NONPRICE COMPETITION IN THE TURKISH CREDIT CARD MARKET

G. GULSUN AKIN, AHMET FARUK AYSAN, GAZI ISHAK KARA and LEVENT YILDIRAN

Attempts to explain high and sticky credit card rates have given rise to a vast literature on credit card markets. This article endeavors to explain the rates in the Turkish market using measures of nonprice competition. In this market, issuers compete monopolistically by differentiating their credit card products. The fact that consumers perceive credit cards and all other banking services as a bundle allows banks to also employ bank level characteristics to differentiate their credit cards. Thus, the features and service quality of banks are expected to affect credit card rates. Panel data estimations also control for various costs associated with credit card lending. The results show that nonprice competition variables have significant and robust effects on credit card rates. (JEL G21, G28, O16)

I. INTRODUCTION

High and sticky credit card rates that respond asymmetrically to changes in the cost of funds have been frequently cited in the literature. During the financial crises of 2000–2001 in Turkey, banks immediately raised their credit card rates from 107% in the last quarter of 2000 to 181% in the first quarter of 2001 in response to soaring short-term interest rates. However, in the recovery and stabilization period that followed, although other credit rates smoothly responded to falling short-term interest rates, credit card rates persistently remained high (Figure 1).

There are 22 credit card issuer banks in Turkey. Although this number would normally suffice to secure a competitive outcome in a market for relatively homogeneous products, the mounting profitability of the credit card business and persistently high credit card rates make the matter a considerable concern for both policymakers and researchers. Our objective, in this regard, is to pinpoint the underlying reasons of this apparent lack of competition in the credit card market and to propose coherent regulatory policies.

Explanations abound for the high and sticky spread between credit card rates and funding costs. The primary justification is that the uncollateralized nature of credit card loans leads to higher default risk and consequently to higher interest rates. Another is the noninterest bearing grace period from the day of purchase to the payment due date. Banks incur a cost to finance their customers’ purchases during this time. Furthermore, operating a credit card system entails huge investments in technology and other infrastructure. Small average balances, on the other hand, preclude the cost-effective collection process. Liquidity risk management, which is necessitated by banks’ obligation to be ready to lend up to the full amount of the issued credit cards’ limits at any time, also requires costly measures. In addition, banks may also increase their costs in efforts to differentiate

ABBREVIATIONS
BRSA: Banking Regulation and Supervision Agency
POS: Point of Sale

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their products through the distribution of benefits such as money points and other rewards. By and large, the persistently high profitability of the credit card business, despite fluctuations in the above mentioned costs, suggests that inherent costs can only partially account for high and sticky credit card rates (Ausubel 1991).

There also exist some more sophisticated explanations. Chakravorti (2003) associates credit card rates with the proportion of convenience users to revolvers. Because banks subsidize convenience users and earn interest incomes only from revolvers, the higher the ratio of convenience users, the higher the banks’ costs are. Ausubel (1991) classifies cardholders according to their rationality and how they use their credit cards. He then postulates that when banks are unable to observe cardholder types, they become reluctant to unilaterally lower their card rates for fear of attracting only adverse types. Calem and Mester (1995) and Stango (2000, 2002) emphasize the cost of cardholders switching to banks with lower rates. Mester (1994) and Park (2004) argue that sticky rates might be an equilibrium response to banks’ asymmetric information about cardholders’ future incomes. Using the Panzar-Rosse technique, Shaffer and Thomas (2007) demonstrate that banks are engaged in monopolistic competition in credit card markets and thus obtain monopoly power through differentiation.

Shaffer and Thomas’ account certainly holds for the Turkish market. Credit cards are by no means homogeneous products. Although there exists no price competition in the market (Akin et al. 2010), banks are actively engaged in fierce nonprice competition. To acquire market power, banks differentiate their cards by providing an array of card level benefits such as travel miles, bonus points, rewards, shopping discounts, the possibility of paying in installments, and travel and accident insurance.

Our premise is that banks differentiate their cards and reinforce their market power not only by such card level benefits, but also by some bank level benefits. Consumers have much more elastic demands for vehicle or housing credits, which are quite homogeneous products. Thus, they are more likely to get these loans from
banks with lower interest rates. However, survey studies suggest that consumers inelastically prefer to use the credit cards issued by their primary banks. There might be a number of reasons for this. Sometimes banks adopt strategies to subtly or overtly bundle their credit cards with other banking services. They may, for instance, choose not to facilitate their customers' payments of credit card balances at other banks. They may even intentionally encumber such monthly payments, especially for people who like to use automated payment services. Such behavior may lead consumers to view credit cards and other bank services as a bundle, consequently providing banks with market power and allowing them to differentiate their cards with the features of other banking services. The quality of a bank's services is thus rendered a determinant of credit card rates. As a result, most consumers face high switching costs in moving to other cards with lower interest rates, as changing cards means changing banks for them. Moreover, since the amounts borrowed with credit cards are generally small and of short term, benefits from switching may not justify its costs.

To test the effect of bank level characteristics on credit card rates, we utilize a recently compiled quarterly panel data set for all 22 credit card issuers in the Turkish market, which spans the period from the last quarter of 2001 to the second quarter of 2006. In developing the empirical model, we benefit from the bank-pricing models proposed by Neugenberg and Zimmerman (1990) and Hannan (1991). Three groups of explanatory variables are used to explain credit card rates. The first encompasses cost variables: the cost of funds, default risk, and liquidity risk. In the second group, we use the number of bank branches, capital ratio, and average salaries to account for the quality of general banking services. This allows us to capture the extent to which customer perceptions of credit cards and other bank services as a bundle makes an impact. The third category includes the credit card market shares of banks, which may affect prices due to product differentiation through card level benefits. Fixed effect regressions yield significant and robust positive effects of bank characteristics and market share on prices in the credit card market in Turkey, confirming that through nonprice competition, banks are able to charge higher credit card rates. Our results also support the hypothesis that credit card rates are sluggish to adjust to changes in the cost of funds even after controlling for nonprice features. These results are robust to econometric specification and methodology.

Credit card markets in developed countries have been extensively explored. However, research is scarce for developing countries, despite the recent surge in credit card markets in these economies. Among the very few studies are those by Aysan and Muslim (2006), Aysan and Yildiz (2007), and Akin et al. (2010), which illustrate the failure of price competition in the rapidly growing Turkish credit card market and reveal that responses of credit card rates to declines in the cost funds are economically insignificant. This article is the first to analyze the nature of nonprice competition in the credit card market in an emerging market economy. Analyzing nonprice competition is important and necessary in order to design and implement effective regulations for credit card markets. The Central Bank of Turkey has been applying a cap on credit card rates since June 2006 in accordance with the recently enacted credit card law. However, rates still remain exceedingly high compared with other loan rates, and tightening of the cap is on the Central Bank’s agenda. Any incorrectly designed regulations may have economy-wide adverse effects because the growing number of credit cards and increasing transaction volumes made credit cards crucial for the economy to function in recent years.

In the next section, the basic features of the Turkish credit card market are described. The empirical and theoretical background for the estimations is laid down in Section III. Section IV explains the data, variables and the

4. In support of this claim Brito and Hartley (1995) develop a dynamic model where consumers are insensitive to credit card rates and optimally choose to finance themselves via credit cards at high interest rates if transaction costs associated with other alternatives are high enough. Gross and Souleles (2002), however, present evidence showing that the average long-run elasticity of credit card borrowing with respect to interest rates may not be negligible, even when balance-shifting between cards is accounted for.
5. Taking a vehicle or home loan from another bank does not pose the same problems. The fixed amount of payments for such loans can be more easily followed and made arranging automatic periodic payment from an existing bank account.
7. For the possible adverse effects of interest rate controls, see DeMuth (1986), Staten and Johnson (1995), and Ausubel (1991), pp. 73–5.
empirical model. Results and robustness tests are presented in Section V. Section VI concludes.

II. THE TURKISH CREDIT CARD MARKET

All issuer banks in Turkey provide credit cards at the national level and compete in a vast market where the total number of credit cards was 37.3 million as of December 2007. The growth performance of the Turkish credit card market since 2000 onwards has been outstanding. The number of credit cards increased almost threefold between 2000 and 2008. The average growth rate of total outstanding balances between 2003 and 2007 was 59%, whereas the average growth rate of the total transaction volume in the same period was 43%.8

A number of factors prompted credit cards to noticeably substitute for traditional payment instruments. In addition to the usual benefits of credit cards,9 Turkish consumers, who have been living with high inflation for 30 years, especially enjoy the noninterest bearing “grace period” between shopping time and payment due date. They also benefit from being able to pay in installments without any surcharge over the cash prices of goods. Additionally, customers collect money points to be spent like cash, earn travel miles, and receive discounts when they use their credit cards. Competition among issuers in Turkey has intensified on nonprice measures in the market. Banks stress the numbers of installments, money points, travel miles, and similar rewards in their advertisements, but do not mention interest rates. Cobranding and affinity cards are among the recent popular tools for credit card differentiation in Turkey. Cobranded cards with airlines or sea transportation companies that provide frequent traveler miles, and affinity cards with soccer clubs are the most common ones. Some smaller issuers also compete by offering lower annual fees, teaser rates, and switching checks to other issuers’ customers, although competition on these features is not fierce in general.10

An important dimension of nonprice competition based on card level benefits in Turkey is the number of point of sale (POS) terminals. Banks are unable to offer such benefits if transactions are made through the POS terminals of other issuers, so consumers prefer to have credit cards of the issuers with large POS terminal networks. Leading credit card issuers also have the largest POS terminal networks; this puts smaller banks with smaller networks at a considerable disadvantage in terms of nonprice competition.

The Turkish credit card market is highly concentrated. The six largest card issuers11 hold 87% of all total outstanding balances and 80% of all customers in the market. All issuers in the market provide general banking services; credit cards are only one of their various products. The six largest issuers are also among the major players in the deposit and consumer credit markets, along with three large public banks. They have high numbers of branches, and broad ATM and POS terminal networks, and they compete on these attributes to increase their market share in individual banking.

III. BACKGROUND

Although the literature so far has highlighted the inherent costs of credit card operations, search costs, switch costs, irrationality, and asymmetric information to account for high and sticky credit card rates, we focus on bundling and product differentiation through bank level characteristics. We posit that consumers perceive credit cards and other banking services as a bundle. A recent nationwide survey on credit card usage (Akin, Aysan, and Yildiran 2009) provides strong evidence for this hypothesis: The most important criterion for credit card choice was found to be the card being issued by the consumer’s primary bank, and the most important reason for switching to another card was found to be switching to another bank. The ease of obtaining a credit card from a bank where one already has an account may be an important reason for the aforesaid perception. Making one application to a bank for all banking services including credit cards is less costly than making two separate applications for an account and for a credit card. In such a situation, as credit card revolving balances are

8. For details, see the periodically published financial stability reports of the Central Bank of the Republic of Turkey and the Banking Regulation and Supervision Agency (BRSA).
9. Such as not having to carry cash, being able to borrow at any time, enjoying the benefits of online shopping, and so on.
10. See Jalbert, Steward, and Jalbert (2008) for the arbitrage opportunities that such introductory offers can create.
11. The six largest issuers are Yapi Kredi, Garanti, Akbank, Isbank, Finansbank, and HSBC.
generally of small amounts and short term, the
cost of acquiring another bank’s credit card may
outweigh its perceived expected benefit (Akin
report supporting evidence based on the Sur-
vey of Consumer Finances. They find that con-
sumers have strong preferences for acquiring all
banking services from their primary bank. Their
justification resembles ours: Consumers demand
multiple banking services and incur a fixed cost
in dealing with each new bank. For sufficiently
high fixed costs, they prefer to buy all those
services from a single bank.

Sometimes banks also explicitly try to bundle
their credit cards with other banking services.
For instance, they intentionally make it more
convenient for their customers to pay their credit
card balances compared with balances on cards
issued by other banks. Making monthly credit
card payments from one’s account for the card
issued by the same bank is easy and can be
automated for the minimum or entire amount
due, whereas this is not possible for cards issued
by other banks. Some banks even charge fees for
money transfers made to pay other banks’ credit
card balances. As another example of bundling,
consumer loans are sometimes offered along
with a certain amount of credit card money
points or with the opportunity of earning more
money points in shopping.

These efforts imply that issuers compete on
bundles of products rather than just credit cards.
Bundling, as such, allows banks to charge prices
above their marginal costs. It also enables banks
to enhance their market power by differentiating
their cards through bank level characteristics.
Consequently, as consumers choose credit cards
for the same reasons they choose banks, a bank’s
services and characteristics should be an impor-
tant explanatory factor of its credit card rates.

In developing our empirical model, we ben-
efit from theoretical and empirical studies that
examine bank price-setting behavior. Hannan
(1991) proposes a model to examine the price-
ing of bank loans and deposits in which costs
and bank characteristics are control variables.
Berger and Hannan (1989) and Neubergen
and Zimmerman (1990) also empirically ana-
lyze bank-pricing behavior. Neubergen and
Zimmerman (1990) investigate the reasons for
lower bank deposit rates in California and con-
clude that depositors care not only for prices but
also for the quality of general banking services,
which are proxied by the number of branches,
average salaries, and overhead expenses.

We assess the impact of nonprice competition
strategies on credit card rates while controlling
for the costs to issuers. We propose that the aver-
age credit card rate set by an issuer is a function
of three types of variables: (a) variables reflect-
ing costs to the issuer, (b) variables related to
the general characteristics of the issuer bank,
capturing the effects of bundling and prod-
uct differentiation through bank level benefits,
and (c) market shares of issuers, controlling for
the level of differentiation through card level
benefits.

The variables in the first group are the cost
of funds, the cost of default risk, and the cost
of liquidity management. One period lagged
overnight interest rates are used as a proxy for
the cost of funds. Because credit cards pro-
vide short-term loans that are financed through
expensive short-term funds, the overnight inter-
est rate is a good measure of the cost of funds
for credit card issuers. The cost of funds does
not change across banks, but in time. Ausubel
(1991) states that the cost of funds is the most
frequently changing part of the marginal cost for
issuers and that credit card rates are expected
to move together with changes in the cost of
funds. We therefore expect a positive correlation
between credit card rates and overnight rates.

Delinquency rates measured by the ratio of
delinquent credit card balances to total outstand-
ing credit card balances are used as proxy for
the cost of default. However, delinquent loans
are given as stock values and include delin-
quent loans from previous periods. What is more
important for current credit card rates is the flow
of delinquent loans, which can be measured by
the first difference of delinquency rates. Delin-
quency rates affect prices through two differ-
ent channels: by increasing issuer-specific costs
and by increasing switching costs. First, because
banks have to keep provisions available for
delinquent loans, higher delinquency rates are
associated with higher costs and hence higher
prices. In that sense, Stango (2000) includes
defaults per outstanding balance as a control
variable in credit card interest margin equations.
In addition, higher delinquency rates increase
customer captivity because delinquencies dam-
age credit history and decrease the likelihood
of obtaining lower rate cards. Both these chan-
nels affect prices similarly; hence, we predict
a positive coefficient for this variable. How-
ever, an endogeneity issue arises if we include
delinquency rates as an explanatory variable.
Increased credit card rates also increase the
expected future interest burden for credit card borrowers, adding to the probability of default. We use the lag of the first difference of delinquency rates to alleviate the potential endogeneity problem, as Stango (2000) suggests.

The liquidity risk issue in credit card markets was first raised by Shaffer and Thomas (2007). Unlike other loans, banks commit to lending up to a certain amount when issuing credit cards. The full utilization of this amount is solely at the cardholders’ discretion. Consequently, banks have to be prepared to lend the amount equal to the difference between total credit card limits and outstanding balances. This additional amount necessitates holding excess cash reserves and/or liquid securities, or borrowing short-term loans. Opportunity costs arising from keeping low-yield short-term reserves or the direct cost of relying on expensive short-term borrowing comprise an important component of the total cost of issuing credit cards. We capture the cost of liquidity management with the ratio of credit card limits to total assets and expect a positive coefficient for this variable.

In the second group, we include explanatory variables to capture general bank characteristics. A variable commonly included in bank-pricing equations is the number of bank branches. Banks strategically invest in branches to expand their network and to reach more customers. The convenience of an extended network may compensate for higher credit card rates for consumers. Hence, we predict a positive coefficient for this variable. As argued by Neubergen and Zimmerman (1990), the number of branches may not fully capture the services banks provide to their customers. Banks differentiate themselves by providing free or underpriced services and better service quality. Some banks, for instance, offer their customers higher level security in online banking and POS payment systems and make it convenient to pay credit card balances. Measuring the many different aspects of the provided services is difficult; however, any extra service would be expected to add to operating costs. Thus, the cost of services may be used to measure the number and quality of services. Average salaries paid by banks are used to capture the cost of services. The average salary variable is included both by Berger and Hannan (1989) and Neubergen and Zimmerman (1990) and is a proxy for the quality of general bank services. If a competitive bank pays higher than average salaries, its employees are expected to provide better services in general, including better customer relations. Hence, we expect positive coefficients for these variables.

The soundness of a bank also matters for bank choice. Especially in Turkey, we expect the strength of a bank to be crucial in bank choice because tens of thousands of depositors lost their savings in whole or in part during the bank failures in recent history. As a proxy for the general health of the bank, the ratio of owners’ equity to total assets (capital ratio) is used, and we expect this variable to have a positive effect on credit card rates.

In the third group, we include a proxy for the banks’ market power owing to their product differentiation efforts through card level benefits. Because data on measures such as advertisement or promotional expenditures are very limited, we use market share, which is highly correlated with them, as a proxy. As in previous theoretical and empirical studies on monopolistic competition, we predict a positive coefficient for the market share variable in our estimations. Endogeneity is obviously a concern with this specification, as market shares will be affected by interest rates. However, endogeneity will bias the relation in the opposite direction, that is, higher credit card rates will imply lower market shares. To mitigate the potential endogeneity problem between current rates and current market shares, we follow Stango (2002) and use the lag of market share.

Our benchmark model capturing the effects of a number of variables on the equilibrium distribution of credit card rates is:

\[
\text{ratebp}_{it} = \beta_1 \text{costbp}_{it} \cdot L_{1it} + \beta_2 \text{delqrate}_{it} \cdot \text{LD}_{it} \\
+ \beta_3 \text{cclimitsA}_{it} + \beta_4 \text{branch}_{it} \\
+ \beta_5 \text{avgsal}_{it} + \beta_6 \text{capitalr}_{it} \\
+ \beta_7 \text{marketshare}_{it} \cdot \text{L}_{1it} \\
+ \text{trend} + \eta_i + \epsilon_{it} .
\]

A quarterly data set covering all 22 credit card issuers in Turkey is used to estimate this equation. We cover the postcrisis period from the last quarter of 2001 to the second quarter of 2007.

12. Switching cost literature (Stango 2000, 2002) also suggests the same result. Firms with larger captive customer bases may lean toward keeping their prices high in order to exploit them, foregoing gaining new customers with low prices.
2006, after which the Central Bank began to set a cap on credit card rates. As some data points were missing, certain observations were dropped to keep their number constant across various specifications. Descriptive statistics for the variables used in the estimations are presented in Table 1.13

The dependent variable in the empirical model is the credit card rates of card issuers (ratebp).14 The explanatory variables in the model were the lag of opportunity cost of funds (costbp.L1), the lagged and differenced credit card delinquency rates (delqrate.LD), credit card limits as a ratio of total assets (cclimitsA), the number of a bank’s branches (branch), average quarterly cost per employee (avgsal), owners’ equity as a ratio of total assets (capitalr), and market shares of the issuers in the credit card market lagged by one period (marketshare.L1). We also include a trend variable (trend) and bank dummies in the regressions.

The overnight borrowing rate of the previous quarter is used as a proxy for the cost of funds. Credit card delinquency rate is the ratio averages of all the different interest rates charged by an issuer. The rates are collected by the BRSA.

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**TABLE 1**

Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum Value</th>
<th>Maximum Value</th>
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<td></td>
<td>626.61</td>
<td>141.86</td>
<td>275</td>
<td>995</td>
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<tr>
<td></td>
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<td>504.69</td>
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<tr>
<td></td>
<td>Within</td>
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<td>8.88</td>
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<tr>
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<td>Within</td>
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<td>-151.44</td>
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<td>Within</td>
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<td>Within</td>
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<tr>
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<td>Within</td>
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<td>6.63</td>
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<tr>
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<td>3.95</td>
<td>7.69</td>
<td>20.43</td>
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<td>Within</td>
<td>3.83</td>
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<tr>
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<td>Within</td>
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<td>1.84</td>
<td>9.22</td>
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<tr>
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<tr>
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<td>Within</td>
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<td></td>
</tr>
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<td>Between</td>
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<td>-4.91</td>
<td>2.10</td>
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<tr>
<td></td>
<td>Within</td>
<td>1.69</td>
<td>-11.89</td>
<td>7.77</td>
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</tr>
</tbody>
</table>

*Notes: N(overall) = 328; N(between) = 22; T-bar (within) = 14.91.*
of average quarterly delinquent loans to average quarterly outstanding credit card balances. Average salary is calculated by dividing the total quarterly personnel expenses to the average number of employees in that quarter. Outstanding credit card balances is used as a proxy for the market shares of the issuers. Data on credit card balances and delinquent credit card loans are obtained from the Central Bank of Turkey. Other balance sheet items of the issuer banks and numbers of bank branches and employees are collected from the Banks Association of Turkey database.

We estimate our model using fixed effects panel data regression, in which individual effects are likely to be correlated with the explanatory variables. The Hausman test results support the utilization of this specification.

V. ESTIMATION RESULTS

Table 2 presents the results of the fixed effects regressions. Our benchmark specification is given in the first column. All explanatory variables in this specification except for delinquency rate are significant at 5% level with the expected signs. The highly significant and negative coefficient of the trend variable indicates a prominent downward trend in credit card rates in recent years. The coefficient of the cost of funds is 0.48 and indicates that a 10% decrease in the cost of funds leads to a 4.8% decrease in average credit card rates even after controlling for other variables pertaining to the credit card market.

The estimated coefficient indicates that changes in the cost of funds do not have a substantial impact on credit card rates. Under the perfect competition assumption, Ausubel expects this coefficient to be close to one. The sluggish adjustment of credit card rates to the cost of funds indicates the lack of price competition in the market.

The delinquency rate variable, another cost measure, turns out to be insignificant. This is not surprising for the Turkish credit card market. Given the extremely high credit card interest

<table>
<thead>
<tr>
<th>Dependent Variable: ratebp</th>
<th>Benchmark Specification Model I</th>
<th>Model II</th>
<th>Model III</th>
<th>Model IV</th>
<th>Model V</th>
</tr>
</thead>
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<tr>
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<td>(0.36)</td>
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<td></td>
<td>(3.27)</td>
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<td>constant</td>
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<td>0.8457</td>
<td>0.8457</td>
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Notes: (i) ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively; (ii) t-statistics are provided in parentheses; (iii) credit card rates and the cost of funds are expressed as basis points.
margins, changes in the default risk did not constitute an essential factor in banks’ pricing decisions. Until the regulation in 2006, banks in Turkey extended their credit card customer bases heedless of default risks. They acquired high-risk customers by distributing credit cards on the streets or at universities, without asking for guarantors or examining consumers’ income status, although they were more prudent in granting other consumer loans.

Estimation results indicate that liquidity management costs have a positive and significant effect on credit card rates in Turkey; however, this effect is not as large as predicted by Shaffer and Thomas (2007). A 1 percentage point increase in the liquidity risk measure increases the average credit card interest rate by 1.5 basis points.

The next three variables capture the effect of bundling on credit card rates. The coefficient of the number of bank branches variable is significant at 5% level, indicating that if a bank has 100 more branches, consumers accept interest rates that are 38 basis points higher. This finding is substantial given the considerable differences in the number of branches between big and small banks in Turkey. In our data set, one of the banks has over 1,000 branches, 3 banks have between 500 and 1,000 branches, 11 banks have between 100 and 499 branches, and 7 banks have less than 100 branches. The significant and positive coefficient of the average salary variable also reflects the importance of general banking services in credit card choice. Results indicate that an average quarterly salary increase of 1,000 TRY corresponds to banks charging credit card interest rates that are 16 basis points higher. Capital ratio has a highly significant and positive coefficient, demonstrating that the soundness of a bank is important. The coefficient for this variable shows that consumers are willing to pay interest rates that are on average 3.16 basis points higher if the bank’s capital ratio increases by 1 percentage point. The results for these three variables illustrate that bank characteristics are important determinants of credit card rates.

The positive and significant (at 5% level) coefficient of the lagged market share variable reveals that the negative endogeneity bias actually reinforces our hypothesis and thus should not be a serious concern. This finding implies that a 1 percentage point increase in market share enables the issuer to charge a credit card rate that is 6 basis points higher. Given market share differences between large and small issuers, this can have a major impact on credit card rates. The leading firm in the market is about 11,150 times larger than the smallest firm in terms of outstanding balances. This finding also confirms the expectations of the switching cost models, indicating that banks with larger market shares exploit their captive customers by applying higher credit card rates.

The pricing strategies of public banks, on the other hand, may differ from private banks due to differences in priorities. Due to social welfare concerns or populist policies, public banks may set prices that favor customers more. The distribution of issuer-specific fixed effects for the 22 banks in the benchmark model is provided in Figure 2. The bank with the lowest fixed effect coefficient is a public bank. The second lowest coefficient belongs to a private bank that is run like a public bank due to its ownership structure. The other two public banks have the sixth and eighth lowest fixed effect coefficients. These findings indicate that after controlling for costs and product differentiation, public banks set prices that favor consumers more compared to private banks.

To check the robustness of our results, other related explanatory variables are added to the benchmark specification (Model I). First, the ratio of off-balance sheet items to total assets (offbsA) is included in Model II in Table 2. Off-balance sheet items basically contain credit commitments and derivative instruments. This variable reflects the technology level and product diversity of a bank and consequently may affect credit card rates positively through the bundling effect. However, the coefficient for this variable is found to be insignificant. Signs and significances of the other explanatory variables do not alter much when we add the offbsA variable to the estimations.

Second, in Model III, the ratio of net profits to total assets (netprofitA) is added to the benchmark specification. This ratio may be considered as an additional measure of the soundness of a bank, similar to capital ratio. Thus, a positive coefficient is expected for this variable. In Model IV, both offbsA and netprofitA are used. Again, signs and significances of other explanatory variables do not change much. However, the coefficient for the netprofitA variable is not significantly different from zero.

Another control variable used to check the robustness of the estimations is the ratio of overhead expenses to total assets (overheadA). This
variable is used by Neubergen and Zimmerman (1990) in addition to the average salary variable, as a proxy for the quality of banking services. A significant positive coefficient is found for this variable as expected, in Model V. The signs and significances of the variables in the benchmark specification do not change. These analyses confirm that the results are robust to different specifications.

We also checked the appropriateness of the econometric model used in the estimations. The Hausman test reveals that the fixed effects estimations are consistent and efficient, whereas the random effects estimations are not. Hence, the choice of the fixed effects regression specification is justified.

VI. CONCLUSION

This study analyzes the sources of the apparent lack of competition in the Turkish credit card market, or equivalently of the market power of card-issuing banks. Consumers are found to view credit cards and other banking services as a bundle; the general quality of banking services and bank characteristics are thus important for consumers’ credit card choices. The bundled nature of credit card services endows banks with market power, enabling them to charge prices above their marginal costs. It also allows them to enhance this power by differentiating their credit cards through bank level characteristics. Banks differentiate their credit cards also through various card level characteristics, such as travel miles, bonus points, rewards, shopping discounts, and the possibility of paying in installments.

An empirical model is estimated to examine the effects of various nonprice competition measures on credit card rates. A quarterly panel data set for all 22 issuers in the credit card market in Turkey, spanning the period from the last quarter of 2001 to the second quarter of 2006, is used. We benefit from bank-pricing models in the literature to build the empirical model. We control for the costs of funds, default risk, and liquidity risk management in credit card operations. The number of bank branches, average salaries, and capital ratio are used as proxies for the quality of general banking services. The effect of differentiation through card level benefits is captured with the market shares of the issuers. Fixed effect regressions show that nonprice competition has an important effect on credit card rates in Turkey.

This article is the first to study the role of nonprice competition in the credit card market.
of an emerging market economy. Understanding the nature of competition is paramount in designing effective regulations. First of all, market power gained through product differentiation does not generally warrant regulation and may even be welfare-improving. Hence, to boost competition à la product differentiation through card level benefits, large banks may be forced to share their POS networks so that small issuers can also offer such benefits to their customers.

However, bundling is to the detriment of consumers. Thus, regulations should include efforts to restrain banks from explicitly devising bundling policies; these can be softer and less problematic than interest rate regulations. For example, consumers can simply be allowed to arrange automatic payments of their credit card balances at other banks from their accounts. This will certainly make it easier for consumers to adopt credit cards issued by other banks that offer better terms and lower interest rates, without being obliged to change banks.

Nevertheless, such policies may be inadequate in securing competitive rates if bundling is predominantly based on issues that are difficult to eradicate. The majority of consumers may be opting for credit cards issued by banks that have larger branch/POS networks and higher quality banking services, which naturally require substantial investments in technology and infrastructure. These investments may act as entry barriers for smaller banks in the credit card market and increase the market power of large banks; indeed, the fact that six large banks dominate the Turkish credit card market may be the outcome of such entry barriers. If this is the case, carefully calculated interest rate caps may be justified, provided that all the costs and risks pertaining to the credit card business are taken into account. However, in this event possible adverse effects should be well anticipated. Banks may respond to interest rate regulations in two ways. First, they may reprice their services to circumvent the regulations—charge annual membership fees, curtail grace period, require credit insurance from cardholders, or increase merchant discounts. Second, they may reduce the quality and availability of their services—offer fewer rewards, fewer or no installments, or choose not to offer credit cards at all to riskier and lower income customers.

Credit cards combine credit services and payment services. In this study we concentrated on credit services and credit card rates; our next study will investigate the market power of banks by considering their noninterest revenues (annual membership fees, interchange fees, and merchant discounts) from payment services as well.

REFERENCES


