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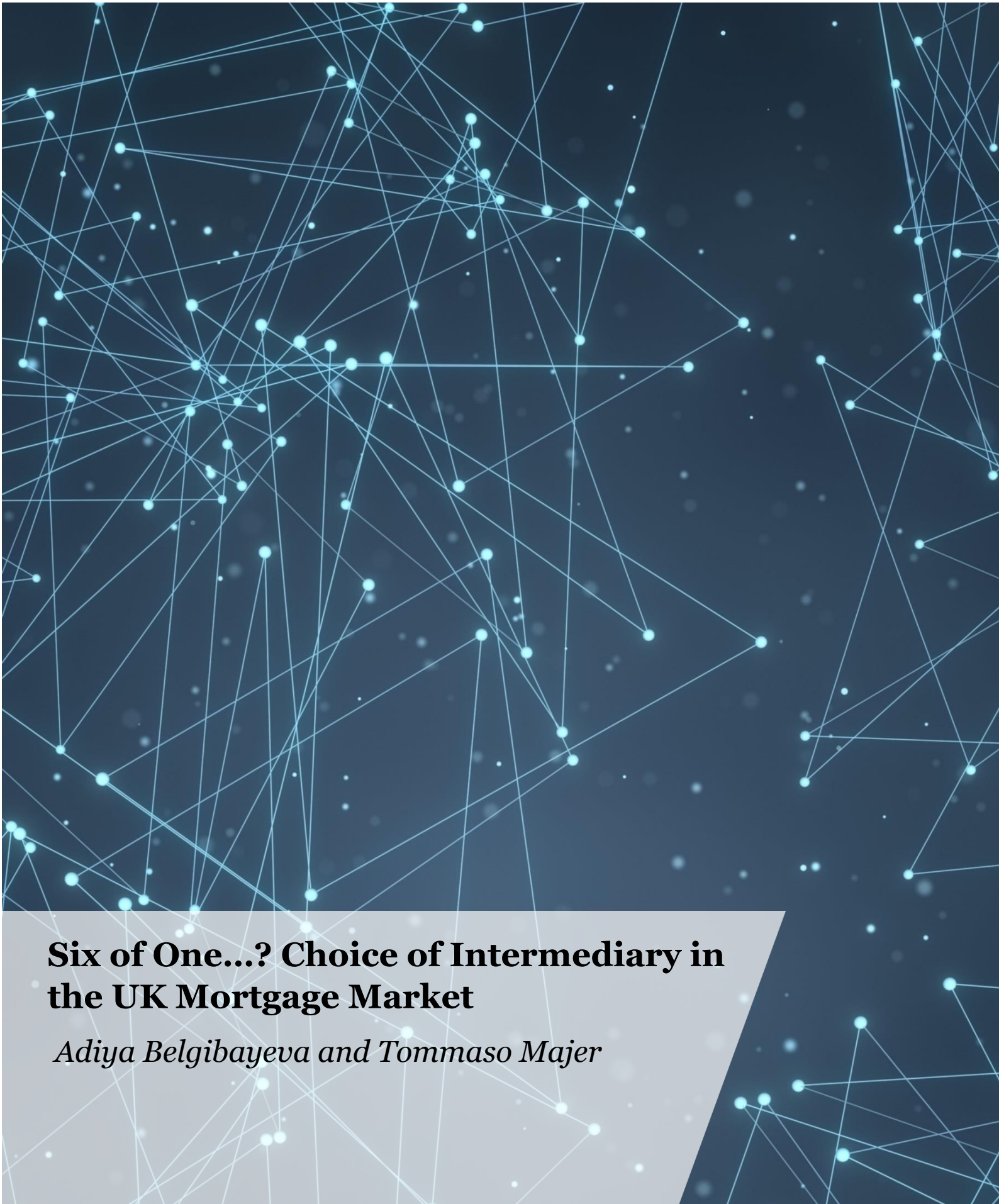

Six of One...? Choice of Intermediary in the UK Mortgage Market

Adiya Belgibayeva and Tommaso Majer

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Table of Contents

Summary

This paper contributes to the FCA mortgages market study by providing evidence of how mortgage price varies across intermediaries and investigating the potential drivers.

We use a novel transactional-level dataset that includes extensive information on borrower, product and property characteristics. We find that the average price of similar mortgage products for like-for-like consumers varies materially across intermediaries. The difference in the average price amounts to about £800 calculated on the median loan size over the two-year introductory period.

We then consider two potential drivers of this price variation: commission lenders pay to intermediaries (called procuration fees) and number of lenders intermediaries use.

- We do not find systematic evidence that intermediaries selling more expensive products also receive higher procuration fees.
- We find significant differences in the number of lenders an intermediary uses. Some intermediaries source products from only a few lenders while others use many. Controlling for borrower, product and property characteristics, we find that, on average, intermediaries that use a greater number of lenders sell cheaper mortgages. Conversely, intermediaries using fewer lenders sell more expensive mortgages on average.

1 Introduction

Purpose

The mortgage market plays a crucial role in the UK economy. It enables hundreds of thousands of consumers every year to buy their homes or to refinance existing mortgages. In 2016 gross lending in the regulated first-charge residential mortgage market was around £300bn. Consumers often rely on intermediaries who guide them through the mortgage application and provide advice. In 2016 over 800,000 borrowers used an intermediary. [1]

In December 2016 the UK Financial Conduct Authority (FCA) launched a market study[2] to investigate competition in the mortgage market. It focused on two broad areas. Firstly, whether available tools (including advice) help mortgage consumers make effective decisions. Secondly, whether commercial arrangements between lenders, intermediary firms and other players create conflicts of interest or misaligned incentives that harm consumers. The FCA published the interim report in May 2018.[3]

This research contributes to the FCA mortgages market study. We use an extensive dataset, which covers mortgage transactions completed between January 2014 and June 2016, as well as a number of product, property and borrower characteristics, such as credit risk and income. We investigate the following three areas:

- Firstly, the FCA mortgages market study found that there is little information available to help consumers assess and compare intermediaries.[4] Some consumers may pay a higher price than others for their mortgage product depending on the intermediary used. Thus we consider **to what extent the average price of similar mortgage products for like-for-like borrowers varies across intermediaries.**
- Secondly, intermediaries receive commission (commonly called 'procuration fees') from lenders for each product sold. If the differences between these procuration fees are large, intermediaries face a conflict of interest. They may be tempted to maximise the income from procuration fees, rather than recommend a cheaper or more suitable product. This may result in some consumers paying a higher price for their mortgage. Thus we consider **whether intermediaries that receive higher procuration fees on average sell more expensive products to consumers.**
- Thirdly, intermediaries need to spend time and resource to identify the right product for the borrower – in terms of price, suitability and likelihood of approval by the lender. Advisors may have to research lending criteria and assess whether borrower circumstances match those criteria. So intermediaries may be tempted to send mortgage applications to fewer, familiar lenders to reduce search costs and/or risk of

[1] See (Financial Conduct Authority, 2018).
[2] See (Financial Conduct Authority, 2017).
[3] See (Financial Conduct Authority, 2018).
[4] See (Financial Conduct Authority, 2018).

rejection. This may result in some consumers paying a higher price for their mortgage. Thus we consider **whether intermediaries that use fewer, familiar lenders on average sell more expensive products to consumers.**

Key findings

The average price for like-for-like borrowers varies materially across intermediaries

We know that mortgage cost can differ because of borrower individual characteristics. For example, if one intermediary sells mortgages to borrowers who are on average riskier, then the price these borrowers pay will on average be higher because of the higher risk. To take this into account, we build a model for mortgage pricing to compare similar products for like-for-like consumers. It captures factors that may have an effect on the mortgage price, such as Loan-To-Value, Loan-To-Income, credit risk and property postcode.

Comparing similar products for like-for-like consumers, we find that borrower choice of intermediary affects the price consumers pay for a mortgage. The difference in the average mortgage price across intermediaries is 27 basis points. This could mean that a consumer may pay £800 more over the two-year incentivised rate period for the median loan amount. Even if we only analyse products sold to 'standard' borrowers, the price difference remains significant.[5]

This is particularly important, given that consumers tend not to shop around for intermediaries and have limited information available to identify and compare the quality of intermediaries (Financial Conduct Authority, 2018).

We also find that intermediaries that sold on average cheaper (or, vice versa, more expensive) products typically continued to do so, ie, some intermediaries consistently sourced lower (or, vice versa, higher) cost mortgages.

In investigating why price varies across intermediaries we consider two potential drivers. The first is the procuration fees lenders pay to intermediaries. The second is the number of lenders each intermediary uses to place business.

There is little evidence that intermediaries selling highly priced mortgages also receive high procuration fees

Procuration fees are typically a percentage of the loan amount. They can include a minimum and maximum amount. Different lenders pay different procuration fees and some lenders pay different procuration fees to different intermediaries. The fee structure is agreed between the intermediary firm and the lender.

We find little dispersion of procuration fees. The difference between the 10^{th} and the 90^{th} percentile is around 0.08%. Calculated on the median loan amount of around £147,000, this results in a gross difference of less than £120. However, specialist lenders that offer products for borrowers with non-standard circumstances and characteristics typically pay higher procuration fees.

[5] The sample of borrowers with standard circumstances is comprised of borrowers who are full-time employed and excludes borrowers with poorer credit history. See details on how we build the sample in Section 3.

We recognise that, offered a range of significantly different fees, intermediaries may choose the products and lenders that pay the most. However, we find little evidence that intermediaries selling highly priced mortgages actually also receive high procuration fees.

In the few cases where this does happen, we do not consider that higher procuration fees adversely affect consumers because other factors may play a significant role. These factors include, for example, unobservable borrower characteristics (such as the length of trading history for self-employed) that may lead intermediaries to recommend a specialist lender.

Intermediaries using fewer, familiar lenders sell on average more expensive products

We find significant differences in the number of lenders that intermediaries use during the period of time we looked at. Even when intermediaries use a similar number of lenders, we observe a range of strategies. For example, some intermediaries concentrate most of their business with a few lenders while others place it more evenly with many.

We control for borrower, product and property characteristics. We find that intermediary firms that place business with a larger number of lenders sell on average cheaper products, while those that use fewer lenders sell on average more expensive products.

We also calculate the proportion of total business an intermediary sources from each lender. A high proportion suggests that an intermediary is familiar with a lender. We find that products sourced from familiar lenders are on average more expensive compared to products sourced from less familiar lenders.

These findings can be interpreted in several ways. For example:

- Intermediaries might be tempted to use a smaller number of lenders to reduce search costs. As a result, they might be unable to pick a cheaper deal because they are using a limited range of products, or
- Intermediaries might use fewer, familiar lenders to minimise the risk of rejection, as they have a better understanding of the lending criteria of particular lenders. They might therefore trade-off the risk of rejection with higher product prices.

In fact, while incentives to match borrowers to a lender that will accept them might be strong, incentives to find the cheapest suitable deal appear weaker.

2 Background

This section provides background information about the UK mortgage market. We start with intermediaries and then we move to lenders, products and structure of procuration fees.

Intermediaries

There are thousands of intermediary firms in the market and they differ in a number of ways. From a regulatory point of view, intermediaries may be Directly Authorised (DAs) by the FCA or may be Appointed Representative (ARs) of a Principal that is directly authorised. DAs are responsible for compliance monitoring and other functions while ARs rely on the oversight of the Principal.

Intermediaries differ by the type of borrowers they tend to serve. For example, there are intermediaries specialising in high-income borrowers, in mortgages on new build properties or operating within specific regional areas.

Intermediary firms also vary in size, measured by volume or value of business. While larger intermediaries may have hundreds of employees, there are also many sole practitioner advisory firms.

Some intermediaries use panels of lenders (ie a list of firms with which one firm expects to do business), the sizes of which vary. Irrespective of whether they operate panels, the number of lenders that intermediaries place their business with varies: some intermediaries source products from a few lenders while others source products from many.

Table 1 shows the number of lenders each intermediary uses. In 2015, around 16% of intermediaries used only one lender and around 33% used between two and five lenders. This is partly due to either intermediaries that are small or the fact that mortgages are not a main business line. If we restrict the analysis to those that sold at least 50 mortgages in 2015, the proportion of intermediaries using five or fewer lenders falls to 4%.

Table 1: Number of lenders used by each intermediary in 2015

	Number of lenders used					
	1	**2-5**	**6-10**	**11-15**	**>15**	**Total**
% of intermediary firms	16%	33%	33%	13%	5%	100%
% of intermediary firms (>= 50 sales)	2%	2%	32%	42%	21%	100%

Source: Product Sales Data, PSD001

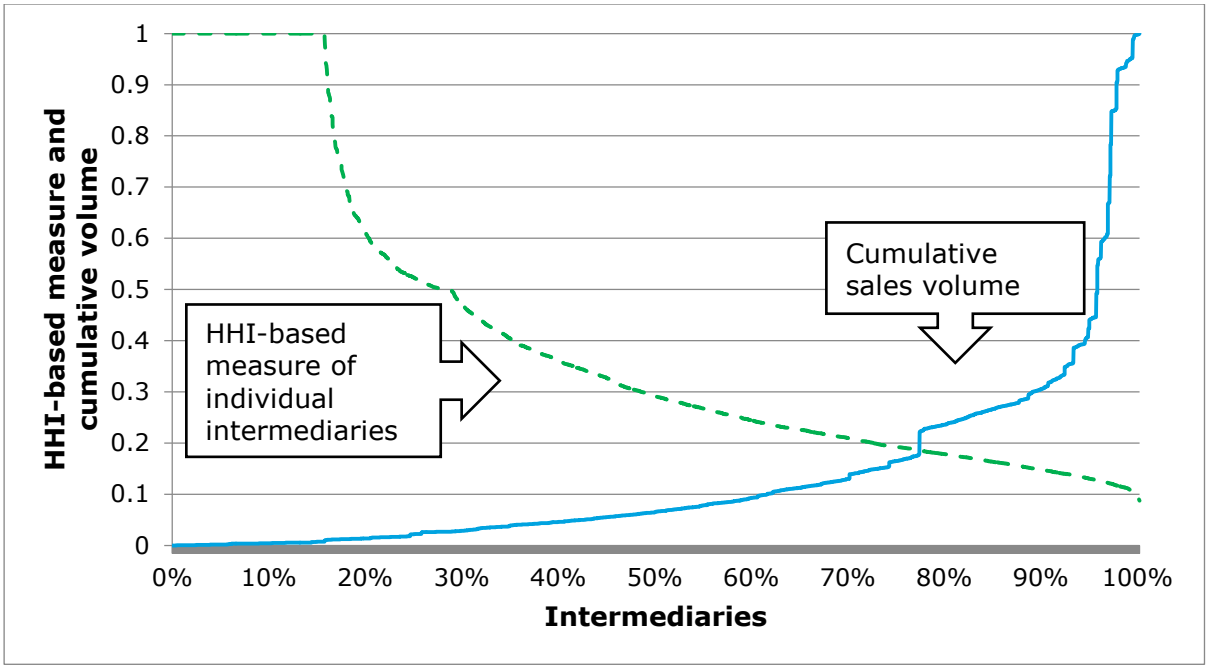
Such differences in the number of lenders used are reflected in how intermediaries spread business across lenders. To assess this, based on the Herfindahl-Hirschman Index

(HHI)[6], we build a measure that takes into account the amount of business placed with each lender. HHI is typically used by competition and regulatory authorities to measure market concentration. However, we use HHI to measure how intermediaries source mortgage business from different lenders. This measure is expected to be inversely related to the number of lenders used; a higher HHI typically indicates that an intermediary uses fewer lenders.

HHI takes values between zero and one. Low values indicate that an intermediary sources mortgages from many lenders, while high values indicate that it places most of the business with few lenders. The HHI-based measure is equal to one when all the products sold by an intermediary are sourced from one lender.

Figure 1 shows how the HHI-based measure varies across intermediaries. Figure 1 also shows that the market for providing mortgage intermediation is very fragmented. Around 62% of intermediaries sold just 10% of all intermediated mortgages in 2015. Smaller intermediaries, with low numbers of sales, typically use a smaller number of lenders on average.

Figure 1: HHI-based measure for each intermediary and cumulative sales volume in 2015



Source: Product Sales Data, PSD001

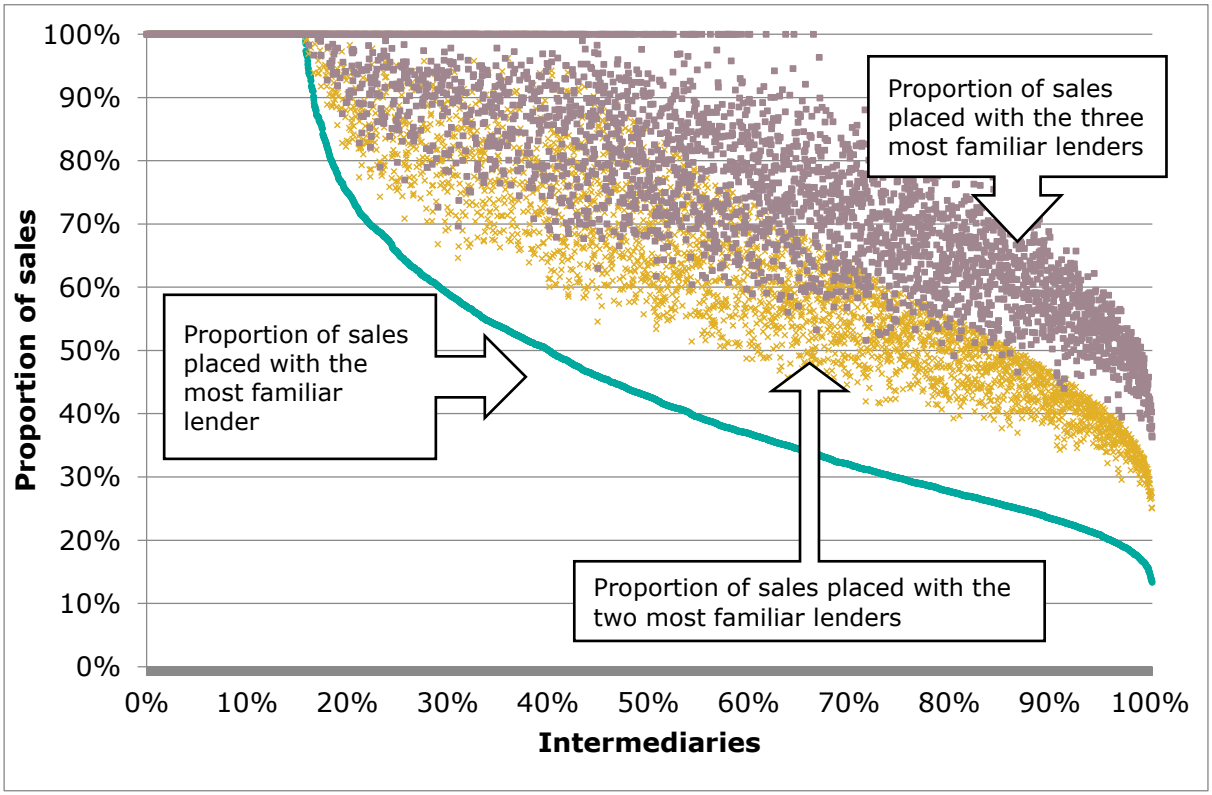
We also calculate the proportion of business an intermediary sources from each lender. A high proportion suggests that an intermediary is familiar with a lender. Figure 2 shows the proportion of sales that each intermediary placed with familiar lenders. We order intermediaries so that on the left of Figure 2 we have those intermediaries that source a large proportion of their mortgages from the most familiar lender and to the right those sourcing a small proportion of mortgages from the most familiar lender.

[6] HHI is calculated as follows $\mathrm{HHI} = \sum_i s_i^2$ where s_i is the market share of firms. While competition and regulatory authorities use HHI to measure market concentration, we use HHI to assess how intermediaries place business across lenders. In our context, s_i is the amount of business placed with lender i by a given intermediary.

The line made up of green circles shows the proportion of business placed with the most familiar lender for each intermediary. As one can expect, the line is downward sloping and mimics the HHI-based measure in Figure 1. Figure 2 shows, for example, that around 50% of the intermediaries source at least 40% of the mortgages they sell from one lender.

We also calculate the proportion of business that each intermediary places with both the two most familiar lenders and the three most familiar lenders. The former is indicated by the yellow crosses and the latter by the brown squares in Figure 2.

Figure 2: Proportion of sales placed by each intermediary with the most familiar lenders in 2015



Source: Product Sales Data, PSD001

Lenders

Borrower characteristics and circumstances vary widely and different lenders may target specific types of borrowers.

Mainstream lenders typically focus on borrowers with standard circumstances and good credit history, or only minor adverse credit. Specialist lenders, instead, typically focus on borrowers with non-standard circumstances, such as complex income sources or poorer credit history. Specialist lenders are also more likely to focus on borrowers with poor credit histories ranging from County Court Judgement to defaults or arrears. Poor credit history is typically captured by the credit score. In 2015 the aggregate market share of specialist lenders was small (around 1% of all mortgage sales).

For example, specialist lenders are more likely to focus on the self-employed. Overall, around 20% of borrowers are self-employed. Among specialist lenders, this rises to 40%. Lending criteria for self-employed vary widely across lenders. For example, specialist lenders are typically willing to lend to self-employed consumers with shorter trading histories.

The higher price of a mortgage offered by a specialist lender typically reflects the higher risk represented by the borrower.

The FCA found evidence that lender criteria and affordability models are opaque. [7] While lending criteria are publicly available, the finer detail may be less clear and the cost of searching across lenders to be certain they will accept the consumer is high.

Intermediaries need to find a suitable deal that the consumer is likely to be accepted for. However, intermediaries are unlikely to have access to the lenders decision-making criteria on credit risk or affordability. In addition to this, intermediaries may not be able to see, for example, the credit score of consumers before sending a mortgage application.

As a result, intermediaries may not know whether a lender with strict criteria will lend to a customer and so may decide to recommend a product from a lender with less strict criteria. This means consumers can get timely mortgage offers, which enables them to buy their chosen property or refinance. The uncertainty is greater for consumers with non-standard circumstances[8] that are more likely to be served by specialist lenders.

Products

Most mortgage products sold in the UK in the relevant period include a short-term introductory deal after which the rate changes to a reversion rate, typically the lender's Standard Variable Rate (SVR). Typically, the introductory deal period lasts two years during which the interest rate is fixed.

The price of a mortgage is a combination of interest rate and fees and it is captured by the Annual Percentage Rate of Charge (APRC). Borrowers may also have to pay fees to intermediaries and other third parties, such as surveyor or conveyancer. Borrowers do not negotiate the terms of the product.

At the expiry of the introductory deal consumers often transfer to a new mortgage product, either with their existing lender or a new lender. The FCA estimated that around three quarters of customers switch to a new deal within six months of moving onto a reversion rate.[9]

[7] See (Financial Conduct Authority, 2018).

[8] Intermediaries could deal with this uncertainty by sending the same application to both mainstream and specialist lenders. In this way borrowers could compare agreements in principle from different lenders and choose the preferred product. However, this may not be always possible and require greater resources and more time. Firstly, a number of lenders are still using hard credit checks for agreements in principles and this may stop intermediaries from sending an application. In fact, hard searches may damage borrower credit score. This will affect in particular intermediaries when dealing with borrowers with non-standard circumstances and may stop intermediaries from shopping around across lenders (For example, see this article from Mortgage Strategy available at https://www.mortgagestrategy.co.uk/lender-aip-hard-checks-divide-broker-opinion/). Secondly, sending the same application to multiple lenders may also raise concern around fraudulent applications. The different result on procuration fees between the two samples (and the positive coefficient of the procuration fees in the full sample) could be consistent with the hypothesis whereby intermediaries may find it difficult to match borrower circumstances to lending criteria. This, in some circumstances, may lead intermediaries to recommend a specialist lender even when this is not necessary.

[9] See (Financial Conduct Authority, 2018).

Procuration fees structure[10]

The structure of procuration fees is agreed between the intermediary firm and the lender.

Lenders typically set procuration fees as a percentage of the loan amount and some also set a minimum and/or a maximum amount. Different lenders pay different procuration fees and some lenders pay different fees to different intermediaries.

Lenders may base their pricing structure on how important the intermediary is to their distribution or the quality of the intermediary's applications. Quality may take into account the ratio of applications that arrive to completion or a fraud measure.

Procuration fees paid by lenders that cater for borrowers with non-standard circumstances are typically higher than those for mortgages for standard borrowers. Anecdotal evidence from intermediaries and lenders suggests that applications from borrowers with less straightforward circumstances, such as the self-employed or contractors with complex income sources, may require intermediaries to collect more information to satisfy lending criteria.

Two large intermediaries equalise the amount that their salaried advisers receive from procuration fees (ie, pay their salaried advisers a set fee as a percentage of the loan, regardless the gross fee paid by lenders), removing this financial incentive.

Contracts between lenders and intermediaries do not allow variations in procuration fees depending on Loan-To-Value (LTV) or the volume of business an intermediary generates. Additionally, mortgage intermediaries in the UK do not typically receive trail commissions (ie commissions paid over the lifetime of the product).

Procuration fees of a number of lenders increased around the end of 2014 and the beginning of 2015. Some firms stated that this happened as a result of the Mortgage Market Review[11] and lenders focusing more on intermediated sales.

The remainder of the paper is organised as follows. Section 3 describes the data we use and the methodology to assess our three hypotheses and Section 4 describes the results. Section 5 concludes.

[10] See (Financial Conduct Authority, 2018).

[11] See FSA Mortgage Market Review final rules (PS12/16) https://www.fca.org.uk/publication/policy/fsa-ps12-16.pdf

3 Research design

Data

We use an extensive dataset which includes a number of borrower, property and product characteristics. Product Sales Data 001 (PSD001), which provides transactional-level data on all first-charge residential mortgages completed in the UK, is matched to the Moneyfacts dataset (that includes additional product characteristics), a credit reference dataset (that includes additional borrower characteristics such as credit score), the Financial Services Register (that includes additional information on mortgage intermediaries) and the HM Land Registry (that includes additional property characteristics). We provide details of each dataset below.

The main source of data is PSD001, which is a regulatory dataset the FCA collects quarterly. PSD001 is a transactional-level dataset that covers all regulated first-charge mortgage transactions in the UK since April 2005. It includes information collected from each lender at point of origination on product characteristics (eg loan amount, property value, mortgage term, interest rate type, initial interest rates and procuration fees), borrower characteristics (eg age, income, employment status) and on the intermediary that sold the product, if relevant.

Data from 2015 onwards is more comprehensive because of changes to reporting fields made between January and June 2015. The dataset before July 2015 is supplemented with a data request to the largest lenders in the market, whose total sales made up over 90% of the market. The data request covers the period January 2014 to June 2015. The additional data request included missing information on interest rate, lender fees, procuration fees and the date when the incentivised rate period ended.

PSD001 is matched to the mortgage MoneyFacts dataset. The MoneyFacts dataset provides additional information on mortgages. The dataset at our disposal covers mortgage products available in the market from 11 October 2011 to 30 November 2016. We are particularly interested in the product characteristics, such as lender fees and initial period of fixed rate for fixed interest rate mortgages, where the PSD001 returns have missing values, and the reversion rate, as that is not recorded in the PSD001 returns.

PSD001 is also matched to credit reference data which include credit score and a number of other variables on borrower credit history (eg past County Court Judgment or other marks in the credit history, such as arrears), on borrower indebtedness and on borrower usage of other financial products (eg whether the borrower holds a Personal Current Account (PCA) with the mortgage lender) at the time the mortgage was taken out. In some cases, this information can affect the price of the mortgage, for example because lenders sometimes offer preferential price to their PCA customers. The credit reference dataset covers the borrowers that completed a mortgage transaction between July 2012 and June 2016.

To supplement our information on intermediaries, PSD001 is matched to the Financial Services Register information on intermediaries' authorisation status (eg whether the intermediary is an Appointed Representative or a Directly Authorised firm) and, if applicable, the name of their directly authorised Principal.

Finally, PSD001 is further matched to the HM Land Registry to include additional property characteristics, such as whether the mortgaged property is a new build or an older property.

APRC-based price measure

We compare mortgage products using an APRC-based price measure that takes into account both the initial interest rate and the fees each consumer paid to the lender to set up their mortgage. As a starting point, we use the definition of the Annual Percentage Rate of Charge (APRC) as described in the Mortgage Credit Directive (MCD), introduced and transposed into the FCA Handbook in March 2016. See Annex 1 for more details on how we calculate the price of a mortgage.

We adjust the APRC by not including the fees paid by consumers to the intermediary. This is because we are interested in assessing the price of products sold by the intermediary rather than the total cost of borrowing for the consumers. Also, given a consumer can pay a lender's fees either up-front or over the life of the loan (ie 'roll-up' the fee), we assume fees are rolled-up.[12]

Finally, we calculate the price of the mortgage using two different time periods: over the initial incentivised rate period and over the mortgage term.

In the baseline analysis, we base our cost measure on the initial interest rate charged over the initial incentivised rate period (eg, two years). This is equivalent to assuming consumers only take into account the initial interest rate and switch to a new deal as soon as or shortly after the mortgage reverts to the reversion rate. In other words, we assume that consumers expect they will have repaid the loan with the original lender in full at the point of remortgaging to another lender.

We follow this approach because we want to assess the price of a mortgage, regardless of consumers' switching decisions. In support of our approach, we also find that the large majority (around 80%) of consumers on fixed and variable mortgages with two-year and five-year incentivised rate period expiring in 2015 either switched to a new product with their existing lender, or redeemed their mortgage.[13]

In Annex 1 we also calculate the cost measure over the mortgage term, including the reversion rate (typically the lender's Standard Variable Rate (SVR)) in the calculations.

Note that our analysis focuses on the price paid by the borrowers and does not assess whether the product sold by the intermediary is suitable or not.

[12] According to the ESRO consumer research (2015) many consumers opt to roll up their product fee into the loan to reduce upfront costs. The research is available at www.fca.org.uk/publication/research/understanding-consumer-expectations-of-the-mortgage-sales-process-esro.pdf.

[13] For more details see (Financial Conduct Authority, 2018).

Sample construction

In this section we provide details on how we construct the sample we use for the analysis.

As our work focuses on intermediaries, we limit the analysis to intermediated mortgages sales, which in 2016 accounted for around 67% of the market.

We exclude equity release mortgages, bridging loans, business loans and mortgages for high net worth individuals. We also exclude offset mortgages, shared ownership mortgages, low start mortgages, mortgages on self-build, shared appreciation mortgages and guarantor mortgages. These types of mortgages account for a small proportion of the market.

We limit the analysis to First Time Buyers, Home Movers and Remortgagors (where there is a change of lender). We exclude Right-to-Buy and other types of borrowers, which account for less than 1% of the market.

We further restrict the analysis to mortgages with capital and interest repayment methods, which account for over 96% of all transactions.

We also restrict the analysis to mortgages with an incentivised rate period of two years. Additionally, we conduct robustness checks on mortgages with a fixed interest rate over an initial period of five years. Mortgages where the interest rate is fixed for two or five years make up the majority of the market – accounting for around 81% of all mortgages sold in 2016. We do not include variable rate products as they represent a small proportion of the market (see Table 2). Moreover, procuration fees for each intermediary-lender pair do not vary by repayment method or by borrower or interest rate type.

Focusing on a specific mortgage type (ie two-year fix with capital and interest repayments) reduces the likelihood that there is unobservable variation in the make-up of the borrower pool. The restriction to two-year fixed deals also has the additional advantage that the initial rate becomes a natural cost measure to consider, given that the vast majority of borrowers re-finance at the end of the incentive period.

Table 2: Number of transactions by type

Total intermediated sales (Jan 2014 to Jun 2016)	1,430,503
Mortgages by borrower types	100%
First Time Buyer	33%
External Switchers	32%
Home Movers	34%
Other borrower types (eg, Right to Buy)	1%
Mortgages by repayment method	100%
Capital and interest	96%
Interest only	3%
Mix of 'capital and interest' and 'interest only'	1%
Mortgages by interest type	100%
Two-year fixed	59%
Three-year fixed	6%
Five-year fixed	22%
Other fixed rate	6%
Other interest types (eg, variable, tracker)	6%

Finally, given that the credit reference dataset only covers transactions until June 2016, we restrict the analysis to mortgages completed between January 2014 and June 2016. We refer to the sample resulting from the above cuts as the full sample.

To run robustness checks, we build a second sample which is a subset of the full sample and excludes mortgages completed by the self-employed and borrowers with poorer credit history. We refer to the second sample as the mainstream sample.

From the mainstream sample we exclude the self-employed because we do not observe a number of important factors about these borrowers (eg the length of the trading history). These factors may affect the likelihood of getting a mortgage and/or the price. For example, specialist lenders are typically willing to lend to borrowers with shorter trading history, so these factors may force some self-employed to use a specialist lender and thus pay a higher price for their mortgage.

We also exclude borrowers with County Court Judgments (CCJ), mortgage arrears, Individual Voluntary Arrangements (IVA), bankruptcy and borrowers with credit score in the lowest 20^{th} percentile.

To ensure the results are consistent, we limit the analysis to those intermediaries and those intermediary-lender 'pairs' that sold at least, respectively, 50 and 30 mortgages over the period. Table 3 shows the different cuts and the number of observations available for the analysis. We conduct robustness checks on the thresholds used.

Table 3: Number of observations

	Cleaned sample[14]	Intermediaries with more than 50 sales (Baseline, Model 1-3)		Intermediary-lender pairs with more than 30 sales at a given level of procuration fees (Model 4)	
	Number	Number	%	Number	%
Full sample					
Observations	782,810	742,018	95%	507,024	65%
Lenders	63	62	98%	31	49%
Intermediaries	4,268	1,068	25%	437	10%
Mainstream sample					
Observations	500,545	461,962	92%	308,769	62%
Lenders	62	61	98%	28	45%
Intermediaries	4,013	707	18%	235	6%

The descriptive statistics for the full sample, after dropping the intermediaries with less than 50 sales, are presented in Table 4. Our full sample includes 742,018 mortgages, sold between January 2014 and June 2016 by more than 60 lenders. The sample includes 288,159 first time buyers, 250,711 external switchers and 203,148 home movers. The median loan amount is around £147,000 and the median income is £46,000. Unsurprisingly, first time buyers have on average smaller loans and lower income while home movers have larger loans and higher incomes.

The median Loan-to-Value (LTV) is around 80% and the median Loan-to-Income (LTI) is 3.4. As one may expect, first time buyers have higher median LTV and LTI than other borrower types. The median age of borrowers in the sample is 34.[15]

The median level of procuration fees paid is around 0.4% of the loan amount. The difference between the 10th and the 90th percentile (respectively 0.33% and 0.41%) is around 0.08%. Based on the median loan amount of £147,000, choosing a product with a high procuration fee instead of a low procuration fee product could result in less than £120 extra in remuneration before tax per sale. This is a measure of the potential gain when selling a high procuration fee product.

[14] This sample includes two-year fixed mortgage products with Capital and Interest repayment sold to First Time Buyers, Home Movers and Remortgagors, after removing non-standard mortgage products and outliers. Overall, the cleaned full and the mainstream samples represent respectively 55% and 35% of all intermediated sales.

[15] If the mortgage is on a jointly basis, the table shows the average age of the borrowers.

Table 4: Descriptive statistics (full sample)

	Number of observations			
Number of observations		742,018		
broken down by	**Borrower type**	First Time Buyers	Home Movers	External Switchers
		288,159	250,711	203,148
	Income basis	Joint	Single	
		426,326	314,761	
	Employment status	Full time	Self-employed	
		665,333	76,685	
	Building type	New build	Older property	
		85,851	634,575	
Variables	**1st quartile**	**median**	**3rd quartile**	**mean**
Price (%)	2.29	2.78	3.71	3.07
Loan value (£)	104,550	147,250	212,329	174,204
Total gross income (£)	32,988	45,795	65,000	54,559
Loan-To-Value	68%	80%	87%	75%
Loan-To-Income	2.65	3.37	4.04	3.32
Mortgage term (months)	264	300	360	316
Age (years)	29	34	41	35
Procuration fees (% of the loan amount)	0.35%	0.40%	0.40%	0.38%

Methodology

In this section we present the methodology to test our three hypotheses. We investigate whether:

- The average price of similar mortgage products for like-for-like borrowers varies materially across intermediaries;
- Intermediaries that receive higher procuration fees on average sell more expensive products to consumers;
- Intermediaries that use fewer, familiar lenders on average sell more expensive products to consumers.

We start by building a model for mortgage pricing that captures factors that may affect the price of the mortgage. To take into account that mortgage costs may vary because of borrower, product and property characteristics, the model controls for a number of factors such as Loan-To-Value, Loan-To-Income, loan size, age, credit risk, whether the lender is the PCA provider and property postcode.[16]

The following baseline specification is fitted to the data[17]:

$$\mathrm{Price}_{\mathrm{libt}} = \theta\, \mathrm{X}_i + \phi\, \mathrm{Y}_p + \gamma \mathrm{Z}_d + \mathrm{f_t} + \mathrm{f_a} + \mathrm{e_{libt}} \qquad \text{Eq (1)}$$

where $\mathrm{Price}_{\mathrm{libt}}$ is the price of the mortgage provided by lender l, sold to borrower i by intermediary b at time t. X_i are borrower characteristics such as age, Loan-To-Income,

[16] See Annex 1 for a comprehensive list of the controls used.

[17] See (Best, Cloyne, Ilzetzki, & Kleven, 2015)) and (Benetton, Eckley, Garbarino, Kirwin, & Latsi, 2017) for alternative pricing models for the UK mortgage market. Our model is richer and controls, for example, for credit score and for whether the borrower has a Personal Current Account with the lender.

credit score and whether the application is on single or joint income basis. Y_p are product characteristics such as Loan-To-Value, mortgage term and loan value. Z_d are property characteristics. f_t are year-month dummies. f_a are dummies for regional areas (using outward postcode[18]). θ, ϕ, γ are the regression coefficients.

We consider four additional specifications (see Table 5), which take into account a combination of time-invariant intermediary specific, lender specific, as well as intermediary-lender pair specific characteristics, which are captured by corresponding fixed effects.

The intermediary fixed effects f_b capture common variation in the price of the products sold by the same intermediary while the lender fixed effects f_l capture common variation in the price of the products of the same lender. The intermediary-lender pair fixed effects f_{bl} capture intermediary-lender specific characteristics, that is, any common variation of the price of the products sold by a given intermediary-lender pair. This includes common variation due to, eg commercial agreements between the intermediary and the lender, such as procuration fees.

In the next section we discuss how we use these models to assess the three hypotheses. In Annex 1 we discuss how much variation is captured by borrower, product and property characteristics. We also compare their explanatory power to the explanatory power of lender and intermediary attributes.

Table 5: Fixed effects used

	Fixed effects	Specification
Model 1	Intermediary fixed effects	$Price_{libt} = \theta X_i + \phi Y_p + \gamma Z_d + f_t + f_a + f_b + e_{libt}$
Model 2	Lender fixed effects	$Price_{libt} = \theta X_i + \phi Y_p + \gamma Z_d + f_t + f_a + f_l + e_{libt}$
Model 3	Lender and intermediary fixed effects	$Price_{libt} = \theta X_i + \phi Y_p + \gamma Z_d + f_t + f_a + f_l + f_b + e_{libt}$
Model 4	Intermediary-lender pair fixed effects	$Price_{libt} = \theta X_i + \phi Y_p + \gamma Z_d + f_t + f_a + f_{bl} + e_{libt}$

To ensure consistency of the fixed effects, in the baseline and in Model 1, 2 and 3 the analysis is restricted to the mortgages sold by intermediary firms that sold more than 50 mortgages. In the model with the intermediary-lender pair specific fixed effects (Model 4), we only analyse the intermediary-lender pairs with more than 30 transactions at a given level of procuration fees. We implement robustness checks on the threshold to ensure results are robust to different cut-off thresholds.

The models are estimated using OLS, with standard errors clustered by intermediary to account correlation in the behaviour of mortgagors using the same intermediary.[19]

How we assess our three hypotheses

We assess how average mortgage price varies by intermediary for like-for-like consumers by calculating the intermediary fixed effects from Model 1. This model controls for borrower, product and property characteristics to take into account factors that may affect mortgage cost. For example, if an intermediary sells mortgages to borrowers who are on average riskier, then the price these borrowers pay for their mortgages will on average be higher because of the higher risk. Therefore, the coefficients of intermediary

[18] The outward code is the part of the postcode before the space in the middle and it is between two- and four-character long.

fixed effects from Model 1 indicate the average mortgage price per intermediary of similar products provided *by different lenders* and sold to like-for-like consumers.

We use two robustness checks. Firstly, we estimate Model 1 on the mainstream sample, which excludes self-employed and borrowers with poorer credit history. Secondly, we calculate the intermediary fixed effects from Model 3. In addition to the control variables in Model 1, Model 3 includes lender-specific characteristics. Therefore the coefficients of intermediary fixed effects indicate the average mortgage price per intermediary of similar products provided *by a given lender* and sold to like-for-like consumers. Model 3 mitigates possible effects from unobserved factors that lead either intermediaries to specialise in certain lenders or some borrowers to prefer a certain lender.

We then investigate the two remaining hypotheses by considering procuration fees and number of lenders each intermediary uses.

We assess these hypotheses by using the intermediary-lender pair fixed effects from Model 4. We are particularly interested in how characteristics of the relationship between intermediaries and lenders (eg contractual level of procuration fees agreed between them or the number lenders used by an intermediary) explain the price dispersion of mortgages across intermediary-lender pairs[20].

The following model is fitted to the data:

$$\widehat{f_{bl}} = a + \theta \, \text{proc fees}_{bl} + \Phi N_b + e_{bl} \qquad \text{Eq (2)}$$

where the $\widehat{f_{bl}}$ is the estimate of the intermediary-lender pair fixed effects for a given level of procuration fee between the pair[21], proc fees_{bl} is the procuration fees paid by lender l to intermediary b and N_b are characteristics of the intermediary (eg, the number of lenders used in a year, HHI-based measure or size of the intermediary). θ and Φ are the regression coefficients. The standard errors are adjusted to be robust to heteroscedasticity.[22]

As a robustness check we estimate this model on both the full and mainstream sample.

[20] For similar methodological approach see, for example, (Foerster, Linnaimaa, Melzer, & Previtero, 2017) or (Linnaimaa, Meltzer, & Previtero, 2017).

[21] Over the relevant period some lenders have changed the level of the procuration fees. Therefore, we observe multiple levels of procuration fees for the same intermediary-lender pair. In the analysis we treat intermediary-lender pairs with different levels of procuration fees as separate fixed effects.

[22] The heteroscedasticity robust standard errors controls for unknown structure of heteroscedasticity in error terms. If there is no heteroscedasticity, the robust standard errors will become conventional OLS standard errors.

4 Results

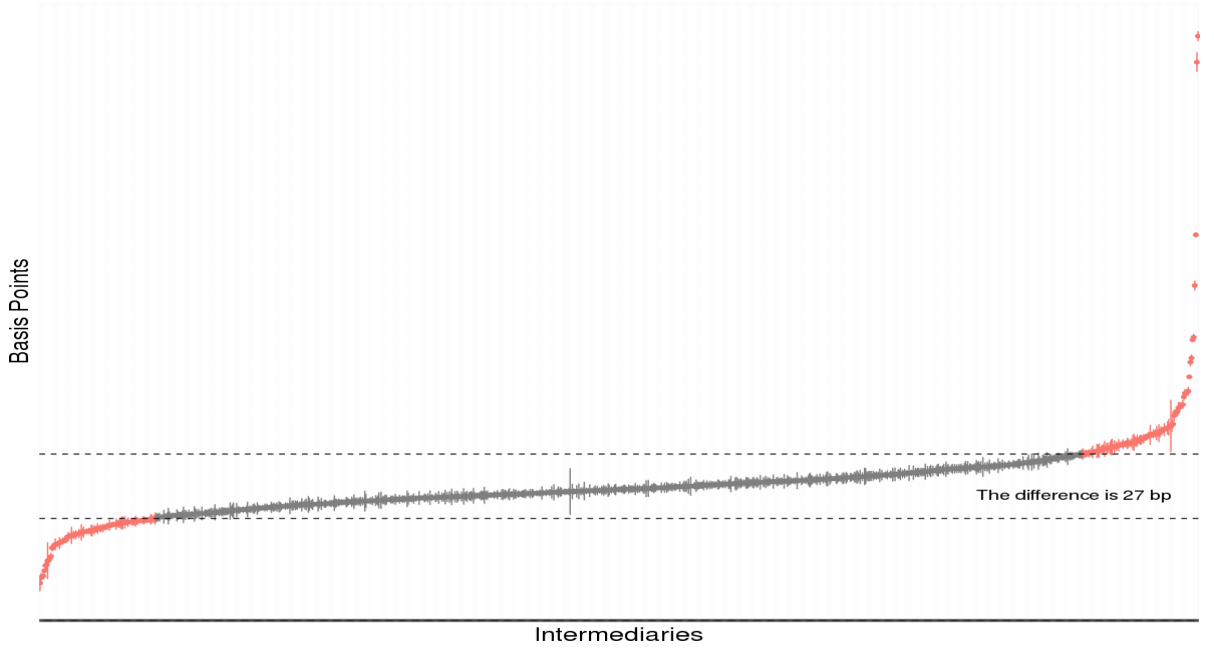
In this chapter we present the assessment of the three hypotheses we investigate. See Annex 1 for a description of the pricing model we developed and a discussion of how mortgage price varies for different consumer, product and property characteristics.

Result 1 - The average price for like-for-like borrowers varies materially across intermediaries

The estimates of the coefficients of the intermediary fixed effects from the model with intermediary fixed effects only (Model 1) are plotted in Figure 3.[23]

Conditional on borrower, product and property characteristics, we find that the price of a mortgage varies materially across intermediaries. Intermediaries on the right hand side of Figure 3 sell on average more expensive products and those on the left hand side sell cheaper products.

Figure 3: Estimates of intermediary fixed effects (full sample)



Comparing the cost of two-year fixed rate mortgages for like-for-like consumers, the difference in the average price between the 10th percentile and the 90th percentile intermediary is around 27 basis points[24]. This represents a 10% price increase over the median mortgage price (which is 2.78% in our sample).

[23] Figure 3 also shows the confidence interval for each individual fixed effect.
[24] The price difference between the 25th percentile and the 75th percentile intermediary is around 12bps. This corresponds to around £346 more for the median loan value. Differences are statistically and economically significant.

Table 6 shows the monetary amount corresponding to 27 basis points for different loan values. 27 basis points correspond to extra £778 for the median loan value over the two-year incentivised rate period (assuming the mortgage is held until the end of the incentivised rate period and consumers refinance after that).[25] The extra payment is around £553 for the 25th percentile loan value and around £1,122 for the 75th percentile loan value.

Table 6: 27 bps correspond to different monetary amounts for different loan sizes

Distribution of the loan value (quartiles and average)	Loan values	27 bps correspond to the following monetary amounts for different loan values
25th	£104,550	£553
50th	£147,250	£778
Average	£174,204	£921
75th	£212,329	£1,122

These findings suggest that the intermediary a consumer uses has a significant impact on the cost of the mortgage.[26][27]

The price variation across intermediaries cannot be explained by characteristics of the borrower, product and property included in the regression in Eq (1), such as Loan-To-Value, Loan-To-Income, credit risk, age, employment status or loan size. Annex 1 gives a comprehensive list of the characteristics included in the regression.

However, there may be characteristics that we cannot observe that may affect the price paid and therefore our results. For example, the price variation may be driven by unobservable factors that lead some intermediaries to choose more expensive lenders or some borrowers may prefer or need a certain lender for reasons that are unobservable to us.

To address this point, we run two robustness checks. Firstly, we calculate the intermediary fixed effects of the Model 1 using the mainstream sample, which excludes self-employed and borrowers with poorer credit history. The variation of intermediary fixed effects in the mainstream sample is smaller, which is to be expected given the more homogenous nature of borrowers in the mainstream sample. However, it is still statistically and economically significant. The difference between the 10th and the 90th percentile intermediary is around 20bps (see Figure 5 in Annex 1).

Secondly, we calculate the price variation across intermediaries of products *of a given lender* sold to like-for-like consumers. In other words, we calculate the coefficient of the intermediary fixed effects from the model with lender fixed effects (Model 3). We find that the price variation between the 10th and the 90th percentile intermediary is around 18bps. For the median loan amount and the median interest rate, the difference amounts

[25] We calculate the additional cost on the median size of the mortgage of around £147,000. £800 is the difference in the total interest paid over the two years period between two products with a 27 basis points difference in the price (ie, 2.78% vs. 3.05%).

[26] We consider whether intermediaries selling cheaper product also charge higher fees to borrowers, as they may compensate for the time and resource they use to find cheaper products. However, we do not find evidence that intermediaries selling cheaper products charge higher fees to borrowers.

[27] We obtain similar results by cutting intermediaries with less than 100 sales.

to £600. This suggests that the price of the same mortgage product provided by the same lender for like-for-like consumers varies materially across different intermediaries.

The evidence of price variation across intermediaries becomes even more important given the evidence of consumers' limited shopping around for intermediaries:

- the FCA's Financial Lives Survey 2017 found that many consumers use only one source of information (from the options given by the survey) to help with their decision making;
- the most common reasons given as influencing the choice of those who have taken out, or switched, a residential mortgage in the last three years, arranged through an intermediary, include recommendations from a friend or relative (29%) or having used the intermediary before and being happy with the service (26%);[28]
- there is very little information or tools available to help consumers identify and compare the quality of intermediaries, making choosing an intermediary difficult.[29]

Persistence of intermediary fixed effects over time

We find that intermediaries that on average sell more expensive products do so persistently over the time period we consider. To assess this, we divide the full sample into two 15-month subsamples. The first subsample includes transactions completed between January 2014 and March 2015. The second includes transactions completed between April 2015 and June 2016. We recalculate the intermediary fixed effects from Model 1 and compare the ranking of intermediaries in the two subsamples.

To ensure consistency of coefficients of the fixed effects, the analysis is restricted to intermediaries that appear in both samples and that sold at least 50 mortgages during in each 15-month period.

Figure 4 shows that more than 40% of the intermediaries that were in the top quartile between January 2014 and March 2015 (ie that on average sold the cheapest products) are also in the top quartile between April 2015 and June 2016. Similarly, more than 40% of the intermediaries in the bottom quartile between January 2014 and March 2015 are also in the bottom quartile between April 2015 and June 2016.

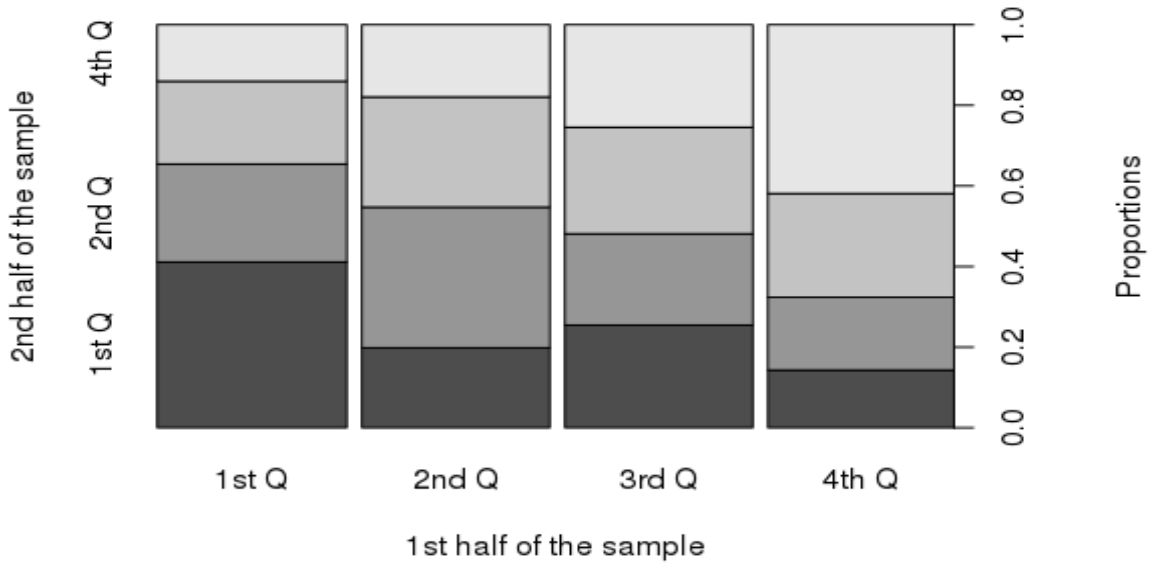
The Spearman's rank correlation coefficient of the fixed effects estimates between the two periods is 0.33 and it is statistically different from zero. This suggests that intermediaries that sold cheaper or more expensive products in one period are likely to continue to do so in the subsequent period. The result holds when using the mainstream sample.

This result suggests that the differences in price across different intermediaries are less likely to be the result of chance. In the next section we investigate two potential underlying economic mechanisms that could drive this price dispersion.

[28] See (Financial Conduct Authority, 2018).

[29] See (Financial Conduct Authority, 2018).

Figure 4: Persistence of intermediary fixed effects (full sample)



What explains this price variation?

We now investigate the two remaining hypotheses by considering procuration fees and number of lenders each intermediary uses.

Table 7 shows the estimates of the regression specified in Eq (2). Procuration fees are expressed as a percentage of the loan amount. The number of lenders intermediaries use is captured by dummies to allow for non-linearity. We run this second step on both the full and the mainstream samples. As explained earlier, the mainstream sample includes borrowers with standard circumstances and excludes borrowers with poorer credit history and complex income sources. The latter type of borrowers is more likely to be served by specialist lenders.

We find that:

- The coefficient of procuration fees is not significantly different from zero when considering the results on the mainstream sample. The coefficient is positive when considering the results on the full sample.
- The coefficients of the dummies capturing the number of lenders are negative in both the full and the mainstream samples.[30] Results indicate that the relationship between price and number of lenders is non-linear. See further discussion on non-linearity below.

The next section discusses these results in detail.

[30] We also run the analysis on the sample resulting from removing intermediary-lender pairs with i) less than 40 sales and ii) less than 10 sales.

Table 7: Drivers of price variability

	Full sample Baseline		Mainstream sample Baseline	
Intercept	-1.7453 0.2699	***	-0.4925 0.3435	
Procuration fees, % of loan amount	4.7752 0.8319	***	0.7612 1.0032	
N. of lenders used by intermediary (between 4 and 8)	-0.0778 0.0261	***	-0.0736 0.0252	***
N. of lenders used by intermediary (between 9 and 12)	-0.2022 0.0407	***	-0.1417 0.0458	***
N. of lenders used by intermediary (between 13 and 16)	-0.2612 0.0607	**	-0.2190 0.0917	**
N. of lenders used by intermediary (between 17 and 20)	-0.1844 0.0668	***	-0.1804 0.0599	***
N. of lenders used by intermediary (more than 20)	-0.1597 0.0587	*	-0.1338 0.0701	*
Tot number of sales of the intermediary, log	-0.0008 0.0101		0.0137 0.0103	
R-squared	20.42%		2.38%	
Number of observations	1,752		1,106	

Standard errors are heteroscedasticity robust and reported below the estimates. *** significant at 1%, ** significant at 5%, * significant at 10%

Result 2 - Little evidence that intermediaries selling highly priced mortgages also receive high procuration fees

In this section we consider the results of the regression in Eq (2) on procuration fees. As described earlier, we find little dispersion of procuration fees over the relevant period.

The result on the mainstream sample suggests that there is no statistically significant evidence that intermediaries receiving higher procuration fees sell on average more expensive products.

We consider that the positive correlation between procuration fees and price in the regression on the full sample may be spurious. The difference in the results between the mainstream and the full sample is driven by products for borrowers with non-standard circumstances or poorer credit history. These borrowers are more likely to be served by specialist lenders.

Specialist lenders typically offer significantly higher initial interest rates and pay higher procuration fees compared to mainstream lenders. Positive correlation on the full sample may be spurious if we do not capture factors that lead consumers to specialist lenders.

For example, we lack of data on self-employed borrowers that may explain why some of them are served by specialist lenders (eg we do not have data on their trading history). Given that the effect of unobservable borrower characteristics on the price of the mortgage is much higher for the non-mainstream borrowers, we consider that conclusions based only on non-mainstream borrowers would be likely to be misleading.

Overall, given that it is unlikely that unobservable factors have a significant impact on the results of the mainstream sample, we conclude from this that there is little evidence

that intermediaries receiving higher procuration fees sell on average more expensive products.[31]

Result 3 - Intermediaries using fewer, familiar lenders sell on average more expensive products

In this section we consider the results of the regression in Eq (2) on the number of lenders each intermediary uses over the relevant period. We observe that different intermediary firms use different numbers of lenders. Some intermediary firms place their business with only a few lenders, while others may use many more.

Results indicate that the average price of the products intermediaries sold over the time period is negatively correlated with the number of lenders used. That is, intermediaries that use a greater number of lenders, also sell on average cheaper products, while those that use fewer lenders sell on average more expensive products.[32] The regression results indicate that the price difference could be as high as 26 basis points, which correspond to around £700 on the median loan amount over the two-year incentivised rate period. Importantly, this result holds when controlling for the size of the intermediary.

Moreover, as a proxy for familiarity we calculate the proportion of business an intermediary sources from each lender. A high proportion suggests that an intermediary is familiar with a lender. We find that products sourced from familiar lenders are on average more expensive compared to products sourced from less familiar lenders. Results in Table 8 show that this does not depend on the size of the lender or on the size of the intermediary.[33]

There may be several interpretations of this finding.

- Intermediaries need to spend time and resource to identify the right product for the borrower – in terms of price, suitability and likelihood of lender approval. For example, advisors may have to research lending criteria and assess whether borrower circumstances match them. Intermediaries may be tempted to reduce search cost by using fewer, familiar lenders. In fact, whilst incentives to match borrowers to a lender that will accept them might be strong, incentives to find the cheapest suitable deal seem weaker. As a result, intermediaries using many lenders may be able to pick a cheaper deal from a wider product offering.
- Intermediaries have incentives to minimise the risk of rejection. By doing so, intermediary firms may trade-off price with reducing the risk of rejection. The use of familiar lenders may lower the risk that an application is rejected and ensure that the

[31] Moreover, we do not find significant differences between intermediaries that equalise procuration fees for their employees, which reduces incentives to recommend a lender based on procuration fees income), and intermediaries that do not equalise procuration fees. In fact, intermediaries that equalise procuration fees have similar fixed effects associated with specialist lenders as intermediaries that do not equalise procuration fees.

It is worth noting that a few mainstream lenders pay procuration fees at similar levels to those of specialist lenders, and we do not observe consumers paying higher prices when using mainstream lenders. Intermediaries that want to increase procuration fee income could do so without using a specialist lender.

[32] By dropping small intermediaries we may underestimate the results on number of lenders, as, on average, small intermediaries place business with a lower number of lenders (see Table 1 on how the cut affects the number of observations).

[33] We define familiarity as the proportion of mortgages sold by intermediary b sourced from lender l, or:

$$\frac{\text{Volume}_{bl}}{\text{Volume}_{b}}$$

Where $Volume_{bl}$ is the volume of mortgages sold by intermediary b sourced by lender l and Volume_{b} is the total volume of mortgages sold by intermediary$b$.

borrower successfully takes out a mortgage. Unfortunately, we do not have data on the number of rejected applications.

The result is robust to different specifications and different measures of lender concentration per intermediary. In particular, we find similar results when replacing the number of firms used with the HHI-based measure. The results of the regression in Table 8 suggest that higher values of the HHI-based measure (which indicate that an intermediary concentrates the majority of the business with few lenders) are correlated with higher average prices.

One could argue that results are driven by borrowers with non-standard circumstances, as the potential for unobservable borrower characteristics that affect the price of the mortgage is much higher for non-mainstream borrowers. For example, borrowers with poorer credit history may use specialist lenders whose products may increase the average price per intermediary. To check this, we run the same analysis on the mainstream sample. Table 8 shows that results are robust. Even using the mainstream sample, intermediaries selling more expensive products use on average a smaller number of lenders.[34]

Interestingly, such tendency of mortgage intermediaries to use a restricted number of lenders has been observed also by the Australian Securities and Investment Commission (ASIC). In 2017 ASIC found that the number of lenders actually providing mortgages may be significantly smaller than the number of lenders on an intermediary's panel.[35] ASIC did not conclude on whether this practice results in higher prices for borrowers.

Non-linear relationship between price and the number of lenders

We find that the difference between the coefficients of the dummies is not significant when the number of lenders used is large. This suggests that compared to an intermediary that is already using a large number of lenders, intermediaries using additional lenders do not sell on average cheaper products. In other words, correlation between number of lenders used and mortgage price tails off when number of lenders is large. See Table 13 for details on the methodology.

We obtain the same result in the specification including the HHI-based measure.

Limitations

Our analysis is based on an extensive dataset which includes a number of borrower, property and product characteristics. Nevertheless, while we have tried to capture as many of the characteristics of borrowers, products and properties as possible, there may be characteristics that we cannot observe that may affect outcomes and therefore our analysis results.

[34] As an additional robustness check we also include lender fixed effects in Eq (2) to control for unobservable characteristics of lenders. The negative correlation between number of lenders and price is weaker but still statistically significant for higher number of lenders bands (ie, intermediaries selling using more than 17 lenders sell on average cheaper products compared to intermediaries using fewer lenders). Note that the interpretation using Eq (2) with lender fixed effects is different, as in this case the coefficient represents the correlation between the number of lenders used by an intermediary and the price of the products of a given lender. Given that some intermediaries place all their business with one lender, lender fixed effects capture part of the effect of the number of lenders used and therefore the correlation is not statistically significant for lower number of lenders bands (ie, less than 17 lenders used).

[35] See (Australian Securities & Investment Commission, 2017).

Results may be affected by borrowers' unobservable characteristics. For example, we do not have information on the wealth of consumers or the length of the trading histories of self-employed borrowers. We mitigate this risk by replicating the analysis on the mainstream sample.

Moreover, we do not know customers preferences, such as changes in employment, plans to start a family or move area, which may have influenced intermediaries' recommendations. For example, borrowers may trade-off price for speed of service, and be willing to pay a higher price to get the mortgage offer as quickly as possible. However, a need for speed cannot explain why consumers use specialist lenders, as these firms tend to take longer to process a mortgage application.

Other unobservable lender characteristics include the quality of customer service, such as brand popularity. We control for whether the mortgage is provided by the PCA provider, as this allows us to take into account the convenience of having several financial products provided by the same firm. However, it is possible that borrowers have a strong preference for a particular lender. We mitigate the risks above by controlling for unobservable attributes of lenders as a robustness check.

Results may also be driven by unobservable characteristics of the property, such as whether the mortgaged property is next to a property licensed for commercial use. We mitigate this risk by using data from the HM Land Registry and PSD001 to control for some characteristics of the property and whether it is a new build or an older property. We also control for the outward postcode. We do not expect unobservable characteristics of the property to significantly affect results.

Additionally, it should be noted that the results are correlations and should not be interpreted as causation. The coefficient of the procuration fees θ in Eq (2) indicates the correlation between procuration fees and price. Procuration fees represent a cost for lenders, which they may pass through to consumers by charging them higher prices. Therefore the coefficient θ may capture potentially two things; the pass-through rate and the role played by intermediaries in recommending products with high procuration fees. If pass-through is positive, correlation between procuration fees on intermediaries' recommendations might be strengthen. Even then, we do not expect that the interpretation of the results and conclusions are affected.

Finally, the analysis is based on the products sold, rather than products available to intermediaries when they make a recommendation. This may affect results, as intermediaries may only recommend, for example, products with high procuration fees or with low interest rates. To overcome this problem, we would need to construct the choice set of each intermediary. However we do not have information on the composition of the panel of each intermediary and the procuration fees paid by each lender. Moneyfacts does not include information on how procuration fees vary across intermediary-lender pairs.

This may move the coefficient of procuration fees either upwards or downwards. In fact, in the data we observe a variety of pricing strategies. Some lenders appear to pay higher procuration fees and charge consumers higher price. Others instead pay higher procuration fees and charge lower prices, potentially in an attempt to gain market shares. Finally, we also observe some lenders paying lower procuration fees and higher prices.

5 Conclusions

As part of the FCA Mortgage Market Study we use a transactional-level dataset that includes detailed information on borrower, product and property characteristics to investigate whether:

- the price of mortgage products varies materially across intermediaries;
- intermediaries that receive higher procuration fees on average sell more expensive products to consumers;
- intermediaries that use fewer, familiar lenders on average sell more expensive products.

We find that the average price of mortgage products sold varies across intermediaries. The difference can be as high as £800 over the incentivised rate period for the median loan amount.

The relationship between borrower and mortgage intermediary is a well-known example of principal-agent problem, where the agent (the intermediary) takes a decision on behalf of the principal (the borrower). In these cases, economic theory suggests that agents may be motivated to act in their own best interest, which may be in conflict with those of their principals. We investigate whether we have evidence compatible with potential conflict of interests.

- While we recognise that, in theory, there is potential for procuration fee bias where intermediaries see large differences in procuration fees across lenders, we find little evidence that intermediaries selling highly priced mortgages also receive high procuration fees.
- We find that the average price of the mortgages an intermediary sells is negatively correlated with the number of lenders used. On average, intermediaries placing business with a greater number of lenders sell cheaper products compared to intermediaries that use fewer lenders.

Table 8: Robustness checks

	Full sample						Mainstream sample					
	Baseline		**Fit1:** Baseline with HHI (instead of n. of lenders)		**Fit2:** Baseline + size of providers and measure of concentration		**Baseline**		**Fit1:** Baseline with HHI (instead of n. of lenders)		**Fit2:** Baseline + size of providers and measure of concentration	
Intercept	-1.7453	***	-1.7878	***	-1.9246	***	-0.4925		-0.4834		-0.7106	**
	0.2699		0.2694		0.2771		0.3435		0.3257		0.3514	
Procuration fees, % of loan amount	4.7752	***	4.7284	***	4.8357	***	0.7612		0.6749		0.8153	
	0.8319		0.8333		0.8313		1.0032		0.9824		1.0035	
N. of lenders used by intermediary (between 4 and 8)	-0.0778	***			-0.0630	**	-0.0736	***			-0.0510	**
	0.0261				0.0256		0.0252				0.0250	
N. of lenders used by intermediary (between 9 and 12)	-0.2022	***			-0.2051	***	-0.1417	***			-0.1431	***
	0.0407				0.0407		0.0458				0.0461	
N. of lenders used by intermediary (between 13 and 16)	-0.2612	**			-0.2926	***	-0.2190	**			-0.2759	***
	0.0607				0.0632		0.0917				0.0937	
N. of lenders used by intermediary (between 17 and 20)	-0.1844	***			-0.2237	***	-0.1804	***			-0.2180	***
	0.0668				0.0702		0.0599				0.0620	
N. of lenders used by intermediary (more than 20)	-0.1597	*			-0.2060	***	-0.1338	*			-0.1859	**
	0.0587				0.0635		0.0701				0.0737	
HHI, 2nd quartile			-0.0076						0.0076			
			0.0349						0.0207			
HHI, 3rd quartile			0.1223	***					0.0908	***		
			0.0383						0.0275			
HHI, 4th quartile			0.1126	***					0.0923	***		
			0.0462						0.0317			
Tot number of sales, intermediary, log	-0.0008		-0.0132		0.0179		0.0137		-0.001		0.0370	***
	0.0101		0.0087		0.0128		0.0103		0.0073		0.0122	
Familiarity between intermediary and lender					0.1156	***					0.1467	***
					0.0355						0.0368	
R-squared	20.42%		19.92%		20.67%		2.38%		1.87%		3.29%	
Number of observations	1,752		1,752		1,752		1,106		1,106		1,106	

Standard errors are heteroscedasticity robust and reported below the estimates. *** significant at 1%, ** significant at 5%, * significant at 10%

Annex 1: Results of the regression and robustness checks

Results of the regression and robustness checks

In this section we present the main results of the regression on the full sample. We have five specifications in total. As explained, each specification has a different combination of intermediaries and lenders fixed effects. Table 9 in Annex 1 shows the regression estimates of the different specifications. We discuss the explanatory power of each combination of fixed effects in Table 10.

Here we only discuss the main results of the regression. Estimates and their interpretation do not vary across specifications, unless it is explicitly stated. Straightforward results (as those on Loan-To-Value) suggest that the econometric model is well-specified.

- Loan-To-Value – As one can expect, the price of a mortgage increases with LTV with greater coefficients for higher LTV bands. The coefficients are economically and statistically significant particularly for high LTV levels. As one can expect, mortgage products with LTV above 85% may be several percentage points more expensive than products with lower LTV.
- Borrower type - All else being equal, a First Time Buyer pay on average more than a Home Mover or a Remortgagor. This result is plausible, as lender may consider First Time Buyers as riskier customers (for example, because it is their first time they take a mortgage out). Another possible interpretation is that borrowers may become familiar with the mortgage process refinancing or taking a new mortgage contract when moving home. All else being equal, Remortgagors pay on average less than Home Movers. One possible interpretation is that the refinancing process is simpler where consumers do not move house. There may also be a smaller focus on price among Home Movers (and First Time Buyers) who trade financial gains in favour of certainty or speed of service.
- Major adverse marks in credit history - We find that borrowers with major adverse marks in their credit history such as a County Court Judgment (CCJ), mortgage arrears or Individual Voluntary Arrangements (IVA) pay on average significantly higher prices for their mortgage.
- Credit scores - We find that borrowers with better credit history pay, on average, a lower price. This is plausible, as clean credit history may give borrowers access to cheaper products.
- Personal Current Account (PCA) - We find that borrowers who hold a PCA with the lender pay on average less for their mortgage. In fact, we observe several large lenders offering preferential rates to their existing PCA customers.[36] Results suggest that the latter effect dominates the former.

[36] Lenders may consider PCA customers less risky, as they may hold more information about them.

- Loan size - The results of the regression also indicate that, on average, larger loan sizes are associated with lower prices. One possible interpretation is that borrowers (or intermediaries on borrower' behalf) who borrow larger amounts shop around more for a good deal or may trade-off unobservable characteristics of the mortgage for a cheaper price.
- Loan-To-Income - We find that the price of the mortgage is correlated with LTI in a non-linear fashion. The average price increases with LTI when it is below 4.5. It then decreases with LTI for mortgages with the ratio above the 4.5. This pattern might suggest that banks lend high LTI mortgages to less risky consumers, resulting in the average price being smaller for these borrowers. The result holds after controlling for consumers' credit scores.
- Joint applications - Joint applicants pay on average higher prices on average than single applicants.
- Self-employed - The coefficient of the self-employed dummy changes sign across specifications. On the one hand, in the Baseline and Model 2, comparing across lenders and keeping everything else constant, self-employed consumers get more expensive deals than non-self-employed. On the other hand, in Models 1, 3 and 4, when controlling for the lender, self-employed consumers get on average a cheaper deals keeping everything else constant. This suggests that there exist some unobserved characteristics that makes self-employed less risky. For example, when interacting the self-employed dummy with credit score, in the Baseline and Model 2 specifications we find that self-employed with higher credit score on average pay a lower price.

  As discussed earlier the amount of accounting information a self-employed is able to provide is one proxy for her riskiness and unfortunately this is an unobservable factor. We know that different lenders have different risk appetite that may result in lending to certain types of self-employed.
- Older borrowers - Keeping everything else constant, we find that older borrowers pay on average higher prices for their mortgage than younger borrowers. Some lenders may have strict criteria on how to take into account retirement income to repay the mortgage and therefore older borrowers may pay, on average, higher prices if they have to use a lender with less strict criteria.
- New build - The model controls for whether the mortgage is secured on a new build property or on an older property. We also interact the new build dummy with LTV, as some lenders have strict LTV criteria for mortgages on new build. We find that mortgages on new build are on average more expensive than those on older properties when LTV is low. For higher LTVs, mortgages on new build result cheaper than mortgages on older property.[37]

[37] Intermediaries take into account additional factors when recommending a lender for a mortgage on a new build property, such as i) Loan-To-Value restrictions (many lenders do not allow for smaller deposits (sub 20%) on new build site), ii) speed to offer (many lenders service levels do not process their applications fast enough to meet the builders exchange of contracts deadlines), iii) over-exposure on a site (lenders typically limit the number of apartments in a new building or neighbourhood), iv) mortgage offer validity (consumers typically buy new build properties several months before they are completed. However, many lenders' mortgage offers are only valid for 3 or 6 months) and v) Governmental schemes (some lenders do not accept borrowers who use government schemes to help home buyers). See the FCA Mortgage Market Study interim report for more details (Financial Conduct Authority, 2018).

- Indebtedness – We control for the amount of unsecured debt borrowers hold. We find that borrowers with higher levels of debt pay on average higher price for their mortgage. Different lenders may have different methods to calculate the disposable income net of debt and, on average, lenders with less strict criteria may offer more expensive products.
- Maturity - Finally, mortgages with longer maturity are likely to have, on average, higher price than shorter maturity.

Table 9 shows the results of the regression.

Table 9: Regression results (full sample)

	Baseline		**Model 1:** lender fixed effects		**Model 2:** intermediary fixed effects		**Model 3:** intermediary and lender fixed effects		**Model 4:** intermediary-lender pair fixed effects	
Intercept	7.758	***	6.823	***	7.633	***	6.678	***	6.8430	***
	0.0684		0.0501		0.0588		0.0454		0.0729	
LTV band, 65%-75%	0.149	***	0.1451	***	0.147	***	0.1438	***	0.1478	***
	0.004		0.0026		0.0038		0.0027		0.0037	
LTV band, 75%-85%	0.4554	***	0.4466	***	0.452	***	0.4446	***	0.4221	***
	0.0045		0.0033		0.0045		0.0034		0.0039	
LTV band, 85-95%	1.346	***	1.343	***	1.341	***	1.339	***	1.3470	***
	0.0087		0.0071		0.009		0.0071		0.0079	
LTV band, >95%	2.329	***	2.456	***	2.329	***	2.455	***	2.4310	***
	0.0114		0.01		0.0114		0.0102		0.0129	
LTI band, 2-3.5	0.0426	***	0.0069	***	0.043	***	0.0056	*	0.0169	***
	0.0041		0.0033		0.004		0.0033		0.0033	
LTI band, 3.5-4.5	0.0376	***	-0.0202	***	0.0389	***	-0.0217	***	-0.0093	**
	0.0049		0.0049		0.0048		0.0049		0.0049	
LTI band, >4.5	-0.0337	***	-0.0945	***	-0.0322	***	-0.096	***	-0.0861	***
	0.0061		0.0062		0.006		0.0063		0.0066	
Loan value, log	-0.3712	***	-0.3432	***	-0.3693	***	-0.3386	***	-0.3285	***
	0.0064		0.0046		0.0055		0.0044		0.0060	
Age, 30-40 years	0.0313	***	-0.0017		0.0306	***	-0.0008		0.0001	
	0.0024		0.0022		0.0025		0.0022		0.0027	
Age, 40-50 years	0.0838	***	0.0235	***	0.0836	***	0.0261	***	0.0309	***
	0.0038		0.0029		0.0038		0.0029		0.0036	
Age, >50 years	0.1268	***	0.0567	***	0.1287	***	0.0616	***	0.0575	***
	0.007		0.0058		0.0067		0.0057		0.0066	
Self-employed, dummy	0.4066	***	-0.037	*	0.398	***	-0.0344		-0.0825	***
	0.052		0.0217		0.0513		0.0216		0.0289	
Credit score	-0.0014	***	-0.000075	***	-0.0013	***	-0.000075	***	-0.000036	**
	0.0001		0.000015		0.0001		0.000015		0.000019	
Credit score*Self-employed, dummy	-0.0008	***	-0.000005		-0.0008	***	-0.000005		0.0001	
	0.0001		0.000044		0.0001		0.000044		0.0001	
Impaired credit history, dummy	0.9088	***	0.0886	***	0.889	***	0.0872	***	0.0292	
	0.066		0.0185		0.0656		0.0185		0.0243	
Home Mover, dummy	-0.1188	***	-0.1257	***	-0.1196	***	-0.1252	***	-0.1442	***
	0.0045		0.0038		0.0044		0.0038		0.0037	
Remortagor, dummy	-0.2921	***	-0.3036	***	-0.2916	***	-0.3008	***	-0.3079	***
	0.0054		0.0043		0.0051		0.0041		0.0047	
Joint income, dummy	0.0481	***	0.0289	***	0.0496	***	0.0281	***	0.0371	***
	0.0027		0.002		0.0025		0.0019		0.0023	
Personal current account, dummy	-0.0262	***	-0.0194	***	-0.0265	***	-0.0196	***	-0.0185	***

	0.0059		0.0023		0.0058		0.0022		0.0021	
Monthly payments unsecured debt	0.000071	***	0.000043	***	0.00007	***	0.000044	***	0.000048	***
	0.000005		0.000003		0.000005		0.000003		0.000004	
New build, dummy	0.11	***	0.1149	***	0.1077	***	0.1065	***	0.1131	***
	0.0102		0.0106		0.0102		0.0118		0.0118	
New build, dummy*LTV band, 65%-75%	-0.0669	***	-0.0519	***	-0.062	***	-0.0486	***	-0.0271	***
	0.012		0.0112		0.0114		0.0105		0.0097	
New build, dummy*LTV band, 75%-85%	-0.2972	***	-0.2677	***	-0.2912	***	-0.264	***	-0.2570	***
	0.013		0.0123		0.0128		0.0123		0.0125	
New build, dummy*LTV band, 85-95%	-0.2289	***	-0.236	***	-0.2272	***	-0.2366	***	-0.1940	***
	0.0317		0.0311		0.0307		0.0301		0.0329	
New build, dummy*LTV band, >95%	-0.1272		-0.2161	***	-0.1179		-0.2115	***	-0.2116	*
	0.0848		0.0795		0.0896		0.081		0.1278	
Mortgage term	0.0008	***	0.0008	***	0.0009	***	0.0008	***	0.0009	***
	0.000032		0.000024		0.000031		0.000024		0.000030	
N. of observations	525,038		525,038		525,038		525,038		376,926	
Intermediary FE	no		no		yes		yes		no	
Lender FE	no		yes		no		yes		no	
Intermediary-Lender FE	no		no		no		no		yes	
Postcode FE	yes		yes		yes		yes		yes	
Month and Year FE	yes		yes		yes		yes		yes	
R-squared	59.24%		70.07%		59.54%		70.15%		70.27%	

Standard errors are clustered at intermediary level and reported below the estimates. *** significant at 1%, ** significant at 5%, * significant at 10%

We now discuss the role of lender and intermediary attributes in explaining price variation in the full sample. We do so by firstly assessing the explanatory power of different combinations of intermediary and lender fixed effects. Table 10 shows that borrower and product characteristics explain around 59.24% of the variation. The explanatory power of lenders attributes is large. Lender fixed effects explain an additional 10.73% of the variation. This is expected, as lender attributes capture different business models including different funding costs and distribution strategies, as well as whether these banks are specialist or mainstream lenders.

Intermediary attributes explain a smaller proportion of the variation, adding around 0.3% to the adjusted R-squared. Nevertheless, the tests on joint significance of the intermediary fixed effects, comparing with models with lender fixed effects and without lender fixed effects, are statistically significant. The marginal explanatory power of the intermediary fixed effects suggests that they do not capture the lender fixed effects. That is, intermediaries are not perfectly matched to lenders. This means that, for example, there are no intermediaries that specialise only in specialist providers, otherwise intermediary fixed effects would capture characteristics of the specialist lender and its explanatory power would be larger.

Table 10: Explanatory power of intermediary and lender attributes (full sample)

Intermediary FE	Lender FE	Adjusted R-squared
No	No	59.24%
Yes	No	59.54%
No	Yes	70.07%
Yes	Yes	70.15%
Intermediary-Lender pair FE		
Yes		70.27%

The additional explanatory power of the lender fixed effects in the mainstream sample (see Table 11) drops from 13% to 1.8%. This result is plausible given the sample construction, as the mainstream sample includes more homogeneous consumer characteristics. The intermediary fixed effects add to explanatory power only marginally, but remain jointly statistically significant.

In the remaining of the section we present further robustness checks on the specification of the baseline regression.

Results using the mainstream sample

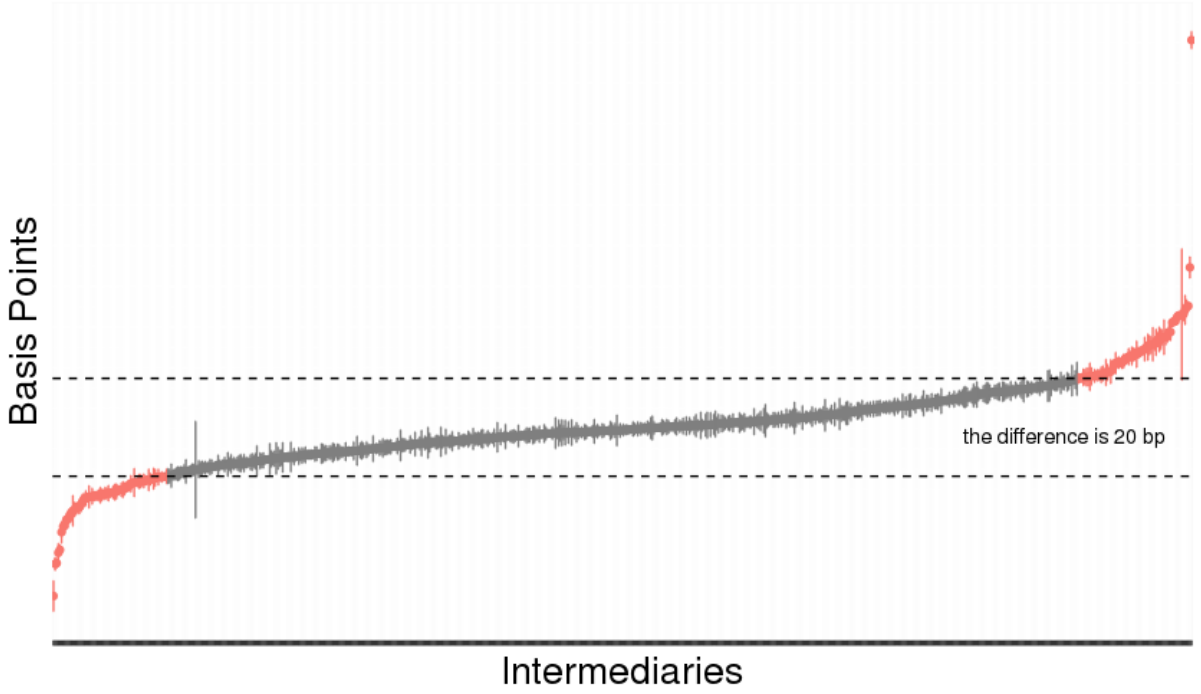
Table 11 shows the explanatory power of intermediary and lender attributes in the regression using the mainstream sample. As discussed above, lender fixed effects have a smaller explanatory power because of the construction of the sample.

Table 11: Explanatory power of intermediary and lender fixed effects (mainstream sample)

Intermediary FE	Lender FE	Adjusted R-squared
No	No	64.00%
Yes	No	64.17%
No	Yes	68.32%
Yes	Yes	68.41%
Intermediary-Lender pair FE		
Yes		69.40%

Figure 5 shows the variability of intermediary fixed effects on the mainstream sample. The variation of intermediary fixed effects in the mainstream sample is smaller than using the mainstream sample but still economically significant. The difference between the 10th percentile and the 90th percentile intermediary is around 20bps.

Figure 5: Estimate of the intermediary fixed effects (mainstream sample)



Finally, we present here the results on the regression in Eq (2). Table 8 shows how the result on the number of lenders used by intermediaries does not rely on the borrowers with non-standard characteristics (that are more likely to use a specialist lender). In fact, even in the mainstream sample, intermediaries using fewer lenders sell on average more expensive products.

Results for five-year fixed vs. two-year fixed products

We run the same analysis on five-year fixed rate mortgages. Results do not change significantly.

- We find a significant mortgage price variation across intermediaries, which is persistent over time. The correlation coefficient of the fixed effects estimates when we split the sample into two subsamples is 0.63 and it is statistically different from zero.
- We do not find evidence that intermediaries selling more expensive mortgage products also receive higher procuration fees. In particular, we find that the coefficient of the procuration fees is negative and significant. One possible interpretation for this result is that lenders that want to increase their market share may use either low price for consumers or high procuration fees for intermediaries. This result is consistent with the hypothesis whereby some lenders use both these instruments to increase market share.
- Finally, we find that intermediaries that use a large number of lenders sell on average cheaper mortgage products.

Price measure and APRC formula

In this section we provide more details about the methodology to calculate the price measure, including sensitivity checks on some of the assumptions used.

According to the MCOB 10A.2.1, the APRC is the total cost of the credit to the consumer and defined as the annual rate of charge which equates, on an annual basis, the total present value of drawdowns on the one hand and the total present value of repayments and payments of charges on the other.

Given that we are interested in calculating the cost for the two-year fixed mortgages and the drawdown of funds happens once when the mortgage is completed, under the assumption of rolled-up fees the mathematical formula of the APRC based price is:

$$\mathrm{C} = \sum_{\mathrm{i}=1}^{23} \mathrm{D}_i(1+\mathrm{X})^{-\mathrm{i}} + \mathrm{D}_\mathrm{f}(1+\mathrm{X})^{-24}$$

where:

- C is the total amount of credit excluding lender fee,
- X is the APRC based price measure,
- D_f is the last payment for the 24th month and it is the outstanding capital to repay,
- D_i is the monthly payment (constant for 23 months) calculated using the following formula:

$$\mathrm{D} = D_i = \frac{(\mathrm{C}+\mathrm{f})(1+\mathrm{r})^{\mathrm{n}}}{\mathrm{r}(1+\mathrm{r})^{\mathrm{n}}}$$

where:

- r is the initial interest rate in monthly terms (since mortgage is repaid monthly),
- n is the number of monthly instalments,
- f is the lender fee,

To calculate annual cost of mortgage (APR), the following formula is applied:

$$\mathrm{APR} = (1+\mathrm{X})^{12} - 1$$

Results using the price measure that takes into account the reversion rate

In this section we discuss an alternative price measure that takes into account the reversion rates (which is typically the Standard Variable Rate) and it is calculated over the whole term of the mortgage. This is equivalent to assume that the mortgage product is held until maturity.

The price measure taking into account the reversion rate is fitted to the Baseline and Models 1-4. Table 12 presents the adjusted R-squared of each specification. We find that only 17% of the variation of the measure is captured by borrower, product and property characteristics. This is significantly lower than the adjusted R-squared of the regression using the price measure that takes into account only the incentivised rate (around 60%).

Table 12: Adjusted R-squared of different specifications using the price measure that includes the reversion rate

Intermediary FE	Lender FE	Adjusted R-squared
No	No	16.76%
Yes	No	18.57%
No	Yes	91.70%
Yes	Yes	91.73%
Intermediary-Lender pair FE		
Yes		93.33%

The adjusted R-squared increases to more than 90% when the model controls for lender-specific characteristics. In other words, lender attributes explain around 75% of the price variation (compared to around 11% in the regression using the price measure that takes into account only the incentivised rate).

This may be because of several reasons.

- Firstly, reversion rates are typically significantly higher than the rate charged during the initial period.
- Secondly, given that the mortgage product is assumed to be held until maturity, the effect of the reversion rates on the price measure is very prominent and makes the level of the initial rate negligible.
- Thirdly, lenders typically have one (or a few) reversion rates for all their products. This suggests that lender-specific characteristics capture the effect of the reversion rate.

As a result, lender attributes explain most of the price variation while borrower, product and property characteristics explain very little.

Furthermore, while the measure implicitly assumes that a borrower holds the product until maturity, we observe that this is not true. In fact, the FCA found that the large majority (around 80%) of consumers on fixed and variable mortgages with 2 year and 5 year incentivised rate period expiring in 2015 either switched to a new product with their existing lender, or redeemed their mortgage.

All the above suggests that the price measure including the reversion rate does not properly capture the price of a mortgage.

Non-linear relationship between price and the number of lenders

Table 13 reports the difference between coefficients of the dummies of the number of lenders used. We also report the F-test statistics to check whether the differences are statistically different from zero.

Table 13: F-test to assess whether the dummies on number of lenders are statistically different from each other (mainstream sample)

		Number of lenders				
		5-8	**9-12**	**13-16**	**17-20**	**>20**
Baseline, Number of lenders	**5-8**		-0.0681**	-0.1454*	-0.1068**	-0.0602
			(4.25)	(3.46)	(5.54)	(1.04)
	9-12			-0.0773	-0.0387	0.0079
				(1.78)	(2.07)	(0.02)
	13-16				0.0386	0.0852
					(0.61)	(1.26)
	17-20					0.0466
						(0.73)
	>20					

*** significant at 1%, ** significant at 5%, * significant at 10%

Annex 2: Contribution to the literature

This paper contributes to the empirical literature on search and financial advice.

A large body of literature investigates the drivers of poor broker advice on investment products.[38] One strand of this literature investigates whether commissions lead to poor advice by creating incentives for advisors to recommend products that are not in the best interest of consumers. See, for example, (Christoffersen, Evans, & Musto, 2013) or (Barber, Odean, & Zheng, 2005).

The literature on the impact of commissions on recommendations of non-investment products is smaller (see, for example, (Anagol, Cole, & Sarkar, 2017) on the impact of commissions on recommendations on life insurance products). In particular, while we are not aware of any academic work on the impact of commissions on mortgage recommendations, this is an important topic for regulatory authorities. For example, in 2009 the FSA did not find evidence that the remuneration model and potential commission bias in the mortgage market caused poor outcomes.[39] In 2017 ASIC conducted a review of mortgage intermediary remuneration and found that upfront commission may represent a way to increase loan flow.[40]

Another strand investigates how poor advice is a result of recommending the same product to all consumers, as advisors may have incentives to reduce search costs and not to shop around extensively for the best product. For example, (Foerster, Linnaimaa, Melzer, & Previtero, 2017) use data from the Canadian retail investment market and find that advisors sell clients similar portfolios, independently from their clients' risk preference and stage in the life cycle. They also find that the advisor's own portfolio is a good predictor of what portfolio her clients hold.

We contribute to both strands of the literature by providing the first assessment so far of the extent to which of procuration fees and the number of intermediaries lenders are associated with the price consumers pay for a mortgage.

[38] See (Inderst & Ottaviani, Financial Advice, 2012) and (Inderst & Ottaviani, Competition through Commissions and Kickbacks, 2012) for a theoretical framework.

[39] See (Financial Services Authority, 2009) available at https://www.fca.org.uk/publication/discussion/fsa-dp09-03.pdf

[40] See (Australian Securities & Investment Commission, 2017) available at http://download.asic.gov.au/media/4213629/rep516-published-16-3-2017-1.pdf

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