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Agenda

Advancing economics in business

Safe as houses: the evolution of mortgage underwriting techniques

The UK mortgage sector has been subject to considerable change in recent years. The introduction of new regulations and technological developments has resulted in greater automation of underwriting processes. New survey evidence shows how the underwriting systems of mortgage lenders are developing, and provides an indication of the likely impact on the market

With around 600 lenders and 12,000 intermediaries, and over 7,000 mortgage products, the UK has one of the most diverse and comprehensive mortgage markets in the EU.[1] The mortgage market in the UK is the second largest in the EU, accounting for 26% of total EU15 mortgage outstandings—Germany accounts for 27%, and the Netherlands comes third with 11%.[2]

The UK mortgage sector has been subject to substantial changes in recent years. Increased competition, the introduction of new regulation, technological developments, and improved availability of data on which to base underwriting decisions have resulted in greater automation of mortgage underwriting processes. Lenders have adopted new underwriting tools and techniques to assess mortgage applications, such as statistical decisioning systems and credit score and affordability models.

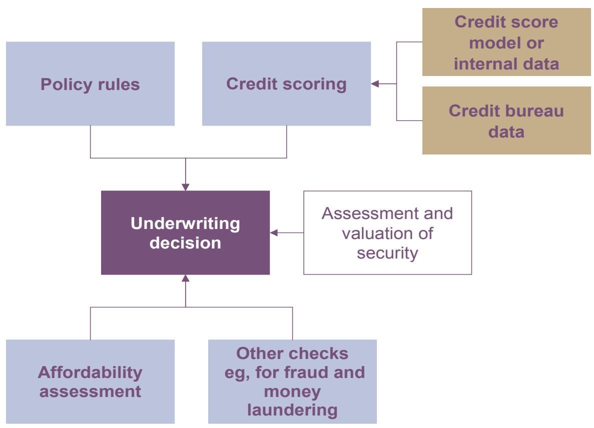
This article analyses the underwriting processes and systems that UK mortgage lenders have in place, the tools and techniques they use in the assessment of residential mortgage applications, how these are changing, and the likely impact on the market. The analysis is based on a recent survey of UK mortgage lenders designed and undertaken by Oxera for the Council of Mortgage Lenders (CML) and Standard & Poor's.

The survey was sent to all 152 members of the CML. CML membership covers around 98% of all UK mortgage lending and includes banks, building societies, specialist mortgage lenders, and centralised lenders. 40% of CML members completed the questionnaire, representing 71% of total gross mortgage lending and 69% of residential mortgage assets in the UK. The high response rates and broad market coverage indicate that the results present a reliable picture of the mortgage industry as a whole.

Mortgage underwriting

The core activity of mortgage lenders, underwriting involves accepting the risk of default associated with a mortgage application. The process informing the mortgage underwriting decision of whether to accept or reject an application involves assessing the likely performance of the applicant in light of the experience of similar applicants in the past and the value of the property being offered as security. The types of input on which the lending decision is based are summarised in Figure 1.

Figure 1 The underwriting process



Source: Oxera.

This article is based on the report 'UK Mortgage Underwriting', prepared by Oxera and the Council of Mortgage Lenders, April 2006. Available at www.oxera.com or www.cml.org.uk.

- *Policy rules surrounding the applicant and loan*—the policy rules are the minimum criteria that the applicant must satisfy to qualify for the loan. The criteria may cover, for example, unacceptable credit history, minimum and maximum loan amounts, maximum loan-to-value ratios (LTVs), maximum income multiples, and thresholds or cut-off points for the credit score.

- *Credit score*—this indicates the probability that the loan will be repaid. Scores are typically a weighted combination of applicant and credit history information and generated by statistical models. Credit scores are obtained from credit reference agencies such as Equifax or Experian, or produced by mortgage lenders' own credit score models. Credit score models are developed on the basis of historical data on mortgage borrowers—they rely on the assumption that an applicant's performance can be predicted using data on previous applications from individuals with similar characteristics.

- *Affordability assessment*—the lender uses a structured framework to assess whether the applicant can afford the loan. Traditionally, lenders have applied income multiples to determine the maximum amount an applicant can borrow. The survey indicates that this is still the most common method, although the number of lenders with an affordability model in place has increased in the past three years. An affordability model calculates the loan amount that an applicant can afford on the basis of an assessment of the main components of income and expenditure. Income and expenditure figures are often based on a combination of data provided by the applicant and data obtained from other sources, such as aggregated expenditure data from the Office of National Statistics.

- *Other applicant checks*—these include checks for money laundering and fraud, such as verification of the information provided by the applicant.

- *Assessment of property*—this involves assessing the adequacy of the property being offered as security for the loan. There are four methods:

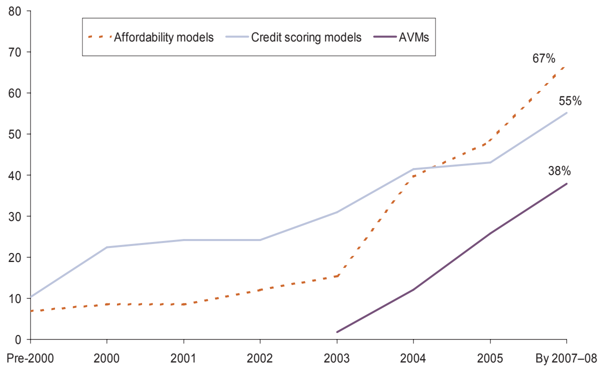
  - full physical valuation—an expert visits and values the property;
  - drive-by valuation—the property is valued by assessing its outer boundary. The valuer does not enter the property itself;
  - desk-top approach—valuing a property without visiting it, which could entail applying a house price index or a comparable property index to an earlier full physical or drive-by valuation;
  - automated valuation model (AVM)—a recently developed method, whereby a computer model creates the property valuation based on prices of comparable houses in the neighbourhood, characteristics of the house itself, historical property price appreciation, etc.

Recent increase in use of new tools

The penetration of credit score and affordability models and AVMs into the industry has been rapid (see Figure 2). At the time of the survey in December 2005/January 2006, nearly half of all lenders were using a credit score model compared with a little over 10% before 2000. Over 50% were employing an affordability model compared with less than 10% six years earlier. Over the next few years, the proportion of lenders using credit score models is expected to rise to 55%, and the proportion utilising affordability models is expected to approach 70%. The proportion of lenders using AVMs rose from close to zero in 2003 to around 30% at the end of 2005. Use is expected to increase towards 40% over the next few years.

Although an increasing proportion of applications are evaluated using automated processes, there remain a significant number of lenders in the market using manual processes. These are mostly small lenders, accounting for around 60% of lenders by number, but only 6% of gross lending.

Figure 2 Penetration of recently developed underwriting tools (%)



Source: Oxera survey.

One size fits all?

The survey shows that the increasing automation in underwriting processes has not resulted in a one-size-fits-all approach. Applicants in certain market segments may have different characteristics and risk profiles, and so require a bespoke approach.

Where appropriate, tools are adjusted according to the type of market segment. For example, 50% of lenders using a credit score model have one or more bespoke credit score model in place. These models are used for sub-prime applicants (ie, those with a significant adverse credit history), first-time buyers, further advances and remortgages.

An alternative way of dealing with the different characteristics and risk profiles of certain groups of applicants is to change the cut-off point—ie, the way the credit score is interpreted—while using the same credit score model across all market types. 18% of the lenders surveyed that use credit reference agency information or credit score models indicated that they vary the cut-off point according to the type of market. Typically, this is done for subprime applicants, first-time buyers and young borrowers.

The bespoke approach of lenders is also reflected in the way they enter new market segments. 45% of lenders that have entered, or are considering entering, new market segments indicated that they assess applications in these segments manually: 33% by buying mortgage portfolios from other lenders, that is with the risk already assessed; 15% by using the existing credit score model with adjusted score cut-offs; and 6% by buying in and implementing a credit score model appropriate for the market segment. Small and medium-sized lenders typically enter new markets by buying portfolios or assessing applications manually. Large lenders typically enter new market segments by using their existing credit score model with adjusted score cut-offs.

Drivers and impact on the market

An important driver of the automation of underwriting processes is the ability to make application decisions quickly. Consumers shopping around for the best deal want to know quickly whether they will be granted a mortgage, and on what terms, and they are increasingly applying through intermediaries that have access to a wide range of competing lenders and products. The survey respondents indicated that 65% of mortgages are currently sold through intermediaries, while the remainder are sold through visiting a branch, over the Internet or by telephone.

The automation of underwriting processes and decisions has a number of advantages for mortgage applicants and lenders. It reduces the time required to process the loan application, resulting in cost savings for lenders that can be passed on to the borrower through more favourable terms. It also makes it easier for lenders to change the threshold score at which a loan application is accepted—for example, if economic conditions require a lender to restrict the provision of credit.

Prior to the introduction of credit scoring, lending was largely undertaken on a 'relationship' basis, whereby local knowledge was important, or where there was already a relationship with the customer (eg, through a current or savings account). As credit score models based on broader datasets are utilised more, new segments of the market can be identified and entered. Credit scoring can help lenders take a balanced approach to risk, producing more consistent decisions, and transparent measurement enables consistency of reporting, control and governance.

Affordability model = responsible lending?

Regulation is major driver of change. As far back as 2000, Sir Howard Davies, then Chairman of the Financial Services Authority (FSA), stressed the importance of affordability models, 'which review overall income and expenditure of the borrower, and the potential impact of changes in interest rates'.[3]

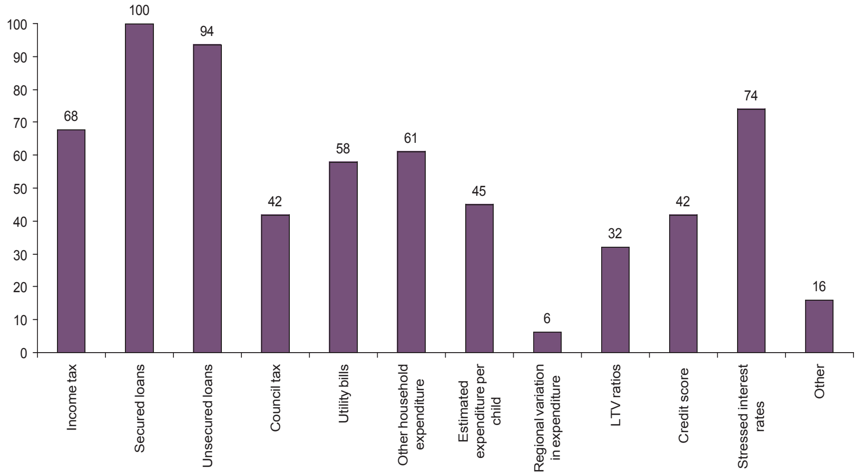
Mortgage intermediaries were brought within the FSA's regulatory remit by legislation on October 31st 2004, and 7,119 firms were authorised to undertake mortgage business.[4] FSA regulation replaced the self-regulatory Mortgage Code overseen by the Mortgage Code Compliance Board.

The new FSA rules explicitly state that mortgage providers must assess applicants' ability to repay. This has resulted in an increase in the use of affordability models by lenders. However, the debate about the usefulness of affordability models continues, and some lenders prefer to wait and see before undertaking the investment of developing and implementing a model.

An advantage of affordability models over income multiples is that they explicitly take into account applicants' expenditures, thereby focusing on applicants' 'free' disposable income. The factors considered in lenders' affordability models are shown in Figure 3 below. The majority of lenders take into account income tax, secured and unsecured credit commitments, utility bills and other regular household expenditures such as National Insurance, living expenses and child maintenance. Furthermore, most lenders 'stress-test' the application (for variable-rate mortgages) by hypothetically increasing the interest rate or mortgage repayment costs. Interest rate increases of one or two percentage points are typically examined, depending on the type of mortgage and profile of the applicant.

Respondents to the survey stressed that affordability models are not necessarily more accurate than income multiples. First, lack of sufficient data makes it difficult to develop comprehensive affordability models. Second, like income multiples, affordability models only give an indication of what an applicant can afford at a particular

Figure 3 Factors used in affordability models (%)



Source: Oxera survey.

point in time, but do not take into account developments in the medium or long term, such as changes in income and household composition.

Moreover, in practice, the difference between income multiples and affordability models is smaller than is sometimes suggested, and they are often used in parallel. 38% of respondents use both income multiples and an affordability model, and 50% of these use the former as a way of cross-checking the results of the latter. If the application of the affordability model results in a loan amount that exceeds the relevant income multiple, the income multiple overrules the affordability model. The other 50% first apply an income multiple and then, in some or all cases, an affordability model—eg, if the mortgage application exceeds the standard or enhanced income.

There are also a number of hybrids of income multiples and affordability models. One example is where lenders first deduct tax, secured and unsecured credit commitments, and possibly other regular expenditures, from gross income and then apply a multiple to net or 'free' disposable income. A number of respondents also indicated in the survey that income multiples are determined on the basis of an analysis of what an average or typical applicant can afford. In other words, stressed interest rates and mortgage servicing costs are taken into account when setting income multiples.

Concluding remarks

The mortgage sector is an informative example of how competition and technological developments can increase efficiency in markets and thereby ultimately benefit consumers. The automation of underwriting processes, and the introduction of new tools and techniques, have enabled lenders to process applications more quickly and enter new markets. They have also made it easier for lenders to control their underwriting policies and adjust them according to economic conditions. Techniques such as credit score models produce more consistent decisions, and transparent measurement enables consistency of reporting, control and governance.

The survey indicates that the current trend of automation is likely to continue—a significant number of lenders have indicated that they are considering introducing credit score and affordability models and AVMs.

The most recent innovation is cascade underwriting, introduced by a limited number of lenders. Cascade underwriting means that, rather than simply declining a case if the applicant does not meet the criteria for the deal applied for, the application is cascaded down a lender's range of products. For example, if an intermediary puts a case through for a two-year mainstream product at 5%, but the customer fails to meet the credit score required, the cascade system might tell the broker that its customer would be considered a subprime customer and offered a product with a higher rate instead. Cascading is particularly useful in the sub-prime market, particularly if the lender or intermediary is unaware of the extent of the borrower's credit problems.

This means that automation not only reduces costs but can also result in greater product differentiation and more effective matching of products to customers' requirements. By automatically suggesting other potentially suitable products, a cascade underwriting system can match products to the customer's requirements.

[1] HM Treasury and FSA (2005), 'UK Response to Commission Green Paper on Mortgage Credit in the EU', available at: http://www.fsa.gov.uk/pubs/international/response_mortgagecredit.pdf.
[2] Data from the European Mortgage Federation.
[3] Speech given to the CML by Howard Davies, December 4th 2000, available at: http://www.fsa.gov.uk/Pages/Library/Communication/Speeches/2000/sp66.shtml.
[4] FSA (2004), 'All Systems Go as Mortgage Regulation Begins', press release FSA/PN/091/2004, November.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

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