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Knowledge of Capital Market Products: Initial Insights for Austrian and German Students of Generations Y & Z*

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Abstract: *Many international studies focus on financial literacy, but there are still many open questions in the research field that require further exploration. In this study, students of generations Y and Z from Austria and Germany were asked about their experiences and knowledge of capital market products. Male students and students belonging to Generation Y traded in securities significantly more often than their counterparts. Regarding the knowledge of selected capital market products, there is only a significant difference between male and female students for real estate investment funds and ex-change-traded funds (ETFs). Products like shares, bonds, and cryptocurrencies are well-known to both genders. Thus, only a partial "gender gap" could be detected. Overall, there is a lack of knowledge about several capital market products observable. Appropriate didactically prepared courses within the framework of university curricula and beyond could enhance the financial literacy level of the Austrian and German population.*

1. INTRODUCTION

In the period between 1976 and 2014 inclusive, Laeven and Valencia (2020) reported 151 systemic banking crises worldwide. Many of these events did not receive any media attention because they only affected a few countries or regions outside the industrialized world. Across the world students of generations Y and Z have experienced severe recent crises (e.g. COVID-19 pandemic, the Russia-Ukraine conflict, etc.), which have had serious consequences for the world's money flows and capital markets. All these circumstances lead to higher volatilities (Grundmann & Spitzner, 2019) and investors are in consequence exposed to higher financial risks (Lusardi, 2015b). Despite these circumstances, international studies generally show that the population has a low level of general financial knowledge (e. g. Lusardi & Mitchell, 2011).

The relevance of spreading general financial knowledge among students and the population as a whole can be argued based on the above explanations. General financial knowledge is the basis for enabling financial well-being (Bongini & Zia, 2018). Achieving this goal is becoming much more difficult due to the increasing complexity of the environment, financial products and services (Alsemgeest, 2015; Lusardi, 2015b; Lusardi & Mitchell, 2014). The current and past financial crises and turbulences in capital markets also emphasize the importance of general financial knowledge, as financial decisions have to be made despite these uncertainties (Becchetti et al., 2013; Lusardi & Mitchell, 2014). There is a consensus in the empirical literature that by increasing general

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financial literacy, people make better financial decisions (Allgood & Walstad, 2016) and their financial well-being improves as a result (Bae et al., 2022; Finke & Huston, 2014). For this reason, the majority of researchers recommend integrating general financial knowledge into curricula. This is important to prepare students for all the challenges outlined above (e g. Alsemgeest, 2015; Baglioni et al., 2018; Lusardi, 2015a; Lusardi et al., 2010). We want to contribute to the financial literacy literature by showing to which extent these generalized findings apply to Austrian and German students in the year 2023 and define policy recommendations for further improving financial literacy levels.

In this study, a survey was conducted among Austrian and German students to ascertain, as a first step, what experience and knowledge they have of selected capital market products. Based on the internationally recognized relevance of general financial education, the results provide hints for effectively implementing a pending revision of business- and economics-oriented degree program curricula. At the center of our study are the following research questions:

- Do students already have experience in buying securities and how does this differ by gender and generation?
- Are students familiar with selected capital market products and how does the level of knowledge differ depending on gender and generation?

The paper is structured as follows. Section 2 shows the positive effects of increased financial literacy documented in the literature. The data and methodology are shown in section 3. In section 4, the results are presented and discussed in light of the existing literature. Section 5 summarizes the findings of the underlying study.

2. FINANCIAL LITERACY BACKGROUND AND LITERATURE REVIEW

There is no general definition of financial literacy in the literature (e.g. Finke & Huston, 2014). The lack of a standardized definition can also be seen as a reason why there are no accurate measures to determine financial knowledge levels (Knoll & Houts, 2012). From a theoretical perspective, it can be assumed that increasing financial literacy increases general financial knowledge and improves the ability to make decisions in financial situations (Warmath & Zimmerman, 2019). People with good financial knowledge are more aware that they need to provide for their retirement and plan and save accordingly (Behrman et al., 2012; Breitbach & Walstad, 2016; Lusardi & Mitchell, 2011; van Rooij et al., 2012). This aspect is particularly important for women, as they live longer on average than men and therefore must maintain a 'financial well-being' for longer (e.g. Baglioni et al., 2018; Williams, 2016). People with a higher level of general financial education also exhibit more professional and less risky behavior regarding their understanding of debt. They understand the concept of debt and interest payments, can calculate future debt payments, and are generally less likely to be overindebted (Breitbach & Walstad, 2016; Lusardi & Tufano, 2015; Stango & Zinman, 2009; Xiao et al., 2014). These studies also stress that students can already lay the foundation for this behavior as students with a higher level of financial knowledge exhibit less risky borrowing behavior. In the area of investments, financially educated people are more likely to be able to select investment funds based on fundamental analyses and to diversify their savings to reduce risks and generate higher returns (e. g. Hastings et al., 2011; van Rooij et al., 2012).

Generally speaking, a higher level of financial literacy influences the resilience/soundness and efficiency of financial systems. Consumers who have more financial knowledge are better able to make investment and financing decisions, have a greater awareness of the relationship between risk and return, and are more confident to ask questions and scrutinize financial products (Widdowson

& Hailwood, 2007). Moreover, many empirical studies show that certain factors can be positively and negatively associated with financial literacy, for example:

- **Gender:** Several studies show a negative correlation between the female gender and general financial knowledge (Dewi, 2022; Erner et al., 2016; and Gerrans & Heaney, 2019). The inequality in knowledge between the sexes is defined as the 'gender gap' and is the most important aspect in academic and political discussions.
- **Age:** Evidence shows that financial literacy increases with age and experience (e.g. Baglioni et al., 2018).
- **Education:** People who have a higher level of education or training show a higher level of general financial literacy (Baglioni et al., 2018; Bianchi, 2018; Hastings & Mitchell, 2020).
- **Income/Wealth:** People who have a higher income and higher wealth show a higher level of financial literacy (e.g. Bianchi, 2018).

3. DATA AND METHODOLOGY

3.1. Data

To collect the data, an online questionnaire was developed based on a comprehensive literature review (e.g. DePoy & Gitlin, 2011; Greenstein & Davis, 2013) and three expert interviews. The goal was to ensure the comprehensibility of the questions and the relevance of the content as required by Hulland et al. (2018). A total of 262 Austrian and German students completed the questionnaire at the University of Applied Sciences Kufstein located in the border region of Germany. All incomplete responses were deleted, thus, further statistical analyses were only carried out with a sample of 255 full student responses (e.g. Jamshidian, 2009). Table 1 shows a summary of all variables relevant to this study.

Table 1. Variable Definition

Name	Abbreviation	Definition	Measurement
Age	AGE	Age of the respondents in years	metric
Generation	GEN	Dummy variable with 1 = Generation Y and 0 = Generation Z	nominal
Gender	GENDER	Dummy variable with 1 = female (f) and 0 = male (m)	nominal
Security purchase	SEC_BUY	Dummy variable with 1 = if a security was purchased in the past and 0 = otherwise	nominal
Knowledge of capital market products/ instruments	KNOW	Dummy variable with 1 = product or instrument is known to respondent and 0 = otherwise; 5 products were analyzed: - KNOW_SHARES, - KNOW_BONDS, - KNOW_FUNDS, - KNOW_ETFs, - KNOW_CRYPTOS	nominal

Source: Own research

3.2. Methodology

Based on the year of birth surveyed, the students could be subdivided into generations Y (1980-1994) and Z (1995-2009) as suggested by McCrindle (2014). For the KNOW variable, respondents had to answer whether or not they were familiar with five different asset classes ranging from shares, bonds, property investment funds to exchange-traded funds (ETFs) and cryptocurrencies

following Francisco (2012). In addition to frequencies and descriptive statistics, cross-tabulations were created to analyze the results. The χ^2-test was used to exclude or establish significance for the nominally scaled data as suggested by Burns and Burns (2008). Table 2 shows selected descriptive statistics for all respondents and subgroups differentiated by gender and generation. Male students are significantly older than female students. Due to the categorization of students into the two generations Y and Z, Generation Y students are, per construction, significantly older than Generation Z students.

Table 2. Descriptive Statistics

Variable	n	Mean	S.E.	Median	σ	F-stat
AGE	255	24,494	0,281	23,000	4,493	-
AGE (m)	98	25,255	0,470	24,000	4,649	4,486**
AGE (w)	157	24,019	0,346	23,000	4,340	
AGE (Y)	34	33,412	0,696	33,000	4,061	205,519***
AGE (Z)	221	23,122	0,174	23,000	2,579	

Significance levels: *** = 1 %; ** = 5 %. The last column shows the F-statistic of the Welch test. As the data on the AGE variable are not normally distributed, the use of this test for differences is recommended in line with Rasch et al. (2011), as it produces robust estimation results despite the skewness of the distribution.

Source: Own research

4. RESULTS

First, the relevance of gender and generation for security purchase decisions was analyzed. Of the 255 respondents, 134 (52.55%) have already purchased a security in the past (SEC_BUY). Furthermore, in Table 3 one can see that male students have bought a security in the past significantly more often than female students (males (m) = 76.5% of the time and females (f) = 37.6%). This is in line with the research of Fung and Durand (2014) and Farrell (2014) observing that males trade significantly more often than females. There are also statistically significant differences observable between the generations. Generation Y students have invested in securities significantly more often than Generation Z students (GenY = 70.6% of the time versus GenZ = 49.8%). Students who have already invested in security in the past are significantly older than students who have not (F-statistic according to Welch test: 7.876 (p-value = 0.005)). Thus, age plays an important role in whether or not students have already invested in capital market securities and gained first experience. Surprisingly, based on the results, there is no significant interaction effect of gender and generation on the variable SEC_BUY observable.

Table 3. Purchase of Securities – Cross-tabulation Analysis

Variable	KNOW.	m (n = 98)	f (n = 157)	m + f (n = 255)	χ^2	Cramer-V
SEC_BUY	No	23	98	121	36,712***	0,379***
	Yes	75	59	134		
Variable	**KNOW.**	**Y (n = 34)**	**Z (n = 221)**	**Y + Z (n = 255)**	**χ^2**	**Cramer-V**
SEC_BUY	No	10	111	121	5,120**	0,142**
	Yes	24	110	134		

Significance level: *** = 1%; ** = 5%

Source: Own research

Next, the influence of gender and generation on the knowledge of selected capital market products was investigated. A χ^2-test was carried out in each case to determine differences in knowledge levels (variable KNOW). The capital market products available for selection are grouped by gender and generation and shown in Table 4. There is a significant difference between the genders for

two out of five instruments, namely the property investment funds and exchange-traded funds, observable. Male students have a higher level of knowledge of these two instruments than female students. There is only one significant difference between the generations observable (at the 10% significance level) for the instrument cryptocurrencies. Generation Z students are more familiar with cryptocurrencies than Generation Y students. This difference could be explained by the fact that cryptocurrencies tend to be a newer instrument, which is also more likely to be recognized by younger generations. Similarly, there is no interaction effect between gender and generation on knowledge of the individual capital market instruments identifiable. This is a surprising finding, which may be explained by a potentially higher level of financial literacy in Austria and Germany than elsewhere in the year 2023.

Table 4. Knowledge (KNOW) of Capital Market Products/Instruments – Cross-tabulation Analysis

Variable	KNOW	m (n = 98)	f (n = 157)	m + f (n = 255)	χ^2	Cramer-V
KNOW_SHARES	No	10	12	22	0,502	0,044
	Yes	88	145	233		
KNOW_BONDS	No	36	66	102	0,707	0,053
	Yes	62	91	153		
KNOW_FUNDS	No	22	56	78	4,966**	0,140**
	Yes	76	101	177		
KNOW_ETFs	No	34	102	136	22,219***	0,295***
	Yes	64	55	119		
KNOW_CRYPTOS	No	20	41	61	1,080	0,065
	Yes	78	116	194		
Variable	**KNOW**	**Y (n = 34)**	**Z (n = 221)**	**Y + Z (n = 255)**	**χ^2**	**Cramer-V**
KNOW_SHARES	No	5	17	22	1,839	0,085
	Yes	29	204	233		
KNOW_BONDS	No	13	89	102	0,051	0,014
	Yes	21	132	153		
KNOW_FUNDS	No	11	67	78	0,058	0,015
	Yes	23	154	177		
KNOW_ETFs	No	21	115	136	1,121	0,066
	Yes	13	106	119		
KNOW_CRYPTOS	No	12	49	61	2,788*	0,105*
	Yes	22	172	194		

Significance level: *** = 1 %; ** = 5 %; * = 10 %.

Source: Own research

Regarding the second research question on the knowledge of selected capital market products, it can be seen that male students have a significantly higher level of knowledge of the instruments of property investment funds and exchange-traded funds. The 'gender gap' in knowledge describing men as having a higher level of general financial knowledge (e.g. Arellano et al., 2018; Bianchi, 2018; Gerrans & Heaney, 2019) can therefore only be partially confirmed. Nevertheless, the results show that there are deficits among female students in this area, which should be counteracted as part of higher education programs to reduce the existent partial gender gap (Bae et al., 2022; Bucher-Koenen et al., 2017). Essentially, there are hardly any differences in knowledge between the generations apart from the cryptocurrencies, meaning that it cannot be directly concluded that general financial literacy increases with age. This stands in contrast to previous results of

Baglioni et al. (2018). The aforementioned comparisons show that sample characteristics affect the findings to a large extent, therefore, future research should further distinguish the resulting differences. Based on the latter information, more personalized financial literacy courses can be developed and offered at universities and beyond. Baglioni et al. (2018), Bianchi (2018), Ergün (2018), and Martinez (2016) stress in their research that this is the greatest lever for increasing general financial education and also for closing the gender gap (Bae et al., 2022).

5. CONCLUSION

The study aimed to use selected questions to find out what experience and knowledge students have about capital market products. It could be shown that there is a significant difference in gender and also in generation when investigating the experience of students in buying securities. Male students have invested in securities significantly more often than female students. This finding is in line with the research of Fung and Durand (2014) and Farrell (2014) showing that males trade in securities more often. Females are more cautious and act less aggressively than males. Furthermore, Generation Y students have invested in securities significantly more often than Generation Z students meaning that students who have already invested in securities are significantly older than students who have not. However, the interaction effect of gender and generation cannot be proven. In contrast to previous literature, we could only observe a partial gender gap concerning capital market product knowledge and identify generational knowledge differences only concerning cryptocurrencies. Thus, sample characteristics and in particular the analyzed region impact financial literacy findings to a large extent. Future research should further distinguish the resulting differences.

Given the changes in the economic environment outlined in the introduction and the lack of knowledge about certain capital market products, it seems relevant to integrate financial knowledge into teaching programs when developing curricula at universities and beyond. The majority of empirical studies confirm that this is the greatest lever for increasing general financial education (e.g. Baglioni et al., 2018; Bianchi, 2018; Ergün, 2018; Martinez, 2016) and also for closing the gender gap (Bae et al., 2022). This means that with the right didactic implementation, not only content but also the development of skills in general (saving behavior, retirement planning, debt handling, etc.) and the acquisition and processing of relevant information (e.g. Huston, 2010; Santini et al., 2019; Warmath & Zimmerman, 2019) should be taught. Finally, students should be able to make sound financial decisions after completing financial literacy courses as suggested by Lusardi (2019) and Mireku et al. (2023).

The limitation of this study is that the variables and scales used represent rather simple measures indicating trends prevalent in specific populations. Further research could use more advanced indicators and investigate the extent to which social structures and socio-economic inequalities cause generational differences and a full or partial gender gap in financial literacy.

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