macroeconomic scenario.

To the best of Landbay’s knowledge, of UK peer-to-peer lenders, only Landbay (2015) and Funding Circle (2014) have conducted independent, external stress tests to recognised benchmarks.

What was Landbay’s External Stress Test Process?

Landbay appointed MIAC Acadametrics Ltd (MIAC), an independent asset valuation service provider, in London and New York, specialising in behavioural modelling, stress testing and collateral valuation for the financial services industry. MIAC’s depth of experience is profound; its suite of proprietary tools has been developed over the past 25 years.

These stress tests were conducted to the same Bank of England macroeconomic stress test criteria that are applied to Banks.

To give you a feel for the depth of the exercise, it was a process that took two months and produced a 70 page report.
THE STRESS TEST

Macroeconomic Scenarios

Naturally the key parameters in a Stress Test are the macroeconomic parameters chosen for the scenario:

“The European Banking Authority (EBA) has, since its inception, been publishing results on EU-wide stress-tests which incorporates guidance on base and stress scenarios.

In reaction to this EU-wide effort, and other regulatory concerns, the Bank of England (BoE) proposed to conduct a variant of the EU-wide exercise with the aim to focus on particular UK macroeconomic vulnerabilities facing the UK banking system.

The 2014 stress test1 was the first concurrent stress test of the largest UK’s largest banks and building societies. The 2015 stress test2 builds on the 2014 approach but also extends it in a number of ways.

A key difference from the 2014 approach is that the 2015 stress test and methodology have been fully designed and calibrated by the bank staff, and discussed and agreed by the FPC and PRA board. This is in contrast to the 2014 approach where the test was conducted as a UK variant of the European Banking Authority’s (EBA) EU-wide stress test.

Another difference is that the scenarios are now 5 years instead of 3 taking us from the beginning of 2015 to the end of 2019. Also the values of the macroeconomic factors have been revised to fit in with the new assumptions of causality.

There are two scenarios which encompass a base scenario and a stress scenario.”

The base scenario (“fair weather”) is the Banks’ own forecast of benign economic growth over the next 5 years with modest inflation, low interest rates, economic growth, a fall in unemployment to 5% and, over 5 years, an increase in property prices by 26.8%.

The stress scenario (“bad weather”) has been designed by the Bank of England specifically to assess the resilience of UK banks and building societies to a given deterioration in global economic conditions. This translates as: a recession in the current year with unemployment eventually rising to a high of 9% (from 5.8% at the scenario start), and house prices falling by 20% over two and a half years peak to trough.

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Key Modelling Decisions

As outlined above, calculating how much you might lose if your own property falls 10% in value is an easy task. Banks and financial services organisations are considerably more complex and thus need an additional layer of modelling assumptions to ensure that the process is valid.

It is important to note in this context MIAC’s assessment:

"While assumptions are open to discussion and debate, MIAC believes the approach to generating key assumptions has been prudent and has therefore resulted in conservative estimates of future portfolio performance."

The key decisions MIAC felt necessary to include are detailed below.

i) To allow for future Landbay business growth

As Landbay is relatively young and will be growing considerably over the forecast period (to become much larger than the existing portfolio), the growth forecasts were built into the model as Landbay originated assets (“portfolio”) changes significantly over the period.

MIAC also utilised Landbay’s lending policy and collections policies to enable them to model the platform’s response to future events.

As there are many possible future portfolios, the model makes 1,000 simulations of potential portfolios and uses the aggregate statistics of these to provide central estimates as well as error bands around those.

ii) To not use Landbay’s actual default history

So far Landbay’s loan book has had neither default, nor loss, but it was felt that extrapolating this forward would not be of much use in predicting downside scenarios. As time goes by and economic conditions change, clearly Landbay can utilise more of its actual default/loss data in the stress testing.

Instead MIAC has used its own BTL database taking a subset to replicate the Landbay mix (“portfolio benchmarking”) in order to assess how these accounts perform over a whole economic cycle. From this benchmarking exercise is derived a “base case” (the Bank of England fair weather macroeconomic scenario) loss rate of 0.03% per loan, before interest payments.

iii) To not make allowance for Landbay’s conservative approach to borrowers

Landbay’s borrowers are of better credit quality than the average consumer. In the interests of simplicity this was not allowed for in the modelling. If it had been the effect would be to reduce the anticipated stress test loss figures.
iv) To use actual mortgage and rental data

The Bank of England stress tests are not fine-grained enough to specify buy-to-let parameters and experience. Thus MIAC have used a combination of its own data and publicly available databases. It is important to note that, as the mortgage market in the UK and BTL market are very well established, there is profuse data available to the public (for example with the CML – the Council of Mortgage Lenders). This is in notable contrast to other markets (for example, SME lending) where the data quality is less granular and not as readily available.

This excellent historic record means that, combined with using the Bank of England stress testing parameters, MIAC has been able to produce a high quality assessment of market risks.

MIAC also utilised some of their proprietary rental assessment tools to include rental forecasting paths in to the scenarios. This enabled rental coverage ratios to be tracked over each scenario. Rental coverage ratios are an important element in the credit risk performance of a BTL loan and it is, therefore, important to understand how this coverage is tested under stressed economic conditions. Rental coverage is a core part of Landbay’s underwriting framework.

v) To model Landbay management actions in a simple fashion

The stress scenario is over 5 years. Naturally any sailor entering prolonged bad weather will change his approach. However it is clearly hard to model 5 years of management actions. So for the sake of simplicity it is assumed that Landbay management takes a one-off action only to become more conservative in the face of recession by: (i) reducing their 5 year business growth target by 75% and (ii) increases the credit criteria for new loans – (a) reducing the maximum LTV from 80% to 65% and (b) increasing the minimum Rental Coverage Ratio from 125% to 140%.

vi) Parameters in default situations

In a loss situation there is a question of whether Landbay takes over as managing agent or sells the property [assumed 50:50 for modelling purposes]. Furthermore it is necessary to have parameters for timelines of the following:

a) Time from Default to Possession; industry stats: post 2010 0-2 years; re ‘08 crisis 4-7 years – the former (average 12 months, standard deviation 5 months) used for “fair weather” modelling; the latter (average 36 months, standard deviation 14 months) for “bad weather”;

b) Time from Possession to Sale; again similar bifurcation in industry data; for modelling “fair weather” case (average 4 months, standard deviation 2 months), for modelling “bad weather” case (average 12 months, standard deviation 4 months);

c) Costs associated with repossession and sale of the property; MIAC database shows £2,500 + 2% of value;

d) A Forced Sale Discount (“FSD”); houses that are liquidated due to repossession tend to have a stigma in the market; add to that that the value you get if you sell straight away is much less and you get quite large FSDs. There is a very wide range of FSD in the historic figures; generally mid-market properties suffer least, with “cheap” and “expensive” properties suffering most; the 2011-13 data show an average of 43% and 2014 34%;
e) The percentage of accounts that “cure”. This means they get themselves out of default status (for example, by suddenly finding themselves a new tenant); this was taken as 16% for the fair weather case and a dip down to 10% for the bad weather case.

The Modelling Importance of “PD” and “LGD”:

“PD”: Probability of Default
“LGD”: Loss Given Default

Landbay’s model has, essentially, two “lines of defence” – and the order in which they are triggered is essential to understanding the qualitative outcome of this exercise.

The first line of defence is the rental income.

As long as the rent is being paid the asset value and the loan-to-value (LTV) is secondary. If the rent is being paid there is no default on a loan and, in cashflow terms, in general the borrower is still “profiting” every month and hence is happy continue borrowing.

If for some reason the borrower isn’t happy to continue or just plain defaults on the loan (which he generally doesn’t wish to do lest he damage his credit history) Landbay can take over the rental income flows and the asset and the loan will continue paying.

Where there is a healthy cushion (the “rental coverage”), Landbay can still make a large cut to the rent and be able to rent out the asset (whatever its price) at a cashflow profit and unimpaired payments (barring costs of time period to execute this (as (vi) above)).

*In the modelling, this first line of defence equates to calculating the PD in any given scenario.*

The second line of defence is the LTV – just as, assuming your mortgage is below your house price, this cushion means you can sustain a certain fall in house prices without making a loss, then the same applies to the underlying asset which is being rented out in a BTL situation.

*In the modelling, this second line of defence (which is only activated when the loan defaults) equates to calculating the LGD in any given scenario.*
THE RESULTS

The Numerical Results

Based on all of the above and taking a “single number approach” the relevant simple outcomes are:

a) BoE base case, “fair weather” scenario: an average expected loss rate of 0.03%

b) BoE stress test, “bad weather” scenario – [key stats: GDP down by 3.5%, unemployment rising to 9% and UK house prices falling by 20%]: an average expected loss rate of 0.48%

It should be noted that Landbay’s provisioning fund is currently maintained at 0.60% of loan book, and so would absorb all of these losses.

Commenting on the results of the stress test, Joe Macklin, Director of MIAC said:

“MIAC believes the approach to generating key assumptions in this exercise has been prudent and has therefore resulted in conservative estimates of future portfolio performance. Despite this caution, given the adverse nature of the stresses and sensitivities we have applied in line with the Bank of England scenarios, Landbay’s existing portfolio, and its anticipated future portfolio, performed with impressive resilience.”

The Sensitivity to Macroeconomic Assumptions

Landbay conducted a further exercise to, as it were, “stress test the stress test” and asked MIAC to model the portfolio for a 25% fall in house prices peak-to-trough rather than 20% and for unemployment to rise not to 9.2% but to 12%.

This changed the stress test loss from 0.48% to 0.52%.

Explanation

These impressive results are, as previously mentioned, largely due to the two lines of defence in Landbay’s model (not including the provisioning fund and the above average borrower credit score).

The first is the rental coverage – only if this cushion is breached does the house price become relevant. This is currently 125% of the mortgage interest payment for most borrowers, and 135% for first time landlords.

The second line of defence is the LTV cushion. With a portfolio average at present of a 66% LTV (and maximum of 80%) it would take a huge house price fall to make the asset go under water.

John Goodall, cofounder and CEO of Landbay
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