

UNIVERSITY OF ECONOMICS IN BRATISLAVA
FACULTY OF INTERNATIONAL RELATIONS

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**ANALYSIS OF MONEY ATTITUDES BASED ON AN
EXAMINATION OF THE MAIN INFLUENCING FACTORS
(PERSONALITY TRAITS, BIOGRAPHICAL
VARIABLES) IN SELECTED EUROPEAN COUNTRIES**

Dissertation Thesis

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Reinhard Furtner, B.A. M.A. M.Sc. (WU)

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DECLARATION OF HONOUR

I honestly declare that I have elaborated the thesis of a doctoral dissertation separately and that the informations taken from other resources are indicated accordingly.

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Anotácia: The research focuses on selected predictors for money attitudes of individuals. Predictors investigated are personality traits and biographical variables (gender, age...). A cross-national comparison across the chosen European countries provides further insights concerning country-specific differences.

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ABSTRACT

FURTNER, Reinhard: *Analysis of money attitudes based on an examination of the main influencing factors (personality traits, biographical variables) in selected European countries.*

– University of Economics in Bratislava. Faculty of International Relations; Department of International Economic Relations and Economic Diplomacy. - Dr. habil. Ing. Eva Jančíková, PhD. – Bratislava: FMV, 2022, 173 pp.

The aim of the PhD thesis is to analyze the predictive relevance of possible predictors (biographical variables and personality traits) on money attitudes in five European countries (Albania, Austria, Croatia, Slovakia, Turkey) on base of an ex post facto research design. The work is divided into five chapters. It contains 21 figures, 46 tables and two annexes. The first chapter provides a comprehensive overview of the current state of research on money, attitude-behavior relationships, money attitudes, personality traits and relevant empirical results. The second part summarizes the aim of the thesis on base of the research questions and objectives. In the third chapter, the research methodology and the applied research methods are described. The fourth chapter presents the research results in detail and the fifth chapter provides the discussion of the results. The final part concludes the research results and is followed by the sources and annexes. The results confirm the predictive power of certain biographical variables (gender, age, education) and personality traits (neuroticism, agreeableness, conscientiousness, openness to experience) on money attitudes. Furthermore, country-specific differences for money attitudes and its predictors were identified in the national subsamples.

Keywords:

money attitudes, personality traits, MAS, NEO-FFI

ABSTRAKT

FURTNER, Reinhard: *Analýza postojov k peniazom na základe skúmania hlavných ovplyvňujúcich faktorov (osobnostné črty, biografické premenné) vo vybraných európskych krajinách*. – Ekonomická univerzita v Bratislave; Katedra ekonomických vzťahov a hospodárskej diplomacie. Vedúci dizertačnej práce - Dr. habil. Ing. Eva Jančíková, PhD. – Bratislava: FMV, 2022, 173 pp.

Cieľom dizertačnej práce je zistiť význam možných prediktorov (biografických premenných a osobnostných rysov) na postoj k peniazom v piatich krajinách strednej a východnej Európy (Albánsko, Rakúsko, Chorvátsko, Slovensko, Turecko) na základe návrhu výskumu ex post facto . Práca je rozdelená do piatich kapitol. Obsahuje 21 obrázkov, 46 tabuliek a dve prílohy. Prvá kapitola prináša komplexný prehľad o súčasnom stave výskumu peňazí, vzťahov medzi postojom a správaním, postojov k peniazom, osobnostných črt a relevantných empirických výsledkov. Druhá časť sumarizuje cieľ práce na základe výskumných otázok a hypotéz. V tretej kapitole je popísaná metodika výskumu a metódy aplikovaného výskumu. Štvrtá kapitola podrobne predstavuje výsledky výskumu a piata kapitola poskytuje diskusiu o výsledkoch. Záverečná časť uzatvára výsledky výskumu a nasledujú zdroje a prílohy. Výsledky potvrdzujú prediktívnu silu určitých biografických premenných (pohlavie, vek, vzdelanie) a osobnostných vlastností (neurotizmus, ústretovosť, svedomitosť, otvorenosť voči skúsenosti) na postoje k peniazom. Okrem toho boli v národných vzorkách identifikované rozdiely v prístupe k peniazom a prediktory špecifické pre jednotlivé krajiny.

Keywords:

postoje k peniazom, osobnostné rysy, MAS, NEO-FFI

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LIST OF ABBREVIATIONS AND LABELS

| | |
|------------------------|---|
| adj. | adjusted |
| approx. | approximately |
| β | Beta coefficient |
| CFA | Confirmatory factor analysis |
| Conscient. | Conscientiousness |
| e.g. | for example |
| η^2 | Eta squared value |
| F | F-value |
| FFT personality system | Five-Factor Theory personality system |
| i.e. | id est, that is |
| M | Mean |
| MAS | Money Attitude Scale |
| MBBS | Money Beliefs and Behavior Scale |
| MES | Money Ethic Scale |
| NEO-FFI | NEO Five-Factor Inventory |
| NEO-PI | NEO Personality Inventory |
| n. p. | no page |
| OCEAN-model | Personality model with the dimensions openness to experience, conscientiousness, extraversion, agreeableness, neuroticism |
| OLS | Ordinary least squares method |
| Openness | Openness to experience |
| p | P-value |
| P-P plot | Probability-probability plot |
| Q-Q plot | Quantile-quantile plot |
| r | Pearson correlation coefficient |
| repr. | representative |

| | |
|-------|------------------------------|
| SD | Standard deviation |
| SE | Standard error |
| SEM | Structural equation modeling |
| R^2 | Square sum of residuals |
| VIF | Inflation factor |

Introduction

“The most beautiful things are not associated with money; they are memories and moments. If you don’t celebrate those, they can pass you by” (Alek Wek, n.d.).

Nevertheless, money plays an important role in our lives. Essentially at least for the most people, it is a necessary tool to fulfill our most original needs like food supply, clean drinking water or shelter in our modern society. It might be even said that it is, at least to a certain extent, a crucial basis for guaranteeing our survival. Furthermore, money allows us to fulfill other personal needs, which are of high personal relevance. Exemplarily, we expect to receive social status through purchasing status symbols like expensive clothing items, jewelry or luxury cars. In addition to that, we secure our future through saving and investing our money in e.g. pension plans, stocks or life insurances. However, if we are overstrained by managing our personal financial situation, money can also act as a source of anxiety.

From a traditional economical perspective, money can be described as a utilitarian commodity that is ordinary, mundane impersonal and neutral (Mitchell and Mickel, 1999, p. 569). Moreover, **money** represents various psychological aspects: It can be defined as a carrier of strong and diverse feelings, significance and strivings. Money even can be considered as the most emotionally meaningful object in our contemporary life, next to close competitors like food and sex (Krueger, 1986, p. 3).

The current research project focuses on **personal attitudes towards money**. Personal attitudes are an individual’s evaluation with respect to a specific entity in question (Ajzen and Fishbein, 1977, p. 889). Based on this focus, the main question arises which predictors are actually influencing our attitudes towards money. Another emphasis is placed on a cross-country comparison of those predictors for money attitudes. This due to the fact that, so far, few studies have looked at influencing factors regarding money attitudes in most of the European countries.

Knowing the relevant factors, could be of practical applicability for the marketing and sales industry. For example, individualized advertising or country-specific advertising based on findings in the context of money attitude promises more target-oriented, and therefore cost-efficient, use of limited marketing resources in business. This knowledge is (but not exclusively) of outstanding relevance e.g. for the development of

banking business strategies. From the view of personal finance, individual awareness and knowledge about the basic concept of money attitudes and its relevant predictive factors can help individuals to better understand their own financial behavior. This, for example, in conjunction with personal investment decisions, personal debt or excessive spending habits. Especially, the identification of an individual's money attitudes creates the foundation for critically questioning one's own financial behavior. This highlights the importance of money attitudes in the context of financial literacy. Moreover, the practical relevance for the political/socioeconomic decision making process should be pointed out (e.g. developing of central bank strategies, planning of national budgets, tax systems and social benefit systems).

Basically, three broad psychological aspects of money were identified by prominent psychotherapists and personality theorists like Freud, i.e. security, retention and power-prestige (Yamauchi and Templer, 1982, p. 522). Based on the theoretical framework the **Money Attitudes Scale Test (MAS)** was developed by Yamauchi and Templer. The MAS measures five substantial money attitude factors as follows:

| Table 1: Money attitude scale factors. | |
|--|---|
| MAS-factor | Description |
| Power-Prestige | Items loading highly on this factor all point to the use of money for the purpose of impressing and influencing others. |
| | Also, money is identified as a symbol of success. Status seeking, competition, external recognition and acquisition are of high importance for persons who score high on the Power-Prestige factor. |
| | By contrast, low scoring persons tend to minimize the concern for money as a symbol of success and status and as an instrument to influence others. |
| Time-Retention | Items loading highly on this factor refer to behaviours aimed at the future which require planful preparation. |
| | Persons scoring high on this factor could be described as placing great value on the process of preparation as well as the goal of security in the future. |
| | Low scorers are present-rather than future-orientated individuals with little concern for careful accounting of their funds. |
| Distrust | High scoring individuals on this factor appear hesitant, suspicious and doubtful in financial matters. |
| | Low scorers, on the other hand, are viewed as trusting and accepting situations involving money. |
| Quality | Individuals scoring high on this factor believe in getting the best or paying the most to get the quality desired. |

| | |
|------------------------------------|---|
| (excluded in the final instrument) | On the opposite, low scorers are holding the attitude that quality is not important when purchasing products. |
| Anxiety | High scorers hold the attitude that money is a source of anxiety as well as a source of protection from anxiety. Low scorers are less worrisome and less anxious with money and in financial situations. |

Adapted from: Yamauchi and Templer, 1982, pp. 523–525.

In recent research literature, the MAS still represents the most established instrument for the purpose of measuring money attitudes, whereby the most relevant scientific literature and empirical results which are based on the MAS are summarized in the literature section of the thesis. Repeated testing has shown **adequate reliability and validity** concerning the MAS-instrument (Bonsu, 2008, p. 171; Engelberg and Sjöberg, 2006, p. 2029; Yamauchi and Templer, 1982, p. 525).

Furthermore, previous research results indicate a significant influence of the Big Five **personality traits** on money management as summarized in the following table:

| Table 2: Big Five Personality Predictors of Money Management | |
|--|---|
| Source | Predictor |
| Brougham et al., 2011 Dittmar, 2005 Mowen and Spears, 1999 Nyhus and Webley, 2001 | Highly neuroticistic (or more emotional instable) individuals tend to accumulate more debt and, furthermore, these individuals show other instances of compulsive buying. |
| Brandstätter, 1996 Brandstätter, 2005 Wärneryd, 1996 | Individuals with a strong conscientiousness personality dimension show more positive attitudes regarding saving behavior. Therefore, conscientious individuals show significantly stronger financial self-control. Moreover, those people save more money on the one hand and borrow less money on the other hand. |
| Brandstätter, 2005 | Personality traits are related to financial attitudes as well as to time orientation. |

Adapted from: Brougham *et al.*, 2011, pp. 82–83; Dittmar, 2005, p. 472; Donnelly *et al.*, 2012, p. 1130; Mowen and Spears, 1999, pp. 425–426; Nyhus and Webley, 2001, 100-101.

These results show that human money management (e.g. investment behavior or indebttness) is related to personality structure. Against this backdrop, the question can be derived which Big Five personality factors actually do influence our money attitudes?

Furthermore, up to now, different demographical/biographical variables¹ that influence money attitudes were verified. Several researchers have demonstrated, for instance, that biographical factors like **gender, income, age, education, national origin and geographical location** affect our money attitudes (Medina *et al.*, 1996, p. 128)².

In the past decades, much research has focused on the identification of predictors for money attitudes in other parts of the world, as shown in the following exemplary study results: Recently, three different consumer groups have been formed based on the MAS-scales in a study in the U.S., i.e. confident consumers, conscious planners and careless spenders. For example, statistical analysis showed significant differences between the groups relating to gender ($n = 224$). In particular females showed more worrisome and anxious attitudes than males in the context of money (Chi and Banerjee, 2013, pp. 74–79). Hanashiro *et al.* proved in a cross-cultural study in the U.S. and Japan ($n = 378$) that male students rather perceive money as an instrument to control other people respectively as a symbol of power. Overall, males tend to attach more value to money than females do (Hanashiro *et al.*, 2004, pp. 39–44). Another Mexican study proved age-related differences ($n = 275$). To be precise, the older people get, the more likely is that they worry about money matters (Roberts and Sepulveda, 1999, pp. 25–33).

Although there exists adequate research on the influence of personality traits as well as of biographical variables on money attitudes of individuals in various countries like the U.S. or Japan, research with focus on the **situation in many European countries** is missing to the best knowledge.

The core path of the thesis follows a **logical path**. In the first section, the current state of the theme as well as the theoretical framework are presented on base of a comprehensive literature review: First, the meaning of money from different perspectives is outlined. Subsequently, overviews about the attitude-behavior relation, money attitudes, personality traits and relevant empirical results are provided in the subchapters. Subsequently, the second thesis section outlines the aim of the thesis, covering research objectives and questions. In the third, methodological section, the focus is on the research

¹ In literature, those variables are described as either demographical or biographical variables. In this work, those variables consistently are described as biographical.

² In the cited reference, various recognized empirical studies in the context of money attitudes research of the first hour are summarized: e.g. Wernimont and Fitzpatrick, 1972; Yamauchi and Templer, 1982; Furnham, 1984; Gresham and Fontenot, 1989 as well as Tang, 1992.

methods and the study design as a cross-national quantitative study was conducted as part of the research project. The following (fourth) results section presents details regarding statistical quality criteria, sample description, data distribution and regression results. Finally, hypotheses are verified in this section. In the following (fifth) discussion section, a profound and critical discussion of the study results is provided. Especially, research results are summarized, linked to previous studies and are critically evaluated. Furthermore, research limitations and approaches for further research are listed and practical implications are derived from the research results. Subsequently, the last section offers a conclusion of the work presenting a concise summary of the research and outlining the contribution of this work to the scientific society. Finally, bibliographical references cited in the work are listed in the sources section, which is followed by the annexes.

1 Current state of the theme

1.1 Perspectives on money

1.1.1 *A functional definition or the economical view on money*

Money is omnipresent in our everyday life, no matter whether it is immediately perceptible or it remains quite unremarkable in the background. For example, we perceive money directly in the course of daily shopping activities: Lots of people might start their day with paying a coffee-to-go in cash in the morning and finish it with online-shopping activities using credit-card payment in the evening. In the medium term, we may receive our monthly salary on our banking account and we might invest a part of this income regularly for our pension in bonds or in stocks in order to fulfill long-term personal financial targets. More in the background from the perspective of the single individual, money e.g. is created by central banks within the money creation process at the touch of a button as a bookkeeping entry or foreign currencies act as a national monetary reserve.

These examples, which demonstrate that money e.g. can be used for transfer or for hoarding purpose, already indicate that it seems appropriate to define money from a **functional** perspective. In a similar manner, in economic sciences money mainly was defined by its functions. However, it can be accepted as a common convention, although also criticism regarding this definition approach is expressed, especially from a philosophical and scientific viewpoint (Senn, 1999, p. 350). Money in an economical context is defined as something with agreed upon value which is exchangeable for goods or services like a piece of metal or paper (Goldberg and Lewis, 1978, p. 81). Later, the main functions of money were summarized and explained as described below (Furnham and Argyle, 2013, pp. 9–10):

- **Medium of exchange:** Money acts as a medium of exchange: Although paper and plastic money are intrinsically worthless, both represent value and they enable the exchange of goods and services.
- **Unit of account:** Money enables the measurement regarding the cheapness or dearness of goods and services.
- **Store of value:** Money is not perishable. However, it can change its intrinsic value over time.

- **Standard of deferred payment:** Buying and selling can be executed before or after a commodity goes on a market, as it is the case for future trading or e.g. in case of payment 30 days after delivery.

Furthermore, this well-established description of the basic functions of money can be supplemented with the following additional functions (Senn, 1999, p. 351):

- **Instrument of governmental control:** Monetary policy allows central banks, at least to a certain degree, to control some main economic adjustment screws like e.g. short-term interest rates. As a result of national monetary policy, stock markets or even the international monetary asset flow are influenced in an indirect way.
- **Signaling device:** The monetary policy of central banks is oriented towards the relevant political targets and guidelines. For example, these politically specified targets and guidelines are implemented through the steering of the monetary aggregates.
- **Settlement of interbank balances:** Monetary receivables and payables are compensated cross-nationally.
- **Discharge of legal contractual obligations:** Money acts as a tool for fulfilling contractual obligations. This function is comparable to the function of money as a medium of exchange or the standard of deferred payments. However, it must not be considered as a completely congruent function compared to the other two functions mentioned.
- **Asset transfer from the holders of money to the issuer of money:** Rulers over a monetary system are in a position to debase the value of money. In the past, for example the basis for this transfer was formed by constantly reducing the share of precious metal in coins. Nowadays, central banks are in a position to increase the money supply which leads to price increases. These price increases may enable the transfer of assets from the hands of the public to the government.
- **Reserves for central banks:** Central banks use reserve policies in order to control monetary supply.

Against the backdrop of the various listed functions of money, it must be mentioned, that a full list that covers all possible functions related to money, does not

exist. Moreover, it is necessary to point out that different money forms fulfil different of the above listed functions (Senn, 1999, pp. 351–352).

As a next step from an economical viewpoint, the specification of quality criteria regarding money arises. Furnham and Argyle described which qualities are essential for “good” money (Furnham and Argyle, 2013, pp. 10–11):

- **Portability:** A crucial criteria for “good” money is the fact that it should be moveable easily. Of course, this is the case for bank notes or plastic money. However, history shows that this main quality criterion not always has been fulfilled, e.g. at South Sea Islands stones historically were used as money.
- **Durability:** Furthermore, “good” money must be resistant against wear and tear. This might not be the case for Angola, where currently beer is used as a money substitute.
- **Recognizability:** Another important quality criterion is that “good” money can be recognized easily. This also implies that everyone can specify the exact value of the money used.
- **Homogeneity:** “Good” money must be equal. As it is the case, official coins and banknotes that look the same nowadays represent the same value.
- **Stability:** It is important that money keeps its value for a longer period of time. Economic history shows that especially hyperinflation, which e.g. can be caused by wars or large economic crises, damages the stability of money.
- **Limitation:** Finally, the amount of money available in a currency area must be limited by the central bank. If this is not the case, sooner or later money devaluation and an economic collapse can be the result.

In summary, it can be concluded that the economical view on money is based on a functional approach originating from strong microeconomic and macroeconomic aspects. This viewpoint represents an economic-ratio-based view which apparently sets up on the traditional economic scientific knowledge base. However, this traditional economic approach (homo-oeconomicus theory, expected-utility model) can rarely illustrate the individual point of view on money. This especially, when it comes to the further problem or question if individuals always act, e.g. in investment decisions, on the base of the traditional economic axioms. The main problem in that context is that the

traditional economic approach does not describe any view of the human psyche and especially no aspects of decision making basics. Furthermore, the mainstream expected-utility model with its goals of utility-maximization and wealth-attainment lacks a profound scientific basis (Finn, 1992, p. 663).

Regarding investment decisions, scientific results show that those decisions in practice are not derived on base of the ratio-oriented and objective homo-oeconomicus theory: On the contrary, investment decisions are strongly influenced by biographical factors (e.g. education, gender, age), by personality factors (e.g. risk tolerance, illusion of control), by cognitive factors (like finance-related knowledge) and by our social network (e.g. family members, advisors, friends) (Adelt and Feldmann, 2017, pp. 250–272; Günther and Detzner, 2009, p. 129; Harrison, 1994, p. 19; Müller, 1995, pp. 134–160; Wärneryd, 2001, p. 202). Especially, investment decisions are biased by irrational effects in the context of behavioral finance, i.e. heuristics and cognitive biases, irrational effects based on the prospect theory and by framing effects (Kahneman, 2003, p. 1449). Therefore, even rational agents fail to meet basic axioms of the expected-utility model. Human money management consistently violates the “rules” of this model which, at least in theory, requires dispassionate, logical-thinking agents who consequently strive for utility and profit-maximization in money matters (Furnham and Argyle, 2013, pp. 4–5).

Against this backdrop the question is, what is our individual, human perception of the construct of money? Since not even human investment behavior does meet the rational-based economic model, it seems likely that the human perception of money also differs from the functional model that is presented above. In other words, how and to what extent does this view differ from the traditional economical money concept or definition?

1.1.2 Money in a psychological context

“Money is a singular thing. It ranks with love as man's greatest source of joy. And with death as his greatest source of anxiety. Over all history it has oppressed nearly all people in one of two ways: either it has been abundant and very unreliable, or reliable and very scarce” (Galbraith, 1977, p. 161).

As this quote demonstrates, money cannot solely be considered from an instrumental or functional view. Rather, money represents **multidimensional psychological meanings** when it is regarded from the human perspective (Hanashiro *et*

al., 2004, p. 38). On the surface, money just represents an important resource to satisfy our short, medium and long term living needs. Money allows us to purchase resources like goods, services, time and energy (Hanashiro *et al.*, 2004, p. 38): For example, if we are wealthy enough, we might be in the fortunate position to engage a cleaning person to keep our living space clean. Simultaneously, this service creates additional personal time that can be used for other purpose; e.g. one can save physical energy or can use this gained energy for other (leisure) activities, which might lead to feelings of joy. Other individuals might associate the cleaning service to completely contrary thoughts/feelings of either power-prestige (“I am a high-performing person and can afford a cleaning service to spend my time for more important tasks”) or anxiety (“I am concerned about the costs of the cleaning service”). Already this simple example illustrates the potentially different influence of money (usage) on our internal state of emotion.

According to Maslow’s hierarchy of needs, food as well as the sexual desire can be assigned to the physiological stage of the hierarchy (Maslow, 1943, p. 372). Although diverse criticism on Maslow’s theory (e.g. inadequate empirical foundation, more suitable classification of sexual desire as social belonging need) the fundamental importance of food and sex as human needs is understandable from human perspective. In this context, it must be pointed out that money represents the satisfaction of these human needs. For example, money can be used to purchase food on the one hand and, regardless of any moral evaluation, it can even be spent for sexual services. To put it in sharp and might overdrawn words, money can be considered to act as a “substitute”, e.g. for food and sex (Krueger, 1986, p. 3). Thus, from the psychological perspective, money acts as a powerful driving force, this because of the human expectations of it (Furnham and Argyle, 2013, p. 5). Consequently, money disposes over a very **universal character**. From individual perspective, it stands for a source of satisfaction. This also indirectly, e.g. money for itself represents the (future) power of buying or possession. Money, therefore, embodies not just economical but also social and emotional security (Feldman, 1957, p. 768). The value of money originates from the fact that money can be exchanged into a wide variety of other desirable objects (Wernimont and Fitzpatrick, 1972, p. 218).

This universal character of money already was worded in a nutshell about more than 60 years ago (Feldman, 1957, p. 767): “But never before in the history of western civilization has the word ‘money’ meant so much to so many. Money is the medium of

exchange, a means for distributing the vast and increasing outpouring of the goods and services of our economic system. Money is a symbol of status and achievement, often the measure for human values and dignity. This is truly the age of the economic man.”

Summarized, **subjective** and effective **meanings** are related to money; this through the development of **attitudes** and **behavioral tendencies** towards money (Mitchell and Mickel, 1999, p. 568). For example, unhappiness and anxiety could come up, when individuals lack of sufficient money (Furnham, 1996, p. 375). However, it appears understandable that people who are barely able to pay their rent or feed their families perceive money (or the lack of money) as a source of unhappiness and anxiety. The same might be true for people that are confronted with debt burdens or threatening bankruptcy. But on the other hand, money allows individuals to show their power and to present themselves successfully to others. As an example, luxury goods can be mentioned: The question arises, if a Dior dress or a Bentley car, evaluated objectively on a hard-fact base with considering the purchase costs, really offer substantial value added, e.g. in terms of quality or durability compared to equivalent non-luxury alternatives? It appears likely, that the “true” value of those goods lies somewhere else.

Research shows that other subjective effects are related to luxury goods: Especially, price can be perceived as an indicator of prestige (Veblen effect) or as an indicator of exclusivity (Snop effect) (Vigneron and Johnson, 1999, pp. 4–6). We can use those goods or money to present our success or to repay those people that rejected or humiliated us in the past (Furnham and Argyle, 2013, p. 5). And so, the circle closes: Money can act as a basis for prestige and social value and it even allows to demonstrate an individual’s power. Furthermore, money is related to our security and freedom needs (Furnham and Argyle, 2013, p. 5). It enables us e.g. to buy safe shelter as well as to make provisions for our old age and for potential risks.

To sum it up, a lot of different reasons cause us to strive for wealth and money. We ascribe various subjective meanings and contrary emotions to money, as illustrated in the samples above. The four **main emotions** which are linked to money can be categorized as follows (Goldberg and Lewis, 2000, pp. 30–41) ³:

- **Security:** Money embodies an emotional lifejacket or a security blanket. Furthermore, money allows us to avoid anxiety. Individuals who focus strongly on the security meaning of money can be perceived as compulsive savers, as fanatic collectors or as self-deniers by others. Moreover, those people tend to show distrustful attitude towards other people.
- **Power:** Many people perceive money as a tool to show their power. Thus, money represents a possibility for gaining importance, domination as well as control. Those people are rather prepared to buy out and compromise enemies by monetary incentives; this to gain personal advantage from those practices. If individuals who mainly associate power with money run out of money, they feel weak, helpless and might even humiliated.
- **Love:** For individuals money also can represent love; this when it substitutes emotion and affection. Superficial relationships can be based on monetary dependencies. In that context money is used as a tool to gain loyalty or self-worth.
- **Freedom:** Adequate monetary backup allows people to take time for their personal interests like hobbies or travelling. Individual limitations resulting from job duties and from daily routines can be removed based on sufficient money supply. This results in a gain of autonomy and independence, e.g. from commands and orders of job supervisors.

In the following, money is described and, also, represented graphically from the **psychological** point of **view** on base of a self-developed **input-output perspective**. On the input-side, the following factors can be considered as interfering influences:

Our brain processes on basis of the **limited information** available since we are not able e.g. to dispose over all relevant information which is existing (Betz and Kirstein, 2015, pp. 58–59). When we consider e.g. purchasing a certain stock or corporate bond,

³ Secondary source: Furnham *et al.* (2012, p. 707).

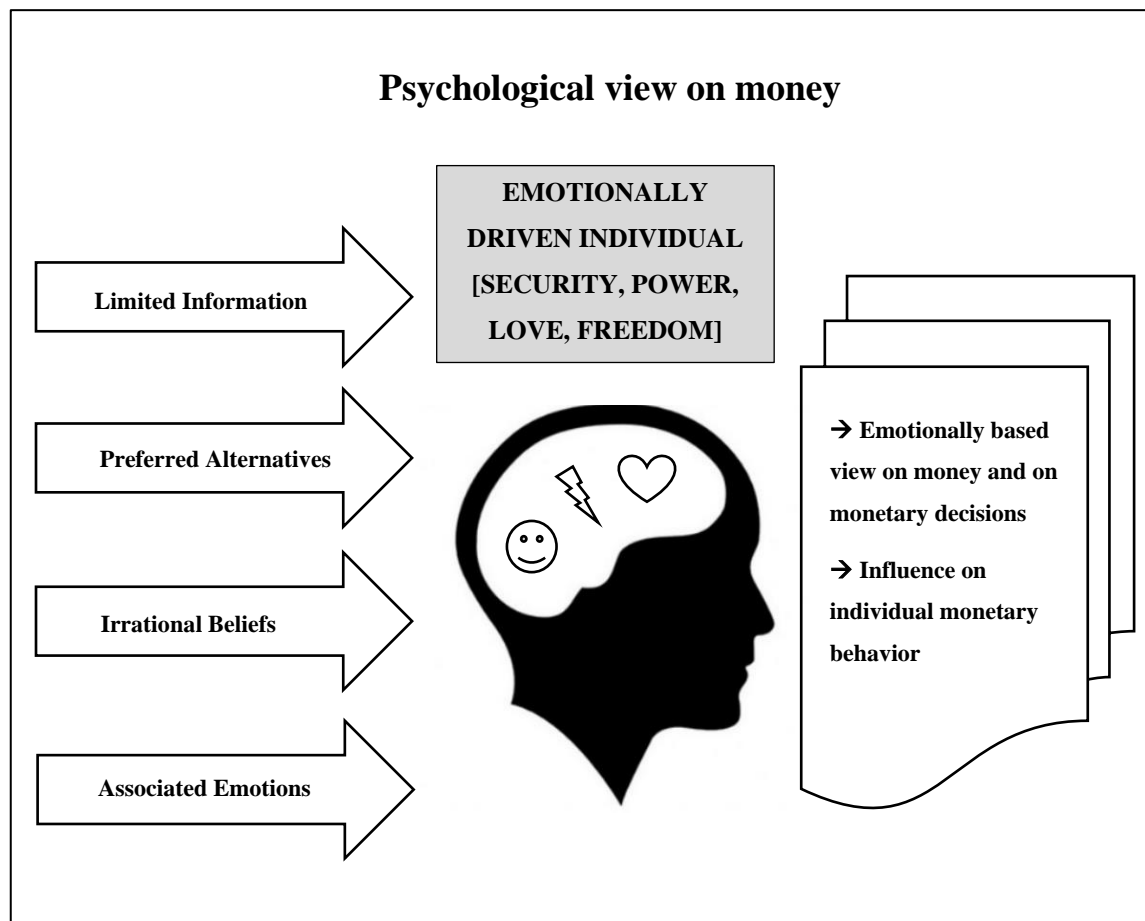
the limited information issue already starts with the fact, that asymmetric information between the companies' managers and the potential stock or corporate bond buyer exists, i.e. the managers dispose over superior information (Berk and DeMarzo, 2017, p. 609). Furthermore, it seems unrealistic that, at a certain point of time, an interested investor receives and values all relevant market information available which acts as the basis for the investment decision. Furthermore, **individual preferences** are influencing our money-related decisions. It is not necessarily the case that we use our money according to the profit-maximization axiom: Individual preferences may act as triggers in money matters (Betz and Kirstein, 2015, pp. 58–59). When purchasing daily goods, we might buy a certain brand because we are simply used to this brand. For example, buying washing powder or shower gel in most cases will not be subject of a comprehensive and critical reflection. In that case, it seems unlikely that we regard and value all possible advantages and disadvantages including an analysis of the cost-benefit ratios of different products or brands. Rather, we orientate towards our already existing individual preferences.

Also, **irrational beliefs** do affect our view on money and our use of money: Cognitive biases lead us to non-evidence-based conclusions and we adapt irrational beliefs. Irrational beliefs cannot be comprehended (fully or partly) logically (Haselton *et al.*, 2005, p. 725). Therefore, various heuristics, which act as shortcuts in our brain, serve us as assistance. However, these heuristics are not classified consistently on base of a uniform theory in research literature (Wallsten, 1983, pp. 21–39). For example, framing effects, mental accounting or the sunk cost effect could be mentioned in the context of irrational beliefs. Furthermore, the central component of the visualization below are the **money-associated emotions**, which are already mentioned and explained above, i.e. security, power, love and freedom.

Generated output of the visualized model are our monetary decisions, which are driven by money-related emotions and the other input factors explained. However, the subjective money-model in Figure 1 illustrates relevant psychological factors which are not considered in the traditional economic model ⁴:

⁴ Comparable figure also shown in: Furtner (2017, p. 16).

Figure 1: Psychological view on money.



Own editing based on literature. Clipart from www.freepik.com.

1.2 Attitudes and behavior

1.2.1 Attitudes in general

Before analyzing the concept of money attitudes, a basic view as well as the theoretical background regarding attitudes in general should be provided.

Initially, the wider framework for one's attitudes should be outlined: Individuals perceive an own identity or a self-concept. This **self-concept** represents a specific picture that individuals have about themselves. Components of a self-concept are our broader values, our attitudes and our specific desires. Furthermore, our self-concept is developed on base of education, socialization and personal experiences and, also, on media influence. Moreover, genetic predispositions might influence the development an individual's self-concept (Sommer, 2007, p. 107).

As the focus of this research project is on money attitudes, the question arises, why is it worth and necessary to scientifically investigate attitudes? In that context, the **relevance** of the attitude concept can be explained because of the summarizing character of attitudes: One specific attitude can act as a base for many different behaviors as attitudes work as causes for behaviors towards specific persons or objects. Also, the consistency of behavior can be traced back to a single attitude. In addition, attitudes illustrate how individuals perceive the world. Finally, the attitude concept is interdisciplinary, and it is a relatively neutral concept which is accepted by many theoretical foundations (Oskamp and Schultz, 2005, pp. 4–5).

When it comes to the term “attitude”, the Encyclopedia Britannica defines the main points of the **social-psychological based attitude concept** as follows (Encyclopaedia Britannica Inc., 2018):

- Attitudes represent a classification and evaluation of specific objects and events with a certain degree of aversion or attraction (emotional valence).
- Attitudes are derived from conscious experience, verbal information, overt behavior and from physiological indicators.
- An individual’s attitudes towards a specific category correlate with the question to what extent that category serves the individual’s own values.
- Attitudes can be described as underlying predispositions, whereas opinions represent overt manifestations. Besides, attitudes refer to matters of taste (e.g. preferred type of food) and opinions are related to questions of fact (e.g. advantages and disadvantages of a flat tax rate).
- A hierarchical terminological distinction is based on the extent of specificity or exclusiveness:
 - “Values” represent very broad tendencies.
 - Further detailed, “interests” can be considered less inclusive than “values”.
 - Even more specific predispositions are represented through “attitudes”.
 - Finally, the most specific and narrowed down predispositions are “beliefs” and “opinions”.

Psychological literature offers a wide range of, often inhomogeneous, definitions for attitudes. Widespread used and brief definitions are listed below:

- An early definition describes attitudes as “a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon an individual’s response to all objects and situations with which it is related” (Allport, 1935, p. 810).
- Attitudes are learned predispositions in response to a certain object. Additionally, this response consistently remains in a favorable or unfavorable way (Fishbein and Ajzen, 1975, p. 6).
- Attitudes are associations in our memories which link an object to the evaluation of the certain object (Fazio *et al.*, 1982, p. 341).
- Attitudes are an individual’s emotional position with focus on persons, ideas or items. This emotional position is linked to internal expectations and valuations (Six, 2009, p. 247).
- Attitudes, as well as personality traits, are “latent, hypothetical dispositions that are inferred from a variety of observable responses” (Ajzen, 2011, p. 20).

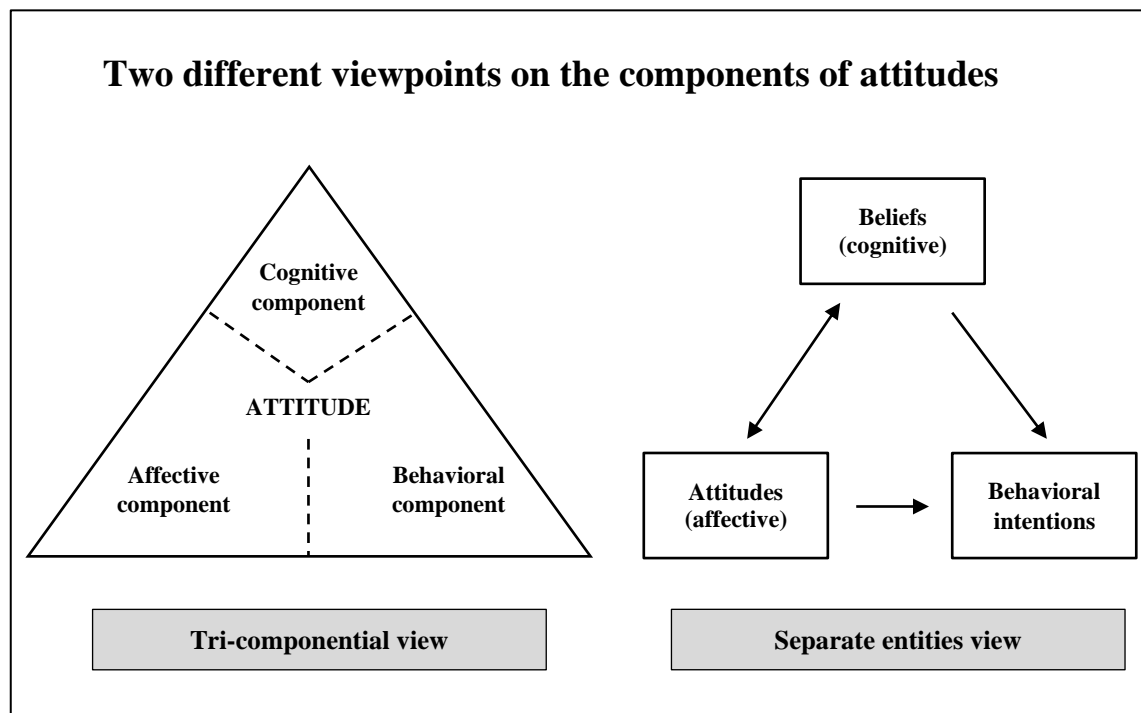
In research practice, attitudes are examined through five approaches: They are described by analyzing people’s views, measured through attitudes scales, collected through polls, analyzed from a theoretical viewpoint without measurement and investigated by experiments (Oskamp and Schultz, 2005, pp. 5–6). This research project uses a quantitative approach; i.e. measurement through an attitude scale. As further substantiated in the methodology section, this approach was chosen, because it was considered as suitable for testing the relevant working hypotheses.

The classical attitude model assumes three different components of attitudes: An attitude encompasses **affective** components, **behavioral** components and **cognitive** components. For examples, the affective (emotional) component refers towards feelings or emotions which are linked to a certain object; e.g. a positive basic emotion which is referred to a certain car brand. Moreover, the behavioral component is a result of an individual’s action tendencies towards a certain object; e.g. an individual might has driven sportive cars for many years. On the contrary, the cognitive component refers to ideas and beliefs towards a specific attitude object; e.g. the fact that sports cars show higher

fuel consumption than compact cars (Ajzen, 2011, p. 9; Albarracin *et al.*, 2014, p. 3; Aronson *et al.*, 2014, pp. 218–221; Zimbardo *et al.*, 2007, p. 774).

Moreover, these components of attitudes can be considered from two different points of view: First, the **tri-componential view** suggests that the three components show no (or just little) consistency among them. Second, the **separate entities view** assumes the existence of relationships between the components (Albarracin *et al.*, 2014, p. 3). Empirical studies have shown evidence of moderate relationships among the three components mentioned. However, this seem not to be true for all kind of attitudes (Ajzen, 2011, pp. 9–11). Hereafter, the two different viewpoints on the attitude components are visualized (Ajzen, 2011, p. 10):

Figure 2: Two different viewpoints on the components of attitudes.



Own editing based on Ajzen, 2011, p. 10.

Latest empirical research proved a general **hierarchical** attitude model. This hierarchical model consists of evaluative attitudes on the top. Cognition, affect and conation are situated in the middle area. Finally, on the lowest level, specific beliefs, feelings and action tendencies are placed. In this model attitudes, as well as personality traits, act as predictive factors for behaviors which are associated with a certain attitude or trait (Ajzen, 2011, p. 22).

1.2.2 *Relationship between attitudes and behavior*

As the research focus of this research project is on potential predictors which influence money attitudes, the key question of whether and to what extent attitudes influence our behavior arises. Answering this question is crucial for justifying the practical relevance of money attitude predictors: In particular, this is the case for the application of the research results in practice (e.g. do money-attitude related marketing activities lead to raising sales or does a person's awareness regarding individual money attitudes improve personal financial decisions).

Initially, it must be pointed out that meta-analyses proved an attitude-behavior relationship in some cases. However, the strength of relation depends on the investigated attitude-behavior field (Ajzen and Fishbein, 2014, p. 183; Six, 2009, p. 248).

Researchers like Ajzen and Fishbein proved various factors which moderate the extent to which attitudes affect behavior. Relevant identified moderating factors are prior experience, accessibility to attitudes, confidence, attitude change, attention and exposure to information. Moreover, also past behaviors sometimes affect our attitudes in the context of the cognitive dissonance theory (Albarracin *et al.*, 2014, pp. 10–11). Furthermore, the attitude-behavior relation can also be influenced by the type of the attitude, how the attitude is represented, the qualities of the person involved, the framework of the situation and by the relationship between an individual and the relevant object (Fazio, 1995, p. 270).

Fazio's **MODE model** describes the effect of attitudes on behavior. The focus of the model is on the multiple processes which occur and, under specific conditions, can cause an effect of our attitudes on a specific behavior. Although the model refers to attitudes in general, it should be pointed out that the abstract and generally-oriented MODE model also is relevant for attitudes, which are specifically associated with money, i.e. power-prestige, time-retention, distrust and anxiety (Yamauchi and Templer, 1982, pp. 523–525).

We develop negative or positive emotions towards specific objects (e.g. money) or persons. These emotions manifest in attitudes, which are linked to the concerned object or person. For example, individuals might develop a more or less fearful or fearless attitude towards money. Attitudes can be to varying degrees of more general or more

specific characters. They consist of cognitive, affective and behavioral components. The availability of attitudes and their influence on our behavior vary as explained by the MODE model. However, not in every case our attitudes do influence our behavior as also behavior can affect the development of attitudes (cognitive dissonance) (Ajzen and Fishbein, 2014, 184).

1.3 Money attitudes

1.3.1 *Money attitudes in general*

Whereas the focus in the previous chapter is on attitudes and attitude-behavior relations in general, this chapter contains a comprehensive view specifically on attitudes which refer to money (**money attitudes**).

From a developmental psychological view, individual money attitudes are developed during our socialization process. Moreover, they are established in our childhood and, later, they are kept during adulthood (Furnham *et al.*, 1994, p. 122; Mohamad *et al.*, 2006, p. 121). As our money attitudes are acquired related to our socialization experience, our professional environment plays an important role: Normally, e.g. a job in investment banking is much closer oriented toward making money than a job in the social or cultural sector. Therefore, our professional orientation acts as a major source for developing our money attitudes (Lau, 1998, p. 300).

At this point, the **multidimensional character** of money attitudes should be pointed out once again. Money attitudes, like other attitudes, cover a spectrum of positive (e.g. love) as well as negative **emotions** (e.g. distrust) (Medina *et al.*, 1996, p. 127). For instance, if somebody from early childhood through school and adulthood has internalized that money can be used for consumption purpose to trigger feelings of happiness and prestige, predominantly positive emotions are associated towards money. In this example, newly acquired luxury goods can be presented to friends and family and, as a result, the buyer might receive additional prestige and higher acceptance in his or her material-minded personal environment.

On the other hand, also negative emotions can be associated with money: This could be the case for individuals who experienced dealing with money as an act in the context of distrust or anxiety. Maybe already the individual's parents have made bad experiences on money management, e.g. family debt issues, private bankruptcy or

permanent lack of money. Furthermore, it might be the case that the concerned individual in the adulthood has ongoing money shortage or has become a victim of investment fraud. As a result, this individual might have internalized money primarily as an anxiety related object, instead of developing positive feelings toward it.

In research literature, the following established **definitions** for **money attitude** can be found:

- To different people, money represents different aspects. Thus, the way how money is perceived by an individual is in the eye of the beholder. Money can show status or it can be used as a measure for comparison. Moreover, it can be perceived as evil for one person, while for another person it stands for achievement (McClelland, 1967, p. 10).
- Krueger described money from the psychological perspective. Inherent in his money definition is a definition of money attitudes: Money represents the most emotionally meaningful object nowadays. As comparable close competitors of money only food or sex can be considered. Therefore, in our mind money is closely linked to various strong feelings, significance as well as strivings (Krueger, 1986, p. 3).
- In the context of the Money Ethic Scale (MES), people's attitudes towards money can be described as an individual frame of reference in which everyday life is examined (Tang, 1992, p. 201).
- Money attitudes influence an individual's behavior in money matters. Furthermore, money attitudes include social status as well as personal contentment (Taneja, 2012, p. 95).
- People associate money with fantasies, fears and wishes through an integrate part of their attitudes. Furthermore, money can be brought into connection with distortions, denials and impulses as well as the defence against impulses (Furnham and Argyle, 2013, p. 141).

Summarized, most of the presented definitions focus on the loading of money with different emotions and purposes. Especially, the individual perspective and the subjective character of money attitudes is addressed. Furthermore, the importance of

money attitudes for financial behavior and everyday life is pointed out in some of the definitions.

1.3.2 Money attitudes in the historical context

Historically speaking, the most important **research contributions** on money attitudes are summarized in the following subchapters in chronological order. The structure of the following subchapters is substantially supported by Taneja's **historical overview** (2012, p. 97) on the most important research contributions in the field of money attitudes research and by Lea's and Webley's (2014, pp. 23–32) review in the same context. Relevant contributions in the context of money attitudes reach back to the 1960s with the Economic Value System (Price, 1968, pp. 467–472). Yamauchi and Templer's (1982, pp. 522–528) Money Attitude Scale (MAS) as well as Furnham's (1984, pp. 501–509) Money Beliefs and Behavior Scale (MBBS) were first applied in the 1980s, while the Money Importance Scale (MIS) (Tang, 1992, pp. 197–202) and the Money Ethical Scale (MES) (Mitchell and Mickel, 1999, pp. 568–578) were developed later in the 1990s.

Literature review shows that, predominantly, the MAS, the MBBS, the MES and the MIS have experienced remarkable attention in the scientific community during the last three decades. In addition, it must be pointed out that the money attitude tests focus on different priorities. While the MAS and the MBBS both represent a general approach to measure money attitudes, other tests focus on different (e.g. more behavioral) money aspects. A short overview on the **most relevant scientific contributions** regarding money attitudes testing instruments is provided in the following table (Taneja, 2012, p. 97):

Table 3: Money attitudes historical overview.

| Authors and Year | Instrument | Description |
|--|---|--|
| Price, 1968 | Economic Value System | First instrument for measuring values in the context of money Evaluated economic values in families in five categories |
| Wernimont and Fitzpatrick, 1972 | Money Values | 40 adjective pairs were measured on a seven-point bipolar semantic differential scale 7 factors were generated: shameful failure, social acceptability, pooh-pooh attitude, moral evil, comfortable security, social unacceptability and conservative business values |
| Goldberg and Lewis, 1978 | Significance of Money Values | Alternative qualitative approach (based on psychological counselling case studies and on psychoanalytic literature) 4 main factors were identified: security, power, love, freedom Further minor factors are described in addition |
| Rubinstein, 1981 | Money and Life Survey | Survey in Psychology Today (non-scientific approach) |
| Yamauchi and Templer, 1982 | Money Attitude Scale (MAS) | 29 items are answered on base of a 5-point Likert type scale 5 factors were identified: power-prestige, time-retention, distrust, quality and anxiety Broadly accepted and widely applied scale |
| Furnham, 1984 Kirkcaldy and Furnham, 1993 | Money Beliefs and Behavior Scale (MBBS) | 60 items about beliefs are answered on base of a 7-point Likert type scale 6 factors were identified: obsession, power, retention, security, inadequacy and effort/ability Broadly accepted and widely applied scale |
| Forman, 1987 | Money Sanity Scale | 5 factors were generated: spendthrift, miser, gambler, bargain hunter and tycoon Focus on mental sanity in the context of money |
| Tang, 1992, 1995 | Money Ethical Scale (MES) | The perception of money as a symbol of achievement and success is measured 6 factors were generated: good, evil, achievement, respect, budget and freedom 30 statements are in the full scale, 12 items in a short version |
| Mitchell et al., 1998 | Money Importance Scale (MIS) | 7 factors were identified: value importance of money, personal involvement with money, time spent thinking about financial affairs, knowledge of financial affairs, comfort in taking financial risks, skill in handling money and money as a source of power and status |

Own editing based on Taneja, 2012, p. 97.

1.3.3 *Economic Value System (1968)*

Initially, in an explorative approach, statements referring to financial behavior were selected using material from previous research, personal interviews and popular magazines. An expert panel sorted 102 selected statements into related categories using Q-methodology. For each of the **five identified categories (status, security, self-actualization, self-indulgence, faith)** 15 statements were selected as items for a standardized test instrument in order to evaluate the economic values in a family (Price, 1968, pp. 467–468).

Subsequently, the generated instrument was tested in a survey with married students in the United States ($n = 52$). 67 of the 75 statements showed significant internal consistency ($p \leq 0.05$). Results indicated the importance of the self-actualization for most of the study participants in the sample, whereas the other values ranked significantly lower. Moreover, shifts in the value system could be identified (e.g. after the birth of the first child in the family) (Price, 1968, pp. 468–471).

In the historical context, Price's **Economic Value System** can be considered as the first substantial contribution to the development of a money attitude concept, which originally emerged from researching the financial decision-making process in families.

1.3.4 *Money Values (1972)*

Wernimont and Fitzpatrick constituted that money represents different things for individuals. Especially, as it can be exchanged to various objects which are desired by an individual. Based on the assumption that **different groups** (e.g. college students, business managers, technical employees, salesmen, religious sisters) **attribute different values and meanings to money**, a modified semantic differential with 40 adjective pairs (7-point rating scale) was developed. The adjective pairs were gained from different sources (e.g. general evaluative terms or imposed through management tradition). After the study participants ($n = 533$) rated the pairs according to the question what money meant to them, principal component analysis and ANOVAs were executed. In total, seven factors (explaining 55.21 % of the common variance) could be identified (Wernimont and Fitzpatrick, 1972, pp. 218–223) as summarized in the following table:

Table 4: Factors and description of the money values overview.

| Factors/values [% Variance explained] | Description |
|--|--|
| Shameful failure [14.59 %] | Money is loaded with negative values like embarrassment and degradation. Individuals who are in this group tend to strongly assign money to anxiety-related adjectives e.g. like “unsuccessful” or “punishing” instead of “successful” or “proud”. |
| Social acceptability [11.70 %] | Money is considered as a general, all-around concept. There is no pronounced tendency towards either positive or negative values with reference to money. |
| Pooh-pooh attitude [7.54 %] | Regarding this factor, money is not considered as a tool of high importance or satisfaction. Rather, money is related to adjectives like weakness and lack of professionalism. However, this attitude is not anxiety-related (like the “Shameful failure-factor”). |
| Moral evil [7.44 %] | This factor refers to strong negative values which are based on moral principles. Adjectives like “undemocratic”, “unfair” or “unsociable” are dominant. |
| Comfortable security [7.01 %] | Money is loaded strongly with positive values with a practical, economical and materialistic approach. Therefore, money is related to adjectives like e.g. “happy” or “secure”. |
| Social unacceptability [3.72 %] | In the study this factor is described as a feminine perspective, which is characterized through perceiving money in a socially unacceptable way. |
| Conservative business values [3.21 %] | The authors described this factor as learned values, which individuals acquire by working in industrial organizations. This factor pronounces a secrecy-related money perception. |

Own editing based on Wernimont and Fitzpatrick, 1972, pp. 220–223.

The study results show, at least to some degree, overlappings with the Price’s (1968, pp. 467–472) value system (e.g. both concepts show a security-related factor). Additionally, supplementary factors were developed in Wernimont and Fitzpatrick’s (1972, pp. 224–226) broader study on base of the different biographical subsamples (e.g. the secrecy-related conservative business values). It can be assumed, that divergencies between the identified factors are a result of the different methods used in the process of the item generation. Another relevant finding of Wernimont and Fitzpatrick’s study is the investigation of groups with different educational and professional backgrounds. Group differences indicate the existence of **possible predictive factors** like **experience, associates, gender, economic status** and **personality characteristics** for the different money values.

1.3.5 Significance of Money Values (1978)

An alternative, qualitative approach was applied by the psychologists Goldberg and Lewis (1978, pp. 85–99). In total, four main factors (**security, power, love, freedom**) were described, primarily on base of psychological counseling case studies and on base of psychoanalytic literature in order to structure the psychological meaning of money. Additionally, less common or minor factors like comfort, sexuality, knowledge and revenge are mentioned. The money value factors can be summarized as followed:

Table 5: Psychological money meaning values overview.

| Factors/Values | Description |
|---|--|
| Security (Safety-first syndrome) | This value dominates individuals who link emotional security close to financial security. Money is a tool to avoid anxiety, which can result from a deep fear of being abandoned (e.g. caused by rigid, cold or insecure parents in the childhood that moves the child into a dependent and helpless status). |
| Power (Green giant syndrome) | Power as a predominant money value highlights the possibility of buying importance, control and domination through money. The root of this factor lies in the infantile omnipotence. This omnipotence describes the infantile self-perception (child perceives itself as the center of the world). In adulthood, this omnipotence can be reconquered through money. Also, insecure sexuality is stated as a trigger for power-motivated individuals. |
| Love (Santa Claus syndrome) | A love-oriented money attitude can be caused by emotionally inhibited parents who replace genuine love through money, presents or cookies. This later could lead to individuals who try to overcome the feeling of being unloved e.g. by purchasing unnecessary luxury goods. |
| Freedom (Declaration of independence syndrome) | A person with a freedom-oriented money value has the need to control life independently and individually. Money offers a change to make own decisions and to take changes. Especially, money can buy time for own interests, e.g. like traveling, writing or painting. This value is referred to Maslow's self-actualization. |
| Other factors | As other minor factors for acquiring money comfort, knowledge, sexuality and revenge are mentioned by the authors. |

Own editing based on Goldberg and Lewis, 1978, pp. 85–99.

The strong psychoanalytic approach of the authors supports the quantitative findings of the studies mentioned in the former subchapters (widely comparable categories). In this work, especially, explanations for the development of certain predominant money values can be recognized as substantial scientific contribution.

1.3.6 Money Attitude Scale (1982)

Templer and Yamauchi (1982, pp. 522–528) developed the MAS as a testing instrument for evaluating an individual's money attitudes comprehensively. The development of the MAS originates from literature of psychological theorists, whereby first the main psychological money directions were identified. Originally 62 items were developed and later reduced to 29 items in the final MAS version. This final MAS consists of four remaining factors power-prestige, retention-time, distrust and anxiety. A scree test showed that the four identified factors explained about one third of the variance. In the following table, the final MAS-factors are described in overview including sample items:

| Table 6: Money Attitude Scale overview. | | |
|---|---|---|
| Factor | Short description | Sample items |
| Power-prestige | Power-prestige items measure if money is used as a tool to impress or influence others. They refer to the extent of how individuals perceive money as a symbol of success. | I seem to find that I show more respect to people with money than I have. |
| | High-scorers link money with status seeking, competition and external recognition. Low scorers tend not to use money for influencing other people. Furthermore, they do not perceive money as a scale for success. | In all honesty, I own things in order to impress others. |
| Retention-time | Retention-time items measure if money is used planfully with a future-oriented focus. | I do financial planning for the future. |
| | High-scoring persons tend to plan the use of money carefully. Moreover, they focus on the goal of financial security in the future. Low-scorers use money with less attention and care. Their focus is on the present use of money. | I save now to prepare for my old age. |
| Distrust | Distrust items refer to the perception of money in a suspicious and hesitant way. | When I buy something, I complain about the price I paid. |
| | High-scorers perceive money from a hesitant, suspicious and doubtful perspective. Low-scoring individuals handle financial situations with trust and confidence. | When I make a major purchase, I have the suspicion that I have been taken advantage of. |
| Anxiety | Anxiety items measure the question if money is linked to feelings of anxiety. | I spend money to make myself feel better. |
| | High-scoring persons perceive money as a source of anxiety or as a source of protection from anxiety. On the contrary, low-scorers tend to show a calm and less anxious money mindset. | I worry that I will not be financially secure. |

Own editing based on Yamauchi and Templer, 1982, pp. 523–525.

The MAS offers a generally-oriented and comprehensive approach for measuring money attitudes, contrary to other money attitude tests with a more specific focus (i.e. MES, MIS). Furthermore, strengths of the MAS are its well-tested validity as well as its high reliability values (Blaszczynski and Nower, 2010, p. 686).

A further strength is its use for different ethnical samples in countries like e.g. Singapore (Lim and Teo, 1997, pp. 369–386), Sweden (Engelberg and Sjöberg, 2006, pp. 2027–2047) or Mexico (Roberts and Sepulveda, 1999, pp. 19–35) over decades indicating a broad applicability due to the stable factor structure (Engelberg and Sjöberg, 2006, p. 2029; Roberts and Jones, 2001, p. 217; Roberts and Sepulveda, 1999, pp. 20–21). Moreover, already the original MAS was developed in the multi-ethnical area of Los Angeles and Fresno in the United States ($n = 300$) computing a Cronbach- α of 0.77 for the entire test; the scree test showed that the five factors explained 33.6 % of the total variance (Yamauchi and Templer, 1982, p. 523).

Empirical studies used the MAS in its original version as well as in modified forms (e.g. additional dimensions). Furthermore, in contrast to the original 7-point Likert scale (Yamauchi and Templer, 1982, p. 522), also 5-point Likert scales were applied for the MAS (Chi and Banerjee, 2013, p. 72).

A notable fact is that the dimensions of the MAS and the MBBS, which is presented in the following subchapter, show broad similarities as both tests refer to money as a tool of power, obsession (MAS obsession dimension overlaps with the MAS power-prestige dimension), budgeting/retaining and anxiety. Moreover, the remaining, non-mentioned dimensions are tied together to a certain extent. This wide overlapping strengthens the relevance of both tests (Roberts and Sepulveda, 1999, p. 20).

1.3.7 Money Beliefs and Behaviour Scale (1984, 1993)

In 1984, the original 60-items MBBS on base of a sample of 256 college students from England, Scotland and Wales was first published. The 7-point Likert scale originates from three sources including MAS items (Yamauchi and Templer, 1982, pp. 523–525), items from an early monography on money psychology (Goldberg and Lewis, 1978, pp. 100–101) and items used in a Psychology Today survey (Rubinstein, 1981, pp. 29–44). The goal of the MBBS was, contrary to the MAS (psychopathological approach), to focus on “normal” social beliefs and attitudes. Furthermore, demographic differences (e.g. age,

gender, education) and beliefs (e.g. conservatism, Protestant work ethic) were considered as possible explaining variables for the six identified MBBS factors (Furnham, 1984, pp. 501–509).

The MBBS factors as well as referring sample items are presented in overview in the following table:

| Table 7: Money Beliefs and Behaviour Scale overview. | | |
|--|--|--|
| Factor | Short description | Sample items |
| Obsession | Money is perceived as a tool for controlling or comparison. Moreover, problems can be solved with money. | I often fantasize about money and what I could do with it. I would do practically anything legal for money if it were enough. |
| Power/Spending | Money strengthens an individual's personal status. | I often give large tips to waiters/waitresses that I like. I sometimes buy things that I don't need or want to impress people because they are the right things to have at the time. |
| Retention | Money is used reluctantly and carefully. | I prefer to save money because I'm never sure when things will collapse and I'll need the cash. I often have difficulty in making decisions about spending money regardless of the amount. |
| Security/Conservative | Individuals use money on base of a traditional and old-fashioned concept. | I prefer to use money rather than credit cards. I am proud of my ability to save money. |
| Inadequacy | Persons perceive a shortness of money, in particular in comparison to peers and friends. | The amount of money that I have saved is never quite enough. Most of my friends have more money than I do. |
| Effort/Ability | Money earned is strongly linked to the perception that it is a result of a person's effort and ability. | I believe that the amount of money that a person earns is closely related to his or her ability and effort. I believe that my present income is far less than I deserve given the job I do. |

Own editing based on Furnham, 1984, pp. 501–509; Hanashiro *et al.*, 2004, pp. 38–45; Hanley and Wilhelm, 1992, pp. 5–18; Mitchell and Mickel, 1999, pp. 568–578.

A total Cronbach- α of 0.84 for the original MBBS scale indicated a strong reliability of the test and the scree test showed that the six factors accounted for 35 % of the total variance (Furnham, 1984, p. 503). In a later study, total Cronbach- α accounted

lower for 0.63 (Blaszczynski and Nower, 2010, p. 685). As Furnham noticed, the MBBS factors are comparable to the MAS. A major contribution of this test is its evidence for the predictive power of biographical and belief variables (i.e. age, education, Protestant work ethic) on money attitudes (Furnham, 1984, p. 508). Essential is the fact that, despite different factors and items, both tests identified money attitudes in two main directions: Either money attitudes refer to power/prestige/status or to retaining/budgeting (Engelberg and Sjöberg, 2006, p. 2029).

A possible disadvantage of the original MBBS is its higher item number (60 MBBS items vs. 29 MAS items), which in research practice leads to a more time consuming data collection. In that context, it must be considered that both tests show close reliability values (Cronbach- α) and, also, a comparable total variance explanation through the MAS/MBBS test factors. As a compromise, in empirical studies also MBBS tests with a reduced item number can be found.

1.3.8 Money Ethical Scale (1992, 1995)

Based on a sample of 249 subjects with full-time work experience, Tang (1992, pp. 198–199) developed the MES, which consists of 50 items (7-point Likert scaled). Principal components factor analysis and a scree-test identified six factors for the final MES test with 30 remaining items with factor loadings of 0.40 or greater as summarized in the following table:

| Table 8: Money Ethical Scale overview. | | |
|--|--|---|
| Factor | Short description | Sample items |
| Good | This factor measures the extent of a generally positive money attitude. | Money is good. Money is valuable. |
| Evil | As the opposite of the factor good, evil measures the extent of a negative-oriented money attitude. | Money is the root of all evil. Money is shameful. |
| Achievement | The achievement-factor refers to the perception of money as a measurement for the achievement of objectives. | Money is the most important thing (goal) in my life. Money is a symbol of success. |
| Respect (Self-esteem) | This factor measures if individuals perceive money as a tool for expressing competence or abilities. | Money makes people respect you in the community. Money can bring you many friends. |

| | | |
|-----------------|--|--|
| | Furthermore, money is linked to self-esteem and the respect of others. | |
| Budget | The focus of this factor is on the question to what extent persons focus on budgeting money. | I use my money very carefully. I pay my bills immediately in order to avoid interest or penalties. |
| Freedom (Power) | Individuals scoring high in the freedom-factor perceive money as a tool for gaining autonomy, security, freedom as well as for influencing others. Especially, money allows personal fulfilment. | Money gives you autonomy and freedom. Money can give you the opportunity to be what you want to be. |

Own editing based on Tang, 1992, pp. 198–199.

Although, also the MES factors are basically consistent with the MAS and MBBS (Tang, 1992, p. 198), the MES was used to a lesser extent in relevant studies in the field of money attitude research. The MES is based on the assumption that money attitudes refer to affective components (good, evil), cognitive components (relation to respect, achievement, freedom) and behavioral components. A strength of the multidimensional MES scale is its clear and straightforward design (Furnham, 2014, pp. 82–83). Furthermore, the Cronbach- α values ranging from 0.68 to 0.81 for the subscales indicate satisfactory inter-item consistency (Tang, 1992, p. 200). Also, the focus on 30 items allows a comparably time-saving and valid measurement of money attitudes in a broad way.

1.3.9 Money Importance Scale (1998)

Mitchell and Mickel's (1999, pp. 572–573) MIS development followed a multidisciplinary approach covering the disciplines economics, sociology and psychology. Furthermore, the early research focus in the context of the MIS was on individual-differences (e.g. biographical and personality variables) which potentially could influence money attitudes. Compared to the other discussed money attitude scales (MAS, MBBS, MES), the 32-items MIS is characterized by its behavioral and narrower focus on the following seven scales:

Table 9: Money Importance Scale overview.

| Factor | Short description | Sample items |
|---|--|---|
| Value importance of money (VIM) | This factor measures the general importance of money for an individual. | I believe that the more money you have, the happier you are. I value money very highly. |
| Personal involvement with money (PIM) | The second factor refers to the extent of personal energy (especially mental effort) which is invested in the context of money management. | I balance my checkbook fairly frequently. I make out a budget for my expenditures. |
| Time spent thinking about financial affairs (TTF) | This factor measures if or to what extent individuals invest time for their money management. | I have explicit plans for how I can make more money. I am always on the lookout for good financial investments. |
| Knowledge of financial affairs (KFA) | It is measured how individuals perceive their own financial literacy. | I am aware of the tax implications of my financial activities. I understand how banks make money on loans, mortgages, saving accounts, etc. |
| Comfort in taking financial risks (KFA) | This factor measures if individuals tend towards a conservative (risk-averse) or a more risk-seeking money attitude. | I would prefer to win big or lose big than to be conservative. I am comfortable borrowing substantial sums of money for investment purposes. |
| Skill at handling money (SHM) | This behavioral factor refers to individual skills regarding everyday money management in practice. | I never have checks that bounce. I always make sure I have a few dollars for emergencies. |
| Money as a source of power and status (MPS) | This factor measures to what extent money is perceived as a tool for gaining power and status. | I talk frequently about how much money I have. I use money to influence others. |

Own editing based on Mitchell and Mickel, 1999, p. 572.

The authors of the MIS report good reliability and construct validity, without presenting precise values (Mitchell and Mickel, 1999, p. 573). A major strength of the MIS is its behavioral and narrower focus as well as its comparatively smaller item number indicating time-saving practical application. However, the MIS scale has gained far less research attention (and less practical application) in comparison to the MAS and the MBBS.

1.3.10 Evaluation of the tests in the context of the research project

The purpose of this subchapter is to compare money attitudes testing instruments (MAS, MBBS, MES, MIS) for **practical application** outlining specific strengths and weaknesses. Factors like individual test dimensions, test focuses, factor stabilities, reliabilities, extent of application in the research and time-requirements for testing (item numbers) were considered.

The MAS offers a broad and generally-oriented focus based on an ethical diverse sample. Extensive similarities with the MBBS dimensions can be found as both tests identified two main directions (money attitudes referring to power/prestige/status or to retaining/budgeting). Furthermore, the later developed MES confirmed the basic factor structures of the MAS and MBBS – despite the MES is based on an advanced concept of affective, cognitive and behavioral money components. On the contrary, the MIS was derived from a strong behavioral focus. Factor stabilities and reliabilities are influenced by the underlying sample. However, considering the first samples that were used for the test developments, Cronbach- α values and factor stabilities are in an acceptable range for all tests (no specific values were outlined for the MIS).

Another main factor in context of the research project is the question, to what extent tests were used in empirical studies: Literature shows that the MAS and MBBS are well-accepted in the scientific community as they were the most widely applied tests broadly confirming the underlying factor structure over decades. In contrast, the MES and MIS were less applied and, therefore, must be considered as less practical relevant at the current state of research. However, further application of these two tests could strengthen their standing in the scientific community. In the context of practical empirical testing, the time needed for performing one test in most cases is a main issue. While most tests show manageable item numbers (MAS: 29 MES: 30 MIS: 32 items) the MBBS in its original version (60 items) requires significantly more testing time. Given comparable factor stabilities and reliability values, this can be considered as a major MBBS disadvantage. A practical solution therefore could be the use of a decreased item number in empirical testing, potentially at the expense of the quality of the testing results.

Nevertheless, most tests show broad overlaps (Furnham, 2014, p. 114), the widely use of MAS and MBBS strengthen their role as gained study results allow a comparison with a comparatively vast amount of already existing research results.

In this **research project**, the **MAS** was used for measuring money attitudes in the sample. First, the MAS shows well-proven validity and reliability. Second, the instrument was tested with different ethical samples for decades and has shown broad applicability (Roberts and Jones, 2001, pp. 216–217). Third, the general-oriented focus of the MAS was consist with the research questions of the research project, as there was no restricted perspective on certain aspects of money attitudes. Rather, this study aimed to describe the broadest possible structure of individual money attitudes in measuring the four MAS dimensions power-prestige, time-retention, distrust and anxiety (Yamauchi and Templer, 1982, pp. 523–525). Moreover, the existing MAS results in the literature provided a solid basis for comparison with the present study results.

1.4 Personality traits

1.4.1 *Personality and personality traits in general*

Among other potential predictors, personality traits were raised in the study. Consequently, a short overview about the human personality concept and about personality traits should be provided in this chapter. The existing **personality theories** originate from the following four different philosophies about the human nature (Costa and McCrae, 2017, p. 2427):

- **Psychoanalytic school:** The individual is basically irrational and directed by animal instincts. Social structures provide, at least to some extent, control and a measure of normality based on forces of guilt and anxiety.
- **Behaviorist school:** Certain behaviors cause rewards or reinforcement. Those experiences (not psychological conflicts) form the human nature and drives human behaviors in a reactive way.
- **Humanistic school:** Individuals dispose over a broad capacity of love, creativity and transcendence (positive/heroic description of the human nature). The society imparis this positive human potential through maladaptive traits and behaviors.
- **Trait theory** (current state of research): All forementioned philosophies are relevant to a certain degree. Individuals in pluralistic and diverse societies establish their personalities based on different emotional, experiential, attitudinal, motivational and interpersonal factors.

Contemporary, well-established personality tests like the NEO-FFI, which was used in this study, were developed against the trait theory framework. Thus, the further focus is placed on the trait theory.

In the first broadly-accepted definition **personality** was defined as “the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment” (Allport, 1937, p. 48). Against the background of the trait theory, personality further can be described as the sum of an individual’s traits covering individual differences in terms of personal appearance, continuing individual behavior and experience (Asendorpf and Neyer, 2012, p. 2). Personality is expressed through the characteristics of individuals, which occur as consistent patterns of feelings, cognition and behavior (Weinstein *et al.*, 2010, p. 330). Given the fact that numerous definitions of personality exist in the literature, a universally accepted definition is missing - personality rather must be considered as a mental concept or a type of psychological/hypothetical construct which is influenced by psyche-body interactions (Maltby *et al.*, 2011, p. 41).

Personality traits can be defined as characteristics of individuals which “exert pervasive influence on a broad range of trait-relevant responses. Assumed to be behavioral manifestations of an underlying trait, people’s responses are taken as indications of their standing on the trait in question” (Ajzen, 2011, p. 2). On the contrary, in Allport’s early definition personality traits were described as neuropsychic structures that render stimuli equivalently as well as they initiate and guide adaptive/expressive behavior consistently (Allport, 1937, p. 295).

Thus, the human personality is the result of “relatively enduring patterns of thoughts, feelings, and behaviors” (Roberts *et al.*, 2010, p. 375); these patterns remain consistent in different situations. Originating from the Big Five-approach, which emerged from the trait theory, personality can be quantified as explained in the following chapters (McCrae – John 1992 cited after McCrae – Costa 2008).

1.4.2 Big Five model

The first research in individual personality differences could be found already in the late 19th century by Galton (psychometrics) and by Heymans (first large-scaled personality traits study). However, Allport with his work in the 1930s (1935, 798–844;

1936, 1-171; 1937, pp. 1–588) is considered as the first major trait theorist establishing traits as individual describable differences which can be measured by comparing and contrasting individuals (Sadock *et al.*, 2017, p. 2445).

Those identified individual difference-variables must not be regarded as stand-alone components. In fact, they are integrated in an individual's personality itself, which must be considered as a dynamic psychological system managing action and experience (McCrae and Costa, 2010b, p. 162).

The **Big-Five model** can be traced back to the lexical-approach by Allport and Odbert (1936, 38-171), who created an alphabetically sorted list of nearly 18,000 terms using the human language as a resource. These terms were categorized into the four main categories personal traits, temporary states, social evaluations and metaphorical/doubtful terms. Catell (1943, p. 476; 1945a, pp. 69–90; 1945b, p. 129) subsequently reduced Allport and Odbert's list to 4,500 trait terms and – on this base – developed the 16 personality-factor questionnaire. In Catell's work a relatively stable structure (five factors) could be verified repeatedly; which finally found its expression in the Big-Five approach. The core strength is that each of the five dimensions covers more specific personality traits; the approach deduces personality on a highly abstracted level (John and Srivastava, 2001, pp. 104–105). In the 1980s, the NEO Personality Inventory (NEO-PI) defined the three personality dimensions neuroticism, extraversion and openness to experience. Later in 1992, the (240-items) NEO-PI was supplemented with the dimensions conscientiousness and agreeableness (OCEAN-model). In the same year, a shortened version of the NEO PI-R, the NEO-FFI (60 items) was developed (Borkenau and Ostendorf, 2008, pp. 7–12; McCrae and Costa Jr, 1991, pp. 367–372; 2010b, pp. 159–160).

Furthermore, McCrae and Costa (1996, pp. 72–75; 2010b, pp. 162–165) provided a full personality system which integrates personality traits as core components (basic tendencies). This five-factor theory personality system (FFT personality system) is described as a dynamic psychological system for managing action and experience; this through interrelated dynamic processes between **six components**, which are explained in the following table:

Table 10: FFT personality system.

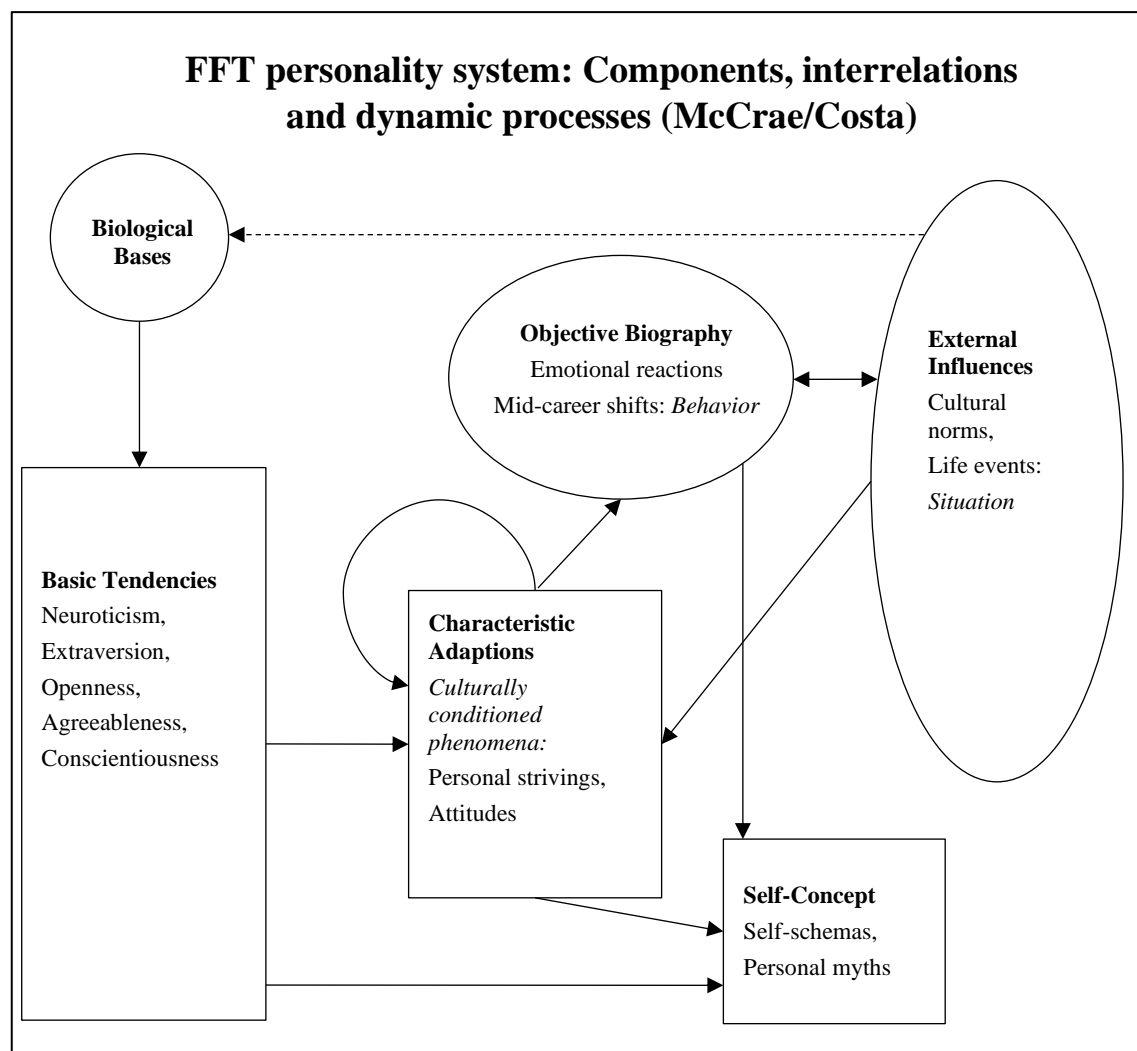
| Component | Description |
|---|---|
| 1) Basic tendencies (Core component) | <p>a) Individuality: Personality traits (patterns of thoughts, feelings and action) characterize adult individuals.</p> <p>b) Origin: The biological background of personality traits is influenced by external interventions, processes and events.</p> <p>c) Development: Personality traits are developed through intrinsic maturation and other biological processes. They develop through the whole lifespan, although stronger in the first third of the life.</p> <p>d) Structure: In the hierarchical trait system, the Big-Five neuroticism, extraversion, openness to experience, agreeableness and conscientiousness are on the top level.</p> |
| 2) Characteristic adaption (Core component) | <p>a) Adaption: Based on thoughts, feelings and behaviors individuals develop patterns as reaction to their environments. These patterns correspond with their personality traits and earlier adaption.</p> <p>b) Maladjustment: It may occur that individual tendencies disagree with cultural values or personal goals; further adaption is required.</p> <p>c) Plasticity: The individual characteristic adaption are subject to change over time. Changes are caused by biological maturation, social roles, expectations, environmental changes as well as deliberate interventions.</p> |
| 3) Objective biography (Interfacing component) | <p>a) Multiple determination: On various occasions, certain situations stimulate individual tendencies as a result of complex functions, which are influenced by past actions and experiences.</p> <p>b) Life course: Individual goals, plans and schedules are a precondition for acting in correspondence with ones individual personality traits.</p> |
| 4) Self-concept (Core component) | <p>a) Self-schema: Each individual disposes over a cognitive-affective view of himself or herself. This view can be accessed consciously.</p> <p>b) Selective perception: An individual's self-concept represents information selectively; this consistently with ones personality traits to give the individual a coherent sense.</p> |
| 5) External influences (Interfacing component) | <p>a) Interaction: The constant interaction between personality dispositions and the social and physical environment enables individuals to regulate their behavior in the context of the characteristic adaption.</p> <p>b) Apperception: The mental interpretation of the environment follows the individual's personality traits.</p> <p>c) Reciprocity: Individuals respond to their environment, which they in turn influence selectively.</p> |
| 6) Dynamic processes (Processes) | <p>a) Universal dynamics: Universal affective, cognitive and volitional mechanisms control and adjust continuously an individual's mental process of creating adaption, developing thoughts and feelings as well as expressing them in behavior.</p> <p>b) Differential dynamics: Mental processes are partially influenced by individual basic tendencies and personality traits.</p> |

Own editing based on McCrae and Costa, 1996, pp. 72–75; McCrae and Costa, 2010b, p. 165.

The interrelated components of the FFT personality system were visualized through rectangles as major components (basic tendencies and characteristic adaption,

the self-concept is a part), ellipses (interactional components) and arrows (dynamic processes). Essential in the model is the distinction between stable basic tendencies and characteristic adaptations: Personality traits as biologically based individual conditions affect the rest of the personality but personality traits themselves are not affected by the system. Moreover, characteristic adaptations (habits, values, skills, interests, beliefs, attitudes,...) are the result of the interaction between individual basic tendencies and external influencers, underlining the pervasive influence of personality traits (McCrae and Costa, 2013, pp. 18–19). The **FFT personality system**, its components and interrelations are summarized in the following figure:

Figure 3: FFT personality system.



Own editing based on McCrae and Costa, 2013, p. 19.

1.4.3 NEO Five-Factor Inventory (NEO-FFI)

Based on the Big Five framework, the standardized **NEO-FFI**, which was applied in the research project to raise personality traits in a standardized and established form, measures the five personality traits/dimensions openness to experience, conscientiousness, extraversion, agreeableness and neuroticism (OCEAN-model) using a 5-point Likert-scale. Furthermore, the NEO-FFI dimensions were replicated many times in the past, the underlying five-factor model originates from a transparent theoretical framework and it represents the most recognized personality concept in the field of personality research (Borkenau and Ostendorf, 2008, p. 3). Its reduced extent of 60 items (in comparison to the NEO-PI-R which additionally differentiates into facet subscales) allows to measure the characteristics of the big-five personality dimensions (basic tendencies as higher order dimensions) in an efficient way. These **dimensions** are summarized in the following table:

| Table 11: Big-five personality dimensions (OCEAN-model). | |
|--|--|
| Basic tendencies | Factor description |
| Neuroticism | This dimension refers to the chronic level of emotional adjustment and instability. Low values of self-esteem, tendencies to pessimistic attitudes and irrational perfectionism, prone to psychological distress, negative affectivity like angry hostility, depressiveness, anxiousness and volatility, vulnerability to stress, self-consciousness, excessive craving, urges, difficulty in tolerating the frustration caused by not acting on one's urges |
| Extraversion | The dimension refers to the quantity and intensity of preferred interactions, activity level, the need for stimulation and the capacity for joy. Pronounced social skills, large circle of friends, diverse vocational interests, participation in club activities and team sports, generally sociable, active, talkative, person-oriented, optimistic, fun loving, affectionate |
| Openness to experience | Openness to experience refers to intellectual suggests. It differs from ability and intelligence and is characterized by active seeking and appreciation of experiences. Manifold interests in miscellaneous hobbies, foreign cuisine as well as vocational and travel activities, curious, imaginative, strive for unconventional ideas and values |
| Agreeableness | This dimension refers to the kinds of interactions which an individual prefers. Strong forgiving-oriented attitudes, willingness to cooperate, use of inoffensive language, pushover reputation, softhearted, good-natured, trusting, helpful, forgiving, altruistic, eagerness to help others, emphatic |
| Conscientiousness | Conscientiousness relates to the degree of organization, persistence, control and goal-directed behavior. Pronounced leadership abilities, long-term planning orientation, support provided through a personal network, strong technical expertise, hardworking, self-directed, scrupulous, ambitious, persevering |

Own editing based on McCrae and Costa, 2010b, p. 164; Widiger and Costa, 2013, p. 4.

The five NEO-FFI personality dimensions, based on the test sample of 11,724 subjects, explained 37.39 % of the total variance. Limitations exist in context of this sample – different samples could show other factors (despite the multiple replications of the factors in the past). Still, a consistent interpretation of the dimensions is missing as other instruments indicate fewer dimensions. Moreover, it is not agreed upon the (merely) descriptive or the supplementary explanatory character of the dimensions (Borkenau and Ostendorf, 2008, p. 9; 2008, p. 19).

1.5 Relevant empirical results

1.5.1 *Predictors for money attitudes in general*

Research activities on money and money attitudes (including its predictors) can be found in a wide range of disciplines, i.e. psychology, psychiatry, neuroscience, economy, marketing and business sciences. Despite this **multidisciplinary** context, research results in the different disciplines show broad overlaps (Bijleveld and Aarts, 2014, p. 16). Nevertheless, an extensive analysis of literature in these fields was necessary to identify the relevant predictors for money attitudes in order to provide the comprehensive overview in the following chapters.

In general, **predictive factors** for money attitudes could be identified in the context of the personality and biographical conditions: The relevance of personality-related factors (e.g. self-esteem, need for achievement) as well as of attitudinal factors (not investigated in the current study) has been proven in the past; thus, results for personality factors indicate a mixed picture (Mitchell and Mickel, 1999, p. 574). Regarding biographical conditions, age, gender, educational level, income (inconsistent results), family values, ethnic background as well as religion were identified as the relevant predictive factors (Furnham, 2014, pp. 165–181; Li *et al.*, 2009, p. 99).

In order to structure the predictive factors in this section, the following subchapter focuses on empirical results which indicate that certain personality traits act as predictors for money attitudes. The next subchapter covers studies which focus on biographical variables as potential predictors. In the following, attitudinal and other factors with predictive power are presented. Finally, the relevance of money attitude as influencing factors for other variables is outlined in the last subchapter.

1.5.2 Personality traits as predictors

Previous research proves significant influences of personality on money attitudes and on behavior in monetary issues. It also must be pointed out that research in this area rather focuses on personality - behavior than on personality - attitudes relationships. Moreover, personality was measured through various tests: As not always the Big-Five concept was approached, the results show inhomogeneous personality dimensions in many cases. In order to allow a structured summary of the relevant empirical results, study results in this (and in the following subchapters) are presented in tabular form. The following research results indicate the influence of personality traits on money attitudes or on money-related behavior:

Table 12: Personality-related predictors.

| Source | Predictor |
|---|--|
| Brandstätter, 1996 <i>Netherlands</i> (<i>n</i> = 3,000 households) | Conscientiousness Highly conscientious persons disposed over a more positive attitude towards saving behavior. Furthermore, these persons saved more money and borrowed less money in comparison with others, which results from a stronger financial self-control ability. Moreover, conscientious individuals were found to rather avoid credit-card debt and they tended to use mental budgeting techniques. Lowly conscientious individuals (as well as strong believers in a relation between materialism and happiness) tended to show insufficient money management. |
| Brandstätter, 2005 <i>Germany, Netherlands</i> (<i>n</i> = 1,047 + 3,000 households) | |
| Brown and Taylor, 2014 <i>Great Britain</i> (<i>n</i> = 2,595 + 1,966 households) | |
| Donelly et al., 2012 <i>United States</i> (<i>n</i> = 936 + 993 adults and students) | |
| Elgeka et al., 2018 <i>China, Indonesia</i> (<i>n</i> = 168 + 180 students) | |
| Brandstätter and Güth, 2000 <i>Austria, Germany</i> (<i>n</i> = 115 + 50 students) | Extraversion Extraverted individuals rather tended to hold shares and credit-card debt. They were also found to show a lower sensitivity for (financial) punishment in an experimental saving game. |
| Brown and Taylor, 2014 <i>Great Britain</i> (<i>n</i> = 2,595 + 1,966 households) | |
| Brown and Taylor, 2014 <i>Great Britain</i> (<i>n</i> = 2,595 + 1,966 households) | Agreeableness Agreeable individuals showed a tendency towards holding shares. |

| | |
|--|--|
| <p>Brougham et al., 2011 <i>United States</i> (<i>n</i> = 628 students)</p> <p>Dittmar, 2005 <i>Great Britain</i> (<i>n</i> = 330 + 195 adolescents)</p> <p>Mowen and Spears, 1999 <i>United States</i> (<i>n</i> = 304 + 185 students)</p> <p>Nyhus and Webley, 2001 <i>Netherlands</i> (<i>n</i> = 3,000 households)</p> <p>Spinella and Lester 2005 <i>United States</i> (<i>n</i> = 67 students)</p> | <p>Neuroticism</p> <p>Highly neuroticistic and emotional instable persons tended to hold debt and to show compulsive buying behavior.</p> <p>Neuroticistic personalities showed higher impulsivity and lower motivational drive, organization scores and planning scores in the context of money.</p> |
| <p>Hanley and Wilhelm, 1992 <i>United States</i> (<i>n</i> = 100 + 43 normal consumers and compulsive spenders)</p> | <p>Self-esteem</p> <p>Normal customers showed higher self-esteem values than compulsive spenders; they also focused on the security aspect of money. Furthermore, compulsive spenders were more obsessed with money and they showed higher money-related levels of power, retention and inadequacy.</p> |
| <p>Furnham and Okamura, 1999 <i>Great Britain</i> (<i>n</i> = 256 adults)</p> | <p>Anxiety</p> <p>Individuals with negatively oriented personalities (tendencies towards anxiety, helplessness, depression and fear) linked those emotions with money, which increased the risk for developing money pathologies.</p> |
| <p>Belk, 1985 <i>United States</i> (<i>n</i> = 338 + 99 adults and students)</p> | <p>Materialism</p> <p>Persons with a materialistic-oriented personality perceived less happiness in life.</p> |
| <p>Wong and Carducci, 1991 <i>United States</i> (<i>n</i> = 233 students)</p> | <p>Risk tolerance</p> <p>A risk-seeking personality manifested in a high-risk behavior in the context of everyday money matters.</p> |
| <p>Brandstätter, 2005 <i>Germany, Netherlands</i> (<i>n</i> = 1,047 + 3,000 households)</p> | <p>Self-control</p> <p>A higher level of self-control at least indirectly led to a stronger pronounced saving behavior. Personality traits were related to financial attitudes and to time orientation.</p> |
| <p>Lau, 1998 <i>China</i> (<i>n</i> = 378 + 467 + 1,463 children and adults)</p> | <p>Personal characteristics and values</p> <p>Personal characteristics and values as well as moralistic and evaluative components, which had been developed through the socialization process, influenced individual money attitudes.</p> |

Own editing based on Belk, 1985, p. 274; Brandstätter, 1996, n. p.; Brandstätter and Güth, 2000, pp. 476–478; Brandstätter, 2005, pp. 83–85; Brougham *et al.*, 2011, pp. 82–83; Brown and Taylor, 2014, pp. 197–212; Dittmar, 2005, p. 472; Donnelly *et al.*, 2012, pp. 1129–1142; Elgeka *et al.*, 2018, pp. 29–34; Furnham and Okamura, 1999, pp. 1173–1175; Hanley and Wilhelm, 1992, pp. 5–18; Lau, 1998, p. 305; Mowen and Spears, 1999, pp. 425–426; Nyhus and Webley, 2001, 100-101; Spinella and Lester, 2005, p. 782; Wong and Carducci, 1991, p. 529.

Empirical results therefore indicate significant predictive power of certain Big-Five personality traits on money attitudes or money-related behavior: However, it is noteworthy, that the personality dimension **openness to experience** seemed not to be

relevant in that context. High-scoring individuals in the **conscientiousness** dimension showed better financial self-control (less credit-card debt, stronger saving behavior), while the reverse was the case for low-scorers which tended to show comparably poor money management (Brandstätter, 1996, n. p.; Brandstätter, 2005, pp. 83–85; Brown and Taylor, 2014, pp. 197–212; Donnelly *et al.*, 2012, pp. 1129–1142). For **extraversion**, empirical results showed a tendency of extraverted persons to hold shares and credit-card debt. Also, these persons rather endured (financial) punishments (Brandstätter and Güth, 2000, pp. 476–478; Brown and Taylor, 2014, pp. 197–212). A willingness to hold shares also was found for high-scorers in the **agreeableness** dimension (Brown and Taylor, 2014, pp. 197–212). Negatively occupied monetary behaviors (i.e. indebtness, compulsive buying as well as higher money-related impulsivity and lower money-related motivational drive, organization and planning) seemed to rather occur for highly **neuroticistic** individuals (Brougham *et al.*, 2011, pp. 82–83; Dittmar, 2005, p. 472; Mowen and Spears, 1999, pp. 425–426; Nyhus and Webley, 2001, 100-101; Spinella and Lester, 2005, p. 782).

Due to the lack of research in the context of the specific research questions (i.e. the influence of the Big-Five personality traits on money attitudes), the author conducted an initial quantitative study among Austria business students ($n = 83$). Additionally to the study results in the table above, a tendency of less experience-opened and less agreeable individuals towards associating money with a power-prestige attitude could be found. Moreover, research results indicated that a highly neurotic or conscientiousness personality structure predicts a stronger anxiety-related money attitude (Furtner, 2017, pp. 95–97).

1.5.3 *Biographical variables as predictors*

A vast amount of research for biographical related variables exists. Therefore, the following tables are structured based on the underlying biographical variable. Consequently, it was focused on the most relevant study results.

In the first table, research evidence that investigated the predictive power of gender for money attitudes is presented:

Table 13: Biographical-related predictors (gender).

| Source | Predictor |
|---|--|
| <p>Chi and Banerjee, 2013 <i>United States</i> (n = 224 students)</p> <p>Fünfgeld and Wang, 2008 <i>Switzerland</i> (n = 1,282 adults)</p> <p>Lim et al., 2003 <i>Singapore</i> (n = 605 adults)</p> <p>Özgen and Bayoğlu, 2005 <i>Turkey</i> (n = 300 students)</p> | <p>Males, females and anxiety</p> <p>Opposite results exist: In most studies, females showed stronger anxious and worrisome money attitudes. Though, one study in Singapore indicated the contrary.</p> <p>In one study, females were less interested in financial matters, more anxious and more prone for spending money.</p> |
| <p>Baker and Hagedorn, 2008 <i>Canada</i> (n = 200 adults)</p> <p>Hanashiro et al., 2004 <i>Japan, United States</i> (n = 208 + 170 students)</p> <p>Lim et al., 2003 <i>Singapore</i> (n = 605 adults)</p> <p>Sabri et al., 2006 <i>Malaysia</i> (n = 120 adults)</p> <p>Simkiv, 2013 <i>Ukraine</i> (n = 246 adults)</p> <p>Watson et al., 2004 <i>United States</i> (n = 418 students)</p> | <p>Males and Power, prestige, success</p> <p>Males focused stronger on the power dimension of money and they valued money higher.</p> <p>Moreover, they perceived money as an indicator of successfulness and as a tool to influence others.</p> |
| <p>Chavali and Mohanraj, 2016 <i>India</i> (n = 101 adults)</p> <p>Furnham, 1985 <i>Great Britain</i> (n = 256 adults)</p> <p>Hanashiro et al., 2004 <i>Japan, United States</i> (n = 208 + 170 students)</p> <p>Lim et al., 2003 <i>Singapore</i> (n = 605 adults)</p> | <p>Females and saving attitude</p> <p>Females focused stronger on the saving and budgeting dimension of money.</p> <p>They also showed other investment patterns (i.e. preferred form of investment) than men.</p> |
| <p>Furnham, 1984 <i>Great Britain</i> (n = 256 adults)</p> <p>Lim and Teo, 1997 <i>Singapore</i> (n = 152 students)</p> <p>Sabri et al., 2006 <i>Malaysia</i> (n = 120 adults)</p> | <p>Males, females and money obsession</p> <p>Females with Protestant work ethic beliefs were strongly obsessed with money.</p> <p>Males tended to perceive money as an instrument for comparison and evaluation and they were found to be more obsessed with money than woman in general.</p> |

| | |
|---|--|
| Furnham, 1984 <i>Great Britain</i> (<i>n</i> = 256 adults) | Females and conservative, retentive money attitudes Females (with higher education) showed conservative and retentive money attitudes. |
| Furnham, 1984 <i>Great Britain</i> (<i>n</i> = 256 adults) | Females and effort, ability Females (especially with Protestant work ethic beliefs) assumed that ability and effort are major factors for acquiring money. |
| Furnham and Okamura, 1999 <i>Great Britain</i> (<i>n</i> = 277 adults) | Females believed that money is not made only randomly – it requires effort. |
| Furnham and Okamura, 1999 <i>Great Britain</i> (<i>n</i> = 277 adults) | Males and materialism Males showed a stronger materialistic attitude towards money. |
| Furnham and Okamura, 1999 <i>Great Britain</i> (<i>n</i> = 277 adults) | Females and moral risks Females tended to avoid moral risks in the context of money. |

Own editing based on Baker and Hagedorn, 2008, pp. 1808–1812; Chavali and Mohanraj, 2016, pp. 171–175; Chi and Banerjee, 2013, p. 76; Fünfgeld and Wang, 2009, pp. 118–122; Furnham, 1984, p. 506; Furnham, 1985, pp. 360–371; Furnham and Okamura, 1999, pp. 1173–1174; Hanashiro *et al.*, 2004, pp. 42–45; Lim and Teo, 1997, pp. 378–385; Lim *et al.*, 2003, pp. 420–427; Özggen and Bayoğlu, 2005, pp. 496–500; Sabri *et al.*, 2006, p. 124; Simkiv, 2013, pp. 39–44; Watson *et al.*, 2004, pp. 282–287.

The predictive power of gender on certain money attitudes could be found as follows: In the studies listed in the table above, females tended to show stronger **anxiety**-related money attitudes than men; although one study indicated the contrary (Chi and Banerjee, 2013, p. 76; Fünfgeld and Wang, 2009, pp. 118–122; Lim *et al.*, 2003, pp. 420–427; Özggen and Bayoğlu, 2005, pp. 496–500). Moreover, men associated money significantly stronger with **power** and **prestige**; they perceived it as a tool for influencing other people and for measuring success (Baker and Hagedorn, 2008, pp. 1808–1812; Hanashiro *et al.*, 2004, pp. 42–45; Lim *et al.*, 2003, pp. 420–427; Sabri *et al.*, 2006, p. 124; Simkiv, 2013, pp. 39–44; Watson *et al.*, 2004, pp. 282–287). Generally speaking, men seemed to be more obsessed with money showing pronounced materialistic money attitudes (Furnham, 1984, p. 506; Furnham and Okamura, 1999, pp. 1173–1174; Lim and Teo, 1997, pp. 378–385; Sabri *et al.*, 2006, p. 124). However, females focused stronger on the **retention-time** dimension of money by showing a stronger saving and budgeting attitude (Chavali and Mohanraj, 2016, pp. 171–175; Furnham, 1985, pp. 360–371; Hanashiro *et al.*, 2004, pp. 42–45; Lim *et al.*, 2003, pp. 420–427). This is supported by the research results which indicated that women disposed over more conservative, retentive money attitudes and they avoided moral risks. Also, females showed stronger beliefs of money being closely connected to effort and ability (Furnham, 1984, p. 506; Furnham and Okamura, 1999, pp. 1173–1174). Also in an author's study, a stronger focus

of males on the power-prestige money attitude dimension was found (Furtner, 2017, pp. 95–97) supporting the comparable results in the literature mentioned above. In the following table, research evidence investigating the predictive power of age on money attitudes is summarized:

| Table 14: Biographical-related predictors (age). | |
|---|---|
| Source | Predictor |
| Bailey and Lown, 1993 <i>United States, Great Britain</i> <i>(n = 654 + 256 adults)</i> Chavali and Mohanraj, 2016 <i>India</i> <i>(n = 101 adults)</i> Fünfgeld and Wang, 2008 <i>Switzerland</i> <i>(n = 1,282 adults)</i> Lau, 1998 <i>China</i> <i>(n = 378 + 467 + 1,463 children and adults)</i> Simkiv, 2013 <i>Ukraine</i> <i>(n = 246 adults)</i> | Younger age group Money attitudes are developed through socialization: Children perceived money as functional while adults acquired feelings toward money. Compared to the other age groups, younger individuals (17-30 years) in general were more optimistic regarding their financial future. Moreover, younger individuals (20-25 years) more strongly perceived money as a tool for earning respect in society (e.g. making friends, attracting respect, expressing skills and competencies). Consequently, younger individuals (18-35 years) were also found to show a stronger consuming-oriented money attitudes than the other age groups. Persons in the younger age group (21-30 years) were found to be risk tolerant in monetary decisions. |
| Tang et al., 2014 <i>Spain</i> <i>(n = 1,011 adults)</i> | Middle age group In a Spain study, middle aged individuals (30-44 years) were found to be materialistic-oriented and show the most pessimistic perception about their financial situation. |
| Bailey and Lown, 1993 <i>United States, Great Britain</i> <i>(n = 654 + 256 adults)</i> Baker and Hagedorn, 2008 <i>Canada</i> <i>(n = 200 adults)</i> Chavali and Mohanraj, 2016 <i>India</i> <i>(n = 101 adults)</i> Fünfgeld and Wang, 2008 <i>Switzerland</i> <i>(n = 1,282 adults)</i> Furnham, 1984 <i>Great Britain</i> <i>(n = 256 adults)</i> Furnham, 1985 <i>Great Britain</i> <i>(n = 256 adults)</i> Tang and Gilbert, 1995 <i>United States</i> <i>(n = 155 adults)</i> | Older age group Older individuals (50+ years) showed the most concerns regarding their financial future in Great Britain (comparable results could not be found in a United States sample). Anxious saving money attitudes and avoidance of excessive spending could be found primarily in the elderly age group (50+ years). Furthermore, older individuals (50+ years) believed in the benefits of saving (prospect of wealth), saved regularly in life insurances or bonds and they also recommended investments in property and art. Compared to younger persons, older individuals showed a significantly stronger planning-saving oriented money attitude, while they focused less on the power-prestige, the frugality-distrust and the anxiety dimensions of money. Persons in the older age group (60+ years) were found to avoid risks in monetary decisions. |

Own editing based on Bailey and Lown, 1993, pp. 392–400; Baker and Hagedorn, 2008, pp. 1808–1812; Chavali and Mohanraj, 2016, pp. 171–175; Fünfgeld and Wang, 2009, pp. 118–122; Furnham, 1984, p. 506; Furnham, 1985, pp. 360–371; Lau, 1998, p. 305; Simkiv, 2013, pp. 39–44; Tang and Gilbert, 1995, pp. 329–331; Tang *et al.*, 2014, pp. 491–502.

For children, money had merely a functional meaning. Younger individuals (after childhood), compared to older age groups, tended to be more optimistic about their financial future, they focused more on the **power-dimension** of money (e.g. earning respect through money) and they showed a stronger consumer-oriented approach. Moreover, young people were more opened for taking financial risks (Bailey and Lown, 1993, pp. 392–400; Chavali and Mohanraj, 2016, pp. 171–175; Fünfgeld and Wang, 2009, pp. 118–122; Lau, 1998, p. 305; Simkiv, 2013, pp. 39–44). At least in one study, middle-aged persons were stronger materialistic-oriented and pessimistic about their financial situation (Tang *et al.*, 2014, pp. 491–502). Older individuals tended to concern stronger about their financial future in Great Britain (not in the United States) and they generally showed pronounced **anxiety**-related money attitudes. Moreover, elderly persons disposed over strong **saving** attitudes, while avoiding risks (Bailey and Lown, 1993, pp. 392–400; Baker and Hagedorn, 2008, pp. 1808–1812; Chavali and Mohanraj, 2016, pp. 171–175; Fünfgeld and Wang, 2009, pp. 118–122; Furnham, 1984, p. 506; Furnham, 1985, pp. 360–371; Tang and Gilbert, 1995, pp. 329–331).

The following table shows educational-specific differences and their effect on money attitudes and financial behavior based on empirical study results:

| Table 15: Biographical-related predictors (educational level). | |
|---|--|
| Source | Predictor |
| Baker and Hagedorn, 2008 <i>Canada</i> (<i>n</i> = 200 adults) | Lower education (e.g. high school) Lower educated persons significantly less showed a retention-time oriented (saving-oriented) money attitude. They strongly believed that saving is rather pointless, benefits little and does not contribute to wealth accumulation. Furthermore, they were more obsessed with money and prepared to use it for power. Less educated individuals perceived themselves poorer in the childhood in comparison to better educated persons. Furthermore, lower educated individuals were more concerned about their financial future and they showed a stronger strive for money. Lower educated persons also showed a higher risk of unreasonable financial management. |
| Fünfgeld and Wang, 2008 <i>Switzerland</i> (<i>n</i> = 1,282 adults) | |
| Furnham, 1984 <i>Great Britain</i> (<i>n</i> = 256 adults) | |
| Furnham, 1985 <i>Great Britain</i> (<i>n</i> = 256 adults) | |
| Roberts and Sepulveda, 1999 <i>Mexico</i> (<i>n</i> = 274 adults) | |
| Simkiv, 2013 <i>Ukraine</i> (<i>n</i> = 246 adults) | |

| | |
|--|---|
| Baker and Hagedorn, 2008 <i>Canada</i> (<i>n</i> = 200 adults) | Higher education (e.g. university education) |
| Furnham, 1984 <i>Great Britain</i> (<i>n</i> = 256 adults) | Persons with higher educational level significantly stronger focused on the retention-time (saving) dimension of money. A comparable results was also found for moderate educated individuals in another study. |
| Furnham, 1985 <i>Great Britain</i> (<i>n</i> = 256 adults) | Moreover, highly educated women showed stronger conservative and retentive money attitudes. |
| Górniak, 1999 <i>Poland</i> (<i>n</i> = 1,007 adults) | Better educated individuals showed lower risks for experiencing negative financial events (e.g. bankruptcy, denial of credit). |
| Roberts and Sepulveda, 1999 <i>Mexico</i> (<i>n</i> = 274 adults) | Furthermore, individuals with a higher socio-economic status (e.g. higher educational level) rather sought and evaluated investment possibilities for further profits. |
| Stumm et al., 2012 <i>Great Britain</i> (<i>n</i> = 109,033) | Higher educated individuals in general preferred investments (e.g. property, shares) for saving purposes. |

Own editing based on Baker and Hagedorn, 2008, pp. 1808–1812; Fünfgeld and Wang, 2009, pp. 118–122; Furnham, 1984, p. 506; Furnham, 1985, pp. 360–371; Górniak, 1999, pp. 634–644; Roberts and Sepulveda, 1999, pp. 28–34; Simkiv, 2013, pp. 39–44; Von Stumm *et al.*, 2013, pp. 346–348.

The empirical results indicate pronounced differences between lower and higher educated persons: Lower educated individuals scored lower in the **saving** dimension, while they strongly strived for money, were more obsessed with money in general and were accessible for a **power-prestige** related money attitude to a greater extent. Moreover, they stated that they were poorer during their childhood and unsecure about their financial future. Also the risk of unreasonable financial behavior was more pronounced for lower educated persons (Baker and Hagedorn, 2008, pp. 1808–1812; Fünfgeld and Wang, 2009, pp. 118–122; Furnham, 1984, p. 506; Furnham, 1985, pp. 360–371; Roberts and Sepulveda, 1999, pp. 28–34; Simkiv, 2013, pp. 39–44). On the contrary, higher educated individuals (in one study also moderate educated individuals) showed stronger **saving**-oriented money attitudes and lower risks for negative financial events. They tended to invest their financial reserves and to evaluate different investment possibilities. In one study, highly educated women were found with pronounced conservative and retentive money-related attitudes (Baker and Hagedorn, 2008, pp. 1808–1812; Furnham, 1984, p. 506; Furnham, 1985, pp. 360–371; Górniak, 1999, pp. 634–644; Roberts and Sepulveda, 1999, pp. 28–34; Von Stumm *et al.*, 2013, pp. 346–348).

Moreover, culture-related and country-specific differences were identified in comparative studies as summarized in the table below:

| Table 16: Biographical-related predictors (culture/nationality). | |
|--|--|
| Source | Predictor |
| Furnham et al., 1994 <i>140 countries</i> (<i>n</i> = approx. 12,000 students) | <p>European and Non-European countries</p> <p>In a worldwide comparison, subjects in the European countries scored lower on competitiveness (strive to outperform others), they attached less importance to money and they showed a less pronounced saving attitude.</p> <p>In North and South American countries, people scored highest in the dimensions work ethic (positive attitude towards work) and mastery (self-control in challenging tasks).</p> <p>Comparably high values for competitiveness and acquisitiveness were found in Far and Middle Eastern countries.</p> |
| Hanashiro et al., 2004 <i>Japan, United States</i> (<i>n</i> = 208 + 170 students) | <p>Japanese and Asian Americans</p> <p>Asian American students (in the United States) significantly stronger valued their personality and status based on money than the Japanese students (e.g. money as a tool for buying friendship or controlling people). Moreover, Japanese students focused stronger on the saving dimension of money.</p> <p>The pronounced male orientation towards the power-prestige money attitude and the female orientation towards the saving dimension were found in both countries.</p> |
| Tung and Baumann, 2009 <i>Australia, Canada, China</i> (<i>n</i> = 175 + 195 + 322) | <p>Overseas Chinese and Chinese in China</p> <p>Overseas Chinese oriented strongly towards the values and behaviors of their ancestors (independently from the country of birth). In general, Chinese and Caucasians showed distinct money values and attitudes.</p> |
| Elgeka et al., 2018 <i>China, Indonesia</i> (<i>n</i> = 168 + 180 students) | <p>Indonesians and Chinese</p> <p>Indonesians tended to focus on the time-retention and conscientiousness money attitude dimensions, while Chinese individuals showed pronounced power-spending, distrust and (as well) conscientiousness oriented money attitudes.</p> |

Own editing based on Elgeka *et al.*, 2018, pp. 29–34; Furnham *et al.*, 1994, pp. 125–131; Hanashiro *et al.*, 2004, pp. 42–45; Tung and Baumann, 2009, pp. 2388–2397.

Although comparative studies among different countries in the field of money attitudes are rare, the results underline their importance: A worldwide study comprising 140 countries identified substantial differences between European countries (less competitiveness, less money importance, less saving attitude), American countries (higher work ethic, higher mastery) and Far and Middle Eastern countries (higher competitiveness, higher acquisitiveness) (Furnham *et al.*, 1994, pp. 125–131). Asian Americans in the United States e.g. focused stronger on the status dimension of money (comparable to the **power-prestige** dimension) than Japanese persons did (Hanashiro *et al.*, 2004, pp. 42–45). On the contrary, overseas Chinese persons showed less adaption;

they strongly orientated towards the money attitudes and behaviors of their ancestors (Tung and Baumann, 2009, pp. 2388–2397). Moreover, country-specific differences in terms of money attitudes were found between Indonesians and Chinese in another study (Elgeka *et al.*, 2018, pp. 29–34).

1.5.4 *Other variables as predictors*

Besides the aforementioned variables, additional variables with predictive potential could be identified. The explained independent variables in this subchapter are based on inconsistent or statistically weak past results or they are beyond the scope of the present study.

It is noteworthy that **income** seems to be less relevant for predicting money as one might expect (Baker and Hagedorn, 2008, pp. 1808–1812). In another study, it just showed a minimal influence on money attitudes (Bailey and Lown, 1993, pp. 392–400). In Furnham's (1984, pp. 506–509) study, higher income individuals worried less about their financial situation, while other relationships could not be found in this context.

On base of a large British sample, no significant influence of income on money attitudes could be identified (Von Stumm *et al.*, 2013, p. 348). Also in a later British study, no effect of income on financial distress, which is linked to general money attitudes, was found (Fenton-O'Creevy and Furnham, 2021, pp. 138–148). A weak but significant effect was found for lower income in Poland: Persons with lower income rather associated money with power and also with evil and anxiety (Gasiorowska, 2015, p. 206). A study in the Ukraine showed that persons with lower income perceived money more negatively; they also strongly focused on the power-prestige dimension of money (Simkiv, 2013, pp. 39–44). Furthermore, persons with higher income used other investment possibilities, while the general saving attitude was found to be comparable between lower and higher income groups (Furnham, 1985, pp. 360–371).

Political values affected voters regarding their expectation of their personal financial future: For example, American Conservatives were more optimistic about their personal financial future than American Liberals (Bailey and Lown, 1993, pp. 392–400). In another study, British Conservative voters believed stronger in the benefits of saving than British Labour voters (Furnham, 1985, pp. 360–371). In a British survey, more right wing political oriented participants e.g. rather kept track on their monetary status and

showed stronger financial planning behavior (Fenton-O'Creevy and Furnham, 2020, 12). Further, right wing-oriented individuals associated money strongly with power and freedom (Lay and Furnham, 2018, pp. 813–822).

Occupational differences also were explained through the working sector: Private and governmental workers differed in the money attitude dimensions retention, power, security and effort/ability. While private sector workers focused on the power/status dimension of money, governmental workers scored higher in the retention dimension (Sabri *et al.*, 2006, pp. 124–129).

Mixed results were found regarding the influence of **religion** on money attitudes. Intrinsic religious oriented (religion is an ideational, master-motive in life) and extrinsic religious oriented (religion as a mean to other nonreligious ends, e.g. social networking) persons showed different money attitudes in one study: A higher intrinsic religious orientation, in particular, predicted a reduced strive for money as well as less pronounced narcissism (Watson *et al.*, 2004, pp. 282–287). Another British study, which investigated different biographical variables, found no significant predictive power of religion on money attitudes and behavior (Fenton-O'Creevy and Furnham, 2020, 10). The opposite was the case in an international study that identified a negative relation between religious values and money-related power and achievement (Lay and Furnham, 2018, pp. 813–822). On base of an innovative study design, a U.S. study showed an effect: Recalling the Ten Commandments was negatively related to the strive for making money (Tang, 2016, pp. 583–603). Further, an Iranian study is noteworthy which identified a strong and specific influence of the Islamic religious background of the Iranian participants on their money attitudes (Talaie and Kwantes, 2016, p. 270).

All variables which are mentioned in this subchapter were excluded from the research for various reasons: Income was identified without (or just with weak) statistical predictive relevance. The student sample would not have provided a profound basis for measuring income and occupational background due to the student-specific frameworks. Considering the diverse political backgrounds of the analyzed countries, research on political values and their predictive role alone would constitute the base for a further comprehensive research project. Considering the mixed results and the diverse religious backgrounds of the student subsamples in the different countries, it was also decided to exclude religious values.

2 Aim of the thesis

2.1 Research questions

Main research topic of this work is to analyze selected **predictors for money attitudes** of individuals. The focus regarding the predictors investigated is on **personality traits** and, furthermore, on **biographical variables** (e.g. gender, age). Moreover, a cross-national comparison across the chosen European countries should provide further insights concerning country-specific differences.

Previous research on money attitude partly shows different results regarding the influence of certain factors on money attitude. In addition, studies in the field of money attitude are rare in most of the European countries. Therefore, the comparison to existing results of studies, especially those which were conducted in other parts of the world, could provide new research findings.

Practical significance of the research results is given for business and the marketing industry. In that context, more specific marketing measures which are oriented towards the identified money attitude predictors can help, for example, to target potential customers more precisely.

From the (opposite) individual consumer perspective, practical relevance of the research topic can be identified in the context of a self-critical psychological process. Enhanced awareness for one's own personality and biographical background allows to critically question oneself in the context of e.g. money spending habits or individual investment behavior. As a result, this reflection process provides substantial potential for improving an individual's money management. Furthermore, a defense strategy against possible financially hazardous behavior, like compulsive spending or compulsive gambling, can be built.

In a first step, it was essential to outline and divide the research topic into relevant fields which served as the basis for the section "Current state of the theme". In this context, the following **research questions** were defined:

1. What are the different perspectives on money and how is money defined?
2. What is the concept of attitudes and how is it defined?
3. What is understood by the concept of money attitude?

4. How can money attitudes be measured and what are the strengths and weaknesses of the testing instruments available?
5. What is the concept of personality traits and how are personality traits defined?
6. What are the most important predictors that influence an individual's money attitudes and do relevant empirical results support their significance?
7. How can the results of the quantitative study be used in business activities and from an individual's perspective?

2.2 Research objectives

The primary objective of this work was to analyze the influence of the possible predictors personality traits and biographical factors on money attitudes. Based on an ex post facto research design, well-established and standardized test instruments (NEO-FFI, MAS) were used to collect the relevant data through a comprehensive online survey in a defined sample.

Secondary objectives of the work are outlined as follows:

- To illustrate the different perspectives on money.
- To present relevant definitions for money.
- To outline the concept of attitudes in general.
- To assess the relationship between attitudes and behavior.
- To describe the concept of money attitudes.
- To present relevant definitions for money attitudes.
- To describe and evaluate testing instruments for measuring money attitudes.
- To illustrate the concept of personality traits.
- To define personality and personality traits.
- To describe and evaluate the NEO-FFI.
- To identify possible predictors for money attitudes.
- To summarize existing studies which examine possible money attitudes predictors.

- To identify factors that influence money attitudes in the present sample among students.
- To compare the present study results among students in the selected European countries to existing research in other parts of the world.
- To derive practical recommendations for business purpose one the one hand and for individuals on the other hands based on the study results.
- To outline limitations of the study conducted.
- To illustrate potential for further research in the context of the research project.

2.3 Research hypotheses

Derived from the research objectives, the following **main hypotheses** are critically examined in the research project:

- H1: Biographical variables significantly influence students' money attitudes.
- H2: Personality traits significantly influence students' money attitudes.
- H3: Money attitude factors and their predictors show country-specific differences among students.

All detailed working hypotheses are presented in Appendix A of the work.

3 Methodology of the thesis and research methods

3.1 Introduction

The main goal of the research project was to investigate the influence of the predictive factors personality traits and biographical attributes on money attitudes in a scientifically profound way. As described in the previous section, existing research evidence supported the relevance of the investigated variables. For this purpose, the used **research methodology** is described in this section.

Specifically, the chosen research design, research instruments, research subjects, research hypotheses and methods of analysis are explained in detail in the following subchapters.

When developing the study design, it was necessary to find a compromise that combines the measurement of the most relevant predictive variables (based on the literature) with the practical application of the multinational survey (e.g. acceptable time requirements for conducting the online survey from the point of view of the study participants).

Thus, it must be pointed out that other variables than those mentioned in the research hypotheses are not integrated in the research design: This concerns, for example, other potentially relevant factors like self-esteem (Hanley and Wilhelm, 1992, pp. 5–18), risk attitude (Wong and Carducci, 1991, p. 529), negative emotions (Furnham and Okamura, 1999, pp. 1173–1175) or materialistic attitudes (Belk, 1985, p. 274). Further, non-investigated comparable predictive factors are work experience, socioeconomic level and social, political and religious values (Medina *et al.*, 1996, pp. 124–145).

To meet the research goals of the study, a **quantitative approach** was chosen: The existing literature in the field already showed the existence of relevant predictors for money attitudes in different parts of the world. In this **cross-sectional** study, comparable effects should be investigated in selected European countries: Thus, the intended generalization and conformation of the obtained data (Haq, 2015, p. 4) indicated a quantitative study design, which allows to analyze the empirical results in a scientific rigorous and clarified way (Murray and Beglar, 2009, p. 43). Moreover, the existing testing instruments in the form of standardized and well-established surveys (i.e.

NEO-FFI, MAS) strongly supported a quantitative approach to allow comparative analysis and, subsequently, the testing of hypotheses based on numerical data (Muijs, 2004, p. 7).

As, in this study, relationships between independent and dependent variables were investigated on base of already existing data, research was built on an **ex post facto** research design (Helfrich, 2015, p. 110). Hence, the analyzed effects already had existed before the underlying causes were explored in the research process (Rack and Christophersen, 2009, p. 18).

As discussed in the previous sections, many relevant studies in the literature were based on ad-hoc student samples. A similar sampling approach of **ad-hoc student samples in multiple European countries** in a one-shot survey design was chosen for this study to allow comparison with already existing study results (especially of student samples). Furthermore, this approach allowed the practical implementation of the study with adequate resources as true random samples of the countries' populations would hardly be available without extensive support of governmental institutions in each of the countries investigated.

The development of the research base, especially the selection of the country-specific subsamples, was based on two main considerations: First, countries with diverse or even contrary economic, political and cultural frameworks were included in the research to create a basis that allows (after controlling the other investigated biographical variables and the personality traits) the identification of country-specific money attitudes. The economic backgrounds vary from mid-European ecosocial market economy (Austria), transition economies in Central and Eastern Europe (Albania, Croatia, Slovakia) to the central driven Turkish boost economy. Politically, the spectrum reaches from mature democratic countries (Austria), more recent emerged democratic states (Albania, Croatia, Slovakia) to a de facto presidential system (Turkey). All investigated countries dispose over rich and diverse cultural heritages e.g. from post-socialism influenced societies with different cultural backgrounds (Albania, Croatia, Slovakia) to a strong Islam-dominated culture (Turkey). Second, practical research considerations had to be included: In comparison to other parts of the population, student samples are more easily accessible by using university networks. Clearly, as stated in the limitations, the student samples potentially lead to statistical biases as students represent an atypical

group of the population (different income situation, above-average educational level, younger age structure).

One last consideration was the objective of minimizing the random error. This was achieved through the collection and consideration of possible confounders as far as possible (e.g. gender of the participants). However, it must be stated that it was not possible to raise all possible confounders due to practical limitations (e.g. the participants did not dispose over extensive time resources for completing the online survey).

3.2 Research instruments

3.2.1 *Structure of the online survey*

The online-survey (created with the software EvaSys Survey Grid) covered **three parts**:

- Self-developed biographical items (gender, age, highest completed level of education, home university, nationality), 5 items
- NEO Five-Factor Inventory (NEO-FFI), 60 items (McCrae and Costa, 2010a, pp. 1–145)
- Money Attitude Scale test (MAS), 29 items (Yamauchi and Templer, 1982, pp. 522–528)

In all countries, the items were provided in English language to avoid translation-related room for interpretation. Due to the academic background of the study participants, adequate English language skills for completing the survey were available. Furthermore, foreign students in the sample in some cases did not speak the local languages as most of the included universities additionally offered several international study programs in English language. To improve the understandability of the survey the original items were supplemented with English glossary terms.

The online-survey is provided in Annex B. Due to copyright reasons it was not allowed to list the NEO-FFI items in detail in the Annex.

3.2.2 *Biographical items*

The queried biographical predictors (i.e. **gender, age, highest completed level of education, home university, nationality**) were selected as a result of the literature

analysis. To measure them, five referring items were self-developed. Those items were formulated as clear and concise as possible in English language.

The response categories of the items were classified with regard to the student sample (e.g. nationality categories were reduced to the most occurring nationalities in the sample). Especially, it was necessary to distinguish between home university and nationality on base of two different items as also international students were included in the sample.

3.2.3 *NEO Five-Factor Inventory (NEO-FFI)*

The applied NEO-FFI (second part in the online-survey) is based on the widely-recognized “Five-Factor Theory Personality System”, which originated from the trait theory. Nowadays, the Big Five-approach is the most suitable and comprehensive personality model in the scientific community (Friedman *et al.*, 2004, p. 346). As described in detail in the first section, 60 items measure the five personality traits **openness to experience, conscientiousness, extraversion, agreeableness and neuroticism** on a five-point Likert-scale (McCrae and Costa, 2010a, pp. 1–145). Due to copyright reasons, it was not allowed to show the detailed items. Therefore, a reduced overview of the NEO-FFI is presented in Appendix B. The strengths, relevant considerations for the choice of the instrument and its limitations are summarized in chapter 1.4.3 of the thesis.

To ensure **objectivity**, standardized survey instructions and standardized item sequence (as in the original NEO-FFI) were applied on base of the test manual (McCrae and Costa, 2010a, pp. 1–145). Furthermore, the numerical Likert-scale based results were analyzed through well-established methods of analysis with statistical software. Potential limitations could occur in the context of the participants’ differing English levels (as the items were presented in English language) or due to different thoroughness in completing the test.

Based on factor analysis, additional evaluation through the participants’ friends and further comparison with scales of adjectives the NEO-FFI showed adequate **construct validity** (Borkenau and Ostendorf, 2008, pp. 19–28). In particular, 37.39 % of the total variance of the NEO-FFI could be explained in a sample of 11,724 subjects (Borkenau and Ostendorf, 2008, p. 19). Furthermore, cross-cultural and international

application of the NEO-FFI strongly supported the underlying factor structure. Therefore, a broad use among different cultures and countries of the test instrument is practicable (Boyle *et al.*, 2015, p. 767; Cheung *et al.*, 2003, p. 435). The possibility of varying results in different samples (although the multi-cultural replication of the factors in various studies), the inconsistent interpretation of the test dimensions in the literature and other instruments indicating less personality dimensions must be considered with regard to the test limitations (Borkenau and Ostendorf, 2008, pp. 9–10).

Optimal **internal consistency reliability** can be assumed with Cronbach- α values above 0.80 for research purposes or above 0.90 in the case of clinical application (Streiner, 2003, p. 103), while a value above 0.70 can still be considered as acceptable (Muijs, 2004, p. 73). Empirical study results indicated in most studies sufficient internal consistency for the NEO-FFI. However, some Cronbach- α values were slightly below the threshold value of 0.70:

- In the large ($n = 11.724$) multi-national sample (Germany, Austria, Switzerland) which acted as the basis for the development of the German NEO-FFI version a total Cronbach- α value of 0.80 was computed (Cronbach- α values of the factors ranged from 0.72 to 0.87). Furthermore, a **test-retest reliability** of 0.77 was measured two years later in a sample of 146 participants (Borkenau and Ostendorf, 2008, p. 18).
- Another multi-national study applied the NEO-FFI (among other personality testing instruments) in Poland ($n = 350$), Czech Republic ($n = 945$) and Slovakia ($n = 516$). Cronbach- α were calculated in the range from 0.60 to 0.86. The lower values were found in the openness to experience and the agreeable dimensions (Hřebíčková *et al.*, 2002, p. 75).
- In a Swiss ($n = 1090$) and a Spanish sample ($n = 1006$), Cronbach- α values in the range from 0.71 to 0.85 were found, while the differences between the two samples in the parallel measurement were marginal (Aluja *et al.*, 2005, p. 601).
- In an initial study which was conducted by the author based on a sample of Austrian business students ($n = 83$) a total NEO-FFI Cronbach- α value of 0.76 (range from 0.68 to 0.82) was computed (Furtner, 2017, p. 54).

3.2.4 *Money Attitude Scale Test (MAS)*

The standardized MAS with its general focus measures the four money attitude factors **power-prestige, retention-time, distrust and anxiety**. Due to its well-tested validity and high reliability, the MAS is a well-recognized and broadly used instrument for measuring individual money attitudes comprehensively (Blaszczynski and Nower, 2010, pp. 685–686). For this research, the full original 29-item version was used. The quality-dimension (related items loaded also on the power-prestige dimension) was excluded as proposed by the authors of the test (Yamauchi and Templer, 1982, pp. 522–528). While the original version of the test was applied on base of a 7-point Likert scale (Yamauchi and Templer, 1982, p. 522), also 5-point Likert scales were used (Chi and Banerjee, 2013, p. 72). As the NEO-FFI (as part of the online-survey) was based on a 5-point Likert scale, it seemed purposeful to include the scales of the MAS-items in this study also in the 5-point Likert format; this to ensure the consistency of the scale format in the overall survey. The MAS items, as the third part of the online-survey, are fully listed in Appendix B of the thesis. In addition, strengths and limitations as well as the considerations regarding the choice of the instrument are explained in chapter 1.3.6 of the work.

As for the other parts of the survey, the defined measurement conditions ensured the **objectivity** of the MAS as far as possible (standardized survey instructions and items, standardized item sequence, established methods of analysis, analysis through statistical software). Potential limitations regarding the objectivity could be the aforementioned differing participants' English levels or their thoroughness during the testing process.

Regarding the **construct validity**, a Cronbach- α of 0.77 was computed for the total MAS in its original sample ($n = 300$), while five substantial factors (including the subsequently removed quality factor) explained 33.76 % of the total variance (Yamauchi and Templer, 1982, p. 523). Multiple application of the MAS in the following decades confirmed a stable underlying factor structure, which supports its practical applicability (Engelberg and Sjöberg, 2006, p. 2029; Roberts and Sepulveda, 1999, pp. 20–21; Roberts and Jones, 2001, p. 217). Furthermore, the MAS was applied in different parts of the world where its factors were confirmed in diverse cultures; e.g. Singapore (Lim and Teo, 1997, pp. 369–386), Mexico (Roberts and Sepulveda, 1999, pp. 19–35) or Sweden (Engelberg and Sjöberg, 2006, pp. 2027–2047). It must be noted that the

MAS-dimensions show broad overlaps to the MBBS-dimensions: This most-frequently used tests in the field of money attitudes-related research both explain money as an object of power, obsession (separate dimension only in the MBBS: partly overlapping with the MAS power-prestige dimension), budgeting/retaining and anxiety. The broad convergence between MAS and MBBS (Roberts and Sepulveda, 1999, p. 20) clearly strengthens the validity and relevance of both tests.

For the MAS in terms of **internal consistency reliability**, acceptable Cronbach- α values above (or in rare cases slightly below) the threshold of 0.70 (Muijs, 2004, p. 73) could be found in the multiple relevant studies:

- In the original MAS sample in the United States ($n = 300$), Cronbach- α values were found in the range from 0.69 to 0.80 (0.77 for the total scale). Furthermore, **test-retest reliabilities** showed values between 0.87 and 0.95 (0.88 in total) five weeks later (Roberts and Sepulveda, 1999, p. 21; Yamauchi and Templer, 1982, p. 525).
- A comparative study between Mexican-Americans and Anglo-Americans (reduced sample size for calculating Cronbach- α scores: $n = 997$) found Cronbach- α values in relatively small range from 0.79 to 0.83 (Medina *et al.*, 1996, p. 138).
- In a Mexican sample ($n = 274$), the MAS Cronbach- α values were calculated from 0.77 to 0.86 for the single factors (Roberts and Sepulveda, 1999, pp. 29–30).
- In a Swedish study ($n = 212$), a total Cronbach- α value of 0.80 (details regarding the individual factor values were not provided) was calculated for the MAS (Engelberg and Sjöberg, 2006, p. 2036).
- A Canadian study ($n = 200$), which compared the MAS and the MBBS in terms of their factor structure, showed a total MAS Cronbach- α value of 0.78, while the individual factor values of the MAS ranged from 0.65 (significant lower value for the anxiety factor) to 0.76 (Baker and Hagedorn, 2008, pp. 1809–1810).
- In a Ghanaian sample ($n = 314$), Cronbach- α values were computed in a range from 0.65 (lower values for anxiety and distrust factors) to 0.92 (Bonsu, 2008, p. 174).

- Another study in the United States measuring money attitudes among bicultural (Hispanic American) college students ($n = 224$) found a total MAS Cronbach- α value of 0.77 with the individual factors ranging from 0.75 to 0.85 (Chi and Banerjee, 2013, p. 74).
- In a more recent study, 265 students in the United States answered several money-related questionnaires (including the MAS). The MAS in total showed a Cronbach- α value of 0.84. The single factor values ranged from 0.70 to 0.90 (Harnish *et al.*, 2018, p. 192).
- Besides the studies listed above, the author carried out an initial study ($n = 83$), where the total MAS Cronbach- α value was calculated with 0.69. Remarkable was the significantly lower value for the anxiety factor with a Cronbach- α of 0.43 in the sample of Austrian students while the three other MAS factors ranged from 0.77 to 0.81 (Furtner, 2017, p. 54).

3.3 Research subjects

The online survey through which the empirical data were collected was carried out between 05.07.2020 and 25.03.2021 in five countries.

Students at bachelor, master and doctorate level answered the three-part 94-item online-survey at the following universities (five subsamples):

- Tirana Business University College (Tirana, Albania)
- University of Applied Sciences Burgenland (Eisenstadt, Austria)
- Juraj Dobrila University of Pula (Pula, Croatia)
- University of Economics in Bratislava (Bratislava, Slovakia)
- Türk-Alman Üniversitesi - Turkish German University (Istanbul, Turkey)

The key considerations regarding the sampling procedure can be explained as follows:

- On the one hand, the highest possible degree of homogeneity concerning the whole sample should enable inductive conclusions while minimizing interfering influence of confounders. Furthermore, focusing on business students allows a practicable research approach. For example, confounders like the educational level can be relatively neutralized.

- On the other hand, choosing subsamples from different countries allows a cross-country comparison and, therefore, sets the ground for identifying country-specific differences regarding the predictors for money attitudes.

Sampling was conducted based on **convenience samples** at the universities mentioned above. However, comparable selection procedures (non-representative student samples) could be found in many empirical studies in the field as showed in the first section of the work. Therefore, to a certain extent, comparison of the results to other studies with similar study designs is possible.

3.4 Methods of analysis

To achieve the objectives of the research and to verify the hypotheses, the thesis comprises two main parts: In the first sections, the **theoretical** framework, which acts as the foundation of the empirical part, is described. In this second **empirical** part, the methodological foundations and the results of the conducted quantitative study are detailed and analyzed by adequate statistical methods, which explain phenomena on base of numerical data and the use of mathematically based methods (Muijs, 2004, p. 1). The applied methods of analysis in this work can be differentiated as follows:

- **Descriptive methods** describe frequencies and characterize the distribution of single variables (univariate analysis) using suitable graphics and distribution values (Eckstein, 2010, p. 71). For this study, descriptive methods were applied for a general overview about the results of the online survey for the samples investigated.
- **Inferential methods** use suitable measures to analyze the intensity and the direction of relations between two or more variables (Eckstein, 2010, p. 277). Based on the empirical data of the study, inferential methods like multiple linear regression were used for verifying the working hypotheses (Appendix A).

For the statistical analyzes, the SPSS statistics software was used. To describe the samples and to test the distribution of the data, tables showing descriptive values, frequencies, histograms, boxplots and pie charts were applied, while the most relevant descriptive results are presented in the thesis. Furthermore, widely-used and well-established **confirmatory factor analysis** (CFA) was performed. The CFA is based on a structural equation modeling (SEM) type which analyzes measurement models with

the aim of testing the observed indicators (test items) and the latent variables (Brown, 2015, p. 1). In this study, the factors (latent variables) of the NEO-FFI and the MAS had to be tested by CFA to ensure the stability of the applied testing instruments.

The key research question which has to be answered in this research is if and to what extent the possible predictors (independent variables: biographical variables, personality traits), which were derived from the existing literature, influence money attitudes (dependent variables) in the multinational samples tested. When measuring relations between variables, three facets are of relevance: First, it must be verified if a hypothesized relation does exist. Second, the direction of the relation must be identified, which is available by regression analysis. Third, the strength of the relation should be measured through correlation analysis (Bourier, 2013, p. 195). Approximately normally distributed data in the sub-samples is required as a prerequisite for performing the inferential statistics. Hence, the incurred error had to be reduced by maximizing the sizes of the sub-samples to the extent possible and efficient (Schira, 2009, p. 413).

The **inferential part** of the analysis was conducted in the following order:

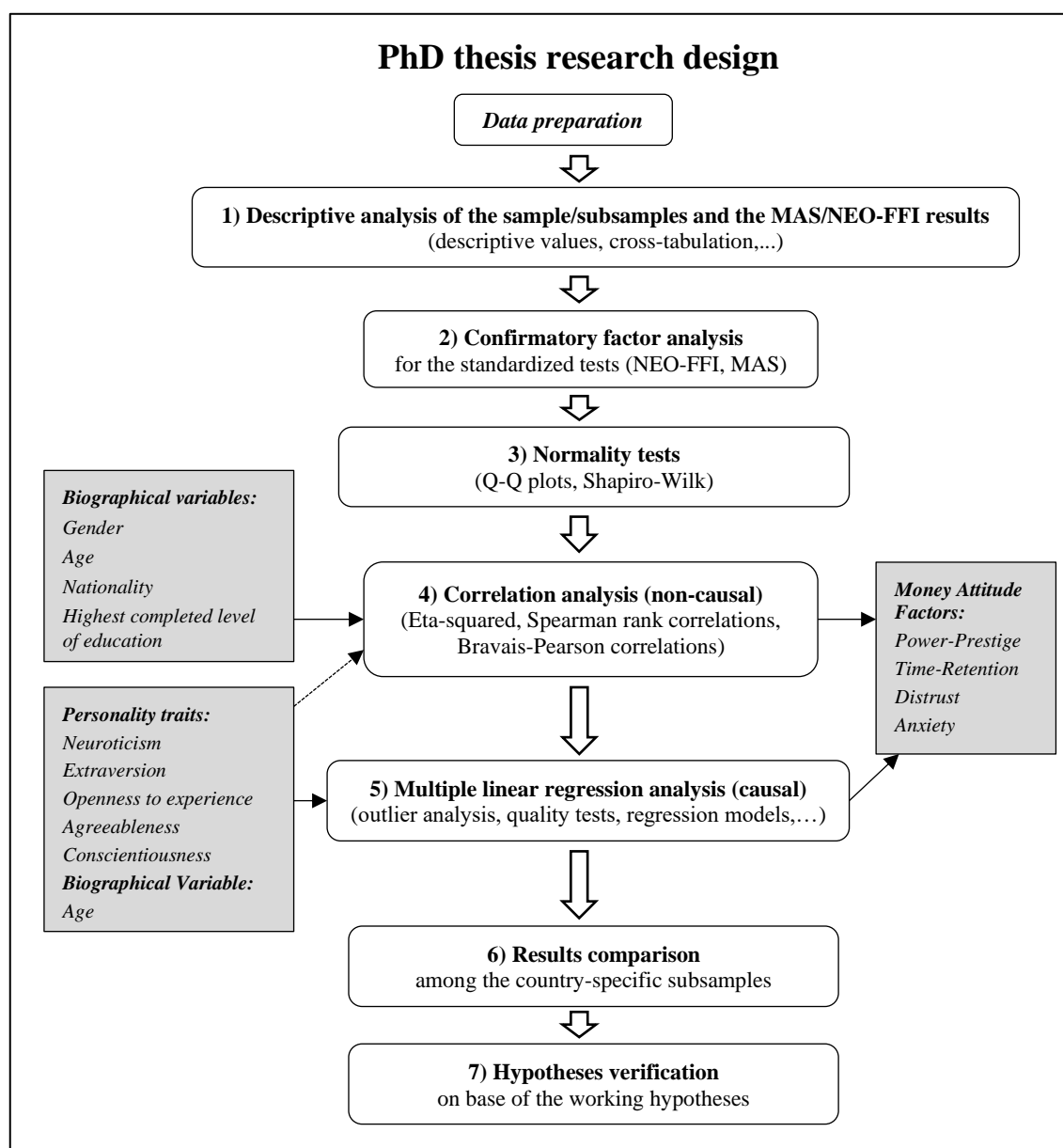
- In a first step, the data initially was tested for the assumption of normally distributed data by the Shapiro-Wilk test. Furthermore, Q-Q plots allowed an initial exploration regarding possible relations between the variables (Fahrmeir *et al.*, 2006, p. 153). A further linear regression analysis was indicated for all cases where the data points oriented towards a straight line in the scatterplot (Muijs, 2004, p. 161).
- Furthermore, linear correlation analyzes on base of the Bravais-Pearson correlation coefficient (for metrical data, i.e. age and personality scores), rank correlation analyzes (for ordinal data, i.e. highest completed level of education) and Eta-squared analyzes (for nominal data, i.e. gender and nationality) were performed to test the strengths and the direction of the relations (Auer *et al.*, 2013, p. 71).
- To verify cause-effect relationships, multiple linear regression analyzes were performed on base of the ordinary least squares method (OLS). However, it is necessary to point out that metrical data is a prerequisite for this type of analysis (Bourier, 2013, pp. 199–200). Therefore, the personality scores and age were integrated in the regression analyzes, while the other possible predictors (gender,

highest completed level of education and nationality) were excluded from the model.

- Finally, the results in the different sub-samples were compared in order to identify country-specific differences.

Subsequently, the central **research design** for the statistical analysis is summarized in Figure 4:

Figure 4: PhD thesis research design.



Own editing.

3.5 Previous research

First, it must be pointed out that the PhD student already realized an empirical study with focus on descriptors of money attitudes in Austria. Through an online survey, quantitative research was conducted also based on the NEO-FFI and the MAS in a sample of 83 business students in Austria. The collected data was statistically analyzed by using descriptive statistics, bivariate correlation and the multiple linear regression method. Empirical results in the sample indicated that males, less experience-opened as well as less agreeable people rather perceive money as a tool for showing power-prestige. Furthermore, individuals who scored high in the Big Five personality dimensions “neuroticism” and “openness to experience” showed a stronger anxiety-oriented money attitude (Furtner, 2017, pp. 1–330).

Furthermore, it has to be mentioned that parts of this PhD thesis were presented at scientific conferences and published in conference proceedings as well as in scientific journals as work in progress.

4 Results

4.1 Sampling process, population and sample size

First, the number of all enrolled students in the analyzed countries was defined as the underlying population of the total sample. To gain the data (personal) university networks were used. Consequently, the sample must be considered as a convenience sample, despite the approach to control the biographical variables in the statistical analyzing process. The numbers of the enrolled students in 2019 or 2021 (latest available statistics) as well as the subsample sizes are shown in the following table:

| Table 17: Enrolled students (population) and sample size. | | | |
|---|---|----------------|---------------------------|
| | Active students in the country (population) 2019 or 2020 | Sample size | Sample size in percent |
| University of Applied Sciences Burgenland (Austria) | 423,049 | 168 | 0.0397 |
| University of Economics in Bratislava (Slovakia) | 140,809 | 117 | 0.0831 |
| Tirana Business University College (Albania) | 123,797 | 117 | 0.0945 |
| Juraj Dobrila University of Pula (Croatia) | 163,867 | 119 | 0.0726 |
| Türk-Alman Üniversitesi (Turkey) | 7,775,381 | 150 | 0.0019 |
| Total | 8,626,903 | 671 | 0.0078 |

Own editing based on European Commission, 2019; INSTAT - Institute of Statistics, 2021.

4.2 Survey

The full survey, which consists of three parts (biographical items, NEO-FFI items, MAS items), is presented in Appendix B (due to legal reasons the NEO-FFI items are not presented in detail). Further details regarding the survey structure and the research instruments can be found in the section 3.2 Research instruments.

Based on the survey concept, an **online survey** was programmed using survey-software EvaSys 8.0. During the period from 05.07.2020 to 25.03.2021 data for the full sample (n = 671 students) was collected from **five universities across five countries** (Albania, Austria, Albania, Croatia, Slovakia, Turkey). After finishing the survey phase, raw data was exported, prepared and statistically evaluated.

4.3 Data preparation

For statistical analysis, raw data of the online survey was prepared beforehand as follows in IBM SPSS Statistics 22.0 statistical software:

- Due to organizational reasons (data of the Turkish subsample was raised later), the data of the different survey sets (Turkish subsample and the other subsamples) was **merged** into one comprehensive database. Furthermore, two biographical variables (home university, nationality) had to be adjusted (additional variable characteristics for the Turkish subsample). Another biographical variable (religion) was used merely in the Turkish subsample (for another research study) and, therefore, was removed in the comprehensive database.
- The next step was to **relabel** the variables into easily identifiable designations (e.g. the first NEO-FFI neuroticism item was relabeled into NEO_N1, the first MAS power-prestige item into MAS_P1) as shown in Appendix B. Furthermore all items were checked again with the original test items in order to identify incorrect designations (McCrae and Costa, 2010a, pp. 1–145; Yamauchi and Templer, 1982, pp. 522–528).
- As the NEO-FFI contains 25 negatively coded items (McCrae and Costa, 2010a, pp. 1–145), additionally these items had to be **reversed** (e.g. 1 = “strongly disagree” was reversed into 1 = “strongly agree”).
- For each case the NEO-FFI dimensions and MAS factors were **computed** (sums and means) on base of the underlying related items.
- Finally, the biographical variable “age” was grouped into three age groups (< 25 years, 25-34 years, > 34 years).

4.4 Description of the sample

The sample was based on a population of students in five countries (Albania, Austria, Croatia, Slovakia and Turkey). In order to maximize the sample size, students from various ages, in different stages of their study (undergraduate, graduate, pre- and post-doctoral stage) and with different study backgrounds were accepted as participants. To control random error in the **ex-post factor research design**, sample-specific confounders (e.g. age or gender) were evaluated in addition. Despite this, it must be stated

that the **ad-hoc sample** cannot be considered to be fully homogeneous. The characteristics of the full sample (n = 671) are presented in tabular form below:

| Table 18: Frequencies full sample (gender). | | | |
|---|-----------|---------------|--------------------|
| | Frequency | Valid Percent | Cumulative Percent |
| Male | 243 | 36.2 | 36.2 |
| Female | 423 | 63.0 | 99.3 |
| Other | 5 | .7 | 100.0 |
| Total | 671 | 100.0 | |

Own research results.

The **gender** distribution shows that about two thirds of the participants were females.

| Table 19: Frequencies full sample (age). | | | |
|--|-----------|---------------|--------------------|
| | Frequency | Valid Percent | Cumulative Percent |
| < 25 years | 503 | 75.0 | 75.0 |
| 25 - 34 years | 115 | 17.1 | 92.1 |
| > 34 years | 53 | 7.9 | 100.0 |
| Total | 671 | 100.0 | |

Own research results.

The **age** results were clustered to provide an overview. Three quarters of the students in the sample could be found in the age group below 25 years, while one quarter was above this age (M = 23.8, SD = 6.9).

| Table 20: Frequencies full sample (highest level of completed degree). | | | |
|--|-----------|---------------|--------------------|
| | Frequency | Valid Percent | Cumulative Percent |
| High school graduate or equivalent degree | 421 | 62.7 | 62.7 |
| Bachelor's degree or equivalent degree | 161 | 24.0 | 86.7 |
| Master's degree or equivalent degree | 77 | 11.5 | 98.2 |
| Doctorate degree | 12 | 1.8 | 100.0 |
| Total | 671 | 100.0 | |

Own research results.

About two thirds of the participants were undergraduate students and one quarter was already in the graduate stage of their study. Approx. 13 % already finished their graduate programme, while a small minority in the sample even gained a doctoral degree.

Table 21: Frequencies full sample (home university).

| | Frequency | Valid Percent | Cumulative Percent |
|---|-----------|---------------|--------------------|
| Tirana Business University College (Albania) | 117 | 17.4 | 59.9 |
| University of Applied Sciences Burgenland (Austria) | 168 | 25.0 | 25.0 |
| Juraj Dobrila University of Pula (Croatia) | 119 | 17.7 | 77.6 |
| University of Economics in Bratislava (Slovakia) | 117 | 17.4 | 42.5 |
| Türk-Alman Üniversitesi (Turkey) | 150 | 22.4 | 100.0 |
| Total | 671 | 100.0 | |

Own research results.

About one quarter of the participants in the study were students at the University of Applied Sciences Burgenland (Austria) and slightly more than a fifth were students at the Türk-Alman Üniversitesi (Turkey). All other **universities** (University of Economics in Bratislava – Slovakia, Tirana Business University College – Albania, Juraj Dobrila University of Pula – Croatia) contributed with approx. 17 % each to the total sample.

Table 22: Frequencies full sample (nationality).

| | Frequency | Valid Percent | Cumulative Percent |
|-----------|-----------|---------------|--------------------|
| Albanian | 121 | 18.0 | 18.0 |
| Austrian | 155 | 23.1 | 41.1 |
| Croatian | 114 | 17.0 | 58.1 |
| German | 4 | .6 | 58.7 |
| Hungarian | 5 | .7 | 59.5 |
| Serbian | 3 | .4 | 59.9 |
| Slovakian | 112 | 16.7 | 76.6 |
| Other | 14 | 2.1 | 78.7 |
| Turkish | 143 | 21.3 | 100.0 |
| Total | 671 | 100.0 | |

Own research results.

Most participants were citizens of their home university's country, except in rare cases, which is further detailed in the following crosstab:

Table 23: Nationalities at home universities.

| | | What is your nationality? | | | | | | Total | |
|---|--|---------------------------------|---------------|---------------|---------------|----------------|--------------|------------|--------|
| | | | Alban- ian | Austr- ian | Croat- ian | Slovak -ian | Turk- ish | Oth- er | |
| What is your home univer- sity? | University of Applied Sciences Burgenland (Austria) | Count | 3 | 154 | 0 | 0 | 0 | 11 | 168 |
| | | % within home university? | 1.8% | 91.7% | 0.0% | 0.0% | 0.0% | 6.6% | 100.0% |
| | University of Economics in Bratislava (Slovakia) | Count | 0 | 0 | 0 | 112 | 0 | 5 | 117 |
| | | % within home university? | 0.0% | 0.0% | 0.0% | 95.7% | 0.0% | 4.4% | 100.0% |
| | Tirana Business University College (Albania) | Count | 116 | 0 | 0 | 0 | 0 | 1 | 117 |
| | | % within home university? | 99.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.9% | 100.0% |
| | Juraj Dobrila University of Pula (Croatia) | Count | 2 | 1 | 114 | 0 | 0 | 2 | 119 |
| | | % within home university? | 1.7% | 0.8% | 95.8% | 0.0% | 0.0% | 1.6% | 100.0% |
| | Türk-Alman Üniversitesi (Turkey) | Count | 0 | 0 | 0 | 0 | 143 | 7 | 150 |
| | | % within home university? | 0.0% | 0.0% | 0.0% | 0.0% | 95.3% | 4.6% | 100.0% |
| | Total | Count | 121 | 155 | 114 | 112 | 143 | 26 | 671 |
| | | % within home university? | 18,0% | 23.1% | 17.0% | 16.7% | 21.3% | 3.9% | 100.0% |

Own research results.

The cross-tabulation of the **home universities and the nationalities** is of major importance for the further analysis. To measure the effect of the national/cultural background on money attitudes it basically is possible to analyze the predictive role of the home university or the nationality. Due to the fact that in the vast majority of cases the citizenship and the home university's country did not differ, the home university variable (and not the nationality) was selected to investigate as predictive variable. Although one could argue that this causes some small statistical bias, the other option

(using the nationality as independent variable) would even be more problematic due to the small case number of other nationalities in the sample.

It must, in addition, be stated that also the distribution of the other biographical variables differs in the subsamples. This is caused e.g. by different gender distribution of the students or by different study programmes the students in the sample attended (e.g. students were typically younger in undergraduate study programmes).

4.5 NEO-FFI results

Personality traits were measured with 60 items in five dimensions. Each dimension was calculated based on 12 underlying 5-point-Likert-scaled items ranging from “strongly disagree” to “strongly agree”.

It must be considered, that NEO-FFI test results can be coded differently (coding scheme from 0 to 4 or from 1 to 5). Besides recoding the negatively poled items, it was necessary to recode the results in the current study (originally measured from 1 to 5) for the descriptive comparison between the different study results (comparison is based on the original NEO-FFI with a coding scheme from 0 to 4). Thus, scores for each dimension with 12 items could range from 12 to 60 points (or from 0 to 48 – depending on the underlying coding-scheme).

In a first descriptive analysis the NEO-FFI results of the current study (M, SD) were **compared** with the NEO-FFI dataset of the German population-representative subsample (n = 871) (Borkenau and Ostendorf, 2008, p. 31) and a prior Austrian sample of business education students (n = 83) (Furtner, 2017, p. 61). Moreover, the national subsample data (derived from the biographical home university variable) was calculated and is shown in the table:

Table 24: NEO-FFI results comparison (nationality).

| | | Neuro- ticism | Extra- version | Openness to experience | Agree- ableness | Conscient- iousness |
|--|----|------------------|-------------------|---------------------------|--------------------|------------------------|
| German population repr. sample (n = 871) | M | 20.99 | 26.88 | 29.47 | 30.45 | 32.61 |
| | SD | 7.89 | 6.47 | 6.53 | 5.38 | 6.11 |
| Prior Austrian business education student sample (n = 83) | M | 17.67 | 31.57 | 29.42 | 33.45 | 37.10 |
| | SD | 6.74 | 5.04 | 6.67 | 5.74 | 6.03 |
| Study results full sample (n = 671) | M | 24.21 | 27.75 | 28.26 | 24.82 | 30.10 |
| | SD | 5.03 | 3.85 | 3.75 | 4.57 | 3.79 |
| Study results Albanian subsample (n = 117) | M | 23.86 | 28.65 | 30.08 | 25.70 | 32.02 |
| | SD | 5.02 | 3.38 | 3.58 | 4.47 | 3.48 |
| Study results Austrian subsample (n = 168) | M | 23.04 | 27.08 | 26.61 | 24.08 | 29.82 |
| | SD | 4.98 | 4.05 | 3.25 | 4.70 | 3.49 |
| Study results Croatian subsample (n = 119) | M | 24.90 | 27.98 | 28.56 | 24.08 | 29.45 |
| | SD | 5.24 | 3.55 | 3.49 | 4.15 | 3.69 |
| Study results Slovakian subsample (n = 117) | M | 24.88 | 28.03 | 27.92 | 24.61 | 29.75 |
| | SD | 4.92 | 3.62 | 3.76 | 4.70 | 3.73 |
| Study results Turkish subsample (n = 150) | M | 24.74 | 27.39 | 28.71 | 25.71 | 29.71 |
| | SD | 4.82 | 4.25 | 3.82 | 4.51 | 4.04 |

Own research results and adapted results from Borkenau and Ostendorf, 2008, p. 31; Furtner, 2017, p. 61.

The most apparent **differences** for each **NEO-FFI dimension** are summarized below:

- Neuroticism (M) in the study sample was generally higher in the current sample, this compared to the prior Austrian student sample (+ 6.54) as well as to the German population repr. sample (+ 3.22). Noteworthy is the relatively similar level of neuroticism mean value in all national subsamples.
- Regarding extraversion the current results are comparable to the German population repr. sample. Again, only minimal differences occurred between the national subsamples. However, extraversion mean values were comparably

lower in the current sample compared to the prior Austrian business student sample (- 3.82).

- Openness to experience values varied within a relatively small bandwidth with two peculiarities: The Austrian students in the current sample showed the lowest openness to experience mean values compared to the full sample (- 1.65) as well as to the German population repr. sample (- 2.86), while the Albanian students showed the highest mean values in comparison (+ 1.82 compared to the current full sample, + 0.61 compared to the German population representative sample).
- Significant differences could be found regarding the agreeableness dimension: Especially, the current sample agreeableness mean values were lower than the values in the German population repr. sample (- 5.63) and even more lower compared to the values in the prior Austrian student sample (- 8.63). Agreeableness was on a comparatively similar level between the national subsamples in the current study.
- Also for conscientiousness, the current sample mean values were found on a lower level in comparison with the German population repr. sample (- 2.51) and with the prior Austrian student sample (- 7.00). Compared to the full sample of the current study, higher mean values were found in the Albanian subsample (+ 1.92).

Further the NEO-FFI means were compared based on gender, age groups and the highest level of education. Only minor differences were found. Hence, these results are not further detailed in tables.

4.6 MAS results

Money attitudes were measured with 29 items in five dimensions (no negatively poled items). Each dimension was calculated based on the underlying 5-point-Likert-scaled items ranging from “strongly disagree” to “strongly agree”. The underlying item number varies depending on the measured dimension. For the full MAS, scores could range from a minimum of 29 points to a maximum of 145 points.

For a descriptive overview the MAS results of the current study (M, SD) were compared with the results of the aforementioned prior Austrian sample of business

education students (n = 83) (Furtner, 2017, p. 61). Again, the data of the current study was divided into national subsample sets to calculate the values for all subsamples:

| Table 25: MAS results comparison (nationality). | | | | | |
|--|----|--------------------|--------------------|----------|---------|
| | | Power- prestige | Retention- time | Distrust | Anxiety |
| Prior Austrian business education student sample (n = 83) | M | 17.42 | 26.23 | 18.52 | 15.90 |
| | SD | 5.44 | 4.60 | 4.68 | 3.22 |
| Study results full sample (n = 671) | M | 17.82 | 24.30 | 20.21 | 17.51 |
| | SD | 6.44 | 5.22 | 4.95 | 4.02 |
| Study results Albanian subsample (n = 117) | M | 19.32 | 24.49 | 20.17 | 18.85 |
| | SD | 6.10 | 4.64 | 4.60 | 3.77 |
| Study results Austrian subsample (n = 168) | M | 16.32 | 26.57 | 19.23 | 16.01 |
| | SD | 6.05 | 5.18 | 5.20 | 3.87 |
| Study results Croatian subsample (n = 119) | M | 16.52 | 22.61 | 19.03 | 16.71 |
| | SD | 6.34 | 5.21 | 5.17 | 4.51 |
| Study results Slovakian subsample (n = 117) | M | 19.54 | 23.46 | 19.78 | 17.97 |
| | SD | 7.04 | 4.57 | 4.10 | 3.45 |
| Study results Turkish subsample (n = 150) | M | 18.03 | 23.60 | 22.60 | 18.43 |
| | SD | 6.16 | 5.38 | 4.61 | 3.72 |

Own research results and adapted results from Furtner, 2017, p. 62.

Below, the most relevant **differences** for each **MAS dimension** are summarized:

- For the **power-prestige** dimension, the current study results are comparable with the prior Austrian student sample. Between the national subsamples, two countries showed, compared to the full sample, higher mean values: Slovakia (+ 1.72) and Albania (+ 1.5), while two other countries seemed less power-oriented (Austria – 1.5, Croatia – 1.3).
- Regarding the **retention-time** dimension, differences occurred: The results of the current study (full sample) showed lower mean values than the prior Austrian student sample (- 1.93). The national subsamples indicate a significantly higher

relevance of the dimension in the Austrian subsample (+ 2.27) and a lower relevance in the Croatian subsample (- 1.69).

- The mean values for the **distrust** dimension (full sample) were higher than in the prior Austrian student sample (+ 1.69). Further comparison between the subsamples indicate a higher distrust manifestation in the Turkish subsample (+ 2.39).
- **Anxiety** means values again differed compared to the former Austrian student sample – a higher anxiety value was found in the current study sample (+ 1.61). Higher mean values were found for the Albanian (+ 1.34) and Turkish (+ 0.92) student samples, while the Austrian (- 1.5) and Croatian (- 0.8) subsamples showed lower anxiety values.

| Table 26: MAS results comparison full sample (gender). | | | | | |
|--|----|--------------------|--------------------|----------|---------|
| | | Power- prestige | Retention- time | Distrust | Anxiety |
| Male (n = 243) | M | 18.87 | 24.13 | 20.30 | 17.02 |
| | SD | 6.65 | 5.31 | 5.04 | 3.86 |
| Female (n = 423) | M | 17.25 | 24.45 | 20.17 | 17.79 |
| | SD | 6.27 | 5.18 | 4.93 | 4.08 |
| Other (n = 5) | M | 15.40 | 19.40 | 18.20 | 17.60 |
| | SD | 2.88 | 1.52 | 3.11 | 5.13 |
| Total (n = 671) | M | 17.82 | 24.30 | 20.21 | 17.51 |
| | SD | 6.44 | 5.22 | 4.95 | 4.02 |

Own research results.

The **gender** means values comparison indicated a stronger power-prestige money orientation for males (+ 1.62) and a slightly stronger anxiety money orientation for females (0.77), while the other two dimensions were found on relatively comparable levels.

Table 27: MAS results comparison full sample (age).

| | | Power- prestige | Retention- time | Distrust | Anxiety |
|----------------------------|----|--------------------|--------------------|----------|---------|
| < 25 years (n = 503) | M | 18.09 | 23.81 | 20.46 | 17.74 |
| | SD | 6.47 | 5.01 | 4.79 | 4.08 |
| 25 – 34 years (n = 115) | M | 17.17 | 25.44 | 19.81 | 17.10 |
| | SD | 6.30 | 5.64 | 5.46 | 4.06 |
| > 34 years (n = 53) | M | 16.72 | 26.40 | 18.66 | 16.23 |
| | SD | 6.34 | 5.43 | 5.07 | 2.98 |
| Total (n = 671) | M | 17.82 | 24.30 | 20.21 | 17.51 |
| | SD | 6.44 | 5.22 | 4.95 | 4.02 |

Own research results.

With increasing age, the analysis of the **age** groups showed decreasing mean values for distrust (from < 25 years to > 34 years – 1.80), power-prestige (from < 25 years to > 34 years – 1.37) and anxiety (from < 25 years to > 34 years – 1.51). The opposite was the case for retention-time (from < 25 years to > 34 years + 2.59).

Table 28: MAS results comparison full sample (highest level of completed degree).

| | | Power- prestige | Retention- time | Distrust | Anxiety |
|--|----|--------------------|--------------------|----------|---------|
| High school graduate or equivalent degree (n = 421) | M | 17.53 | 23.81 | 20.40 | 17.53 |
| | SD | 6.30 | 5.12 | 4.91 | 4.04 |
| Bachelor's degree or equivalent degree (n = 161) | M | 18.76 | 24.83 | 20.02 | 17.42 |
| | SD | 7.00 | 5.17 | 5.07 | 4.01 |
| Master's degree or equivalent degree (n = 77) | M | 18.06 | 26.13 | 19.73 | 17.75 |
| | SD | 5.72 | 5.36 | 4.85 | 4.03 |
| Doctorate degree (n = 12) | M | 13.92 | 22.58 | 18.92 | 16.42 |
| | SD | 6.10 | 5.81 | 5.73 | 3.73 |
| Total (n = 671) | M | 17.82 | 24.30 | 20.21 | 17.51 |
| | SD | 6.44 | 5.22 | 4.95 | 4.02 |

Own research results.

The highest level of completed school or academic degree had just a moderate effect on money attitudes mean values in the sample: Power-prestige mean values increased slightly with higher school/academic degrees. Especially, undergraduates (+ 1.23) and graduates (+ 0.53) showed slightly higher mean values in comparison to high school graduates. The same was true for retention-time mean values which also increased for undergraduates (+ 1.02) and graduates (+ 2.32) compared to the high school graduates in the sample. As the same effect occurred in the age group comparison, this effect could also be caused by the raising age (university undergraduates/graduates are typically older than high school graduates). The number of study participants with doctorate degree in the sample was too small ($n = 12$) and, therefore, without statistical relevance for a further description.

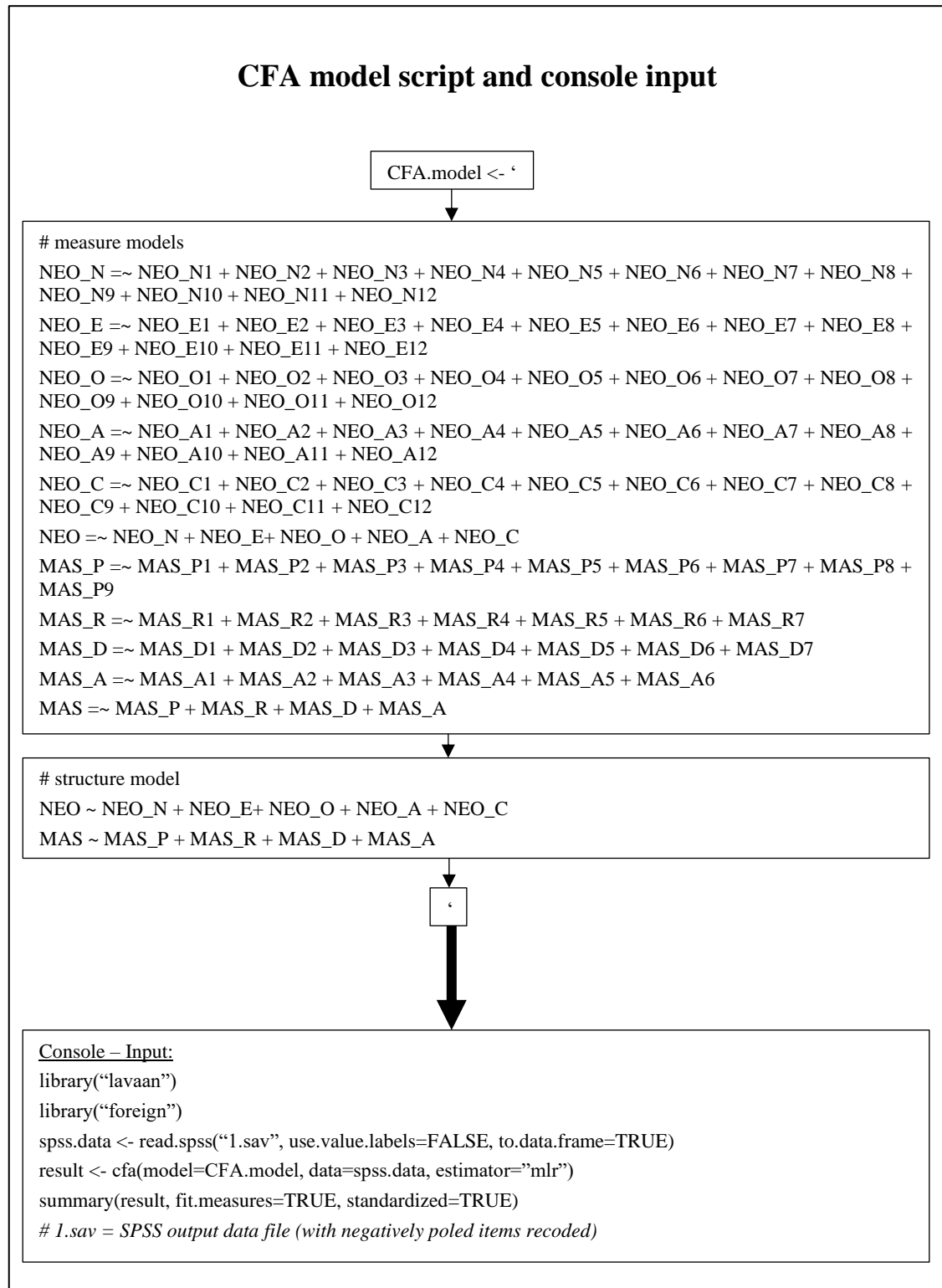
4.7 Confirmatory factor analysis

For testing the structure of the underlying test instruments, **CFA** was performed by R 4.1.0 statistical software using the lavaan package 0.6-9. The processed data was imported from the SPSS output file (already with the reversed negatively poled NEO-FFI items).

R literature was used as basis for developing the script code and performing the analysing processes (Rosseel, 2012, pp. 1–37; Werner, 2015, pp. 1–15). The interpretation of the R output was based on broadly accepted recommendations, especially in the context of the considered limit values (Hu and Bentler, 1999, pp. 1–28).

The developed R script code and the R console input for the CFA is detailed in the figure below:

Figure 5: CFA model script and console input.



Own code.

After 130 iterations, the CFA results indicate a non-significant model with a p-value (Chi-square) of 0.000. However, the Comparative Fit Index ($CFI_{robust} = 0.665$) and the Tucker-Lewis Index ($TLI_{robust} = 0.655$), which both compare the investigated model

with the assumption that all variables are non-correlated, indicate an underlying model structure at least to a moderate extent. The recommendation for both values indicating a stable model are values > 0.95 (Hu and Bentler, 1999, p. 27). Further values of relevance regarding the model structure are the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR), which both compare the implied correlation matrix with the correlation matrix of the data with suggested values of $RMSEA < 0.05$ and $SRMR < 0.06$ (Hu and Bentler, 1999, p. 26). With a robust RMSEA of 0.048 and a SRMR of 0.078 for the tested model both values should be considered as borderline.

For a further interpretation of the results, it is necessary to examine both parts of the tested model (NEO-FFI, MAS) separately on the basis of the factor loadings.

Unspecific results were found for the NEO-FFI factors: Factor loadings of the latent variables (Big Five personality traits) showed diverging values (diverging estimators) indicating a non-fit model as exemplarily shown for the conscientiousness dimension (latent variable NEO_C measured through 12 items NEO_C1 – NEO_C12) in the following table:

| Table 29: NEO-FFI CFA results (conscientiousness). | | | | |
|--|----------|-------|---------|------------|
| NEO_C | Estimate | SE | z-value | $P(> z)$ |
| NEO_C1 | 1.000 | | | 0.407 |
| NEO_C2 | 1.518 | 0.189 | 8.037 | 0.000 |
| NEO_C3 | -0.968 | 0.130 | -7.454 | 0.000 |
| NEO_C4 | 1.103 | 0.126 | 8.738 | 0.000 |
| NEO_C5 | 1.425 | 0.169 | 8.426 | 0.000 |
| NEO_C6 | -1.588 | 0.191 | -8.336 | 0.000 |
| NEO_C7 | 1.588 | 0.192 | 8.274 | 0.000 |
| NEO_C8 | 0.936 | 0.137 | 6.832 | 0.000 |
| NEO_C9 | -1.114 | 0.160 | -6.950 | 0.000 |
| NEO_C10 | 1.566 | 0.187 | 8.370 | 0.000 |
| NEO_C11 | -1.543 | 0.146 | -10.560 | 0.000 |
| NEO_C12 | 1.337 | 0.153 | 8.735 | 0.000 |

Own research results.

Insufficient findings (based on principal component analysis, exploratory factor analysis and CFA) are reported frequently in the literature for the NEO-FFI model – even

for large samples (Rosellini and Brown, 2011, p. 28). Undesirable interfactor correlations, insignificant factor loadings and model-fits based on CFA analysis are common results for the NEO-FFI and are an ongoing part of the scientific discussion (Church and Burke, 1994, pp. 93–114; Marsh *et al.*, 2010, pp. 471–491; Parker *et al.*, 1993, pp. 463–466; Schmitz *et al.*, 2001, pp. 713–722).

Major test limitations of the NEO-FFI, thus, must be recognized: As already stated in the literature, varying results depending on the underlying sample, inconsistent dimension interpretation as well as other instruments indicating less personality dimensions must be considered (Borkenau and Ostendorf, 2008, pp. 9–10). The popular and widely application of the NEO-FFI (among different cultures and nations) support the practical application of the test instrument in its original form on the other hand (Boyle *et al.*, 2015, p. 767; Cheung *et al.*, 2003, p. 435). Hence, and for increased comparability of existing studies, no items of the NEO-FFI were excluded in the subsequent analyzes.

Regarding the MAS factors, the factor loadings show much more stable results. In most cases the estimators for each factor level within a narrower range compared to the NEO-FFI results. Thus, the CFA results for the MAS instrument indicate a relatively stable (though non-significant) model for the money attitude factors as presented in the tables below (latent variables MAS_P, MAS_R, MAS_D, MAS_A each one measured through different item numbers):

| Table 30: MAS CFA results (power-prestige). | | | | |
|---|----------|-------|---------|----------|
| MAS_P | Estimate | SE | z-value | P(> z) |
| MAS_P1 | 1.000 | | | 0.439 |
| MAS_P2 | 1.484 | 0.158 | 9.379 | 0.000 |
| MAS_P3 | 1.459 | 0.163 | 8.961 | 0.000 |
| MAS_P4 | 1.721 | 0.150 | 11.447 | 0.000 |
| MAS_P5 | 1.454 | 0.141 | 10.339 | 0.000 |
| MAS_P6 | 1.531 | 0.142 | 10.755 | 0.000 |
| MAS_P7 | 1.658 | 0.150 | 11.044 | 0.000 |
| MAS_P8 | 1.599 | 0.160 | 10.003 | 0.000 |
| MAS_P9 | 1.657 | 0.156 | 10.642 | 0.000 |

Own research results.

Table 31: MAS CFA results (retention-time).

| MAS_R | Estimate | SE | z-value | P(> z) |
|--------|----------|-------|---------|-------------|
| MAS_R1 | 1.000 | | | 0.735 |
| MAS_R2 | 1.074 | 0.067 | 15.923 | 0.000 |
| MAS_R3 | 1.121 | 0.080 | 13.987 | 0.000 |
| MAS_R4 | 0.842 | 0.063 | 13.363 | 0.000 |
| MAS_R5 | 0.917 | 0.078 | 11.721 | 0.000 |
| MAS_R6 | 0.620 | 0.077 | 8.050 | 0.000 |
| MAS_R7 | 0.789 | 0.078 | 10.084 | 0.000 |

Own research results.

Table 32: MAS CFA results (distrust).

| MAS_D | Estimate | SE | z-value | P(> z) |
|--------|----------|-------|---------|-------------|
| MAS_D1 | 1.000 | | | 0.758 |
| MAS_D2 | 0.568 | 0.068 | 8.364 | 0.000 |
| MAS_D3 | 0.896 | 0.072 | 12.501 | 0.000 |
| MAS_D4 | 0.799 | 0.074 | 10.834 | 0.000 |
| MAS_D5 | 1.034 | 0.066 | 15.603 | 0.000 |
| MAS_D6 | 0.674 | 0.070 | 9.571 | 0.000 |
| MAS_D7 | 0.768 | 0.070 | 10.905 | 0.000 |

Own research results.

Table 33: MAS CFA results (anxiety).

| MAS_A | Estimate | SE | z-value | P(> z) |
|---------|----------|-------|---------|-------------|
| MAS_A1 | 1.000 | | | 0.305 |
| MAS_A2 | 1.479 | 0.194 | 7.639 | 0.000 |
| MAS_A3 | 1.109 | 0.237 | 4.683 | 0.000 |
| MAS_A4 | 2.313 | 0.585 | 3.957 | 0.000 |
| MAS_A5 | 2.485 | 0.628 | 3.956 | 0.000 |
| 8MAS_A6 | 2.265 | 0.542 | 4.179 | 0.000 |

Own research results.

Based on the non-significant CFA results no MAS items were removed for the subsequent analyzes.

4.8 Normality tests

One basic issue of interest beforehand performing statistical inference methods is the normal distribution (based on the Gaussian bell curve) of the investigated data as many statistical procedures require the assumption of **normality** (Steinskog *et al.*, 2007, p. 1151). However, in case of an (intended) multiple linear regression analysis, no restrictive assumptions (like normal distribution) should be made for independent (biographical/NEO-FFI) variables (Stahel, 2008, p. 21). Though all (independent and dependent) metrical variables (age, NEO-FFI, MAS variables) were tested for normal distribution.

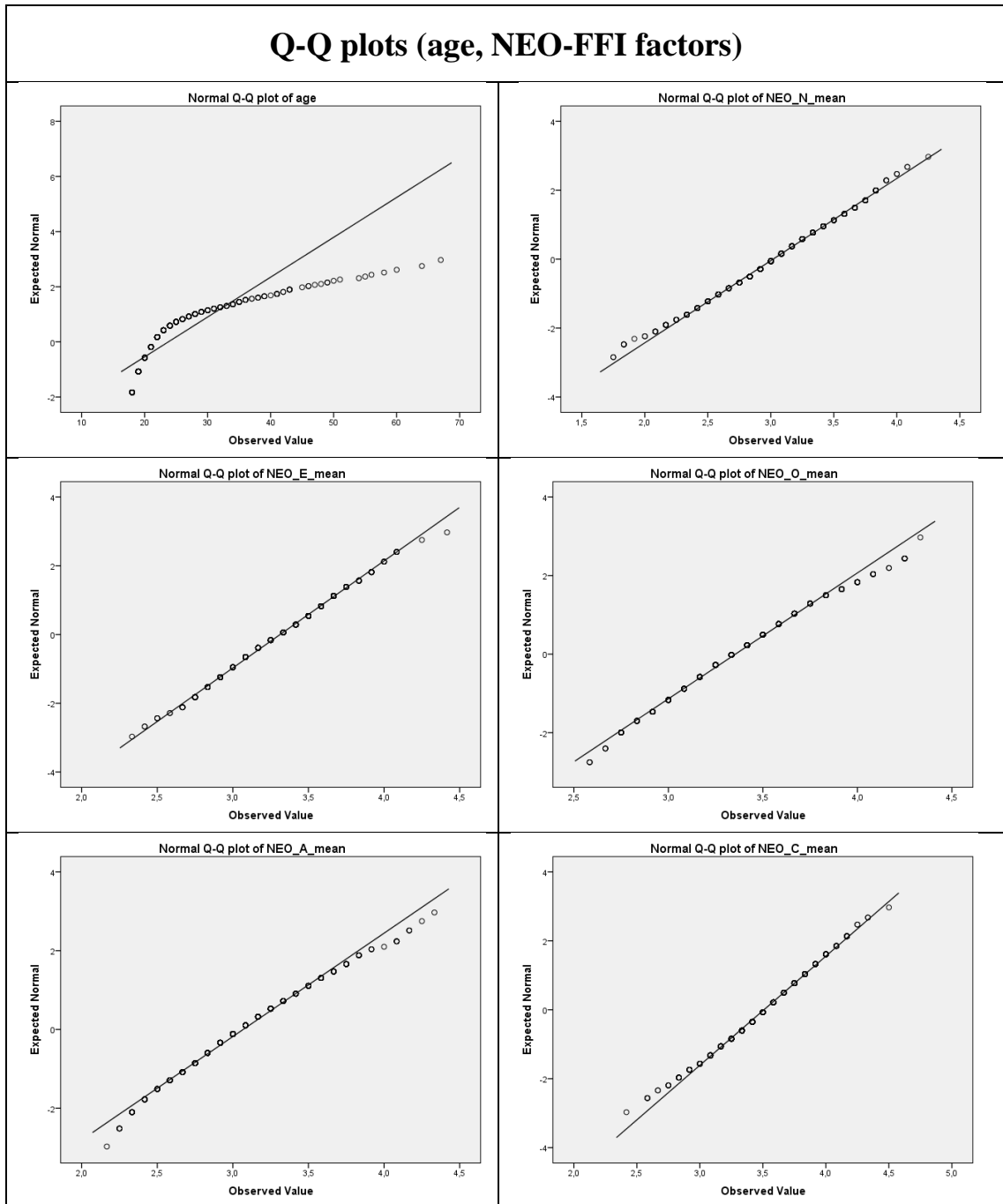
Basically, normal distribution can be tested by graphical methods (e.g. widely used Q-Q plots), numerical methods and formal normality tests. While the graphical tests allow analysis on a simple basis, the other alternatives (especially normality tests) can support these results (Razali and Wah, 2011, p. 21).

Widely used normality tests (e.g. the Kolmogorov-Smirnov test) regularly lead to systematic and drastic errors (upward biased p-values). Therefore, it is suggested to favor the more accurate Shapiro-Wilk test (Shapiro and Wilk, 1965, pp. 591–611) instead (Steinskog *et al.*, 2007, p. 1156).

Based on the aforementioned considerations, the metrical variables were tested for normality on base of Q-Q plots and the Shapiro-Wilk test.

The Q-Q plots strongly support the assumption of normally distributed data for the independent variables (except for the age variable which is caused by the typical younger age structure in the student sample) as shown below:

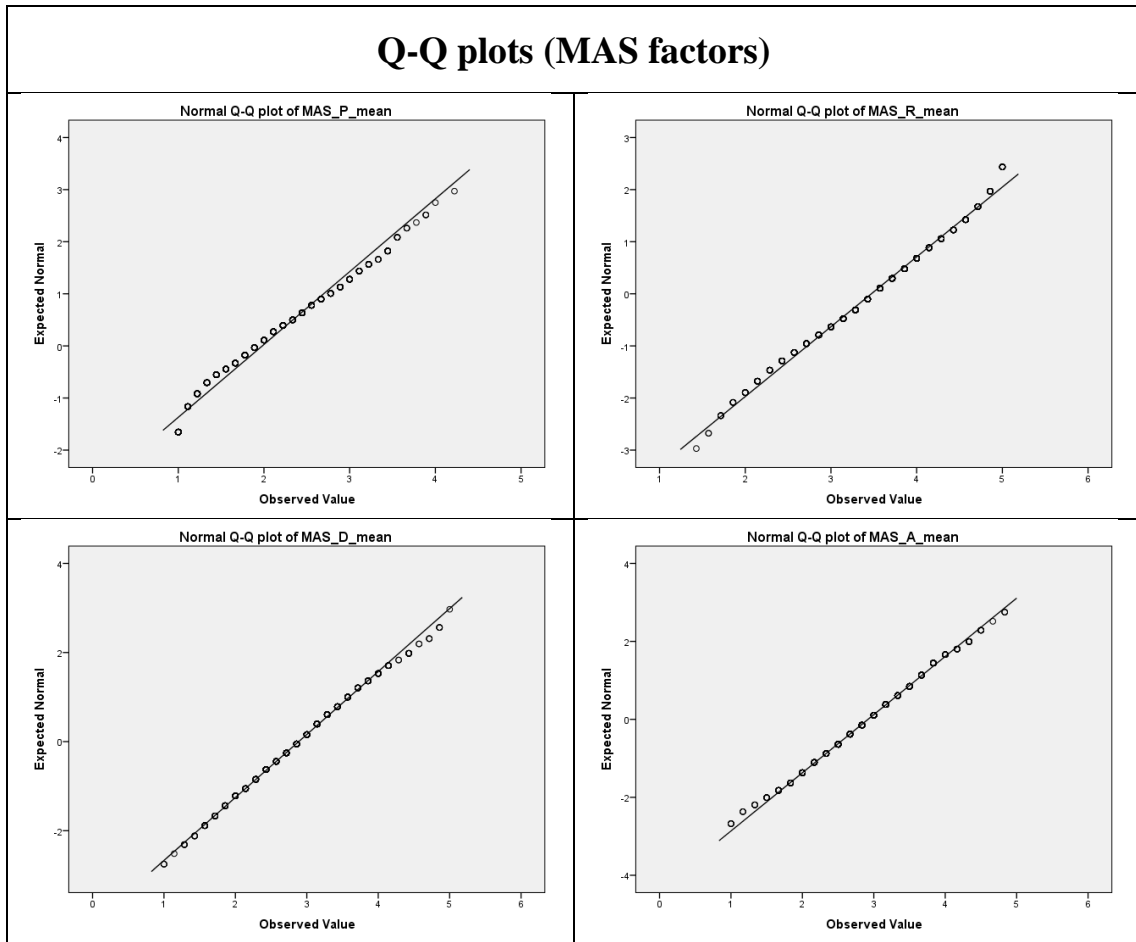
Figure 6: Q-Q plots for metric independent variables (age, NEO-FFI factors).



Own research results.

Further, the Q-Q plots support the normal distributed data assumption also for the dependent MAS variables as shown in the following figure:

Figure 7: Q-Q plots for metric dependent variables (MAS factors).



Own research results.

The results of the Shapiro-Wilk test (as well as of the Kolmogorov-Smirnov test) did not prove perfectly normally distributed data (p values < 0.5 at non-significant levels) for the study sample. This phenomena could be found regularly for larger sample group sizes ($n = 671$) as normality tests tend to react too sensitive in that case (Läärä, 2009, p. 147). Thus, referring to the graphical results (Q-Q plots), normally distributed data can be assumed for all tested variables (except for age).

4.9 Correlation analyzes

Relations between money attitudes (metrically scaled) and possible predictors were tested on base of Eta-squared (η^2 , for nominal predictors), rank correlations (for ordinal predictors) and Bravais-Pearson correlations (for metrical predictors). All NEO-FFI (negatively poled items were re-poled) and MAS results were processed with their mean values (not sums).

For interpreting the results, η^2 effect size results are considered as small ($\eta^2 > 0.01^*$), medium ($\eta^2 > 0.06^{**}$) or large ($\eta^2 > 0.14^{***}$) (Cohen, 1988, pp. 285–287; Ellis, 2010, p. 41). The following tables present the results of the η^2 analyzes:

Table 34: Eta-squared results (gender).

| BIO2_gender | Sum of squares (between groups) | Sum of squares (total) | η^2 |
|-------------|------------------------------------|---------------------------|----------|
| MAS_P | 5.366 | 342.846 | 0.016* |
| MAS_R | 2.796 | 372.898 | 0.008 |
| MAS_D | 0.467 | 335.433 | 0.001 |
| MAS_A | 2.509 | 300.657 | 0.008 |

Own research results.

Table 35: Eta-squared results (university).

| BIO2_uni | Sum of squares (between groups) | Sum of squares (total) | η^2 |
|----------|------------------------------------|---------------------------|----------|
| MAS_P | 14.789 | 342.846 | 0.043* |
| MAS_R | 27.836 | 372.898 | 0.075** |
| MAS_D | 24.623 | 335.433 | 0.073** |
| MAS_A | 22.798 | 300.657 | 0.076** |

Own research results.

The non-causal results indicate a small effect size of gender on the power-prestige dimension as well as small and medium effect sizes of the home university on all money attitude dimensions.

The effect sizes of the Spearman rank correlation results (ρ , for the ordinal scaled education-related variable) are classified as small ($\rho > 0.10^*$), medium ($\rho > 0.30^{**}$) or large ($\rho > 0.5^{***}$) (Ellis, 2010, p. 41) in the following table:

Table 36: Spearman's rho results (highest level of completed degree).

| BIO3_edu | Correlation coefficient | Sig. (2-tailed) |
|----------|-------------------------|-----------------|
| MAS_P | 0.033 | 0.284 |
| MAS_R | 0.116* | 0.000 |
| MAS_D | -0.037 | 0.228 |
| MAS_A | -0.001 | 0.982 |

Own research results.

A small and significant positive correlation was found between the highest level of the completed school or academic degree and the retention-time dimension.

Relations between money attitudes and personality-traits as well as the age (all metrical variables) were tested through Bravais-Pearson correlation coefficients (r).

For interpreting the Bravais-Pearson correlation results, significant r effect size results are classified as small ($r > 0.10$ normal lettering), medium ($r > 0.30$ italicized) or large ($r > 0.50$ bold) (Ellis, 2010, p. 41). Significant results (2-tailed) are further marked ($p < 0.05^*$, $p < 0.01^{**}$) in the table below:

Table 37: Pearson correlation results (age, personality dimensions).

| | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------------|-------|------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1. BIO2_age | 23.76 | 6.92 | | | | | | | | | |
| 2. NEO_N | 3.02 | 0.42 | -0.20** | | | | | | | | |
| 3. NEO_E | 3.31 | 0.32 | -0.06 | 0.13** | | | | | | | |
| 4. NEO_O | 3.35 | 0.31 | -0.17** | 0.20** | 0.30** | | | | | | |
| 5. NEO_A | 3.07 | 0.38 | -0.02 | 0.07 | 0.18** | 0.19** | | | | | |
| 6. NEO_C | 3.51 | 0.32 | -0.03 | 0.06 | 0.31** | 0.30** | 0.25** | | | | |
| 7. MAS_P | 1.98 | 0.72 | -0.09* | 0.19** | 0.11** | 0.10* | 0.35** | 0.08* | | | |
| 8. MAS_R | 3.47 | 0.75 | 0.18** | -0.09* | 0.07 | 0.05 | 0.05 | 0.24** | 0.01 | | |
| 9. MAS_D | 2.89 | 0.71 | -0.12** | 0.30** | 0.07 | 0.13** | 0.15** | 0.06 | 0.28** | 0.16** | |
| 10. MAS_A | 2.92 | 0.67 | -0.09* | 0.34** | 0.10** | 0.19** | 0.23** | 0.09* | 0.36** | -0.03 | 0.45** |

Own research results.

Age seems to have a significant negative effect on the power-prestige ($r = -0.09$, $p = 0.02$), distrust ($r = -0.12$, $p = 0.00$) and the anxiety ($r = -0.09$, $p = 0.02$) money attitude dimensions and a small positive effect on the retention-time ($r = 0.18$, $p = 0.00$) dimension. The personality dimension neuroticism was found to be significantly

positively connected with power-prestige ($r = 0.19$, $p = 0.00$), distrust ($r = 0.30$, $p = 0.00$) and anxiety ($r = 0.34$, $p = 0.00$). Furthermore, neuroticism was negatively correlated towards retention-time ($r = -0.09$, $p = 0.02$). Only two small effects (positive correlations) with the power-prestige ($r = 0.11$, $p = 0.00$) and the anxiety ($r = 0.10$, $p = 0.01$) money attitude factors were calculated for the extraversion personality dimension. Openness for experience was positively connected with the power-prestige ($r = 0.10$, $p = 0.01$), distrust ($r = 0.13$, $p = 0.00$) and anxiety ($r = 0.19$, $p = 0.00$) factors. Also, for agreeableness positive correlations were found for the power-prestige ($r = 0.35$, $p = 0.00$), distrust ($r = 0.15$, $p = 0.00$) and anxiety ($r = 0.23$, $p = 0.00$) dimensions. Conscientiousness showed a positive correlation with the money attitude factors power-prestige ($r = 0.08$, $p = 0.04$), retention-time ($r = 0.24$, $p = 0.00$) and anxiety ($r = 0.09$, $p = 0.02$).

The correlation results indicate the existence of significant effects between the tested predictors and the money attitude dimensions. Further analyzes to specify the direction of the relations (causalities) as well as the underlying structure in each national subsample are presented in the following subchapters.

4.10 Multiple linear regression

4.10.1 Regression quality criteria

The dataset was proved for **outliers** based on standardized residuals, studentized residuals, leverages and Cook's distances. Few outliers were identified for regression models of the national subsamples. In these cases, alternative regression models with excluded outliers were calculated showing slightly improved significance values. Yet, the few identified outliers were not excluded from the final multiple linear regression models as these values were either not results of typing/measurement errors or the result of anomalous cases in the online-survey.

Before the multiple linear regression analyzes were conducted, the **regression quality criteria** were tested. Ideal conditions for the regression outcomes can be assumed when multicollinearity and autocorrelation between the tested variables does not occur. Furthermore, the residuals should follow a normal-distribution while homoscedasticity is given (Paier, 2013, n.p.).

When independent variables are strongly correlated (**multicollinearity**) the significant regression coefficients cannot be identified correctly (Johnson and Wichert,

2007, p. 386). This results in inaccurate relationships between the predictor and the dependent variable as the individual contribution of each independent variable is not calculated accurately (Muijs, 2004, pp. 179–180). Such a linear relationship among two independent variables means inadequate orthogonality among those variables potentially leading to incorrect regression coefficients which is indicated by a $VIF > 10.0$ (Alin, 2010, pp. 370–371). In addition, eigenvalues (< 0.01) and condition values (> 15) should achieve the suggested values to exclude multicollinearity effects (Schendera, 2014, pp. 104–105). All regression models presented in the work can be considered as stable in terms of multicollinearity. The relevant values (VIF, eigenvalues, condition values) were calculated in detail as part of the SPSS output.

Multiple linear regression models resume a linear relationship between the predictors and the dependent variables, which can be measured through the residuals (observed value of the dependent variable – regression predicted value for each case). Therefore, residuals test the predictability of the dependent variables based on the underlying regression equation (Muijs, 2004, p. 177). **Normally distributed residuals** in histograms indicate random (and not systematical) estimation errors, while minor divergences are acceptable (Brosius, 2013, pp. 574–577). In addition, R^2 was calculated for evaluating the goodness-of-fit for each regression model (Muijs, 2004, p. 165) in the following subchapters. Unremarkable residuals distributions were found based on the histograms of the residuals and P-P plots (not presented in detail) for all regression models. Residuals that show comparable distances from the regression line in the scatterplot (standardized residuals and standardized values of the independent variables) can be considered as homoscedastic (Paier, 2013, n.p.). **Homoscedasticity** was evaluated based on scatterplots (not presented in details) showing no anomalies which would imply insufficient quality of the developed regression models. **Autocorrelation** occurs in case of correlated residuals (regression implies non-correlated residuals). In the context of regression quality criteria, autocorrelation is of relevance for longitudinal studies, de facto not for the present cross-sectional study design (Schendera, 2014, pp. 136–137). Therefore, no further analysis (e.g. processing of the Durbin Watson-coefficient) in terms of autocorrelation was performed.

4.10.2 Regression model (full sample)

Multiple linear regression analysis determined the variance for the MAS factors explained through gender, age, highest level of completed school/academic degree and the NEO-FFI factors. The **regression outcome** (consisting of 4 regression models for each MAS factor) for the **full sample** is summarized in the following table:

Table 38: Multiple linear regression results (full sample).

| MAS Factor | Variable β -weight (standardized) (<i>p</i> -value) | | | | | | | | <i>R</i> ² |
|--------------------|--|--------------------|------------------|--------------------|------------------|------------------|--------------------|--------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Power- Prestige | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.17 |
| | -0.10** (0.006) | -0.13** (0.006) | 0.08 (0.061) | 0.16*** (0.000) | 0.05 (0.224) | -0.01 (0.878) | 0.31*** (0.000) | -0.03 (0.509) | |
| Retention- Time | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.10 |
| | 0.04 (0.292) | 0.18*** (0.000) | -0.03 (0.557) | -0.09* (0.028) | 0.01 (0.744) | 0.02 (0.715) | 0.00 (0.926) | 0.24*** (0.000) | |
| Distrust | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.12 |
| | -0.05 (0.221) | -0.07 (0.122) | 0.01 (0.832) | 0.28*** (0.000) | 0.00 (0.954) | 0.04 (0.309) | 0.12** (0.003) | 0.00 (0.996) | |
| Anxiety | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.17 |
| | 0.08* (0.036) | -0.05 (0.325) | 0.05 (0.264) | 0.30*** (0.000) | -0.01 (0.882) | 0.08 (0.056) | 0.21*** (0.000) | -0.01 (0.856) | |

n = 671 (full sample)

Gender, Edu. were processed as dummy variables.

Gender: Male = 0, Female = 1, Other = 1.5

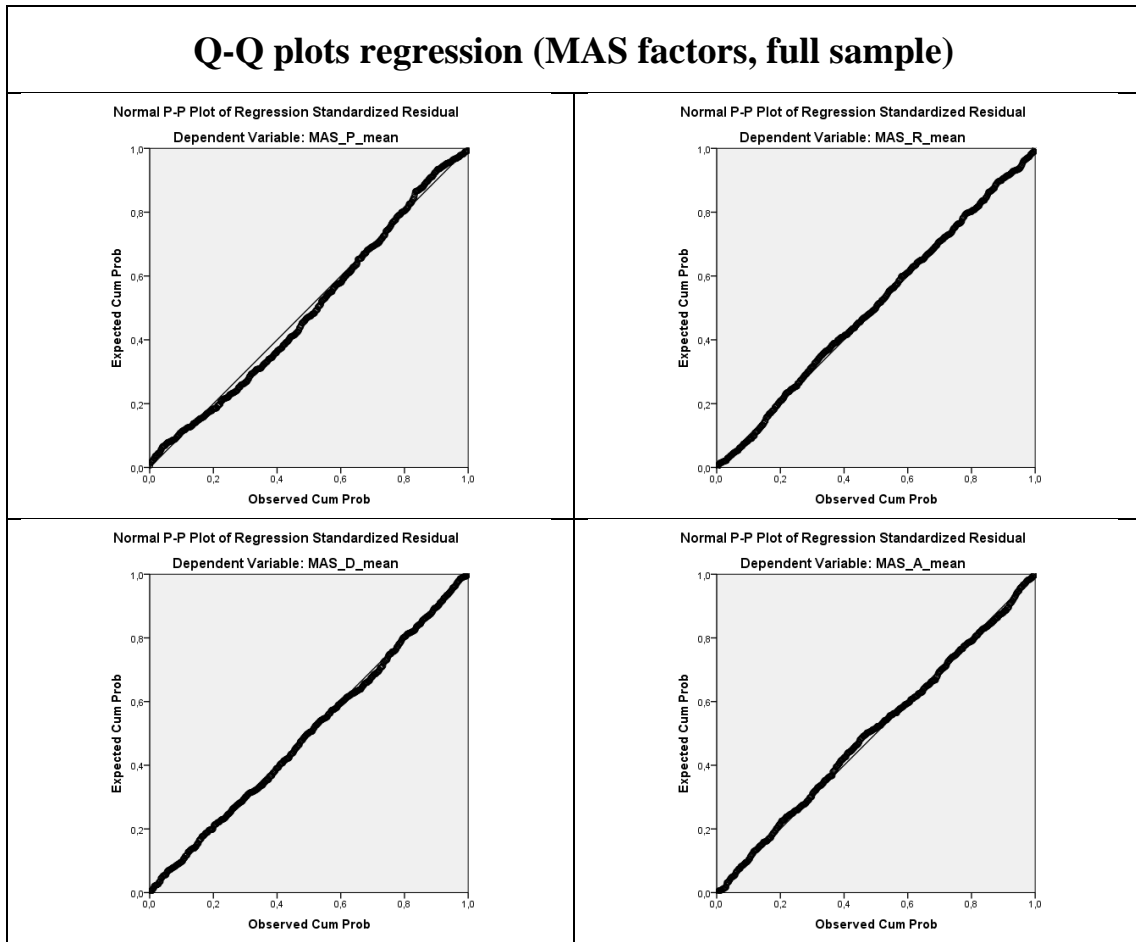
Edu. (Highest level of completed school/academic degree): High School degree = 0, Bachelor's degree = 1, Master's degree = 2, Doctorate degree = 3)

* *p* < 0.05, ** *p* <= 0.01, *** *p* < 0.001 (*p*-values in parentheses)

Own research results.

No cases (outliers) were excluded from the raw data. The model showed no autocorrelation as the values of the Durbin-Watson statistic were between 1.900 and 2.078. Furthermore, VIF values > 10.0, which potentially indicate multicollinearity issues between the predictors (Alin, 2010, pp. 370–371), were not calculated. Scatterplots suggested homoscedasticity of the residuals. Histograms and P-P-plots (as detailed in the next figure) both showed normally distributed residuals:

Figure 8: Q-Q plots for standardized residuals (MAS factors, full sample).



Own research results.

R^2 for the MAS regression models (model variance) was interpreted as weak ($R^2 > 0.02$), moderate ($R^2 > 0.13$) or high ($R^2 > 0.26$) variance explanation (Cohen, 1988, pp. 413–414). The **R^2 -values** indicated weak and moderate goodness-of-fits of the regression models ($R^2_{\text{Power-Prestige}} = 0.17$, $R^2_{\text{Power-Prestige adj.}} = 0.16$, $R^2_{\text{Retention-Time}} = 0.10$, $R^2_{\text{Retention-Time adj.}} = 0.09$, $R^2_{\text{Distrust}} = 0.12$, $R^2_{\text{Distrust adj.}} = 0.11$, $R^2_{\text{Anxiety}} = 0.17$, $R^2_{\text{Anxiety adj.}} = 0.16$).

For the full sample, gender, age, neuroticism and agreeableness **statistically significantly** predicted power-prestige, $F(8, 662) = 16.49$, $p < 0.001$. Age, neuroticism and conscientiousness were significant predictors for retention-time, $F(8, 662) = 8.81$, $p < 0.001$. Neuroticism and agreeableness were found statistically significant for distrust, $F(8, 662) = 10.93$, $p < 0.001$. Gender, neuroticism and agreeableness significantly predicted anxiety, $F(8, 662) = 17.07$, $p < 0.001$.

Calculated **regression equations** for the full sample are summarized as follows: Participants' predicted power-prestige was equal to $-0.371 - 0.151^{**}(\text{gender}) - 0.013^{**}(\text{age}) + 0.275^{***}(\text{neuroticism}) + 0.583^{***}(\text{agreeableness})$ or standardized equal to $-0.103^{**}(\text{gender}) - 0.126^{**}(\text{age}) + 0.161^{***}(\text{neuroticism}) + 0.311^{***}(\text{agreeableness})$. Furthermore, retention-time in the full sample was predicted equally to $1.272 + 0.019^{***}(\text{age}) - 0.151^{*}(\text{neuroticism}) + 0.562^{***}(\text{conscientiousness})$ or standardized equally to $0.178^{***}(\text{age}) - 0.085^{*}(\text{neuroticism}) + 0.238^{***}(\text{conscientiousness})$. The participants' distrust prediction was equal to $0.720 + 0.473^{***}(\text{neuroticism}) + 0.215^{**}(\text{agreeableness})$ or standardized equal to $0.280^{***}(\text{neuroticism}) + 0.116^{**}(\text{agreeableness})$. For anxiety, the regression equation was calculated with $-0.060 + 0.108^{*}(\text{gender}) + 0.475^{***}(\text{neuroticism}) + 0.360^{***}(\text{agreeableness})$ or standardized with $0.078^{*}(\text{gender}) + 0.297^{***}(\text{neuroticism}) + 0.205^{***}(\text{agreeableness})$. Unmentioned predictors did not show significant predictive power in relation to the money attitude factors. Gender and the highest level of completed school/academic degree were coded as dummy variables (as detailed in the regression results table above).

4.10.3 Regression model (Albanian subsample)

Regression results for the **Albanian subsample** are presented in the table below:

| MAS Factor | Variable β -weight (standardized) (<i>p</i> -value) | | | | | | | | <i>R</i> ² |
|--------------------|--|-------------------------|-------------------------|-------------------------------|-----------------------------|---------------------------|-------------------------------|-----------------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| | | | | | | | | | |
| Power- Prestige | Gender -0.09 (0.371) | Age -0.11 (0.364) | Edu. 0.10 (0.382) | Neurot. 0.11 (0.244) | Extrav. -0.07 (0.453) | Openn. 0.00 (0.962) | Agreea. 0.40*** (0.000) | Consc. 0.03 (0.787) | 0.21 |
| Retention- Time | Gender 0.11 (0.260) | Age 0.22 (0.069) | Edu. 0.03 (0.806) | Neurot. -0.12 (0.195) | Extrav. 0.07 (0.456) | Openn. 0.08 (0.371) | Agreea. -0.12 (0.227) | Consc. 0.30** (0.002) | 0.20 |
| Distrust | Gender -0.04 (0.677) | Age -0.08 (0.534) | Edu. 0.07 (0.568) | Neurot. 0.13 (0.185) | Extrav. 0.13 (0.236) | Openn. 0.06 (0.540) | Agreea. -0.05 (0.686) | Consc. 0.10 (0.346) | 0.07 |
| Anxiety | Gender -0.05 (0.595) | Age -0.10 (0.174) | Edu. 0.16 (0.176) | Neurot. 0.24*** (0.010) | Extrav. 0.17 (0.091) | Openn. 0.05 (0.581) | Agreea. 0.11 (0.284) | Consc. 0.13 (0.194) | 0.21 |

n = 117 (Albanian subsample)

Gender, Edu. were processed as dummy variables.

Gender: Male = 0, Female = 1, Other = 1.5

Edu. (Highest level of completed school/academic degree): High School degree = 0, Bachelor's degree = 1,

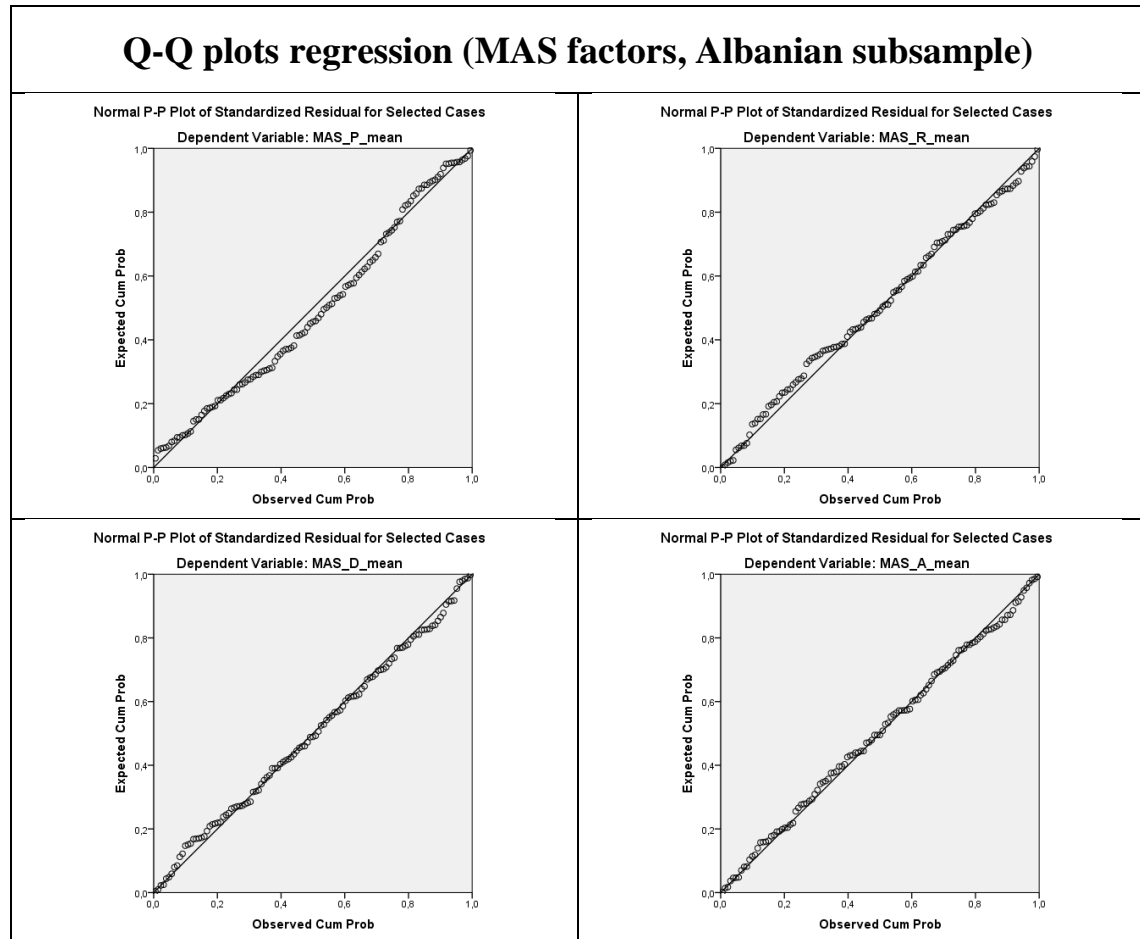
Master's degree = 2, Doctorate degree = 3)

* *p* < 0.05, ** *p* <= 0.01, *** *p* < 0.001 (*p*-values in parentheses)

Own research results.

In the Albanian subsample, no cases (outliers) were excluded. The models showed no autocorrelation as the values of the Durbin-Watson statistic were between 1.846 and 2.181. VIF values > 10.0 did not occur. The analysis of the scatterplots suggested homoscedasticity of the residuals. Histograms and P-P-plots (next figure) both showed residuals approximated to the normal distribution:

Figure 9: Q-Q plots for standardized residuals (MAS factors, Albanian subsample).



Own research results.

R²-values indicated weak and moderate (Cohen, 1988, pp. 413–414) goodness-of-fits of the Albanian regression models ($R^2_{\text{Power-Prestige}} = 0.21$, $R^2_{\text{Power-Prestige adj.}} = 0.15$, $R^2_{\text{Retention-Time}} = 0.20$, $R^2_{\text{Retention-Time adj.}} = 0.14$, $R^2_{\text{Distrust}} = 0.07$, $R^2_{\text{Distrust adj.}} = -0.01$, $R^2_{\text{Anxiety}} = 0.21$, $R^2_{\text{Anxiety adj.}} = 0.15$).

In the Albanian subsample, agreeableness **statistically significant** predicted power-prestige, $F(8, 108) = 3.59$, $p < 0.001$. Conscientiousness was a significant predictor for retention-time, $F(8, 108) = 3.33$, $p < 0.01$. No statistical predictors were

found for the distrust dimension. Neuroticism significantly predicted anxiety, $F(8, 108) = 3.52, p < 0.001$.

The following **regression equations** for the Albanian subsample were modeled: Participants' predicted power-prestige was equal to $0.035 + 0.734^{***}$ (agreeableness) or standardized equal to 0.403^{***} (agreeableness). Retention-time in this subsample was predicted equally to $0.251 + 0.695^{***}$ (conscientiousness) or standardized equally to 0.304^{***} (conscientiousness). The regression equation for anxiety was calculated with $-0.817 + 0.358^{**}$ (neuroticism) or standardized with 0.238^{**} (neuroticism). For the other tested predictors (as well as for distrust as the dependent variable), no significant regression results were found.

4.10.4 Regression model (Austrian subsample)

The table below shows the regression results for the **Austrian subsample**:

| Table 40: Multiple linear regression results (Austrian subsample). | | | | | | | | | |
|--|---|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|-------|
| MAS Factor | Variable β -weight (standardized) (p-value) | | | | | | | | R^2 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Power- Prestige | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.16 |
| | -0.02 (0.771) | -0.03 (0.782) | 0.00 (0.518) | 0.08 (0.306) | 0.02 (0.846) | 0.15 (0.066) | 0.33*** (0.000) | -0.04 (0.618) | |
| Retention- Time | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.05 |
| | 0.12 (0.138) | 0.00 (0.999) | 0.00 (0.988) | -0.02 (0.805) | 0.01 (0.883) | -0.06 (0.469) | 0.17 (0.052) | 0.11 (0.234) | |
| Distrust | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.09 |
| | 0.02 (0.786) | -0.05 (0.608) | -0.12 (0.214) | 0.20* (0.012) | -0.02 (0.795) | -0.02 (0.777) | 0.15 (0.065) | 0.07 (0.448) | |
| Anxiety | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.16 |
| | 0.14 (0.085) | 0.19* (0.038) | -0.11 (0.251) | 0.35*** (0.000) | 0.02 (0.815) | -0.08 (0.347) | 0.15 (0.064) | -0.02 (0.814) | |

$n = 168$ (Austrian subsample)

Gender, Edu. were processed as dummy variables.

Gender: Male = 0, Female = 1, Other = 1.5

Edu. (Highest level of completed school/academic degree): High School degree = 0, Bachelor's degree = 1, Master's degree = 2, Doctorate degree = 3)

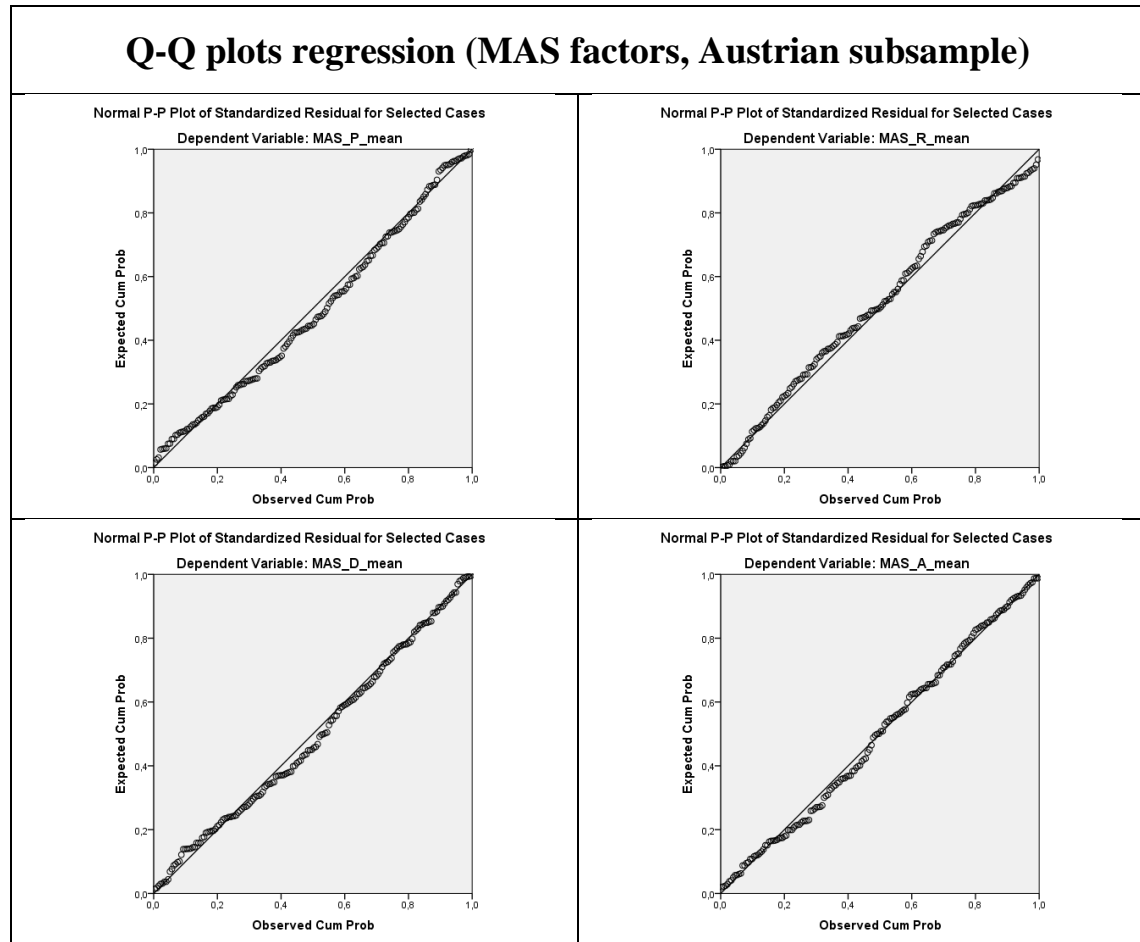
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (p-values in parentheses)

Own research results.

The models showed no autocorrelation with Durbin-Watson values between 1.900 and 2.187 and no outliers were excluded. VIF values > 10.0 were not calculated in the Austrian subsample. The analyzed scatterplots suggested homoscedasticity of the residuals.

Histograms and P-P-plots (next figure) indicated residuals approximated to the normal distribution:

Figure 10: Q-Q plots for standardized residuals (MAS factors, Austrian subsample).



Own research results.

For the Austrian subsample regression models, **R^2 -values** indicated weak and moderate (Cohen, 1988, pp. 413–414) goodness-of-fits ($R^2_{\text{Power-Prestige}} = 0.16$, $R^2_{\text{Power-Prestige adj.}} = 0.12$, $R^2_{\text{Retention-Time}} = 0.05$, $R^2_{\text{Retention-Time adj.}} = 0.01$, $R^2_{\text{Distrust}} = 0.09$, $R^2_{\text{Distrust adj.}} = 0.04$, $R^2_{\text{Anxiety}} = 0.16$, $R^2_{\text{Anxiety adj.}} = 0.11$).

In the Austrian subsample, agreeableness **statistically significantly** predicted power-prestige, $F(8, 159) = 3.76$, $p < 0.001$. For retention-time no significant predictors were identified. In a nearly significant regression model, neuroticism was found with predictive power for the distrust money attitude dimension, $F(8, 159) = 1.86$, $p < 0.07$. Age and neuroticism significantly predicted anxiety, $F(8, 159) = 3.66$, $p < 0.001$.

Three **regression equations** for the Austrian subsample were modeled: Participants' predicted power-prestige was equal to $-1.170 + 0.564^{***}$ (agreeableness) or standardized equal to 0.329^{***} (agreeableness). Distrust in the subsample was calculated equally to $0.781 + 0.360^*$ (neuroticism) or standardized equally to 0.201^* (neuroticism). The regression equation for anxiety was $0.515 + 0.013^*$ (age) + 0.546^{***} (neuroticism) or standardized with 0.194^* (age) + 0.351^{***} (neuroticism). No significant regression results were found for the other tested predictors (as well as for the dependent retention-time variable).

4.10.5 Regression model (Croatian subsample)

The following table shows the regression results for the **Croatian subsample**:

| MAS Factor | Variable β -weight (standardized) (<i>p</i> -value) | | | | | | | | <i>R</i> ² |
|--------------------|--|-------------------------|--------------------------|-------------------------------|-----------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Power- Prestige | Gender -0.18* (0.041) | Age -0.10 (0.515) | Edu. -0.08 (0.600) | Neurot. 0.24** (0.010) | Extrav. 0.04 (0.684) | Openn. -0.18 (0.054) | Agreea. 0.18 (0.053) | Consc. -0.03 (0.704) | 0.22 |
| Retention- Time | Gender -0.16 (0.076) | Age -0.13 (0.397) | Edu. 0.23 (0.146) | Neurot. -0.04 (0.359) | Extrav. 0.08 (0.423) | Openn. 0.14 (0.145) | Agreea. -0.05 (0.505) | Consc. 0.30** (0.003) | 0.19 |
| Distrust | Gender -0.19* (0.033) | Age 0.26 (0.092) | Edu. -0.18 (0.234) | Neurot. 0.51*** (0.000) | Extrav. 0.11 (0.229) | Openn. 0.05 (0.611) | Agreea. -0.06 (0.542) | Consc. -0.02 (0.813) | 0.27 |
| Anxiety | Gender 0.06 (0.543) | Age 0.07 (0.685) | Edu. 0.05 (0.748) | Neurot. 0.39*** (0.000) | Extrav. -0.09 (0.391) | Openn. -0.00 (0.990) | Agreea. 0.03 (0.781) | Consc. -0.02 (0.884) | 0.16 |

n = 119 (Croatian subsample)

Gender, Edu. were processed as dummy variables.

Gender: Male = 0, Female = 1, Other = 1.5

Edu. (Highest level of completed school/academic degree): High School degree = 0, Bachelor's degree = 1, Master's degree = 2, Doctorate degree = 3)

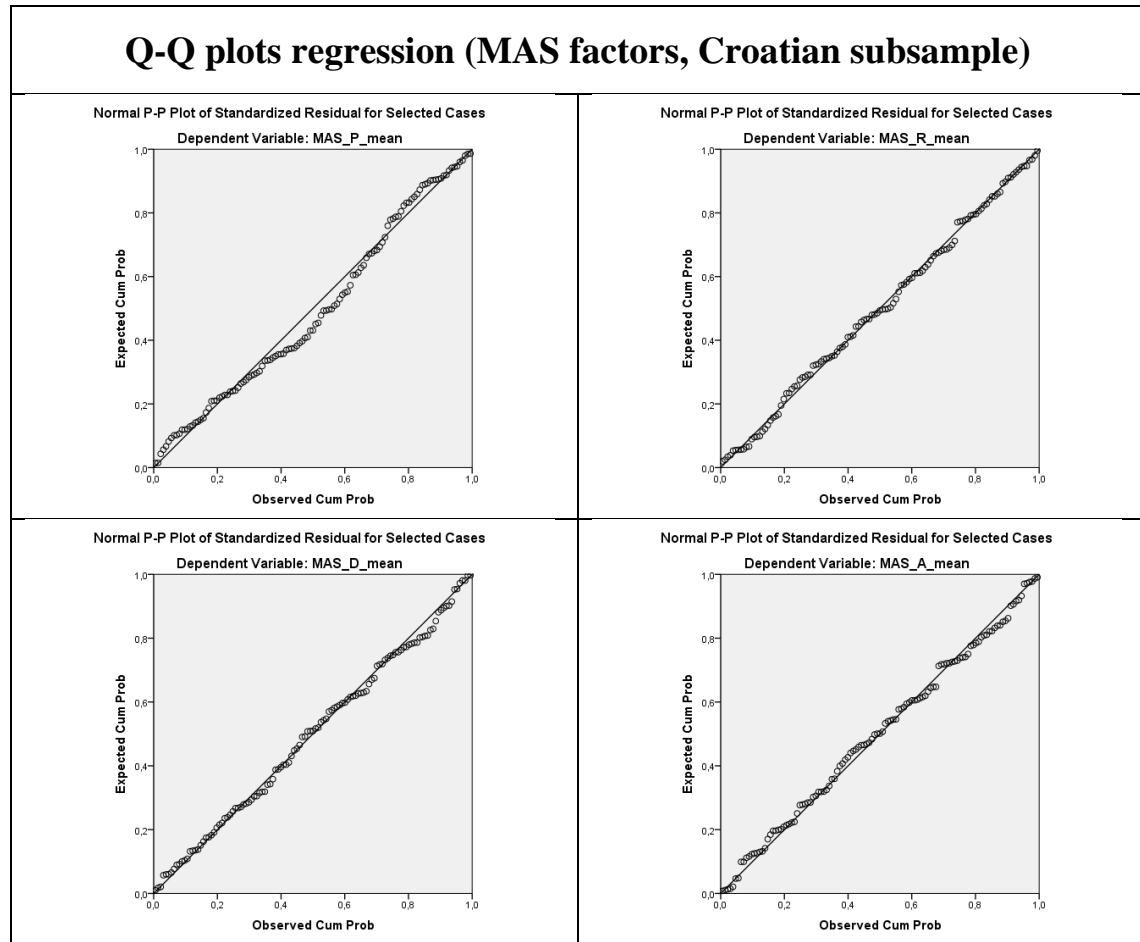
* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001 (*p*-values in parentheses)

Own research results.

The models for the Croatian subsample showed no autocorrelation evidence with Durbin-Watson values between 1.958 and 2.192, neither outlier was excluded. VIF values > 10.0 were not found. Homoscedasticity of the residuals was supported through scatterplots.

Histograms and P-P-plots (next figure) showed residuals located closely to the normal distribution curve:

Figure 11: Q-Q plots for standardized residuals (MAS factors, Croatian subsample).



Own research results.

For the Croatian subsample weak ($R^2 > 0.02$), moderate ($R^2 > 0.13$) and high ($R^2 > 0.26$) (Cohen, 1988, pp. 413–414) **variance explanations** were computed ($R^2_{\text{Power-Prestige}} = 0.22$, $R^2_{\text{Power-Prestige adj.}} = 0.17$, $R^2_{\text{Retention-Time}} = 0.19$, $R^2_{\text{Retention-Time adj.}} = 0.13$, $R^2_{\text{Distrust}} = 0.27$, $R^2_{\text{Distrust adj.}} = 0.22$, $R^2_{\text{Anxiety}} = 0.16$, $R^2_{\text{Anxiety adj.}} = 0.10$).

Gender and neuroticism **statistically significantly** predicted power-prestige in the Croatian subsample, $F(8, 110) = 3.92$, $p < 0.001$. For retention-time, conscientiousness was identified as a significant predictor, $F(8, 110) = 3.20$, $p < 0.003$. Distrust statistically significantly was predicted by gender and neuroticism, $F(8, 110) = 5.04$, $p < 0.001$. Neuroticism further predicted anxiety on a significant level, $F(8, 110) = 2.70$, $p < 0.01$.

The following four **regression equations** were modeled for the Croatian subsample: Participants' predicted power-prestige was equal to $1.441 - 0.283^* (\text{gender}) + 0.392^{**} (\text{neuroticism})$ or standardized equal to $-0.184^* (\text{gender}) + 0.243^{**} (\text{neuroticism})$. Retention-time was calculated with $0.283 + 0.726^{**} (\text{conscientiousness})$ or standardized with $0.300^{**} (\text{conscientiousness})$. Distrust in the Croatian subsample was computed as $-1.301 - 0.300^* (\text{gender}) + 0.870^{***} (\text{neuroticism})$ or standardized equally as $-0.187^* (\text{gender}) + 0.514^{***} (\text{neuroticism})$. The anxiety regression equation was $1.111 + 0.671^{***} (\text{neuroticism})$ or standardized $0.389^{***} (\text{neuroticism})$. Significant results for the other tested predictors did not occur.

4.10.6 Regression model (Slovakian subsample)

The **Slovakian subsample** regression results are summarized in the following table:

| Table 42: Multiple linear regression results (Slovakian subsample). | | | | | | | | | |
|---|---|------------------|------------------|--------------------|------------------|------------------|--------------------|-------------------|-------|
| MAS Factor | Variable β -weight (standardized) (p-value) | | | | | | | | R^2 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Power- Prestige | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.25 |
| | -0.09 (0.343) | -0.20 (0.059) | 0.25* (0.011) | 0.24** (0.007) | -0.04 (0.689) | 0.01 (0.918) | 0.40*** (0.000) | -0.16 (0.091) | |
| Retention- Time | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.04 |
| | -0.16 (0.116) | -0.08 (0.468) | 0.00 (0.994) | 0.04 (0.681) | 0.08 (0.470) | -0.06 (0.544) | -0.01 (0.962) | 0.01 (0.930) | |
| Distrust | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.19 |
| | -0.03 (0.774) | -0.04 (0.718) | 0.01 (0.912) | 0.36*** (0.000) | -0.07 (0.459) | 0.09 (0.335) | 0.15 (0.130) | -0.24* (0.015) | |
| Anxiety | Gender | Age | Edu. | Neurot. | Extrav. | Openn. | Agreea. | Consc. | 0.23 |
| | 0.12 (0.165) | 0.01 (0.925) | 0.02 (0.820) | 0.35*** (0.000) | 0.03 (0.733) | 0.06 (0.504) | 0.25** (0.008) | -0.06 (0.488) | |

$n = 117$ (Slovakian subsample)

Gender, Edu. were processed as dummy variables.

Gender: Male = 0, Female = 1, Other = 1.5

Edu. (Highest level of completed school/academic degree): High School degree = 0, Bachelor's degree = 1, Master's degree = 2, Doctorate degree = 3)

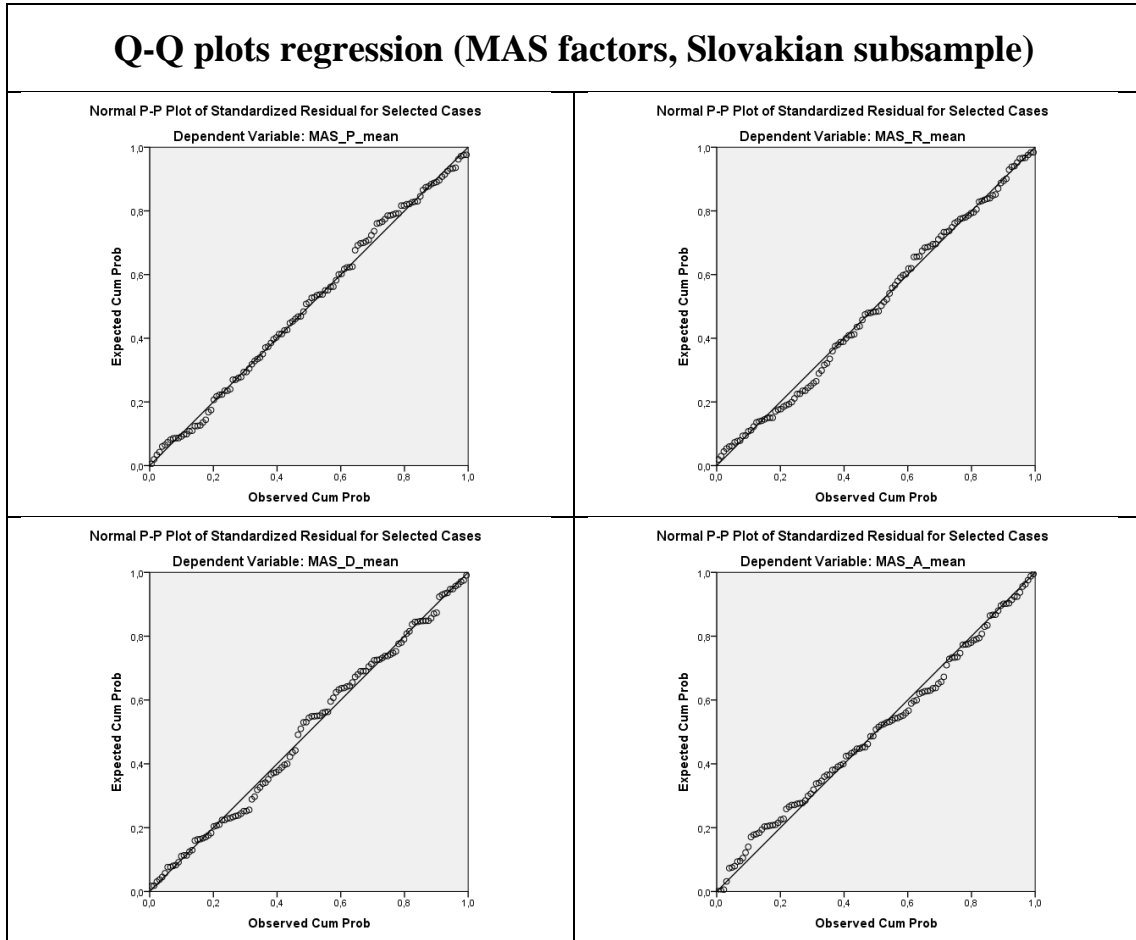
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (p-values in parentheses)

Own research results.

The models for the Slovakian subsample showed no autocorrelation evidence as Durbin-Watson values were between 1.958 and 2.073. VIF values > 10.0 were not found and no outliers were excluded. Homoscedasticity of the residuals was supported through scatterplot analysis.

Histograms and P-P-plots (next figure) confirmed nearly normally distributed residuals:

Figure 12: Q-Q plots for standardized residuals (MAS factors, Slovakian subsample).



Own research results.

Also for the Slovakian subsample variance explanations in different strengths were found ranging from weak ($R^2 > 0.02$), moderate ($R^2 > 0.13$) to high ($R^2 > 0.26$) (Cohen, 1988, pp. 413–414) ($R^2_{\text{Power-Prestige}} = 0.25$, $R^2_{\text{Power-Prestige adj.}} = 0.19$, $R^2_{\text{Retention-Time}} = 0.38$, $R^2_{\text{Retention-Time adj.}} = -0.03$, $R^2_{\text{Distrust}} = 0.19$, $R^2_{\text{Distrust adj.}} = 0.12$, $R^2_{\text{Anxiety}} = 0.23$, $R^2_{\text{Anxiety adj.}} = 0.17$).

Education, neuroticism and agreeableness **statistically significant** predicted power-prestige in the Slovakian subsample, $F(8, 108) = 4.39$, $p < 0.001$. No significant predictors were computed for retention-time. For distrust, neuroticism and conscientiousness were identified as significant predictors, $F(8, 108) = 3.06$, $p < 0.004$. Anxiety was predicted by neuroticism and agreeableness on a significant level, $F(8, 108) = 3.91$, $p < 0.001$.

Three **regression equations** were computed for the Slovakian subsample: Participants' predicted power-prestige was equal to $2.441 + 0.438^* (\text{education}) + 0.456^{**} (\text{neuroticism}) + 0.806^{***} (\text{agreeableness})$ or standardized equal to $0.254^* (\text{education}) + 0.239^{**} (\text{neuroticism}) + 0.403^{***} (\text{agreeableness})$. Distrust was calculated with $2.383 + 0.513^{***} (\text{neuroticism}) - 0.444^* (\text{conscientiousness})$ or standardized with $0.359^{***} (\text{neuroticism}) - 0.236^* (\text{conscientiousness})$. The regression equation for anxiety in the Slovakian sample was $-0.015 + 0.489^{***} (\text{neuroticism}) + 0.371^{**} (\text{agreeableness})$ or standardized $0.349^{***} (\text{neuroticism}) + 0.252^{**} (\text{agreeableness})$. Significant results for the other tested predictors or for retention-time (as dependent variable) were not calculated.

4.10.7 Regression model (Turkish subsample)

The regression results of the **Turkish subsample** are presented in the table below:

Table 43: Multiple linear regression results (Turkish subsample).

| MAS Factor | Variable β -weight (standardized) (<i>p</i> -value) | | | | | | | | <i>R</i> ² |
|--------------------|--|-------------------------|--------------------------|-------------------------------|-----------------------------|----------------------------|-------------------------------|------------------------------|-----------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| | | | | | | | | | |
| Power- Prestige | Gender -0.10 (0.211) | Age -0.10 (0.360) | Edu. 0.08 (0.437) | Neurot. 0.20* (0.016) | Extrav. 0.15 (0.072) | Openn. -0.02 (0.788) | Agreea. 0.24** (0.003) | Consc. 0.03 (0.760) | 0.15 |
| Retention- Time | Gender 0.09 (0.253) | Age 0.03 (0.738) | Edu. -0.15 (0.120) | Neurot. -0.13 (0.093) | Extrav. -0.07 (0.417) | Openn. 0.14 (0.080) | Agreea. 0.01 (0.902) | Consc. 0.40*** (0.000) | 0.23 |
| Distrust | Gender -0.01 (0.882) | Age -0.08 (0.453) | Edu. 0.09 (0.382) | Neurot. 0.34*** (0.000) | Extrav. -0.01 (0.915) | Openn. 0.01 (0.875) | Agreea. 0.16 (0.054) | Consc. 0.06 (0.532) | 0.16 |
| Anxiety | Gender 0.15* (0.049) | Age 0.16 (0.103) | Edu. -0.13 (0.175) | Neurot. 0.25*** (0.001) | Extrav. -0.06 (0.424) | Openn. 0.19* (0.019) | Agreea. 0.35*** (0.000) | Consc. -0.13 (0.112) | 0.26 |

n = 150 (Turkish subsample)

Gender, Edu. were processed as dummy variables.

Gender: Male = 0, Female = 1, Other = 1.5

Edu. (Highest level of completed school/academic degree): High School degree = 0, Bachelor's degree = 1, Master's degree = 2, Doctorate degree = 3)

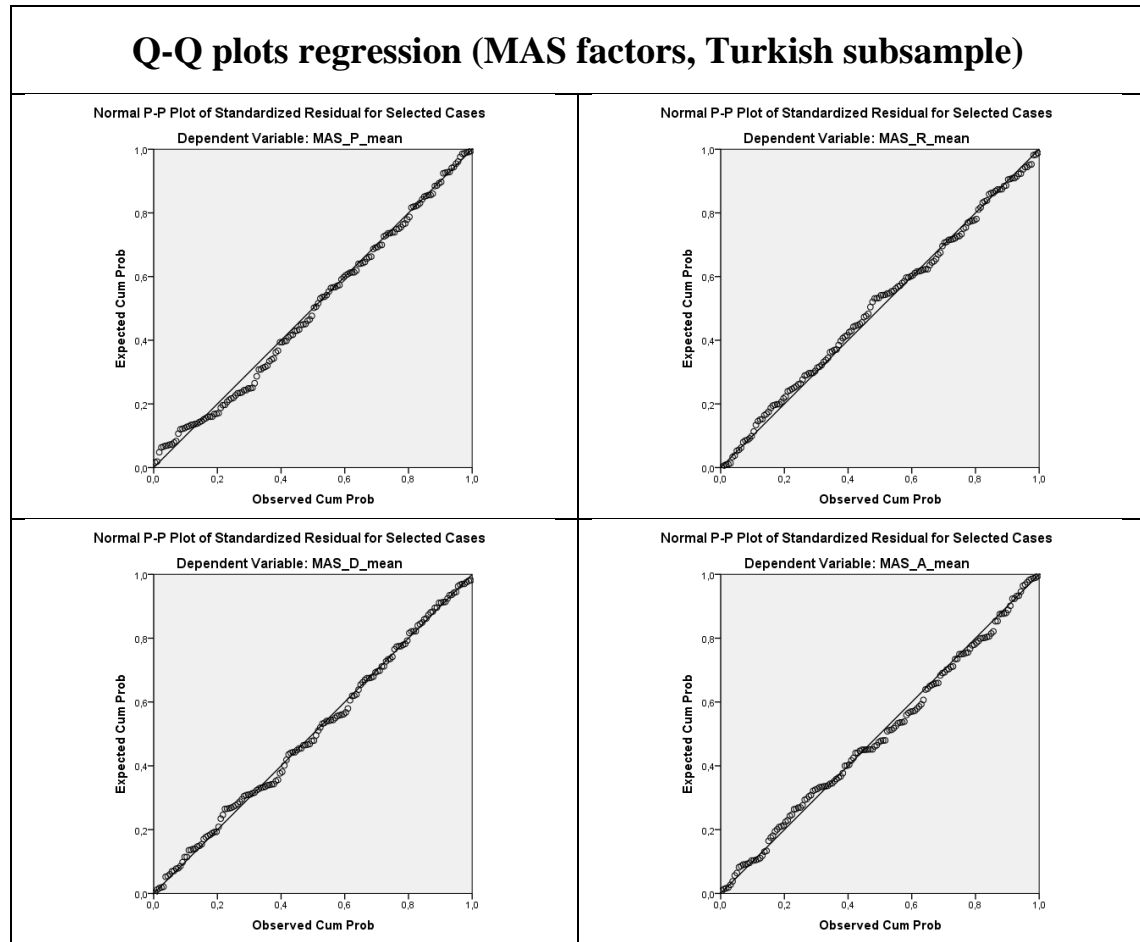
* *p* < 0.05, ** *p* <= 0.01, *** *p* < 0.001 (*p*-values in parentheses)

Own research results.

No autocorrelation was reported in the Turkish subsample with Durbin-Watson values between 1.900 and 2.076 and no outliers were excluded. All VIF values were < 10.0 indicating no multicollinearity cases. The scatterplots supported residuals homoscedasticity.

Nearly normally distributed residuals were confirmed by histograms and P-P-plots (next figure) for the Turkish subsample:

Figure 13: Q-Q plots for standardized residuals (MAS factors, Turkish subsample).



Own research results.

Weak ($R^2 > 0.02$) and moderate ($R^2 > 0.13$) (Cohen, 1988, pp. 413–414) **R^2 -values** were computed for the Turkish subsample regression models ($R^2_{\text{Power-Prestige}} = 0.15$, $R^2_{\text{Power-Prestige adj.}} = 0.11$, $R^2_{\text{Retention-Time}} = 0.23$, $R^2_{\text{Retention-Time adj.}} = 0.18$, $R^2_{\text{Distrust}} = 0.16$, $R^2_{\text{Distrust adj.}} = 0.11$, $R^2_{\text{Anxiety}} = 0.26$, $R^2_{\text{Anxiety adj.}} = 0.22$).

Neuroticism and agreeableness **statistically significantly** predicted power-prestige in the Turkish subsample, $F(8, 141) = 3.18$, $p < 0.002$. Again, retention-time was predicted by conscientiousness on a significant level, $F(8, 141) = 5.20$, $p < 0.001$. Distrust significantly was predicted by neuroticism, $F(8, 141) = 3.32$, $p < 0.002$. Gender, neuroticism, openness to experience and agreeableness predicted anxiety on a significant level, $F(8, 141) = 6.29$, $p < 0.001$.

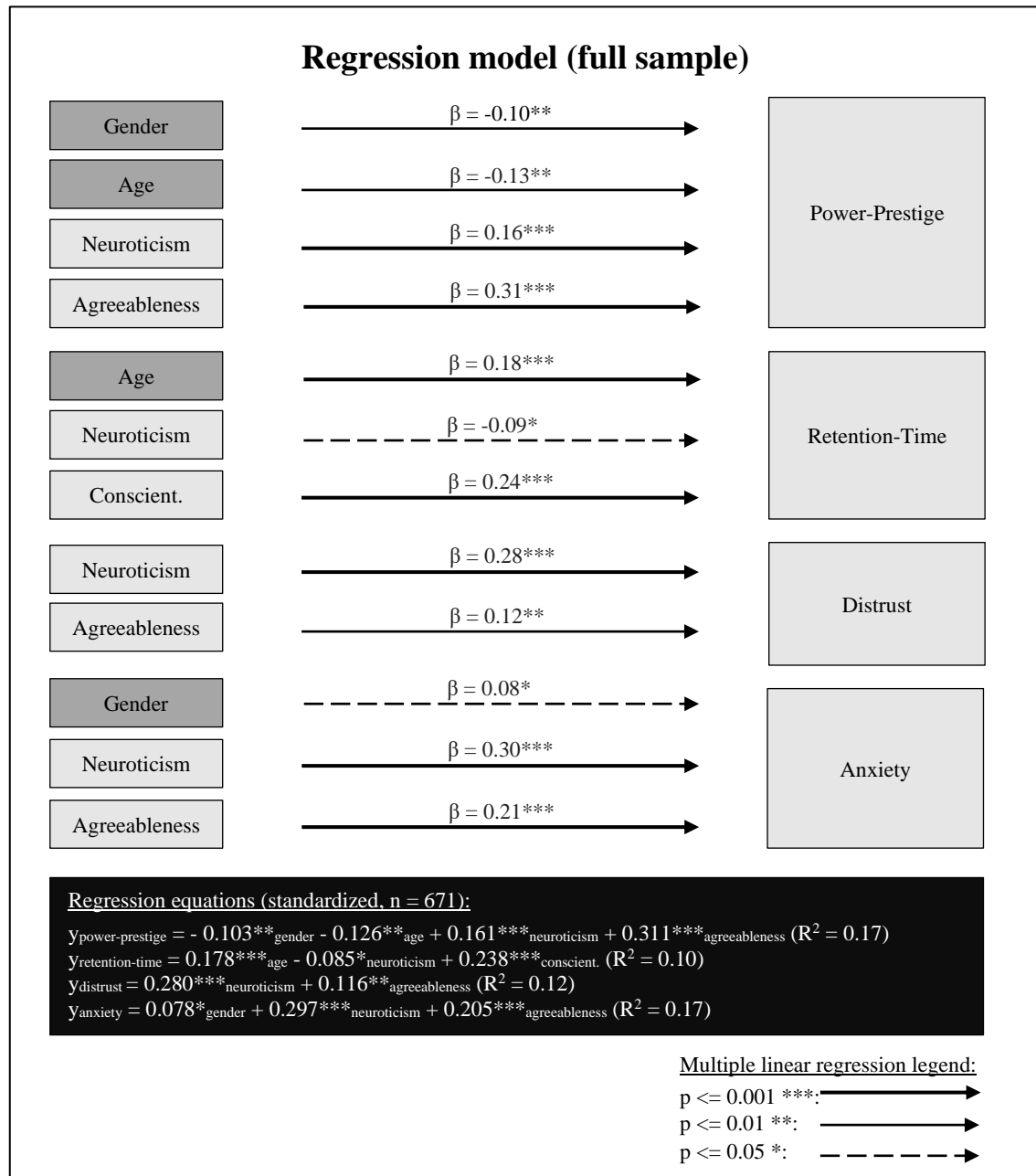
Three **regression equations** were derived based on the Turkish subsample: Participants' power-prestige prediction was equal to $-0.896 + 0.338^* (\text{neuroticism}) + 0.438^{**} (\text{agreeableness})$ or standardized equal to $0.198^* (\text{neuroticism}) + 0.241^{**} (\text{agreeableness})$. The retention-time regression equation was computed as $0.029 + 0.908^{***} (\text{conscientiousness})$ or standardized with $0.397^{***} (\text{conscientiousness})$. Distrust in the Turkish subsample was computed as $0.576 + 0.560^{***} (\text{neuroticism})$ or standardized as $0.341^{***} (\text{neuroticism})$. The anxiety regression equation was $-0.704 + 0.182^* (\text{gender}) + 0.382^{***} (\text{neuroticism}) + 0.366^* (\text{openness to experience}) + 0.577^{***} (\text{agreeableness})$ or standardized $0.152^* (\text{gender}) + 0.247^{***} (\text{neuroticism}) + 0.188^* (\text{openness to experience}) + 0.349^{***} (\text{agreeableness})$. No significant results were found for the other tested predictors.

4.11 Regression models visualization

The following figures **visualize** the regression models for the full sample and for each subsample to provide an overview. Only significant predictors and models are visualized.

For the **full sample**, the following regression model was developed:

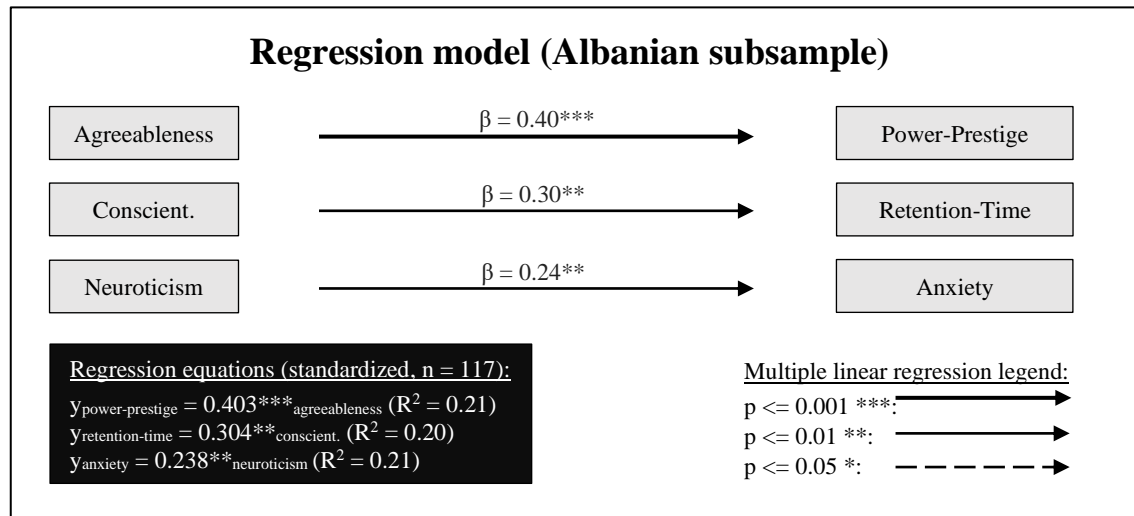
Figure 14: Regression model (full sample).



Own research results.

Based on the **Albanian** subsample, the following regression models were found:

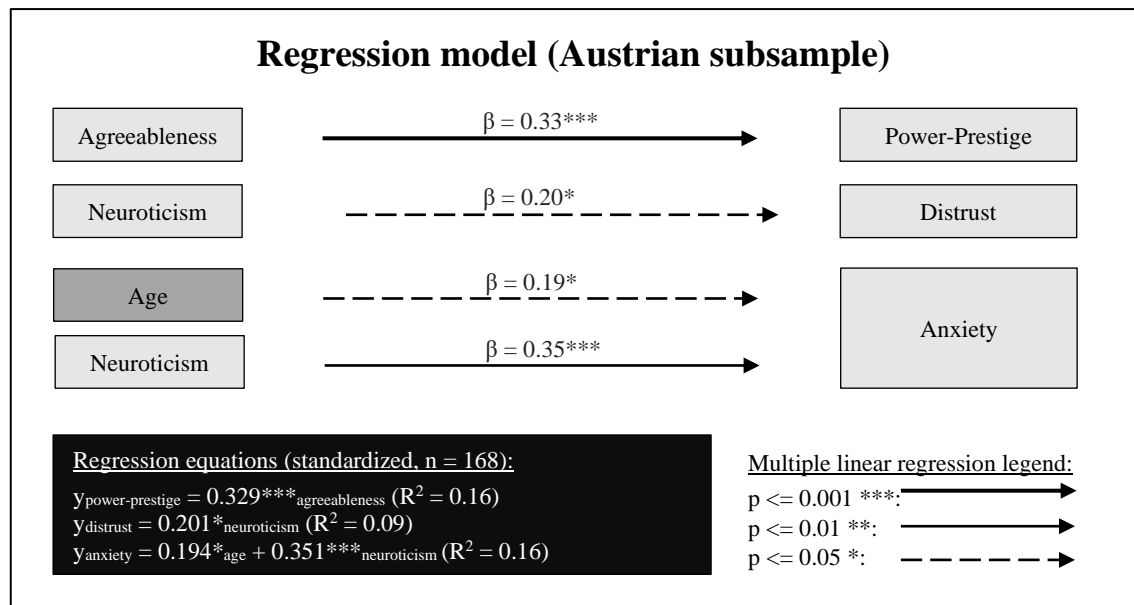
Figure 15: Regression model (Albanian subsample).



Own research results.

Similarities regarding the predictive power of agreeableness and neuroticism also occurred in the **Austrian** subsample:

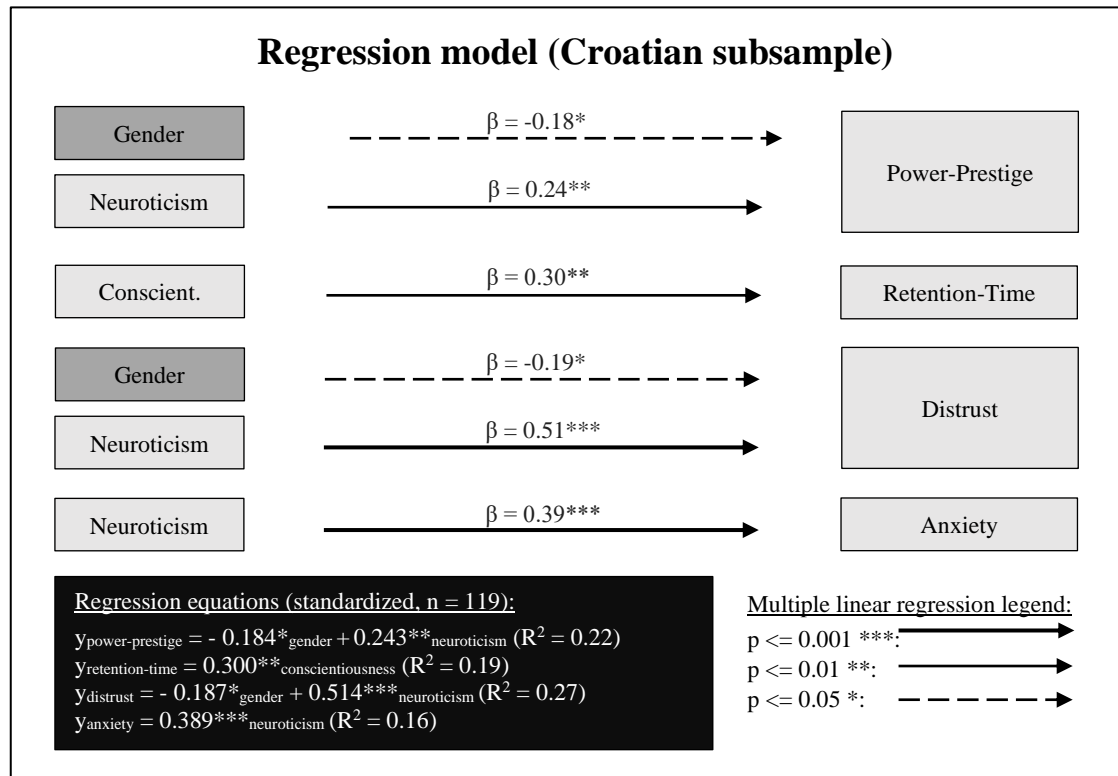
Figure 16: Regression model (Austrian subsample).



Own research results.

For the **Croatian** subsample, the following regression models were calculated:

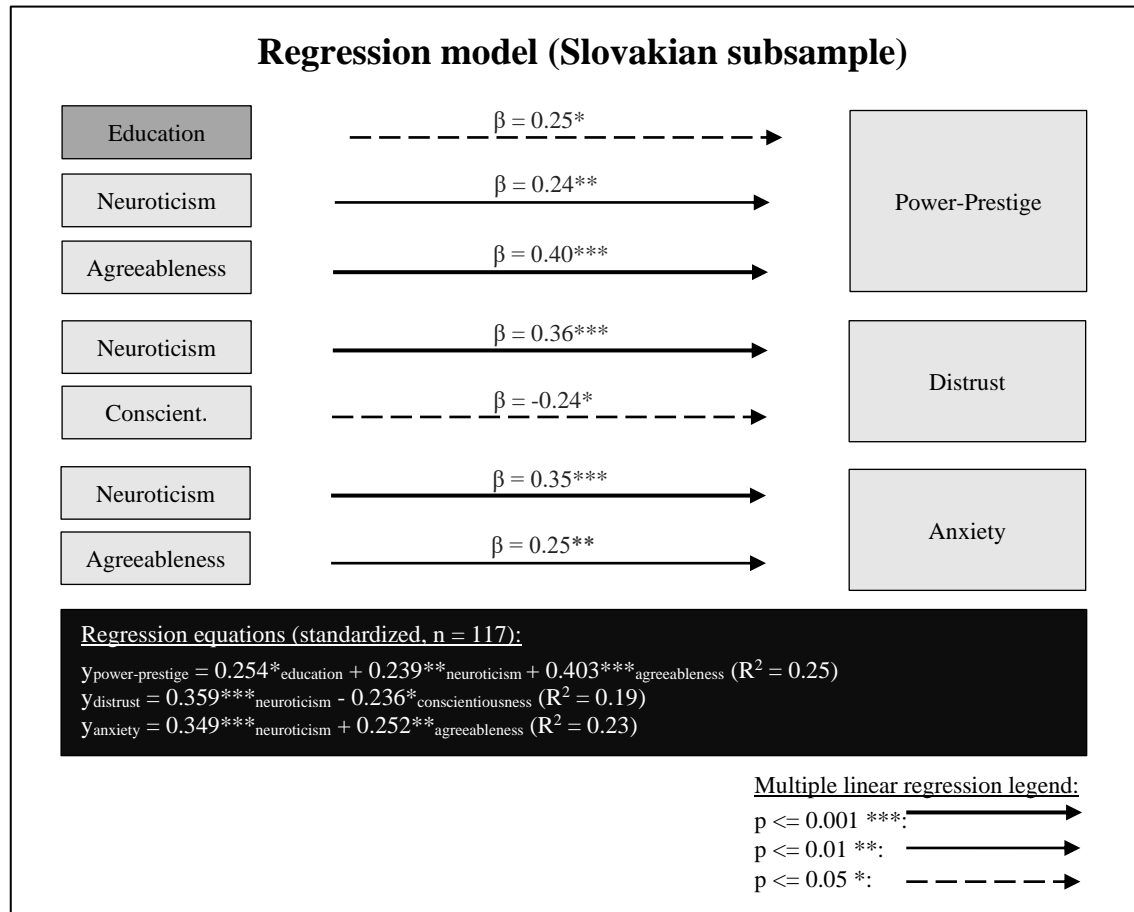
Figure 17: Regression model (Croatian subsample).



Own research results.

The regression results of the **Slovakian** subsample are visualized in the following figure:

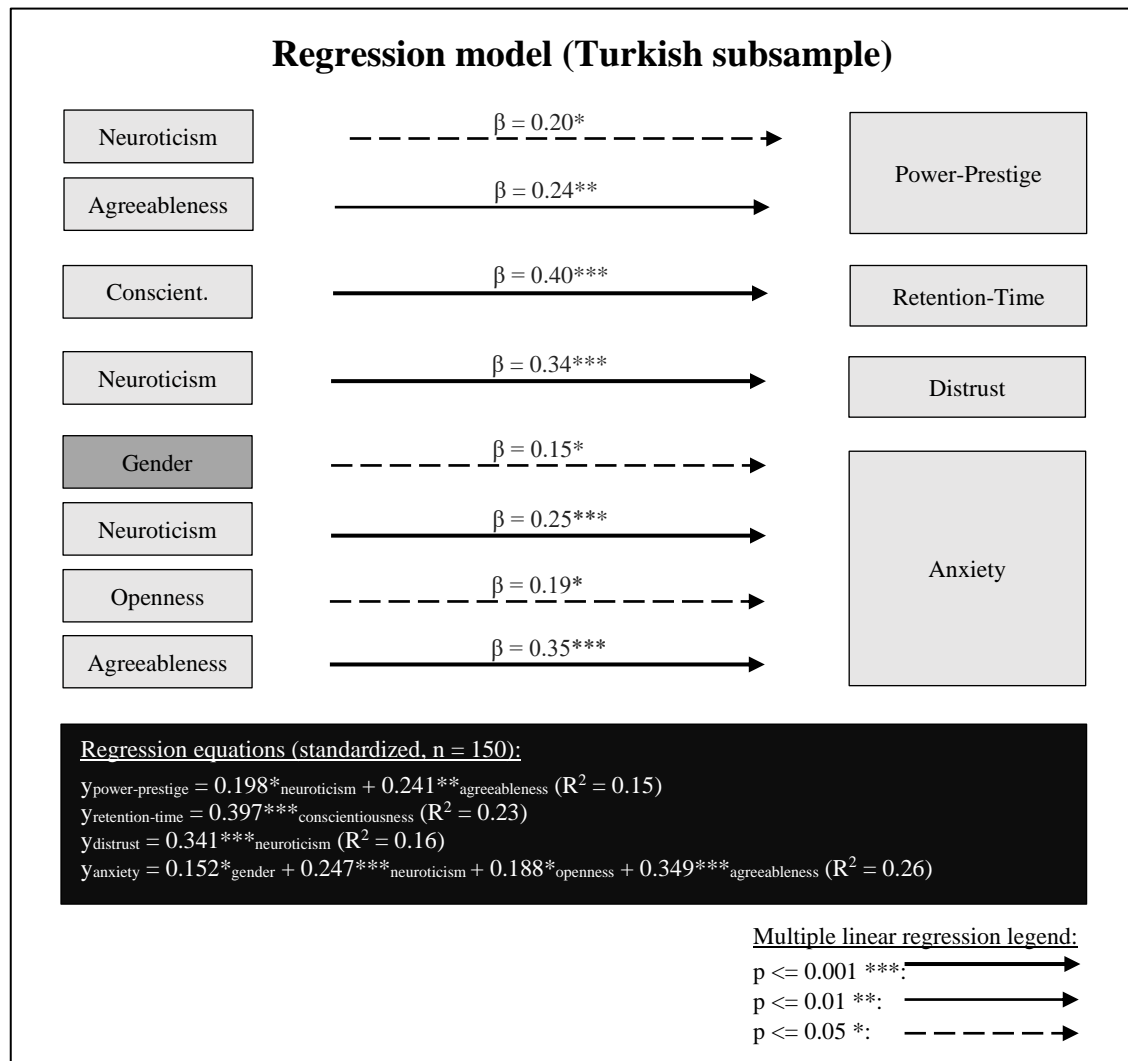
Figure 18: Regression model (Slovakian subsample).



Own research results.

The following regression models were developed on base of the **Turkish** subsample:

Figure 19: Regression model (Turkish subsample).



Own research results.

4.12 Working hypotheses verification

All **positively verified** correlation and regression **working hypotheses** for the full sample and the subsamples are summarized below. All tested working hypotheses (formulated as H0) are listed in Annex A. First, the confirmed working hypotheses (formulated as H1) of the **full sample** are presented:

- H1-P1_{full sample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and power-prestige scores (MAS) among students [$r = 0.187^{**}$, $\beta = 0.161^{***}$].

- H1-P4_{full sample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and power-prestige scores (MAS) among students [$r = 0.346^{**}$, $\beta = 0.311^{***}$].
- H1-P6_{full sample}: There is a statistically significant relationship between gender and power-prestige scores (MAS) among students [$\eta^2 = 0.016^*$, $\beta = -0.103^{**}$] (males focused more strongly on power-prestige).
- H1-P7_{full sample}: There is a statistically significant relationship between age and power-prestige scores (MAS) among students [$r = -0.093^*$, $\beta = -0.103^{**}$] (elderly persons focused less on power-prestige).
- H1-R1_{full sample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and retention-time scores (MAS) among students [$r = -0.093^*$, $\beta = -0.09^*$].
- H1-R5_{full sample}: There is a statistically significant relationship between conscientiousness (NEO-FFI) and retention-time scores (MAS) among students [$r = 0.243^{**}$, $\beta = 0.238^{***}$].
- H1-R6_{full sample}: There is a statistically significant relationship between age and retention-time scores (MAS) among students [$r = 0.177^{**}$, $\beta = 0.178^{***}$] (elderly persons focused more strongly on retention-time).
- H1-D1_{full sample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and distrust scores (MAS) among students [$r = 0.303^{**}$, $\beta = 0.280^{***}$].
- H1-D4_{full sample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and power-prestige scores (MAS) among students [$r = 0.151^{**}$, $\beta = 0.116^{**}$].
- H1-A1_{full sample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and anxiety scores (MAS) among students [$r = 0.340^{**}$, $\beta = 0.297^{***}$].
- H1-A4_{full sample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and anxiety scores (MAS) among students [$r = 0.226^{**}$, $\beta = 0.205^{***}$].

- H1-A6_{full sample}: There is a statistically significant relationship between gender and anxiety scores (MAS) among students [$\eta^2 = 0.008$ (non-significant), $\beta = 0.078^*$] (females focused slightly stronger on anxiety).

The following working hypotheses were confirmed on a statistically significant level for the **Albanian** subsample:

- H1-P4_{Albanian subsample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and power-prestige scores (MAS) among students [$\beta = 0.403^{***}$].
- H1-R5_{Albanian subsample}: There is a statistically significant relationship between conscientiousness (NEO-FFI) and retention-time scores (MAS) among students [$\beta = 0.304^{**}$].
- H1-A1_{Albanian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and anxiety scores among students (MAS) [$\beta = 0.238^{**}$].

For the **Austrian** subsample, the following four working hypotheses were positively verified:

- H1-P4_{Austrian subsample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and power-prestige scores (MAS) among students [$\beta = 0.329^{***}$].
- H1-D1_{Austrian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and distrust scores (MAS) among students [$\beta = 0.201^{**}$].
- H1-A1_{Austrian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and anxiety scores (MAS) among students [$\beta = 0.351^{***}$].
- H1-A6_{Austrian subsample}: There is a statistically significant relationship between age and anxiety scores (MAS) among students [$\beta = 0.194^*$] (elderly persons focused more strongly on anxiety).

The following working hypotheses were confirmed for the **Croatian** subsample:

- H1-P1_{Croatian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and power-prestige scores (MAS) among students [$\beta = 0.243^{**}$].
- H1-P6_{Croatian subsample}: There is a statistically significant relationship between gender and power-prestige scores (MAS) among students [$\beta = -0.184^*$] (males focused more strongly on power-prestige).
- H1-R5_{Croatian subsample}: There is a statistically significant relationship between conscientiousness (NEO-FFI) and retention-time scores (MAS) among students [$\beta = 0.300^{**}$].
- H1-D1_{Croatian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and distrust scores (MAS) among students [$\beta = 0.514^{***}$].
- H1-D6_{Croatian subsample}: There is a statistically significant relationship between gender and distrust scores (MAS) among students [$\beta = -0.187$] (males focused more strongly on distrust).
- H1-A1_{Croatian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and anxiety scores (MAS) among students [$\beta = 0.389^{***}$].

The confirmed working hypotheses for the **Slovakian** subsample are listed below:

- H1-P1_{Slovakian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and power-prestige scores (MAS) among students [$\beta = 0.239^{**}$].
- H1-P4_{Slovakian subsample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and power-prestige scores (MAS) among students [$\beta = 0.403^{***}$].
- H1-P8_{Slovakian subsample}: There is a statistically significant relationship between the highest completed level of education and power-prestige scores (MAS) among

students [$\beta = 0.254^*$] (higher educated persons focused more strongly on power-prestige).

- H1-D1_{Slovakian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and distrust scores (MAS) among students [$\beta = 0.359^{***}$].
- H1-D5_{Slovakian subsample}: There is a statistically significant relationship between conscientiousness (NEO-FFI) and distrust scores (MAS) among students [$\beta = -0.236^*$].
- H1-A1_{Slovakian subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and anxiety scores (MAS) among students [$\beta = 0.349^{***}$].
- H1-A4_{Slovakian subsample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and anxiety scores (MAS) among students [$\beta = 0.252^{**}$].

The following working hypotheses were positively verified for the **Turkish** subsample:

- H1-P1_{Turkish subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and power-prestige scores (MAS) among students [$\beta = 0.198^*$].
- H1-P4_{Turkish subsample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and power-prestige scores (MAS) among students [$\beta = 0.241^{**}$].
- H1-R5_{Turkish subsample}: There is a statistically significant relationship between conscientiousness (NEO-FFI) and retention-time scores (MAS) among students [$\beta = 0.397^{***}$].
- H1-D1_{Turkish subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and distrust scores (MAS) among students [$\beta = 0.341^{***}$].

- H1-A1_{Turkish subsample}: There is a statistically significant relationship between neuroticism (NEO-FFI) and anxiety scores (MAS) among students [$\beta = 0.247^{***}$].
- H1-A3_{Turkish subsample}: There is a statistically significant relationship between openness to experience (NEO-FFI) and anxiety scores (MAS) among students [$\beta = 0.188^*$].
- H1-A4_{Turkish subsample}: There is a statistically significant relationship between agreeableness (NEO-FFI) and anxiety scores (MAS) among students [$\beta = 0.349^{***}$].
- H1-A6_{Turkish subsample}: There is a statistically significant relationship between gender and anxiety scores (MAS) among students [$\beta = 0.152$] (females focused more strongly on anxiety).

5 Discussion

Previous research indicates the influence of particular biographical variables and personality traits on a person's money attitudes (chapter 1.5).

As listed in chapter 2.2, the following **main hypotheses** were analyzed (detailed working hypotheses are presented in Appendix A of the work):

- H1: Biographical variables significantly influence students' money attitudes.
- H2: Personality traits significantly influence students' money attitudes.
- H3: Money attitude factors and their predictors show country-specific differences among students.

All aforementioned main hypotheses were confirmed to a certain extent: Based on the study results, the following **variables with predictive power** for money attitudes were identified on a significantly relevant level (chapters 4.10 - 0):

- Gender, age, education (education just in one subsample) as biographical predictors among students (**H1**)
- Neuroticism, agreeableness, conscientiousness, openness to experience (openness to experience just in one subsample) as personality-related predictors among students (**H2**)

Country-specific differences for money attitudes in the student subsample groups were identified as listed below (**H3**):

- Two countries in comparison with the full sample showed higher mean values for the **power-prestige** dimension: Slovakia (+ 1.72) and Albania (+ 1.5). On the other hand, Austria (- 1.5) and Croatia (- 1.3) were found with below-average power-prestige scores.
- **Retention-time** mean values were of higher relevance for the students in the Austrian subsample (+ 2.27), while the opposite occurred in the Croatian subsample (- 1.69).
- A stronger **distrust** money-orientation was identified for the students in the Turkish subsample (+ 2.39).

- Money-related **anxiety** was above-average in the Albanian (+ 1.34) and Turkish (+ 0.92) student subsamples. Opposite results were found in the Austrian (- 1.5) and Croatian (- 0.8) subsamples.

With reference to **H1 - H3**, the following results were identified in detail: In the full sample, **power-prestige** was predicted by gender, age, neuroticism and agreeableness on a statistically significant level. Male participants generally tended to focus stronger on the power-prestige dimension of money [$\eta^2 = 0.016^*$, $\beta = -0.103^{**}$ (male gender was dummy coded with 0 in the regression analysis)]. With increasing age, the power-prestige orientation became weaker [$r = -0.093^*$, $\beta = -0.103^{**}$]. Participants with more neuroticistic-oriented [$\beta = 0.161^{***}$] and agreeableness-oriented [$\beta = 0.311^{***}$] personalities also disposed over stronger power-prestige related money attitudes in the full sample. The predictive and positive influence of agreeableness on power-prestige further was strongly confirmed in the Albanian [$\beta = 0.403^{***}$], Austrian [$\beta = 0.329^{***}$], Slovakian [$\beta = 0.403^{***}$] and Turkish [$\beta = 0.241^{**}$] subsamples. Further the role of neuroticism as a positive predictor for power-prestige was supported in the Croatian [$\beta = 0.243^*$], Slovakian [$\beta = 0.239^{**}$] and Turkish [$\beta = 0.198^*$] subsamples. The above described gender effect (for the full sample) seems to be mainly resulting from the Croatian subsample which indicates the male orientation towards the power-prestige money dimension [$\beta = -0.184^*$]. Another effect occurred solely in the Slovakian subsample: Participants with higher education tended to show a stronger power-prestige oriented money attitude [$\beta = 0.254^*$ (the lowest level of completed school/academic degree was dummy coded with 0 in the regression analysis)].

Retention-time in the full sample statistically significantly was influenced by age, neuroticism and conscientiousness. With increasing age, participants more intensely focused on the retention-time dimension of money [$r = 0.177^{**}$, $\beta = 0.178^{***}$]. Participants with neuroticism-characterized personalities slightly less perceived money in a retention-time context [$\beta = -0.09^*$]. An explicit predictive effect was found for conscientiousness: Higher conscientiousness scores strongly indicated a retention-time money focus [$\beta = 0.238^{***}$]. The predictive relevance of conscientiousness for retention-time further was calculated in the Albanian [$\beta = 0.304^{**}$], Croatian [$\beta = 0.300^{**}$] and Turkish [$\beta = 0.397^{***}$] subsamples on a significant level.

In the full sample, **distrust** significantly was predicted by neuroticism and agreeableness: Both of them, neuroticism [$\beta = 0.280^{***}$] as well as agreeableness [$\beta = 0.116^{**}$], positively influenced the participants' distrust money attitude dimension. The positive effect of neuroticism on distrust was found in the Austrian [$\beta = 0.201^*$], Croatian [$\beta = 0.514^{***}$], Slovakian [$\beta = 0.359^{***}$] and Turkish [$\beta = 0.341^{***}$] subsamples. Two different (but significant) effects were identified for the Croatian and Slovakian subsamples: Males compared to females, showed stronger distrust-oriented money attitudes in the Croatian subsample [$\beta = -0.187^{***}$]. Furthermore, participants with a conscientiousness pronounced personality were found with less distrust-oriented money attitudes in the Slovakian subsample [$\beta = -0.236^*$].

Anxiety was predicted by gender, neuroticism and agreeableness in the full sample on a statistically significant level. Females in comparison to males, were found with a slightly more pronounced anxiety-oriented money attitude [$\eta^2 = 0.008$ (non-significant), $\beta = 0.078^*$]. Participants with neuroticistic [$\beta = 0.297^{***}$] and agreeableness-oriented [$\beta = 0.205^{***}$] personalities showed stronger anxious money attitudes in the full sample. The significant and positive effect of neuroticism on anxiety was identified in all five subsamples: Albania [$\beta = 0.238^{**}$], Austria [$\beta = 0.351^{***}$], Croatia [$\beta = 0.389^{***}$], Slovakia [$\beta = 0.349^{***}$] and Turkey [$\beta = 0.247^{***}$]. Otherwise, the positive effect of agreeableness on anxiety on a significantly relevant level was only identified in the Slovakian [$\beta = 0.252^{**}$] and Turkish [$\beta = 0.349^{***}$] subsamples. In addition, with raising age participants in the Austrian subsample tended to show a significantly stronger anxiety-oriented money attitude [$\beta = 0.194^*$]. In the Turkish subsample, two additional effects occurred: Females in comparison to males, perceived money in a stronger anxiety-related context [$\beta = 0.152^*$]. Furthermore, participants with a more opened personality (higher scores in the openness to experience personality dimension) showed significantly stronger anxiety-oriented money attitudes in the Turkish subsample [$\beta = 0.188^*$].

The current study results are confirmed in existing studies to a large extent. Further noteworthy significant results were identified in addition:

First, the **predictive power of biographical variables on money attitudes is compared to past studies** in the literature, which outlines the high relevance of **gender** as a predictor: Although one single study showed contrary results, the presence of

stronger anxiety-related money attitudes of females in comparison to males was observed repeatedly (Chi and Banerjee, 2013, p. 76; Fünfgeld and Wang, 2009, pp. 118–122; Lim *et al.*, 2003, pp. 420–427; Özgen and Bayoğlu, 2005, pp. 496–500). This relation was confirmed in the current study on a significant level in the Turkish student subsample. Furthermore, past study results in multiple cases proved a male tendency for power-prestige-pronounced money attitudes (Baker and Hagedorn, 2008, pp. 1808–1812; Furtner, 2017, pp. 95–97; Hanashiro *et al.*, 2004, pp. 42–45; Lim *et al.*, 2003, pp. 420–427; Sabri *et al.*, 2006, p. 124; Simkiv, 2013, pp. 39–44; Watson *et al.*, 2004, pp. 282–287). A similar effect was found in the current Croatian subsample on a significant relevant level. Although, there is no existing evidence in past studies referring to the predictive role of gender on distrust to the best knowledge of the author, in the Croatian subsample another significant gender effect occurred: Males in comparison to females tended to focus strongerly on the distrust money attitude dimension. Higher age in the Austrian subsample further significantly predicted higher money-related anxiety. Comparable results referring to **age** as a predictor were found in past studies, although (like in the present study) these results seemed did not occur consistently (Bailey and Lown, 1993, pp. 392–400; Baker and Hagedorn, 2008, pp. 1808–1812; Chavali and Mohanraj, 2016, pp. 171–175; Fünfgeld and Wang, 2009, pp. 118–122; Furnham, 1984, p. 506; Furnham, 1985, pp. 360–371; Tang and Gilbert, 1995, pp. 329–331). Age effects in relation to the power-prestige money attitude dimension (Bailey and Lown, 1993, pp. 392–400; Chavali and Mohanraj, 2016, pp. 171–175; Fünfgeld and Wang, 2009, pp. 118–122; Lau, 1998, p. 305; Simkiv, 2013, pp. 39–44) were not identified in the current study. **Education** in past studies repeatedly was outlined as a predictor with relevance for saving and power attitudes as lower education tended to predict a weaker focus on savings behavior as well as a stronger focus on power-prestige while the opposite was the case for higher educated individuals (Bailey and Lown, 1993, pp. 392–400; Chavali and Mohanraj, 2016, pp. 171–175; Fünfgeld and Wang, 2009, pp. 118–122; Lau, 1998, p. 305; Simkiv, 2013, pp. 39–44). These results were not supported in the current study on a significant level: On the contrary, higher education was found with significant predictive power for more pronounced power-prestige oriented money attitudes in the Slovakian student subsample while no other education-related significant effects occurred in the other subsamples.

Second, the **predictive relevance of personality traits on money attitudes** is analyzed in **comparison to past studies**: In research literature, **neuroticistic-oriented** personalities are linked to negatively occupied monetary behaviors like compulsive buying, indebtedness or less organization and planning in a monetary context (Brougham *et al.*, 2011, pp. 82–83; Dittmar, 2005, p. 472; Mowen and Spears, 1999, pp. 425–426; Nyhus and Webley, 2001, 100-101; Spinella and Lester, 2005, p. 782). This behavioral effect seems to be an effect of the underlying money attitudes acting as mediator variables: The current research results support the assumption that high neuroticism scores are linked to power-prestige, distrust and anxiety-oriented money attitudes (e.g. resulting in the aforementioned effects of compulsive buying or indebtedness), while high neuroticism scores indicated a weaker retention-time focus (e.g. resulting in less monetary organization and planning).

Extraversion was not found with significant predictive relevance for money attitudes in the current sample. However, literature indicates the tendency of extraverted individuals towards holding credit-card debt on the one hand and to hold shares on the other hand (Brandstätter and Güth, 2000, pp. 476–478; Brown and Taylor, 2014, pp. 197–212).

Openness to experience seems to play a minor predictive role for money attitudes (in the literature as well as in the current study): Only in the Turkish subsample, openness to experience was found to predict anxiety-related money attitudes at least to a certain extent.

It must be noted that study results which investigate the relevance of agreeableness as a predictor for money attitudes are rare. **Agreeableness** in one past study was identified as a predictor for the increased willingness to hold shares (Brown and Taylor, 2014, pp. 197–212). Based on the current study results, there remains considerable room for interpretation which money attitude variable might mediate this investment behavior: Participants with agreeableness-pronounced personalities were found with stronger power-prestige, distrust and anxiety related money attitudes on a significant level in the current full sample. Regarding the predictive power of agreeableness on power-prestige a reverse effect was found in the authors initial study among Austrian business students indicating that less agreeableness-oriented individuals focused stronger on power-prestige (Furtner, 2017, pp. 95–97). Despite the mixed results,

the predictive relevance of agreeableness seems obvious, although the further (behavioral) consequences of this relation are still widely unexplored.

Individuals with **conscientiousness-oriented** personalities in past studies were found with the ability of improved financial self-control like avoiding credit-card debt and a tendency towards strong saving behavior, while the opposite results (poor money management) were identified for less conscientiousness-oriented persons (Brandstätter, 1996, n. p.; Brandstätter, 2005, pp. 83–85; Brown and Taylor, 2014, pp. 197–212; Donnelly *et al.*, 2012, pp. 1129–1142). These results were strongly supported by the results in the full student sample (as well as in most subsamples): High conscientiousness scoring participants focused significantly stronger on the retention-time dimension of money. It appears that this relation manifests in a more sustainable money management.

The present study results **contribute to the existing knowledge** as follows: Predictive relevance of the tested biographical variables and biographical traits was confirmed to a large extent in the student sample groups in the current study (e.g. the male focus on power-prestige or the relevance of neuroticism on multiple money attitudes). Nevertheless, the following new (largely non anticipated) significant results indicate the existence of further effects, especially from a country-specific point of view:

| Table 44: New scientific results. | |
|--|--|
| Result | Description |
| Country-specific differences (Mean values comparison) | <p>Power-prestige</p> <p>A stronger power-prestige orientation occurred in the Slovakian (+ 1.72) and Albanian (+ 1.5) subsamples. Opposite results were found in the Austrian (- 1.5) and Croatian (- 1.3) subsamples.</p> <p>Retention-time</p> <p>An outstanding retention-time focus could be identified in the Austrian subsample (+ 2.27), while the retention-time orientation was considerably low in the Croatian subsample (- 1.69).</p> <p>Distrust</p> <p>Outstanding strong distrust-oriented money attitudes were found in the Turkish subsample (+ 2.39).</p> <p>Anxiety</p> <p>While money-related anxiety was strongly pronounced in the Albanian (+ 1.34) and Turkish subsamples (+ 0.92), opposite results occurred in the Austrian (- 1.5) and Croatian (-0.8) subsamples.</p> |
| Gender differences (Regression analysis) | <p>Male focus on power-prestige (Croatia)</p> <p>Especially Croatian males in comparison to females focused significantly stronger on the power-prestige money attitude dimension ($\beta = -0.184^{**}$). A comparable significant effect did not occur in the other subsamples.</p> |

| | |
|--|---|
| | <p>Male focus on distrust (Croatia)</p> <p>Croatian males showed significantly stronger distrust-oriented money attitudes than females ($\beta = -0.187^{***}$). A comparable significant result was not found for the other subsamples.</p> <p>Female focus on anxiety (Turkey)</p> <p>While gender did not predict anxiety-oriented money attitudes in the other subsamples, females in comparison to males perceived money from a pronounced anxiety-related perspective in the Turkish subsample ($\beta = 0.152^*$).</p> |
| Education-related differences (Regression analysis) | <p>Higher educated individuals with a stronger focus on power-prestige (Slovakia)</p> <p>While the educational level did not predict money attitudes in the other subsamples, higher education indicated a significantly stronger power-prestige orientation in the Slovakian sample ($\beta = 0.254^{**}$). This results must be considered with regard to the student subsamples with typically higher-level and narrower educational bandwidth.</p> |
| Personality-related differences (Regression analysis) | <p>Higher conscientiousness-oriented individuals with a weaker focus on distrust (Slovakia)</p> <p>Conscientiousness-oriented individuals showed a significantly weaker distrust-oriented money attitude ($\beta = -0.236^*$). This effect only occurred in the Slovakian subsample.</p> <p>Higher agreeableness-oriented individuals with an anxiety-oriented focus (Slovakia, Turkey)</p> <p>Agreeableness-oriented individuals were found with a significantly stronger anxiety-oriented money attitudes in the Slovakian ($\beta = 0.252^{**}$) and Turkish ($\beta = -0.349^{***}$) subsamples. Comparable significant effects did not occur in the other subsamples.</p> <p>Individuals with more opened personalities with an anxiety-oriented focus (Turkey)</p> <p>While the openness to experience personality dimension was not found with predictive power in the other subsamples, more opened personalities disposed over significantly stronger pronounced anxiety-oriented money attitudes in the Turkish subsample ($\beta = 0.188^*$).</p> |
| Own research results. | |

Noteworthy is the contribution of the study in terms of the identification of country-specific differences on the level of the individual money attitudes (e.g. a stronger power-prestige money orientation in Slovakia and Albania, a stronger retention-time orientation in Austria or a pronounced distrust focus in Turkey). Unexpected and so far non reported country-specific differences further were found regarding certain biographical and personality-related predictors: For example, higher educated participants in the Slovakian subsample showed more pronounced power-prestige money attitudes while the opposite effect was reported in past studies for other countries. In the Croatian subsample, males compared to females were found with stronger distrust-oriented money attitudes while a comparable effect could not be identified in other existing studies or in other countries. While openness to experience in past studies was

considered as irrelevant, this personality dimension significantly predicted money-related anxiety in the Turkish subsample.

Practical implications of the present study results could be derived in various contexts and from two main points of view (the business view and the individual view):

From a business perspective, the identified country-specific differences in terms of money attitudes indicate the relevance of developing target-oriented and efficient sales and marketing strategies which focus on selected gender or personality types. Especially, the new knowledge could be used e.g. for the international banking industry in Europe to adjust their marketing campaigns towards national money attitude characteristics with the goals to improve revenues and to generate additional profits. Based on the study results, e.g. it seems a promising approach to emphasize the retention-time money attitude dimension in the Austrian market on the one hand while outlining the power-prestige dimension in Slovakia on the other hand. Therefore, investment products should be connected with different goals (and underlying psychological motives) in both countries: While the Austrian banking campaign could stress the possibilities for securing the financial future retirement, the Slovakian campaign could outline the future possibility of purchasing status-related goods for potential customers.

From the individual perspective, the importance of individual awareness about the existence of money attitudes must be stressed. Behavioral financial consequences are the result of an individual's underlying money attitudes. Potential harmful financial behavior (e.g. credit card debt or excessive spending) seems to be connected to certain money attitudes, which are influenced by the aforementioned significant predictors. Therefore, e.g. younger males with a neuroticistic-oriented personality, at least statistically, show a tendency towards power-prestige-oriented money attitudes. To avoid harmful financial behavior individuals should critically reflect their own money attitudes as well as the individual existence of biographical or personality-related predictors acting as potential "red flags".

Furthermore, the relevance of money attitudes (as a psychological concept) as well as their role for financial decisions (as a consequence) could help to improve the financial literacy in the population. International institutions like the European Central Bank as well as national educational institutions should intensify their efforts to provide money attitudes-related knowledge to the population. As an indirect result, the financial

behavior as well as financial decision making of individuals could be improved or supported by educational measures on the mid- and long-term.

For political/socioeconomic decision makers money attitudes the study results could act as relevant foundations e.g. in the context of the evolution of central bank strategies, national budgets, tax and social benefit systems.

The main **limitations** of the current study results must be outlined as follows:

First, it must be stressed that the student subsample groups (e.g. in terms of age structure, educational level or personality structure) do not represent the underlying population in the investigated countries. This especially is relevant in terms of their typical younger age structure, their income situation (not raised) or their above-average educational background, which potentially could lead to different answers in the more complex survey items. Although the identified country-specific peculiarities in the subsamples strongly indicate the existence of differences, it must be considered that money attitudes (and their predictors) occur differently in other population groups. Still, the investigated student groups represent a relevant future part of a countries population in terms of their function as role models and future (financial) decision makers.

Further limitations exist with reference to the applied standardized tests (NEO-FFI, MAS). Although these tests are standardized, are broadly accepted and were widely-used in the past, both solely explain approx. one third of the measured variables. The NEO-FFI test merely explained 37.39 % of the total variance in its test sample of 11.724 subjects. Further, different interpretations of the dimensions exist and it is not agreed upon the descriptive or supplementary explanatory character of the test (Borkenau and Ostendorf, 2008, p. 9; 2008, p. 19). Undesirable CFA model-fits are also a widely discussed limitation with reference to the NEO-FFI (Church and Burke, 1994, pp. 93–114; Marsh *et al.*, 2010, pp. 471–491; Parker *et al.*, 1993, pp. 463–466; Schmitz *et al.*, 2001, pp. 713–722). Again, also the MAS in its original sample solely explained 33.76 % of the total variance (Yamauchi and Templer, 1982, p. 523).

Another potential limitation could be found in the structure of the subsamples: It must be assumed that the English skills of the participants differ as English is not the native language for the vast majority of the study participants. Therefore, occasional misleading interpretations of certain survey items (in English language) cannot be

excluded. Furthermore, not all random variables in the subsamples could be controlled. For example, the participants study different subjects at territory level. It might be possible that the study background influences individual money attitudes (e.g. economic-related vs. non economic-related fields of study). However, similar limitations referring to the sample structure exist in most comparable studies.

The calculated regression models based on the study data indicated (adjusted) R^2 -values on different goodness-of-fits levels. Consequently, the developed models must not be interpreted with full explanatory power for the dependent money attitudes. Although focusing on the presumably most relevant predictors for money attitudes in the study design, it must be outlined that not all existing variables which were tested and confirmed in the past with predictive power (chapter 1.5) were covered in the survey.

Further research activities should focus on exploring the following aspects of money attitudes:

Despite the full sample size of 671 participants, correlation and regression results indicate the further existence of non-significant relations. Therefore, a replication of the research design on base of a larger sample might enable the identification of further relevant relations on a statistically significant level. With regard to the atypical student sample groups, a replication with representative sample groups of the general population is indicated.

Another promising research approach would be the exploration of the long-term development of money attitudes (including the predictors) in a longitudinal research design. Although the aforementioned country-specific results stress the importance of cross-national research and comparison in the context of money attitudes, studies in this field (especially for many European countries) are still rare. A further research focus therefore should be put on those differences. Based on past studies and the current study results, it seems promising to investigate the predictive power of further potentially relevant predictors which (at least partly) were confirmed or showed mixed results in the past (e.g. religious values).

Conclusion

Past studies repeatedly confirmed the **influence of biographical variables and personality traits on money attitudes** in different parts of the world. Still, comparable research activities for the analyzed countries were not conducted on a broader base.

In the present cross-national research project, the predictive power of biographical variables and personality traits was investigated in five countries (**Albania, Austria, Croatia, Slovakia, Turkey**) on base of a student sample in a quantitative study design. A further focus was placed on the identification of country-specific differences in terms of money attitudes and the relevant predictors.

In conclusion, gender, age, education (biographical factors) and neuroticism, agreeableness, conscientiousness, openness to experience (personality traits) in the present sample were found with **predictive relevance** for money attitudes on a statistically significant level.

For the money attitude dimension **power-prestige** the following results are noteworthy: Males as well as younger participants tended to show a stronger power-prestige money orientation. Furthermore, individuals with neuroticism- and agreeableness-pronounced personalities were found with a stronger focus on the power-prestige dimension. Participants with increasing age, less neuroticism- but more conscientiousness-oriented personalities stronger focused on the **retention-time** dimension of money. Pronounced neuroticistic and agreeable personalities showed stronger **distrust-oriented** money attitudes. Females as well as neuroticism- and agreeableness-oriented personalities were found with stronger **anxiety-related** money attitudes. Although markable divergences were identified in certain subsamples (chapter 5), the present relations widely confirm the results of existing studies to a large extent.

In addition, **country-specific** differences for money attitudes occurred between the subsamples: Power-prestige was more relevant in Slovakia and Albania, while the opposite was the case in Austria and Croatia. Retention-time was found with higher importance for Austrians and less important for Croatians. The Turkish subsample showed an above-average orientation towards distrust. Anxiety was more relevant in Albania and Turkey, while opposite results were found in Austria and Croatia.

The data **contributes** to the existing knowledge by confirming the predictive relevance of the tested independent variables on money attitudes. However, new results identified divergent and unexpected effects in some of the subsamples (e.g. a stronger distrust money attitude for males in the Croatian subsample). Moreover, the results point out that, in terms of money attitudes, country-specific differences in Europe are present. The broad **implications** of the present research are that business strategies (e.g. marketing campaigns, banking strategies) should be oriented towards country-specific money attitudes (as well as the relevant predictors of the target groups) to improve revenues and profits. Moreover, individuals could raise their awareness about money attitudes to avoid harmful financial behavior and to improve individual financial decisions (financial literacy). Further, the relevance of the findings for political/socioeconomic decision makers should be highlighted (e.g. budgeting process, tax/social benefit systems).

Considering the aforementioned limitations (chapter 5), **future research** should focus on the identification of further relevant predictors for money attitudes (especially in representative sample groups of the general population), as non-significant results suggests the existence of further relations. A longitudinal research design would support the exploration of individual money attitudes in the long-term. Further research additionally could investigate the situation in other European countries with a focus on country-specific differences. Furthermore, additional potential predictors for money attitudes (e.g. religious values) should be investigated with a focus on the cultural, historical, economic and political diverse frameworks of the European countries.

Resumé

Z tradičnej ekonomickej perspektívy možno peniaze opísať ako úžitkovú komoditu, ktorá je obyčajná, všedná neosobná a neutrálna (Mitchell a Mickel, 1999, s. 569). Peniaze navyše predstavujú rôzne psychologické aspekty: Možno ich definovať ako nositeľa silných a rôznorodých pocitov, významov a snáh. Peniaze dokonca možno považovať za emocionálne najzmysluplnejší predmet nášho súčasného života, popri blízkych konkurentoch ako jedlo a sex (Krueger, 1986, s. 3).

Aktuálny výskumný projekt sa zameriava na osobné postoje k peniazom. Osobné postoje sú hodnotením jednotlivca vzhľadom na konkrétny predmetný subjekt (Ajzen a Fishbein, 1977, s. 889). Na základe tohto zamerania vyvstáva hlavná otázka, ktoré prediktory vlastne ovplyvňujú naše postoje k peniazom. Ďalší dôraz sa kladie na porovnanie týchto prediktorov pre postoje k peniazom medzi krajinami. Dôvodom je skutočnosť, že zatiaľ len málo štúdií skúmalo ovplyvňujúce faktory týkajúce sa postoja k peniazom vo väčšine európskych krajín.

Poznanie relevantných faktorov by mohlo byť praktické pre marketing a predaj. Napríklad individualizovaná reklama alebo reklama špecifická pre krajinu na základe zistení v kontexte postoja k peniazom sľubuje cielenejšie, a teda nákladovo efektívnejšie využitie obmedzených marketingových zdrojov v podnikaní. Tieto znalosti sú (ale nie výlučne) mimoriadne dôležité, napr. pre rozvoj bankových obchodných stratégií. Z pohľadu osobných financií môže individuálne povedomie a znalosti o základnom koncepte postojov k peniazom a ich relevantných prediktívnych faktoroch pomôcť jednotlivcom lepšie pochopiť ich vlastné finančné správanie. Okrem toho by sa malo poukázať na praktický význam pre proces politického/socioekonomického rozhodovania (napr. rozvoj stratégií centrálnej banky, plánovanie národných rozpočtov, daňových systémov a systémov sociálnych dávok).

Významní psychoterapeuti a osobnosti ako Freud identifikovali v zásade tri široké psychologické aspekty peňazí, t. j. bezpečnosť, udržanie a prestíž moci (Yamauchi a Templer, 1982, s. 522). Na základe teoretického rámca vyvinuli Yamauchi a Templer test škály postojov k peniazom (MAS). Nástroje merajú nasledujúce podstatné faktory postoja k peniazom: moc-prestíž, stálosť času, nedôvera, kvalita (vylúčená v konečnom nástroji) a úzkosť. V nedávnej výskumnej literatúre MAS stále predstavuje najuznávanejší nástroj na meranie postojov k peniazom. Opakované testovanie

preukázalo primeranú spoľahlivosť a validitu týkajúcu sa nástroja MAS (Bonsu, 2008, s. 171; Engelberg a Sjöberg, 2006, s. 2029; Yamauchi a Templer, 1982, s. 525).

Okrem toho predchádzajúce výsledky výskumu naznačujú významný vplyv osobnostných črt veľkej päťky na hospodárenie s peniazmi, ako je zhrnuté v nasledujúcej tabuľke:

| Tabuľka 45: Veľká päťka osobnostných prediktorov riadenia peňazí | |
|--|---|
| Zdroj | Prediktor |
| Brougham et al., 2011 Dittmar, 2005 Mowen and Spears, 1999 Nyhus and Webley, 2001 | Vysoko neurotickí (alebo viac emocionálne nestabilní) jedinci majú tendenciu hromadiť viac dlhov a navyše títo jedinci vykazujú ďalšie prípady nutkavého nakupovania. |
| Brandstätter, 1996 Brandstätter, 2005 Wärneryd, 1996 | Jednotlivci s výraznou svedomitosťou osobnostnej dimenzie prejavujú pozitívnejšie postoje k šetriacemu správaniu. Preto svedomití jedinci vykazujú výrazne silnejšiu finančnú sebakontrolu. Títo ľudia navyše na jednej strane ušetria viac peňazí a na druhej strane si požičiavajú menej peňazí. |
| Brandstätter, 2005 | Osobnostné vlastnosti súvisia s finančnými postojmi, ako aj s časovou orientáciou. |

Zdroj: Brougham *et al.*, 2011, pp. 82–83; Dittmar, 2005, p. 472; Donnelly *et al.*, 2012, p. 1130; Mowen and Spears, 1999, pp. 425–426; Nyhus and Webley, 2001, 100–101.

Tieto výsledky ukazujú, že riadenie ľudských peňazí (napr. investičné správanie alebo zadlženie) súvisí so štruktúrou osobnosti. V tomto kontexte možno odvodiť otázku, ktoré osobnostné faktory veľkej päťky skutočne ovplyvňujú naše postoje k peniazom?

Okrem toho sa doteraz overovali rôzne demografické/biografické premenné, ktoré ovplyvňujú postoje k peniazom. Niekoľko výskumníkov napríklad preukázalo, že biografické faktory ako pohlavie, príjem, vek, vzdelanie, národnosť a geografická poloha ovplyvňujú náš postoj k peniazom (Medina a kol., 1996, s. 128).

Nedávno sa na základe škály MAS v štúdiu v USA vytvorili tri rôzne spotrebiteľské skupiny, t. j. sebavedomí spotrebiteľia, uvedomelí plánovači a neopatrní v mŕňaní. Napríklad štatistická analýza ukázala významné rozdiely medzi skupinami v súvislosti s pohlavím ($n = 224$). Najmä ženy vykazovali v súvislosti s peniazmi znepokojivejšie a úzkostnejšie postoje ako muži (Chi a Banerjee, 2013, s. 74–79). Hanashiro a kol. v medzikultúrnej štúdiu v USA a Japonsku ($n = 378$) dokázali, že študenti – muži – skôr vnímajú peniaze ako nástroj ovládania iných ľudí, resp. ako symbol moci. Celkovo majú muži tendenciu pripisovať peniazom väčšiu hodnotu ako ženy (Hanashiro

et al., 2004, s. 39–44). Ďalšia mexická štúdia dokázala rozdiely súvisiace s vekom ($n = 275$). Presnejšie povedané, čím sú ľudia starší, tým je pravdepodobnejšie, že sa obávajú finančných záležitostí (Roberts a Sepulveda, 1999, s. 25–33).

Hoci existujú adekvátne výskumy o vplyve osobnostných črt, ako aj biografických premenných na postoje jednotlivcov k peniazom v rôznych krajinách ako USA alebo Japonsko, výskumy zamerané na situáciu v mnohých európskych krajinách podľa najlepších vedomostí chýbajú.

Dizertačná práca sleduje logickú cestu. Súčasný stav témy ako aj teoretický rámec sú prezentované na základe komplexného prehľadu literatúry. Najprv je načrtnutý význam peňazí z rôznych uhlov pohľadu. Následne sú poskytnuté prehľady o vzťahu postoja a správania, postoj k peniazom, osobnostné vlastnosti a relevantné empirické výsledky. Ďalej je načrtnutý cieľ práce, pokrývajúci ciele a otázky výskumu. V metodologickej časti sa pozornosť sústreďuje na metódy výskumu a v rámci výskumného projektu bol realizovaný dizajn štúdie ako nadnárodnej kvantitatívnej štúdie. Časť výsledkov obsahuje podrobnosti týkajúce sa štatistických kritérií kvality, popisu vzorky, distribúcie údajov a výsledkov regresie. Okrem toho sú v tejto časti overené hypotézy. V diskusii je poskytnutá hlboká a kritická diskusia o výsledkoch štúdie. Najmä výsledky výskumu sú zhrnuté, prepojené s predchádzajúcimi štúdiami a sú kriticky hodnotené. Ďalej sú uvedené obmedzenia výskumu a prístupy pre ďalší výskum a z výsledkov výskumu sú odvodené praktické dôsledky. Záver práce predstavuje stručné zhrnutie výskumu a načrtáva prínos tejto práce pre vedeckú spoločnosť.

Primárnym cieľom tejto práce je analyzovať vybrané prediktory pre postoje k peniazom u študentov. Skúmané prediktory sa zameriavajú na osobnostné črty a okrem toho na biografické premenné (napr. pohlavie, vek). Okrem toho by malo medzištátne porovnanie vo vybraných európskych krajinách poskytnúť ďalšie informácie o rozdieloch medzi jednotlivými krajinami.

Predchádzajúce výskumy postoja k peniazom čiastočne ukazujú odlišné výsledky týkajúce sa vplyvu určitých faktorov na postoj k peniazom. Navyše, štúdie v oblasti postoja k peniazom sú vo väčšine európskych krajín zriedkavé. Porovnanie s existujúcimi výsledkami štúdií, najmä tými, ktoré sa uskutočnili v iných častiach sveta, by preto mohlo poskytnúť nové výskumné zistenia.

Boli definované tieto výskumné otázky:

1. Aké sú pohľady na peniaze a ako sú peniaze definované?

2. Čo je to pojem postoje a ako je definovaný?
3. Čo sa rozumie pod pojmom postoj k peniazom?
4. Ako možno merať postoje k peniazom a aké sú silné a slabé stránky dostupných testovacích nástrojov?
5. Čo je pojem osobnostné črty a ako sa definujú osobnostné črty?
6. Aké sú najdôležitejšie prediktory, ktoré ovplyvňujú postoj jednotlivca k peniazom a podporujú relevantné empirické výsledky ich význam?
7. Ako môžu byť výsledky kvantitatívnej štúdie použité v podnikateľských aktivitách a z pohľadu jednotlivca?

V práci bol použitý online-prieskum (vytvorený pomocou softvéru EvaSys Survey Grid, všetky položky v anglickom jazyku) a zahŕňal tri časti:

- Samostatne vyvinuté biografické položky (pohlavie, vek, najvyššie ukončené vzdelanie, domáca univerzita, národnosť), 5 položiek
- NEO Five-Factor Inventory (NEO-FFI), 60 položiek (McCrae a Costa, 2010a, s. 1–145)
- Money Attitude Scale test (MAS), 29 položiek (Yamauchi a Templer, 1982, s. 522–528)

Aplikovaný NEOFFI je založený na široko uznávanom „systéme osobnosti z teórie piatich faktorov“, ktorý vznikol z teórie vlastností. V súčasnosti je vo vedeckej komunite najvhodnejším a najkomplexnejším modelom osobnosti prístup Veľkej päťky (Friedman et al., 2004, s. 346). 60 položiek meria päť osobnostných črt otvorenosť voči skúsenostiam, svedomitosť, extroverziu, príjemnosť a neurotizmus na päťbodovej Likertovej škále (McCrae a Costa, 2010, s. 1–145). Štandardizovaná MAS so svojím všeobecným zameraním meria štyri faktory postoja k peniazom – moc – prestíž, stálosť – čas, nedôveru a úzkosť. Vďaka svojej osvedčenej platnosti a vysokej spoľahlivosti je MAS dobre známym a široko používaným nástrojom na komplexné meranie individuálnych postojov k peniazom (Blaszczynski a Nower, 2010, s. 685–686). Na tento výskum bola použitá úplná pôvodná verzia s 29 položkami.

Online prieskum, prostredníctvom ktorého sa zbierali empirické údaje, sa uskutočnil medzi 05.07.2020 a 25.03.2021 v piatich krajinách. Študenti bakalárskeho, magisterskeho a doktorandskeho štúdia odpovedali na trojdielny online prieskum s 94

položkami na piatich univerzitách (päť čiastkových vzoriek na Tirana Business University College, University of Applied Sciences Burgenland, Univerzita Juraja Dobrila v Pule, Ekonomická univerzita v Bratislave, Türk-Alman Üniversitesi - Turecká nemecká univerzita). Odber vzoriek sa uskutočňoval na základe praktických vzoriek na univerzitách uvedených vyššie.

Na základe výskumných cieľov sa vo výskumnom projekte kriticky skúmajú tieto hlavné hypotézy:

- H1: Biografické premenné výrazne ovplyvňujú postoj študentov k peniazom.
- H2: Osobnostné vlastnosti výrazne ovplyvňujú postoj študentov k peniazom..
- H3: Faktory postoja k peniazom a ich prediktory ukazujú rozdiely medzi študentmi špecifické pre jednotlivé krajiny.

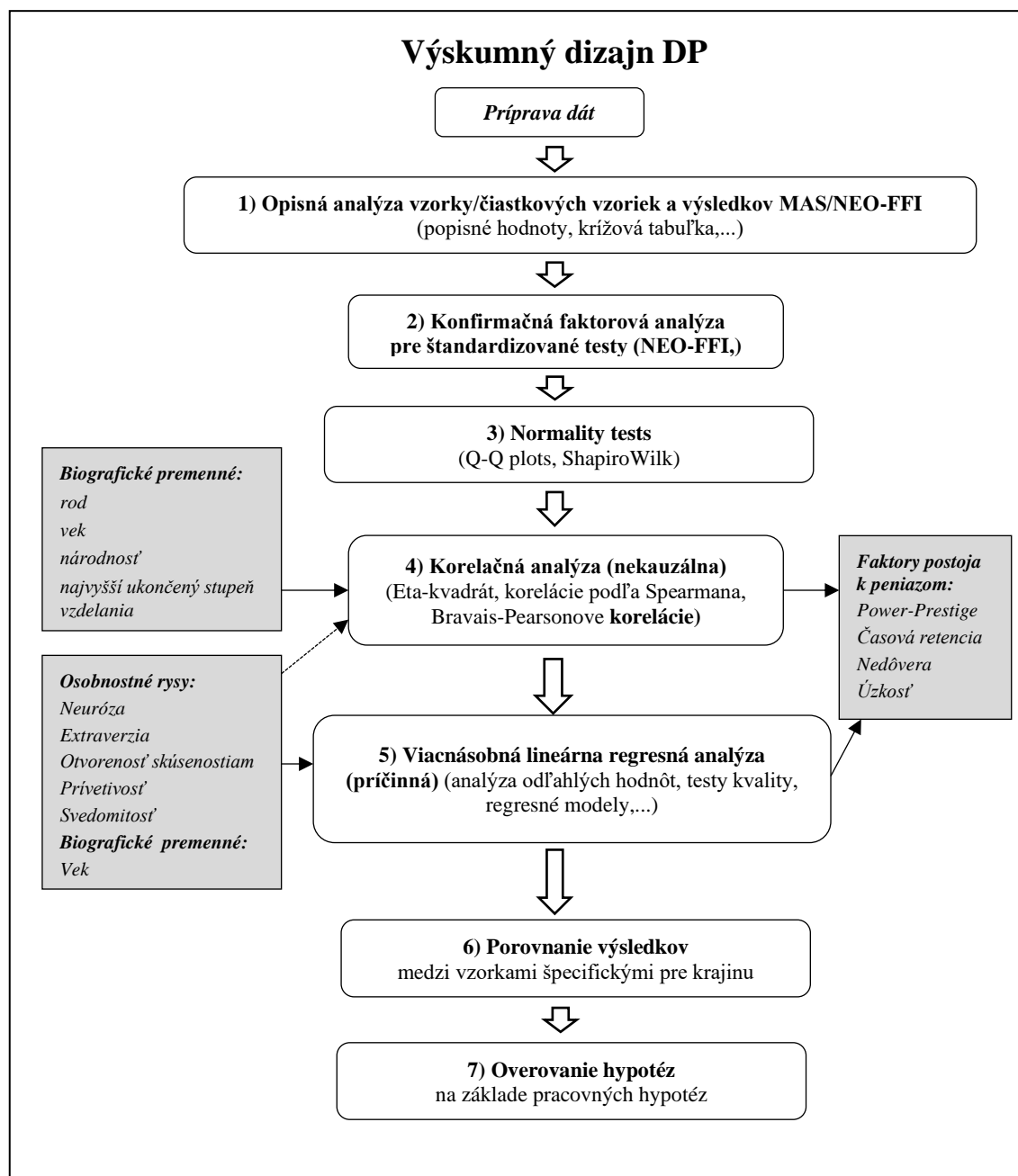
V prvom kroku boli údaje pôvodne testované na predpoklad normálne distribuovaných údajov pomocou Shapiro-Wilkovho testu. Okrem toho grafy Q-Q umožnili počiatočný prieskum týkajúci sa možných vzťahov medzi premennými (Fahrmeir et al., 2006, s. 153). Ďalšia lineárna regresná analýza bola indikovaná pre všetky prípady, kde údaje smerovali k priamke v rozptylovom grafe (Muijs, 2004, s. 161).

Ďalej lineárne korelačné analýzy na základe Bravais-Pearsonovho korelačného koeficientu (pre metrické údaje, tj vekové a osobnostné skóre), poradové korelačné analýzy (pre ordinálne údaje, tj najvyššie ukončené vzdelanie) a Eta-štvorcové analýzy (pre nominálne údaje, tj pohlavie a národnosť) boli vykonané na testovanie silných stránok a smerovania vzťahov (Auer et al., 2013, s. 71). Na overenie vzťahov príčina-následok sa uskutočnili viaceré lineárne regresné analýzy na základe bežnej metódy najmenších štvorcov (OLS).

Nakoniec sa výsledky v rôznych čiastkových vzorkách porovnali, aby sa identifikovali rozdiely špecifické pre jednotlivé krajiny.

Následne je zhrnutý hlavný výskumný návrh pre štatistickú analýzu:

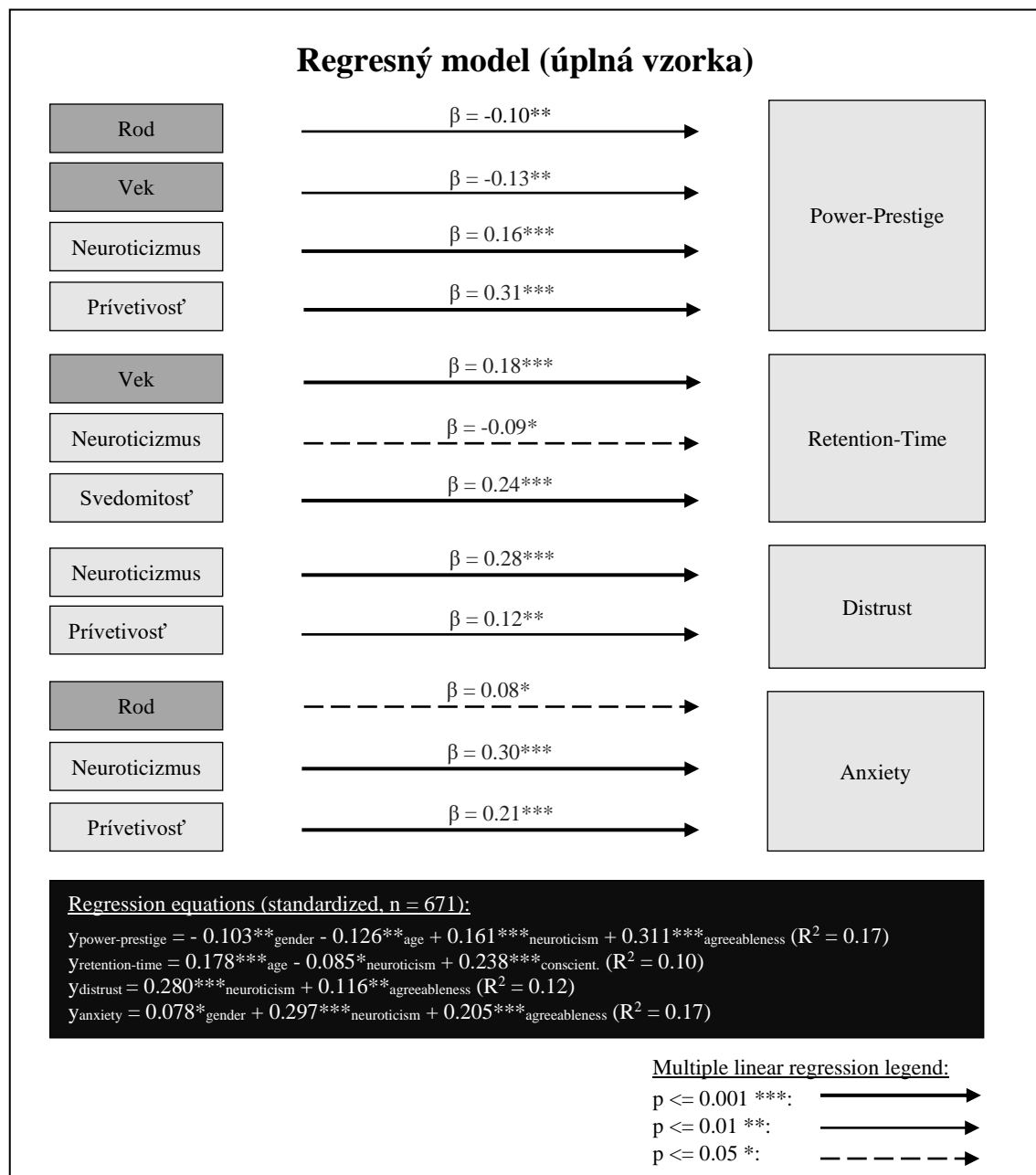
Obrázok 20: Výskumný dizajn dizertačnej práce (DP)



Vlastné spracovanie.

Pre celú vzorku bol vyvinutý nasledujúci regresný model (regresné modely pre vzorky špecifické pre krajinu sú uvedené v celej práci):

Obrázok 21: Regresný model (úplná vzorka).



Vlastné výsledky výskumu.

Všetky hlavné hypotézy sa do určitej miery potvrdili: Na základe výsledkov štúdie boli na významne relevantnej úrovni identifikované nasledujúce premenné s predikčnou mocou za peniaze:

- Pohlavie, vek, vzdelanie (vzdelanie len v jednej vzorke) ako biografické prediktory medzi študentmi (**H1**)
- Neurotizmus, ústretovosť, svedomitosť, otvorenosť voči skúsenosti (otvorenosť voči skúsenosti len v jednej vzorke) ako osobnostne podmienené prediktory u študentov (**H2**)

Rozdiely v postojoch k peniazom v jednotlivých vzorových skupinách študentov boli identifikované tak, ako je uvedené nižšie (**H3**):

- Dve krajiny v porovnaní s úplnou vzorkou vykázali vyššie priemerné hodnoty pre dimenziu moc-prestíž: Slovensko (+ 1,72) a Albánsko (+ 1,5). Na druhej strane Rakúsko (- 1,5) a Chorvátsko (- 1,3) mali podpriemerné skóre mocensko-prestíže.
- Stredné hodnoty retenčného času mali vyššiu relevanciu pre študentov v rakúskej vzorke (+ 2,27), zatiaľ čo v chorvátskej vzorke nastal opak (- 1,69).
- Silnejšia nedôvera zameraná na peniaze bola identifikovaná u študentov v vzorke Turecka (+ 2,39).
- Úzkosť súvisiaca s peniazmi bola nadpriemerná v vzorke albánskych (+ 1,34) a tureckých (+ 0,92) študentov. Opačné výsledky boli zistené v rakúskej (- 1,5) a chorvátskej (- 0,8) čiastkovej vzorke.

S odkazom na H1 - H3 boli detailne identifikované nasledovné výsledky: V celej vzorke bola sila-prestíž predikovaná podľa pohlavia, veku, neurotizmu a sympatií na štatisticky významnej úrovni. Mužskí účastníci mali vo všeobecnosti tendenciu sústrediť sa silnejšie na dimenziu moci a prestíže peňazí [$\eta^2 = 0,016^*$, $\beta = -0,103^{**}$ (mužské pohlavie bolo v regresnej analýze fiktívne zakódované 0)]. S pribúdajúcim vekom sa orientácia na moc a prestíž oslabovala [$r = -0,093^*$, $\beta = -0,103^{**}$]. Účastníci s neurotickejšími – orientovanými [$\beta = 0,161^{***}$] a príjemnejšími [$\beta = 0,311^{***}$] osobnosťami tiež disponovali silnejšími postojmi k peniazom súvisiacim s mocou a prestížou v celej vzorke. Prediktívny a pozitívny vplyv príjemnosti na mocenskú prestíž sa ďalej výrazne potvrdil v albánskom [$\beta = 0,403^{***}$], rakúskom [$\beta = 0,329^{***}$], slovenskom [$\beta = 0,403^{***}$] a tureckom [$\beta = 0,241^{**}$] čiastkových vzorkách. Ďalej bola úloha neurotizmu ako pozitívneho prediktora mocenskej prestíže podporená v chorvátskej [$\beta = 0,243^*$], slovenskej [$\beta = 0,239^{**}$] a tureckej [$\beta = 0,198^*$] vzorke. Zdá sa, že vyššie popísaný rodový efekt (pre celú vzorku) je výsledkom najmä chorvátskej

čiasťkovej vzorky, ktorá naznačuje mužskú orientáciu na mocenskú prestíž peňažnú dimenziu [$\beta = -0,184^*$]. Ďalší efekt sa vyskytol len v slovenskej vzorke: Účastníci s vyšším vzdelaním mali tendenciu vykazovať silnejší postoj k peniazom orientovaný na moc a prestíž [$\beta = 0,254^*$ (najnižšia úroveň ukončenej školy/akademického titulu bola v regresnej analýze fiktívne kódovaná 0)].

Retenčný čas v celej vzorke štatisticky významne ovplyvnil vek, neurotizmus a svedomitosť. S pribúdajúcim vekom sa účastníci intenzívnejšie zameriavali na dimenziu retenčného času peňazí [$r = 0,177^{**}$, $\beta = 0,178^{***}$]. Účastníci s neuroticizmom – charakterizovanými osobnosťami o niečo menej vnímali peniaze v kontexte retenčného času [$\beta = -0,09^*$]. Zistil sa explicitný prediktívny účinok pre svedomitosť: Vyššie skóre svedomitosti silne naznačovalo zameranie sa na peniaze v čase zadržania [$\beta = 0,238^{***}$]. Prediktívna relevancia svedomitosti pre retenčný čas bola ďalej vypočítaná v albánskej [$\beta = 0,304^{**}$], chorvátskej [$\beta = 0,300^{**}$] a tureckej [$\beta = 0,397^{***}$] vzorke na významnej úrovni.

V celej vzorke bola nedôvera významne predpovedaná neurotizmom a ústretovosťou: Obidve, neurotizmus [$\beta = 0,280^{***}$], ako aj ústretovosť [$\beta = 0,116^{**}$], pozitívne ovplyvnili dimenziu nedôvery k peniazom účastníkov. Pozitívny vplyv neurotizmu na nedôveru bol zistený v rakúskej [$\beta = 0,201^*$], chorvátskej [$\beta = 0,514^{***}$], slovenskej [$\beta = 0,359^{***}$] a tureckej [$\beta = 0,341^{***}$] vzorke. Pre chorvátsku a slovenskú vzorku boli identifikované dva rôzne (ale významné) efekty: Muži v porovnaní so ženami vykazovali silnejšie nedôverčivé postoje k peniazom v chorvátskej vzorke [$\beta = -0,187^{***}$]. Okrem toho sa zistilo, že vo vzorke na Slovensku [$\beta = -0,236^*$] boli účastníci so svedomitosťou a výraznou osobnosťou menej orientovaní na nedôveru k peniazom.

Úzkosť bola predikovaná pohlavím, neurotizmom a ústretovosťou v celej vzorke na štatisticky významnej úrovni. U žien v porovnaní s mužmi bol o niečo výraznejší postoj k peniazom orientovaný na úzkosť [$\eta^2 = 0,008$ (nevýznamné), $\beta = 0,078^*$]. Účastníci s neurotickou [$\beta = 0,297^{***}$] a zameranou na príjemnosť [$\beta = 0,205^{***}$] osobnosťami vykazovali v celej vzorke silnejší úzkostný postoj k peniazom. Významný a pozitívny vplyv neurotizmu na úzkosť bol identifikovaný vo všetkých piatich vzorkách: Albánsko [$\beta = 0,238^{**}$], Rakúsko [$\beta = 0,351^{***}$], Chorvátsko [$\beta = 0,389^{***}$], Slovensko [$\beta = 0,349^{***}$] a Turecko [$p = 0,247^{***}$]. V opačnom prípade bol pozitívny vplyv ústretovosti na úzkosť na významne relevantnej úrovni identifikovaný len v slovenskej [$\beta = 0,252^{**}$] a tureckej [$\beta = 0,349^{***}$] vzorke. Okrem toho so zvyšujúcim sa vekom

mali účastníci v rakúskej vzorke tendenciu vykazovať výrazne silnejší postoj k peniazom orientovaný na úzkosť [$\beta = 0,194^*$]. Vo vzorke Turecka sa vyskytli dva ďalšie efekty: Ženy v porovnaní s mužmi vnímali peniaze v silnejšom kontexte súvisiacom s úzkosťou [$\beta = 0,152^*$]. Okrem toho účastníci s otvorenejšou osobnosťou (vyššie skóre v dimenzii otvorenosti prežívaniu osobnosti) vykazovali v tureckej vzorke výrazne silnejšie postoje k peniazom orientované na úzkosť [$\beta = 0,188^*$].

Súčasný výsledky štúdií sú do značnej miery potvrdené v existujúcich štúdiách. Okrem toho boli identifikované ďalšie pozoruhodné významné výsledky:

Po prvé, prediktívna sila biografických premenných na postoje k peniazom sa porovnáva s predchádzajúcimi štúdiami v literatúre, ktorá načrtáva vysokú relevantnosť pohlavia ako prediktora: Hoci jedna jediná štúdia ukázala opačné výsledky, prítomnosť silnejších postojov žien k peniazom súvisiacich s úzkosťou v porovnaní s mužmi bol pozorovaný opakovane (Chi a Banerjee, 2013, s. 76; Fünfgeld a Wang, 2009, s. 118 – 122; Lim a kol., 2003, s. 420 – 427; Özgen a Bayoğlu, s. 2005 496 – 500). Tento vzťah sa v súčasnej štúdii na významnej úrovni potvrdil vo vzorke tureckých študentov. Okrem toho výsledky minulých štúdií vo viacerých prípadoch preukázali mužskú tendenciu k peniazom vyslovovaným mocou a prestížou (Baker a Hagedorn, 2008, s. 1808 – 1812; Furtner, 2017, s. 95 – 97; Hanashiro a kol., 2004, s. 42 – 45; Lim a kol., 2003, s. 420 – 427; Sabri a kol., 2006, s. 124; Simkiv, 2013, s. 39 – 44; Watson a kol., 2004, s. 282 – 287). Podobný účinok sa zistil v súčasnej chorvátskej čiastkovej vzorke na významnej relevantnej úrovni. Hoci v minulých štúdiách neexistujú žiadne dôkazy o prediktívnej úlohe pohlavia pri nedôvere podľa najlepšieho vedomia autora, v chorvátskej vzorke sa objavil ďalší významný rodový efekt: muži v porovnaní so ženami mali tendenciu silnejšie sa zameriavať na peniaze z nedôvery, postojová dimenzia. Vyšší vek v rakúskej vzorke ďalej významne predpovedal vyššiu úzkosť súvisiacu s peniazmi. Porovnateľné výsledky odkazujúce na vek ako prediktor boli nájdené v minulých štúdiách, aj keď sa (podobne ako v tejto štúdii) zdalo, že tieto výsledky sa nevyskytovali konzistentne (Bailey a Lown, 1993, s. 392–400; Baker a Hagedorn, 2008, s. 1808 – 1812; Chavali a Mohanraj, 2016, s. 171 – 175; Fünfgeld a Wang, 2009, s. 118 – 122; Furnham, 1984, s. 506; Furnham, 1985, s. 37 a 160; 1995, s. 329–331). Efekty veku vo vzťahu k dimenzii moc-prestíž peniaze (Bailey a Lown, 1993, s. 392 – 400; Chavali a Mohanraj, 2016, s. 171 – 175; Fünfgeld a Wang, 2009, s. 118 – 122; Lau, 1998, s. 305; Simkiv, 2013, s. 39–44) neboli v súčasnej štúdii identifikované. Vzdelanie v minulých štúdiách bolo opakovane načrtnuté ako prediktor s významom pre sporenie a mocenské postoje, keďže

nižšie vzdelanie malo tendenciu predpovedať slabšie zameranie sa na sporiace správanie, ako aj silnejšie zameranie na mocenskú prestíž, zatiaľ čo u jedincov s vyšším vzdelaním to bolo naopak (Bailey a Lown, 1993, s. 392 – 400; Chavali a Mohanraj, 2016, s. 171 – 175; Fünfgeld a Wang, 2009, s. 118 – 122; Lau, 1998, s. 305, 302, 0133 39 – 44). Tieto výsledky neboli v súčasnej štúdii na významnej úrovni podporené.

Po druhé, prediktívna relevancia osobnostných črt na postojoch k peniazom sa analyzuje v porovnaní s predchádzajúcimi štúdiami: Vo výskumnej literatúre sú neuroticky orientované osobnosti spojené s negatívne zaujatým monetárnym správaním, ako je nutkavé nakupovanie, zadlžovanie alebo menšia organizácia a plánovanie v menovom kontexte (Brougham a kol., 2011, s. 82 – 83; Dittmar, 2005, s. 472; Mowen a Spears, 1999, s. 425 – 426; Nyhus a Webley, 2001, 100 – 101; Spinella a Lester, s. 2005 782). Zdá sa, že tento behaviorálny efekt je dôsledkom základných postojov k peniazom, ktoré pôsobia ako sprostredkovateľské premenné: Súčasné výsledky výskumu podporujú predpoklad, že vysoké skóre neurotizmu je spojené s postojmi k peniazom orientovaným na moc-prestíž, nedôveru a úzkosť (napr. výsledkom sú vyššie uvedené účinky kompulzívneho nakupovania alebo zadlžovania), zatiaľ čo vysoké skóre neurotizmu naznačovalo slabšie zameranie sa na čas zadržania (napr. výsledkom je menšia menová organizácia a plánovanie).

V súčasnej vzorke sa nezistila extravérzia s významným prediktívnym významom pre postoje k peniazom. Literatúra však poukazuje na tendenciu extravertovaných jednotlivcov držať dlhy z kreditných kariet na jednej strane a držať akcie na druhej strane (Brandstätter a Güth, 2000, s. 476–478; Brown a Taylor, 2014, s. 197– 212).

Zdá sa, že otvorenosť voči skúsenostiam hrá menšiu prediktívnu úlohu pre postoje k peniazom (v literatúre, ako aj v súčasnej štúdii): Len v tureckej čiastkovej vzorke sa zistilo, že otvorenosť voči skúsenostiam aspoň do určitej miery predpovedá postoje k peniazom súvisiace s úzkosťou.

Zdá sa, že otvorenosť voči skúsenostiam hrá menšiu prediktívnu úlohu pre postoje k peniazom (v literatúre, ako aj v súčasnej štúdii): Len v tureckej čiastkovej vzorke sa zistilo, že otvorenosť voči skúsenostiam aspoň do určitej miery predpovedá postoje k peniazom súvisiace s úzkosťou.

Je potrebné poznamenať, že výsledky štúdií, ktoré skúmajú význam prijateľnosti ako prediktora pre postoje k peniazom, sú zriedkavé. Prijateľnosť v jednej predchádzajúcej štúdii bola identifikovaná ako prediktor zvýšenej ochoty držať akcie

(Brown a Taylor, 2014, s. 197–212). Na základe súčasných výsledkov štúdie zostáva značný priestor na interpretáciu toho, ktorá premenná postoja k peniazom by mohla sprostredkovať toto investičné správanie: U účastníkov so sympatickými osobnosťami sa zistilo, že majú silnejšie postoje k peniazom súvisiace s mocou, prestížou, nedôverou a úzkosťou na významnej úrovni v súčasnosti. úplná vzorka. Čo sa týka prediktívnej sily prívetivosti na mocenskú prestíž, v úvodnej štúdii autorov medzi rakúskymi študentmi biznisu bol zistený opačný efekt, z ktorého vyplýva, že menej príjemní jedinci sa viac zameriavali na mocenskú prestíž (Furtner, 2017, s. 95–97). Napriek zmiešaným výsledkom sa zdá, že prediktívna relevancia príjmnosti je zrejmá, hoci ďalšie (behaviorálne) dôsledky tohto vzťahu sú stále vo veľkej miere nepreskúmané.

Jednotlivci s osobnosťami orientovanými na svedomitosť v minulých štúdiách vykazovali schopnosť zlepšenej finančnej sebakontroly, ako je vyhýbanie sa dlhu z kreditných kariet a tendencia k silnému šetreniu, zatiaľ čo opačné výsledky (zlé hospodárenie s peniazmi) boli identifikované u menej orientovaných na svedomitosť. osôb (Brandstätter, 1996, np; Brandstätter, 2005, s. 83–85; Brown a Taylor, 2014, s. 197–212; Donnelly et al., 2012, s. 1129–1142). Tieto výsledky boli výrazne podporené výsledkami v úplnej vzorke študentov (ako aj vo väčšine čiastkových vzoriek): Účastníci s vysokým skóre svedomitosti sa výrazne silnejšie zamerali na dimenziu času zadržania peňazí. Zdá sa, že tento vzťah sa prejavuje v udržateľnejšom hospodárení s peniazmi.

Nasledujúce nové (zväčša neočakávané) významné výsledky naznačujú existenciu ďalších účinkov, najmä z hľadiska špecifického pre krajinu:

Tabuľka 46: Nové vedecké výsledky.

| Výsledok | Popis |
|---|--|
| Špecifické rozdiely pre jednotlivé krajiny (Porovnanie priemerných hodnôt) | <p>Moc-prestíž</p> <p>Silnejšia orientácia na moc a prestíž sa vyskytla v slovenskej (+ 1,72) a albánskej (+ 1,5) vzorke. Opačné výsledky boli zistené v rakúskej (- 1,5) a chorvátskej (- 1,3) čiastkovej vzorke.</p> <p>Retenčný čas</p> <p>Vynikajúce zameranie na retenčný čas bolo možné identifikovať v rakúskej vzorke (+ 2,27), zatiaľ čo orientácia na retenčný čas bola značne nízka v chorvátskej vzorke (- 1,69).</p> <p>Nedôvera</p> <p>V tureckej vzorke (+ 2,39) boli zistené mimoriadne silné postoje k peniazom orientované na nedôveru.</p> <p>Úzkosť</p> <p>Zatiaľ čo úzkosť súvisiaca s peniazmi bola výrazne výrazná v albánskej (+ 1,34) a tureckej vzorke (+ 0,92), opačné výsledky sa vyskytli v rakúskej (- 1,5) a chorvátskej (-0,8) vzorke.</p> |

| | |
|--|--|
| Rodové rozdiely (Regresná analýza) | <p>Muž sa zameriava na moc-prestíž (Chorvátsko)</p> <p>Najmä chorvátski muži sa v porovnaní so ženami výrazne silnejšie zamerali na dimenziu postoja k moci a prestíži k peniazom ($\beta = -0,184^{**}$). Porovnateľný významný účinok sa nevyskytol v ostatných čiastkových vzorkách.</p> <p>Muž sa zameriava na nedôveru (Chorvátsko)</p> <p>Chorvátski muži vykazovali výrazne silnejší postoj k peniazom orientovaný na nedôveru ako ženy ($\beta = -0,187^{***}$). Porovnateľný významný výsledok sa nezistil pre ostatné čiastkové vzorky.</p> <p>Zameranie žien na úzkosť (Turecko)</p> <p>Zatiaľ čo pohlavie nepredpovedalo postoje k peniazom orientované na úzkosť v iných vzorkách, ženy v porovnaní s mužmi vnímali peniaze z výraznej perspektívy súvisiacej s úzkosťou v tureckej vzorke ($\beta = 0,152^{*}$).</p> |
| Rozdiely súvisiace so vzdelaním (Regresná analýza) | <p>Vyššie vzdelaní jednotlivci so silnejším zameraním na mocenskú prestíž (Slovensko)</p> <p>Zatiaľ čo úroveň vzdelania nepredikovala postoje k peniazom v ostatných podsúboroch, vyššie vzdelanie naznačovalo výrazne silnejšiu orientáciu na moc a prestíž v slovenskej vzorke ($\beta = 0,254^{**}$). Tieto výsledky je potrebné zvážiť s ohľadom na vzorky študentov s typicky vyššou úrovňou a užšou šírkou vzdelávacieho pásma.</p> |
| Rozdiely súvisiace s osobnosťou (Regresná analýza) | <p>Vyššie svedomito orientovaní jedinci so slabším zameraním na nedôveru (Slovensko)</p> <p>Jednotlivci orientovaní na svedomitosť vykazovali výrazne slabší postoj k peniazom orientovaný na nedôveru ($\beta = -0,236^{*}$). Tento efekt sa vyskytol len vo vzorke Slovenska.</p> <p>Osoby orientované na vyššiu príjemnosť so zameraním na úzkosť (Slovensko, Turecko)</p> <p>Jednotlivci orientovaní na ústretovosť sa našli s výrazne silnejším postojom k peniazom orientovaným na úzkosť v slovenskej ($\beta = 0,252^{**}$) a tureckej ($\beta = -0,349^{***}$) vzorke. Porovnateľné významné účinky sa v ostatných čiastkových vzorkách nevyskytli.</p> <p>Jednotlivci s otvorenejšími osobnosťami so zameraním na úzkosť (Turecko)</p> <p>Zatiaľ čo osobnostná dimenzia otvorenosti prežívaníu sa nenašla s predikčnou silou v iných vzorkách, otvorenejšie osobnosti disponovali výrazne silnejšími výraznými postojmi k peniazom orientovaným na úzkosť v tureckej vzorke ($\beta = 0,188^{*}$).</p> |

Výsledky vlastného výskumu.

Hlavné obmedzenia súčasných výsledkov štúdie musia byť načrtnuté nasledovne:

Po prvé, je potrebné zdôrazniť, že vzorkové skupiny študentov (napr. z hľadiska vekovej štruktúry, úrovne vzdelania alebo štruktúry osobnosti) nepredstavujú základnú populáciu v skúmaných krajinách. Je to dôležité najmä z hľadiska ich typickej mladšej vekovej štruktúry, ich príjmovej situácie (nezvýšené) alebo ich nadpriemerného vzdelania, čo by potenciálne mohlo viesť k odlišným odpovediam v zložitejších

položkách prieskumu. Hoci identifikované osobitosti špecifické pre jednotlivé krajiny vo vzorkách silne naznačujú existenciu rozdielov, je potrebné vziať do úvahy, že postoje k peniazom (a ich prediktori) sa v iných skupinách obyvateľstva vyskytujú odlišne. Skúmané skupiny študentov napriek tomu predstavujú relevantnú budúcu časť populácie krajín, pokiaľ ide o ich funkciu vzorov a budúcich (finančných) osôb s rozhodovacou právomocou.

Ďalšie obmedzenia existujú s odkazom na použité štandardizované testy (NEO-FFI, MAS). Aj keď sú tieto testy štandardizované, sú široko akceptované a v minulosti široko používané, obidva vysvetľujú iba cca. tretina meraných premenných. NEO-FFI test vysvetlil iba 37,39 % celkového rozptylu v testovacej vzorke 11 724 subjektov. Ďalej existujú rôzne interpretácie rozmerov a nie je dohodnuté, či ide o deskriptívny alebo doplnkový vysvetľujúci charakter testu (Borkenau a Ostendorf, 2008, s. 9; 2008, s. 19). Nežiaduce prispôbenia modelu CFA sú tiež široko diskutovaným obmedzením s odkazom na NEO-FFI (Church a Burke, 1994, s. 93 – 114; Marsh a kol., 2010, s. 471 – 491; Parker a kol., 1993 463 – 466, Schmitz a kol., 2001, s. 713 – 722). Opäť aj MAS vo svojej pôvodnej vzorke vysvetľoval iba 33,76 % celkového rozptylu (Yamauchi a Templer, 1982, s. 523).

Ďalšie potenciálne obmedzenie možno nájsť v štruktúre čiastkových vzoriek: Je potrebné predpokladať, že znalosti angličtiny účastníkov sa líšia, keďže angličtina nie je rodným jazykom pre veľkú väčšinu účastníkov štúdie. Preto nemožno vylúčiť občasné zavádzajúce interpretácie určitých položiek prieskumu (v anglickom jazyku). Okrem toho nebolo možné kontrolovať všetky náhodné premenné v čiastkových vzorkách. Účastníci napríklad študujú rôzne predmety na úrovni územia. Je možné, že študijné pozadie ovplyvňuje individuálne postoje k peniazom (napr. ekonomické verzus neekonomické študijné odbory). Vo väčšine porovnateľných štúdií však existujú podobné obmedzenia týkajúce sa štruktúry vzorky.

Vypočítané regresné modely založené na údajoch zo štúdie ukázali (upravené) hodnoty R^2 na rôznych úrovniach dobrej zhody. V dôsledku toho sa vyvinuté modely nesmú interpretovať s plnou vysvetľovacou schopnosťou pre postoje závislých peňazí. Hoci sa v dizajne štúdie zameriavame na pravdepodobne najrelevantnejšie prediktory postojov k peniazom, je potrebné zdôrazniť, že prieskum nepokryl všetky existujúce premenné, ktoré boli v minulosti testované a potvrdené s predikčnou schopnosťou.

Minulé štúdie opakovane potvrdili vplyv biografických premenných a osobnostných črt na postoje k peniazom v rôznych častiach sveta. Porovnateľné výskumné aktivity pre analyzované krajiny sa však neuskutočnili na širšom základe.

V tomto nadnárodnom výskumnom projekte bola prediktívna sila biografických premenných a osobnostných vlastností skúmaná v piatich krajinách (Albánsko, Rakúsko, Chorvátsko, Slovensko, Turecko) na vzorke študentov v rámci kvantitatívneho dizajnu štúdie. Ďalší dôraz sa kládol na identifikáciu rozdielov v jednotlivých krajinách, pokiaľ ide o postoje k peniazom a príslušné prediktory.

Záverom možno konštatovať, že pohlavie, vek, vzdelanie (biografické faktory) a neurotizmus, ústretovosť, svedomitosť, otvorenosť voči skúsenostiam (osobnostné črty) v tomto súbore boli zistené s prediktívnou relevanciou pre postoje k peniazom na štatisticky významnej úrovni.

Pre dimenziu postoja k peniazom moc – prestíž sú pozoruhodné tieto výsledky: Muži, ako aj mladší účastníci mali tendenciu prejavovať silnejšiu orientáciu na peniaze a prestíž. Okrem toho sa našli jedinci s osobnosťami s neurotizmom a prívetivosťou, ktorí sa viac zameriavali na dimenziu moci a prestíže. Účastníci s pribúdajúcim vekom, menším neurotizmom, ale viac svedomito orientovanými osobnosťami sa silnejšie zameriavali na retenčný čas peňazí. Výrazné neurotické a sympatické osobnosti vykazovali silnejší postoj k peniazom orientovaný na nedôveru. U žien, ako aj u osobností orientovaných na neurotizmus a príjemnosť sa zistilo, že majú silnejší postoj k peniazom súvisiaci s úzkosťou. Hoci boli v určitých čiastkových vzorkách identifikované výrazné rozdiely, súčasné vzťahy do značnej miery potvrdzujú výsledky existujúcich štúdií.

Okrem toho sa medzi jednotlivými vzorkami vyskytli rozdiely v postoji k peniazom v jednotlivých krajinách: mocenská prestíž bola relevantnejšia na Slovensku a v Albánsku, zatiaľ čo v Rakúsku a Chorvátsku to bolo naopak. Zistilo sa, že retenčný čas má vyšší význam pre Rakúšanov a menej dôležitý pre Chorvátov. Vzorka Turecka vykazovala nadpriemernú orientáciu na nedôveru. Úzkosť bola relevantnejšia v Albánsku a Turecku, zatiaľ čo opačné výsledky boli zistené v Rakúsku a Chorvátsku.

Údaje prispievajú k existujúcim poznatkom tým, že potvrdzujú predikčnú relevanciu testovaných nezávislých premenných na postoje k peniazom. Nové výsledky však identifikovali rozdielne a neočakávané účinky v niektorých vzorkách (napr. silnejšia nedôvera k peniazom u mužov v chorvátskej podvzorke). Okrem toho výsledky poukazujú na to, že pokiaľ ide o postoje k peniazom, v Európe existujú rozdiely medzi jednotlivými krajinami. Široké dôsledky súčasného výskumu spočívajú v tom, že

obchodné stratégie (napr. marketingové kampane, bankové stratégie) by sa mali orientovať na peňažné postoje špecifické pre jednotlivé krajiny (ako aj príslušné prediktory cieľových skupín), aby sa zlepšili výnosy a zisky. Okrem toho by jednotlivci mohli zvýšiť svoje povedomie o postojoch k peniazom, aby sa vyhli škodlivému finančnému správaniu a zlepšili svoje finančné rozhodnutia (finančná gramotnosť). Ďalej by sa mal zdôrazniť význam zistení pre osoby s rozhodovacou právomocou v politickej/socioekonomickej oblasti (napr. proces zostavovania rozpočtu, daňové systémy/systémy sociálnych dávok).

Budúci výskum by sa mal zamerať na identifikáciu ďalších relevantných prediktorov pre postoje k peniazom (najmä v reprezentatívnych skupinách bežnej populácie), keďže nevýznamné výsledky naznačujú existenciu ďalších vzťahov. Dlhodobý výskumný dizajn by podporil skúmanie individuálnych postojov k peniazom z dlhodobého hľadiska. Ďalší výskum by navyše mohol preskúmať situáciu v iných európskych krajinách so zameraním na rozdiely medzi jednotlivými krajinami. Okrem toho by sa mali preskúmať ďalšie potenciálne prediktory pre postoje k peniazom (napr. náboženské hodnoty) so zameraním na kultúrne, historické, ekonomické a politické rôznorodé rámce európskych krajín

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Annexes

Annex A: Working hypotheses

Working hypotheses referring to **power-prestige** as dependent money attitude variable (formulated as null hypotheses):

- H0-P1: There will be no significant prediction of power-prestige by neuroticism among students.
- H0-P2: There will be no significant prediction of power-prestige by extraversion among students.
- H0-P3: There will be no significant prediction of power-prestige by openness to experience among students.
- H0-P4: There will be no significant prediction of power-prestige by agreeableness among students.
- H0-P5: There will be no significant prediction of power-prestige by conscientiousness among students.
- H0-P6: There will be no significant prediction of power-prestige by gender among students.
- H0-P7: There will be no significant prediction of power-prestige by age among students.
- H0-P8: There will be no significant prediction of power-prestige by highest completed level of education among students.
- H0-P9: There will be no significant prediction of power-prestige by nationality among students.

Working hypotheses referring to **time-retention** as dependent money attitude variable (formulated as null hypotheses):

- H0-R1: There will be no significant prediction of retention-time by neuroticism among students.
- H0-R2: There will be no significant prediction of retention-time by extraversion among students.

- H0-R3: There will be no significant prediction of retention-time by openness to experience among students.
- H0-R4: There will be no significant prediction of retention-time by agreeableness among students.
- H0-R5: There will be no significant prediction of retention-time by conscientiousness among students.
- H0-R6: There will be no significant prediction of retention-time by gender among students.
- H0-R7: There will be no significant prediction of retention-time by age among students.
- H0-R8: There will be no significant prediction of retention-time by highest completed level of education among students.
- H0-R9: There will be no significant prediction of retention-time by nationality among students.

Working hypotheses referring to **distrust** as dependent money attitude variable (formulated as null hypotheses):

- H0-D1: There will be no significant prediction of distrust by neuroticism among students.
- H0-D2: There will be no significant prediction of distrust by extraversion among students.
- H0-D3: There will be no significant prediction of distrust by openness to experience among students.
- H0-D4: There will be no significant prediction of distrust by agreeableness among students.
- H0-D5: There will be no significant prediction of distrust by conscientiousness among students.
- H0-D6: There will be no significant prediction of distrust by gender among students.
- H0-D7: There will be no significant prediction of distrust by age among students.

- H0-D8: There will be no significant prediction of distrust by highest completed level of education among students.
- H0-D9: There will be no significant prediction of distrust by nationality among students.

Working hypotheses referring to **anxiety** as dependent money attitude variable (formulated as null hypotheses):

- H0-A1: There will be no significant prediction of anxiety by neuroticism among students.
- H0-A2: There will be no significant prediction of anxiety by extraversion among students.
- H0-A3: There will be no significant prediction of anxiety by openness to experience among students.
- H0-A4: There will be no significant prediction of anxiety by agreeableness among students.
- H0-A5: There will be no significant prediction of anxiety by conscientiousness among students.
- H0-A6: There will be no significant prediction of anxiety by gender among students.
- H0-A7: There will be no significant prediction of anxiety by age among students.
- H0-A8: There will be no significant prediction of anxiety by highest completed level of education among students.
- H0-A9: There will be no significant prediction of anxiety by nationality among students.

Annex B: Online-survey

| Online-survey (Biographical items). | | |
|-------------------------------------|---|--|
| Biographical items (Code) | Item | Item categories |
| INT1 | <p>Dear students,</p> <p>This online survey collects data in the context of money and personality in a completely anonymous manner.</p> <p>The multinational study results will become part of a PhD thesis in the PhD Programme in International Economic Relations and Management at the University of Applied Sciences Burgenland.</p> <p>Please note that the survey is provided in English language. 15-20 minutes are required for completing this survey, which consists of three parts.</p> <p>Thank you very much in advance for answering the survey carefully!</p> | Introduction (no items) |
| BIO1_gender | What is your gender? | Male, Female, Other |
| BIO2_age | What is your age? | Numerical range from 0 to 100 |
| BIO3_edu | What is the highest level of school or academic degree you have completed? | <p>High school graduate or equivalent degree</p> <p>Bachelor's degree or equivalent degree</p> <p>Master's degree or equivalent degree</p> <p>Doctorate degree</p> |
| BIO4_uni | What is your home university? | <p>University of Applied Sciences Burgenland (Austria)</p> <p>University of Economics in Bratislava (Slovakia)</p> <p>University of Sopron (Hungary)</p> <p>Tirana Business University College (Albania)</p> <p>Juraj Dobrila University of Pula (Croatia)</p> <p>Turkish-German University (Turkey)</p> |
| BIO5_nat | What is your nationality? | <p>Albanian, Austrian</p> <p>Croatian, Czech</p> <p>German, Hungarian</p> <p>Serbian, Slovakian</p> <p>Slovenian, Turkish</p> <p>Other</p> |

Own editing.

| Online-survey (Personality traits). | | |
|-------------------------------------|---|--|
| NEO-FFI items (Code) | Item | Item categories |
| INT2 | <p>The next part refers to the description of your person.</p> <p>Please read the following statements carefully and specify to what extent each statement applies to you.</p> <p>For each statement, a five point scale is provided. In this scale, please choose one option in the range from “strongly disagree” to “strongly agree”.</p> <p>Please note that there are no right or wrong answers!</p> | Introduction (no items) |
| NEO_N1 | <p>Due to copyright reasons, it was not allowed to list the full items in the appendix.</p> <p><u>The first column in this table shows the item Code:</u></p> <p>First part of the code: Neo = NEO-FFI</p> <p>Second part of the code – personality dimensions:</p> <p>N = Neuroticism, E = Extraversion, O = Openness to Experience, C = Conscientiousness</p> <p>Third part of the code – individual item number:</p> <p>Each personality dimension consisted of 12 items.</p> | <p>All NEO-FFI items were measured on base of a five-point Likert-scale in the following range:</p> <p>1 = strongly disagree</p> <p>2 = disagree</p> <p>3 = neutral</p> <p>4 = agree</p> <p>5 = strongly agree</p> <p>(Based on the NEO-FFI manual, specific items were negatively poled.)</p> |
| NEO_E1 | | |
| NEO_O1 | | |
| NEO_A1 | | |
| NEO_C1 | | |
| NEO_N2 | | |
| NEO_E2 | | |
| NEO_O2 | | |
| NEO_A2 | | |
| NEO_C2 | | |
| NEO_N3 | | |
| NEO_E3 | | |
| NEO_O3 | | |
| NEO_A3 | | |
| NEO_C3 | | |
| NEO_N4 | | |
| NEO_E4 | | |
| NEO_O4 | | |
| NEO_A4 | | |
| NEO_C4 | | |
| NEO_N5 | | |
| NEO_E5 | | |
| NEO_O5 | | |
| NEO_A5 | | |
| NEO_C5 | | |
| NEO_N6 | | |
| NEO_E6 | | |
| NEO_O6 | | |
| NEO_A6 | | |

NEO_C6

NEO_N7

NEO_E7

NEO_O7

NEO_A7

NEO_C7

NEO_N8

NEO_E8

NEO_O8

NEO_A8

NEO_C8

NEO_N9

NEO_E9

NEO_O9

NEO_A9

NEO_C9

NEO_N10

NEO_E10

NEO_O10

NEO_A10

NEO_C10

NEO_N11

NEO_E11

NEO_O11

NEO_A11

NEO_C11

NEO_N12

NEO_E12

NEO_O12

NEO_A12

NEO_C12

Own editing and editing based on McCrae and Costa, 2010a, pp. 1–145.

| Online-survey (Money attitudes). | | |
|----------------------------------|---|--|
| MAS items (Code) | Item | Item categories |
| INT3 | <p>The final part of this survey refers to your money-related behavior and to your attitudes towards money.</p> <p>Please consider each statement carefully and select your answering option from “strongly disagree” to “strongly agree”.</p> <p>Please note that there are no right or wrong answers!</p> | Introduction (no items) |
| | <p><u>The first column in this table shows the item Code:</u></p> <p>First part of the code: MAS = Money Attitude Scale</p> <p>Second part of the code – money attitudes:</p> <p>P = Power-Prestige, R = Retention-Time, D = Distrust, A = Anxiety</p> <p>Third part of the code – individual item number:</p> <p>Each money attitude factor (as in the original test) consisted of a different item number.</p> | <p>All MAS items were measured on base of a five-point Likert-scale in the following range:</p> <p>1 = strongly disagree</p> <p>2 = disagree</p> <p>3 = neutral</p> <p>4 = agree</p> <p>5 = strongly agree</p> |
| MAS_P1 | I use money to influence other people to do things for me. | |
| MAS_P2 | <p>I must admit that I purchase things because I know they will impress others.</p> <p><i>[admit = to agree that something is true]</i></p> <p><i>[impress = to cause somebody to admire or respect you]</i></p> | |
| MAS_P3 | In all honesty, I own nice things in order to impress others. | |
| MAS_P4 | I behave as if money were the ultimate symbol of success. | |
| MAS_P5 | <p>I must admit that I sometimes boast about how much money I make.</p> <p><i>[boast = to speak too proudly or happily about what you have done or what you own]</i></p> | |
| MAS_P6 | <p>People I know tell me that I place too much emphasis on the amount of money a person has as a sign of his success.</p> <p><i>[emphasis = particular importance or attention that is give to something]</i></p> | |
| MAS_P7 | I seem to find that I show more respect to people with money than I have. | |
| MAS_P8 | <p>Although I should judge the success of people by their deeds, I am influenced by the amount of money they have.</p> <p><i>[deeds = intentional acts, especially very bad or good ones]</i></p> | |
| MAS_P9 | I often try to find out if other people make more money than I do. | |
| MAS_R1 | I do financial planning for the future. | |

| | |
|-----------------------|--|
| MAS_R2 | I put money aside on a regular basis for the future. <i>[put money aside = to save money for a special purpose]</i> |
| MAS_R3 | I save now to prepare for my old age. |
| MAS_R4 | I keep track of my money. <i>[keep track = to make certain that you know what is happening]</i> |
| MAS_R5 | I follow a careful financial budget. |
| MAS_R6 | I am very prudent with money. <i>[prudent = careful and avoiding risks]</i> |
| MAS_R7 | I have money available in the event of another economic depression. |
| MAS_D1 | I argue or complain about the cost of things I buy. |
| MAS_D2 | It bothers me when I discover I could have gotten something for less elsewhere. |
| MAS_D3 | After buying something, I wonder if I could have gotten the same for less elsewhere. |
| MAS_D4 | I automatically say: "I can't afford it," whether I can or not. <i>[afford = to be able to buy something because you have enough money]</i> |
| MAS_D5 | When I buy something, I complain about the price I paid. |
| MAS_D6 | I hesitate to spend money, even on necessities. <i>[hesitate = to pause before you do something]</i> <i>[necessities = something that you need, especially in order to live]</i> |
| MAS_D7 | When I make a major purchase, I have the suspicion that I have been taken advantage of. <i>[suspicion = a belief or idea that something may be true]</i> <i>[taken advantage of = to treat someone badly in order to get something good from them]</i> |
| MAS_A1 | It's hard for me to pass up a bargain. <i>[pass up = to fail to take advantage of an opportunity]</i> <i>[bargain = something on sale at a lower price than its true value]</i> |
| MAS_A2 | I am bothered when I have to pass up a sale. |
| MAS_A3 | I spend money to make myself feel better. |
| MAS_A4 | I show signs of nervousness when I don't have enough money. |
| MAS_A5 | I show worrisome behavior when it comes to money. <i>[worrisome = causing anxiety and worry]</i> |
| MAS_A6 | I worry that I will not be financially secure. |
| FIN1 | The survey now is completed. Thank you very much for your contribution! Please click the „Submit“-Button below! |
| Final page (no items) | |

Own editing and editing based on Yamauchi and Templer, 1982, pp. 522–528.