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**Should the joint provision of credit insurance with unsecured lending  
be prohibited? An examination of the UK payment protection  
insurance market**

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## **Should the joint provision of credit insurance with unsecured lending be prohibited? An examination of the UK payment protection insurance market**

### **Abstract**

This study examines whether the recent UK regulatory decision to introduce a blanket ban on the joint provision of consumer lending and credit insurance was justified. This case has wide regulatory implications following international concerns that the sale of credit insurance has been detrimental to customers due to overpriced credit insurance and a possible cross subsidy from credit insurance to unsecured lending. To explore this issue a theoretical model is developed considering why a cross-subsidy from credit insurance to unsecured loans would develop in these markets and whether the prohibition of joint sales would limit this practice. The presence of cross-subsidies is empirically examined indicating that while many banks do cross-subsidise unsecured lending through high credit insurance costs this behaviour is not a universal practice across all suppliers and at all times. This result is examined for all sample banks and a range of sub-samples to control for possible influences on credit insurance costs.

***JEL Classification:*** G21, G22

***Keywords:*** Interest rate setting, Universal Banking, Insurance premium setting, credit insurance, add-on goods, joint pricing.

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**1. Introduction**

In January 2009 the UK competition law judgement body, the Competition Commission (hereafter CC), prohibited the joint sale of credit or payment protection insurance with unsecured lending after 2010 (CC, 2009)<sup>1</sup>. Central to this judgement was to the assumption that credit insurance was used to cross-subsidise credit. This prohibition of joint sales of credit insurance with unsecured lending is a clear step back from the de-regulation movement allowing the joint provision of banking and insurance services throughout the EU and US. This study examines whether this regulatory decision to introduce a blanket ban on the joint provision of consumer lending and credit insurance was justified through addressing four related research questions. Initially, can a cross-subsidy from credit insurance to unsecured lending be identified and have all firms engaged in this behaviour? Further, why would such a cross-subsidy arise and would prohibition of joint sales limit this cross-subsidy.

This study addresses these questions through both modelling the joint provision of credit insurance and unsecured lending and empirically examining the joint pricing of these financial services. Economic incentives to cross subsidise unsecured loans from high priced credit insurance are identified. Further, it is reported that the prohibition of the joint sales of these financial services should limit these economic incentives to cross-subsidise unsecured lending through credit insurance. The empirical findings indicate that while many firms do cross subsidise unsecured loans through high priced credit insurance this behaviour is far from universal, albeit increasing throughout the sample period. In around two thirds of observations examined, other forms of cross-subsidy or equal pricing of unsecured lending and credit insurance is observed. This result is considered using multiple

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<sup>1</sup> These measures were largely upheld in a provisional decision by the Competition Appeal Tribunal published in May 2010 after an appeal by Barclays bank in October 2009 on the grounds that prohibiting the sale of credit insurance reduced customer convenience (CC 2010). This blanket prohibition has also lead to the Financial Services Authority to issue a consultation document on assessing compensation for customers' miss-sold payment protection insurance with lending (FSA 2010). The potential claims from this miss-selling incident are expected to be substantial for the industry.

empirical approaches both overall, and for a range of sub-samples to control for possible variation the levels of credit insurance and loan costs.

This investigation is important as the market for credit insurance is substantial. In 2006 it is estimated that 20 million credit insurance policies were in operation in the UK (Office of Fair Trading, hereafter OFT, 2006). The most common form of payment protection insurance is for unsecured personal loans, accounting for 45% of the overall UK credit insurance market, and valued at £2,013m in 2006 (CC, 2007). The unsecured personal loans examined in this study are the most common form of borrowing in the UK (Department of Business, Enterprise and Regulatory Reform; hereafter BERR, 2007). Further these concerns are not limited to just the UK, with concerns as to the sale of credit insurance with loans also raised within the European Union and the USA.

The paper is structured in five parts. After this introduction a review of the key academic and regulatory literatures is provided. In section 3 a model is elaborated and applied to the circumstances emerging in the UK personal unsecured lending and credit insurance markets. In section 4 the empirical assessment is reported and section 5 forwards a summary of the research and conclusions.

## **2. Literature Review**

Past research of the joint provision of banking and insurance services has been reported within two literatures. First, the deregulation and diversification of financial services has been repeatedly examined. Second, the value for money offered by credit insurance and the methods through which these financial services are sold have been repeatedly considered by regulators and with less frequency in academic studies.

## **2.1 The deregulation and diversification of financial services**

Insurance and banking products have been provided jointly by financial services providers since the Second Banking Coordination Directive (1989) and Financial Services Modernization Act (1999) in the EU and US respectively (Fields et al, 2007). This legislation allowed banks to merge with insurers and other financial firms and offer banking and insurance products individually and jointly. Schmid and Walter (2009) estimate 24.6% of worldwide financial sector mergers between 1985 and 2004 involved such cross market aspects. This diversification was justified in terms of potential cross selling advantages, managerial over estimates of benefits, (Schmid and Walter, 2009), potential information processing gains (Kanas and Qui, 2003) and efficiency improvements (Yeager et al, 2007; Stiroh and Rumble, 2006). Over time the market valuation of such financial firm diversification strategies has shifted. In the early 2000s announcing a bank and insurer merger was considered to have positive wealth effects for bank profitability and share prices (Al Manum et al, 2004; Baele et al, 2007). More recently financial firm diversification is linked to lower market valuations than experienced by specialised financial firms (Laeven and Levine, 2007; Schimd and Walter, 2009).

This diversification movement has transformed banking business resulting in greater reliance on non-interest and fee based income, revenue diversification, higher risk adjusted profits (Stiroh and Rumble, 2006) and potentially greater risk diversification (Fields et al, 2007). The increasing importance of fee based income for financial firms is also linked to a higher volatility in income, increasing cross subsidies between fee based services and interest margins (Lepetit et al, 2008) and, more recently, limited profitability and productivity gains (Yeager et al, 2007). In a European study Mercieca et al (2007) reports diversification either geographically or across business lines provides little benefits for small banks.

Past academic research specifically considering credit insurance has been limited with most contributions focusing on mortgage credit insurance. This literature has examined the determinants of credit insurance take-up, perceptions of and satisfaction with these products, and the competitiveness of credit insurance markets. For the UK Pryce and Keoghan (2001) indicated that while premium size has a limited influence on credit insurance purchase decisions the decision to take out mortgage credit insurance is rational. Further UK survey evidence indicates mortgage credit insurance is very expensive, limited in coverage and has regressive elements (Burchardt and Hill, 1998).

US assessments have focused on the sales of credit insurance, with sales approaches and involuntary tying arrangements a primary concern. This emphasis arises from the widespread use and high profitability of credit insurance in the US. Early survey evidence indicated most customers do not perceive sales to be coercive yet felt obliged to purchase credit insurance (Polden, 1983) through assumptive sales approaches. Other US contributions have emphasised the limited competitiveness of mortgage credit insurance markets, overpriced policies (Allen and Chan, 1998) and requirements to re-examine the legal treatment of credit insurance policies (Spahr and Escolás, 1986).

Other studies have also considered the implications of joint provision of banking and insurance products for bank costs and revenues. For South Africa, Okeashalem (2008) indicates bank product bundling increases fee levels. In European banking higher fee level incomes are associated with lower interest rate margins (Lepetit et al, 2008) and revenue from non-traditional business may compensate for lower interest rate margins (Valverde and Fernández, 2007).

## **2.2 Regulatory literatures**

Credit insurance has also been the focus of repeated US, UK and EU regulatory investigations. In the US regulatory attention has focused on the 'packing' of credit insurance within credit services such as home and consumer loans. Key concerns include mis-selling of credit insurance, misleading advertising, including insurance within a credit agreement without explanation and not fully revealing insurance costs within total loan costs (Federal Trade Commission; hereafter FTC, 2001) in a form of assumptive sales. Low payout ratios for credit insurance also occur with most lenders and insurers retaining more than 40% of premiums (FTC, 2001). Recent cases have resulted in large fines for banks and finance companies which have offered credit insurance with consumer loans in a manner against consumer interests. In total 8% of all consumer complaints received by the Federal Reserve concern additional fees and charges, including credit insurance, making this one of the most persistent sources of consumer complaints for US financial regulators (Federal Reserve, 2007).

In the UK, credit insurance problems are raised within the UK Consumer Credit Act (2006) and by three regulatory agencies. The provision of credit insurance with lending between 2000 and 2005 was examined by the UK competition law enforcement and consumer protection agency, the Office of Fair Trading (OFT, 2006). This agency reported consumers receive poor value from credit insurance due to a low claims ratio, defined as claims paid as a percentage of gross written premium, of 18%; relative to other forms of insurance (e.g. car insurance was 84% over the same period, CC, 2008) and high commissions paid to credit insurance distributors (59% of premiums, OFT, 2006). Subsequently credit or payment protection insurance provision was referred to the Competition Commission which ruled joint sales of credit insurance with loans should be prohibited, premiums should be paid through instalments rather than as a single premium, improved customer information is required and credit insurance should be unbundled from other financial services (CC, 2009).



The UK financial regulator, the Financial Services Authority (hereafter FSA) has also examined credit insurance repeatedly since 2005 (FSA, 2007c). Areas investigated include firms' selling practices, the provision of product and price information, the training and competence of sales staff and the firms' internal systems and controls. These issues were assessed using supervisory investigations and mystery shopping studies (FSA, 2005; 2006, 2007a; 2007b). The firms investigated were selected from all credit insurance distributors including retailers, car dealerships, brokers, banks and building societies. The FSA identified problems with firms which do not sell financial services as their main line of business, and especially car dealerships which sell credit insurance alongside car finance. Other persistent concerns include limited information given to consumers, a lack of awareness of product exclusions and a failure to indicate the voluntary nature of credit insurance. Whilst evidence of pressured selling has been rare, firms often present the acceptance of both the loan and credit insurance as the norm requiring an explicit rejection of credit insurance by customers (FSA, 2007b); a form of assumptive sales similar to that observed in the USA (Polden, 1983; FTC, 2001)<sup>2</sup>. In response to these concerns 16 firms have been publically censured or fined between £14,000 and £7m by the FSA between 2006 to 2008. The fines were imposed following evidence of assumptive sales techniques where customers' needs were not given sufficient weight, poor information provision and poor record keeping.

Lastly the cost of credit insurance has also been raised by the European Commission (2005; 2008) as part of the on-going harmonisation of consumer protection laws. European credit market concerns include the removal of barriers to information provision for credit decision making, the form of interest rate setting and distinct debt collection practices (Department of Trade and Industry, hereafter

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<sup>2</sup> It is acknowledged that Durkin (2002) indicated cross selling lends itself to coercive sales and credit insurance sales have focused on older and lower socio-economic groups; groups particularly prone to coercion (Barron and Staten, 1995). Similarly (De Meza et al, 2007) indicated the approach adopted by credit insurance sales persons can influence purchase decisions. These studies while identifying the credit insurance market as fertile ground for coercive sales have not empirically tested for the presence of such sales. As indicated in the text, survey evidence for the UK and the USA indicates assumptive sales rather than coercive sales is the dominant sales method in this market.

DTI, 2003). Subsequently a European wide approach for calculating the total cost of credit including add-on costs such as credit insurance (European Commission, 2005; 2008) should be included in the national law of member states by 2010. Further discussion of credit insurance within European interest rate regulation is provided by Soto (2009).

### **3. Optimal Unsecured Lending Interest Rates and Insurance Premiums**

In this section a model of the joint sale and purchase of unsecured personal lending with credit insurance is developed. The model is developed over two propositions. These propositions reflect the Competition Commission (2009) judgement forcing a movement from joint to independent sales of credit insurance and unsecured lending. The first proposition examines if customers purchasing credit insurance and unsecured loans independently will not subsidize customers which only accept unsecured loans. The second proposition considers do customers' purchasing credit insurance jointly with unsecured loans subsidize customers which only accept unsecured loans.

This examination assumes unsecured lending is a base good and credit insurance an add-on good. Consequently customers are assumed to choose a loan product from a range of different banks, and once a loan has been purchased by the customer, credit insurance is assumed to be obtained only from the loan provider. This assumption reflects the limited competition observed in this market (OFT, 2006; CC 2009) where 80% of credit insurance sales are made by the loan provider and the institutional arrangements in the UK unsecured loan market. In this market it is commonplace for unsecured loan interest rates to be advertised, for credit insurance costs to be indicated with less prominence in contract details and

for the costs of the insurance to be revealed to the customer only when the unsecured loan is obtained.

Throughout we assume customers are homogeneous in their decision making, although we acknowledge limited consumer comprehension in UK and US financial services markets has been repeatedly observed (for example Agarwal et al, 2008; Campbell, 2006; FSA, 2006; Hilgert and Hogarth, 2003). We also assume assumptive sales engendered by selective information provision are prevalent in this market, as this form of sales has been observed repeatedly in UK and US credit insurance markets (e.g. Polden, 1983; FTC 2001; FSA, 2005; 2007a; 2007b). We acknowledge in the limited number of cases where credit insurance sales have been made coercively different incentives will operate.

Throughout  $D$  indicates demand,  $ul$  indicates unsecured lending,  $i$  indicates credit insurance and  $v$  and  $p$  indicate value and premium. For the purposes of brevity the model is restricted to just the sale of unsecured loans and credit insurance; the wider concerns with deposit and equity financing, capacity constraints, differing levels of consumer decision making and underwriting cycles are excluded from this model, yet might be explored profitably in future work.

Customers are assumed to have the same level of decision making ability and have a demand for unsecured loans represented by:

$$D_{ul} = D_{ul}(r_{ul}, x_{ul}) \quad (1)$$

where  $r_{ul}$  is the bank's unsecured loan rate,  $x_{ul}$  is a vector of other variables which influence the demand for unsecured loans. Similarly the demand for credit insurance is written as:

$$D_i = D_i(i_p, x_i) \quad (2)$$

where  $i_p$  is the bank's insurance premium and  $x_i$  is a vector of other variables influencing the demand for credit insurance. Profits for unsecured loans provided by profit maximising proprietary banks are:

$$(r_{ul} - r - c_{ul})D_{ul}(r_{ul}, x_{ul}) \quad (3)$$

for customers where  $r$  is the market rate of interest,  $c_{ul}$  is the bank's net expenses per unit of unsecured loan. Similarly the bank's profits from credit insurance for customers are:

$$(i_p - i_v - c_i)D_i(i_p, x_i) \quad (4)$$

where  $i_p$  is the insurance premium,  $c_i$  is the net expenses per unit of insurance sold, and  $i_v$  is the discounted expected value of the benefits from the policy. The optimal loan rate  $r_{ul}^*$  to maximize profits, will satisfy the first order condition<sup>3</sup>:

$$D_{ul}(r_{ul}^*, x_{ul}) + (r_{ul}^* - r - c_{ul}) \frac{\partial D(r_{ul}^*, x_{ul})}{\partial r_{ul}^*} = 0 \quad (5)$$

Thus

$$r_{ul}^* = \frac{-D_{ul}(r_{ul}^*, x_{ul})}{\frac{\partial D(r_{ul}^*, x_{ul})}{\partial r_{ul}^*}} + r + c_{ul} \quad (6)$$

An analogous equation can be derived for the optimal insurance premium to maximise profits but this has not been shown to conserve space.

*Proposition 1: Customers purchasing credit insurance and unsecured loans independently will not subsidize customers which only accept unsecured loans.*

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<sup>3</sup> Note  $\frac{\partial D(r_{ul}^*, x_{ul})}{\partial r_{ul}^*} \leq 0$

While most credit insurance is currently sold at the point of sale, the Competition Commission (2009) ruled that credit insurance and unsecured lending needs to be sold independently. Customers will still only buy credit insurance if they have taken out a loan, yet will either decide not to take out insurance at all or search the market for the best available credit insurance policy. When independent sales prevails, a banks' profits from selling unsecured loans and credit insurance to customers will be the sum of (3) and (4):

$$(r_{ul} - r - c_{ul})D_{ul}(r_{ul}, x_{ul}) + (i_p - i_v - c_i)D_i(i_p, x_i) \quad (7)$$

When unsecured loans and credit insurance are marketed independently the demand function for the credit insurance  $D_i(i_p, x_i)$  will therefore be independent of that for unsecured loans  $D_{ul}(r_{ul}, x_{ul})$ . This implies  $r_{ul}^*$  and  $i_p^*$  are found independently by setting the partial derivative of (7), with respect to  $r_{ul}$  and  $i_p$ , equal to zero respectively. In this case, no cross subsidies between the two products will emerge as the insurance provider is distinct from the loan provider and will not benefit from providing any cross subsidy. In summary as these services are sold distinctly their optimal profits will not require their prices be set in relation to each other.

*Proposition 2: Customer's purchasing credit insurance jointly with unsecured loans subsidize customers which only accept unsecured loans.*

In practice credit insurance is generally jointly marketed to customers who have already taken out an unsecured loan. This implies that the demand function for credit insurance is not independent of the demand function for unsecured loans. If we assume individuals will only buy credit insurance when they have previously accepted an unsecured loan from the same bank the conditional demand function is:

$$D_i(i_p, x_i) = p(i_p) \cdot D_{ul}(r_{ul}, x_{ul}) \quad (8)$$

where  $p$  is a function of  $i_p$  and  $0 \leq p(i_p) \leq 1$  for all  $i_p$ .  $p(i_p)$  can be viewed as analogous to the conditional probability distribution function of purchasing credit insurance after taking out a loan. This approach assumes a probability between 0 and 1 that loan customer will also purchase credit insurance. Substituting (8) into (7) gives a profit of

$$(r_{ul} - r - c_{ul})D_{ul}(r_{ul}, x_{ul}) + (i_p - i_v - c_i)p(i_p)D_{ul}(r_{ul}, x_{ul}) \quad (9)$$

If the bank wishes to find  $r_{ul}^*$  this must satisfy the first order condition:

$$r_{ul}^* = \frac{-D_{ul}(r_{ul}^*, x_{ul})}{\frac{\partial D_{ul}(r_{ul}^*, x_{ul})}{\partial r_{ul}^*}} - p(i_p)(i_p - i_v - c_i) + r + c_{ul} \quad (10)$$

Cross subsidy between unsecured lending and credit insurance can be observed for customers which chose to purchase, and not to purchase credit insurance with unsecured lending by comparing situations where sales of credit insurance and unsecured lending are undertaken independently or alternatively jointly (equations 6 and 10). If  $(i_p - i_v - c_i) > 0$  (the insurance is not sold at a loss) and the conditional probability of a credit insurance purchase  $[p(i_p)]$ , is greater than 0, the optimal interest rate for loans  $[r_{ul}^*]$  will be reduced by a function of these terms. Therefore  $r_{ul}^*$  is lower when goods are sold jointly in (10) rather than independently in (6).

This situation arises as customers are assumed to only purchase credit insurance if they have already purchased an unsecured loan. When no customers purchase credit insurance  $[p(i_p)=0]$ , the optimal rate from loans is (6). As we assume the bank only sells credit insurance with unsecured loans, the only method of competing is to reduce the costs of unsecured lending. Therefore the bank attempts to attract more customers through reducing the loan interest rate, knowing credit insurance sales are contingent on the initial sale of unsecured loans. Subsequently the optimal interest rates set for unsecured loans declines as the proportion of unsecured loan customers jointly sold credit insurance rises.

#### **4. Data and Empirics**

In this section we discuss the data employed, the approach to the empirical examinations, a descriptive assessment and the measurement of cross-subsidies. Two statistical investigations are used to consider the levels of credit insurance and loan costs and the presence of cross subsidies. These investigations are conducted overall and for a range of subsamples.. Descriptive statistics are provided in Table1. Table2 presents the assessment of actual and relative unsecured loan and credit insurance costs, and Table 3 present the cross-subsidy test results.

##### *4.1 Data and assumptions underlying the empirical investigation*

The data for this examination is provided by Moneyfacts PLC, and represents the cost of a £5000 unsecured loan repaid over a 36 month period with and without credit insurance. A single loan size of £5000 is employed to remove variation in fixed costs due to the size of the loan made. The data is recorded monthly for 10 years, from 1 January 1998 to 31 December 2007 for 84 banks offering 208 joint credit and insurance products. This data represents the vast majority of UK joint credit insurance and unsecured personal lending products provided over the sample period. Further a small number of banks and bank subsidiaries considered have specific target markets, such as high risk customers, existing customers or lending for car purchase. Of these 84 banks, 30 offer lending services on behalf of a financing bank and only 54 banks offer products independently. We assume the institutional unit of analysis is assumed to be the financing bank or firm (hereafter bank), as all products financed by a particular supplier are influenced by this bank. This assumption reflects established industry practice where the bank frequently sets the cost of third party lending.

All the banks supplying packaged unsecured lending and credit insurance services are subject to common regulatory demands when operating in these UK markets. The cost of the unsecured loan is calculated from the banks' posted rates of interest; the cost of lending is employed rather than the interest rate directly due to a variety of approaches employed by firms to calculate the cost of lending, such as the number of times the interest on the loan is calculated each year. The cost of the credit insurance is determined from a single premium levied before the start of the loan and the cost added to the principal of the unsecured loan. The loan and insurance costs do not consider adjustments to accommodate individual customer risks. Subsequently a minority of customers with poor credit ratings will pay substantially more for loans and as credit insurance covers repayment of the loan, insurance premiums.

To both identify the characteristics of banks which undertake distinct forms of unsecured loan and credit insurance pricing and to accommodate bias due to differing costs of insurance over time, products and types of bank, five sub-samples are considered. Initially, we consider the entire sample period (1998-2007) and sub-samples of observations between 1998-2002 and 2003-2007. Secondly, we examine banks and their subsidiaries which have a stated willingness to lend to customers' who have faced past financial difficulties or have a poor credit history, and banks which do not state such a willingness to engage with such customers. Reflecting common practice of lending to customers with poor credit histories through subsidiary firms and distinct brands the division of the sample is undertaken by examining marketing materials for the bank and its subsidiaries. Third, many of the packaged loan and insurance products are designed specifically for existing customers of the lender. As banks will have a greater ability to lend at lower risk to existing customers about whom they possess greater knowledge, we examine samples of products for existing customers only and all other products. These



products are defined at the product level, with many banks offering loans for both existing and other customers simultaneously.

The sample also includes banks which are proprietary and are assumed to profit-maximise and mutual banks (such as building societies) with a distinct objective function. As the objective function of the bank could influence the type of customer and methods of loan and insurance pricing, we also test sub-samples of mutual and proprietary banks. Mutual banks which offer loans and credit insurance on behalf of a proprietary financing firm are deemed to set loan and credit insurance in a manner reflecting profit maximisation. In the majority of these cases the loan and credit insurance costs are common for all banks supplied by the financing firm. Lastly, the size of financing firms is considered through classifying financing firms with total assets above and below £1bn in 2007.

The analysis assumes differences in credit insurance policy quality, coverage and risk exposure between individual customers and institutions are factors of second order importance. This assumption is justified by the extremely low claims ratios relating to these policies and by the fact that our data relates to customers that are accepted at standard rates as they are not considered to have a poor risk profile. Prior research strongly supports this approach. Analysis by the OFT has 'confirmed the presence of price differentials which could not be accounted for by differences in cover offered' (OFT, 2006, p. 54) and the CC (2009) reports that unsecured lending PPI premiums and policy quality are not associated. In addition, the OFT noted that 'claims ratios of below 20% for PPI compared to other general insurance products, are sufficiently different to be beyond differences in comparability or risk' (OFT, 2006, p. 52).

## **4.2 Descriptive Data**

This section outlines the key features of the data set including the distribution of unsecured loan and credit insurance products and costs by product, time and types of firms. Table 1 considers all banks which offer credit insurance and unsecured loans jointly. Panel A of Table 1 indicates the duration that banks have offered these financial services. On average products have had a market life of just under four years with a number of products featuring for the entire ten year sample period and other products existing for as little as two months. On average banks have operated in this market for around five years with some participants operating throughout the entire period and one participant operating for only six months.

Panel B of Table 1 shows the average number of products on sale by year. The number of products slightly increases during the middle of the sample period. Panel C of Table 1 indicates the average number of products offered by individual banks is 4.58 although one bank offers 25 products in one month. This indicates a skewed distribution with many banks only offering one product and others offering multiple products.

#### **INSERT TABLE 1**

Panel D of Table 1 shows the variability of credit insurance and unsecured loan costs. For the difference between the maximum and minimum costs is £88.10 for loans and £41.31 for credit insurance. For insurance the variations in cost are proportionately greater across product ranges with a percentage difference from the mean of 54.26% for loans and 169.30% for credit insurance costs.

### **4.3 The distribution of unsecured loan and credit insurance costs**

The distribution of unsecured loan and insurance costs is considered using two procedures: considering the distribution of actual values, both overall and by the defined subsamples. Secondly, we also consider the relative distribution of the loans and insurance costs through a ranking procedure of each product on a monthly basis. From these ranks averaged quartiles of relative costs of insurance and loan costs are constructed. As the quartiles were compiled from the averaged rankings an inexact split is observed due to the presence of ties in this procedure.

Panel A of Table 2 provides averages, standard deviations and differences for loan and insurance costs for the five sub-groups (time, firm size, ownership, customers with financial challenges and existing/new customers). In all cases and employing T tests, statistically significant differences exist between these subsamples for both loan and insurance costs. These findings indicate insurance costs of products have risen over time, and loan costs have fallen over time, perhaps reflecting the declining wholesale costs of funds at this time. Products sold to customers with financial challenges have both higher loan and insurance costs than products sold to other customers. Products for existing customers have lower insurance and loan costs than products for other customers. Relatively larger banks issue products which have higher insurance and marginally lower loan costs, than smaller banks. Lastly mutual banks have issued products with higher insurance costs and lower loan costs over the sample period.

#### **INSERT TABLE 2**

Panel B of Table 2 considers different quartiles of observations of loan and insurance costs ranked from 1 being the lowest cost quartile to 4 the highest cost quartile. In this assessment the percentages of the five sub-samples are recorded for the different insurance and loan cost quartiles. Differences between mean values

for the sub-samples between quartiles are tested using an F test from an ANOVA procedure.

It is reported that relative to the average distribution of sub-samples, differences exist between the quartile groups, in all cases other than over time. Products issued by banks focusing on customers with financial challenges display both higher loan and insurance costs. Products for existing customers have a greater proportion of lower cost loan and insurance observations. Products issued by mutual banks are seen to have a relatively higher proportion of high cost credit insurance and lower cost unsecured loans relative to proprietary banks. Lastly, banks with lower level of assets have lower priced loans and higher cost credit insurance, relative to larger banks by asset size.

In summary consistent findings are reported from the examination of relative and actual loan and insurance costs. The costs of credit insurance increase over time, are greater for products offered to customers with financial challenges, and are relatively larger when banks have greater asset size and are proprietary rather than mutual. Loan costs fall over time, are higher for customers with financial challenges and are relatively higher for proprietary, rather than mutual banks, and smaller, rather than larger banks.

### **4.3 Cross-Subsidy Tests**

The possible cross subsidy between credit insurance and unsecured lending is examined using two approaches. First, an assessment of the relative costs of loans and insurance is undertaken considering the different forms of pricing which banks may adopt. These forms of pricing include relatively higher cost credit insurance than unsecured loan costs, relatively higher cost unsecured loans than credit insurance costs and relatively equal levels of costs. Second, a regression

based test of cross subsidy is employed. We examine this relationship both for all banks and also the five sub-samples outlined above.

#### *4.31 The Quartile Based Cross-Subsidy Test*

Within the quartile based cross-subsidy test the percentage of banks which adopt certain forms of pricing is examined. This form of assessment is adopted as the credit insurance premiums should reflect the expected costs of repaying the unsecured loan. Therefore if a cross-subsidy exists we would expect to observe the relative costs of credit insurance and unsecured loans to vary. Alternatively if cross-subsidies do not occur and insurance costs just reflect the costs of repaying the loan, these relative cost rankings of loans and insurance should be equal. Therefore a quartile based cross subsidy test, can identify if cross-subsidies are being paid in a market overall. Limitations of this procedure do exist; when a cross-subsidy is present this will alter the relative rankings of loan and insurance costs. Therefore when cross-subsidies are identified, these observations may suffer from a degree of bias.

It is reported that each form of relative pricing behaviour represent approximately a third of observations. Cases where credit insurance has a higher average ranked cost than loan costs are generally more recent, occur more frequently within products issued for customers with financial challenges, are linked with larger, rather than smaller banks and are associated relatively more with mutual rather than proprietary banks. Cases where loans have a higher average ranked cost than insurance costs are associated with more recent cases, are not from products designed for financially challenged customers, are associated

with products designed for existing customers, and are provided relatively frequently by smaller and/or proprietary banks, rather than mutual and/or larger banks. Cases where the relative average ranks of loan and insurance costs are equal are associated with earlier cases, products designed for customers with financial challenges and existing customers, by proprietary rather than mutual banks and smaller rather than larger banks. F tests are estimated and in all cases significant differences are recorded between these three forms of pricing for the percentage of the sub-samples.

#### *4.32 The Regression Based Cross-Subsidy Test*

The regression test for cross subsidy is based on the expected relationship between the loan cost and the credit insurance costs as a percentage of total loan and insurance costs. Credit insurance premiums are not directly examined in a regression model as premiums should reflect the expected costs of repaying the loan; a value derived from the remaining monthly loan payments and therefore directly proportionate to the £5,000 unsecured loan costs. The credit insurance cost as a percentage of total loan and insurance costs represents the percentage of costs required to provide credit insurance, such as underwriting, distribution and administration costs for each £5000 loan made. If cross subsidies are not present this value is expected to vary with for example the risk of the loan made or levels of credit insurance claims made, yet not vary with the costs of the loan. In other words, while credit insurance premiums will rise and fall proportionally with loan costs reflecting the cost of repaying this loan, the percentage of insurance costs per £5000 loan made should be constant if loans are of the same quantity and have similar risk profiles.

In cases of no cross subsidy we therefore expect no relationship to exist between loan costs and credit insurance costs as a percentage of all loan and insurance costs. If a cross-subsidy does exist between credit insurance and loans, a significant relationship between loan cost and credit insurance costs as a percentage of total loan and insurance costs is expected. Consistent with proposition (1) as the costs of the loan falls, the proportion of total loan and insurance costs which are insurance costs will increase, reflecting the presence of cross subsidy from credit insurance to unsecured loans. We examine this relationship using the following regression equation:

$$C_{it} = \alpha P_{it} + \beta_i + v_{it} \quad (11)$$

where  $C_{it}$  is loan cost,  $P_{it}$  is the insurance cost as a percentage of total loan and insurance costs,  $\beta_i$  represents the individual time invariant fixed effects and  $v_{it}$  denotes the remaining error for  $i$  firms and  $t$  time periods. When the coefficient  $\alpha$  is negative cross subsidies flow from credit insurance to loans, when the coefficient is positive, cross-subsidies flow from loans to credit insurance. When the coefficient  $\alpha$  is not significantly different from zero, no cross subsidy is indicated.

The regression model is estimated using a fixed effects estimator (see Baltagi 1995). As we freely acknowledge that these sub-samples cannot control for all potential biases within this cross subsidy test we accommodate concerns with the robustness of these findings and potential omitted variable problems by obtaining 95% confidence intervals for the coefficient ( $\alpha$ ) estimates using a bootstrapping procedure with 500 repetitions. The results of the regression test and the differences between these sub-samples are shown in Table 3.

**INSERT TABLE 3**

Within Panel B of Table 4 considering the regression test a significant positive coefficient  $\alpha$  ( $\alpha=5.694$ ) is reported of all observations. This estimate is consistent with the presence of relatively overpriced unsecured lending costs, and a cross subsidy flowing from unsecured loans into credit insurance. The results for earlier and latter time periods differ indicating a cross subsidy from loans to insurance in the 1998-2002 sub-sample (20.145) and a cross-subsidy from insurance to loans in the 2003-2007 subsample (-3.956). A clear difference is also observed between the sub-samples of packaged unsecured loan and credit insurance products forwarded by banks where there is, and is not a stated willingness to lend to customers with a poor past credit history. Banks which cater for customers with poor credit histories display a positive coefficient value (6.062) and firms which do not state a willingness to cater for poor credit histories a negative value (-2.529) indicating a propensity to cross subsidise insurance with higher priced loans, and loans with higher priced insurance respectively.

The sub-samples considering products catering for existing and new customers respectively are both positive and statistically significant and very similar in scale (9.969 and 5.851 respectively). Mutual and proprietary banks provide distinct results from the regression test. The coefficient is not statistically significant for mutual banks indicating no cross-subsidy (1.234) and is statistically significant and positive for proprietary banks (10.496). Lastly, relatively larger and smaller firms indicate statistically significant positive and negative coefficient estimates respectively (11.075 and -16.602) suggesting smaller banks are more prone to cross-subsiding loans using over priced insurance and larger banks are cross-subsidising insurance with relatively higher priced loans.

Throughout the bootstrapped confidence intervals indicate this interpretation of coefficient estimates appears plausible. Diagnostic statistics indicate appropriate model fit is significant (Wald statistics are used to



accommodate the bootstrapping procedure) and in most cases low levels of explanatory power of the model are observed.

In summary we can observe the findings from the Quartile Based cross-subsidy test and the regression test vary. When interpreting these results, it is important to emphasise the quartile based test while indicating if conditions consistent with cross-subsidy exist or not, can be biased when cross-subsidy occurs. Therefore we can state the quartile based test indicates cross-subsidies do appear to occur in this data. Further a variety of pricing forms are observed, including cross-subsidy of loans by insurance, cross-subsidy of insurance by loans and relatively equal pricing of loans and insurance. This general finding is supported by the regression based test which identifies when these forms of pricing appear to be prevalent. For example the cross-subsidy of loans by credit insurance is most closely associated with recent cases and by smaller rather than larger banks, and by banks which do not offer products specifically for customers with financial challenges, rather than banks which undertake such business.

## **5. Conclusions**

In this concluding section we briefly summarise the study findings and consider the implications of these results in terms of the regulatory decision to prohibit joint sales of insurance and lending (Competition Commission 2009). In this study we addressed four related research questions related to this regulatory decision. One,

can a cross-subsidy from credit insurance to unsecured lending be identified, two, have all banks engaged in this behaviour, three, why would such a cross-subsidy arise and four, would prohibition of joint sales limit this cross-subsidy. Using both theoretical and empirical methods we provide answers to these questions.

Initially, empirically we have identified a cross-subsidy from credit insurance to loans does occur and is associated with is associated with recent cases and by smaller rather than larger banks, and by banks which do not offer products specifically for customers with financial challenges, rather than banks which undertake such business. Second, not all banks have engaged in this behaviour and additionally other forms of pricing also appear to be of importance in this market. The costs of credit insurance increase over time, are greater for products offered to customers with financial challenges, and are relative larger when banks are larger, rather than smaller and are proprietary rather than mutual. Loan costs fall over time, are higher for customers with financial challenges, and are relatively higher for proprietary, rather than mutual banks, and smaller, rather than larger banks. Further cross subsidies appear to flow from both unsecured loans to credit insurance, from credit insurance to loans and also in not exist in many cases. Third, we observe that when joint sales of credit insurance and unsecured loans are the norm in a market banks have clear economic incentives to subsidy loan costs through higher credit insurance costs. Lastly, it appears prohibition of this practice would limit the degree of future cross-subsidy as the economic incentives for this cross-subsidy are removed.

The presence of such cross-subsidies was a foundation for a recent regulatory investigation leading to the prohibition of joint sales. Employing a model we identify the logic of the regulation was sound and that clear economic incentives exist for this cross subsidy to develop in the markets where credit insurance and loans are jointly sold. Further the prohibition of joint sales of credit insurance with lending should remove these incentives and alleviate this cross-

subsidy issue. The cross-subsidy from credit insurance to unsecured lending both predicted in this work and underlying the Competition Commission (2009) decision to prohibit joint sales of payment protection insurance is employed by a majority of firms, yet not at all times or for all products. Indeed our testing procedures indicate that this cross-subsidy acts for many banks and products in the opposite direction as well providing cross-subsidy at all.

While prohibition of joint sales is both a long recognised solution to overpriced insurance sales (Shogren, 1990) and removes the identified incentives of banks to cross-subsidise loans from insurance, this study reports the presence of these cross-subsidies may be overstated over the period 1998-2007, albeit increasing towards the end of this sample. Further we acknowledge that all firms do not cross-subsidise lending through insurance. Despite such criticism the prohibition of joint sale of credit insurance with loans may still be viewed to a measured response to such cases, where the interests of customers purchasing over priced credit insurance are emphasised. This said, the interests of other customers who are not easily persuaded to purchase credit insurance jointly with a loan will lose out by paying more for unsecured loans, other customers will face a loss of convenience and clearly bank profits may suffer. Further, requiring that credit insurance policies be sold independently may lead to adverse selection if credit insurance is sold primarily to customers making an informed decision to purchase this insurance. Lastly implementing such regulation will involve non-trivial compliance costs. Judging whether such a change is ultimately justified in this case rests on both how we weigh the interests of customers making decisions to purchase over priced credit insurance and the adverse effects of this decision on the majority of customers and the importance of corporate concerns.

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**Table 1: Descriptive Statistics**

Panel A. The duration individual products and banks have existed within the sample period (months).

	Average	Maximum	Minimum	Standard Deviation
Individual Products	45.75	120	2	36.64
Financing Firms	69.10	120	6	42.71

Panel B: Average Number of Products on the Market by year

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of Products	77	78	91	99	92	100	105	107	100	79

Panel C: The average number of products offered by individual financing firms.

	Average	Maximum	Minimum	Standard Deviation
Bundled Products	4.58	25	1	5.53

Panel D: Statistics for the variability in costs over the product range.

	Average	Maximum	Minimum	Standard Deviation
Loan only (£)	£162.36	£238.86	£150.76	£7.99
Insurance Only (£)	£24.40	£49.58	£8.27	£5.81

**Table 2: The distribution of credit insurance and unsecured lending costs**

<b>Panel A: Differences between Sample Groups for Insurance and Loan Costs</b>							
		Insurance Costs £			Loan Costs £		
		Mean	St Dev.	T test (Ha = 0)	Mean	St Dev.	T test (Ha = 0)
1998-2002		614.79	139.55	-21.58**	6027.26	236.39	72.35**
2003-2007		677.69	144.00		5683.71	226.54	
Customers with financial challenges	Yes	734.41	154.76	-20.40**	6014.16	332.20	-20.23**
	No	637.92	140.72		5824.66	275.25	
Existing customers	Yes	636.98	123.69	5.24**	5924.23	299.45	-19.08**
	No	653.61	154.46		5806.40	273.92	
Ownership	Proprietary	643.92	144.88	-6.02**	5875.19	291.64	22.11**
	Mutual	666.95	145.96		5711.52	226.64	
Size of Financial Firm Assets	<£1bn	660.15	151.80	-13.43**	5851.20	272.04	-3.58**
	= > 1bn	615.32	119.98		5827.31	326.77	

**Panel B: Distribution of firm characteristics by cost quartile**

Unsecured Loans	Quartile	Overall	1	2	3	4	F' test
	Observations	9519	2301	2371	2398	2449	0.011
	Banks/Financing Firms	54	42	45	44	32	
	Products	208	132	142	147	110	
	1998-2002	46.9	46.9	46.9	46.8	47.0	
	2003-2007	53.1	53.2	53.1	53.2	53	

Customers with financial challenges	No	89.4	92.2	91.3	91.8	82.4	57.246**	
	Yes	10.6	7.8	8.7	8.2	17.6		
Existing customers	No	67.4	78.7	74.2	61.1	56.3	126.342*	
	Yes	32.6	21.3	25.8	38.9	43.7		
Ownership	Proprietary	81.4	80.5	67.5	82.9	94.4	205.513*	
	Mutual	18.6	19.5	32.5	17.1	5.6		
Size of Financial Firm Assets	<£1bn	26.7	35.9	25.4	21.4	24.4	48.624**	
	= > 1bn	73.3	64.1	74.7	78.6	75.6		
Credit Insurance	Observations		9519	2301	2371	2398	2449	0.011
	Banks/Financing Firms		54	40	38	37	31	
	Products		208	104	121	117	105	
	1998-2002		46.9	46.9	46.9	46.8	47.0	
	2003-2007		53.1	53.2	53.1	53.2	53	
	Customers with financial challenges	No	89.4	96.6	93	88.9	79.5	142.570*
		Yes	10.6	3.4	7	11.1	20.5	
	Existing customers	No	67.4	74	59.5	62.1	74	64.928**
		Yes	32.6	26	40.5	37.9	26	
	Ownership	Proprietary	81.4	79.3	90.9	86	69.9	137.575*
Mutual		18.6	20.7	9.1	14	30.1		
Assets	<£1bn	26.7	32.9	29.4	30.8	14.1	94.096**	
	= > 1bn	73.3	67.1	70.6	69.2	85.9		

\* and \*\* denotes statistically significance at 1% (99% confidence) and 5% (95% confidence) respectively.

**Table 3: Cross-Subsidy Tests**

**Panel A: Distribution of firm characteristics by form of pricing**

**(Cross subsidy from Insurance [CI] to Loans, Equal Pricing, Loans to Insurance)**

		Overall	CI to Loan	Loan to CI	Equal	F Test
Observations		9519	3171	3331	3017	
Financing Firms		54	43	43	49	
Products		208	149	139	159	
1998-2002*		46.9	45.5	444.9	50.6	12.40**
2003-2007*		53.1	54.5	55.1	49.4	
Customers with financial challenges	Yes	10.6	12.2	5.3	14.8	83.45**
	No	89.4	87.8	94.7	85.2	
Existing customers	No	67.4	76.4	59.3	66.8	110.76*
	Yes	32.6	23.6	40.7	33.2	
Ownership	Proprietary	81.4	70.3	88.5	85.4	210.51*
	Mutual	18.6	29.7	11.5	14.6	
Assets	<£1bn	26.7	24.1	28.0	27.8	7.92**
	= > 1bn	73.3	75.9	72.0	72.2	

**Panel B: The Cross Subsidy Regression Test**

		Obs.	Coeff. $\alpha$	Standard Error	95% Lower Boundary	95% Upper Boundary	R <sup>2</sup>	Wald test
Overall		9519	5.694	2.086**	1.605	9.783	0.064	7.45**
1998-2002		4464	20.145	3.575**	13.138	27.151	0.000	31.76**
2003-2007		5055	-3.956	1.256**	-6.419	-1.493	0.004	9.91**
Customer	Yes	101	44.340	6.062**	32.459	56.220	0.009	53.51**

s with financial challenges		3						
	No	8506	-2.529	1.108*	-4.701	-0.357	0.099	5.21*
Existing customers	No	6415	5.851	2.004**	1.923	9.779	0.054	8.52**
	Yes	3104	9.969	3.212**	3.673	16.265	0.071	9.63**
Ownership	Proprietary	7753	10.496	2.182**	6.219	14.773	0.039	23.13**
	Mutual	1766	1.234	1.541	-1.787	4.254	0.181	0.64
Assets	<£1bn	2539	-16.602	3.348**	-23.163	-10.041	0.096	24.60**
	= > 1bn	6980	11.075	2.025**	7.105	15.045	0.059	29.90**

\*\* and \* denotes statistically significant at 1% (99% confidence) and 5% (95% confidence)