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# The economics of retail banking—an empirical analysis of the UK market for personal current accounts

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*Understanding the economics of retail banking is important for the Bank of England in carrying out both its monetary stability and its financial stability function. In this article, we study the dynamics of the UK market for personal current accounts between 1996 and 2001. Analysing the evolution of banks' market shares and their pricing strategies, two questions are addressed: (i) Do bank market shares respond to price differentials? (ii) If not, why not? Our results point to customer switching costs as a key determinant of the nature of competition in the market for personal current accounts during the 1996–2001 period. They are thus broadly supportive of a number of initiatives that have since been undertaken to reduce such costs.*

## Introduction

Retail banking is a core activity and a source of strength for UK banks.<sup>(1)</sup> Arguably, current accounts play a pivotal role in the relationship between a bank and its retail customers: a current account offers access to deposit-holding services, money transmission through cheques and debit facilities, and potentially acts as a vehicle for credit through overdrafts. It may also serve as a gateway through which banks attempt to cross-sell other banking services, such as savings accounts.

This article analyses the competitive process in the UK market for personal current accounts between 1996 and 2001. In particular, it examines the speed with which the distribution of market shares changed in response to price differentials, taking into account the possibility that price differences may reflect differences in product characteristics. In order to distinguish further between several competing hypotheses as to why the adjustment in market shares may have been slow, a test based on the relationship between levels of market share and prices is employed. The results point to the importance of customer switching costs as a key determinant of the competitive process in this market.

## Analysis at the product level

Most of the empirical Industrial Organisation literature on banking attempts to assess the degree of competition for the industry as a whole, using data (eg total profits,

total revenues) at a bank level, instead of focusing on specific product markets. Numerous studies are based on the Structure-Conduct-Performance (SCP) paradigm, which posits a causal relationship between an industry structure, the firms' conduct and ultimately industry performance. More recently, some authors have attempted to draw inferences from the link between firm revenue and cost schedules (Panzar and Rosse (1987)). As regards the level of competition in banking markets, overall these studies have not led to firm conclusions.<sup>(2)</sup> In particular, existing studies have not been able to distinguish between different sources of imperfect competition in any detail.

This article builds on Heffernan (2002), who analyses the pricing behaviour of British banks in several product markets and tests which model(s) of imperfect competition best describe each market. She finds that price dispersion has been an important feature of most retail banking markets. The stylised facts presented in this article support her findings. Her analysis is then extended by devising a test that allows for the possibility that bank customers' switching costs may have been a key driver of the competitive process in the market for personal current accounts.

## Potential frictions in the market for current accounts

Price dispersion is consistent with several different theoretical explanations. Price dispersion may simply

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(1) Loans by banks to domestic households currently (2003 H1) account for 50% of total lending, compared with a euro-area average of 44%.

(2) See, among others, Gilbert (1984) for a survey on SCP studies and De Bandt and Davis (2000) on one of the first attempts to measure the Panzar-Rosse statistic for several European banking markets.

reflect differences in product characteristics. If products offered by different providers are not fully homogenous, prices may differ across providers. However, if prices are adequately adjusted for quality differences, then any remaining price dispersion may reflect frictions in the market that affect the competitive process. First, consumers may be facing search costs which prevent them from thoroughly examining all available offers in the market before purchasing a product. When search costs differ across consumers, providers may charge different prices. Second, once consumers have chosen a specific provider they may face switching costs which prevent them from purchasing from a cheaper seller in a later period. Switching costs can thus result in products becoming effectively differentiated after the purchase, even though the products on offer might have been perfectly homogenous before consumers decided to buy any one of them. In this situation, again, providers may choose different prices.

These types of frictions may potentially have macroeconomic consequences. In particular, they can influence the way monetary policy affects the economy in that they determine how policy interest rates are passed through to other markets.

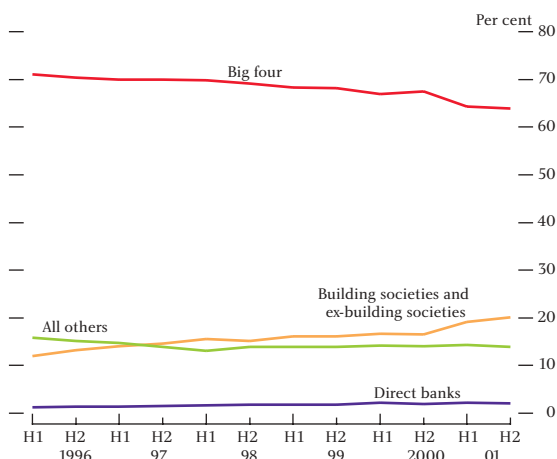
## The UK market for personal current accounts—stylised facts

### Changes in market concentration

In this article, a bank's market share is defined in terms of the number of the bank's UK current account customers.<sup>(1)</sup> Measures of market concentration derived from the distribution of market shares show that in 2001 the UK market for personal current accounts was still relatively concentrated, even though market concentration gradually declined between 1996 and 2001.<sup>(2)</sup> However, this aggregate trend hides some contrasting developments at a bank peer group level. Chart 1 shows the combined market share for each peer group we have defined:<sup>(3)</sup>

- the 'big four' banks (Barclays, HSBC/Midland, Lloyds TSB and NatWest);

**Chart 1**  
Bank peer group market shares, current account market



- the 'building societies': this peer group includes one current building society as well as those who demutualised (Abbey National, Alliance & Leicester, Halifax, Nationwide, Northern Rock and Woolwich);
- the 'direct' banks—this group comprises those banks that essentially operate via the phone or the Internet (Cahoot, Citibank, First Direct, First-e, Intelligent Finance, Smile and Virgin Direct); and
- the 'other' banks (Bank of Scotland, Clydesdale, the Co-operative Bank, Girobank, Royal Bank of Scotland, Safeway Bank and Yorkshire Bank).

Over the 1996–2001 period, the combined 'big four' banks lost customers at a slow but steady rate, while building societies—including those that demutualised—made successful inroads into the current account market. The 'direct banks' also increased their market shares, albeit from a very low base: at the end of 2001, they still accounted for only 2% of all current account holders. The remaining banks experienced a reduction in their combined market share over the sample period.

### Changes in prices

To study bank pricing behaviour in the market for current accounts, three interest rates are considered

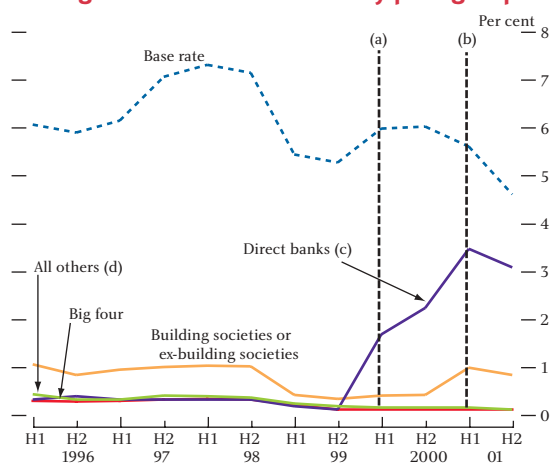
(1) The data on the number of customers per bank are obtained from the National Opinion Poll database (Financial Research Survey (NOP-FSR)) on a half-year basis. An alternative would have been to consider regional markets as in Cruickshank (2000). As further discussed in a forthcoming *Bank of England Working Paper* by Gondat-Larralde and Nier, the conclusions drawn in this article are qualitatively unaffected by this choice.

(2) The Herfindahl-Hirschman index records a gradual decrease from 1,425 to 1,217 over the period.

(3) Some of these banks may be related in terms of ownership. As a principle, we keep two related entities separate if they have retained strong, separate retail franchises. For instance, most 'direct' banks are owned by some other banks also included in our sample. But we choose to treat the 'bricks and mortar' parent as separate from its 'direct' bank subsidiary. Also, for example, Halifax and Bank of Scotland as well as Royal Bank of Scotland and NatWest are treated as separate entities, given that they continued to operate separate retail franchises over the sample period. Furthermore, in both of the latter two cases the merger occurred at the very end of the sample period.

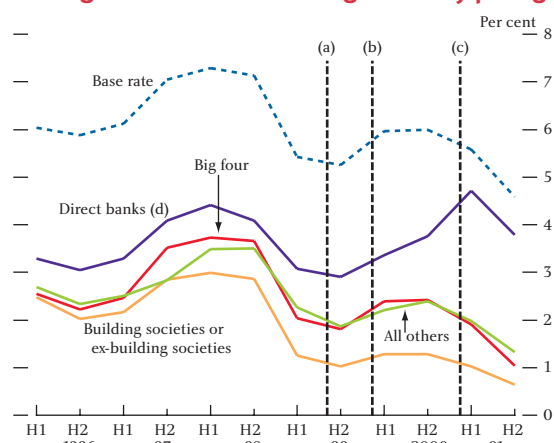
over the 1996–2001 period:<sup>(1)</sup> the rate a bank offers on the positive balances on current accounts; the rate a bank charges on (pre-authorized) overdrafts; and the rate a bank pays on its instant access savings accounts. The latter rate is not paid on current accounts, but is included in the analysis to account for the possibility that banks may attempt to cross-sell savings products to their current account customers.

**Chart 2a**  
Average current account rates by peer group



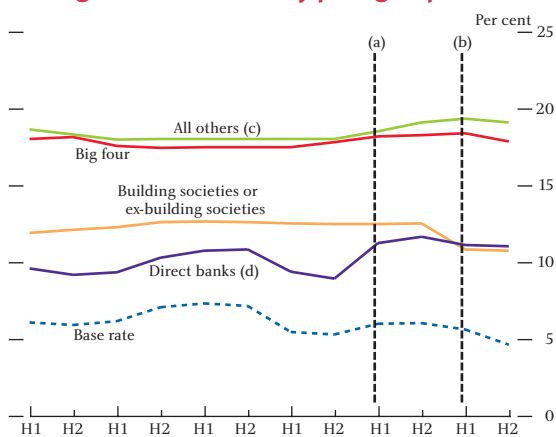
- (a) Citibank and Smile enter 'direct' banks.  
 (b) Cahoot, First-e and Intelligent Finance enter 'direct' banks.  
 (c) Excluding Virgin Direct.  
 (d) Excluding the Co-operative Bank and Safeway Bank.

**Chart 2b**  
Average instant access savings rates by peer group



- (a) Virgin Direct enters 'direct' banks.  
 (b) Citibank and Smile enter 'direct' banks.  
 (c) First-e and Intelligent Finance enter 'direct' banks.  
 (d) Excluding Cahoot.

**Chart 2c**  
Average overdraft rates by peer group



- (a) Citibank and Smile enter 'direct' banks.  
 (b) Cahoot and Intelligent Finance enter 'direct' banks.  
 (c) Excluding Safeway Bank.  
 (d) Excluding Virgin Direct and First-e.

Charts 2a to 2c show the evolution of each of these three rates, averaged across each peer group between 1996 and 2001. The current account and the overdraft rates were not very sensitive to changes in the Bank of England base rate. But most importantly, price dispersion across banks appears to have persisted or increased over time.<sup>(2)</sup>

## Response of bank market shares to price differentials

In order to derive a measure of how fast bank market shares varied in response to price differentials the elasticity of bank-level demand with respect to each price was estimated, controlling for differences in current account non-price characteristics. The model is described in Table A. It allows us to study the relationship between a bank's average change in market share over the period 1996 H2 to 2001 H2 and the average differential over the period between a bank's price and the prices set by its competitors. No attempt was made to analyse further the dynamics of the changes in market share and their relationship with price differentials in sub-periods for two main reasons. First, price differentials do not appear to have varied much through time.<sup>(3)</sup> Second, the period of analysis—from 1996 to 2001—is too

- (1) For each bank, these three different rates are obtained from the Moneyfacts database on quoted rates on a monthly basis and are averaged over half-years.  
 (2) As a way of analysing statistically the degree of price dispersion for each rate, its standard deviation was decomposed into a 'between group'—ie cross-sectional—component, and a 'within group'—ie time-series—component. The former component needed to be adjusted to take account of different means of the series. It turned out that the resulting 'between group' coefficient of variation was the largest for the current account rate (2.38) and the lowest for the overdraft rate (0.24).  
 (3) The lack of variation through time (seen in Charts 2a to 2c) is confirmed when the standard deviation of each variable of interest is decomposed into a 'between group' (ie cross-sectional) component and a 'within group' (ie time-series) component. For most variables, the former is much bigger than the latter. Therefore, the loss of information we incur by focusing on cross-sectional variations should be limited. We also conducted pooled OLS estimations using half-yearly series for each bank. The results are similar to those obtained for the cross-sections and are reported in a forthcoming *Bank of England Working Paper* by Gondat-Larralde and Nier.

**Table A**  
**Estimation of price elasticities of bank-level demand**

To measure how fast bank market shares respond to price differentials, the elasticity of the bank-level demand schedule with respect to the three prices (ie interest rates) is estimated using the following model:

$$\Delta MS_i = f(RD_i^j, Q_i^k)$$

where:

- $\Delta MS_i$  is the relative change (ie in per cent) in bank  $i$ 's market share in the current account market measured on a half-year basis and averaged over the period 1996 H2–2001 H2;
- $RD_i^j$  is the absolute difference (ie in percentage points) between bank  $i$ 's rate and the average rate quoted by all its competitors, averaged over the period. Three different rates are analysed: the rate on positive balances on current accounts ( $j = CA$ ); the pre-authorised overdraft rate ( $j = OD$ ); and the rate on instant access savings accounts ( $j = IA$ ); and
- $Q_i^k$  are three non-price characteristics measured at a bank level over time: the number of branches per customer; the logarithm of the number of automated teller machines (ATMs); and an index reflecting the range of transactions a current account customer can perform over the phone (the higher the number of transactions that can be performed over the phone, the higher the value of the index).

	$\Delta MS$		
	All banks (1)	Excluding 'direct' banks (2)	Excluding 'direct' banks (3)
$RD^{CA}$	9.92* (0.054)	7.12*** (0.003)	6.68** (0.025)
$RD^{IA}$	2.37 (0.226)	0.61 (0.186)	-0.67 (0.352)
$RD^{OD}$	-0.05 (0.902)	-0.21 (0.195)	-0.15 (0.118)
Number of branches per customer			5.11** (0.021)
Log (number of ATMs)			2.71** (0.012)
Phone index			0.34*** (0.000)
Adjusted R-squared	78.1%	81.1%	89.7%
Number of observations	19	15	14

\*\*\* denotes statistical significance at the 1% level, \*\* at the 5% level and \* at the 10% level. P-values are based on robust standard errors and are shown in parentheses.

short to estimate dynamics in a market in which adjustments in market shares appear to have been gradual.

The results suggest that changes in market share were moderately sensitive to differences in the current account rate across banks.<sup>(1)</sup> By contrast, the elasticities of bank-level demand with respect to the overdraft rate and to the rate offered on savings accounts were considerably lower and not significantly different from zero after controlling for non-price characteristics. The results are thus consistent with a moderate degree of imperfect competition in the market for personal current accounts during the sample period (1996–2001).

## Different types of imperfect competition

### Different explanations for price dispersion

Price dispersion is consistent with several models of imperfect competition. Price dispersion is a feature of the dynamic model of switching costs by Kim, Kliger and Vale (2003), the model of search costs developed by Salop and Stiglitz (1977), and the standard oligopoly model with differentiated products. One way to distinguish between the different possible explanations is to derive the implications of each of these (imperfect competition) models for the relationship between observable variables. In particular, it turns out that each of these models has a different implication for the relationship between individual bank market shares and prices.

#### (a) Standard oligopoly with product differentiation

Under standard assumptions of perfect competition and Cournot oligopoly, there should not be any particular relationship between market share and price. In a perfectly competitive market, it is assumed that there are numerous firms, each being so small that it cannot influence other providers' actions. If the products offered are homogenous, firms are price-takers and all charge the same price, set to equate (marginal) costs. In such an environment, there should be no price dispersion and consequently no link between price and market share.

In an oligopolistic environment, a firm's action may influence its rivals' behaviour—ie there may be some strategic interdependence between the firms in the market. In a Cournot setting,<sup>(2)</sup> firms may choose to produce different quantities depending on their costs and taking into account the strategy chosen by their rivals, but the price set by each firm is read off the aggregate, industry demand schedule. If products are heterogeneous, price dispersion may emerge across different quality levels, but there is no reason why market shares and prices should be related.

#### (b) Search cost explanation

Diamond (1971) has shown that in a market where all consumers face the same search costs, however small, firms will price at the monopoly level. However, if search

(1) Some of the 'direct' banks may have a significant impact on the measured relationship between market share changes and price differentials—ie they are potential outliers. Therefore we prefer to emphasise the results obtained for the sample of traditional banks only (when all 'direct' banks are excluded). The coefficient of  $RD^{CA}$  in equation (3) implies that a traditional, bricks and mortar bank that offers a current account rate 30 basis points (ie one standard deviation) higher than its rivals would increase its market share by 2 percentage points over six months.

(2) In a Cournot setting, the larger (smaller) is the number of firms, the closer are aggregate output and price to the perfect competition (monopoly) level.

costs differ across consumers—one group of consumers faces a low search cost whereas the remaining consumers face a high search cost and choose to remain uninformed—then price dispersion can occur, as shown in the model by Salop and Stiglitz (1977). In this model, whereas some firms set the competitive price,<sup>(1)</sup> others charge a higher price, in an attempt to exploit the fact that a proportion of the consumers choose their provider at random, being uninformed about the prices on offer.<sup>(2)</sup> However, the firms that offer the better deal will attract the most customers, given that the uninformed consumers will choose their providers at random whereas the informed consumers will always choose the lowest price provider. Hence, for any distribution of informed and uninformed consumers, this model implies that a high market share should be associated with a low price in equilibrium. Finally, decreasing unit costs ensure that both types of firms earn the same profit in equilibrium.<sup>(3)</sup>

### (c) Switching cost explanation

Current account holders rarely switch banks.<sup>(4)</sup> This may point to the importance of the cost of switching provider in this market. Switching current account providers may involve transaction costs for the customer. Such costs can arise from the need to reroute outgoing direct debits and to redirect inflowing payments. Since switching current account entails the customer leaving his established banking relationship, it may result in the information the incumbent bank has accumulated on its customers over time being lost. Switching providers may thus also result in an increase in asymmetric information between bank and customer.<sup>(5)</sup>

In a market with switching costs, a firm faces a trade-off:<sup>(6)</sup> it can raise the price it charges to its existing customers to raise its profits, but this lowers its chance of attracting new customers in the future—at worst the firm may also be losing some customers. It has been shown by Kim, Kliger and Vale (2003) that in this situation a firm will base its pricing decision on its level of market share. At the margin, for firms with bigger customer bases it is worthwhile to set a high price. For smaller firms, it is worthwhile to offer a low price to

attract new customers and to increase future profits. Whereas in the Salop and Stiglitz model, prices and market shares are negatively correlated, in a switching cost model price and market share should therefore be positively linked. Moreover, this positive relationship should be stronger, the lower the elasticity of demand with respect to price, that is the less sensitive consumers are with respect to price.

The implication of switching costs for industry profitability is, in theory, ambiguous. In the presence of switching costs, the market share becomes an important determinant of profitability. But this in turn can result in firms competing to retain or increase their market shares, lowering overall profitability (see Klemperer (1995)). In addition, as usual, profitability will depend on cost conditions.

### Determinants of prices

The relationship between level of market share and level of price was studied focusing on variation between banks, using averages over the period for each bank's variables. Some of the models under study also have implications for the relationship between market shares and prices over time. For instance, in the switching cost model, both market shares and prices would be expected to converge over the long run. But since the period under study is quite short and changes in market shares are smooth over the period, averages across time of both the market shares and prices were used to estimate the relationship between the two.

The analysis suggests that, consistent with the switching cost model, there appears to have been a positive relationship between level of market share and price—ie a negative link in the case of the current account rate and a positive link in the case of the overdraft rate. That is, the higher a bank market share, the lower the interest rate it offered on current account and the higher the rate it charged on overdrafts. Moreover, we find that the relationship between level of market share and price was stronger for the overdraft rate for which we know the elasticity of bank-level demand was low. This is consistent with the fact that in a market with switching

(1) That is the price that would prevail in the absence of search costs.

(2) *Ex ante*, consumers are assumed to know the distribution of prices in the market, but they do not know which firm charges which price. A consumer decides to get informed if, and only if, his search cost is smaller than the difference between the average price and the lowest price in the market.

(3) In the Salop and Stiglitz model, it is assumed that entry occurs as long as rents are positive. Thus, in equilibrium, every firm earns zero rent.

(4) Data on current account switching behaviour from the NOP-FRS database imply that a representative current account holder would only change banks every 91 years, ie does not switch current account provider during her lifetime.

(5) The analysis presented here does not allow to distinguish between the different possible sources of switching costs. Further analysis using more detailed data (ie at a customer level) may shed some light on this.

(6) In the case when it cannot price discriminate between existing and new customers.



**Table B**  
**Estimation of the relationship between level of prices and level of market shares**

To distinguish between the different explanations for price dispersion, the link between a bank's level of market share and the price it sets is estimated using the following model:

$$R_i^j = f(MS_i, Q_i^k)$$

where:

- $R_i^j$  is the rate  $j$  quoted by bank  $i$ , averaged over half years and the whole period. Three different rates are analysed: the rate on positive balances on current accounts ( $j = CA$ ); the pre-authorised overdraft rate ( $j = OD$ ); and the rate on instant access savings accounts ( $j = IA$ );
- $MS_i$  is the level of bank  $i$ 's market share in the current account market measured on a half-year basis and averaged over the period 1996 H1–2001 H2; and
- $Q_i^k$  are three non-price characteristics measured at a bank level over time: the number of branches per customer; the logarithm of the number of ATMs; and an index reflecting the range of transactions a current account customer can perform over the phone (the higher the number of transactions that can be performed over the phone, the higher the value of the index).

	$R^{CA}$		$R^{IA}$		$R^{OD}$	
	All banks (4)	Excluding 'direct' banks (5)	All banks (6)	Excluding 'direct' banks (7)	All banks (8)	Excluding 'direct' banks (9)
MS	<b>-0.11**</b> (0.018)	-0.02 (0.129)	<b>-0.09***</b> (0.006)	-0.05 (0.415)	<b>0.32***</b> (0.004)	0.20 (0.126)
Number of branches per customer	<b>-2.47***</b> (0.002)	0.89 (0.124)	<b>-1.79**</b> (0.039)	-0.13 (0.874)	2.17 (0.268)	-5.76 (0.194)
Log (number of ATMs)	<b>0.66*</b> (0.092)	<b>0.53**</b> (0.011)	<b>1.36***</b> (0.002)	0.79 (0.149)	-1.74 (0.140)	<b>-4.00*</b> (0.084)
Phone index	<b>-0.18***</b> (0.000)	0.003 (0.900)	-0.06 (0.259)	0.06 (0.445)	<b>0.40**</b> (0.013)	0.21 (0.619)
Adjusted R-squared	60.1%	43.2%	58.3%	37.8%	34.8%	44.1%
Number of observations	19	14	19	15	20	15

\*\*\* denotes statistical significance at the 1% level, \*\* at the 5% level and \* at the 10% level. P-values are based on robust standard errors and are shown in parentheses.

costs, the lower the price elasticity, the higher a firm's incentive to raise its price, given that its existing customers are relatively insensitive to an increase in price.

Interestingly, there does not seem to have been a strong relationship between the level of market share and rates on savings accounts. Taking this together with the finding that the cross-price elasticity between the demand for current accounts and the rate paid on savings accounts was essentially zero, the most plausible interpretation would appear to be that the current

account market and the savings market were relatively segmented. Consumers' choice of current account providers and savings account providers seem to have been independent from each other—consumers appeared to have managed to unbundle these two types of products.

## Conclusion

The dynamics of the UK market for current accounts between 1996 and 2001 are consistent with the presence of switching costs in this market. The sensitivity of firm-level demand with respect to variations in price was moderate in the case of the current account rate and close to zero for the other rates (ie the overdraft and the instant access savings rates) examined here. In addition, as predicted by the switching cost model, the level of a bank's market share was a significant determinant of the price(s) it set, particularly in the case of the overdraft rate—for which bank-level demand was relatively inelastic.

Since the end of our sample period, there have been several initiatives to facilitate switching. In response to the Cruickshank report (2000), the government asked a group led by DeAnne Julius to review the Banking Code. One set of recommendations in the report (see Julius (2001)) that has since been implemented specifically focuses on ways to facilitate switching account. Steps have also been taken to increase consumer awareness of the potential benefits of changing banks (see eg Financial Services Authority (2002)). Finally, the banks have implemented improvements to the logistics of the switching process—ie the exchange of information between the switchers' old and the new banks—to improve the speed and the accuracy of the account transfer. Even though it may be too early to assess the impact of these initiatives empirically, the results of this study would appear broadly supportive of such initiatives, in that they point to the existence of switching costs in the UK market for personal current accounts in recent years.

## References

- Cruickshank, D (2000)**, *Competition in UK banking—a report to the Chancellor of the Exchequer*, HM Treasury.
- De Bandt, O and Davis, E P (2000)**, 'Competition, contestability and market structure in European banking sectors on the eve of EMU', *Journal of Banking and Finance*, Vol. 24, pages 1,045–66.
- Diamond, P (1971)**, 'A model of price adjustment', *Journal of Economic Theory*, pages 158–68.
- Financial Services Authority (2002)**, 'Losing interest—how much can consumers save by shopping around for financial products?', *Occasional Paper*, No. 19, October.
- Gilbert, R A (1984)**, 'Bank market structure and competition—a survey', *Journal of Money, Credit, and Banking*, Vol. 16, No. 4, pages 617–60.
- Heffernan, S (2002)**, 'How do UK financial institutions really price their banking products?', *Journal of Banking and Finance*, Vol. 26, pages 1,997–2,016.
- Julius, D (2001)**, *Cracking the codes for banking customers*, Banking Services Consumer Codes Review Group, HM Treasury.
- Kim, M, Klinger, D and Vale, B (2003)**, 'Estimating switching costs and oligopolistic behaviour: the case of banking', *Journal of Financial Intermediation*, Vol. 12, No. 1, pages 25–56.
- Klemperer, P (1995)**, 'Competition when consumers have switching costs: an overview with applications to industrial organization, macroeconomics and international trade', *Review of Economic Studies*, Vol. 62, pages 513–39.
- Panzar, J and Rosse, J (1987)**, 'Testing for monopoly equilibrium', *Journal of Industrial Economics*, Vol. 35, pages 443–56.
- Salop, S and Stiglitz, J (1977)**, 'Bargains and ripoffs: a model of monopolistically competitive price dispersion', *Review of Economic Studies*, pages 493–510.