Diversity in Financial Services, Mixed Oligopoly and Social Welfare

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Outline

1. Theoretical Models of Oligopoly

2. Mutuals and Mixed Oligopoly
   - Predictions and hypotheses

3. Data Analysis and Model Estimation

4. Conclusions and Policy Implications

Models of Competition in Banking and Financial Services

- Competition between firms or banks is usually modelled assuming banks aim to maximise profits or shareholder returns
- A common result from these models is the predication of a positive relationship between market structure (measured by 1/n, C5 or the HH index), pricing and profitability
- As market concentration increases the prices of financial services, and the price-cost margin, rise

Adding Mutuals into the Model

- Mutuals differ from banks in their behavioural objectives
- Whereas banks maximise profits, mutuals aim to maximise their members' welfare
- Standard oligopoly models are therefore not appropriate for financial services markets with mutuals
- We need a mixed oligopoly approach that accommodates the different behavioural objectives of banks and mutuals

Mixed Oligopoly Models

- Traditionally mixed oligopoly models are used to model markets characterised by a mix of private- and public-owned firms
- Problem with that analysis is that the government's objective is not always clear, though it is generally assumed to be welfare max. e.g. government aims to make a normal rate of return
- But some models allow government to deviate from this assumption and allow for NPLs made for political reasons

A Mixed Oligopoly Model with Mutuals

- Modelling banks and mutuals in a mixed oligopoly framework is more clear cut than in the govt. case as the objective function of mutuals is maximising members' welfare
- Plus mutuals face real budget constraints
- Assuming costs are the same across banks and mutuals, and no constraints of deposit raising capacity, the whole market would go to mutuals, as they would price competitively and make normal returns
- But with constraints on deposit raising e.g. geographic, switching costs *etc* the market remains mixed with differential pricing and profitability
- Banks charge higher rates and have higher margins (mortgage rate-deposit rates spreads)

Results from Mixed Oligopoly Model with Banks and Mutuals

Capacity constraints result in a mixed market with the following characteristics

1. Banks charge higher rates on loans/ mortgages than Mutuals
2. Banks offer lower deposit rates than Mutuals
3. Banks have higher mortgage-deposit rate spreads than Mutuals

Competition and Diversity Effects

- **Competition Effect:** the higher the degree of market concentration, the higher the bank mortgage-deposit rate spread
- **Diversity Effect:** the higher the share of mutuals (diversity) the lower the bank mortgage-deposit rate spread
- For mutuals the mortgage-deposit rate spread is unaffected by competition or diversity (can still be affected by costs, risk etc)

Michie-Oughton (2013) Corporate Diversity Index

We define z corporate types or species and define the corporate diversity index as the share of deposits δ_i that belongs to each type:

$$CD_d = 1 - \sum_{1}^{z} \delta_j^2$$

We do the same for mortgages:

$$CD_m = 1 - \sum_{1}^{z} \mu_j^2$$

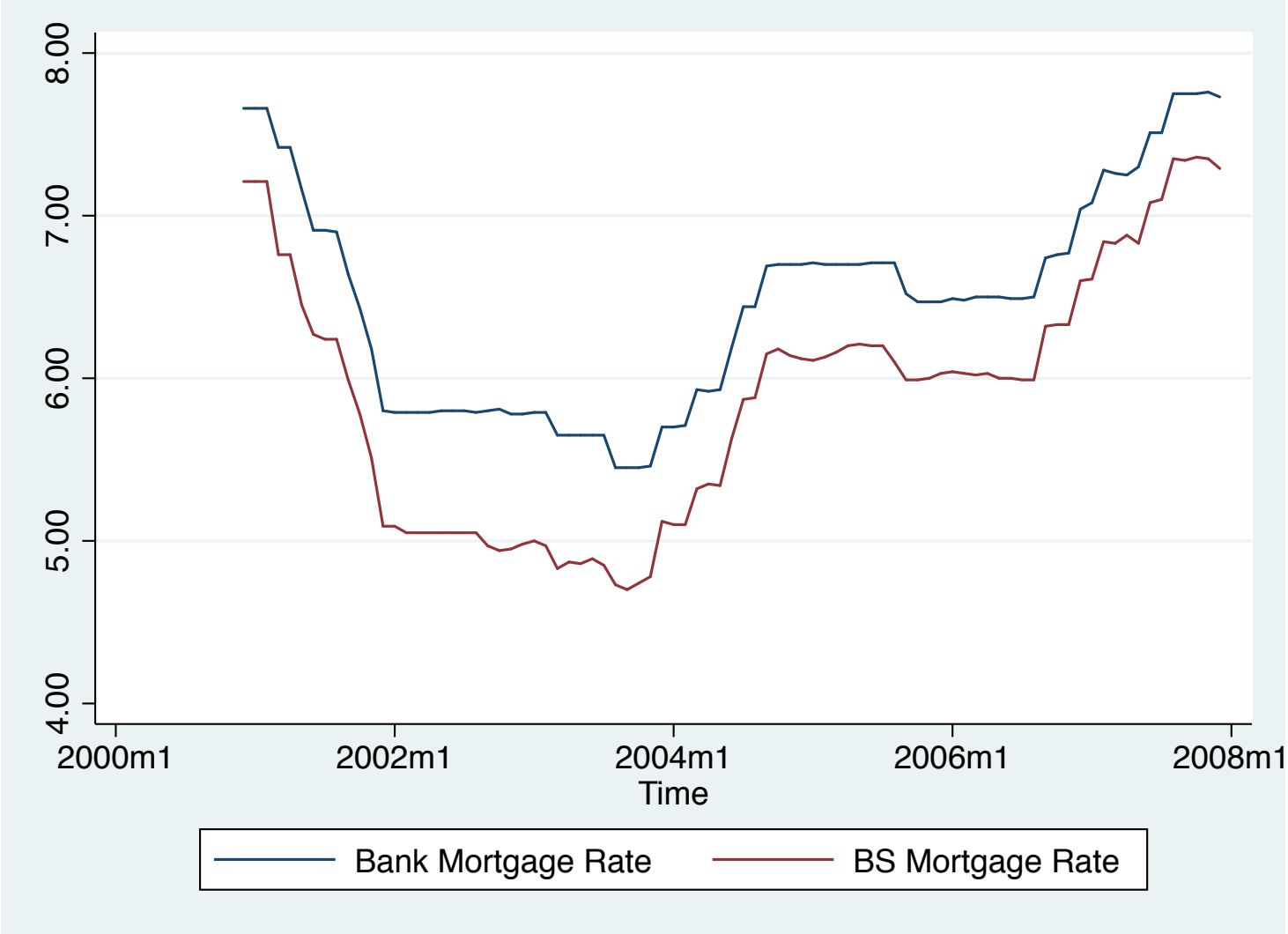
Mixed Oligopoly: Banks and Mutuals Model Predictions/Hypotheses

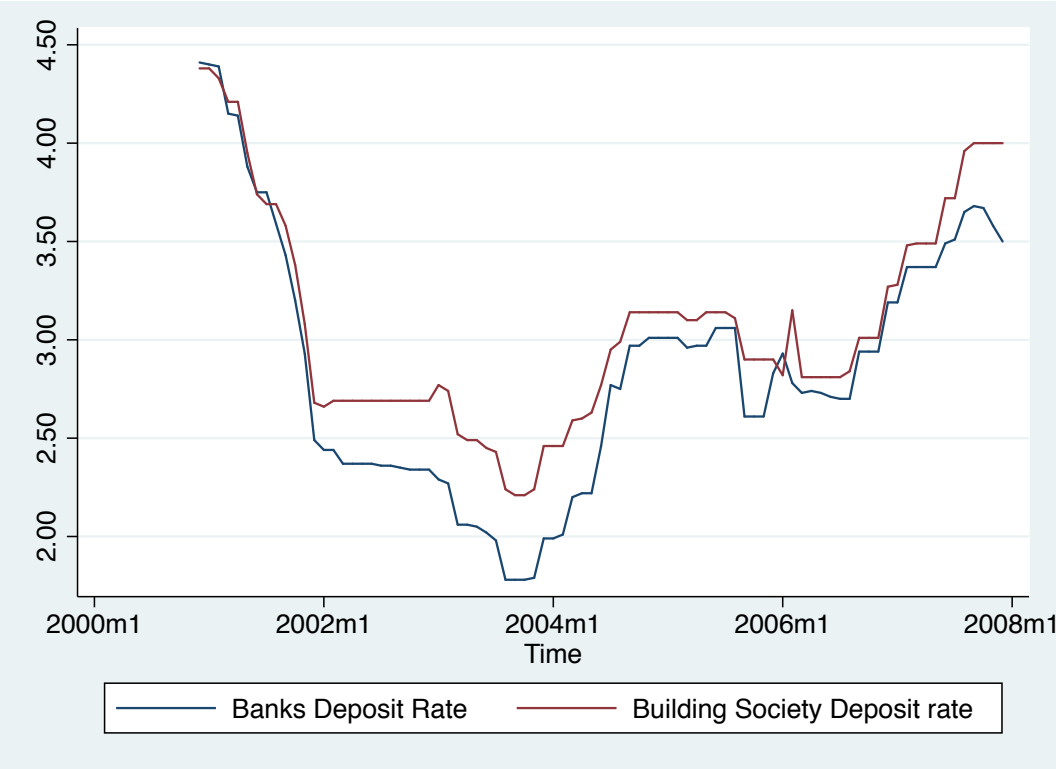
1. Bank Mortgage Rate (MR) > Mutual Mortgage Rate
2. Bank Deposit Rate (DR) < Mutual Deposit Rate
3. Bank MR-DR Spread > Mutual MR-DR Spread
4. Corporate Diversity and Bank MR-DR Spread are negatively related
5. Market concentration and Bank MR-DR Spread are positively related

Variables and Data

- Mortgage Rates (2 rates): weighted average interest rate, standard variables rates for Banks *and* for Building Societies
- Deposit rates (2 rates): average weighted interest rate, time deposits for Banks *and* for Building Societies
- Herfindahl Index Mortgages: based on market share data of the top *c.* 30+ lenders covering over 95% of the market
- Herfindahl Index Deposits: based on market share data for UK retail deposits for top *c.* 20+ 93-97% of the market
- Corporate Diversity Index Mortgages: Michie-Oughton CDm Index of Mortgage Balances Outstanding for banks and BSs
- Corporate Diversity Index Deposits: Michie-Oughton CDd Index based savings deposits of banks and BSs

Figure 1 Bank and Building Society Mortgage Rates




4.50
4.00
3.50
3.00
2.50
2.00
2000m1
2002m1
2004m1
2006m1
2008m1
Time
Banks Deposit Rate
Building Society Deposit rate

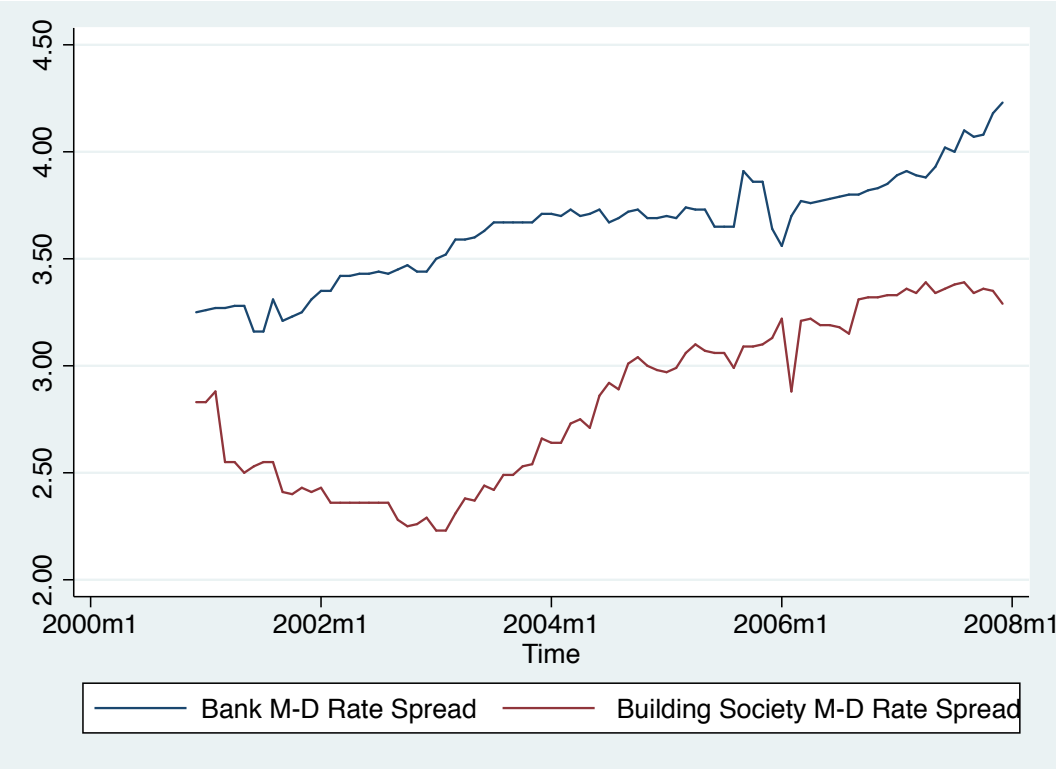

4.50
4.00
3.50
3.00
2.50
2.00
2000m1
2002m1
2004m1
2006m1
2008m1
Time
Bank M-D Rate Spread
Building Society M-D Rate Spread

Figure 4 Bank and BS Spreads and Corporate Diversity Index

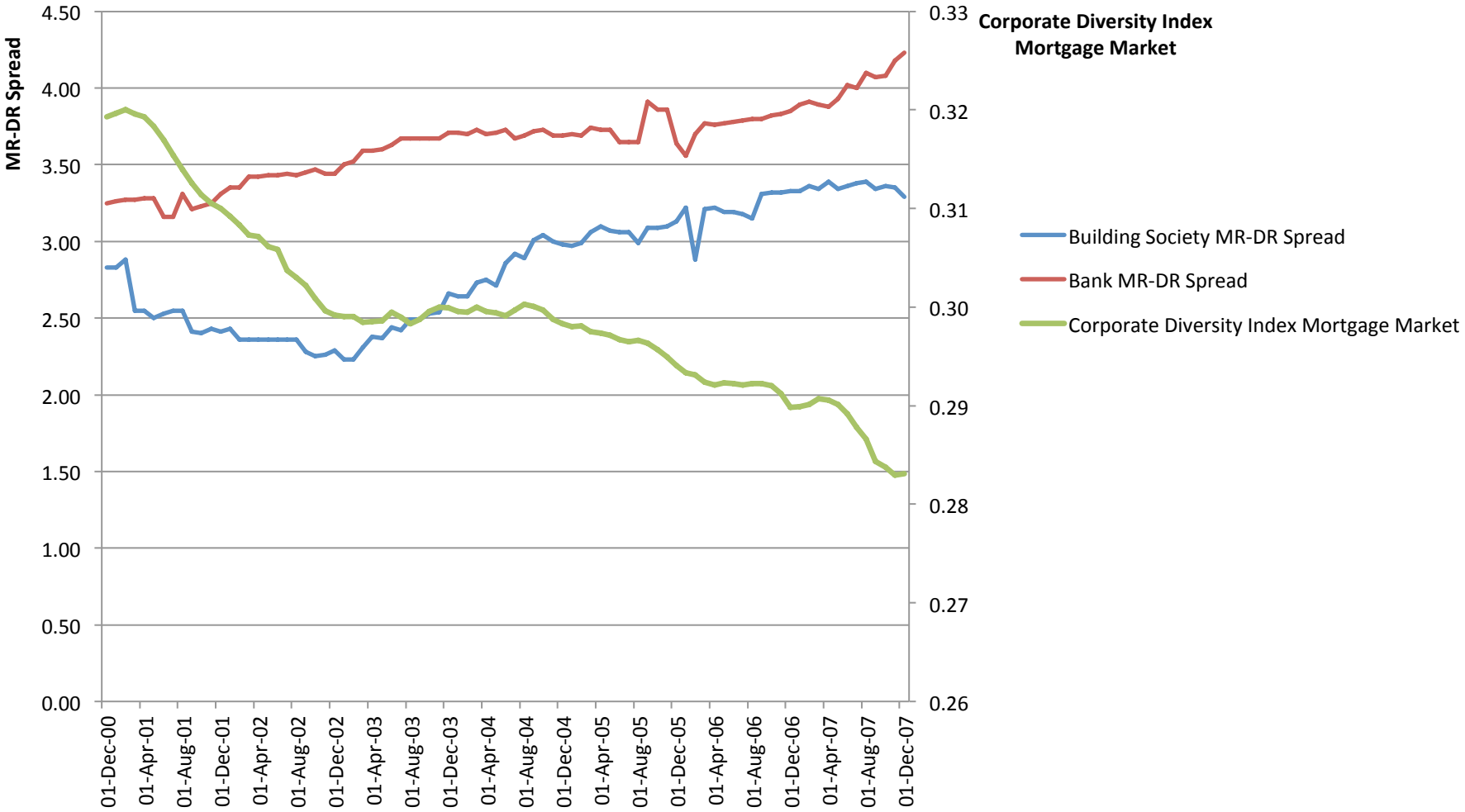
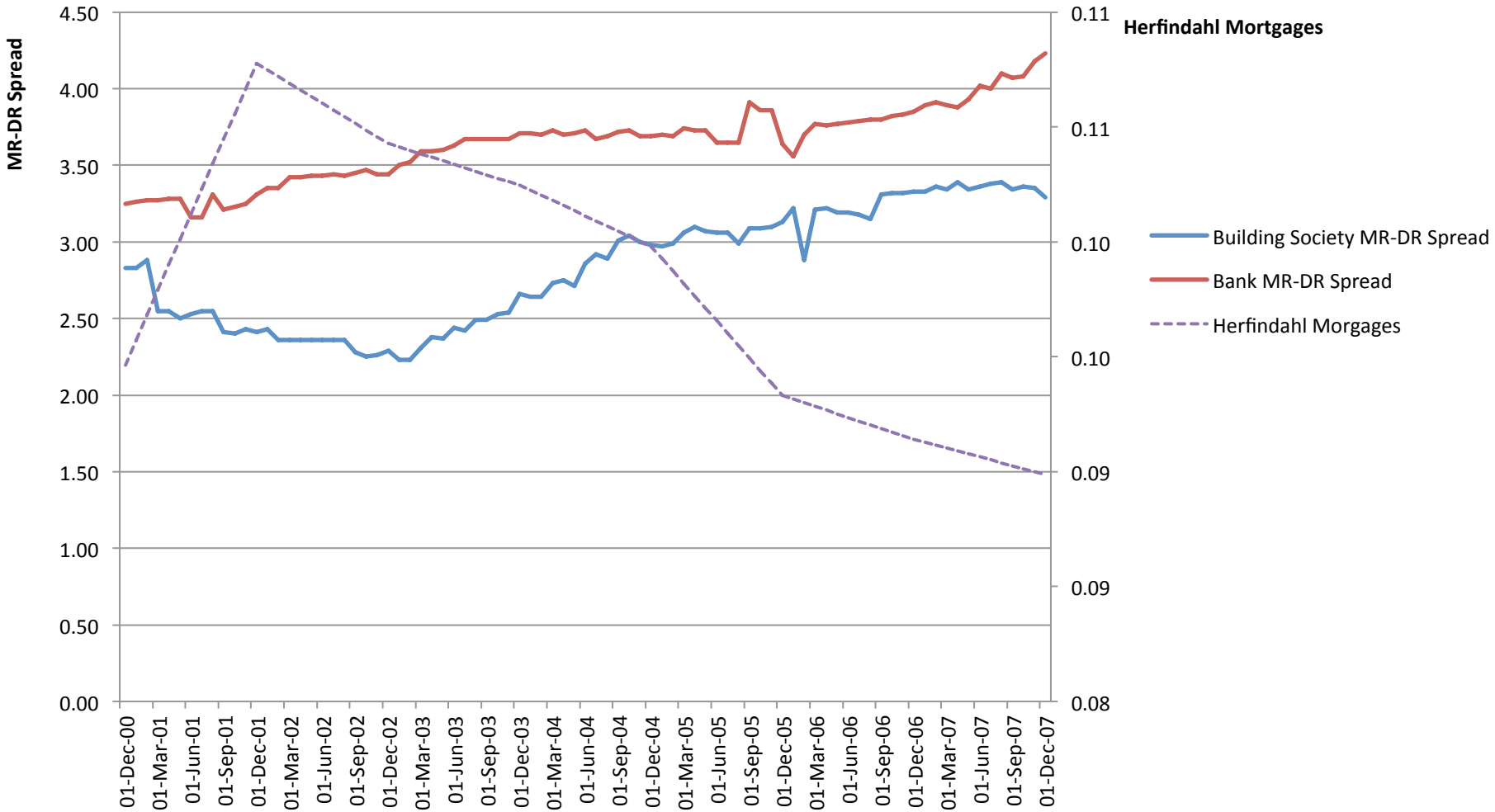


Figure 5 Bank and Building Society MR-DR Spreads and The Herfindahl Index (Mortgage Market)



Correlation Matrix

	BS Spread	Bank Spread	Corporate Diversity Index Mortgage M.	Herfindahl Index Mortgage M.
BS Spread	1			
Bank Spread	0.76**	1		
Corporate Diversity Index Mortgage M.	-0.67**	-0.93**	1	
Herfindahl Index Mortgage M.	-0.93**	-0.71**	0.63**	1

Regression Analysis

Estimate a model of the form

$$Log\ Bank\ Spread_t = \alpha + \beta_1 logCD_{t-1} + \beta_2 logHM_{t-1} + \beta_3\, Time + e_t$$

Tests indicate the presence of autocorrelation and non-stationary data

Hence equation is Estimated using AR1 with a lagged dependent variable and time trend (trend stationarity)

Regression Results:
Dependent variable Log Bank Spread
Mortgage Market

	Model 1	Model 2
Constant	-0.884	-0.824
Log ODM (t-2)	-1.257*	-1.209**
Log HM (t-2)	-0.023	-
Time trend	0.001	0.001
AR1 (rho)	0.693***	0.694***

Estimation method: AR1
* Significant at 10% level
** Significant at 5% level
*** Significant at 1% level

Results

- Ownership diversity has a significant effect on the Bank Spread lowering the margin and raising consumer welfare as customers benefit from a combination of higher deposit rates and lower mortgage rates
- Competition in the form of more financial institutions, has no significant effect on banks' margins
- Diversity is more effective than more of the same type of competition

Conclusion and Policy Implications

- Corporate Diversity and presence of BSs offers consumers lower MR and higher DRs − welfare improving
- The higher the level of diversity in the mortgage market the lower the bank mortgage-deposit rate spread − welfare improving for society
- Diversity has a significant impact on excess profit margins of banks and is more effective than bank competition in improving consumer outcomes
- Government has focused recent efforts on challenger banks − our analysis suggests it is more effective to promote *diversity* of competition
- Diversity associated with BSs concerned with the welfare of their members, brings the biggest benefits in consumer welfare

Policy Implications UK

- RBS 62.5% government shareholding could be used to turn RBS into a mutual
- Promote regional mutuals - CSBA