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INTEGRATING AUTOMATED VALUATION MODELS
WITH VALUATION SERVICES TO MEET THE NEEDS
OF UK BORROWERS, LENDERS AND VALUERS

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About the authors

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Key findings

Automated valuation models (AVMs) are increasingly challenging the services provided by professional valuers for residential mortgage valuation. They have been used in the USA for mortgage valuations for over 20 years and in the UK since 2001. Lenders like their speed and low cost, features particularly attractive in the competitive lending environment preceding the credit crunch. They are however sensitive to the risks incurred by omitting physical inspection. Four companies now provide AVMs in the UK, regularly refreshing their data and testing for consistency and accuracy. In addition, lenders are advised to test systematically by detailed location and property type (Fitch, 2008), to inform AVM valuation policy constraints. The Financial Services Authority (FSA) requires an 'independent valuer' to oversee and sign off these policies.

With funding from the RICS Education Trust and the RICS Residential Professional Group, this research by Mary Lou Downie and Gill Robson of Northumbria University, UK, aims to inform RICS policy development in response to growing AVM use for UK residential mortgage valuations. It looks at the needs of three main stakeholder groups involved: valuers, lenders and the borrowing public. The researchers interviewed lenders and surveyed members of the RICS Residential Property Professional Group.

What were their key findings?

- 22% of valuers responding to the survey had used a commercial AVM, and 14% had used a free web based AVM, whereas 64% had not used either. There were higher levels of commercial AVM use amongst the respondents working for lenders compared to those working for valuation organisations.

- Those who believe valuers can benefit from using AVMs outnumber those who do not by almost 2 to 1. Those in favour of supplementing their valuations with AVMs outnumbered those against the idea, by 39% to 28%, whilst clearly articulating the advantages of their own inspection skills. 70% of respondents expected AVMs to erode valuers' work in the future.

- Only 20% of respondents claimed to have no AVM knowledge, 57% had some knowledge and 24% claimed good or expert knowledge. Those working for lenders are significantly more likely to have good or expert knowledge than those working for valuation organisations. 72% of the respondents expressed willingness to learn more about AVMs.

- AVMs are mainly used within fully automated loan application processing systems incorporating valuation policies which allow AVMs to be used only within certain parameters. However alternative operational models are now evolving whereby valuers appraise or use AVMs outputs.

- A new style of desktop valuation is being developed for valuers, using AVM data and electronic visual data such as Google Street View.

- There is little consumer transparency in AVM use. The complexity of the house buying process creates difficulties in informing consumers about their valuation and survey choices ● ● ●

Introduction

Lenders use AVMs for remortgages and further advances on standard properties, within loan to value (LTV) and other constraints defined by their credit risk management policies. A 2007 Council of Mortgage Lenders (CML) survey suggested about 3% of loans were then processed using AVMs. This was expected to extend in future to include purchases as well as remortgages, but only about 50% of properties were considered suitable. The nature and extent of usage post credit crunch has not been documented. Lenders also use AVMs for portfolio valuations, securitisation and repossessions whilst panel managers use them to audit valuations and demonstrate service quality to clients and professional indemnity insurers.

What is an AVM?

An automated valuation model (AVM) is a software model which uses one or more mathematical techniques to estimate the value of a specified property at a given date. Once initiated, the model selects relevant market data from its database and performs statistical analyses to deliver the output without further human intervention. The output figure is accompanied by a confidence score which is a measure of its accuracy. They are particularly attractive to lenders for mortgage valuations as they can be built into existing electronic valuation processing platforms, to support lower-risk lending decisions. One limitation is that the property is not usually inspected when an AVM is used.

The commercial AVM providers require large amounts of reliable, detailed descriptive data about properties and market transaction prices in order to model the market accurately. Sources include the Land Registry, surveyor and lender valuations and sales agency listings.

Residential mortgage valuation business today is organised around electronic platforms, allowing valuers to receive and complete instructions from lenders in fast turn around times. Lenders can use these platforms to outsource their instructions on a national scale through panel managers who take responsibility for managing the entire valuation process, enabling most lenders to shed their staff valuers. Many valuers now work for organisations with national coverage providing panel management, valuation and other services. At the smaller end of the scale are regionally based or self-employed valuers.

AVMs fit easily into these IT-enabled mass processing systems, and therefore impact on the volume and nature of residential valuers' work. However, in the USA, which leads AVM use, valuers did not drop out of the picture as AVM volumes increased, but used them to enhance their services, or were employed to quality control, check and add value to AVM outputs. This holds clues for what might happen in the UK and the possible future role of valuers in the UK.

RICS Red Book Valuation Standards set out a valuation protocol for traditional mortgage valuations: physical inspection, appraisal and valuation. AVMs raise a whole host of questions in this area, such as whether an AVM is a 'valuation' as defined by the Red Book and whether an 'opinion of value' can only be derived by a person rather than a computer. Regulatory bodies elsewhere have already developed their frameworks to safeguard clients and the public interest in the light of these new services, and it is likely that RICS will need to consider this, as AVM use increases in the UK.

It is also the case that consumers need information to support their choice of valuation, whether for purchase loans, remortgages or further advances, so that they know what they are getting for their money. When lenders use a valuation produced without inspection, consumers should know what an AVM involves, how it impacts on fees and negligence liability, and what their other survey choices are.

The following research questions were explored:

a. How do UK residential valuers use AVMs at present? What differences are there between the involvement of distinct groups of valuers, for instance bank employees, panel and independent valuers? What AVM knowledge and training do they have and who provides it?

b. How do they perceive AVMs at present and what are their expectations of using AVMs in future?

c. To what extent does the public need to be informed about how AVMs fit into the range of valuation and appraisal services? ● ● ●

How was the work done?

The research built on an earlier study of global AVM use that the researchers had carried out for the Council of Mortgage Lenders (CML) in 2007, supplemented by an extensive review of literature from the UK and elsewhere.

The researchers carried out a web-based survey of valuers, investigating their involvement with and perceptions of AVMs. The survey was open for seven weeks to 31st July 2008 and produced 473 valid responses. The questionnaire sample was unavoidably self-selecting and respondents were encouraged to participate even if they had not used AVMs. 97.5% of respondents were in surveying employment, 2.5% being retired or unemployed. The respondents were for the most part competent, middle aged, senior professional members experienced in mortgage valuations and their business context.

The study also sought the opinions of valuers and other stakeholder groups through in-depth semi-structured interviews with:

- Nine individuals at seven valuation and panel management firms during the first half of 2008.

- Credit risk managers and valuation managers with an overview of valuation policy at four banks, some operating more than one lending business, and two building societies, in the second half of 2008. The interviewees' organisations engaged in £123.5bn of lending in 2007, 34% of total gross lending by CML members and ranged from large to small scale operations.

- A representative of the Council of Mortgage Lenders.

- Director-level representatives of all four companies providing UK residential AVMs during the second quarter of 2009.

It was difficult to identify any consumer organisation interested in this issue, so the researchers drew on literature, including websites, to identify current debates in this area ● ● ●

Current AVM providers in the UK

AVMs have been available in the UK since 2001 and there are now four commercial providers. More details are available from their websites:

- Calnea Analytics
  http://www.calnea.com

- Hometrack Data Systems Limited
  http://www.hometrack.co.uk/

- Rightmove plc
  http://www.rightmove.co.uk/data.html

- UKValuation Limited
  https://www.ukvaluation.co.uk/UKVAVM/ PublicPages/home.aspx

Findings

Valuation service levels

A key point to emerge from the lender interviews is that although AVMs have only been available for relatively few years, their use increased rapidly in the period to 2008. However, most valuers have not been using them and full inspection is still their most widespread loan valuation method. As can be seen from figure 1, 44% of respondents said that this represents more than three-quarters of their valuations, while two thirds say

Home Buyers' Report (HBR) instructions are less than 25%. Drive-bys and AVMs are minority instructions. However, this is likely to change. More than half of respondents believed that full inspection instructions have decreased over the previous three years and that drive-bys and AVMs had increased over the same period.

Figure 1: Valuers' experiences of different types of valuation: the most frequent responses.

|	Drive by	Full inspection	HBR	AVM
usage in 12 months to end July 2008	64% say they constitute <10% of valuations	44% say they constitute >75% of valuations	34% say they constitute <10% of valuations	49% say they constitute <10% of valuations
change in share of valuations over the last 3 years	56% say valuations increased ⬆	52% say valuations decreased ⬇	54% say valuations static ➡	51% say valuations increased ⬆

Source: Valuer survey, 2008.

Valuers' use of AVMs

Automatic loan processing systems divert AVM instructions away from valuers, accounting for the fact that 64% of respondents to the survey had not used an AVM at all, while less than 22% had used a commercially provided one. The survey showed higher levels of commercial AVM use and also AVM related activities carrying higher levels of responsibility amongst the respondents working for lenders, than amongst those working for valuation organisations. For example 4% of the survey sample engages in high level AVM policy formation. Although this proportion of respondents is small, their involvement is significant as interviews with lenders showed these policies cover transactions involving very large lending volumes.

It is clear from the survey that valuers acknowledge the market changes and feel that AVMs are not going to go away, with 70% of respondents expecting AVMs to erode their work in the future. Some see this as a threat to be resisted by RICS, others as presenting opportunities to promote alternative services to their clients.

How are things going to change?

The survey showed 39% of valuers favour using AVMs to supplement their valuations, compared to 28% against the idea, as shown in figure 2. Those who believe valuers can benefit from using AVMs outnumber those who do not by about two to one. Although the survey showed many respondents are prepared to consider what AVMs have to offer them, this came with a strong caveat that they should supplement and not replace inspection by valuers. Over three-quarters of the respondents agreed that the lack of a physical inspection inherent in AVMs means that they are inadequate for loan valuation, that surveyors' skills in analysing comparables are a major advantage over AVMs, and that local market knowledge makes surveyor valuations more accurate than AVMs.

Figure 2: Valuers' attitudes to using AVMs (percentage of responses)
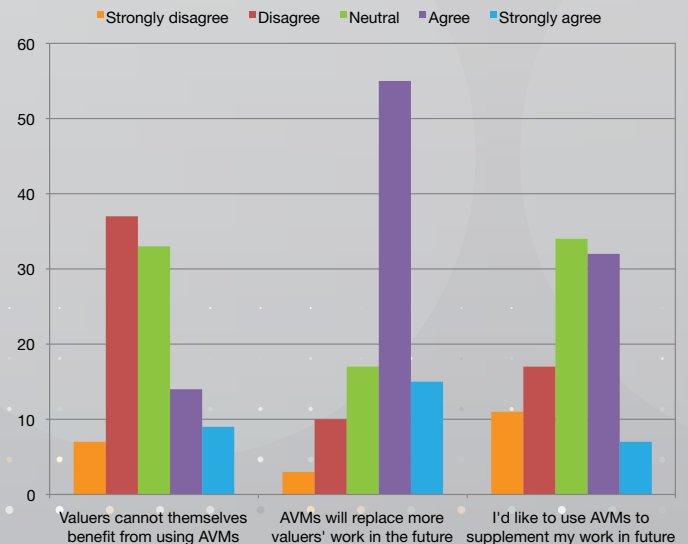
Valuers expressed a range of views about using AVMs, ranging from:

"I think that the RICS should not accept AVMs as a way forward. They are foolhardy… Further more they take work away from valuers and will ultimately destroy the profession".

to:

"the future for both AVMs and valuers is for the two elements to come together - an AVM in the hands of the valuer with relevant expert local knowledge and able to manipulate the data is like 2+2=5!"

Lenders' parameters for using AVMs

Lenders manage the perceived risk of AVMs through setting parameters based on loan to value (LTV) ratios, property type, loan ceilings, value ceilings and confidence scores, the aim being to ensure that AVMs are only used for low risk cases. Some lenders extend these constraints where the AVM outputs are scrutinised by a valuer. Properties are also excluded from AVM use through criteria based on design, size, construction, age, postcode, legal title and location.

Every lender's AVM valuation policy is required by the FSA to be overseen and signed off by an independent valuer to meet the Capital Requirements Directive (European Council, 2006). Interviews showed the extent and mode of day to day operational AVM involvement by valuers. Figure 3 shows the four models UK lenders were found to use, compared to a classification developed by Victoria Zillioux of Strategic Development Worldwide for US hybrid AVM/valuer services, alongside the four models UK lenders were found to use. The first two models do not involve valuers in daily operations. Model 3, on the other hand, involves a very small number of specialist valuers providing a centralised check of AVM outputs for smaller lenders, on the basis that these clients lack the in-house resources to do so themselves. Model 4 involves a larger team of geographically dispersed in-house valuers, checking AVMs locally, in circumstances that are marginally outside the normal constraints for their use. This is a minority activity, sitting alongside their mainstay traditional valuation workload. It is clear from the interviews that valuers involved in Models 3 and 4 provide valuations which rely on their personal valuation expertise as well as incorporating AVM outputs. This matches USA experience, being versions of what might be called a 'desktop valuation'. They constitute new forms of valuer activity, previously undocumented in the UK, raising questions over their coverage by the RICS Red Book.

What is a confidence score?

A confidence score indicates the accuracy of an AVM's estimate of value. A low confidence score may occur when the subject property has more unusual physical features, or is in an area where market data is sparse, making value ranges difficult to model. UK commercial AVM providers use different scales to measure accuracy, which complicates interpretation and comparison.

Confidence measures are usually based on:

• The relevance, quantity and currency of the comparable data on which the output figure of value is based, or

• The forecast standard deviation (FSD) of the individual output, relative to the true value benchmark usually a valuation carried out by a valuer or a sale price.

Findings

Figure 3: Hybrid AVM /valuer products in the USA and the UK

	US Models	Features described by Zillioux (2006)	UK Models	
Valuer Assisted AVMs	Not discussed in Zillioux (2006)		**Model 1: wholly automated loan decisions**	**Desktop valuations**
	ditto		**Model 2: AVM with administrative sense check**	
	a. AVM with desk review	Sense check of AVM Alerts to incorrect value Limited additional research by appraiser Uses appraiser expertise May use local knowledge Can upgrade to higher level valuation if required	**Model 3: outsourced 'surveyor overview'** operated by central valuer. No local knowledge used. Can upgrade to higher level valuation if required	
	b. AVM with additional comparables	As a) above plus: Uses local knowledge Appraiser fully researches and evaluates extra comps Uses offer figures as well as recent sales not yet in AVM database	**Model 4: in-house valuer assisted AVM (VA AVM)** Operated by valuers with local knowledge For cases marginally outside AVM valuation policy constraints. Can upgrade to higher level valuation if required	
AVM Assisted Valuations	c. AVM with appraiser adjustments	As b) above plus: Valuer can consider subjective attributes of the property (e.g neighbouring uses, unusual improvements) Valuer can adjust the AVM figure		
	d. AVM with inspection and photo	Trained technician or appraiser inspects the property Allows for factors external to the property Allows for internal/external condition		
	e. Desktop valuation with AVM engine	Appraiser picks, evaluates and then supplies comparables for AVM to use		

Source: adapted from Zillioux (2006)

Future developments

All four AVM providers in the UK are developing products specifically for use by valuers. One key development is the provision of an enhanced desktop valuation, which will incorporate new electronic visual data such as Google Street View, Microsoft Virtual Earth and oblique photogrammetry. The second area of development is in the field of valuer interactivity, which will allow the selection and modification of comparables.

Valuers' knowledge of AVMs

An obvious starting point is that if valuers are to use these new tools, they will need to understand AVMs. Knowledge levels in the UK are low at present: of the total sample 24% claimed to have good or expert AVM knowledge (including some people who have never used an AVM) and only 10% can interpret individual confidence scores, a very small number of individuals. What did emerge is that those working for lenders are significantly more likely to have good or expert AVM knowledge than those working for valuation companies. However, it is clear that there is a desire to learn, as three quarters of those responding expressed willingness to learn more. RICS was identified as their leading knowledge source, slightly ahead of CPD and employer training. Although RICS's valuation competency includes AVM knowledge for those taking the APC, it does not apply to qualified members.

Professional regulation and guidance in using AVMs

To date, professional bodies in Canada, the USA and Australia have responded to the introduction of AVMs with policy statements, guidance and in some cases by adding to professional standards, possibly reflecting their earlier introduction of AVMs. These, together with AVM guidelines published by other bodies (for example the European Mortgage Federation) should inform any UK guidance on AVM use for mortgage lending. Interviewees felt that RICS should follow the lead of others and develop its own policy statement or modifications to the 'Red Book' Valuation Standards.

Consumers and AVMs

An important issue with increasing use of AVMs is the extent to which consumers know they are being used. The valuer survey and interviews revealed industry perceptions of consumers having low levels knowledge about all survey options, but especially AVMs. Whilst consumer organisations, RICS and lenders provide information on other types of valuation and survey, there is a lack of clear consumer information about AVMs. If in future AVMs are used for purchases rather than remortgages alone better consumer advice about non-inspection surveys will be needed. Although these problems should ideally be overcome by high quality information from lenders, solicitors and estate agents, all parties recognised real difficulties in achieving this and there is no consensus over responsibility for providing it. Using AVMs only for remortgages means there is so far little experience of negligence claims and opinions vary on the need for and responsibility to provide Professional Indemnity Insurance.

Fee transparency for borrowers is required of lenders by the FSA. The fee for an AVM is significantly less than an inspection valuation and it is difficult to know initially when the fee is set, whether a property will qualify for an AVM or not. The problem of fee transparency has so far been overcome by limiting them almost entirely to fee-free remortgages. This situation may change in future if AVMs are adopted for purchases, crystallising this problem ● ● ●

The implications of this research

Based on the research and analysis of international and UK regulations, Mary Lou Downie and Gill Robson drew up five policy options open to RICS:

Option One: making no response

A minority of valuers used the survey to argue RICS should shun AVMs or warn against them as a threat to members' employment. This option, unlikely to be realistic anyway, was overtaken in 2008 when RICS established the AVM Standards Working Group.

Option Two: RICS develops an AVM policy statement

Other national professional bodies initially reacted by issuing a position paper, warning stakeholders about perceived risks of using AVMs relative to traditional valuations and making recommendations. However, UK AVM use is now so extensive that something more substantial than a policy statement may be warranted.

Option Three: publishing a RICS Information Paper on AVMs

An Information Paper on AVMs and desktop valuations would be a valuable educational resource and guide best practice. This is a long term goal of the AVM Standards Working Group but could be given higher priority and CPD material could also be developed.

Option Four: amending RICS Red Book content to cover valuers' involvement with AVMs

The Red Book makes only one minor reference to AVMs. Their existence is barely acknowledged by UK professional guidance although this research shows members already do sign off AVM loan valuation policy and provide individual opinions of value involving AVM outputs. In future new types of desktop valuation are likely to evolve, incorporating AVMs. In view of these innovations, clarifying their status as a professional valuation and inclusion in the mortgage specification would support the interests of members, lenders and consumers.

Option Five: the RICS provides improved consumer information about AVMs

Whilst AVMs are used for fee-free loans, lenders can be discreet about their use. Raising the profile of desktop valuations with the public must involve stakeholders as it has wider implications, and should be coupled with promotion of other survey levels such as the HomeBuyers Report ● ● ●

About the study

Further Information

The full report can be accessed at www.rics.org/research

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