Financial Attitude and Investment Decision Making - Moderating Role of Financial Literacy

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Abstract

Asset allocation is a complex phenomenon that cannot be understood without applying human behavior and heuristic biases to test. This shift from traditional finance to cognitive domain can assist in predicting behavior and decisions thereof. Early research had ignored investment decisions taken by a household, therefore, this paper examines the effect of socio-demographic and behavioral traits upon decisions concerning the asset allocation of the general community. Since socio-demographics and behavioral traits have been found to be significant in predicting the investment decisions, these have been taken as predictors. Literature suggests that financial literacy could moderate these decisions in the behavioral domain of investment decisions, therefore, the impact of predictors has been studied while being moderated by financial literacy. The study is descriptive in nature, and analyzed through the quantitative approach, survey instrument in the form of questionnaires containing 70 items from 775 respondents. The study finds significant moderating effect of financial literacy upon investment diversity in relation to socio-demographics, financial attitude and decision behavior. Moreover, with the increase in age, education, and income, investment diversity improves. It calls for policymakers' attention to declare a financial awareness emergency as 64% respondents could not understand even the literacy questions. Study recommends the improvement of financial inclusion and work out a methodology for improving financial awareness for the optimization of investment decisions.

***Keywords**:* Financial Literacy, Socio-demographics, Decision making, Financial Attitude

Introduction

Intrinsic learning for decision making starts at an early age, when young kids start searching for free coupons in products, not realizing that it is shaping their behavior (Stewart *et al.*, 2018). Kids are considered to have 1/5th influence on the purchase decisions in a household (Page *et al.*, 2018). These habits become part of behavior and form the basis of behavioral finance (Sorensen *et al.*, 2017).

Community decisions concerning personal asset allocation and wealth maximization are generally taken without sound knowledge of financial products (Dangi & Kohli, 2018). As per World Bank's Global Findex, only 21% people in Pakistan have access to a bank account against the world average of 69%, 6% deposit savings in financial institution against the world average of 27%, and only 3% receive wages in

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bank against the world average of 21% (Sassen, 2016). Aggregate of individuals' decisions affect the welfare of the community, economic growth and stability of financial systems (Bajo, Barbi, & Sandri, 2015).

Decision making has a significant impact on socio-demographics (Thomas & Vulkan, 2017). Women are perceived to be more authoritative in decisions making circumstances, e.g. widowhood places women in an important position (Pepin, 2018). Investment decisions are driven by general trends. In Pakistan, the crash of stock market in 2008 and global financial crisis deterred the investors and prompted them to look for unorthodox financial instruments (Akhtar *et al*., 2018).

The question arises, why do people in the same environment take different decisions in the same situation? Though it has been partially answered with reference to money market investors, decisions by households continue to be a gray area (Bezzine, Kanzari, & Yosra, 2017). Studies concerning reasons for global economic crises and decision making have neglected family demographics, financial literacy and behavioral factors (Nigam, 2018). On the average, herding behavior (Jyoti & Shivprasad, 2018) is observed in societal context for individual asset allocation, which not only liquidates investors, but result in non-equitable accumulation of wealth (Nigam, 2018).

To approach the problem, there is a requirement to find suitable answers to few questions arising from review of literature. Some possible questions are, whether investment decisions are driven by rationality or some heuristic factors affect the decision making? Does financial literacy moderate the relationship between human behavior and investment decisions?

Departure from the very concept of rationality and entry into cognitive domains makes some behavioral characteristics more dominant. The study attempts to contribute towards finding determinants of individual decisions and optimize resource allocation for the community that is not being able to process the available information to tangible investment (Chatterjee & Fan, 2018). The outcome of this study is likely to optimize decisions with respect to resource allocation.

Literature Review

Turbulent changes in current environment, coupled with inconsistent investment decisions have created the necessity to rethink factors that influence financial decisions and draw linkage between economy and everyday life (Aalbers, 2009). Literature related to investment decision making has analyzed different time periods of financial crisis and recession (Langley, 2008), to find a relationship between economic outlook and its impact on households. However, an examination of the set of families has been overlooked in the decision making literature. There are two dimensions of looking at an individual's decision making; the way a person absorbs the events leading to a decision

and finding out what factors lead to a decision in a particular situation (Heinemann *et al.*, 2018).

Concept of community involves a set of behaviors linked to characteristics, establishing strong relationship between demographics and decision making (Pettersen & Overli, 1997). Demographics cannot be addressed without attitudes and preferences (Finch & Marson, 1993). Decisions in the community have a significant relation with decision making ability, pattern of spending, saving and borrowing.

Financial literacy's deficiencies cause ineffective money management. Furthermore, these result in wrong consumer behavior (Adam, Boadu, & Frimpong, 2018). Literature on financial literacy generally agrees that most consumers lack the financial literacy required to make important financial decisions in best interests (Klien & Mandell, 2009). A study on the determinants of financial literacy using three theories of learning process i.e. social learning theory, consumer socialization theory and psychological theory, fourteen variables (socio-demographics, behavior and education level of spouse and parents) were examined using two linear regression models with financial literacy being the dependent variable (Kadoya & Khan, 2016). The study concluded that gender was the most significant variable, followed by age and education. A study on Chinese household portfolio choices and financial literacy (Chu *et al.,* 2017) examined the effects of financial literacy upon the portfolio choices reflected that less than 1% of respondents gave correct answers to all twelve questions. Study on financial literacy (Lusardi, 2012) concluded that despite required knowledge and education, mental ability to take rationale investment decision involving calculations was low (Huston, 2010). Behavioral factors of savings, long/short term goals, risk and return, diversification and distribution of assets are found to be correlated to numeric skills (Shusha, 2017).

Study of socio-economic factors on real estate investments concluded that one of the key socio-economic factors for decision making was access to information, highlighting the importance of experiential learning through increased awareness, literacy and financial inclusion (Nyanga, Kessler, & Tenge, 2016). Demographic factors of age and urban environment have a positive impact on savings/asset allocation pattern (Morgan & Trinh, 2017). People in urban environment with higher qualification are more concerned about financial health. There is a strong bondage between environment, financial behavior & intellectual learning (Michael, Garrison, & Copur, 2010).

Risk has some negative feelings attached and the extent of the amount of uncertainty a person is willing to accept is invariably connected to the possibility of bearing a loss (Grable, 2016). Financial attitude is more related to financial decision making. People are careful while considering a possible profit/gain decision, however,

when put in a situation of a possible loss, they would take a risky decision, no matter how well-educated (Tversky & Kahneman, 1986). While working on the measurement scale of risk behavior, University of Denver (Zeng, 2013) examined four domains i.e. financial confidence, financial attitude, financial behavior and financial personality, and measured the risk behavior on a standard five-point Likert's scale, denoted as Risky Financial Behavior Scale (RFBS). For this study, financial attitude was taken as a factor of risk behavior.

Hypotheses

The impact of different aspects upon individual investment decisions can be investigated on the basis of following hypotheses:

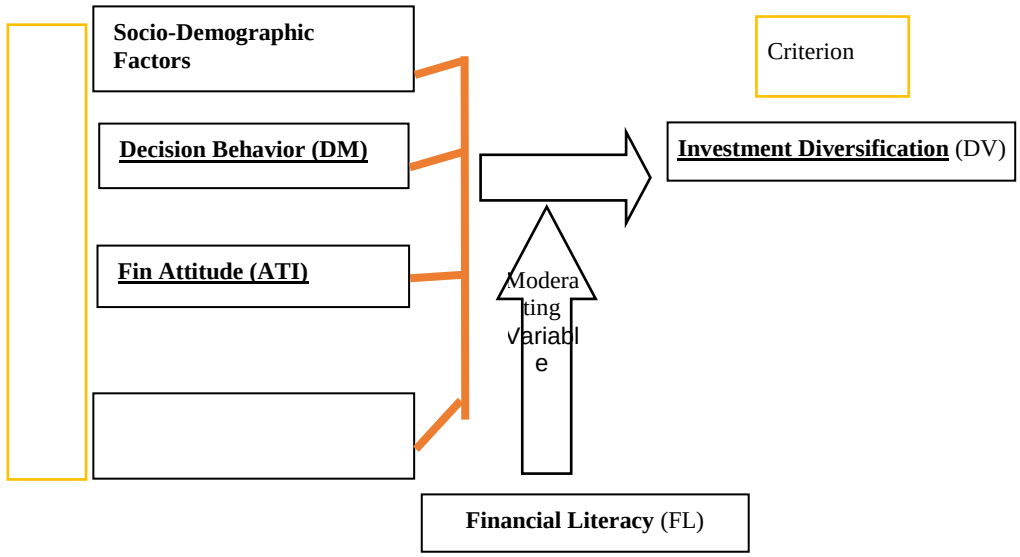
H_1: Social learning theory suggests that socio-demographics influence consumer behavior, including financial decision making, and these behaviors are transferred from one generation to the other (Churchill, 1979). It leads to the requirement to test *Whether Socio-Demographic factors, decision making behavior influence investment decisions, moderated by financial literacy* (Morgan & Trinh, 2017).

H_2: Financial attitudes and behaviors have a strong relationship when moderated by learning opportunities (Michael, Garrison, & Copur, 2010), thus indicating a strong bondage between environment, financial behavior, intellectual learning and informed investment decisions. This provides basis to examine *Whether financial attitude, socio-demographic factors, risk and return behavior influence investment decisions, moderated by financial literacy* (Zeng, 2013).

H_0: Socio-Demographic factors, decision making behavior, financial attitude, risk and return behavior do not influence investment decisions and are not moderated by financial literacy

Theoretical Model

Study on financial literacy and portfolio diversification (Guiso & Jappelli, 2008) established financial literacy as a strong predictor of diversification, while another study explored a strong moderating role of financial literacy in relation to demographics and risk tolerance (Shusha, 2017). Financial attitude has been a strong predictor of investment decisions (Bona, 2018) and strong evidence has been found between socio-demographic factors, behavior, risk propensity and investment diversification (Phan, Reiger, & Wang, 2018). For stock market investors, decision-making behavior has a strong relationship with portfolio investment diversity (Shah, Ahmad, & Mahmood, 2018). These studies lead to the conclusion that all these relationships are required to be tested for people who are not professionals and not literate enough to make informed investment decisions.



Design and Methodology

The study is based on a 70-item questionnaire. However, for 18 respondents who were unable to understand questions but involved in major family decisions, the questionnaire was explained and filled in their presence as per the given answers. Nature of research is descriptive, analyzed through quantitative approach. Initial pilot study was conducted on 51 respondents for validity of questionnaire and Cronbach's alpha score was 0.82, however for the variables, reliability score was 0.758 - FL, 0.747 - DM, 0.73 - ATI, 0.725 - RISK. Questions have been adapted from tested instruments, and survey was conducted in English and Urdu (native language) for easy assimilation. Purposive sampling technique was used for cross sectional design of data collection to examine the relationships and 2150 questionnaires were physically distributed in 8 cities (Rawalpindi, Islamabad, Lahore, Karachi, Multan, Bahawalpur, Mianwali and Khushab) of Pakistan through friends who could reach out to people around them (which may have biases due to convenience of collecting back filled questionnaires) over a period of 1½ years. To add comparison with other countries, 150 samples were collected from US, Central and Eastern Europe, and two countries from Arabia, comprising Romania, UK, USA, Jordan, Tunisia, Canada and Moldova. Since developed countries (UK, Canada & USA) have better education standards in comparison to eastern Europe (Romania & Moldova) and Muslim Arab countries (Jordan & Tunisia), which have different literacy patterns, it was assumed that the study would be diversified and provide a better chance at estimating the moderating role of financial literacy. Cross sectional survey has been conducted, and to estimate the sample size, guidelines have been taken into account for the unknown

sample i.e. 385 respondents (Smith, 2018), however 757 responses were received i.e. 35.2% distribution. In addition to that, 18 interviews were conducted including 5 in Romania, making a total of 775 respondents available for analysis. The results have been empirically investigated using correlation and regression analysis.

Variables of the Study

Socio-Demographics Factors (SDF): Socio-demographic factors such as Gender (GNDR), Marital Status (MRTL), Education (EDN), Professional Qualification (PROF_EDN), Savings Pattern (SAV), Age (AGE) and Income (INCM) are the controlled variables as these are likely to affect decision making, in line with the study that examined the effect of socio-demographics on portfolio choices (Chu & Xiao, 2016). Rural/urban segments are being examined to be determinants of financial decisions (Anzola & Guzman, 2016).

Financial Attitude (ATI): Behaviors related to organizing domestic finances including budget planning, purchasing, insurance and loans.

Financial Decision Making (DM): It's the level of financial responsibility in major family decisions.

Risk (RISK): It covers sets of questions/items which can easily segregate the risk seeker from avoider, as explained by probability of loss in a given situation (Hans, 2002).

Investment Diversification (DV): Options ranging from Stock market, Mutual Fund, Bonds, Forex trading, Bank deposits to generally perceive profitable instruments i.e. Real Estate, Gold/ Silver and Insurance Schemes. DV has been divided in three categories i.e. Highly Diversified Decisions (Three or more choices for investment), Moderately Diversified decisions (Two choices) and Undiversified Decisions (Only one option selected).

Financial Literacy (FL): Financial literacy is a form of financial knowledge linked to important economic outcomes, including more effective wealth management, management of loans, retirement planning, saving and stock market participation (Bonaparte, 2018).

Scale of Survey: 5 – point Likert scale has been used to measure respondents' views and the degree to which they agree or disagree. Ascending scale with 1- Strongly Disagree and 5 – Strongly Agree, statements on ordinal scale is used to rate the extent of behavioral characteristic.

Results of Diagnostic Tests

Table 1 represents the statistical behavior of data, in order to determine the central tendency and the normality in the data for all observations.

Table 1: *Descriptive Statistics*

	DM	ATI	RISK	FL	DV
Mean	2.92	3.21	2.91	1.70	1.64
Median	2.89	3.20	3.00	1.50	1.00
Max	3.67	4.30	3.78	3.50	3.00
Min	2.22	2.00	2.00	1.00	1.00
Std. Dev.	.29	.40	.32	.62	.87
Skewness	.12	-.71	-.27	.59	.76
Kurtosis	2.15	3.53	1.98	2.60	1.73
Jarque-Bera	24.99	74.67	43.40	51.04	127.30
Prob	.00	.00	.00	.00	.00

Descriptive statistics provide an overview of the data. Mean of 2.08 depicts average AGE of respondents between 30-55 years, and 2.92 at the scale of 5 for DM depicts 55% respondents either had full responsibility or had majority stakes in the income of their family/household. Average of 3.21 for ATI reflects 64% respondents manage their finances in an organized manner. 2.91 for RISK reflects that people are generally risk averse; 1.70 for moderating variable FL means that only 34% people are literate. For DV, 1.64 reflects 55% respondents diversified their investments. DM, FL and DV have positive skewness which shows tail on the right side and mass of the distribution on the left, while ATI and RISK have tail on the left with negative skewness. ATI has kurtosis values greater than 3, so its tail of the data is longer, and data is Lepokurtic. DM, RISK, FL and DV have Kurtosis less than 3; their peak is broader, and tails are shorter, these are Platykurtic. Probability of <.01 for all variables reflect normal distribution of the data.

Correlation Matrix

Table 2 below shows the correlation between variables. DV has a positive relationship with GNDR, EDN, FL and DM. It is negatively correlated with all other variables. DM has a positive relationship with DV and FL. ATI is negatively correlated to DV. It has a positive relationship with FL. RISK is negatively correlated with DV and DM, whereas all other variables have a positive relationship with RISK. Since *p*-value for all variables is <.01, therefore all the correlations are significant.

Table 2: *Results of Correlation Matrix*

	GNDR	AGE	MRTL	WORK	INCM	EDN	PROF _EDN	SAV	LIFE	FL	DM	ATI	RISK
DV	.11												
GNDR	-.13	-.16											
AGE	-.15	-.26	.32										
MRTL	-.10	.24	-.3	-.35									
WORK	-.09	.18	.55	.14	-.09								
INCM	.01	.32	-.06	-.48	.34	.06							
EDN	-.17	-.01	.29	.27	-.29	.23	-.62						
PROF_EDN	-.22	.15	.10	-.01	.12	.21	-.13	.31					
SAV	-.14	-.14	.22	.02	-.27	.13	-.41	.48	.25				
LIFE	.03	.18	.10	-.09	.29	.08	.17	-.02	.37	-.01			
FL	.03	.09	-.68	-.46	.43	-.47	.19	-.32	.02	-.09	.19		
DM	-.08	.01	.29	.24	.11	.25	.13	-.03	.08	-.47	.27	-.13	
ATI	-.10	.28	.40	-.10	.14	.45	.10	.29	.39	.10	.62	-.12	.40

Effects of DM & SDF on DV with FL as a Moderator

The impact of independent variable DM and moderator FL has been tested on DV using Andrew Hayes Process by creating an interaction term in the model (FL x DM). The model is significant with *p* value of .0 and 40% variation in DV is explained by the other variables in the model.

Table 3: *Impact of DM on DV with FL as Moderator*

	R	R-sq	F	df1	df2	*p-value*
	.4551	.4071	16.5853	12	762	.0000
	Coeff.		SE	*t-value*		*p-value*
Constant	3.3963		.3331	10.1972		.0000
FL	.2630		.0546	4.8197		.0000
dm	.1123		.1613	.6962		.4865
int_1	-.4762		.1948	-2.4452		.0147
gndr	.4118		.0696	5.9137		.0000
age	-.1866		.0671	-2.7797		.0056
mrtl	.1941		.0343	5.6620		.0000
work	-.2204		.0450	-4.9005		.0000
incm	.0519		.0674	.7698		4416
edn	-.0945		.0423	-2.2338		.0258
Pro_Edn	-.4013		.0796	-5.0403		.0000
sav	-.3389		.0582	-5.8208		.0000
Life	-.0273		.0490	-.5570		.5777
Interactions:	int_1	DM	X	FL		
	R2-chng		F	df1	df2	*p-value*
int_1	.0062		5.9789	1	762	.0147

The impact of DM as an independent variable on DV is not significant, however a moderating relationship has been created through the interaction term to determine the moderator effect (int_1) with FL as a moderator. Resultantly, the *p*-value has improved to

.0147, reflecting significance. FL has a significant impact on DV. Positive correlation of GNDR depicts females diversify more as compared to males and an increase in AGE promoted diversity. Work status reflects that diversification increases with better job. INCM doesn't have a significant impact on DV. Increase in qualification, professional education and savings pattern negatively affects diversity. Life span, whether rural or urban does not have any significant correlation with diversity. Interaction term (int_1) reflects that financial literacy significantly moderates the impact of DM on DV.

Table 4: *Effects of RISK on DV with FL as Moderator*

	R	R-sq	F	df1	df2	*p-value*
	.4824	.2327	19.2548	12	762	.000
	Coeff.	*SE*	*t-value*	*p-value*		
constant	3.189	.3408	9.3586	.000		
FL	.1906	.0665	2.8646	.0043		
RISK	.2475	.1546	1.6006	.1099		
int_1	1.1749	.2081	5.6455	.000		
gndr	.4332	.0687	6.3018	.000		
age	-.1671	.0587	-2.8449	.0046		
mrtl	.1388	.0339	4.091	.000		
work	-.1965	.0436	-4.5105	.000		
INCM	.0379	.0662	.5729	.0566		
EDN	-.0844	.0415	-2.032	.0425		
Pro_Edn	-.3588	.0816	-4.3979	.000		
SAV	-.3214	.0573	-5.6034	.000		
life	-.0393	.0479	-.822	.4113		
Interactions:						
int_1 RISK X FL						
	R^2-chng		F	df1	df2	*p-value*
int_1	.0321		31.8719	1	762	.000

The model is significant with p value of .0 and the goodness of the fit depicts 48% variation in the DV explained by other variables. Impact of RISK as independent variable on DV is not significant, however after interaction of FL with RISK, it is significant (FL x RISK). FL has a positive and significant impact on DV. GNDR +ve sign indicates females diversify more than males. Increase in AGE increases the diversity. INCM has significant positive impact on DV. EDN negatively affects diversity, therefore educated people diversify more than uneducated people. PRO_EDN has strong negative impact, meaning that educated people diversify investments. LIFE span, whether rural or urban, does not have any significant relationship with diversity.

Table 5: *Effects of ATI and Demographic on DV with FL as Moderator*

	R	R-sq	F	df1	df2	*p-value*
	.4797	.2301	18.9803	12	762	.000
	Coeff.	*SE*	*t-value*		*p-value*	
constant	3.3481	.3092	10.8272		.000	
FL	.3112	.0533	5.8365		.000	
ATI	-.509	.1012	-5.0289		.000	
int_1	-.4319	.1464	-2.9505		.0033	
gndr	.3395	.0697	4.868		.000	
age	-.1479	.0577	-2.5621		.0106	
mrtl	.184	.033	5.5825		.000	
work	-.1955	.0436	-4.4876		.000	
INCM	-.001	.0661	-.0149		.9881	
EDN	-.0664	.0421	-1.5757		.1155	
Pro_Edn	-.3124	.0787	-3.971		.0001	
SAV	-.300	.0577	-5.1981		.000	
life	-.1117	.0599	-1.8661		.0624	
Interactions: int_1 ATI X FL						
	R^2-chng		F	df1	df2	*p-value*
int_1	.0088		8.7052	1	762	.0033

The model is significant with p value of .0 and the goodness of the fit depicts that 47% variation in the DV are explained by other variables at confidence level of 95%.

ATI as independent variable on DV is highly significant and the negative sign indicates that with increase in organizability, the possibility of diversification increases, interaction term (int_1) to test moderator effect of FL with ATI as independent variable found highly significant, so correlation of ATI with DV is being significantly moderated by FL. Positive significant impact of GNDR indicates that females diversify more than males. With increase in AGE and WORK, probability to diversify increases. INCM, PROF_EDN, SAV and EDN have significant negative impact on DV.

Discussion and Analysis

As identified by early studies that general community decisions have been ignored in the past (Langley, 2008), the respondents of this study in general community examined that 64% respondents were lacking financial literacy in line with the findings of Klien and Mandell (2009). If comparison of Pakistan, Europe and Arab countries is made, Europe was marginally better i.e. 69.5%, followed by Arab Countries 63.1% and then Pakistan, with 62.1%. The factor of risk was generally same for all respondents with mean of 2.9 on scale of 5, indicating that people are generally risk averse, as identified earlier (Thomas & Vulkan, 2017). Gender, age, marital status and education were positively correlated to investment decisions which conform to the findings of Kadoya and Khan (2016). Financial attitude is significant but negatively correlated to investment

diversity, in contrast to the findings of Zeng (2013). Risk propensity has a strong positive correlation with investment decisions, in line with Shusha (2017). Decision making ability is a strong predictor of investment decisions, as earlier found by Skinner & Dubinsky (1984). Financial literacy has been found to be significantly moderating the relationship between risk, attitude, decision making ability and socio-demographics, however when compared with other countries, financial literacy had low coefficient for European and Arab countries, as compared to Pakistan, indicating that investment decisions in Pakistan could be optimized by improving the financial literacy of the community. The results reflect that 92.1% respondents choose real estate as an option for all countries, whereas 5.7% respondents choose Stock Market & Mutual Funds, in contrast to Bank Deposits chosen by 58%, which reflects the lack of knowledge and low risk tolerance of community. Either lack of knowledge, or fear of loss barred the respondents from choosing money market instruments, therefore there is a need to develop financial instruments originating from money market, with reduced fear of loss. Findings of this study indicate that in spite of the fact that decisions are being moderated by financial literacy, the respondents were risk averse, and tended to diversify in order to avoid money market instruments. Risk, being the single dominant characteristic of decision making, needs to be moderated through financial literacy and financial instruments need to be designed to minimize risk from within the money market.

Conclusion

The findings of this study examined significant moderating effect of financial literacy upon non-professional common people and provided insight to policymakers to work towards increased literacy levels to optimize investment decisions. This could affect their attitudes to risk behavior and how the mediating role of financial literacy could lead to another research question for future study and explore the void between the availability and processing of financial information. There is a need to focus on increasing awareness about financial products, irrespective of the environment or living standards, particularly concentrating on women. Decision makers need to safeguard the risk factor through innovation in financial products. Since this study had a limitation in stratifying the sample to cover all segments of society, and adapted questions were difficult to understand, therefore future studies may target planned stratified segment of society for equal representation. Moreover, the study did not analyze the cross-country comparison of results, which would further refine them.

References

Aalbers, M. (2009). Geographies of Financial Crisis. *AREA, 41*(1), 34-42.

Adam, A. M., Boadu, M. O., & Frimpong, S. (2018). Does gender disparity in financial literacy still persist after retirement? Evidence from Ghana. *International Journal of Social Economics, 45*(1), 18-28.

Akhtar, M. W., Rasheed, M. H., Rafique, A., & Zahid, T. (2018). Factors influencing investor's decision making in Pakistan: Moderating the role of locus of control. *Review of Behavioral Finance, 10*(1), 70-87.

Anzola, D. M., & Guzman, G. R. (2016). *Socio-Economic Determinants of Financial Education, Evidence for Bolivia, Colombia, Ecuador and Peru.* Corporación andina de fomento. Corporación Andina de Fomento (CAF). doi:978-980-422-034-0

Bajo, E., Barbi, M., & Sandri, S. (2015). Financial Literacy, Households' Investment Behavior, and Risk Propensity. *Journal of Financial Management, Markets and Institutions, 3*(1), 157-174.

Bezzine, M., Kanzari, D., & Yosra, S. B. (2017). A Behavioral and Rational Investor Modeling to Explain Subprime Crisis: Multi Agent Systems Simulation in Artificial Financial Markets. In H. Marsi, G. B. Perez, & C. Zopounidis, *Financial Decision Aid Using Multiple Criteria. Multiple Criteria Decision Making* (131-147). Springer, Cham.

Bona, J. (2018). Factors affecting the spending behavior of college students. *Journal of Fundamental and Applied Sciences, 10*(3S), 142-152.

Bonaparte, Y. (2018). *The Rational Yield of Financial Illiteracy*. Retrieved April 18, 2018, from Social Sciences Research Network: http://dx.doi.org/10.2139/ssrn.3117044

Chatterjee, S., & Fan, L. (2018). Application of situational stimuli for examining the effectiveness of financial education: A behavioral finance perspective. *Journal of Behavioral and Experimental Finance, 17*(1), 68-75. doi:10.1016/j.jbef.2017.12.009

Chu, Z., & Xiao, J. J. (2016). Financial literacy, Portfolio Choice and Financial Well-being. *Social Indicators Research, 132*(2), 799-820.

Chu, Z., Wang, Z., Xiao, J. J., & Zhang, W. (2017). Financial Literacy, Portfolio Choice and Financial Well-Being. *Social Indicators Research, 132*(2), 799-820.

Churchill, G. &. (1979). Television and interpersonal influences on adolescent consumer learning. *Journal of Consumer Research, 6*(15), 23-25.

Dangi, M., & Kohli, B. (2018). Role of Behavioral Biases in Investment Decision: A Factor Analysis. *Indian Journal of Finance, 12*(3), 43-57.

Finch, J., & Marson, J. (1993). Negotiating family obligations. *The Sociological Review, 38*(2), 219-246.

Grable, J. E. (2016). Financial Risk Tolerance. In J. Xiao, *Handbook of Consumer Finance Research* (19-31). Springer, Cham. doi:https://doi.org/10.1007/978-3-319-28887-1_2

Guiso, L., & Jappelli, T. (2008). *Financial Literacy and Portfolio Diversification.* Working Paper, European University Institute, Department of Economics, San Domenico di Fiesole, Italy.

Hans , W. B. (2002). Measurement of risk. Optimization and Operations Research. In U. E. Dergis. Eolss publishers Co Ltd.

Heinemann, K., Zwergel, B., Gold, S., Seuring, S., & Klien, C. (2018). Exploring the Supply-Demand-Discrepancy of Sustainable Financial Products in Germany from a Financial Advisor's Point of View. *Sustainability*, *10*(4), 943-945.

Huston, J. S. (2010). Measuring Financial Literacy. *Journal of Consumer Affairs, 44*(2).

Jyoti, S. E., & Shivprasad, H. N. (2018). *Behavioral Biases Affecting Investors' Investment Decision: A Review of Literature.* Retrieved April 18, 2018, from Social Science Research Network (SSRN): https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3120503

Kadoya, Y., & Khan, M. S. (2016). What Determines Financial Literacy in Japan? *The International Society for Engineers and Researchers (ISER). ISER Discussion Paper Number 982*. Tokyo: Social Sciences Research Network (SSRN).

Klien, S. L., & Mandell, L. (2009). The Impact of Financial Literacy Education on Subsequent Financial Behavior. *Journal of Financial Counseling and Planning, 20*(1).

Langley, P. (2008). From Thrift and Insurance to Everyday Investment. In P. Langley, *The Everyday Life of Global Finance: Saving and Borrowing in Anglo-America* (pp. 9-13). Oxford: Oxford University Press. Retrieved from http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199236596.001.0001/acprof-9780199236596

Lusardi, A. (2012). Numeracy, Financial Literacy, and Financial Decision Making. *National Bureau of Economic Research, No. w17821*(1). doi:10.5038/1936-4660.5.1.2

Michael, G. S., Garrison, S., & Copur, Z. (2010). Social Learning Opportunities and the Financial Behaviors of College Students. *Family & Consumer Sciences Research Journal, 38*(4), 387-404.

Morgan, P. J., & Trinh, L. Q. (2017). Determinants and Impacts of Financial Literacy in Cambodia and Vietnam. *ADBI Working Paper Series, 754*(1), 11-20. Retrieved October 25, 2018, from https://www.adb.org/publications/determinants-and-impacts-financialliteracy-cambodia-and-viet-nam

Nigam, R. M. (2018). Behavioral mediators of financial decision making – a state-of-art literature review. *Review of Behavioral Finance, 10*(1), 2-41.

Nyanga, A., Kessler, A., & Tenge, A. (2016). Key socio-economic factors influencing sustainable land management investments in the West Usambara Highlands, Tanzania. *Land Use Policy, 1*(51), 260-266.

Page, B., Lockshin, L., Sharp, A., & Sorensen, H. (2018). Parents and Children in Supermarkets: Incidence and Influence. *Journal of Retailing and Consumer Services, 40*(1), 31-39.

Pepin, J. (2018). *Is Family Decision-making Power?* Retrieved April 15, 2018, from https://osf.io/preprints/socarxiv/4dynh/

Pettersen, G., & Overli, B. (1997). Family Connections - An Introduction to Family Studies. *Acta Sociologica, 40*(3), 321-323.

Phan, T. C., Reiger, M. O., & Wang, M. (2018, September). What leads to overtrading and under-diversification? Survey evidence from retail investors in an emerging market. *Journal of Behavioral and Experimental Finance, 19*, 39-55. doi:10.1016/j.jbef.2018.04.001

Sassen, S. (2016). The Global City: Strategic Site, New Frontier. *Managing Urban Futures*, pp. 89-104. Retrieved April 20, 2018, from Quartz Media.

Shah, S. Z., Ahmad, M., & Mahmood, F. (2018). Heuristic biases in investment decision-making and perceived market efficiency: A survey at the Pakistan stock exchange. *Qualitative Research in Financial Markets, 10*(1), 85-110.

Shusha, A. A. (2017). Does Financial Literacy Moderate the Relationship among Demographic Characteristics and Financial Risk Tolerance? Evidence from Egypt. *Australasian Accounting, Business and Finance Journal, 11*(03), 67-86.

Skinner, S. J., & Dubinsky, A. J. (1984). Purchasing insurance: Predictors of family decision-making responsibility. *Journal of risk and Insurance*, 51(3), 513-523.

Smith, S. M. (2018). *Determining Sample Size; How to Ensure You Get the Correct Sample Size.* Retrieved April 18, 2018, from Qualtrics: https://success.qualtrics.com/rs/qualtrics/images/Determining-Sample-Size.pdf

Sorensen, H., Bogomolova, S., Anderson, K., Trinh, G., Sharp, A., Kennedy, R., Wright, M. (2017). Fundamental patterns of in-store shopper behavior. *Journal of Systems Architecture, 37*(1), 182-194.

Stewart, C. C., Yu, L., Wilson, R. S., Bennett, D. A., & Boyle, P. A. (2018, Mar 22). Correlates of healthcare and financial decision making among older adults without dementia. *Health Psychology, 37*(7), 618-626.

Thomas, N., & Vulkan, N. (2017). The role of personality in financial decisions and financial crises. In *The role of personality in financial decisions and financial crises: In: Preparing for the Next Financial Crises, 1*, 1-11. Cambridge University Press. Tversky, A., & Kahneman, D. (1986). Rational Choice and the Framing of Decisions. *The Journal of Business, 59*(4), 251-278.

Zeng, Y. (2013). *The development of the risky financial behavior scale: A measure of financial risk tolerance.* Morgridge College of Education. University of Denver. Retrieved Jul 27, 2018, from http://digitalcommons.du.edu/etd.