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Bamiatzi, V, Bozos, K and Lambertides, N (2016) Mapping the trading behavior of the middle class in emerging markets: Evidence from the Istanbul Stock Exchange. International Business Review, 25 (3). pp. 679-690. ISSN: 0969-5931

https://doi.org/10.1016/j.ibusrev.2015.02.004

Mapping the Investment Behavior of the Middle Class in Emerging Markets: Evidence from the Istanbul Stock Exchange

Abstract

Predicted to grow above 4.9 billion by 2030, with an overall spending capacity of $56 trillion, the rising middle class in the emerging markets has naturally captured global attention. Undoubtedly, how this new wealth will be invested is a crucial question; yet our understanding remains still fragmented. Drawing on the literatures of international business, economics and behavioral finance, and using high-frequency stock market data, we examine and map the behavior of the middle class in Turkey, one of the fastest rising economic powers of the East. We particularly reveal that middle class investors exhibit discernible differences to professionals, with respect to their stock preferences and risk attitudes (e.g. prefer lower-risk, smaller-size and 'value' stocks). Yet, although on average they hold small portfolios, trade too frequently and tend to realize lower gains than professionals, their role has become significantly influential to the direction of the market.

1. Introduction

> *«Thus it is manifest that the best political community is formed by citizens of the middle class, and that those states are likely to be well-administered in which the middle class is large, and stronger if possible than both the other classes, or at any rate than either singly; for the addition of the middle class turns the scale, and prevents either of the extremes from being dominant. »*
>
> *Aristotle, Politics, IV 1294b35, trans. Jowett*

The role of the middle class in the society (*πολιτεία*) has always been well acknowledged. Aristotle (3rd century BC) firmly believed that for a well-functioning society, a strong, powerful middle class is prerequisite. He argued that a class which stands between the rich and the poor, between oligarchy and democracy, will naturally be more stable, serving the rights of both sides[1]: "That the middle [constitution] is best is evident, for it is the freest from faction: where the middle class is numerous, there least occur factions and divisions among citizens" (IV.11.1296a7-9).

Nowadays, the middle class is indeed associated with economic development and progress, through fostering entrepreneurship (the backbone of the economic growth by some), increasing consumer demand (Kharas, 2010), and encouraging policy reforms, institutional changes and public investments conducive to growth (Ravallion, 2010). History has clearly showed that the middle class has the power to "create employment and productivity growth for the rest of society" through "their emphasis on the accumulation of human capital and savings" and their crucial role in innovation and investment as the contentious consumer "who is willing to pay a little extra for quality" (Banerjee & Duflo, 2008, p. 3). It is hence not surprising that countries with a larger middle class tend to enjoy more rapid progress against poverty.

[1] In a city that consists only of rich and poor, the rich will feel contempt for the poor and the poor will feel hatred and envy for the rich. The spirit of friendship that is so essential to a healthy city is made possible only by a strong middle class that holds no grudges and is not prone to factionalism... The middle class is the least susceptible to factionalism, to self-interest, and to hatred of other classes of society… and hence the best suited for government of the polis (city). After all, the polis is fundamentally a koinonia (κοινωνια), a shared venture in which everyone participates in order to achieve a common good (Aristotle – Book IV—Chapters 11-16)

Alarmingly, however, more and more evidence comes into light regarding the constant shrinking of the middle class in the West (Pressman, 2007; Scott & Pressman, 2011). In the United States for example, the gap between the poor and the very rich has kept on widening since the early 1980s; nowadays 1 percent of the economy earns more than 23 percent of the national income. Since the poor receive only a small part of the economic pie, it is obviously that the middle-class has suffered the most (Scott & Pressman, 2011, p. 333). It is therefore easy to distill why a lot of attention has recently been placed on the emerging markets around the world, and particularly on their rapidly rising *middle classes*. With just four of these economies - China, India, Indonesia and Brazil - covering 42.61 percent of the global population, the potential power these markets cumulative share is simply unprecedented. Even a small increase in the size of their middle classes is deemed to have a knock-on effect not only on the economic growth of their respective regions (Easterly, 2001), but also on the global consumer market and trade (Murphy, Shleifer, & Vishny, 1989).

Undoubtedly, to fully appreciate the role of the newly formed middle classes in the global marketplace, it is pertinent to establish a good understanding of their behavior as economic actors within (Bourdieu, 1984). To this end, a rich interest has already been cultivated on mapping the behavior of the rising middle classes as consumers, considering their distinctive cultural characteristics, consuming patterns, tastes and lifestyle choices (Banerjee & Duflo, 2008; Farell, et al., 2008; Kravets and Sandikci, 2014). Unfortunately the same attention has not been given in mapping their behavior as investors. Economists have considered the increases in health care and education expenditure as the main choices of investment for the middle class in emerging markets (Banerjee & Duflo, 2008). However, these forms of investments are necessities for a better and longer life rather than investment choices per se; the latter are deployed through the capital accumulation process of marketable intangibles, such as stocks, bonds and other tradable assets (Bourdieu, 1984).

In the current study, we try to bridge this gap in the literature by examining the behavior of the middle class investors in emerging markets. Our objective is to *map their investment behavior and patterns and hence contribute towards a theory on the risk attitudes and investment performance of the middle class in these countries*.

Indeed, as an emerging economy grows and more households enter the middle income tier, there's an increasing demand for savings and investment alternatives that will allow those households to achieve their required consumption patterns and maximize their utility functions. Yet, with the steep rise in housing prices, often evidenced across emerging economies, and under conditions of low inflation-adjusted interest rates, also prevalent within those markets, more and more households turn to investments in capital and commodities markets, most notably equities and gold. After all, whilst investing in stocks is risky, it is inarguably a means to increase one's wealth in the long run, as well as a way to diversify a heavily undiversified investment portfolio, usually comprising exclusively of property.

We take a multidisciplinary approach: drawing on the literatures of international business, economics and marketing on the ascent, the behavior and the role of the middle class, and using a finance research methodology, we shed light in this relatively under-examined issue. We specifically investigate the trading habits of middle class investors in an emerging market, redressing the imbalance in the existing literature, which is rather dominated by developed country studies. To this front, we focus on Turkey, one of the fastest rising economic powers of the East, and in particular on the behavior of individual investors in the Istanbul Stock Exchange.

Using daily 'tick-by tick' data of approximately 9.1 million trades in the BIST-30 Index over a six-month period and by splitting the trades into those by middle class investors and those by market professionals, we draw inferences on emerging common investment patters. As such, we portray the typical middle class investor and reveal their risk attitudes and preferences with regards to firm capitalization and other characteristics. We also measure how well they perform versus professional investors and whether middle class trades ultimately explain market movements.

The remaining of the paper is structured as follows: Section 2 presents the key literature on the middle class phenomenon and its extensions for emerging markets and the background to the study. In section 3, we describe the data and the methodology employed. In Section 4, we present the empirical results of a series of statistical tests, thus drawing a clear picture of the trading style

of the average middle class investor in Turkey. Finally, in section 5 we give a discussion of the results, draw further conclusions and offer recommendations for future research.

2. Literature and Background

2.1. The Middle Class

Theoretically it is easy to define the middle class. According to Aristotle's writings, the middle class is the level in a society between the rich and the poor, combining elements from either one. In Marxian terms, the middle class represents a middle stratum between the *bourgeoisie* and the *proletariat* (Burris, 1980). The bourgeoisie is the dominant class of a capitalist society, the owners and exploiters of the means of the production. The proletariat is the subordinate class, which can only serve the society by providing its labor in exchange for a wage. Hence the middle class represents a new occupational stratum of salaried managers and professionals, who "share with the proletariat the status of alienating their labor-power in return for a wage; yet they retain a degree of autonomy over the immediate application of their own labor-power, and/or participate in the supervision of the labor of others" (Buris, 1980, p. 18).

2.1.1. The Middle Class in Emerging Markets

Defining the middle class in practice has been extremely precarious, especially when comparing nations around the world with different levels of economic development and national poverty lines (Banerjee & Duflo, 2008; Birdsall, 2010; Eisenhauer, 2011; Ravallion, 2010). In fact, what makes for the cut-off point in the poverty line in the West, can be classified as the middle or even upper middle class in other countries around the world, e.g. India, Africa etc.[2] (Banerjee & Duflo, 2008; Birdsall, 2010; Ravallion, 2010). Therefore, scholars of the middle class in emerging markets nowadays recognize that instead of providing an absolute cut-off point representative across the globe, it is perhaps better to provide a relative definition meant to "be non-Western and specific to developing countries" (Birdsall, 2010, p. 5).

[2] Banerjee and Duflo (2008) designate as middle class in developing countries people living between $2 and $10 a day whereas Ravallion (2008) designates as middle class in developing countries all those living between $2 and $13

Thus in relative terms, the middle class is identified by dividing the households within a specific market according to their comparative income generation (Birdshall, 2010) or their consumption distribution (Banerjee & Duflo, 2008). In these terms, a household at the 95th percentile of the income or the 90th percentile on the consumption distribution would be typically positioned among the rich, with the middle class being placed between the 20th and 85th percentiles respectively. This definition reflects back to Weber's view of the middle-class, which moves away from the restricted view of the capitalists, those who "own" the means of production, to those who own other forms of valuable assets, such as consumer and durable goods, real estate and other marketable belongings. Consequently, the paradigm is shifting from "you are what you do" to "you are what you have" (Ferreira, et al., 2012, p. 14).

2.1.2. The Size and Economic Behavior of the Middle Class in Emerging Markets

The size of the middle class in emerging markets has been the subject of empirical scrutiny in several studies by global, governmental and private organizations. According to the OECD Development Centre report in 2010, the global middle class is expected to increase from 1.8 billion to 3.2 billion by 2020 and to 4.9 billion by 2030 (Kharas, 2010, p. 27), with the vast majority of this rise (almost 85 percent) attributed to Asia. Although half of the rise is attributed to China alone (Farrell, et al., 2006; Kharas, 2010; Ravallion, 2010), many countries are also closely monitored for their contribution.

Of course, alongside the estimation of the size of these unchartered markets, comes the realization of their growing purchasing power. McKinsey estimates that by 2025, China's lower middle class alone will comprise more than 520 million people with a total disposable income of approximately $1.6 trillion (Farrell, et al., 2006). When these figures are combined globally, it is estimated that by 2030, global middle class spending will skyrocket to $56 trillion (from $21 trillion in 2009), which could even "offset the stagnant purchasing power most analysts see as likely in the developed world" (Kharas, 2010, p. 28). How this money will be allocated, and the general economic behavior of its proprietors is undoubtedly a crucial question.

Hence, it is not surprising that international business and marketing scholars have been particularly interested in the distinct consumption patterns of the rising middle classes. After all, being considered as "the most conspicuous aspect of class behavior" (Raynor 1969, p. 69), consumption patterns have widely been used to classify people in different status groups (Mason, 1983; Corneo & Jeanne, 1997; Kravets & Sandikci, 2014; Vigneron & Johnson, 1999; Veblen 2007). A clear divergence between the middle class and the poor with respect to their attitude towards consumption, entertainment, education, health care investment, and so on is in fact well documented. (Banerjee & Duflo, 2008; Farrell, et al., 2006; Kharas, 2010). Consequently, consumer tastes and living styles have become status symbols, denoting the differentiation among classes, and providing a way for people to recognize their position and that of others within a certain class.

Nevertheless, despite the rich literature on consumption patterns, our understanding of the economic behavior of the newly-formed middle class remains partial; according to Bourdieu (1986) the middle class is distinguished by the accumulation of economic, cultural and social capital. The economic capital, in particular, incorporates all property rights from knowledge to marketable tangibles, such as consumer goods and services, and marketable intangibles, such as credit, goodwill, brand names, trademarks, stocks, bonds and other tradable assets that can be easily transformed into money. Hence, to fully map the economic behavior of the middle classes, we also need to identify how they are accumulating marketable intangibles, for instance how they behave as investors. Unfortunately, so far there has been limited focus on the investment behavior of the new middle class in emerging markets. To this front, only health care and education expenditures have been studied as choices of investment (Banerjee & Duflo, 2008); yet these choices cannot be treated as investment decisions per se, but rather as necessities for a better and longer life.

2.2. Middle Class Investment Patterns

Evidence from equities markets in developed countries suggests that a distinctive relationship exists between individually and institutionally motivated order flow and returns. In general, the finance literature favors professional investors over individuals (often identified as those who

invest via small to middle-level trades), by reporting that the former gain relatively higher returns, as they are generally better-informed. For example, Odean (1999) showed that stocks bought by individual investors underperformed stocks by professional investors by as much as 23 basis points, while Barber and Odean (2000) found self-managed portfolios of individual investors to underperform the market. Barber, Odean and Zhu (2008) showed that order imbalances of individual traders are highly correlated and indicative of 'herding'. Shleifer and Summers (1990) suggested that individual investors herd in response to analyst recommendations or forecasts and place excessive importance on recent news. Also, as noted by Lakonishok, Shleifer, and Vishny (1992) institutional herding might arise because institutional investors are better informed than individuals. Finally, Nofsinger and Sias (1999) showed that although herding activity is undertaken by individual investors, their actions have less price impact than herding by institutions.

Another feature of individual trading behavior is also widely believed to be trading on past performance, especially prevalent among middle class portfolios. To this front, Lakonishok, et al. (1992) showed that investors engage in positive feedback buying past winners, while Shefrin and Statman (1985), supported that individual investors have the disposition "to sell past winners early and ride losers for too long". Kumar and Lee (2006) used trading records of individual investors to show that buying activity in one stock is positively correlated with buying activity in another, so that the trades of individuals are systematically correlated.

Barber and Odean (2000), examined a unique dataset of approximately 66,000 US middle-class households with investment accounts at a discount broker. They reported that the median household portfolio comprised just 2.6 stocks, was worth $16,210 and was turned over by more than 75 percent annually. This trading pattern resulted in underperformance, attributed mainly to the cost and the frequency of trading, rather than to the portfolio choices themselves. The study concluded that the cause behind this excessive trading is overconfidence, coupled with the joy and excitement of trading, which hints to elements of gambling and sensation-seeking behavior.

Similar, though not always identical, patterns have been observed in emerging markets: for example Chen, Kim, Nofsinger and Rui (2007) found Chinese individual investors to appear

overconfident and generally prone to investment biases, such as the above-documented "disposition effect" and the "representativeness bias", and to overall make poor investment decisions. In general, according to Barber and Odean's (2011) recent review of the global empirical literature on the topic, individual investors trade more than frequently, sell winners and hold on to losers. Their portfolios are mostly under-diversified, and their trading behavior is easily influenced by the media and their own past experience and generally ignores general prescriptions on equity investing (Barber and Odean, 2011).

2.3. The Importance of Turkey as an Emerging Market

In this study we intentionally focus on Turkey and the Istanbul Stock Exchange, as a most interesting and suitable laboratory for our research. Modern day Turkey is a relatively young economy and yet one of the most rapidly growing emerging economies. The Istanbul Stock Exchange is also a particularly interesting case, due to its dynamism and its special regulatory regime, which provides investors with a platform that is free of restrictions and post-liberalization effects (Ulku et al 2012). In addition, Istanbul being a major commercial and financial center, during the last two decades, has emerged as the "country's globalizing city" with a particular and distinctive increase of the Turkish middle class within (Rutz & Balkan, p. 25).

2.3.1. Modern Turkey

The history of modern Turkey began just three decades ago with a coup in 1980, which marked "the beginning of the country's liberalization episode" (Rutz & Balkan, 2013, p. 17). Since then, national protectionism and business restrictions have been slowly relaxed, trade barriers eradicated, whereas efficient money and capital markets in the big cities (Istanbul and Ankara) and new policy reforms were introduced to open up Turkey into the global marketplace. The growth of the capital market, coupled with the increase of foreign investment (both direct and indirect) and the rise of the private sector fostered a stable economic growth with no precedent in the country's history (Cavusgil, Civi, Tutek, & Dalgic, 2003; Rutz & Balkan, 2013).

Today, Turkey is among the most rapidly growing emerging markets in the world. With a GDP per capita growth of approximately 60 percent within less than a decade (from $11,394 in 2005 to 18,114 in 2013[3]), and a constantly growing population of 75 million, Turkey is ranked as the 17th largest economy in the world, and the 9th largest economy among the emerging ones[4]. Turkey also ranks among the Emerging and Growth-Leading Economies[5], which are expected to be larger than the average of the G7 ones in the next ten years. Being such a growing economy, Turkey presents with a dynamic ten billion dollar consumer base, which consists mainly of young consumers with substantially increasing income levels (Cavusgil, et al., 2003; Tatoglu & Glaister, 1998a, 1998b). It is therefore not surprising that foreign direct investment increased from a mere $35 million in 1980 to $12 billion in 2013 (OECD 2013).

2.3.2. The Istanbul Stock Exchange

The establishment in 1986 of the Istanbul Stock Exchange (ISE), which recently merged with the derivatives and commodities exchanges under one rebranded market, the 'Borsa Istanbul' (also BIST), was instrumental to the economic development of Turkey. Being the sole corporation in Turkey for securities exchange, the ISE became "essentially the main capital market institution" (Diyarbakirlioglu, 2011, p. 488). Types of securities traded in the ISE were corporate equities and bonds, state bonds, foreign securities and real estate certificates. Being a relatively novel institution and to further strengthen its competitive positioning among the global capital markets, ISE introduced early on new regulations and tax exemptions encouraging foreign and domestic investment. For example, with the 'Decree no. 32' in 1989, all foreign institutional and individual investors were allowed to freely repatriate their proceeds from trading in ISE, without paying any taxes on the income generated from their investments in stocks (Diyarbakirlioglu, 2011). This rule applied to both resident and non-resident investors and had a significant impact on the investment growth patterns.

[3] Country statistical profiles: Key tables, OECD 2013 - ISSN 2075-2288
[4] Gross Domestic Product 2012, Purchasing Power Parity, World Bank Group
[5] Upper middle income Gross National Income (GNI) countries with advanced market infrastructures or high income GNI countries with lesser developed market infrastructures

The early years of the ISE were characterized by its sensitivity to market cycles and inadequate institutional provisions. The above resulted in prolonged periods of investment exuberance, with thousands of households entering the market for the first time. Yet, this massive wave of private funds by unsophisticated, short-termist and relatively uninformed investors was to result in at least two occasions (during the 1990s and in early 2001) to stock market crashes and severe losses to individual investors' wealth and confidence (Tarim, 2010).

Following a series of regulatory reforms, mostly encouraged by foreign investment interests after 2001, both foreign and domestic investments rapidly returned to the ISE. In fact, according to Ulku and Ikizlerli (2012) the trading volume by foreign investors climbed from just 6 percent in the early '90s to 27 percent in 2007, although it stabilized in 2010 around 20 percent. At the same time, the market capitalization of foreign investors rose from 45 percent to 70 percent and stabilized around 65 percent in 2010. Meanwhile, domestic individual investment stabilized around 20 percent of the market capitalization, yet the trading volume grew to up to 68 percent, effectively dominating all others (with foreign investors and institutional investors covering for 16 percent of the trading volume respectively). Overall since the 1990s, and despite the setbacks, the ISE has generally experienced remarkable growth, rendering it one of the world's fastest growing stock exchanges. Today the ISE, is in fact the seventh largest emerging country stock exchange (Ülkü & İkizlerli, 2012).

A small number of studies inform the literature on the behavior and the trading patterns of the investors in the ISE, without however making clear distinctions between middle-class and affluent investors, while the focus has naturally been on the behavior of the professional and the foreign investors in the market. For instance Ulku (2012), using broker-level data, confirms that 'big players' trades in the ISE are positively associated with the returns of the market, exhibit elements of herding behavior and positive feedback trading. In another study, Ulku and Ikizerli (2012) examine the patterns of foreign trade inflows in the ISE and find them to forecast market level returns, while foreign traders were found to negative-feedback trade, especially during turbulent periods, but also to be relatively well-informed. In another recent study, based on observation of four big brokerage houses in Istanbul, Tarim (2010) highlighted some extremely useful conclusions on the behavioral patterns of domestic individual investors in the ISE. On

average, domestic individuals were found to be very short-termist, turning over their portfolios every 28 days (versus 322 for foreign investors) and very sensitive (quite irrationally) to the arrival of global news. Meanwhile, they were also seen to have become more risk-averse and suspicious of the stock market's utility as a long term investment venue, while they were typically reported to prefer flow-and-momentum trades in large capitalization stocks.

3. Data and Methodology

3.1.1. Description of the Middle Class Investor in the ISE

According to the Turkish Central Securities Depository (*Merkezi Kayıt Kuruluşu,* henceforth MKK), as of the end of 2013 there were approximately 1.1 million equity investor accounts in the ISE, of which 1.09 million belonged to domestic individuals. In Table 1, we present summary statistics and the distribution of the investors in the ISE, by several break-downs. All the data were retrieved from the databank of the MKK (www.mkk.com.tr) and are available to the public. It becomes clear from Panel A, that domestic individual investors dominate the market in terms of numbers. Collectively they account for 98.6 percent of the investors in the ISE, with the domestic professionals and the foreign investors, only accounting for the remaining 1.4 percent. However, the picture is inverted when it comes to the market value of the investment holdings. Collectively, domestic individuals own approximately TL 37 billion, just 18.9 percent of the entire market value of the free float, while foreign investors (professionals and individuals) own approximately TL 122 billion, or just below 63 percent. Based on these figures, the mean value of a domestic investor's portfolio is TL 33,740, versus TL 33.76 million for foreign professionals.

However, not all individual investors are categorized as 'middle class', as clearly shown in Panel B, which gives a break-down of the above investors per portfolio size. We thus observe that, while a staggering 80.5 percent of the domestic investors hold portfolios between TL 1-10,000 and TL 10,000 - 50,000 (and therefore could be categorized as middle class), a very small portion (≈3.4 percent) of investors holds portfolios larger than TL100,000 and effectively

controls around 82 percent (≈TL 30 bn) of the market capitalization of domestic individuals[6]. Excluding those large portfolios and all the inactive accounts from the analysis, so as to focus on the above middle class portfolios, yields a weighted average portfolio size of TL 4,811 distributed among 881,312 domestic individual investors, and adding up to TL 4.24 bn in total.

As regards the regional distribution of the middle class investors, Panel C confirms that they are unsurprisingly concentrated in the large urban areas of the country, with an astounding 61.5 percent based in Istanbul and another 15 percent jointly in Ankara and Izmir. So, in total three out of four individual investors reside in the three largest urban areas, which in turn are home to around a third of the entire population. This confirms our expectations that middle class investors in Turkey would be typically concentrated in the large cities, close to the financial and business center and the core of the investment brokerage activity, as also observed by Tarim (2010).

[Insert Table 1 here]

Similarly interesting is the break-down of the domestic investors by age group and portfolio size, as presented in Figure 1. Here, we also make a number of noteworthy observations: In terms of size, the age group 40 -45 dominates the investor's population (15.6 percent) with a total size of around 170,000. With the addition of the age group 45-49, the entire fifth decade (40 – 49) exceeds 329.000, or simply 30.1 percent of the population. The addition of the previous decade (30-39) yields another 250,000 investors (22.7 percent), hence jointly the two age groups spanning the fourth and fifth decades (30-49) account for 52.7 percent of the active domestic investors in the ISE.

With respect to the middle class segment (portfolios between TL 1-50,000), the most active age appears to be between 20-25, with 10,283 (or 89 percent of the group) holding portfolios within this bracket. On the other hand, the most affluent age group appears to be the one over 75 years, with 29,963 individuals (or 78 percent) holding middle class portfolios (TL 1 – 50,000) and 2,160 investors (or 6 percent of the age group) holding portfolios greater than 100,000. Finally, as regards inactive accounts, the age group 40-44 has the most in terms of absolute figures

[6] These large portfolios, belonging to a 'select few', consist of course of quite idiosyncratic characteristics and therefore fall outside the scope of our study.

(23,111) but the group 35-39 dominates in terms of percentage (21,526, or 14.5 percent). These figures suggest that within these age brackets, investors have either invested in the past, but have seized any such activities for a long period, or simply opened an investment account but have yet to make any deposits or trades. In the meantime, the age group with the smallest percentage of inactive accounts is rather unsurprisingly the one between 20-24, with which would normally present the highest appetite for risk and willingness to get a taste of the stock market experience, even by investing very small amounts.

[Insert Fig. 1 here]

3.1.2. Trading Data from the BIST- 30 Index.

To draw further inferences on the trading and investment patterns of the middle class investors in the ISE, it is necessary to examine higher-frequency data. Such data will give us the ability to closely monitor how the middle class behaves in general on a daily basis and how it reacts to market movements and external stimuli. Hence, we draw a sample of 30 ordinary common stocks listed on the BIST-30 between the period July 2013 - December 2013. The BIST-30 is a broad-based, free-float, capitalization-weighted index of 30 high capitalization and liquidity stocks, accounting for 70 percent of Turkey's market value and volume. We choose to employ the BIST-30 because its constituents are the 'Blue Chips' of the market, the most liquid and transparent companies, therefore the most representative sample of the Turkish industry. The chosen period is also very interesting and suitable for the purposes of the study. During the second half of 2013, the ISE experienced a period of relative instability, mainly led by the 'Taksim Gezi Park' events, which caused the BIST-30 to drop from its all-time high of 115,341 units (22 May) to 79,952 (on 27 August). Although some of these losses were recouped in the following period, and the index returned to 98,735 units by mid-September, the market went under further pressure when the protests re-ignited during the fall across Turkey, especially after the breakout of a corruption scandal in early December, involving government officials and affiliates in alleged bribery, corruption and fraud. These events put further pressure to the Turkish currency and caused foreign investors to review their positions in the ISE, resulting in net foreign outflow of $418 million for the year (*source: MKK*). These market conditions during

this period provide an ideal context to observe investment behavior and trading patterns. Figure 2 illustrates the BIST-30 Index during the period of the study alongside the trading volume.

[Insert Fig. 2 here]

From Bloomberg, we also collect 'tick-by-tick' transaction data (price and volume) for all 30 stocks during the six-month period. The number of trades varies by each day and firm, as shown in Table 2. The average number of trades each day is 2,922 per stock; the minimum number being 825 (for the ticker DOHOL, an industrial conglomerate) and the maximum 8,295 (for the ticker GARAN, the second largest private bank in Turkey). The total number of trades for all 30 stocks for the period exceeds 9.1 million, with the lowest number per stock being 84,944 and the highest 895,808.

[Insert Table 2 here]

We also retrieve the daily returns of the 30 stocks, the value-weighted returns of the market and the risk-free rate of the market. We calculate Volatility as the standard deviation, and Beta of each stock with the Capital Asset Pricing Model (CAPM), using the last 100 days. Size is calculated as the market capitalization and Analyst is the number of analysts following of each firm. Market-to-book (M/B) ratio is the ratio of market equity to book value of equity. All data are provided by Bloomberg.

Motivated by the literature we separate middle class (MC) and professional (Pr) trades in the same setting as retail and institutional order flow. To partition middle class and professional trades we analyse each trade on Bloomberg and classify the trade as middle class or professional using the Lee and Radhakrishna (2000) algorithm which assigns trades below $5,000 as retail (middle class) and those above $50,000 as institutional (professional). Trades between $5,000 and $50,000 units cannot be classified effectively as both retail and institutional traders will be active within this segment. These cut offs have been shown by Lee and Radhakrishna (2000) to be accurate enough not to cause miss-assignment problems while Barber, et al. (2008) have shown that small trade order imbalance is strongly correlated with trade imbalance arising from retail brokers. Moreover, this algorithm has been used by Barber, et al. (2008) to study the effect of retail traders on market returns and by Ali, Klasa and Li (2008) to study the effect of institutional trades around earnings releases.

However, to employ the above algorithm, we need to convert it into the local currency, while taking into account the differences between the US and the Turkish economy and accounting for the effect of possible fluctuations in the exchange rates as well as changes in purchasing power over time. Hence, we first calculate the percentage of the above cut-offs ($5,000 and $50,000) on the US GDP per capita for 2008, at purchasing power parity (PPP), expressed in constant international US dollars. Then we multiply the ratios with the Turkish GDP per capita for 2013[7] (again at PPP), to calculate the equivalent cut-offs for Turkey (in $ US). Finally, we convert each cut-off into the domestic currency, using the mean $/TL exchange rate during the period July-December 2013 as follows:

$$Trading\ Threshold\ (TL) = \frac{US\ Threshold}{US\ GDP\ (PPP):\ 2008} \times (TURKEY\ GDP(PPP):\ 2013) \times (\$/TL)$$

$$MC\_Threshold\ (TL) = \frac{\$\ 5{,}000}{\$\ 50{,}339} \times \$\ 15{,}300 \times 2.0057 \approx TL\ 3{,}048$$

$$PR\_Threshold\ (TL) = \frac{\$50{,}000}{\$50{,}339} \times \$\ 15{,}300 \times 2.0057 \approx TL\ 30{,}480$$

Therefore, our lower and upper trade cutoffs for the ISE are TL 3,048 and TL 30,480 respectively. Hence, the size of each of the 9.1 million trades is calculated as Volume of Shares × Price per Share and every trade is then classified either as Small (Size≤ TL 3,048), Big (Size≥TL 30,480) or Unclassified (TL 3,048 < Size < TL 30,480). Following this step, we calculate for each stock and for each day in the examined period the Ratio: MC/PR, effectively the daily ratio of Small/Big trades for each of the 30 stocks in the index.

To gauge the relationship between our BIST-30 sample and the broader market, Table 3 shows summary comparisons between our BIST-30 and BIST-100 samples. In general, the two samples exhibit similar characteristics. However, BIST-30 firms are slightly larger and more attractive than BIST-100 firms (higher number of analysts following). BIST-30 have slightly lower average returns (less negative) and volatility, but higher market-to-book ratio (consistent with the size and value anomaly, see among others Fama and French (1992)). The average ratio of the number of Middle Class trades to the number of Professional trades (MC/PR) is around 2.9 and

[7] CIA Estimate for 2013: $15,300 (the World Factbook, 2014) https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html

similar across the two groups. This ratio suggests that the middle class trades 3 times more than professionals and translates to a 75-25 percent split of the trading activity, somewhat higher than the figures for 2010, as reported by Ulku and Ikizerli (2012). These findings concur that our sample of BIST-30 firms is representative of the ISE and a fitting choice for the purposes of our study.

[Insert Table 3 here]

4. Empirical Results

In our first approach to investigate the behavior of middle class investors, Table 4 reports the ratio of the number of Middle Class trades to the number of Professional trades (MC/PR) in quintile portfolios constructed based on the following firm specific characteristics: a) Volatility of the returns, b) Beta calculated over one year CAPM, c) Size (market capitalization), d) number of Analysts following, and e) Market-to-Book ratio (M/B).

4.1. Risk Profile of Middle Class Investors

According to the volatility quintile portfolios, middle class investors trade more on lower risk assets. That is, portfolios with smaller volatility have higher MC/PR portfolios (i.e., higher MC/PR is interpreted as more middle class trades relative to professional trades). Specifically, '1 Small' volatility portfolio has 2.78 MC/PR ratio, whereas '5 Big' volatility portfolio has 2.40 MC/PR ratio. The difference DIF (High-Low) -0.386 is statistically significant. Beta is another commonly employed measure of risk, which is however more related to the sensitivity of a stock's returns to the returns of the entire market. However, the results based on Beta, are mixed and therefore inconclusive. This could be explained by the fact that all stocks in the BIST-30 are constituents of the index and therefore participate in its daily returns.

4.2. Capitalization Preferences of Middle Class Investors

Regarding the portfolios sorted based on size (market capitalization) the results show that middle class investors trade on smaller firms. Portfolios on stocks with smaller market capitalization

have higher MC/PR ratio. Specifically, '1 Small' size portfolio has 3.19 MC/Pr ratio, whereas '5 Big' size portfolio has 2.52 MC/PR ratio. The difference -0.672 is statistically significant.

4.3. Visibility Preferences of Middle Class Investors

One interesting aspect of investor behavior is the degree to which they prefer stocks with higher market visibility and promotion in the financial press and the news in general. Such stocks are normally followed by a higher number of professional analysts, who on a regular basis analyze the news releases related to those companies and revise their forecasts and recommendations. A higher number of analysts following a firm suggests that its stock is of higher importance for professional portfolios and for a given industry. If the middle class prefers such companies, we can reasonably infer that they value professional opinions more and are more likely to revise their portfolio choices based on analyst consensus, or the recommendations of the analyst of their preference or respective brokerage firm or bank. However, the results to this front are inconclusive, as there is no clear pattern between MC and PR portfolios, while the difference between low (2.74) and high (2.80) number of analysts is insignificant.

4.4. Glamour vs. Value Preferences of Middle Class Investors

Interesting findings are reported based on market-to-book (M/B) ratio. It is common in finance literature that high M/B ratio proxies for growth-oriented, 'glamour' firms, whereas low M/B proxies for established 'value' firms. Similar to volatility and size results, it seems that middle class investors prefer established 'value' firms to trade (rather than fast-growing and dynamic 'glamour' firms). Portfolios with smaller M/B have higher MC/PR ratio. Specifically, '1 Small' M/B portfolio has a 3.20 MC/Pr ratio, whereas '5 Big' M/B portfolio has 2.48 MC/PR ratio. This difference, -0.726, is statistically significant.

[Insert Table 4 here]

Table 5 shows average firms specific characteristics (Volatility, Beta, Size, #Analyst, M/B) of quintile portfolios constructed based on the MC/PR ratio as a test of robustness to the previous findings. Low MC/PR ratio implies lower middle class trades relative to professional trades and high MC/PR ratio implies higher middle class trades relative to professional trades. Consistent

with the previous results in Table 4, the volatility increases as moving from low middle class to high middle class portfolios (from 1 to 5 portfolios), confirming that middle class investors prefer lower risk assets (in contrast to professional investors that seem to choose also higher risk assets). The results show also a monotonic pattern for Size and M/B. Specifically, size and M/B decrease as moving from low middle class portfolio to high middle class portfolio (from 1 to 5 portfolios). This is consistent our previous finding that middle class investors trade more on smaller and (established) value firms. The differences between the high and low MC/PR portfolios are statistically significant for volatility, size and M/B, as in the previous set of results.

[Insert Table 5 here]

4.5. The Performance of the Middle Class

So what about *the 'crux of the matter'*, the performance of the middle class investors under these conditions, assuming the above investment patterns? And even more importantly, what about the lingering question in the minds of the middle-class scholars: "Can the rising power of the middle class possibly sway the direction of the market?" We finally address the above through a series of further econometric tests. As a first step in investigating the contemporaneous relationship between middle class investment and stock returns, we employ the ratio MC/PR as an exogenous factor in the traditional market model of stock returns for each of the 30 stocks in the BIST-30:

$$R_i = \alpha_i + \beta_{1i} \cdot R_m + \beta_{2i} \cdot MC/PR_i + \varepsilon_i,$$

where R_i are the daily returns of each stock (i), R_m, the daily returns of the market index (XU030) and MC/PR_i the daily ratio of small over big trades for each stock (i). If the ratio MC/PR_i is associated with stock returns, the estimated coefficient β_{2i} of the factor will be flagged as significant, and will, depending on its sign, suggest whether its effect is positive or negative. To estimate a single coefficient for each factor in the above model we employ a two-step procedure, similar to the one proposed by Fama and Macbeth (1973). As a first step, for each stock in our sample we run a cross-sectional regression and save the vector of each estimated coefficient; then, as the second step we obtain single coefficient estimates as the average of the first step coefficient estimates. For brevity, we do not report detailed results from the above procedure, but only the finally estimated equation coefficients, which confirm a significant negative

contemporaneous relationship between middle class investment (*MC/PR*) and stock returns (R_i) for the BIST-30 index constituents[8]:

$$\begin{array}{lccc} R_i = & 0.548 & + 0.969 \cdot R_m & - 0.260 \cdot MC/PR_i \\ & [0.105] & [0.042] & [0.051] \\ & (5.236) & (22.929) & (-5.122) \end{array}$$

Therefore, middle class trades are associated with negative returns, a finding that suggests that when middle class investors trade heavily, the price of stocks they trade on drops. However, the results of the above procedure reveal only part of the whole picture. To examine the causal nature of the relationship between share price returns and the ratio of Middle Class over Professional trades (MC/PR), we conduct a series of Granger causality tests (Granger, 1969). These tests, run separately for each security in the index during the period July – December 2013, aim to reveal whether there is a lead-lag relation between the values of the two examined time series. We thus investigate whether middle class investors in the ISE 'Granger-cause' stock returns or if they effectively 'chase' them.

The Granger causality method involves simultaneously estimating the following two ordinary least squares equations for each of the 30 stocks in the BIST-30:

$$R_t = \alpha_0 + \sum_{i=1}^{5} \alpha_i R_{t-i} + \sum_{j=1}^{5} \beta_j \, MC/PR_{t-j} + \upsilon_t$$

$$MC/PR_t = \gamma_0 + \sum_{j=1}^{5} \gamma_j \, MC/PR_{t-j} + \sum_{i=1}^{5} \delta_j R_{t-i} + \nu_t$$

where, R_t and MC/PR_t are the time series of share price returns and the MC/PR ratio for each security accordingly, while R_{t-i} and MC/PR_{t-j} are their respected lags for up to five days, while υ_t and ν_t are random disturbance terms with a mean of zero.

The results of the above regressions and the respective F-tests are summarized in Table 6. For the first equation, the null hypothesis, that lagged MC/PR does not Granger-cause returns, is rejected in 23 and 16 cases (out of 30) at the 10% and the 5% significance levels respectively.

[8] Standard Errors in [squared brackets], T-statistics in (brackets)

The mean F-statistic across the 30 cases is 2.796 and significant at the 10% and the 5% levels. Therefore, middle class investment levels appear to influence stock returns negatively. On the other hand, the results of the second equation support that returns do not impact on middle class investment. In specific, the null (that lagged returns do not Granger-cause MC/PR) is rejected in just 5 and 4 cases at the 10% and the 5% significance levels respectively. The mean F-test score is 1.427 and insignificant.

[Insert Table 6 here]

To gain further insights into the true nature of the above relationship, we utilize impulse response analysis, which outlines the dynamic response of each variable in our system to shocks in the other variable (Hodgson *et al.,* 2004). In our case, impulse response functions indicate the extent to which a shock of one variable (i.e. MC/PR) is transitory or persistent on the other (i.e stock returns) and vice-versa. Figures 3a and 3b illustrate impulse response paths for both directions in the relationship between MC/PR and Ri. Specifically, we observe in Figure 3a that stock returns exhibit a negative response to positive shocks in middle class investment, which lasts for approximately 1-2 days. The opposite, however, is not true in Figure 3b: while responses of MC/PR to shocks in stock prices appear to be negative and last for 4-5 days, their magnitude is small and not significant. Therefore, we conclude that middle class investment levels impact (negatively) on share price returns, while share price returns do not appear to influence middle class investment levels. Hence, middle class investors in the ISE shape share price returns, but do not appear to 'chase' them.

5. Discussion and Conclusions

Our main objective in this paper was to draw the attention to the relatively underexplored investment behavior of the middle class in emerging markets and to contribute towards the development of a solid empirical view on the issue. We chose Turkey, as one of the most rapidly growing emerging economies, with a vibrant capital market, where domestic and foreign, individual and institutional investors trade over TL 3.25 billion ($1.50 billion) worth of equities on an average daily basis.

Our detailed examination of the market, its structure and its participants, revealed certain very interesting characteristics, allowing us to draw the picture of the average middle class investor in the Istanbul Stock Exchange. We found that the middle class in the ISE is predominant and accounts for approximately 80 percent of the domestic individual investors. However, in terms of market value, the middle class owns a relatively small fraction, which adds up to just over TL 4.24 bn, yielding a mean portfolio value of just over TL 4,800 (approx. $ 2,400) for the average investor.

In addition, we found that the middle class investor in Turkey typically resides in one of the large urban centers (Istanbul, Ankara, Izmir, etc), close to the core of the economic, commercial and financial activity, as also observed by Rutz and Balkan (2010) and Tarim (2010). In effect, as financial intermediaries, educational institutions, services companies and professional activities cluster around the big urban areas, it is evident that the urbanization of the emerging economies and the appearance of a new "cosmopolitanism" in the big cities (Rutz & Balkan, 2010, p. 25) also attract retail investment activity. Furthermore, we found that, while the middle class is the biggest group across all age tiers, the typical age of the middle class investor is between 30 and 49 years, accounting for over 50 percent of the active domestic investors in the ISE. This is also unsurprising, as this age group, having settled in a steady profession and generating disposable income, would normally be expected to be the most active in financial markets.

Our empirical analysis of high-frequency data from the constituents of the BIST-30 revealed that middle class trades are strongly associated with lower volatility equities, consistent with the risk aversion hypothesis. This finding is rather at odds with the empirical finance literature on western individual investors (for a review see Barber and Odean, 2011), which has supported that on average retail investors prefer stocks with high idiosyncratic volatility. One explanation is that middle class investors in emerging countries cannot diversify as well as professionals or as their western world counterparts, as their funds are very limited and (as shown above) their mean portfolio value is a fraction of that of the US households in Barber and Odean's (2000) study. In addition, we appreciate that the two fairly recent market crashes of the ISE may have contributed to the retail investors becoming more risk aware, as posited by Tarim (2010). This could then suggest that in emerging markets, which are typically more prone to extreme price movements,

middle class investors are exposed to more severe 'lessons' by the market, which then contribute to shaping their attitudes towards risk.

We also found that middle class investors in the ISE prefer small capitalization stocks, even when investing in the BIST-30 'Blue Chips'. This finding indicates that middle class investors believe in the 'small firm effect', first empirically evidenced by Banz (1981) and Reinganum (1981), which posits that smaller size firms, typically characterized by higher growth opportunities, present better potential for future price appreciations. That middle class investors exhibit such a preference for small firms can mean that they are either well-aware of the underlying theoretical reasoning, presumably as a result of training or advice by their brokers, or that they have simply abandoned the large capitalization market to the foreign investors (in favor of the small local stocks) and will only trade on large stocks if they envisage opportunities for short-term profit, as Tarim (2010) purports.

Our next finding was that middle class trades cluster around low market-to-book (M/B) shares, otherwise known as 'value' shares, as opposed to high-growth, or 'glamour' shares. This preference is also in agreement with the presence of the so called 'value puzzle', one highly pronounced market anomaly, which postulates that over the long term mature and established firms outperform the most popular high-growth firms. Again, explanations for this behavior can origin from the characteristics of the middle class portfolio and its small-size restrictions, but also from the role of financial advisors and brokers in instructing their clients to 'fly to quality' in periods of market distress.

Finally, we found that high middle class trades on a stock are associated with price drops. Granger-causality tests revealed that small-size trades do not trail negative returns, but rather appear to (Granger) cause them. This result reveals a hitherto uncharted aspect of the ISE. With around 80 percent of the market capitalization held by professional portfolios, which have invested in the long-term prospects of the Turkish economy, the market has become very sensitive to shifts in the order-flow. Thus, individually motivated order flow leads to negative returns, while in the presence of 'big player' trades returns are positive, as also showed by Odean (1999) and Ulku (2011). We can then reasonably surmise that when equities reach the desired

price targets in the ISE the middle class acts as a vehicle for professional portfolios to sell their positions and then repurchase them at lower levels. This pattern then explains price drops following mass middle class trades (High MC/PR) and price rises after mass professional trades (Low MC/PR).

It is noteworthy that as the ISE experiences continuous growth over the past decade, middle class investors are gaining their fair 'share of the pie', by trading between market lows and highs and by 'cashing out' on any small gains. This behavioral pattern is also in line with Tarim's (2010) observations and explains their short-term attitudes and propensity to trade too frequently. We therefore conclude that the ISE is a domain of 'harmonic coexistence' for middle class and professional investors, whereby the former provide the liquidity and the trading volume, necessary for market depth, and the latter offer the market strength and stability, necessary for a sustainable economic growth for Turkey.

To conclude, the rising middle class in emerging markets and their phenomenally increasing spending capacity has ignited a discourse on how this newly-formed wealth will be allocated. In addressing such a question, one should be cognizant of the economic behavior of the proprietors of this new wealth. To this end, our study contributes to the discourse by providing insights into the investment decisions of the Turkish middle class. Nevertheless, to gain a deeper understanding, we need an overall appreciation of their underlying motivations for value generation and perceptions of risk (i.e. underlying motivations for investment, inclinations towards different types of investment, gender differences, etc.). Such properties may be better deciphered through qualitative research designs. Future research on that front would fill in the gaps of our mapping exercise, advance our understanding on the economic behavior of middle class investors, and provide the grounds for further generalization and theory development on the topic. The latter could be further facilitated with the testing of our premises in different emerging markets, whilst taking into consideration the idiosyncratic attributes of each country's middle class (culturally, institutionally, economically etc.). The rapidly emerging countries, such as Brazil, Mexico, Chile, Russia, and of course the Eastern Bloc provide a most appropriate context for continuing this line of research.

Tables and Figures

Table 1
The Identity of Middle Class Investors in the ISE in 2013

Panel A: Distribution of Investor Accounts in the ISE

Investor Identity	Investors		Market Value		Mean Portfolio Value (TL)
	Number	(%)	(TL bn)	(%)	
Domestic Individuals	1,095,162	98.6	36.95	18.9	33,740
Domestic Professionals	5,692	0.5	36.08	18.5	6,339,360
Foreign Individuals	5,950	0.5	0.50	0.3	84,088
Foreign Professionals	3,605	0.3	121.72	62.3	33,763,917
Total in ISE	1,110,409	100.0	195.25	100.0	175,839

Panel B: Distribution of Domestic Individual Investors by Portfolio Size

Portfolio Size (TL)	Investors		Market Value		Mean Portfolio Value (TL)
	Number	(%)	(TL bn)	(%)	
<1 (Inactive)	142,992	13.1	0.00	0.0	0
1 - 10.000	738,976	67.5	0.96	2.6	1,301
10.000 - 50.000	142,336	13.0	3.28	8.9	23,012
50.000 - 100.000	33,041	3.0	2.32	6.3	70,169
100.000 - 500.000	30,845	2.8	6.37	17.2	206,374
500.000 - 1.000.000	3,710	0.3	2.59	7.0	697,063
> 1.000.000	3,262	0.3	21.44	58.0	6,573,767
Total Dom. Indiv.	1,095,162	100.0	36.95	100.0	33,740

Panel C: Regional Distribution of Domestic Individual Investors: The top ten provinces

Province	Investors		Market Value		Mean Portfolio Value (TL)
	Number	(%)	(TL bn)	(%)	
1 İstanbul	344,568	31.5	22.74	61.5	65,982
2 Ankara	127,776	11.7	3.32	9.0	25,993
3 İzmir	103,444	9.4	2.17	5.9	21,014
4 Bursa	42,063	3.8	0.88	2.4	20,956
5 Antalya	32,248	2.9	0.56	1.5	17,436
6 Adana	26,531	2.4	0.52	1.4	19,470
7 Kocaeli	24,336	2.2	0.43	1.2	17,527
8 Konya	23,746	2.2	0.27	0.7	11,394
9 Balikesir	22,955	2.1	0.45	1.2	19,591
10 Mersin	18,417	1.7	0.34	0.9	18,340
Rest of Turkey	329,078	30.0	5.28	14.3	16,030
Total Dom. Indiv.	1,095,162	100.0	36.95	100.0	33,740

Source: Turkish Capital Markets Association

Table 2
Sample Description of the Constituents of the BIST-30 Index: Period July- December 2013

Ticker	Company Name	Market Cap ($) million[a]	Total Number of Trades	Average Trades/ Day	Average Volume/Trade	Average Share Price (TL)
AKBNK	Akbank TAS	12,455	470,850	4,571	5,193	7.31
ARCLK	Arcelik AS	3,815	172,895	1,679	1,036	11.85
ASELS	Aselsan Elektron.Sanayi Ve T	1,961	199,317	1,935	534	8.46
ASYAB	Asya Katilim Bankasi AS	606	143,032	1,389	6,690	1.84
BIMAS	BIM Birlesik Magazalar AS	6,123	218,439	2,121	340	42.48
DOHOL	Dogan Sirketler Grubu Hold.	820	84,944	825	11,521	0.84
EKGYO	Emlak Konut Gayrim.Yatiri	3,709	391,248	3,799	13,180	2.50
ENKAI	Enka Insaat ve Sanayi AS	8,953	173,737	1,687	1,772	5.90
EREGL	Eregli Demir ve Celik Fabr.	4,196	283,504	2,752	9,348	2.43
GARAN	Turkiye Garanti Bankasi AS	13,585	895,808	8,295	7,054	7.16
HALKB	Turkiye Halk Bankasi AS	7,058	619,022	6,010	3,841	14.38
IHLAS	Ihlas Holding AS	459	153,158	1,487	16,220	0.67
ISCTR	Turkiye Is Bankasi	9,724	626,894	6,086	7,105	5.11
KCHOL	KOC Holding AS	10,371	195,186	1,895	2,421	9.13
KOZAA	Koza Anadolu Metal Mad.	1,021	341,655	3,317	2,786	3.47
KOZAL	Koza Altin Isletmeleri AS	3,047	275,229	2,672	325	29.79
KRDMD	Kardemir Karabuk Demir Cel.	520	280,378	2,722	10,713	1.17
MGROS	Migros Ticaret AS	1,324	123,194	1,196	716	17.66
PETKM	Petkim Petrokimya Holding	1,269	179,037	1,738	6,575	2.90
PGSUS	Pegasus Hava Tasimaciligi	1,725	325,019	3,156	426	34.64
SAHOL	Haci Omer Sabanci Holding	8,193	243,009	2,359	2,874	9.30
SISE	Turkiye Sise ve Cam Fabr.	1,986	133,494	1,296	3,648	2.79
TAVHL	TAV Havalimanlari Holding	2,608	161,087	1,564	707	13.76
TCELL	Turkcell Iletisim Hizmetleri	11,604	184,245	1,789	3,101	11.76
THYAO	Turk Hava Yollari	4,130	804,852	7,452	2,880	6.82
TOASO	Tofas Turk Otomobil Fabr.	3,114	152,720	1,483	869	12.55
TTKOM	Turk Telekomunikasyon AS	9,694	167,152	1,623	1,792	6.59
TUPRS	Tupras Turkiye Petrol Rafineri	4,993	215,271	2,090	422	43.04
VAKBN	Turkiye Vakiflar Bankasi Tao	4,438	466,332	4,527	7,077	4.45
YKBNK	Yapi ve Kredi Bankasi AS	7,515	427,643	4,152	6,823	4.32
Total		151,016	9,108,351	84,337	-	-
Mean		5,034	303,612	2,922	4,600	-
Min		459	84,944	825	325	-
Max		13,585	895,808	8,295	16,220	-

Notes:
[a] For Market Capitalization, we use the exchange rate on 31/12/2013 ($/TL): 2.1518

Table 3
Summary Statistics of Main Variables

	BIST-30			BIST-100		
	Mean	Median	Variance	Mean	Median	Variance
Returns	-0.051	-0.028	6.810	-0.056	-0.027	6.768
MC/PR	2.904	2.458	6.932	3.408	3.240	7.870
Beta	0.971	0.973	0.005	0.862	0.867	0.012
Volatility	26.955	26.997	7.084	27.087	26.903	13.022
Size	11.563	11.553	2.496	4.540	4.540	0.803
#Analyst	23.774	23.900	0.999	12.816	12.878	0.655
M/B	2.448	2.449	0.146	1.848	2.040	6.467

This table shows summary statistics of main variables: Stock returns, the number of middle class to the number of professional trades (MC/PR), stock volatility, stock beta calculated over one year CAPM, size (market capitalization), the number of analysts following, market-to-book ratio (M/B). BIST-30 (BIST-100) provides summary statistics for firms traded on BIST-30 (BIST-100).

Table 4
Middle Class (MC) to Professional (PR) Trades

	Sort variable				
	Volatility	Beta	Size	#Analyst	M/B
1 Low	2.794	2.621	3.198	2.743	3.206
2	2.864	2.782	2.968	3.449	2.914
3	2.676	2.681	2.584	1.825	2.650
4	2.656	2.596	2.415	3.997	2.415
5 High	2.408	2.701	2.526	2.806	2.480
DIF(High-Low)	-0.386**	0.080	-0.672***	-0.060	-0.726***
t-test difference	-2.543	0.420	-3.042	-0.418	-3.504

This table shows the ratio of the number of Middle Class trades to the number of Professional trades (MC/PR) in quintile portfolios constructed based on following stock characteristics: the a) stock volatility, b) beta calculated over one year CAPM, c) size, d) number of analysts following, and e) market-to-book ratio (M/B). DIF(High-Low) is the difference in the means between the high and low portfolio. The t-test difference is a test for whether the change in DIF(High-Low) is significant. **,*** denote significance at 5 and 1 percent respectively.

Table 5
Quintile Portfolios based on MC/PR ratio

	Volatility	Beta	Size	#Analyst	M/B
1 Low MC/PR	27.57	0.968	11.796	23.760	2.518
2	27.26	0.969	11.685	23.823	2.486
3	26.77	0.973	11.581	23.770	2.435
4	26.70	0.975	11.545	23.758	2.420
5 High MC/PR	26.43	0.972	11.277	23.734	2.392
DIF(High-Low)	-1.139***	0.005	-0.519***	-0.025	-0.126***
t-test difference	-2.874	0.409	-5.127	-0.224	-3.817

This table shows average stock characteristics of quintile portfolios constructed based on the MC/PR ratio. Low MC/PR ratio implies lower middle class trades relative to professional trades. High MC/PR ratio implies higher middle class trades relative to professional trades. DIF(High-Low) is the average difference between the high and low portfolio. The t-test difference is a test for whether the change in DIF(High-Low) is significant.
*** denotes significance at 5 and 1 percent respectively.

Table 6
Granger Causality Tests between Middle Class Investment and Stock Returns

Independent Variable		Dependent Variable	Number of firms with significant Fs		Mean F-statistic	z-statistic for significant Fs	
			at 10%	at 5%		at 10%	at 5%
MC/PR ratio	→	Ri (Returns)	23/30	16/30	2.796	2.704*** [0.006]	1.672* [0.053]
Ri (Returns)	→	MC/PR ratio	5/30	4/30	1.427	-3.471 [0.999]	-5.061 [1.000]

*,*** denote significance at 10 and 1 percent respectively.

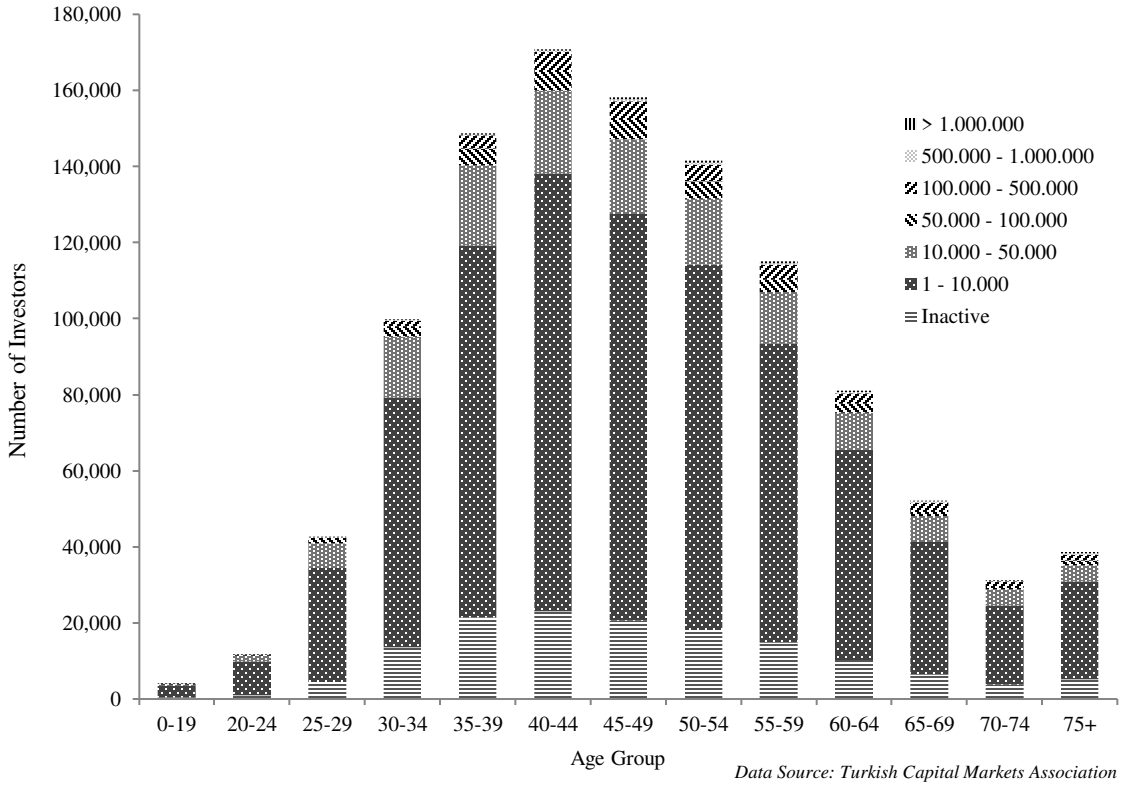

Fig.1 Distribution of Domestic Investors by Age Group and Portfolio Size (TL)

Fig. 2 BIST-30 Index Price and Traded Volume (July- December 2013)

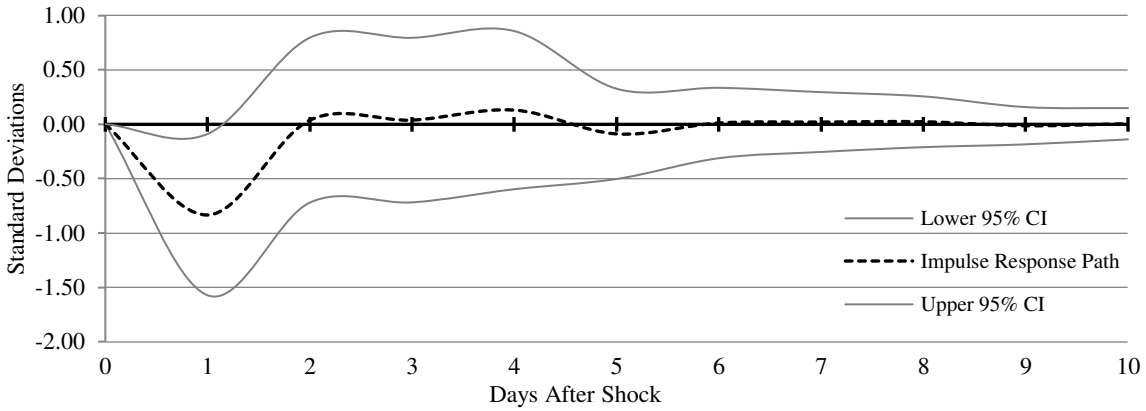

Fig. 3a Mean Impulse Responses of Ri from a one-Standard Deviation Shock to MC/PR

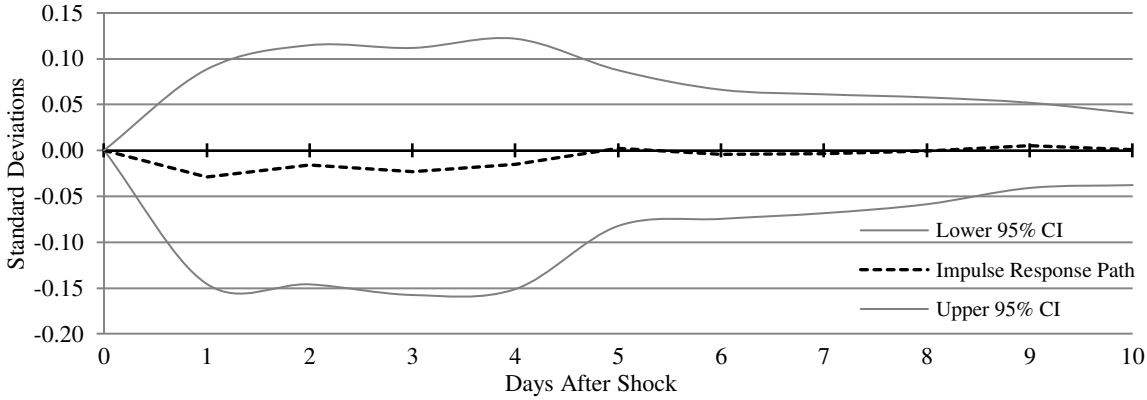

Fig. 3b Mean Impulse Responses of MC/PR from a one-Standard Deviation Shock to Ri

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