Borrowing Decision of Households: An Examination of the Information Search Process

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This study uses the 2009 National Financial Capability Study dataset to examine the factors associated with information search behavior by consumers when applying for a loan. The results indicate that financial literacy, perceived financial knowledge, educational attainment, and engaging the services of a financial professional are positively associated with the likelihood of information search among consumers. The results also indicate that consumers from the traditionally underserved groups, who would benefit most from better information search, were the least likely to use it. The results of this study are important to consumers, educators, and financial practitioners. A discussion of the implications addressing the association between financial literacy, information search behavior, and household financial capability within the population is also included in this study.

Keywords: financial decision making, information search behavior, borrowing behavior, financial literacy, financial knowledge, risk tolerance

The debt burden of Americans has been rising steadily over the past two decades. Along with sustained recovery of the U.S. economy, more consumers have started borrowing from the financial institutions to meet their financial needs. The Federal Reserve's Aggregate Consumer Debt Survey shows that as of January 2016, the total amount of consumer borrowing (including revolving and nonrevolving loans) was $3.5 billion. This is approximately 50% higher than the total consumer borrowing from a decade ago ($2.4 billion in January 2006). The Federal Reserve Statistical Release (2017) also shows that the outstanding home mortgages nearly tripled over the past two decades, increasing from $3.75 trillion in 1997 to $9.8 trillion in 2016.

One possible reason for this increase in the amount of outstanding loans is the increase in consumer access to available credit (Campbell, 2006). Other studies conclude that most individuals lack the financial knowledge and background to understand complex loan terms and conditions. Low levels of financial literacy make it even more difficult for a consumer to be able to understand sophisticated financial information (Lusardi & Mitchell, 2009). Many uninformed borrowers are thus forced to select from a large pool of very sophisticated financial products to meet their credit needs.

This study examines whether a lack of financial literacy may also be associated with limited information search done by consumers when applying for revolving credit such as a credit card or when applying for a longer term loan such as a mortgage. Consumers typically rely on a limited set of sources they trust when acquiring information on products and services they are about to consume. Preferences for their trusted information sources largely vary by socioeconomic status, gender, human capital, and related experience (Fodness & Murray, 1999; Schaninger & Sciglimpaglia, 1981).

The observed information search behavior of consumers is therefore in contrast to the recommended information search behavior that could enable consumers to select products with greater benefits and lower costs. This would increase satisfaction and reduce the risk associated with the selection they ultimately made (Bennett & Harrell, 1975; Punj & Staelin, 1983). It is possible that a lack of financial

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http://dx.doi.org/10.1891/1052-3073.28.1.95

literacy along with easy accessibility of loan products plays a role in consumers' limited information search behavior when accessing credit. This study explores the factors that are associated with the limited scope of information search for credit card loans and other loan-based products among consumers. This study fills a gap in the existing literature by examining the role of financial literacy in the information search behavior of credit-seeking households.

Literature Review

Financial literacy can be broadly defined as a person's understanding of personal finance and their skill in managing money (Giesler & Veresiu, 2014). Researchers have studied the positive relationship between (prior) knowledge and information processing, opinions, decisions, and behaviors (Chen & Volpe, 1998; Hilgert, Hogarth, & Beverly, 2003; Liebermann & Flint-Goor,1996). Xiao, Serido, and Shim (2012) suggest that subjective financial knowledge can be increased by offering financial education courses in high schools and colleges. This would be a source of financial information for students, which in turn reduced the likelihood of engaging in risky credit behavior. Considering college students, higher education achievement, better school performance (higher grade point average [GPA]), and being female are associated with less risky borrowing behavior. However, personal finance courses could not directly increase the objective financial knowledge. Moreover, Xiao et al. (2012) also found that taking these courses would increase the likelihood of college students engaging in risky credit behavior. Objective knowledge is unaffected by taking financial-related courses, which means that other than formal education courses, some other financial information sources, such as parents and other family members, may have potential in shaping students' objective financial knowledge and borrowing behavior.

Perry (2012) used a qualitative method to profile different types of credit users when making their decisions: whether people using the cost–benefit analysis to compare credit offers and annual percentage rates (APR) affecting their information search behaviors; and some internal factors, such as self-control, motivations, and mental accounting, play an important role in this process as well. The study showed that cost information is the primary factor when consumers evaluate credit card offers. Simple and easily accessible information may be more effective for informing lower motivated decision makers.

Financial literacy (or lack of it) has a strong association with costly borrowing behavior. People with lower financial literacy are more likely to engage in high-interest borrowing than people with higher financial literacy (Mottola, 2013). Interestingly, perceived financial literacy, or the consumers' self-assessed financial knowledge, is also a strong predictor of better money management behavior (Allgood & Walstad, 2013). Borrowing from high-cost sources (Lusardi & Tufano, 2009) and unwise use of credit cards (Allgood & Walstad, 2011) are found occurring more among women, especially younger than age 60 years, than men. College educated people are less likely to acquire funds by using costly credit cards (Mottola, 2013). More numerate people tend to select lower subjective discount rates (Agarwal & Mazumder, 2013). The higher the scores of self-assessed math skills, the less likely people will engage in costly credit card behaviors (Mottola, 2013).

Grable and Joo (1999) have found that young people who encounter higher financial stress and are caught up in poor financial decisions are more likely to seek help to improve their financial decision making. Grable and Joo (2001) further discovered that those who seek help from financial professionals tend to have higher risk tolerance. A sufficiently high level of educational attainment has been found to be a very important factor for those consumers who search for information before purchasing a product or service, and also to understand the complexity of information in marketplaces during their information search process (Clement, 2009). This study uses a framework grounded in past literature that establishes the information search behavior of households as a function of their internal and external resources (Archibald, Haulman, & Moody, 1983; Beales, Craswell, & Saop; 1981; Moore & Lehmann, 1980; Punj & Staelin, 1983).

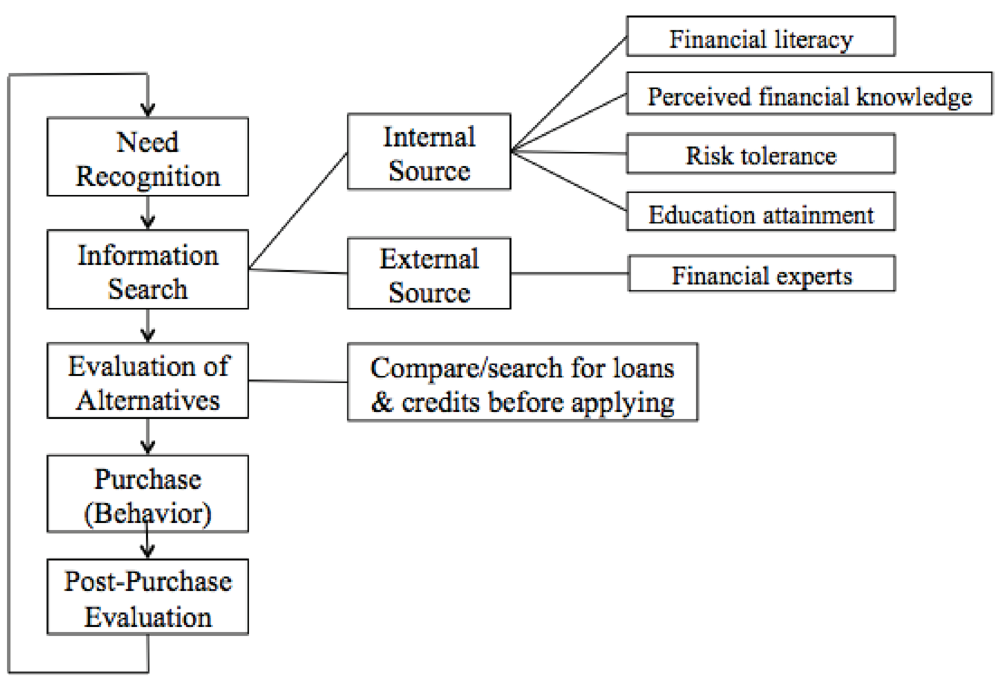
Conceptual Framework

Consumers engage in a complex decision-making process when selecting a product or a service to meet their requirements. The seminal work on the theory of search process by Stigler (1961) assumes that consumers decide on and choose the best set of alternatives based on their search results. Consumers will search until the marginal cost from a unit of search is equal to the marginal benefit arising from the search to maximize the use of search. When the cost is low enough or the benefit is high enough, consumers have positive use from the search process; otherwise, they will stop searching because the marginal cost exceeds the marginal benefit. The cost and benefit can be direct (money) or indirect (time). Stigler's search theory also states that there is incomplete information in the market and information is a special kind of commodity and yet unique enough to have market value. Information asymmetry is imbedded into the market and obtaining it can be costly, which is the reason that consumers would want to weigh the cost–benefit for information search activities, including choosing optimal information sources. Financial professionals provide external information which may reduce the marginal cost of searching compared with searching information without any assistance by consumers themselves (Collins, 2012a; Evans, 2009).

This consumer decision making process can be summarized in five steps (Engel, Blackwell, & Kollat, 1968). The five stages compose of need recognition, information search, evaluation of the available alternatives, purchase decision, and postpurchase evaluation of the product. In the need recognition stage, consumers can either perceive a problem or need within their current environment and choose to correct this disequilibrium by acquiring a product or service. During the information search stage, consumers evaluate the choices and options available. The extent and recognition of the choices available to them depend on their ability to search information using various available internal and external sources of relevant information. In the third stage, consumers evaluate and process information on the various choices and alternatives available. Once the evaluation process is complete, consumers decide to acquire the product or service based on their evaluation of the available options from the previous stage. Once the consumers have acquired the product or service, they then try to determine whether the acquired product or services do indeed meet their needs.

This article focuses specifically on the information search stage of the consumer decision-making model. This study uses the framework for information search established by Moore and Lehmann (1980) and Bunn (1993). The model shown in Figure 1 explains the information search behavior of households within this context. This article also emphasizes roles played by both internal and external sources in the information search process that leads to the evaluation of the various borrowing options available to households. The internal sources of information search depend on an individual's ability to understand the different choices

Figure 1. Conceptual framework of consumer information search behavior.



Adapted from Engel, J. F., Blackwell, R. D., & Kollat, D. T. (1968). *Consumer behavior*. Hinsdale, IL: Dryden Press.

available and to be able to recall their experience of using similar products or services in the past. The extent and quality of internal search also depends on the ability of consumers to understand alternatives available to them and their propensity for taking risks. This is in selecting products or services when there is uncertainty about the outcome and about the information that is available for making such a selection decision (Bunn, 1993). Financial literacy, perceived financial knowledge, risk tolerance, and educational attainment are included as the internal search variables for this study. Previous studies have shown that an individual's financial literacy and educational attainment are related to their ability to seek, process, and understand the information that is available (Joo & Grable, 2004; Lusardi & Mitchell, 2009). These variables have also been associated with household borrowing behavior and household financial well-being in prior literature (Mottola, 2013). External resources available for helping consumers in their information search include resources, such as family or friends, and nonpersonal resources, such as a counselor, specific marketing materials related to the product or service, and information available through various forms of media (Punj & Staelin, 1983). Seeking services of a financial counselor is used as the external source of information for this study. Based on this theoretical framework and findings from previous literature, the hypotheses are as follows:

H1: Households with greater internal sources of information are more likely to evaluate the different lending products that are available to meet their credit needs after controlling for several other socioeconomic and demographic factors.

H2: Households with greater external sources of information are more likely to evaluate the different lending products that are available to meet their credit needs after controlling for several other socioeconomic and demographic factors.

Data

This study uses the 2009 National Financial Capability Study (NFCS)—the state-by-state survey for this study, which includes approximately 25,000 respondents. The survey is supported by the FINRA Investor Education Foundation. The survey instruments were designed by Dr. Annamaria Lusardi of Dartmouth College, Applied Research and Consulting LLC (ARC), the FINRA Investor Education Foundation, and the Office of Financial Education of the U.S. Treasury Department. This data oversamples economically disadvantaged minority groups and adults with less than a high school education to ensure adequate representation from financially underserved groups. Although a newer wave of the NFCS data was available for 2012, we used the 2009 wave because it included more detailed information on comparison and evaluation of different types of credit card and mortgage loans by borrowers, whereas the most recent wave of data from 2012 did not include information on mortgage loan comparison by the respondents. The dataset contains rich data on respondents' information search behavior and their financial literacy along with other demographic, behavioral, and financial capability-related characteristics (FINRA Investor Education Foundation, 2009; Lusardi, Mitchell, & Curto, 2010). Several recent studies have used this dataset to examine the association between financial knowledge, financial capability, and financial decision making of households. Johnson and Lamdin (2015) used this dataset recently to examine the association between perceived financial capability and financial outcomes of the respondents. Similarly, Collins (2012a) used the NFCS dataset and found that people with higher educational attainment and greater financial capability were more likely to seek financial advice from professionals, but people with lower levels of financial capability and low educational attainment were less likely to do so. Xiao, Chen, and Sun (2015) found in a related study using the NFCS dataset that financial capability of individuals increased with age. The total number of respondents who answered all of the questions and either owned a home or a credit card was 20,779. The respondents who selected "don't know" or "prefer not to say" to the questions in the sample were dropped. Among the remaining respondents, 19,615 owned a credit card, and 17,368 of the respondents reported being homeowners.

Variables

Dependent variables

Two binary variables were used as dependent variables. The first variable examines whether borrowers who reported having a credit card actually evaluated credit cards before applying for one. The variable was coded as 1 if *yes* and as 0 if *otherwise*.

The second variable examines whether the homeowners evaluated different mortgage loan options available before selecting a mortgage. The variable is coded as 1 if the *borrower compared loans* and as 0 if this was not the case.

Independent Variables

Internal Sources. The level of financial literacy is a variable of interest in this study. It was measured using the method described in the Lusardi et al. (2010) study. The respondents were asked questions that tested knowledge of their financial reality, questions which everyone needs to apply in everyday life. The responses to each of the mentioned questions were coded as 1 if *correct* and 0 if *incorrect*. The responses to these questions were then summed to create a composite financial literacy score ranging from 5 if the respondents answered all five questions correctly to 0 if the respondents did not answer any of the questions correctly. The respondents who answered "don't know" or "prefer not to say" were dropped from this study. The second variable of interest was perceived financial knowledge. This was measured on a scale of 1–7, where 7 refers to the *highest level of perceived financial knowledge* and 1 refers to the *lowest level of perceived financial knowledge*. The question was asked in the following way: "On a scale from 1 to 7, where 1 means *very low* and 7 means *very high*, how would you assess your overall financial knowledge?" Respondents who answered "don't know" or "prefer not to say" were dropped from this study. Other internal sources of information included in this model consist of educational attainment and risk tolerance. The risk tolerance variable is constructed based on the participants' responses to the risk tolerance scale included in the FINRA dataset. The respondents were asked to respond to the following question on a 10-point scale: "When thinking of your financial investments, how willing are you to take risks?" Responses could range from 1 (*not at all willing to take risk*) to 10 (*very willing to take risk*).

External Sources. The respondents were asked whether they had ever taken help or advice from finance professionals. The questions are as follows: "In the last 5 years, have you asked for any advice from a financial professional about any of the following? 1) Debt counseling, 2) Savings or investments, 3) Taking out a mortgage or a loan, 4) Insurance of any type, and 5) Tax planning." The responses were coded as 1 if yes and as 0 if otherwise. In a previous study, Grable and Joo (2001) found that those who engage the services of a financial professional tend to enjoy a higher level of financial satisfaction and demonstrate better financial behavior.

Control Variables. Other sociodemographic variables such as age, gender, income, and marital status were included as controls in our model because of their association with borrowing decisions of households in the previous literature (Allgood & Walstad, 2011; Griskevicius et al., 2012; Lusardi & Tufano, 2009; Mottola, 2013; Sevim, Temizel, & Sayılır, 2012).

Descriptive Statistics and Data Analyses. Table 1 shows the descriptive statistics for this study. The results indicate that approximately 25% of the respondents compared credit cards before making their selection decision, whereas approximately 17% of the respondents compared mortgages before selecting one. On a scale of 0–5, the average financial literacy score of the respondents was approximately 3. On a 1–7 scale, the average perceived financial knowledge score of the respondents was 5. On average, the respondents owned four credit cards. In this study, approximately 53% of the respondents were female, 56% were married, and about 38% of the respondents had educational attainments of college or higher. Approximately, 58% of the respondents were employed, and 26% had family income more than $75,000. Both dependent variables in this study are coded as binary variables. Probit models are therefore used for the empirical analyses of this study (Wooldridge, 2006).

Results

Comparing Credit Cards

The factors associated with comparing credit cards are shown in Table 2. The results indicate that many of the internal sources of information—financial literacy, perceived financial knowledge, and educational attainment—are positively associated with the consumers' decisions to compare across credit cards when applying for one. When compared to the respondents with educational attainment of lower than high school, all of the other educational attainment categories were significant and positively associated with the credit card comparison behavior of the respondents. Seeking the advice of a financial counselor or professional when applying for a credit card, an external source of information is also positively associated with comparing credit cards by consumers when applying for revolving credit.

Among other variables, results show that respondents who were 55 years or older are more likely to compare credit cards before applying for one when compared with the reference group of respondents younger than 25 years. This perhaps

TABLE 1. Descriptive Statistics (*N* = 20,779)

Variables	%/*M*	*SD*
Compared credit	25	
Compared loans	17	
Financial literacy	3.12	1.417
Perceived financial literacy	4.88	1.462
Risk tolerance	4.41	2.592
Have financial professional	10	
Average number of credit cards	4	
Age (years)		
18–24	12	
25–34	18	
35–44	19	
45–54	21	
55–64	16	
65+	14	
Education		
<High school	3	
High school	24	
Some college	35	
College	24	
Graduate	14	
Female	53	
Marital status		
Married	56	
Single	26	
Divorced or separated	14	
Widowed	4	
Have children	76	
White	75	
Income		
<$15,000	13	
$15,000–$25,000	13	
$25,000–$35,000	13	
$35,000–$50,000	16	
$50,000–$75,000	19	
$75,000–$100,000	12	
>$100,000	14	
Employment status		
Not working	26	
Work full-time	39	
Self-employed	9	
Retired	16	
Work part-time	10	

indicates that information search behavior when making a borrowing decision increases with age. Compared to the reference group of respondents who reported being single, married respondents were more likely to compare credit cards before selecting one. Similarly, compared to the reference group of respondents with income less than $15,000, those individuals who reported having an income of $25,000 or more were more likely to compare credit cards. Also, compared to the reference group of individuals who were employed full time, the self-employed were more likely to compare credit card options before selecting one. Comparing credit cards when shopping for one was negatively associated with the number of children in the household and when compared with the Whites, the non-White respondents were less likely to compare credit cards when selecting one. When applying for a credit card, the likelihood of comparing and evaluating credit card features reduced with the number of credit cards that a person had.

Comparing Loans

Factors associated with comparing loans before applying for a mortgage are shown in Table 3. The results indicate that internal sources of information—such as financial literacy, perceived financial knowledge, and educational attainment of higher than high school—are positively associated with the likelihood of consumers' comparing mortgage products before applying for a home loan. Seeking the advice of finance professional when applying for a mortgage loan, which is an external source of information in our theoretical framework, is also positively associated with comparing of mortgage loans by consumers.

Among other variables, the findings show that when compared with respondents who were younger than 25 years, those respondents who were 35 years or older were more likely to compare mortgages when applying for one. The likelihood of mortgage comparison is also positively associated with being married when compared with the reference group of being single, and an income of $75,000 or more increased the likelihood of comparing mortgages when compared with the reference group of respondent with income less than $15,000. The likelihood of comparing mortgage loans reduced with having children in the household, among women, and for non-White households. When compared with respondents who worked full-time, the respondents who worked part-time were less likely to compare options when shopping for mortgages.

TABLE 2. Probit Analysis of Comparing Credit Cards

	Variables	Coef.	*SD*	Sig
Internal sources	Financial literacy score	0.081	0.007	***
	Perceived financial knowledge	0.108	0.007	***
	Risk tolerance	0.031	0.104	
	Education (ref: <high school)			
	High school	0.158	0.067	***
	Some college	0.249	0.066	***
	College	0.338	0.067	***
	Graduate	0.361	0.069	***
External source	Seek help of finance professional	0.064	0.028	**
Other factors	Age (ref: 18–24)			
	25–34	0.028	0.036	
	35–44	0.077	0.137	
	45–54	0.081	0.136	
	55–64	0.071	0.040	*
	65+	0.149	0.047	***
	Female	−0.013	0.018	
	Marital status (ref: single)			
	Married	0.105	0.026	***
	Divorced/separated	−0.003	0.033	
	Widowed	0.006	0.052	
	Children	−0.021	0.009	***
	Non-White (ref: White)	−0.054	0.021	**
	Income (ref: <$15,000)			
	$15,000–$25,000	0.028	0.035	
	$25,000–$35,000	0.096	0.033	***
	$35,000–$50,000	0.175	0.031	***
	$50,000–$75,000	0.203	0.029	***
	$75,000–$100,000	0.247	0.033	***
	>$100,000	0.255	0.034	***
	Employment (ref: work full-time)			
	Self-employed	0.084	0.030	***
	Retired	0.031	0.032	
	Work part-time	−0.003	0.031	
	Not working	−0.103	0.081	
	Number of credit cards	−0.164	0.007	***
	Intercept	−2.084	0.079	***

Note. $N = 19{,}615$; $R^2 = 0.1527$. Coef. = coefficient; Sig = significance.
*$p < .05$. **$p < .01$. ***$p < .001$.

TABLE 3. Probit Analysis of Comparing Mortgage Loans

	Variables	Coef.	*SD*	Sig
Internal sources	Financial literacy score	0.034	0.011	***
	Perceived financial knowledge	0.034	0.011	***
	Risk tolerance	−0.001	0.005	
	Education (ref: <high school)			
	High school	0.228	0.131	
	Some college	0.361	0.130	***
	College	0.361	0.130	***
	Graduate	0.436	0.132	***
External source	Seek help of financial professional	0.667	0.025	***
Other factors	Age (ref: 18–24)			
	25–34	0.177	0.169	
	25–34	0.253	0.109	**
	45–54	0.702	0.070	***
	55–64	0.892	0.074	***
	65+	1.085	0.085	***
	Female	−0.098	0.027	***
	Marital status (ref: single)			
	Married	0.183	0.041	***
	Divorced/separated	0.178	0.155	
	Widowed	0.125	0.087	
	Children	−0.038	0.012	***
	Non-White (ref: White)	−0.070	0.031	**
	Income (ref:<$15,000)	−0.188	0.069	
	$15,000–$25,000	0.016	0.057	
	$25,000–$35,000	0.011	0.049	
	$35,000–$50,000	0.077	0.084	
	$50,000–$75,000	0.072	0.046	
	$75,000–$100,000	0.151	0.046	***
	>$100,000	0.129	0.041	**
	Employment (ref: work full-time)			
	Self-employed	0.231	0.050	***
	Retired	−0.022	0.048	
	Work part-time	−1.421	0.157	***
	Not working	−0.983	0.771	
	Intercept	−1.107	0.055	***

Note. $N = 17{,}368$. $R^2 = 0.1726$. Coef. = coefficient; Sig = significance.
$*p < .05$. $**p < .01$. $***p < .001$.

Discussion and Conclusion

The results of this study are consistent with the hypotheses of this study that households with greater internal and external resources are more likely to engage in informed borrowing behavior by comparing and evaluating their options for credit cards and mortgage loans before selecting these products. Results indicate that three of our proposed internal sources of information—financial literacy, perceived financial knowledge, and higher educational attainment—were positively associated with comparing of credit cards and mortgage products among households when they made their borrowing decisions. Results also indicate that seeking the help of a financial professional, an external source of information, was also positively associated with comparing credit card and mortgage loan options among the respondents. Risk tolerance, however, was not associated with the comparison shopping of credit cards and mortgage products among households after controlling for the other variables.

In addition to confirming the hypotheses based on the theoretical framework of this study, the results also reveal several additional interesting findings. The results indicate that comparison shopping for credit cards is significantly higher in the 55 years or older age groups. This is consistent with findings from previous studies which indicate that responsible borrowing behavior increases with age and educational attainment (Sprenger & Stavins, 2010). It may also be that older individuals are more experienced in using and managing revolving credit. Findings from the area of household behavior in financial markets suggest that individuals become better with managing money as they gain experience (Elliott, Hodge, & Jackson, 2008; Nicolosi, Peng, & Zhu, 2009). Experience with negotiating and having responsibility for managing their own businesses is possibly the reason that the self-employed were more likely to engage in comparative shopping for both credit cards and mortgage loans when compared with others.

The likelihood of searching and evaluating credit cards when applying for one reduced with the number of credit cards that a consumer had. This finding needs more investigation in future studies. It is possible that as the number of credit cards a person owns increases, their need to search for information decreases when applying for new credit cards because of past experience. It is also possible that consumers with multiple credit cards were less likely to shop around and evaluate when applying for one because they were less informed and were less capable of optimally managing their debt and spending behavior. Perhaps, a longitudinal study examining this issue will provide better understanding of the underlying factors resulting in this negative association between owning number of credit cards and information search when applying for one. Another cause for concern is that the non-White respondents were less likely to engage in comparative shopping for credit cards and for mortgage products. Previous studies have shown that racial/ethnic minorities lagged behind in financial literacy (Lusardi et al., 2010; Lusardi & Tufano, 2009). Therefore, it is possible that the minority households did not have the financial capability to comparison shop and were only able to apply a constrained information search behavior when making their borrowing decisions. In addition, many of the previous studies have shown that non-White (minority) households faced non-prejudiced "statistical" discrimination in credit markets (Braddock & McPartland, 1987; Oliver & Shapiro, 1995). Therefore, it is possible that non-White households did not have many credit card and mortgage loan choices to begin with and were therefore less able to shop around for a better offer. Women were also less likely than men to compare mortgage offers when borrowing for a home loan. Findings from previous studies indicate that women had lower financial literacy scores than men and had lower perceived knowledge of financial products (Fishbein & Woodall, 2006). Perhaps, this perceived lack of knowledge about complex financial products made women less likely to negotiate and evaluate options when applying for a complex financial product such as a credit card or mortgage loan.

It is possible that in some cases, it may not be optimal for the time-constrained borrowers to shop around for loans, especially if they know what type of loan they are looking for, or when the opportunity cost of the time spent in searching for a product is higher than the marginal benefit derived from it. However, given the number of choices and complex product features currently available with revolving credit and mortgage-related products, most consumers are better off going through the process of searching, evaluating, and then selecting the product that is most beneficial and most suitable to them. The findings from this study on consumers' information search and evaluation process can shed light on factors influencing the information search process for the scholars of household finance, policymakers, financial counselors, and credit and mortgage product providers. Along with the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010, consumers now have more access to fair, transparent information about financial products, which facilitates the process of self-directed learning and searching, especially for lower to moderate-income households who may face financial difficulties in hiring the services of a professional financial advisor or planner as an external financial information resource. Educational programs, such as the prepurchase homebuyer education and counseling (HEC) programs, acting as an external information source for potential homebuyers, help consumers in making better decisions when purchasing a home, shopping around for a mortgage product, and making regular mortgage payments (Moulton, 2012). The HEC also gives guidance in making mortgage payments and provides education for avoiding mortgage delinquency and foreclosure avoidance (Collins, 2012b). Understanding the internal and external factors that influence consumer mortgage selection and revolving credit-related decision making is critical for policymakers to create innovative education programs. Counseling strategies can be improved to suit consumers with different characteristics, such as risk tolerance, financial knowledge, and sociodemographic characteristics.

The results of our study indicate that consumers use both internal and external sources of information for making important borrowing decisions. The fact that the vulnerable groups such as non-White households, women, and those who were working part-time were less likely to compare borrowing products can perhaps be explained by the fact that these groups may have been constrained by time and lacked ability to make a more comprehensive information search for different available alternatives.

Implications

Previous studies have shown that lower financial literacy often leads to suboptimal financial decision making. These studies have proposed the application of choice architecture to help individuals improve their financial decisions (Choi, Laibson, Madrian, & Metrick, 2002; Keller, Harlam, Loewenstein, & Volpp, 2011). Although more research is needed to develop a choice architecture-based solution that can help individuals' loan comparison and selection behavior, Lusardi and Tufano (2009) have suggested that choice architecture may not always be possible in improving peoples' decision making when active decision making is required, such as when applying for credit cards or shopping for mortgage loans, to select from among many sophisticated alternatives. However, our study finds that financial literacy is associated with comparison shopping for credit cards and mortgages. Perhaps, providing greater access to product-related financial education to individuals could mitigate their likelihood of making costly choices when searching for loans. Increasing the understanding of these financial products—complex in structure but widely accessed in practice among racial/ethnic minorities and women—will help encourage greater negotiating in the marketplace for these loans, which will result in greater overall competition in the markets for revolving credit and mortgage loans. In addition, making the services of a financial counselor or educator more accessible and affordable to the low-income consumers can help in reducing the information asymmetry that exists in the underserved communities.

References

Agarwal, S., & Mazumder, B. (2013). Cognitive abilities and household financial decision making. *American Economic Journal: Applied Economics*, *5*(1), 193–207. http://dx.doi.org/10.1257/app.5.1.193

Allgood, S., & Walstad, W. B. (2011). *The effects of perceived and actual financial knowledge on credit card behavior* (Working Paper No. 2011-WP-15). Terre Haute, IN: Networks Financial Institute at Indiana State University.

Allgood, S., & Walstad, W. B. (2013). Financial literacy and credit card behaviors: A cross-sectional analysis by age. *Numeracy*, *6*(2), 1–26. http://dx.doi.org/10.5038/1936-4660.6.2.3

Archibald, R. B., Haulman, C. A., & Moody, C. E., Jr. (1983). Quality, price, advertising, and published quality rating. *Journal of Consumer Research*, *9*(4), 347–356.

Beales, H., Craswell, R., & Saop, S. (1981). Information remedies for consumer protection. *American Economic Review*, *71*(2), 410–413.

Bennett, P. D., & Harrell, G. D. (1975). The role of confidence in understanding and predicting buyers' attitudes and purchase intentions. *Journal of Consumer Research*, *2*(2), 110–117.

Braddock, J. H., & McPartland, J. M. (1987). How minorities continue to be excluded from equal employment opportunities: Research on labor market and institutional barriers. *Journal of Social Issues*, *43*(1), 5–39.

Bunn, M. D. (1993). Taxonomy of buying decision approaches. *Journal of Marketing*, *57*(1), 38–56.

Campbell, J. Y. (2006). Household finance. *The Journal of Finance*, *61*(4), 1553–1604.

Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, *7*(2), 107–128.

Choi, J. J., Laibson, D., Madrian, B. C., & Metrick, A. (2002). Defined contribution pensions: Plan rules, participant choices, and the path of least resistance. In J. M. Poterba (Ed.), *Tax policy and the economy. Volume 16* (pp. 67–114). Cambridge, MA: MIT Press.

Clement. P. (2009). Critical consumer issues in St. Lucia: An examination of consumer challenges and related learning among rural adults according to income levels. *International Journal of Consumer Studies*, *33*(1), 20–30. http://dx.doi.org/10.1111/j.1470-6431.2008.00734.x

Collins, J. M. (2012a). Financial advice: A substitute for financial literacy? *Financial Service Review*, *21*(4), 307–322.

Collins, J. M. (2012b). The role of default counseling for Mortgage borrowers in financial distress. In D. J. Lamdin (Ed.), *Consumer knowledge and financial decisions: Lifespan perspectives* (pp. 165–182). New York, NY: Springer.

Elliott, W. B., Hodge, F. D., & Jackson, K. E. (2008). The association between nonprofessional investors' information choices and their portfolio returns: The importance of investing experience. *Contemporary Accounting Research*, *25*(2), 473–498.

Engel, J. F., Blackwell, R. D., & Kollat, D. T. (1968). *Consumer behavior*. Hinsdale, IL: Dryden Press.

Evans, D. A. (2009). *The predisposition of women to use the services of a financial planner for saving and investing* (Doctoral dissertation). Columbus, OH: Ohio State University.

FINRA Investor Education Foundation. (2009). *Financial capability in the United States. National survey—executive summary*. Retrieved from http://www.finrafoundation.org/news/p118242

Fishbein, A. J., & Woodall, P. (2006). *Exotic or toxic? An examination of the non-traditional mortgage market for consumers and lenders* (pp. 1–33). Washington, DC: Consumer Federation of America.

Fodness, D., & Murray, B. (1999). A model of tourist information search behavior. *Journal of Travel Research*, *37*(3), 220–230.

Giesler, M., & Veresiu, E. (2014). Creating the responsible consumer: Moralistic governance regimes and consumer subjectivity. *Journal of Consumer Research*, *41*(3), 840–857.

Grable, J., & Joo, S. (1999). Financial help-seeking behavior: Theory and implications. *Financial Counseling and Planning*, *10*(1), 14–25. Retrieved from https://www.afcpe.org

Grable, J., & Joo, S. (2001). A further examination of financial help-seeking behavior. *Financial Counseling and Planning*, *12*(1), 55–74. Retrieved from https://www.afcpe.org

Griskevicius, V., Tybur, J. M., Ackerman, J. M., Delton, A. W., Robertson, T. E., & White, A. E. (2012). The financial consequences of too many men: Sex ratio effects on saving, borrowing, and spending. *Journal of Personality & Social Psychology*, *102*(1), 69–80. http://dx.doi.org/10.1037/a0024761

Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behavior. *Federal Reserve Bulletin*, *89*, 309–322.

Johnson, M. A., & Lamdin, D. J. (2015). Gauging the financial capability of Americans. *Business Economics*, *50*(3), 135–146.

Joo, S., & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues*, *25*(1), 25–50. http://dx.doi.org/10.1023/B:JEEI.0000016722.37994.9f

Keller, P. A., Harlam, B., Loewenstein, G., & Volpp, K. G. (2011). Enhanced active choice: A new method to motivate behavior change. *Journal of Consumer Psychology*, *21*(4), 376–383.

Liebermann, Y., & Flint-Goor, A. (1996). Message strategy by product-class type: A matching model. *International Journal of Research in Marketing*, *13*, 237–249.

Lusardi, A., & Mitchell, O. S. (2009). *How ordinary consumers make complex economic decisions: Financial literacy and retirement readiness* (NBER Working Paper No. 15350). Cambridge, MA: National Bureau of Economic Research.

Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of Consumer Affairs*, *44*(2), 358–380.

Lusardi, A., & Tufano, P. (2009). *Debt literacy, financial experiences, and overindebtedness* (NBER Working Paper No. 14808). Cambridge, MA: National Bureau of Economic Research.

Moore, W. L., & Lehmann, D. R. (1980). Individual differences in search behavior for a nondurable. *Journal of Consumer Research*, *7*(3), 296–308.

Mottola, G. R. (2013). In our best interest: Women, financial literacy, and credit card behavior. *Numeracy*, *6*(2), 1–15. http://dx.doi.org/10.5038/1936-4660.6.2.4

Moulton, S. (2012). Pre-purchase homebuyer education and counseling: Diverse strategies for diverse homebuyers. In D. J. Lamdin (Ed.), *Consumer knowledge and financial decisions: Lifespan perspectives* (pp. 145–164). New York, NY: Springer.

Nicolosi, G., Peng, L., & Zhu, N. (2009). Do individual investors learn from their trading experience? *Journal of Financial Markets*, *12*(2), 317–336.

Oliver, M. L., & Shapiro, T. M. (1995). *Black wealth/White wealth: A new perspective on racial inequality*. New York, NY: Routledge.

Perry, V. G. (2012). Charging ahead: An exploratory study of financial decision-making among millennial consumers. In D. J. Lamdin (Ed.), *Consumer knowledge and financial decisions: Lifespan perspectives* (pp. 129–144). New York, NY: Springer.

Punj, G. N., & Staelin, R. (1983). A model of consumer information search behavior for new automobiles. *Journal of Consumer Research*, *9*(4), 366–380.

Schaninger, C. M., & Sciglimpaglia, D. (1981). The influence of cognitive personality traits and demographics on consumer information acquisition. *Journal of Consumer Research*, 208–216.

Sevim, N., Temizel, F., & Sayılır, Ö. (2012). The effects of financial literacy on the borrowing behaviour of Turkish financial consumers. *International Journal of Consumer Studies*, *36*(5), 573–579. http://dx.doi.org/10.1111/j.1470-6431.2012.01123.x

Sprenger, C., & Stavins, J. (2010). Credit card debt and payment use. *Financial Services Review*, *19*(1), 17–36.

Stigler, G. J. (1961). The economics of information. *The Journal of Political Economy*, *69*(3), 213–225.

United States Federal Reserve Board (2017, March 9). *Federal Reserve Statistical Release: Financial Accounts of the United States*. Retrieved from the Federal Reserve website: https://www.federalreserve.gov/releases/z1/current/z1.pdf

Wooldridge, J. M. (2006). *Introductory econometrics: A modern approach*. Cincinnati, OH: South-Western College.

Xiao, J. J., Chen, C., & Sun, L. (2015). Age differences in consumer financial capability. *International Journal of Consumer Studies*, *39*(4), 387–395.

Xiao, J. J., Serido, J., & Shim, S. (2012). Financial education, financial knowledge, and risky credit behavior of college students. In D. J. Lamdin (Ed.), *Consumer knowledge and financial decisions: Lifespan perspectives* (pp. 113–128). New York, NY: Springer.