To Switch Or Not To Switch: An Examination of Consumer Behavior in the Credit Card Industry

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The credit card and credit lending industry is one of the most competitive financial industries in the United States. In this industry we see a paradox between supply and competition. One could expect that competition would be abundant because many firms compete in this market. Ironically, even though competition is intense, the industry fails to offer consumers the traditional benefits arising from competition. These benefits are: low price, market incentives to switch and "sweeteners" such as lower rates, and other perks associated with credit cards.

Credit card companies compete in two different markets, a primary market and a secondary market. The primary market is the first level of competition within the industry; it is where consumers first come into the market seeking credit. It is at this level that firms vie for first-time customers. Since most people need to establish credit and since there is an abundance of banks and credit companies, the supply is elastic. Credit firms as well as commercial banks are more than willing to offer consumers lines of credit. For instance, the firms frequently visit various college and university campuses to solicit under-employed full-time students. These firms do this fully cognizant that these students are at a high risk of default.

Financial institutions also send out mailings to almost every household in the country with offers of credit. Because credit is so easy to obtain, this paper will not focus on the elasticity of supply. Instead, this paper investigates why people chose to switch credit cards within the secondary market. Consequently, the secondary market level of competition is defined here to be the level where credit card issuers and commercial banks compete for each other's existing customers. The target consumers at this level of competition are established

customers with balances on their credit cards. Consumers at this level have a certain degree of brand loyalty. Since competition at this level is basically centered on established customers, the market base contains fewer people.

This paper also explores the reasons why people switch credit cards. Specifically interest rates, fees and card balances, and perks such as frequent flier miles and shopping discounts. The market structure that makes up this vast credit card and credit lending industry will also be discussed. In addition, a correlation will be established showing a link between consumer opinion towards the credit card industry and the fierce competition between rival firms and commercial banks. Finally, a logit regression model will be used to predict consumer behavior and why the participants would switch to other credit cards. It is expected that balance and interest rates have the greatest influence on why consumers switch credit cards. The results should also show some relationship as to why people switch and whether or not they carry a balance from month to month.

I. Literature Review

The credit card industry is comprised of 4,000 firms that sell similar services to over 200 million customers nationwide. The market is not highly concentrated. That is, the top ten firms control two–fifths of the market, while the next ten, share one–tenth of the assets. Figure 1 below illustrates the holdings of credit card debt by the type of financial institution. The disparity between the commercial banks and the finance companies is especially noteworthy.

Table 1: Major Holders of Credit Card Debt (Billions of Dollars)

	1997	1998

Total	1264.1	1331.7
Commercial Banks	512.6	508.9
Finance Companies	160.0	168.5
Credit Unions	152.4	155.4
Savings Institutions	47.2	51.6
Non–financial Business	78.9	74.9

Source FRB[2]

Further, the industry has virtually no barriers to entry. In 1982, Baumol, Bailey, Panzer and Willig introduced the Contestable Markets Theory. This theory suggests that firms are able to enter the industry freely and unhindered by any barriers to entry.[3]

1. Entry is free and without limit.
2. Entry is absolute.
3. Entry is perfectly reversible. [4]

The credit card and credit lending industry fits into this model as new firms and banks enter and leave this market freely. They have no barriers to entry and costs are minimal. Once in, they compete fiercely and show little if any reluctance to compete with already established companies. They even compete directly with companies that have the largest market share.[5] This fierce competition has influenced how consumers chose credit cards, and will be discussed below.

II. Survey and Regression Model

In order to develop a fuller understanding as to why consumers choose to switch credit cards, or move balances from one card to another, a survey was distributed to faculty and staff at Iona College.[6] The survey was designed to ascertain the extent of why people would switch credit cards, and asked the following questions.

1. How many credit cards do you have?
2. What is the balance on your credit card?
3. Do you know your interest rate?
4. Would you switch cards if the interest rate were to increase?
5. Are your credit cards "maxed-out"?
6. Would you switch to another credit card if your credit were at its limit?
7. Do you consider your credit cards as another source of available cash (extension of liquidity)?

The survey was designed to ascertain primarily yes and no responses. A positive or (yes) response would be assigned a value of one, while a negative (no) response would be assigned a value of zero.[7] The survey also included two subjective questions to obtain statistical answers (i.e., How many cards do you have and what are the balance amounts). The latter question regarding balance was divided into 4 categories of:

1. Balance between $0-1500
2. Balance between $1501-3000
3. Balance between $3001-4500
4. Balance between above $4501

Each category was assigned a number from one to four in order to define average balance. For example, a mean balance of 1.70 can be equal to a balance of $1525-1550.[8]

The survey results provided some interesting results. Ninety eight percent of the people surveyed had credit cards while only 52% knew their interest rates.

Table 2: Descriptive Statistics

Variable	Mean	Std. Deviation
Balance	1.69	1.13
Maxed out	.09	.29
Switch if maxed out	.46	.49
Pay balance in full every month	.56	.49
Extension of liquidity	.38	.48

When looking at the statistical results, it is important to remember the sample and how it originated. Typically most colleges, faculty and staff are not highly compensated. This explains why the mean balance, as shown in Figure 2 is between $1525-1550. Also of interest are consumers whose credit lines are at their limits. Only nine percent of those surveyed are at their limits, but 46 percent would switch if their cards were maxed out.

To estimate the probability that consumers would switch credit cards, a logistic regression model was used and the following logit model was estimated:

(1) $S = \beta_1 B + \beta_2 IR + \beta_3 M + \beta_4 P + \beta_5 L + E$

where:

- S is the probability of switching
- B is Balance
- IR is interest rate
- M is credit limit *maxed out*
- P is do you pay your balance in full every month?
- L is extension of your liquidity.

Table 3: Regression Model

Variable	Coefficient[9]	Std. Error	t-Ratio	Prob. $\|t\| \geq X$
B	.1428	.2486E-01	5.746	.00000
IR	.2412	.5899E-01	4.089	.00004
M	.1815	.1165	1.558	.1193
P	.1133	.5627E-01	2.014	.0440
L	.1963	.6929E-01	2.833	.3849

At the 5 percent level, the following coefficients have significance: Balance, interest rate, pays balance in full, and extension of liquidity.

A logistic regression model was used to determine the probability of switching for several reasons. When using dummy variables, the dependent variable is not linear or continuous but dichotomous.[10] That is the dependent variable has only two values (1,0) or is either a responder or non-responder to the question, "Would you switch." As a result, logistic regression analysis is the most appropriate type of examination.[11] The logit model is based on cumulative logistic probability of switching explained by balance, interest rate, maxed-out, pay balance in full every month, and extension of liquidity.

The model's coefficients can be explained as follows[12]:

1. For every unit increase in balance, the probability of switching increases by .034.
2. As IR increases by one unit, the probability of switching increases by .057
3. If a person pays his/her balance in full every month, the probability of switching increases by .268.

The regression results fit my theory fairly well. As expected balance and interest rates have the greatest influence on why people switch credit cards. However, paying balance in full

is not as significant as expected. This can be explained fairly easily. Those consumers who pay their credit cards off every month might view their cards simply as an extension of liquidity. Interest rates might not mean as much to them, but if they see a lower interest rate on another card, they might still switch. In their mind, they might be saving money. Further, the variables P and L might be similar enough that they draw significance from one and other (some degree of mulitcollinearity).

Measuring the goodness of fit of a logit regression model using R^2 presents a problem. In a linear regression model, R^2 can range in values between 0 and 1. However, with a logit model that has a binary dependent variable (0,1) an R^2 close to 1 is not very likely.[13] Another way to measure goodness of fit is necessary. Calculating the t-values for the coefficients by using the formula β/S.E. (where S.E. is standard error of the coefficient) helps to determine whether any of the coefficients have any statistical significance. Another test is the Log-likelihood Test.[14] This test is similar to the F-test where the null hypothesis says that some of the βs are equal to zero.[15]

Another way to gauge the goodness of fit of a logit regression model is to look at the predicted values, which is illustrated below in Figure 4.

Table 4: Predicted Values

Value	Total[16]	Missed	Predicted
0	96	40	56
1	143	27	116

In order to interpret the above table, 0 explains why people do not switch and 1 explains why people do switch when interest rates rise. The regression model did a fairly good job with explaining why people switch, predicting accurately 81 percent of the time (116 out of 143).

Still, the model does not predict well on why people do not switch. Here, the model over predicts, (56 out of 96).

A number of reasons can explain the slightly weaker statistics interpreted by the regression model. A population sample from the faculty and staff at Iona College was questioned in a yes and no questionnaire. The salary range on campus runs from a low of $25,000 per year to a high of $180,000.[17] The average salary at Iona College is about $50,000 per year. Let's look at the following example:

A person makes $50,000 per year and has two credit cards with an average balance of $6500.00 at 13.5 percent interest. The consumer sees an ad for a credit card charging 8.8 percent for the first 6 months and 12.5 percent after that. It should be noted that it takes the average credit card company between 60 to 90 days to consolidate debt into one account.[18] Within that time period, the consumer plans on paying off $5,000 of that debt. Because of this initial small balance, it does not pay for the consumer to switch credit cards. However, it might pay for someone earning $100,000+ with credit card balances averaging around $10,000. For a person with larger credit balances, it pays to shop around for lower interest rates.[19]

Another factor in determining why people switch is the use of credit cards as an extension of liquidity. An extension of liquidity can be defined as consumers using another medium of exchange other than cash. Some consumers might view their credit cards as an extension of liquidity, and might want lower interest rates. For example: a person enters a bookstore and wants to purchase a book costing $10. At the register the person realizes that he/she does not have enough cash and decides to use his/her credit card to purchase this book, with every intention of paying this balance off at the end of the month. The consumer does this

on a regular basis, using his credit card(s) as alternative to cash. To this consumer, interest rates do not matter, and therefore might not switch credit cards as often.

These regression results show two variables that seem to explain what influences consumer behavior towards switching. These two variables are balance and interest rates. The regression appears to explain that when balance increases, the probability of switching increases and when interest rates increase, the probability of switching also increases. Still, the model has trouble explaining why consumers do not switch and stay with the same credit card.

One reason as to why people do not switch might have to do with switching costs. These are costs associated with changing from one card to another and come in two basic types. One is the cost of searching for a new supplier and then setting up a relationship. The other are the charges that the old credit issuers apply for terminating the relationship. Some markets, including the credit card market, charge substantial changeover costs regarding switching from one product to another.[20] These added costs for switching contributes to the consumer behavior of not changing cards regardless of the new card's interest rate and attributes to competition failure within the industry.

Further, it is not unusual for consumers to maintain or practice a loyalty towards a product or brand they have been using for a long time. Usage of credit cards appears to fall into this category. If credit card holders are content with their interest rate (low or otherwise) or with continual special "rewards," they hesitate to make a change. Their perception of receiving premiums based on frequent use is often enough to keep many customers from switching to other credit lenders. This perception may change if the consumer becomes dissatisfied with the level of perquisites or an exceptional rise in rates. At this point, consumers will search for something better.

In fact, customers will often switch, even though they are unaware of switching costs or future increases in interest rates. This troubling lack of awareness is best explained by consumer ignorance, or not knowing enough about a particular product they are using. Being unaware of interest rates or credit card balances often lead to poor and costly decisions by consumers.

As explained earlier, we would look at ease of entry, and firm population within the industry as a possible explanation of why people do not switch.[21] The Contestable Markets Theory explains that Entry is free and without limit, and Entry is absolute. There are thousands of firms, and all of them are soliciting people to use their cards. Instead of reading material sent to them, consumers are ignoring deals on credit cards and not switching.

As noted earlier, over 3.45 billion mail solicitations for financial firms offering credit cards were sent out last year. Their main targets are consumers who may be simply uninformed about the credit card industry. Banks and credit lending firms dupe customers into switching balances with teaser rates. These teaser rates are simply, a lower rate for the first year or so, then unbeknownst to the consumer, raising the rates to prime plus dozen or so points.

For example, a person has a card with firm A, and has a $5,000.00 balance at 15.7 percent interest. The customer receives an offer from another bank (firm B) with an offer of a card at 9.9 percent interest. The only thing the customer has to do is to switch their balance over to the new firm. However, in the small print, the customer fails to notice that after one year, the interest rate will jump from 9.9 percent to prime plus 12 (at today's prime rate of 9.50, that is 21.50 percent interest). The customer saves money in the short run, but ends up paying more in the long run, with an interest rate that is almost 5 percent higher than what he was

paying with the original company. Consumer ignorance hurts the consumer worse than the price wars levied by the credit card market.

III. Conclusion

Despite the number of firms within the credit card and credit industry, consumers are tending not to switch or even bother to look for credit cards. They do not switch even though they might save money. Because such aggressive competition exists within this industry, consumers are all but ignoring credit card offers they are receiving in the mail and even by telephone.

There is a trend that consumers are becoming more and more insensitive to interest–rate selection, because they feel that they can never get a better rate. There is so much competition between the credit card companies and commercial banks that consumers have become increasingly wary of the scams and teaser rates constantly offered by issuers. If banks try to counter this problem by unilaterally lowering their interest rates, they draw customers that do intend to borrow, but have poorer credit ratings and therefore higher risk.

The empirical data collected in the survey, tends to support that balance and interest rates affect people's decisions whether to switch or not switch their credit cards. The regression results also tend to support that some people use their credit cards as an extra source of cash, extension of liquidity. Still, there is a disturbing trend of consumer ignorance that must be noted.

These consumers are not interested in minimizing their borrowing costs, simply because they do not know enough about the industry or their own spending habits. There is no evidence

that consumers are offered competitive interest rates by their banks or any evidence that suggests that people are influenced by lower rates that are offered to them.

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Endnotes

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[2] Board of Governors of the Federal Reserve Board, FRB Annual Report, "The Profitability of Credit Card Operations of Depository Institutions." [http://www.ny.frb.org/], June 1999.

[3] This section draws primarily from the article by W.J. Baumol, "Contestable Markets, an Uprising in the Theory of Industrial Structure." *American Economic Review* (March 1982), 72, 1-15.

[4] Shepherd, William *The Economics of Industrial Organization (*Prentice Hall, CA. 1990) 282-3.

[5] For further reading on the *Contestable Markets Theory,* refer to the above-mentioned Baumol article (March 1982). Other articles and texts are; Shepherd, W.G. "Contestability versus Competition" *American Economic Review,* 74 (September 1984) 572-87 and Baumol, Panzar and Willig. *Contestable Markets and Theory of Industrial Structure* (San Diego, CA.: Harcourt Brace and Jovanovich, 1982).

[6] Over 625 surveys were distributed on campus, and 213 were filled out and returned.

[7] Only responses with a value of 1 will impact or have any influence on the regression model.

[8] The survey did not ask for a specific balance amount. Instead 4 tiers of equal increments were designed and respondents check off the tier that their balance range fit into. LIMDEP 7.0 then took the responses, calculated a mean value of 1.70 ($1525-1550). This is the average credit card balance (from the respondents).

[9] Each coefficient (β_o) equals the change in the log of the odds of switching the explainers by one unit. For more information on interpreting log linear regressions please refer to Chapter 11 of Pindyck, Robert S. and Rubinfeld, Daniel L. *Econometric Models and Economic Forecasts* (Irwin McGraw-Hill, NY 1998).

[10] Grimm, Laurence and Yarnold, Paul R. *Reading and Understanding Multivariate Statistics* (Washington DC: American Psychological Association 1998) p. 217.

[11] Pindyck, Robert S. and Rubinfeld, Daniel L. *Econometric Models and Economic Forecasts* (Irwin McGraw-Hill, NY 1998) 307.

[12] In order to calculate how each significant coefficient effects the probability of switching, you must transform the β_os into probabilities (β^*) with the following formula $\beta^* = \beta_o * P(1-P)$. Where P=average proportion to switching. For further information see Pindyck, Robert S. and Rubinfeld, Daniel L. *Econometric Models and Economic Forecasts* (Irwin McGraw-Hill, NY 1998) 316.

[13] Pindyck, Robert S. and Rubinfeld, Daniel L. *Econometric Models and Economic Forecasts* (Irwin McGraw-Hill, NY 1998) 317.

[14] Ibid. p. 274.

[15] The formula for the log-likelihood test is: Log Likelihood 1 – Log Likelihood 2= $\chi^{2.}$ You then compare the sample χ^2 to a critical χ^2 with K-1 degrees of freedom, and your H_o: $\beta=0$ and the H_a: $\beta\neq0$. In this case my sample $\chi^2= 1.53 \geq$ the critical $\chi^2= .711$ at the 5 percent confidence level. So you reject the null and none of the variables are equal to 0.

[16] The total N=213, and the survey correctly predicted 172 responses (71 percent).

[17] The president of the college receives this $180,000 per year salary.

[18] Board of Governors of the Federal Reserve Board, FRB Annual Report, "The Profitability of Credit Card Operations of Depository Institutions." [http://www.ny.frb.org/], June 1999.

[19] For example: $1000 at 6 percent interest is an interest payment of $60. A $10,000 balance paying 6 percent interest is an interest payment of $600.

[20] Klemperer, Paul "The Competitiveness of Markets and Switching Costs" *Rand Journal of Economics.* (Spring 1987) (18) (1) p. 138

[21] Shepherd, William *The Economics of Industrial Organization (*Prentice Hall, CA. 1990). 282-3.