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Households Hedging Their Bets: Evaluating Turkish Investors and Stock Market Participation

Hanehalklarının Bahislerini Korumaya Alması: Türk Yatırımcıları ve Borsa Katılımını Değerlendirme

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ÖZ

Bu çalışma, büyük ve gelişmekte olan pazarlardan Türkiye'deki bireysel yatırımcıların, sosyo-demografik ve ekonomik değişkenler ile internet kullanımının hanehalkı yatırımları ve borsaya katılımları üzerindeki etkilerini ölçmeyi amaçlamaktadır. Lojistik regresyon uygulanmış ve önemli bulgular elde edilmiştir. Türk yatırımcıların kişisel özelliklerinin yatırım kararları ve borsa katılımı için önemli bir faktör olduğu görülmüştür. İnternet kullanımı, borsa yatırımcılarının belirlenmesinde diğer sosyo-ekonomik değişkenlere kıyasla öngörücü bir unsur olmamasına rağmen, hane halkı yatırım seçimlerini ve borsaya katılımı artırmada bir katalizör olarak potansiyelini ortaya koymaktadır. Bununla birlikte, düşük tasarruf ve yatırım portföyü seviyeleri ülkenin ekonomik durumundan kaynaklanabilmekle birlikte, Türkiye'deki hane halkları için yatırım bilgisinin artırılması gerektiğini de göstermektedir. Elde edilen sonuçların diğer ülkelere uygulanma güçlüğüne rağmen, bu çalışma Türkiye'deki yatırımcı davranış analizine katkıda bulunmaktadır.

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ABSTRACT

This study sampled individual investors in Turkey, a large developing market, to measure the effects of several socio-demographic and economic variables on their household investments and participation in the stock market. Internet usage is also examined to evaluate investing behavior. Logistic regression is applied and the findings were robust. The personal profile of Turkish investors was found to be a major factor for investment decisions and stock market participation. Although Internet usage was not a predictive element compared to other socio-economic variables in identifying stock traders, it reveals its potential as a catalyst for boosting household investment selections and promoting stock market participation. Nevertheless, the low levels of savings and investment portfolios result from the nation's economic environment, but also suggest a need for enhancing investment literacy for households in Turkey. Despite the difficulty to extrapolate these results to other countries, this study contributes to investor behavior analysis in Turkey.

1. Introduction

Developing nations, also known as emerging markets, have become important in the global economy. Their financial markets exhibit higher volatility as well as investment opportunities to achieve gains in comparison to those available in developed country markets (Kumar, 2019). They are attractive to investors wanting to participate in domestic companies listed on their national stock exchanges. Many studies indicate instruments traded on

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exchanges in emerging markets are a part of many portfolios because of their benefits (Heston and Rouenhorst, 1994).

Many researchers have examined the characteristics of public exchanges and trading in financial instruments in emerging markets. One of the areas of study has been the effect of country specific-factors or unique risks of these markets. For example, Errunza (1983) and Chaudhuri (1991) showed that emerging nations' stock market returns are fundamentally affected by domestic conditions, even though there was some influence from international events. Grinold et al. (1989) as well as Heston and Rouenhorst (1994) confirmed these conditions. Investors also typically have a home-country bias (Lewis, 1999). This is a tendency for investing in domestic companies rather than in firms from other nations or regions. A study by Christelis and Georgarakos (2013) showed households tend to avoid foreign stocks in their portfolios compared to investments in domestic securities. This is because they need more information and financial knowledge (Christelis and Georgarakos, 2013). Moreover, individuals that closely follow financial and economic news, those who have more social interaction, as well as those in better-regulated regions, were noted to exhibit strong negative effects from news about financial malfeasance. For example, households in China with knowledge of corporate fraud tended to avoid investing in the stock market (Niu et al., 2019). Divecha et al. (1992) as well as Heston and Rouwenhorst (1994), found that emerging market stock returns tend to be uniform than in developed economies, meaning strong specific forces (national factors) influence a particular nation's markets.

Theoretically, investors are rational in their decision-making, and that all information is available for them to make their investments. However, behavioral finance attempts to analyze and describe the actual influences on decision-making. The literature provides analysis and models related to investor behavior in developed nations and financial markets. However, there is less analysis concerning investing and stock market activity by households in developing countries. This study follows the analysis of household investing conducted in China (Spillan, Bahhouth, and Yi, 2016). This evaluation focuses on some of the factors influencing investors within Turkey, an emerging market. It includes an overview of the country's economic conditions and the socio-demographic and economic variables of households involved in financial markets.

According to Christelis and Georgarakos (2013), investing by households is not an easy process, but a daunting decision even to participate in domestic stock markets. Households may be able to put part of their discretionary money into savings accounts or similar financial instruments. McKinnon (1973) and Shaw (1973) described the link between monetary factors and investments within developing markets. In other words, the accumulation of real capital reserves is directly related to investing. This motivates households to save more, consume less, and work harder (Yuksel, 2013). Their objective is to avoid risks in their investment portfolio while at the same time trying to maintain reasonably high returns.

Investors make their portfolio decisions based on a variety of household needs and perspectives. The options depend not only on their socio-demographic and economic conditions, but also their education and income levels as well as other personal, financial, and environmental factors (Bozkus and Ucdogruk, 2007). Modern portfolio theory suggests properly diversified investors can earn higher returns without facing higher risk, but many households are under-diversified and some have familiarity bias holding just securities of the company they work for (Bhamra and Uppal, 2019).

2. Literature Review

Households across the globe have some of their savings directly or indirectly in stock markets (Celik, 2019). There are only limited studies of investment by households in Turkey (Bozkus and Ucdogruk, 2007; Cilasun and Kirdar, 2009; Copur et al., 2010; Tunali and Tatoglu, 2010; Nalin, 2013; Aren and Aydemir, 2015).

The Republic of Turkey occupies a strategic location between Europe and Asia on the Mediterranean Sea. Its geography provides business and transit points crossing Eurasia (Atli, 2018). Formal exchanges for trading financial instruments have a long history in the region. The Ottoman government began issuing bonds on the West European capital markets in 1854 that subsequently resulted in unregulated transactions for these obligations in Istanbul (Battilossi and Morys, 2011). A financial market was developed in the Commercial Code of 1850, the commercial procedure code of 1861 allowed the formation of joint-stock companies, and the Dersaadet Securities Exchange was established in 1866 (Battilossi and Morys, 2011; Yapp and Shaw, 2017). There was also an exchange targeting European investors seeking financial instruments that offered higher returns (Hanna et al., 2001).

Turkey had good domestic economic growth before the 1970s. However, this led to increasing demand and investment by consumers causing an increase in imports and foreign-h debt. According to Atiyas and Ersel (1995), Turkey's economic growth collapsed between 1977 and 1980 because of the effects of high inflation and increasing foreign debts. Guncavdi et al. (2015) described changes in domestic investment options that were introduced in Turkey during the 1980s financial liberalization. However, the lingering effects of credit constraints continued (Guncavdi et al., 2015). Nevertheless, Turkish stock markets grew rapidly as measured by both value and volume of activity (Akkoc and Civcir, 2019). New mechanisms were introduced in 1989 that eased capital financing through loans or bonds from domestic or foreign exchanges (Topal et al., 2019).

The 2012 Capital Markets Law focused on corporate accountability, financial transparency, and rights for minority-shareholders (Needles et al., 2012). The Turkish government encouraged and offered an effective regulatory system to facilitate investing. Formed in 2013 by combining three previous financial exchange entities, the Borsa İstanbul is now the only marketplace for financial instruments within Turkey. According to Kumar (2019), Turkey has the largest economy as measured by market capitalization among the advanced emerging European nations. The Turkish government has stepped in to provide low- to zero-interest loans for select projects while at the same time state-owned banks have increased lending for public projects and select electoral-related initiatives. Turkey endures many challenges, as its economic growth is slow, while the deteriorating geopolitical environments within neighboring nations also contribute to its economic problems (Bahhouth and Ziemnowicz, 2019).

The U.S. Department of State (2019), evaluates Turkey's economic potential, but the nation faces weaknesses shared by other developing nations. Problems include a high inflation rate combined with continuing budget deficits that may portend a currency devaluation as well as the nation's generally low per-capita income that works against domestic investment opportunities (U.S. Department of State, 2019). Nonetheless, as home to many internationally competitive firms and its large economy - with a youthful, competitive, and skilled labor force - Turkey provides advantages for domestic and international investors. The situation in Turkey is an intriguing opportunity ... "for bold investors with an eye for compelling speculation" (Hutchinson, 2015). Moreover, there is increased emphasis on attracting foreign investors, especially from China (Ermut, 2019). This is because the Turkish domestic savings are less than adequate to accommodate the demand for funds (Aktas et al., 2012).

Laws regarding Investments in Turkey comply with international standards and provide equal treatment for all investors (US Department of State, 2019). Turkish investors also have a local bias and prefer to allocate stock investments in countries that are familiar and culturally close (Sahin et al., 2016). Nevertheless, speculation continues that the government may exercise the power to legislate or control that would have negative consequences for investors, particularly those from abroad, and also by favoring domestic companies (US Department of State, 2019).

Most Turkish families avoid taking risks with their finances (Copur et al., 2010). Copur et al. (2010) found their rate of saving to be low and that many had experienced negative financial events that further undermined household saving behavior. Nalin (2013) conducted a study of household savings factors and portfolio choice behavior from 2002 to 2006, a time when the nation's inflation level nearly doubled. It noted that household income and education levels, as well as occupation, rural or urban residence, car ownership, and household size, were among the significant variables in saving and investment choices. There are regional differences in stock participation rates with those who live in urban areas tending to invest in capital markets in contrast to those living in rural areas (Nalin, 2013). Similar studies in China also find higher participation in stock investments among urban residents than those in rural areas (Liang and Guo, 2015).

Copur and Gutter (2019) found a relationship in the financial decision-making process among holders of savings accounts in Turkey. Those with savings had higher perceived subjective norms and longer individual planning horizons (Copur and Gutter, 2019). Furthermore, Copur and Gutter (2019) reported that households having both saving and investment accounts were highly related to owning a home and more impulsive behavior. Moreover, during the early 2010s, Turkey experienced a decline in household saving rates along with increasing debt levels due to a rapid expansion of consumer credit (Karacimen, 2014).

Turkey is a unique case to examine domestic investors. This study attempts to provide an initial analysis of the variables that affect Turkish household investment behavior and stock market participation. The following sections discuss the research conducted.

2.1. Socio-demographic Variables

Numerous studies reveal demographic factors are related to investment decisions such as age, gender, marital status, education, and level of income (e.g., Anbar and Eker, 2009; Bajtelsmit and Bernasek, 2001; Collard, 2009; Metawa et al., 2019). Investment preferences by gender are different in developing countries such as Turkey and gender differences can be an influencer of investment decisions. Gold has been the most preferred investment tool for Turkish women and gold has had a role in the nation's culture, similar to other Eastern culture countries. Yet, Kucukcolak et al. (2019) analyzed investments and reported low levels of gold in Turkish portfolios. Bayyurt et al. (2013) found that male investors in Turkey prefer common stocks and even real estate, while Turkish women prefer saving accounts, time deposits, and particularly gold as an asset. Aren and Aydemir (2015) confirmed that Turkish females typically invest in bank deposits, while Turkish men prefer stock instruments as an investment alternative. Turks also invest in foreign currencies. Bayyurt et al. (2013) found little difference for this strategy between men and women.

There are statistically significant economic and psychological factors related to investing as reported by Copur and Gutter (2019). For example, they found differences among those individuals who held only a savings account, saving and other investment accounts, and those with neither saving nor other investments (Copur and Gutter 2019). Moreover, as Turkish household size increases, instead of investing in the market, families prefer increasing in their own businesses and then turn to foreign currency, gold, and bank accounts (Nalin, 2013). Aktas et al. (2012) findings indicate that age and the number of dependents in a

Turkish household are significant causes for saving and investments. In particular, fewer children and/or elderly family members within a household drive saving rates (Aktas et al., 2012). This is similar to the findings in China where additional and older family members also lowered the participation for stock investments (Liang and Guo, 2015).

Education level is also a leading element for household investment preferences. Increasing financial knowledge and information access results in households having greater asset types as well as more investments in financial markets (Zhang and Qiu, 2019). Aren and Aydemir (2015) found that higher education levels have a direct effect on investing in debt securities. Highly educated people prefer investing in bond instruments while most are not familiar with these obligations and find them hard to grasp. Moreover, increasing higher financial literacy means their return expectations increase, thus leading to a higher preference for stock market investing (Aren and Aydemir, 2015). According to Nalin (2013) households in Turkey with higher education achievement are more likely to have capital market investments compared to other alternatives. Similar studies in China indicated those households with primary or middle school education do not typically hold much stock, but college-educated households may be inclined to invest in stock markets (Liang and Guo, 2015).

The employment status of the household, including the labor force participation of female members, are major bases for investment decisions. Aktas et al. (2012) reported a direct relationship between those Turkish households with working females and higher saving rates. Aktas et al. (2012) noted higher saving rates among Turkish households that are self-employed or they employ others. Likewise, Nalin (2013) found that households operating as sole-proprietors or having their businesses also show a preference for real estate investments. This is in significant contrast to those households who are strictly salary earners (Nalin, 2013).

Nalin (2013) reported that higher income levels on portfolio choice are not clear. There was weak support for higher-income households to make investments in capital market securities such as stocks, bonds, or government paper (Nalin, 2013). For example, Liang and Guo (2015) found that middle to lower-income levels were not significant criteria for stock investment participation. However, the highest quintile households exhibited a greater likelihood to participle in stock investments (Liang and Guo, 2015). A study by Nalin (2013) found that ownership of an automobile is a positive factor for capital market investments by a Turkish household.

Individual investment decisions are also affected by behavioral factors that may include the investor's feelings, their overreaction or underreaction to situations, as well as overconfidence or herd instincts (Metawa et al., 2019). Hassan and Kayser (2019) found that the month of Ramadan does not impact stock market returns and volatility rates. On the other hand, this holiday reduces daily trade volumes (Hassan and Kayser, 2019). This decreased trading is expected given shortened banking hours and the religious perceptions of investors.

Based on the above discussion of investor behavior, we propose the following hypothesis:

H_1: Socio demographic factors influence stock trading in Turkey

2.2. Economic Variables

There are three broad classes of investment barriers: legal (including ownership restrictions), indirect (financial disclosure and investor protection), and emerging market-specific risks (liquidity and foreign exchange) according to Bekaert and Harvey (2000). An additional problem is the degree of political risk since it overrides portfolio investment decisions in the international area (Errunza, 1983). Additionally, news of corporate wrongdoing stresses the entire financial system and is thus a negative influence for investors (Niu et al., 2019). One method of reducing risk is portfolio diversification. However, according to Aren and Aydemir (2015), Turks seem less familiar with mutual funds as an investment alternative. Moreover, in contrast to large banks that have accessible corporate data, Turkish people often prefer to use smaller banks that customarily provide fewer financial disclosures and their financial health. The decision to utilize these smaller banks is driven by the higher interest rates offered by them as well as by the promise of the savings account insurance backed by the Turkish government (Aren and Aydemir, 2015). Additionally, debt security investments are considered risky because bonds experienced negative real returns during previous inflationary periods in Turkey (Aren and Aydemir, 2015).

Turkish savers and investors have been found to manage their assets differently when compared to the average investor in developed Western nations (Hanna et al., 2001). This is because the risk and return relationships within the Turkish financial system are distorted, as well as caused by other unique and distinctive aspects of the Turkish economy (Hanna et al., 2001). For example, up to 1989, foreign currency transactions and gold trade were tightly controlled because the 1930 Protection of the Value of Turkish Currency Law stipulated possession of foreign currency as a crime punishable by jail time (Dogan, 2016). Financial liberalization has meant Turkish businesses have debts denominated in dollars and Turkish citizens keep their savings in gold as well as in deposit accounts in stable currencies - such as Euros and US dollars - to lessen risks of a Turkish Lira devaluation (Associated Press, 2016). However, Kucukcolak et al. (2019) found that Turkish stock and gold markets are co-integrated in the long run.

The financial markets facilitate and increase economic activity within Turkey (Kutan and Aksoy, 2004; Berument and Kutan, 2007). Cilasun et al. (2019) found that Turkey's capital stock is relatively low, but has expanded rapidly since 2000. However, the composition and quality of investment still have concerns (Cilasun et al., 2019).

Another disincentive to stock holding in Turkey has been the record of other investment alternatives that offer comparable returns with significantly less risk (Hanna et al., 2001). Individual investors found it a poor investment because of high inflation rates and the volatility of the Istanbul Exchange (Hanna et al., 2001). However, Nalin (2013) reported when inflation surges, Turkish household investment in capital markets increases when compared to other investment options.

To explore behavioral finance and the implications for investment markets, we propose the following hypothesis:

H_2: Economic factors influence stock trading in Turkey

2.3. Internet Technology Variables

Developing nations are expected to draw significant benefits from Information and Communication Technologies (ICT) (Hamilton, 2010). Advances in telecommunication networks, and Internet access in particular, expands participation, and transform opportunities for individuals and their financial options as well as enhancing decision-making (Nagurney and Ke, 2003). Information can now be provided to investors efficiently and quickly as well as increasing how individuals can manage their investments (Barber and Odean, 2001). According to Bogan (2008) computer usage and Internet access have increased stock market participation because of lower transaction and information costs, as well as easier access. Internet access is highly related to investor stock market participation in China (Liang and Guo, 2015). In India, searching on Google has become a primary basis for information, particularly by new investors (Chai et al., 2019). Jain and Biswal (2019) reported that Google ranking trends for the term "gold" in India had an asymmetric causal impact on the price of gold as well as the Indian stock market indexes and foreign exchange rates. Mei (2019) uncovered relationships between the frequency of mobile Internet messages and stock returns.

Internet resources are rapidly becoming one of the most important information sources for investors (Chai et al., 2019). According to Comor (2000), variables that affect investments through Internet technology are income level, purchasing power, legal environment, etc. Nevertheless, improving ICT infrastructure and services facilitates increased investment activity (Hamilton, 2010). This provides knowledge - through social media, news feeds, etc. - affecting investor behavior and thus impacting investment markets as a whole (Agarwal et al., 2019). According to the 2017 Internet World Statistics data, over 51% of the world's population uses the Internet. Turkish households' Internet usage was approximately 30% in 2007, but reached 75% in 2019 (TUIK, 2019a). Getting financial information on the Internet is easy for investors. The highest online activity of Turkish individuals who accessed the Internet for private purposes in 2018 was for banking (TUIK, 2019b).

Based on the above discussion, we propose the following hypothesis:

H_3: Internet technology facilitates stock trading in Turkey

3. Methodology

3.1. Data Collection and Sample

The focus of this research is to identify the investor profile variables that predict household involvement in stock trading. This was a one-off study to gain a picture of household investing activities. Selected socio-demographic, economic, and technology variables were utilized in a survey instrument. The questionnaire followed prior research (Spillan, Bahhouth, and Yi, 2016) and was translated into Turkish. Data collected through a convenience sampling in Istanbul, the biggest city in Turkey. Apart from being the biggest, Istanbul is the most populated and culturally diverse city in the country and the hub for most of the economic activities in the country, and the primary location for most financial institutions. The proximity to ports and major government centers has given Istanbul a reputation for attracting people across the country for business; therefore, lending itself well for the collection of a sample that is representative of the country. Participants are familiar with surveys and are therefore more likely to complete the questionnaire used for the current study.

The data for the study utilized 200 questionnaires. Of the participants that were interviewed at their places of business or residence. There are particular challenges with the questionnaire, sampling, and interview procedures in this topic. First is presenting financial questions to individuals in ways that reduce problems in their interpretation. The questionnaire was designed to obtain the information for this study. The second issue was getting responders to provide information that they may want to keep private. A random sample of the population was impractical and fieldwork was used to make contacts and interviews. Upon cross-checking the raw data, the information provided by respondents was sometimes inaccurate or incomplete. As a consequence, 94 surveys were fully completed and usable. This resulted in a 47% response rate.

3.2. Research Model

This study identifies a two-group dependent variable, making the logistic regression a good fit model for a number of reasons (Hair et al., 2012). This study follows prior studies of household investing conducted in other emerging markets (Spillan, Bahhouth and Yi, 2016). The research model is presented in the following equation:

$$Y = A + B_1X_1 + B_2X_2 + B_3X_3 + \ldots B_nX_n \quad (1)$$

The remaining questions highlight the attributes that might affect peoples' trading in stocks. These are the independent variables and they comprise both metric and non-metric elements. They focus on the socio-demographic and economic characteristics of Turkish people as well as their exposure to Internet technology. These characteristics are grouped into three clusters in the questionnaire, which are

social-demographic, economic, and Internet technology. Details of all the variables used in this study are provided in Appendix A.

The two dependent variables in this study are stock traders (Y = 0) and non-stock traders (Y = 1). Next, this analysis applied three stages for evaluating the independent variables:

(i). First - The socio-demographic and economic variables were analyzed in the two groups.
(ii). Second - Exposure to Internet technology within the two groups was tested.
(iii). Third - The combination of household exposure to Internet technology as well as all the socio-demographic and economic variables were added to the model and tested.

The criteria for selecting variables to enter the logistic regression model included analyzing the probability of step wise (entry 5%, removal 10%), confidence interval (95%), classification cutoff (50%), standard deviation errors (2), and level of significance (5%). This allowed for the removal of weak variables and to have 95% confidence interval of the coefficient of each of the three variables that entered the model were different from zero. This supported the validity of the model.

4. Results

In assessing the factors affecting the log odds that one would engage in stock trading; two independent variables have significant effects and thus entered the model. They are the demographic variable "level of education" and the economic variable "level of mortgage and loans". Other variables such as age, gender, spouse working, number of family members, etc. did not enter the model and accordingly had no significant effect on stock trading. Therefore, we combined and defined these two significant variables as "Socio-Economic Variables" in further analysis. Given this, H1 and H2 were combined because there was only one item for each category. At the 95% confidence interval of the coefficient of both variables that entered the model is different from zero, thus supporting the validity of the model (Table 1).

Table 1. Effect of Socio-Economic Variables

		B	Sig.	Exp(B)	95% C.I. for EXP(B)	
					Lower	Upper
Socio-Eco	Level of Education	-.604	.014	.547	.337	.887
	Mortgage & Loans	.000	.003	1.000	1.000	1.000
	Constant	3.990	.000	54.034		

Table 2 shows that the model explained 35.8% of the total variations and the predictive power of the two socio-economic variables that entered the model in identifying the two groups of the investors is 85.1%. These support both H1 and H2.

Table 2. Hit Rates of Socio-Economic Variables

Observed		Predicted		
		Stock Traders	Non-Stock Traders	Percentage Correct
Stock Traders		9	11	45.5%
Non-Stock Traders		3	71	95.9%
R^2= 35.80%	Overall Percentage			85.1%

For the second stage of the data analysis, the effect of Internet technology is tested. One Internet technology variable entered the model: the number of monthly shopping through the Internet. Summary findings are shown in Table 3. At the 95% confidence interval of the coefficient of the one variable is different from zero, which supports the validity of the model.

Table 3. Effect of Internet Technology Variable

		B	Sig.	Exp(B)	95% C.I. for EXP(B)	
					Lower	Upper
Internet Technology	Monthly E-Shopping	-.081	.001	.922	.878	.969
	Constant	1.369	.000	3.930		

The predictive power of the number of times a month shopping through the Internet dimension in the model explained only 11.1% of the total variations shown in Table 4. This supports H3.

At stage 3 data analysis, the effects of two socio-economic (the degree of debt and the level of education) and the Internet technology (the number of times a month shopping through the Internet) variables were tested. The results show the model is significant at the 95% confidence interval of the coefficient of the three variables is different from zero, which supports the validity of the model.

Table 4. Hit Rates of Internet Technology Variable

Observed		Predicted		
		Stock Traders	Non-Stock Traders	Percentage Correct
Stock Traders		7	20	25.9%
Non-Stock Traders		3	64	95.5%
R^2= 11.10%	Overall Percentage			75.5%

Table 5. Effect of Socio-Economic and Internet Technology Variables

		B	Sig.	Exp(B)	95% C.I. for EXP(B)	
					Lower	Upper
Socio-Economic and Internet Technology	Mortgage & Loans	.000	.061	1.000	1.000	1.000
	Monthly E-Shopping	-.125	.070	.882	.771	1.010
	Level of Education	-.559	.037	.572	.338	.966
	Constant	4.086	.000	59.485		

Table 6. Hit Rates of Socio-Economic and Internet Technology Variables

Observed		Predicted		
		Stock Traders	Non-Stock Traders	Percentage Correct
Stock Traders		6	12	33.3%
Non-Stock Traders		0	76	100.0%
R^2 = 38.20%	Overall Percentage			87.2%

Table 6 indicates that the model's overall hit ratio is 87.2% with a R2 logit of 38.2%. It can be stated that the predictive power is significant.

5. Discussion and Conclusions

Results of this research indicate that stock trading in Turkey is affected significantly by the socio-demographic and economic variables of the Turkish people. This analysis indicates that the impact of these two areas exceeded that of exposure to Internet technology. Noteworthy were the socio-economic variables that correctly classified stock traders 85% of the time, with a reliability of about 35%, while Internet technology variables correctly classified stock traders approximately 75% of the time, with a reliability of 11%. Therefore, the importance of socio-economic variables is about three times greater than that of Internet access and participation. Concerning the two important socio-economic variables that entered the model, the results showed that the level of education is a key factor as it was first and had a negative coefficient. In other words, as the level of education increases, the likelihood to trade in stock increases. The findings indicate Turkish people are more likely to be actively involved in stock trading as their level of education increases.

The level of mortgage and loans were the other socio-economic variable that entered the model. This had a positive coefficient that is reflected in behavior as the level of household debt increases, the likelihood of investing in stocks decreases. It appears that Turkish people avoid making long-term investment decisions (such as retirement plans) if they have debt. The only Internet-related variable that entered the model was the number of times a month responder went shopping online. This behavior had a negative coefficient. In other words, the likelihood of investing in stocks increases as the number of times a month shopping online increases. There appears to be an interconnection among Turkish people that apparently makes them more likely to invest in stocks the more they use the Internet.

When socio-economic and Internet technology factors were entered into the model, the same three variables materialized: (1) the level of education, (2) the level of mortgage and loans, as well as (3) the number of times a month shopping online. The model correctly identified almost 87% of stock traders with a reliability of 38%. The predictive power and the reliability of both of these variables were significantly greater than those of the socio-economic and Internet technology when entering the model individually. Even though socio-economic variables are factors in identifying the stock traders' group, technology variables increased both the predictive power as well as the reliability of the model. It seems that the Internet technology variables act as a catalyst and increase awareness of stock trading among Turkish households. The easily accessible and public character of the Internet has a fundamental consequence for investing. It has become an important source in obtaining investment information, facilitating contact and user-friendliness to investment options, and simplifying or easing decision-making. In general, enhancing investment literacy in Turkey should expand investment decision-making, improve the financial health of households, and potentially enlarge the overall savings rates and investment market participation.

A concern is the significant number of Turkish households that continue to exhibit limited saving and investing behavior. The dataset from the early 2000s that Nalin (2013) had used indicated only 18% of households in Turkey having savings or portfolio investments. Domestic investors

manifest high levels of reaction and try to evade potential losses than desiring any gains. Turkish investors extrapolate history, events, and opinions in their decision-making. The changing economic conditions within Turkey are complex and beyond the scope of this study. For example, recent policies have eased credit for businesses and households while at the same time the public's expectations of continuing economic problems have caused them to defer spending and investment (Goodman, 2019). Turkish households are now more than just hedging their bets and aversion seems to overwhelm financial behavior. Most are shunning the risks that are inherent by holding savings and investments in the current economic environment, which may also be a dicey alternative for households. Nevertheless, this study indicates opportunities to focus efforts for expanded investment literacy, especially using the Internet. Such efforts should also enhance the domestic savings and investment options for Turkish households and strengthen their financial well-being. Managerial implications include financial service companies and advisors expanding their efforts for assisting Turkish household investing activities and stock market participation.

This study has limitations that are summarized in the following four areas: (1) type of data: it is primary data based on a survey collected from a sample; (2) quality of information: study includes personal information about peoples' culture, social and economic traits that people avoid revealing such information; (3) Internet technology variables: the study was limited to identifying peoples' exposure to Internet technology and electronic transactions, and (4) the study focuses on data collected in Turkey: a nation with peculiarities making it difficult to extrapolate the implications of the results to other countries. The generalization of research findings to other emerging countries is not recommended.

Suggestions for future research in this area include five recommendations. (1) To incorporate in the research model additional country-specific factors. Because of the history of national economic environments, cultural differences, distinctive socio-demographic behaviors, it is worthwhile to test the effect of other variables that can include knowledge of investment vehicles and stock markets, investment traditions and methods, prior experience with financial losses, or knowledge of fraud, accessibility and reliability of Internet connections, network security and identity theft concerns, as well as many others. These issues may help explain some of the factors that hinder participation in stock trade markets. (2) Additional studies about the psychological influences exhibited by Turkish investors would expand knowledge of behavioral finance. (3) This survey should be repeated cross-section to observe changes in characteristics of household groups over time as well as to establish a sequence of interviews with a fixed panel to measure changes over time at the level of individual households. (4) To replicate the survey experiment in other countries or regions to validate the results. (5) It would be worthwhile to conduct comparative studies such as between emerging markets to identify sets of unique country-specific factors that are common among these nations. Such research directions could evolve to develop a set of more effective strategies and methods to promote household investing and stock market participation among these nations.

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Appendix A

Socio-demographic Variables

Age is a metric data (interval level) measured by using six intervals. It is expected to have a negative correlation with stock trading (Cowley and Garry, 1998; Lewellen et al., 1977); people become more risk-averse as they grow older.

Gender is non-metric data (nominal level) measured by using a dummy variable as male or female (1 or 0). Risk aversion is typically independent of gender, but in some emerging countries – especially if heavily influenced by traditions – it might be significant. The expected outcome is that the stock traders group is positively correlated with males (Scott et al., 2003; Kent and Haslem, 1974).

Marital Status is non-metric (nominal data) measured by using a dummy variable classifying as single, married, divorced, or widowed (0, 1, 2, 3). It is expected that married people would have a negative correlation with stock trading because of increased financial obligations (Johnson, 2003; Kent and Haslem, 1974).

Spouse Working is a non-metric variable (nominal level) measured by using a dummy variable the spouse as working or not working (0, 1). The expected sign for a spouse working with stock trading is positive. Income levels would be higher than if the spouse were not working (Johnson, 2003).

Number of Family Members is a metric variable (interval level) measured by using nine intervals. The expected sign with stock trade is negative as the number of family members increases, household financial obligations increase with family size (Johnson, 2003).

Occupation is a non-metric variable (nominal level) measured by using a dummy variable. Occupation is made of eight categories: banking, manufacturing, agriculture, service, proprietor, public sector, professional, and others (0, 1, 2, 3, 4, 5, 6, and 7). Professional and banking groups, because of their exposure to stock trade and the Internet, are more likely to be familiar with stock markets. A positive correlation is expected between both, professionals, and banking services groups (Cowley and Garry, 1998).

Level of Education is non-metric data - nominal level measured by using a dummy variable. The level of education is made of the following groups: Doctorate, Masters, Bachelor degree, technical, secondary, elementary, and others (0, 1, 2, 3, 4, 5, and 6). A positive correlation is expected between the level of education and the investor group because as the former increases people become more exposed to the stock market (Cowley and Garry, 1998; Kent and Haslem, 1974).

Languages Spoken is a non-metric data (ordinal level) measured by using dummy variables. Languages you speak include the following: Turkish, French, English, and others (0, 1, 2, and 3). It is expected that knowing more than one language will increase one's exposure to other cultures and will increase the probability to be a stock trader – exposure to equity culture. In addition, the "Languages you speak" variable might increase a person's exposure to Internet

Technology. The justification is that knowing the English language will help in surfing the Internet because it is highly dominated by it. There should be a positive correlation between investor groups and the knowledge of other languages (Xueping, 1999).

Number of Years Living Abroad provides information about time spent abroad as a metric variable (interval level); it is measured by using nine intervals.

Country of Residence is non-metric data (nominal level). Exposure to Western culture might increase the chances of being an investor and hence have a positive correlation with the investor group.

Area of Residence is a non-metric variable (nominal level) measured by using a dummy variable. It is expected that people living in urban areas would be better informed about stocks and trading online than those in rural areas. The expected correlation between investor group and rural residence is expected to be negative and with that of urban areas is positive (Johnson, 2003).

Number of Years You Have Been Employed is a metric variable (interval level) measured by using nine intervals. It is expected that as a person gains experience, they get more exposed to the stock market, which increases the likelihood of stock trading. The expected correlation between stock traders group and years of experience is positive (Baker, 2003).

Economic Variables

Annual Family Income of Persons Living with You is a metric variable (interval level) and is measured by using sixteen intervals. It expresses a person's annual income. A positive correlation is expected between stock trade and level of income; people become less risk-averse as income increases (Johnson, 2003; Kent and Haslem, 1974).

Assets in Any Form Other Than Cash is a metric variable (interval level) and is measured by using sixteen intervals. A positive correlation is expected between stock trades and the economic wealth of people; people are less risk-averse as economic wealth increases (Friedman et al., 2003).

Mortgage and Loans is a metric variable (interval level) and is measured by using sixteen intervals. It reflects the credit burden of a person. A negative correlation is expected between stock trading and indebtedness; people avoid risk as debt increases (Lee, 1995).

Savings at Banks Including Bonds is a metric variable (interval level) and is measured by using sixteen intervals. It reflects the level of savings expressed in Turkish liras. A positive correlation is expected between stock trade and savings as individuals become less risk-averse when their wealth increases (Freidman, Knodel, Cuong, and Anh, 2003)

Internet Technology Variables

Number of Credit Cards is a metric variable (interval level) that measures the number of credit cards a person possesses. It is expected that the use of credit cards in Turkey might indicate an individual's familiarity with financial instruments, and thus have a positive correlation with the exposure to stock trade.

Number of Transactions a Month You Process by Using Credit Cards is a metric variable (interval level) and is measured by using ten intervals. The expected correlation between investor group and credit card transactions is positive. As the number of transactions processed by using credit cards increases, it is expected that a person's exposure to financial markets thus also increases.

Knowledge of Computer Applications is a metric variable (semantic differential scale) and is measured by using a ten-point scale. It is assumed that an increase in the knowledge of computer applications increases the chances of Internet technology exposure, which might increase a person's exposure to the stock market. The expected correlation between computer applications and the investor group is positive (Birnie and Horvath, 2002).

Number of Hours a Month Surfing the Internet is a metric variable (interval level) and is measured by using ten intervals. It expresses a person's familiarity with Internet Technology, which may increase the chances for stock trade. The expected correlation of surfing the Internet and investor group is positive (Madden and Savage, 2000; Howard et al., 2001).

Number of Times a Month Shopping Through Internet is a metric variable (interval level) measured by using ten intervals. This variable was added to the research model because it is believed that a person shopping through the Internet has better chances to be informed of stock trading. The expected effect on stock trading is that it will increase the chances for stock trading on the Internet. The expected correlation of shopping through the Internet and investor group is positive.

Number of Times a Month Making Electronic Transactions is a metric variable (interval level) and is measured by using ten intervals. It was added because it is expected that a person's familiarity with electronic transactions increases their familiarity with the stock market. The measure reflects the frequency of transactions processed through the Internet. A positive correlation is expected between stock trades and the number of times a month making electronic transactions.