

Mgr Dawid Lesznik

Uniwersytet Ekonomiczny w Katowicach

ORCID: 0000-0002-4298-7013

e-mail: dawid.lesznik@edu.uekat.pl

Mgr Marcin Tuszkiewicz

Uniwersytet Ekonomiczny w Katowicach

ORCID: 0000-0002-1930-6670

e-mail: marcin.tuszkiewicz@edu.uekat.pl

Retail investors' profiles. Case of Polish Stock Exchange

Profile inwestorów indywidualnych na polskiej Giełdzie Papierów Wartościowych

Abstract

In the wake of the SARS-CoV-2 pandemic crisis and related economic changes, an increased influx of new individual investors into the Polish stock market has been observed. This raises the need for in-depth research into the behavioral characteristics of this "new generation" to better understand the needs of novice market participants. This article is based on the author's primary research conducted on a relatively large sample of Polish investors ($N = 1,067$) in April 2021. The paper aims to outline demographic and behavioral profiles, as well as to determine the needs of investors in terms of access to selected methods of market analysis. The results indicate a growing interest in foreign investments, as well as a strong influence of intuition, global events, and stock market liquidity on investment decisions. The results can provide useful signposts for brokerage houses and investment firms to better tailor their offerings to this new audience.

Keywords

investors, traders, financial markets, stock exchange, WSE

Streszczenie

W następstwie kryzysu pandemicznego SARS-CoV-2 oraz powiązanych z nim zmian gospodarczych odnotowano wzmożony napływ nowych inwestorów indywidualnych na polską giełdę. Rodzi to potrzebę przeprowadzenia pogłębionych badań charakterystyk zachowań tej „nowej generacji”, by lepiej zrozumieć potrzeby początkujących uczestników rynku. Artykuł powstał na podstawie autorskiego badania pierwotne przeprowadzonego na relatywnie dużej próbie polskich inwestorów ($N = 1067$) w kwietniu 2021 roku w celu poznania profilów demograficznych oraz behawioralnych, a przy tym określenia potrzeb inwestorów w zakresie dostępu do wybranych metod analizy rynkowej. Uzyskane wyniki wskazują na rosnące zainteresowanie inwestycjami zagranicznymi, a także duży wpływ intuicji, wydarzeń o skali globalnej i płynności notowań na podejmowane decyzje inwestycyjne. Wyniki mogą stanowić użyteczny drogowskaz dla domów maklerskich i firm inwestycyjnych w celu lepszego dopasowania oferty do nowej grupy odbiorców.

Słowa kluczowe

inwestorzy, traderzy, rynki finansowe, giełda, GPW

JEL: D14, G11, G41

Introduction

Over the last decade, trading on the stock exchange has become more accessible and easier thanks to progressive digitalization. At the same time, Polish brokerage houses have facilitated their clients' access to

foreign markets. Access to foreign brokers has also improved for the Polish client. The Warsaw Stock Exchange, celebrated its 30th anniversary in 2021, which means that people born when the stock exchange has already been operating are potential investors at the beginning of the third decade of the XXI century.

Previous studies of individual investors in Poland have been conducted on relatively small samples. Wasilewski and Juszczak (2015) surveyed 100 individual investors, while Osińska, Pietrzak, and Żurek (2010) surveyed 315 investors. Rzeszutek (2015) analyzed a survey based on 90 participants. Dziawgo (2016) surveyed 400 participants, while the author's second study was conducted between December 2019 and January 2020 on a group of 306 investors (Dziawgo, 2021). Nowak and Wysocka (2020) tried to verify the relationship between the success of listed companies and their information policy using a study based on 160 investors surveyed.

Daniluk (2020), looking for the relationship between strategies chosen by individual investors and their preferences, collected 652 completed survey questionnaires. Some researchers used questionnaires conducted by the Polish Society of Individual Investors (SII), the sample of which is variable depending on the year (Pawlowski, 2018) (Nowak, 2019) (Dąbrowski, 2020). The 2021 research conducted by SII surveyed 4,029 people (www 1), which is the largest available source of data in Poland. However, the survey results do not indicate the determinants of investors' investment decisions, depending on their age, portfolio size, or investment horizon. Outside of Poland, Bikas and Saponaitė (2018) conducted analogous behavioral research among Lithuanian investors, who may share some of the characteristics with their Polish counterparts due to the short geographical distance and similar historical and cultural backgrounds. The researchers showed that Lithuanian investors are dominated by individuals who exhibit overconfidence in their abilities, optimism, and are prone to the illusion of control. There are also elementary divisions of investors according to the trading horizon they adopt (the time from buying a stock to selling it). On this basis, stock traders are also distinguished as investors focused on taking advantage of shorter, speculative price movements (cf. Patterson 2002; Niederman 2000).

Therefore, there is a lack of comprehensive studies of investors conducted on a larger sample in Polish conditions, which prevents a more accurate determination of investors' characteristics, behavior, as well as needs as a specific group of financial market participants. This article aims to determine the demographic and behavioral profile of the individual investors in Poland, and at the same time to determine the importance of selected criteria in their investment process. The primary research was carried out by the authors using a specially prepared questionnaire on a group of

1067 investors. From the perspective of the stated purpose of the paper, the following research questions were formulated:

1. Has the percentage of Polish individual investors who are active in foreign markets increased?
2. Has the average age of a Polish individual investor decreased?
3. What are the determinants of the investment decisions of an individual investor in Poland?

By finding answers to these research questions, it will be possible to assess the prospects of further development of the Polish capital market. The results of the survey may prove useful to companies offering services related to the capital market. In-depth knowledge of the target group allows for more precise targeting of advertising and product offerings.

The paper is structured in five parts. Firstly, investment conditions at the beginning of the third decade of the 21st century are described as an important background for investors' activities. Then the methodology of the primary research is described as well as the characteristics of the research sample. The results section presents outcomes of selected factors taken into account in the investment process of the respondents. Finally, the results are discussed, indicating the emerging profile of surveyed investors, and conclusions, as well as guidelines for financial market institutions, are presented.

Literature review

The prices of stocks listed on stock exchanges are driven by the decisions of both individual and institutional investors. According to a study by Wasilewski and Juszczak (2015), the most important factors influencing the investment decisions of individual investors are trends in global capital markets, i.e. trends in major stock exchanges and the financial performance of companies. The year 2020 saw the biggest macroeconomic shock in 100 years (Hevia & Neumeyer, 2020), leading to a nearly 50 percent repricing of major stock market indices and huge fluctuations in corporate financial performance.

In response to fears of economic collapse, central banks around the world introduced extremely loose monetary policies, while governments introduced multi-billion dollar stimulus packages (Seven & Yilmaz, 2020). As a result of the unprecedented amount of cheap money, stock markets in the United States and other developed countries not only recovered

their losses but also climbed to new historic highs. In Poland, however, already on the eve of the crisis, at the turn of 2019 and 2020, an increased interest in stock market investments could be observed. In January 2020, a monthly increase in the number of investment accounts amounted to 4.8 thousand — the highest since June 2014 (www 2). Motivation for investment may lay in inflation, which recorded 3.4% y/y in December 2019 before accelerating to 4.3% in January 2020 (www 3) and gaining momentum later on. In such an environment, due to the increased uncertainty caused by the COVID-19 pandemic, the Monetary Policy Council started a cycle of interest rate cuts by the National Bank of Poland in March 2020, bringing the reference (base) rate down to 0.1% in May 2020 (www 4) and an asset purchase program was introduced. Extremely loose monetary policy, combined with expansionary fiscal policy in an environment of dynamic price growth, accelerated the opening of new brokerage accounts and the reactivation of old ones.

The number of active investment accounts on the Warsaw Stock Exchange (WSE) increased from 131,427, as of December 2019, to 225,420 in June 2020 (www 5). It is noteworthy that a systematic decline in the number of active brokerage accounts in Poland was observed between 2010 and 2019. Moreover, increased investor activity continued in the subsequent quarters of 2020 and 2021. In H1 2021, individual investors accounted for 24% of turnover generated on the WSE, the highest share since 2009 (www 6). Given the above data, there is no doubt that many new investors flowed into the market during the pandemic. However, whether and how the profile of the individual investor in Poland has changed is still an open question.

On the other hand, central banks of the CEE region embarked on a gradual tightening of monetary policy starting in 2021, and these measures accelerated further in 2022. The National Bank of Poland embarked on hikes starting in the autumn of 2021 to avoid perpetuating elevated inflation dynamics over the long term. The rate hikes, as well as increasingly aggressive messages from central bank policymakers, were reflected in an imminent rise in market rates — WIBOR 3M, which is the main benchmark for floating-rate loans in Poland, climbed to 6.42% in mid-May 2022 (www 7). The sudden interest rate hikes raise fears of hitting the borrowers too hard, which is why the authorities propose to abolish WIBOR and replace it with a new, market-based rate that would be

even 1.5–2 p.p. lower than the current market rates (www 8).

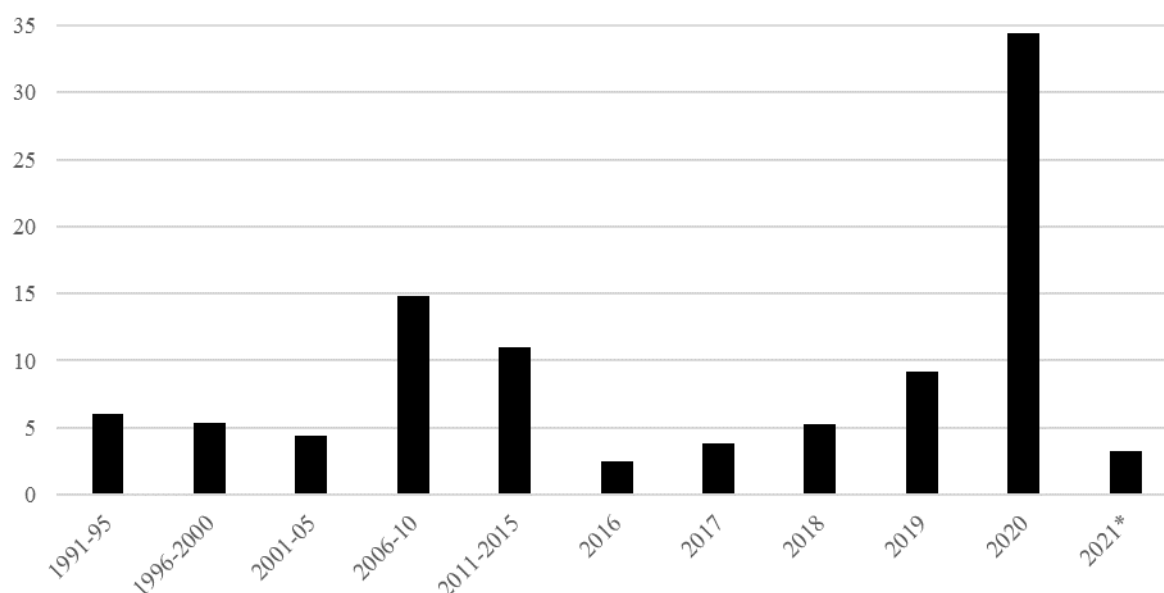
Thus, on the one hand, we are dealing with a significant decline in disposable personal income due to a significant increase in loan installments, and on the other, with a gradual increase in interest rates on deposits and other fixed-income instruments, which altogether may discourage intrinsically risky stock market investments. It seems necessary to thoroughly understand the needs of the new generation of investors to maintain their interest in the stock market.

Materials and methods

The research aimed to determine an approximate profile of Polish individual investors in the stock market, particularly in the dimension of selected factors that they consider important when selecting stocks. The primary research was conducted in mid-April 2021, and therefore covers the impact of the COVID-19 pandemic and the resulting ultra-loose monetary policy conducted by the National Bank of Poland. The research used a survey method, an online survey technique. The prepared questionnaire covered the spectrum of characteristics of individual investors and contained several factual questions, most of them formulated in the form of original ordinal, bipolar, 7-point scales, and 8 metric questions.

The survey was conducted among Polish individual investors. Links to the questionnaires were sent to investors registered on Squaber.com (WSE analytical platform) and also posted on social media channels. It is estimated that the circle of recipients could amount to over 6 thousand people. The number of active stock market investors in Poland, accounting for the tax office, amounted to 401 thousand in 2020 (www 9). A return of 1067 units was expected, which would allow a maximum error of no more than 3%, with a confidence level of 95% and a fraction size of 0.5 (Pietrucha & Maciejewski, 2020).

The study resulted in an assumed number of correctly and completely completed questionnaires, which were qualified for further analyses conducted with the help of the SPSS 27 statistical package and the WordClouds text visualization program. Among the respondents, as many as 34.4% of them admitted that they started stock market investments in 2020. The characteristics of the respondents according to the

Figure 1. Year in which respondents started investing on WSE (N = 1067, in %)

* Up to the middle of April 2021, when the research was held
Source: own research.

year they started investing on the WSE are presented in Figure 1.

Approximately one-third of respondents (33.7%) indicated that they also invest outside of Poland. Among this subgroup, the overwhelming majority operated on American exchanges (83.6%). Also of interest were the German (31.1%), British (26.4%), and Canadian (4.2%) stock exchanges. The sample was significantly dominated by males, who constituted 92.4% of the respondents. The median age of the respondents was 39 years, the characteristics of the research sample are shown in Table 1.

Almost all respondents had at least a high school education, with as many as 78% having a higher degree. Generally, they resided in cities with a population of over 200 thousand and were in good financial standing. Among the surveyed investors, about 1/4 of the group considered themselves traders (Table 1). On average, respondents had at their disposal investment capital of less than 130 thousand PLN, with the dominant amount being 100 thousand PLN (coinciding with the third quartile of the distribution). However, the median capital was lower and amounted to 50 thousand PLN, details are presented in Table 2.

Using the cross-section of respondents based on their age group, it can be noted that the indications

as to the capital increase with age, although this tendency is broken among the oldest respondents, aged 60+. While interviewees in the 36–45 and 46–59 age groups indicated an average of less than PLN 160 thousand in capital, for respondents 60+ it was only less than PLN 140 thousand. Naturally, the youngest respondents allocated the least funds for investments (Table 2).

As to the reasons for choosing their very first stock shares, respondents generally pointed to a relatively occasional price of the stock, which they believed was undervalued. Some respondents also acted based on recommendations from friends, perceived market experts, or financial institutions. The keywords used by the respondents to explain their decisions are presented in the form of a tag cloud in Figure 2. Respondents emphasized their expectations and belief in the chosen company, especially in its expected financial performance. There was great interest in the sharp stock market discount in March 2020 associated with the coronavirus outbreak. Respondents were then attracted by the attractive valuations of large, well-established companies that they considered fundamentally strong. In general, the aspect of the fundamental analysis was more prevalent in the respondents' statements than the technical analysis (Figure 2).

Table 1. Characteristics of the research sample (N = 1067)

| Description | | Research sample | |
|--|---------------------------------------|-----------------|------|
| | | in numbers | in % |
| Sex | female | 81 | 7.6 |
| | male | 986 | 92.4 |
| Age | 18–35 | 398 | 37.3 |
| | 36–45 | 371 | 34.8 |
| | 46–59 | 222 | 20.8 |
| | 60+ | 76 | 7.1 |
| | | | |
| Marital status | unmarried | 365 | 34.2 |
| | married | 628 | 58.9 |
| | divorced | 67 | 6.3 |
| | widowed | 7 | 0.7 |
| Education | primary | 4 | 0.4 |
| | vocational | 15 | 1.4 |
| | secondary | 216 | 20.2 |
| | higher | 832 | 78.0 |
| Place of residence | village | 149 | 14.0 |
| | town to 50k inhabitants | 172 | 16.1 |
| | town between 51k and 200k inhabitants | 209 | 19.6 |
| | town over 200k inhabitants | 537 | 50.3 |
| Subjective assessment of one's financial situation | very bad | 1 | 0.1 |
| | bad | 8 | 0.7 |
| | average | 289 | 27.1 |
| | good | 595 | 55.8 |
| | very good | 174 | 16.3 |
| Form of investing activity | trader | 261 | 24.5 |
| | investor | 806 | 75.5 |

Source: own research.

Table 2. Respondents' investment capital by age group (in thousands of PLN, rounded, N = 1067)

| Description | Research sample | Breakdown by respondents' age group | | | |
|-----------------|-----------------|-------------------------------------|-----------|-----------|-----------|
| | | 18–35 | 36–45 | 46–59 | 60+ |
| Arithmetic mean | 128 862.5 | 83 970.1 | 158 113.6 | 157 540.7 | 137 394.7 |
| Mode | 100 000.0 | 20 000.0 | 100 000.0 | 100 000.0 | 100 000.0 |
| 25th percentile | 25 000.0 | 20 000.0 | 30 000.0 | 50 000.0 | 33 500.0 |
| Median | 50 000.0 | 40 000.0 | 70 000.0 | 100 000.0 | 65 000.0 |
| 75th percentile | 100 000.0 | 100 000.0 | 150 000.0 | 176 250.0 | 119 000.0 |
| Skewness | 9.42 | 4.45 | 8.41 | 2.79 | 2.93 |
| Kurtosis | 132.91 | 23.73 | 86.37 | 8.85 | 9.39 |

Source: own research.

Figure 2. Keywords tag cloud of the investor's reasons for buying their very first stock shares



Source: own research.

Results

Nonetheless, for the majority of respondents analysis of a stock chart is an important factor in their investment process — on a 7-point scale, where 1 meant utterly unimportant and 7 meant the most important factor, respondents rated the importance of technical analysis at 4.96 on average (which is only an approximate value, as ordinal scales were used), with a dominant response of 6. The breakdown of respondents' declarations is presented in Table 3. The research was divided according to the age of respondents (following the approximate life cycle), the number of years of experience in stock market (where the axis of the breakdown was the median answer of 3 years), the amount of investment capital held (breakdown by quartiles of respondents' declarations), average monthly earnings, as well as the perceived form of activity in the financial markets (investor or trader).

It can be observed that the importance of technical analysis for the respondents increased with their declared investment capital — in the case of investors with funds of up to 25 thousand PLN the importance was rated on average at 4.81, while among the most affluent (capital of over 100 thousand PLN) it was 5.13. Similarly, such differences were noted at the level of income relative to the average gross national salary. The most accentuated difference between investors and traders should be emphasized — the former rated the importance of technical analysis on average at 4.84 with a median response of 5. Among traders, on the other hand, the average was 5.31 with a median response of 6 (Table 3).

A relatively important factor was also investors' intuition and their inner convictions as to the potential of a company — this aspect was already mentioned in the answers concerning the reasons for their first investments in shares. The importance of this factor was rated at 4.75 on

Table 3. Declared importance of technical analysis in the investment process of the respondents (N = 1067)

| Breakdown of respondents by | | | | | | | | | | | | | | | |
|---------------------------------|-----------------|-------|-------|-------|---------------------------------------|------|---------------------------|-------|--------|---------|---|------------------|--|----------|--------|
| Description | Research sample | age | | | Years of experience on stock exchange | | investment capital in PLN | | | | monthly earnings relative to the national's average | | form of activity on the stock exchange | | |
| | | 18-35 | 36-45 | 46-59 | 60 + | 0-3 | ≥ 4 | < 25k | 25-50k | 50-100k | > 100k | average or lower | over the average | investor | trader |
| | | in % | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 1 — utterly unimportant | 1.4 | 1.8 | 1.6 | 0.5 | 1.3 | 1.6 | 1.2 | 2.2 | 1.5 | 1.4 | 0.4 | 1.3 | 1.4 | 1.5 | 1.1 |
| 2 | 10.9 | 12.8 | 12.1 | 5.9 | 9.2 | 10.6 | 11.2 | 14.6 | 11.5 | 8.2 | 9.2 | 11.4 | 10.7 | 11.4 | 9.2 |
| 3 | 8.0 | 7.5 | 7.8 | 9.5 | 6.6 | 7.7 | 8.2 | 7.3 | 6.5 | 12.1 | 5.6 | 8.7 | 7.7 | 8.9 | 5.0 |
| 4 | 12.9 | 13.6 | 10.0 | 16.2 | 14.5 | 12.2 | 13.7 | 13.9 | 12.6 | 12.5 | 12.7 | 18.8 | 10.7 | 14.4 | 8.4 |
| 5 | 21.0 | 20.1 | 18.9 | 25.7 | 22.4 | 20.3 | 21.7 | 17.2 | 24.5 | 19.9 | 22.7 | 17.8 | 22.2 | 21.3 | 19.9 |
| 6 | 28.9 | 27.4 | 30.7 | 28.4 | 28.9 | 29.1 | 28.6 | 27.4 | 27.2 | 28.5 | 32.7 | 26.2 | 29.9 | 28.2 | 31.0 |
| 7 — utterly important | 17.0 | 16.8 | 18.9 | 14.0 | 17.1 | 18.3 | 15.5 | 17.5 | 16.1 | 17.4 | 16.7 | 15.8 | 17.4 | 14.3 | 25.3 |
| Selected descriptive statistics | | | | | | | | | | | | | | | |
| M | 4.96 | 4.87 | 5.00 | 5.02 | 5.03 | 5.00 | 4.91 | 4.81 | 4.93 | 4.96 | 5.13 | 4.82 | 5.01 | 4.84 | 5.31 |
| Me | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 6.00 |
| Mo | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| SD | 1.62 | 1.68 | 1.68 | 1.41 | 1.57 | 1.64 | 1.60 | 1.75 | 1.61 | 1.60 | 1.49 | 1.63 | 1.61 | 1.61 | 1.59 |

Where: M — arithmetic mean, Mo — mode, Me — median, SD — standard deviation.

Source: own research.

average with a median and dominant value of 5. Interestingly, however, in the case of the cross-section by age, the youngest respondents relied more heavily on their intuition. A detailed breakdown of responses is shown in Table 4.

An increase in the importance of the intuition factor can also be observed with an increase in the amount of investment capital held — among investors with the least capital the average of this factor was 4.58 with a mode of 5, while among the most affluent investors it was 5.01 and 6 respectively.

The situation is similar in the case of the breakdown by average monthly income, while in the case of investors and traders there were no major differences (Table 4). Fundamental analysis is sometimes referred to in the literature as a more objective method than technical analysis. It is also indicated that while the latter is primarily the domain of traders, fundamental analysis due to its more long-term nature is more appropriate for investors (Maciejewski & Lesznik, 2020). These characteristics are reflected in the results obtained, and the distribution of respondents' answers as to the importance of fundamental analysis is presented in Table 5.

The respondents rated the importance of fundamental analysis at 5.04 on average, with a dominant of 6, while for traders it was only 4.58, with a modal value of 5. Moreover, fundamental analysis was valued higher by the youngest respondents (mean 5.11), those with the highest investment capital ($M = 5.24$), and the wealthiest ($M = 5.02$).

At the same time, the importance of this analytical method was rated lowest by the oldest respondents over 60 years old, among whom the average response was only 4.32 — the lowest of all studied cross-sections. Similarly, perceived importance increased, on average, with the amount of capital held (Table 5).

When deciding to invest in a given stock one should also consider its liquidity level, which may be particularly important for wealthier investors willing to invest more money in a relatively small and not very liquid company. The results suggest that the respondents do not attach much importance to this factor — the average in the entire sample amounted to 4.41 with the median and dominant equal to 5. The importance of liquidity was rated relatively lowest among the factors considered; the distribution of respondents' answers is presented in Table 6. On average, the importance of liquidity increased with the age of respondents — the youngest rated it at 4.29, while the oldest at 4.83. Traders attributed a greater role to liquidity, which may be explained by their more short-term orientation and potentially their need to close market

positions quickly, in which case liquidity may prove crucial (Table 6).

The matrix of selected factors in respondents' analytical process included 19 items, of which on average respondents attached the highest importance to technical analysis (mean: 4.96, dominant: 6) and fundamental analysis (4.93 and 6 respectively). The results are summarized in Table 7. Respondents also attributed a great deal of importance to their views on the company's prospects and their hunches or intuitions. Naturally, a large role for them is played by global events, such as the COVID-19 pandemic, which posed a huge challenge to the economy, but also a lucrative investment opportunity. On the other hand, respondents dissociated themselves from the opinions of family and friends about investing in a particular company and were not interested in environmental issues related to the business. The latter, in turn, may suggest that the issues of the so-called socially responsible investment (sustainable investment) are not of much interest to Polish investors (Table 7).

Discussion

On average, surveyed investors appear to be relatively young, and well-educated, but at the same time not very familiar with stock market investments, which may pose a risk of making rash decisions and judgments. Among the methods of market analysis, technical analysis of price charts and fundamental analysis lead the way, suggesting the need for access to advanced financial analytics and intuitive software to analyze price movements. The respondents marginalized the importance of valuations based on models such as DCF or socio-environmental aspects of the business.

The research indicates considerable interest in international investments among surveyed investors, as 33.7% of respondents undertook their activities abroad, with the US market enjoying the highest interest. In a survey of individual investors in Poland conducted by the Society of Individual Investors in 2019, the percentage of respondents holding foreign shares ranked at 13.2% (www 10) and increased to 18% in 2020 (www 11). Wasilewski and Jaszczuk (2015) indicate that Polish investors take note of what is happening on foreign stock exchanges (primarily the German market 40% of respondents) when analyzing the domestic market. However, it is worth noting that the question was worded differently and the group of respondents was much smaller. Based on the results obtained, it can therefore be indicated that the percentage of

Table 4. Declared importance of own convictions about the company's potential and intuition in the investment process of the surveyed (N = 1067)

| Breakdown of respondents by | | | | | | | | | | | | | | | | |
|---------------------------------|-----------------|-------|-------|-------|------|------|---------------------------------------|-------|---------------------------|---------|--------|------------------|---|----------|--|--|
| Description | Research sample | age | | | | | Years of experience on stock exchange | | investment capital in PLN | | | | monthly earnings relative to the national's average | | form of activity on the stock exchange | |
| | | 18-35 | 36-45 | 46-59 | 60+ | 0-3 | ≥ 4 | < 25k | 25-50k | 50-100k | > 100k | average or lower | over the average | investor | trader | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| in % | | | | | | | | | | | | | | | | |
| 1 — utterly unimportant | 2.4 | 3.0 | 1.6 | 2.3 | 3.9 | 2.2 | 2.7 | 4.0 | 1.5 | 3.2 | 0.8 | 4.0 | 1.8 | 3.0 | 0.8 | |
| 2 | 10.5 | 10.3 | 11.9 | 9.9 | 6.6 | 11.3 | 9.6 | 11.3 | 13.4 | 7.8 | 9.6 | 10.7 | 10.4 | 10.0 | 11.9 | |
| 3 | 11.2 | 9.5 | 10.0 | 13.1 | 19.7 | 9.7 | 12.7 | 12.8 | 10.0 | 12.1 | 9.6 | 13.8 | 10.1 | 11.5 | 10.0 | |
| 4 | 14.5 | 15.8 | 12.4 | 17.6 | 9.2 | 14.0 | 15.1 | 15.0 | 13.8 | 16.0 | 13.1 | 13.1 | 15.1 | 14.1 | 15.7 | |
| 5 | 24.5 | 21.4 | 28.3 | 23.9 | 23.7 | 23.9 | 25.0 | 23.4 | 31.0 | 22.1 | 21.5 | 24.5 | 24.4 | 23.3 | 28.0 | |
| 6 | 20.7 | 22.1 | 19.4 | 18.0 | 27.6 | 22.7 | 18.6 | 19.0 | 19.2 | 19.2 | 25.9 | 21.1 | 20.5 | 20.3 | 21.8 | |
| 7 — utterly important | 16.2 | 17.8 | 16.4 | 15.3 | 9.2 | 16.2 | 16.2 | 14.6 | 11.1 | 19.6 | 19.5 | 12.8 | 17.6 | 17.6 | 11.9 | |
| Selected descriptive statistics | | | | | | | | | | | | | | | | |
| M | 4.75 | 4.80 | 4.78 | 4.66 | 4.62 | 4.79 | 4.71 | 4.58 | 4.61 | 4.82 | 5.01 | 4.58 | 4.82 | 4.76 | 4.71 | |
| Me | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | |
| Mo | 5.00 | 6.00 | 5.00 | 5.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | |
| SD | 1.65 | 1.69 | 1.63 | 1.63 | 1.63 | 1.65 | 1.65 | 1.71 | 1.58 | 1.68 | 1.60 | 1.69 | 1.63 | 1.69 | 1.54 | |

Where: M — arithmetic mean, Mo — mode, Me — median, SD — standard deviation.
Source: own research.

Table 5. Declared importance of the fundamental analysis in the investment process of the surveyed (N = 1067)

| Breakdown of respondents by | | | | | | | | | | | | | | | | |
|---------------------------------|-----------------|-------|-------|-------|------|---------------------------------------|------|---------------------------|--------|---------|--------|---|------------------|--|--------|--|
| Description | Research sample | age | | | | Years of experience on stock exchange | | investment capital in PLN | | | | monthly earnings relative to the national's average | | form of activity on the stock exchange | | |
| | | 18-35 | 36-45 | 46-59 | 60+ | 0-3 | ≥ 4 | < 25k | 25-50k | 50-100k | > 100k | average or lower | over the average | investor | trader | |
| | | in % | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 1 — utterly unimportant | 1.6 | 1.3 | 2.2 | — | 5.3 | 2.0 | 1.2 | 2.6 | 2.3 | 1.4 | — | 2.3 | 1.3 | 1.6 | 1.5 | |
| 2 | 11.0 | 9.3 | 13.5 | 8.1 | 15.8 | 8.6 | 13.5 | 13.9 | 11.5 | 8.9 | 9.6 | 13.4 | 10.0 | 10.0 | 13.8 | |
| 3 | 8.6 | 9.3 | 8.4 | 7.7 | 9.2 | 9.2 | 8.0 | 9.1 | 8.0 | 11.0 | 6.0 | 9.4 | 8.3 | 7.8 | 11.1 | |
| 4 | 13.0 | 10.3 | 12.9 | 16.2 | 18.4 | 12.2 | 13.9 | 14.6 | 14.9 | 11.4 | 11.2 | 16.4 | 11.7 | 11.5 | 17.6 | |
| 5 | 21.6 | 19.3 | 20.8 | 26.1 | 25.0 | 22.1 | 21.1 | 19.7 | 23.8 | 22.4 | 20.7 | 19.8 | 22.4 | 21.5 | 22.2 | |
| 6 | 26.1 | 28.6 | 26.1 | 24.8 | 15.8 | 27.9 | 24.1 | 25.9 | 22.6 | 26.0 | 29.9 | 22.8 | 27.3 | 27.3 | 22.2 | |
| 7 — utterly important | 18.1 | 21.9 | 16.2 | 17.1 | 10.5 | 18.0 | 18.2 | 14.2 | 16.9 | 18.9 | 22.7 | 15.8 | 19.0 | 20.2 | 11.5 | |
| Selected descriptive statistics | | | | | | | | | | | | | | | | |
| M | 4.93 | 5.11 | 4.80 | 5.03 | 4.32 | 4.99 | 4.85 | 4.70 | 4.82 | 4.98 | 5.24 | 4.69 | 5.02 | 5.04 | 4.58 | |
| Me | 5.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 6.00 | 5.00 | 5.00 | 5.00 | 5.00 | |
| Mo | 6.00 | 6.00 | 6.00 | 5.00 | 5.00 | 6.00 | 6.00 | 6.00 | 5.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.00 | |
| SD | 1.64 | 1.63 | 1.70 | 1.46 | 1.72 | 1.61 | 1.68 | 1.71 | 1.66 | 1.62 | 1.54 | 1.70 | 1.61 | 1.64 | 1.62 | |

Where: M — arithmetic mean, Mo — mode, Me — median, SD — standard deviation.

Source: own research.

Table 6. Declared importance of company liquidity in the investment process of the surveyed (N = 1067)

| Breakdown of respondents by | | | | | | | | | | | | | | | |
|---------------------------------|-----------------|-------|-------|-------|------|---------------------------------------|------|---------------------------|--------|---------|--------|---|------------------|--|--------|
| Description | Research sample | age | | | | Years of experience on stock exchange | | investment capital in PLN | | | | monthly earnings relative to the national's average | | form of activity on the stock exchange | |
| | | 18-35 | 36-45 | 46-59 | 60 + | 0-3 | ≥ 4 | < 25k | 25-50k | 50-100k | > 100k | average or lower | over the average | investor | trader |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| in % | | | | | | | | | | | | | | | |
| 1 — utterly unimportant | 3.4 | 4.5 | 4.3 | 0.9 | — | 4.0 | 2.7 | 4.7 | 5.0 | 2.1 | 1.6 | 4.7 | 2.9 | 3.1 | 4.2 |
| 2 | 14.6 | 17.3 | 15.9 | 9.9 | 7.9 | 15.5 | 13.7 | 17.9 | 13.4 | 15.3 | 11.6 | 17.8 | 13.4 | 15.5 | 11.9 |
| 3 | 12.5 | 11.6 | 12.7 | 14.4 | 10.5 | 11.7 | 13.3 | 8.8 | 13.8 | 15.7 | 11.6 | 14.1 | 11.8 | 12.9 | 11.1 |
| 4 | 16.1 | 15.8 | 14.8 | 16.7 | 22.4 | 15.1 | 17.2 | 12.8 | 17.6 | 15.3 | 19.1 | 14.8 | 16.6 | 17.4 | 12.3 |
| 5 | 23.0 | 21.6 | 22.6 | 26.6 | 21.1 | 23.6 | 22.3 | 23.7 | 19.2 | 22.4 | 26.7 | 19.1 | 24.4 | 22.0 | 26.1 |
| 6 | 21.6 | 19.8 | 20.8 | 24.3 | 26.3 | 21.8 | 21.3 | 20.8 | 21.8 | 20.6 | 23.1 | 21.5 | 21.6 | 20.0 | 26.4 |
| Selected descriptive statistics | | | | | | | | | | | | | | | |
| M | 4.41 | 4.29 | 4.33 | 4.60 | 4.83 | 4.38 | 4.44 | 4.41 | 4.35 | 4.37 | 4.53 | 4.22 | 4.48 | 4.36 | 4.56 |
| Me | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 4.00 | 5.00 | 5.00 | 5.00 |
| Mo | 5.00 | 5.00 | 5.00 | 5.00 | 6.00 | 5.00 | 5.00 | 5.00 | 6.00 | 5.00 | 5.00 | 6.00 | 5.00 | 5.00 | 6.00 |
| SD | 1.66 | 1.73 | 1.70 | 1.47 | 1.45 | 1.68 | 1.63 | 1.78 | 1.70 | 1.63 | 1.49 | 1.74 | 1.62 | 1.66 | 1.65 |

Where: M — arithmetic mean, Mo — mode, Me — median, SD — standard deviation.

Source: own research.

Table 7. Synthesis of respondents' ratings of the importance of selected factors in their analytical process, where 1 is a factor of no importance and 7 is a factor of key importance (N = 1067)

| Description | Arithmetic mean | Mode | Median | Standard deviation |
|--|-----------------|------|--------|--------------------|
| Technical analysis | 4.96 | 6 | 5 | 1.62 |
| Fundamental analysis | 4.93 | 6 | 5 | 1.64 |
| Own beliefs & intuition | 4.75 | 5 | 5 | 1.65 |
| Global events, like the COVID-19 epidemic | 4.68 | 6 | 5 | 1.69 |
| Branch in which the given company operates | 4.50 | 5 | 5 | 1.68 |
| Stock quotes liquidity | 4.41 | 5 | 5 | 1.65 |
| Stock market sentiment | 4.30 | 5 | 5 | 1.70 |
| Recommendations from stock market experts & institutions | 3.97 | 5 | 4 | 1.73 |
| The situation on other markets, e.g. on commodity or bond market | 3.77 | 5 | 4 | 1.70 |
| Dividends characteristics of a given stock | 3.74 | 2 | 4 | 1.79 |
| Macroeconomic situation | 3.74 | 4 | 4 | 1.65 |
| Stock's capitalization | 3.58 | 4 | 4 | 1.70 |
| Insiders' transactions | 3.57 | 4 | 4 | 1.67 |
| Stock quotes correlations | 3.51 | 2 | 4 | 1.70 |
| Political matters in the country where a given company operates | 3.50 | 2 | 4 | 1.67 |
| Rumors and sentiments regarding the given company | 3.07 | 2 | 3 | 1.57 |
| Fair value pricing, e.g. using CAPM, DCF | 2.63 | 1 | 2 | 1.58 |
| Ecological matters regarding a company | 2.18 | 1 | 2 | 1.39 |
| Opinions of family & friends | 1.60 | 1 | 1 | 1.07 |

Source: own research.

individual investors active in foreign markets has increased — at least in the sample surveyed (RQ1).

Earlier research shows that individual investors primarily focus their attention on the WSE main market. As many as 94.9% of respondents in Pawlowski's (2018) study indicate activity in this market. In the same study, 47.1% of the respondents indicated bank deposits, and 25% currencies as the objects of the investments undertaken. In Dziawgo's (2021) survey, equities also lead the way (96%), bank deposits are the second most common place to invest funds (48%), and bonds come in third (39%). However, it is noteworthy that cryptocurrencies also appear, albeit at a very low rate (6.5%).

The age of individual investors in 2019, according to the survey of the Society of Individual Investors (www 10), was around 42 years. The median age of respondents in the presented results was 39, so somewhat younger than before the pandemic (RQ2). Regarding the RQ3, the most important factors in decision-making in the stock

market for the surveyed individual investors are fundamental analysis and technical analysis. This confirms previous research, where these factors tend to dominate (Wasilewski & Juszczuk, 2015) (Osińska, Pietrzak & Żurek, 2010).

As a rule, technical analysis was more appreciated by respondents who defined themselves as traders. This feature can be explained by the relatively higher trading activity of the latter, as well as a shorter profit realization horizon (Maciejewski & Lesznik, 2019). For long-term investors, fundamental analysis is more important. Similar observations have been made by (Daniluk, 2020).

Referring to the study of Wasilewski and Juszczuk (2015), where the liquidity of the stock market was indicated as one of the important factors considered by individual investors, the presented study also confirms this characteristic. Liquidity was ranked sixth according to the average importance given by the respondents. The importance of liquidity for the individual investor is also highlighted by Czyżycki (2017), as a factor

indicating the level of development of the stock market. Referring to the analysis of the influence of recommendations on investment decisions made by Włodarczyk (2020), it follows that issuing recommendations increases the number of investors' transactions. The author indicates, however, that only the increase after the publication of a positive recommendation is statistically significant. On the other hand, the presented study indicates that recommendations from experts and financial institutions were moderately important to the respondents.

The importance of issues related to the social responsibility of businesses run by companies was rated low by the surveyed investors, which suggests a low level of socially responsible investing (SRI) among the research sample. This does not mean, however, that these ideas themselves are unknown among investors, as indicated by Krupa's (2014) study, which confirms, however, the relatively low actual use of SRI techniques in respondents' practice. On the other hand, Adamska and Dąbrowski's (2016) study suggests that Polish investors react positively to companies' information about increased environmental activities.

Conclusions

The paper aimed to define the current profile of an individual investor in Poland, who in the surveyed group appears on average as a relatively young, well-educated man from a larger city, looking for opportunities to secure his savings in the long term. However, he has no long-term experience with financial markets. He usually treats the stock market from a utilitarian point of view as a tool, in the use of which he particularly likes to use the methods of technical and fundamental analysis. He does not follow gossip and base his judgement above all on his intuition and assessment of the prospects of companies. Looking for methods to diversify his portfolio, he

is relatively eager to use instruments listed on foreign stock exchanges, which is facilitated by the increasingly broader and more competitive offer of brokerage houses.

The research presented here may serve as a useful guideline for investment firms and brokerage houses, indicating in-depth characteristics and the resulting needs of their clients — individual investors. By offering their services and analytical platforms to specific groups of clients, brokerage houses can benefit from the data presented regarding the importance of selected factors in the investment process. These issues, including an emphasis on technical or fundamental analysis, may constitute the direction of development of the offer. From a marketing perspective, the declared reasons for buying the very first shares may prove particularly important. On the other hand, an average size of the portfolios of the surveyed investors may allow market practitioners to better define the target client group.

It is necessary to emphasize the limitations of the presented research, which was narrowed down only to individual investors from Poland focused around the Squaber.com analytical platform, thus expressing above all specificity of this investors group. Moreover, despite a relatively large sample, the applied purposive selection means that the results cannot be considered representative. The problems of reaching the target group and the lack of a reliable sampling frame due to a significant dispersion of investors should be pointed out here. Taking the above into account, it is impossible to apply generalizations to the entire population of Polish investors, let alone to investor profiles on a global scale.

It is necessary to conduct similar research on representative samples of investors both in Poland and, above all, abroad, as to obtain a basis for comparison of investor profiles in various regions of the world. The authors declare their willingness to cooperate with domestic and foreign researchers in the course of further research and express their readiness to share the developed research tool.

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Mgr Dawid Lesznik, CIIA

Ph.D. student at the Department of Market and Consumption at the University of Economics in Katowice. A licensed investment advisor and stockbroker, he holds a Certified International Investment Analyst (CIIA) professional title. His research interests include behavioral economics, stock market psychology, and monetary policy issues.

Mgr Marcin Tuszkiewicz

He is an active investor in stock and currency markets since the year 2008. His areas of interest include analysis of market prices behavior, market participants' reactions, and liquidity issues of stock quotations.

Mgr Dawid Lesznik, CIIA

Doktorant w Katedrze Rynku i Konsumpcji Uniwersytetu Ekonomicznego w Katowicach. Licencjonowany doradca inwestycyjny oraz makler papierów wartościowych, posiada tytuł Certified International Investment Analyst (CIIA). Jego zainteresowania badawcze obejmują ekonomię behawioralną, psychologię giełdową, a także problematykę polityki monetarnej.

Mgr Marcin Tuszkiewicz

Aktywnie inwestuje na rynkach giełdowych oraz walutowych od 2008 roku. Spektrum jego zainteresowań obejmuje analizę zachowań kursów giełdowych oraz uczestników rynku, a także problematykę płynności notowań akcji.