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## **A New Money Behaviour Quiz**

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### **Abstract**

This study reports on the development of a new questionnaire to measure money behaviors devised by the *Financial Times* (London). In all, 402 participants from diverse backgrounds, who were recruited online, completed the 29-item questionnaire. Six *a priori* money types were identified by financial experts, who did not know the salient psychological literature. The internal reliability of the factors was modest and there was some evidence of sex differences. Exploratory factor analyses failed to confirm the six-factor model, but did provide an alternative and interpretable typology. Further step-wise regression analysis showed the simple question: “Are you a spender or a saver?” was strongly related to almost every factor. Gender, age and self-perceived wealth were also consistently correlated with the money types. Implications and limitations are discussed.

Keywords: money, attitudes, questionnaire, saving, spending

There is No Conflict of Interest in the paper

## Introduction

Professionals who give money advice have noticed dramatic differences in adults' attitudes to, interest in, and behaviour concerning money. People clearly differ dramatically in their financial literacy, risk taking and money habits which can have very serious consequences for their well-being (Klontz et al., 2011; 2012; 2014; Lay & Furnham, 2018).

This study set about developing and validating a new measure in conjunction with the *Financial Times* (January 2017) who were running a large piece and associated quiz on financial literacy. It is different from other measures as the typology was generated by financial experts rather than psychometricians in the academic world. Inevitably there is some overlap between their categorical scheme and those working in the area (Taylor, Klontz, & Britt, 2016), though they maybe much more familiar with nuanced ideas and practices than the pure academic researchers. Second, the study set out to determine whether simple issues like a person's rating of their overall wealth, general success at work, or whether they were self-categorized as spender vs saver would account for a significant amount of the variance for each money factor/type.

There is no shortage of questionnaires attempting to assess money-related attitudes and behaviours (Yamauchi & Templer, 1982; Furnham, 1984; Tang, 1992; Lim & Teo, 1997; Rose & Orr, 2007; Klontz, Britt, Mentzer & Klontz, 2011; Furnham et al., 2012; Taylor, Klontz & Britt, 2015; Lay & Furnham, 2018). This study reports on a new test designed by money journalists, and consultants who did this without a knowledge of the psychological literature, but considerable experience of dealing with investors and savers with widely different incomes and financial knowledge and experience. The central question was whether the measure could provide a robust measure of the "types" as determined by the financial experts.

### Insert Table 1 here

Table 1 shows the various scales used to develop money beliefs and some findings from relevant studies. Studies which have attempted to replicate the factor structure have not always been successful. Further, they have tended to show that only one or two factors (usually referring to power and security) were correlated as hypothesized with other money-related beliefs and behaviors. The table shows that most of the studies

used students and that, as always, most (but not all) studies were done in America and Europe, though some recent studies have been reported from other English speaking countries (Furnham & Murphy, 2019).

### **Money attitude correlates**

Money attitudes have been linked with many *demographic* variables (Furnham, 1996). Studies have found money attitudes related to *gender* (Gresham & Fontenot, 1989; Furnham et al., 2012, 2014; Klontz et al., 2011, 2014; Tang, 1992), *culture* (Burgess, 2005; Lynn, 1991; Medina, Saegert & Gresham, 1996), *education level* (Furnham, 1984, Klontz et al, 2011), *political and religious values* (Furnham et al., 2012; Tang, 1992).

Previous results suggest that males tend to associate money with Achievement, Power and Freedom (Furnham et al., 2012) more than women, who in turn are more inclined to see money as a source of anxiety, as well as associate money with retention (Gresham & Fontenot, 1989) and budgeting (Tang, 1992). Furnham (1984) and Furnham et al. (2012) both found associations between money beliefs and socio-political ideology. While for political and religious values, Furnham et al. (2012) found those who are more affiliated with right wing are more likely to endorse power and freedom related emotions towards money.

There is also considerable evidence that other factors correlate with money attitudes and beliefs (Furnham, 2014). Some like financial anxiety have been extensively researched by Klontz and colleagues (Klontz et al., 2011; Taylor et al., 2015). Others include subjective ratings of success and happiness, as well as the simple categorization of whether one is a spender or a saver. In this study we use a number of other questions like political beliefs, psychological stability and a simple statement about whether people are “money worriers” to further examine attitudinal correlates. Each has been identified as relating to money attitudes in the literature (Furnham, 2014) but there is a paucity of data on these issues. The data suggest that the happier and healthier a person rates themselves to be the more they associate money with Achievement and Power and they less they are concerned with Savings and poor Financial Literacy. Similarly more religious people have been shown to be more “conservative” in their money attitudes seeing money as an index of achievement and means of power.

### **This study**

This study uses a (radical) new measure which was not informed by the academic literature but focus groups and the insights of financial advisors. It examines the psychometric properties of this new test as well as individual correlates. Lay people tend to typologize others with rich and popular descriptions, very unlike the approach of differential psychologists interested in the topic (Furnham, 2014). This study posed the question of whether this approach would yield a psychologically valid and different test, compared to the others available (See Table 1).

The first aim of the present study is to devise and evaluate a new measure of money attitudes in an effort to understand people's relationship with money. The measure was designed for the *Financial Times* for a large feature on money (Rovnick, 2017). Rather than relying on the academic literature the items and types were generated by financial journalists and consultants whose jobs involved giving people advice about their money. Inevitably the types are described more in current journalistic language rather than more traditional academic terminology. Further, in some instances they seem to contradict the academic literature on money attitudes, though the differences are very subtle. They use their typologies to be able to quickly differentiate between various individuals they deal with in a number of different ways.

The following were their summary types, described in their own language. *The Fitbit Financier* who checks their balance twice a day, always switches to best deals and only buys goods online. They obsess over credit card points, use many comparison sites and apps that track budget and mortgages 2) *The Anxious Trader*, who tries always to buy high and sells low and thinks more trading makes things better. They trade frequently and hence have high levels of charges 3) *The Social Value Spender*, often a woman, who buys expensive gifts for herself and others as a way of feeling like a better person, more accepted etc. They make purchases to boost their self-esteem often with debt problems 4) *The Cash Splasher*, a close cousin of the social value spender, who pays for everyone's meal in a restaurant and boasts about the value of home/car in order to feel appreciated. Often male, they view themselves as generous but use money primarily to make others think more highly of them. 5) *The Hoarder* who wants to have £100k in the bank and will possibly use pension freedoms to take money out of pension in order to get cash, which is then put into a current account. They do not like to invest in stock market as would rather earn interest on cash, which is small but guaranteed, instead of risking a loss. 6) *The Ostrich* who never opens a bill or bank-statement and finds doing nothing much more palatable to making a decision.

These types were derived from various interviews held in London. The author took the descriptions of each type to develop statements. These were piloted for their clarity and “approved” by some of those who were interviewed to confirm they represented the beliefs and behaviors of those hypothetical types.

The second aim is to investigate the demography, ideology, biographical information and subjective well-being correlates of money attitudes. There is scarce evidence examining the possible associations of money attitudes in terms of biographical information. Hence, we set out to explore the relationship between money habits (being a spender vs a saver) and one’s money type.

## Method

### Sample

268 participants (148 male, 120 female) participated in the study. Their mean age was 37.43 ( $SD = 12.75$  years, range of 18-77). 59.3% of the participants were from the US ( $N = 159$ ), 36.6% were from India ( $N = 98$ ), the rest were from Canada and the United Kingdom. In terms of ethnicity, 47.4% were White ( $N = 127$ ), 43.7%, Asian ( $N = 117$ ), 3.4% Black ( $N = 9$ ), the rest identified themselves as other ethnicities. With regard to education, 14.2% completed high school ( $N = 38$ ), 14.2% obtained a diploma equivalent level ( $N = 38$ ), 50.0% have a Bachelor’s degree ( $N = 134$ ), and 21.6% achieved a Master’s degree or a PhD ( $N = 58$ ). This means they are a highly educated sample.

### Measures

*Money Attitudes Measure.* This measure consists of 29 items with questions regarding participant’s attitudes towards money. All responses were answered on an 7-point Likert scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). The measure is proposed to have 6 factors: *Fitbit Financier* (4 items;  $\text{Alpha}=.61$ ); *Anxious Trader* (4 items;  $\text{Alpha}=.65$ ); *Social Value Spender* (6 items;  $\text{Alpha}=.56$ ); *Cash Splasher* (5 items;  $\text{Alpha}=.73$ ); *Hoarder* (5 items;  $\text{Alpha}=.53$ ) and *Ostrich* (5 items;  $\text{Alpha}=.65$ ). Items can be seen in Table 3.

*Biographical information, ideology and subjective well-being.* Various single-item questions were designed to assess participants’ biographical information, ideologies and well-being. Participants rated on a 100-point Likert scale ranging from 1 (*Not at*

*all to 100 Extremely Wealthy*) how rich they were ( $X=42.79$ ,  $SD=23.32$ ) as well as their work success (*1 Not at all to 100 very successful*) ( $X=57.28$ ,  $SD=26.42$ ). Participants were also answered on a binary (forced choice) scale whether they are a spender (34.2%) or a saver (65.8%), whether they had a happy childhood (Yes=73.9%; No=26.1%)

*Demographic questions.* Participants provided information regarding their gender, age, ethnicity and education level.

### **Procedure**

The participants were recruited via Amazon Mechanical Turk (MTurk), an online market for enlisting workers to participate in research and surveys. Data from MTurk have been found to be comparable with traditional recruitment methodologies in terms of reliability, while the diversity of the samples surpasses those from standard Internet surveys and student samples (Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). We chose to sample people primarily from India and the United States and this would ensure the test could be used in many different countries. There was no overall significant differences in the responses from the different countries. In all 300 people were sampled but the number was reduced because of missing data and checks on the time participants took to complete the survey, as an index of careless responding.

### **Analysis**

#### *Gender differences*

A one-way ANOVA was conducted using IBM SPSS statistics (Version 21) to examine whether gender differences were present in the typologies but also the underlying 29 items.

#### *Factor Structure*

To begin with a confirmatory factor analysis (CFA) was conducted to examine whether the a-priori hypothesized six factor solution was a good fit for the data. This analysis was conducted using the *lavaan* package in R. The *lavaan* package in R has a *cfa* command and when the inputted data is specified as ordered *lavaan* treats the data as ordinal endogenous variables and estimates polychoric correlations and uses a more robust estimator for the test statistics. The robust estimator “WLSM” was

utilised, as this is an appropriate estimator when dealing with data that violates multivariate normality. This estimator uses diagonally weighted least squares (DWLS) estimation with robust standard errors and a scaled test-statistic (Satorra-Bentler scaled).

## Results

### *Correlations and descriptive statistics*

*Insert Table 2 here*

Table 2 shows the correlation matrix of the typologies. It indicated modest correlations between the scales with two  $r > .60$ . *Fitbit Financier* was correlated  $r = .63$  with *Anxious Trader*; while *Social Value Spender* was correlated  $r = .62$  with *Cash Splasher*.

### *Gender differences*

A one-way ANOVA suggested that males scored higher than females on *Anxious Trader* (male  $X = 17.66$ ,  $SD = 4.60$ ; female  $X = 16.68$ ,  $SD = 4.09$ ;  $F(1,399) = 4.96$ ,  $p < .05$ ) and *Cash Splasher* (male  $X = 17.52$ ,  $SD = 5.25$ ; female  $X = 15.56$ ,  $SD = 5.28$ ;  $F(1,399) = 13.29$ ,  $p < .001$ ). Indeed the size of three of the correlations is close to the size of the Cronbach's Alpha, which indicates that all the systematic construct relevant variance is shared by these scales.

*Insert Table 3 here*

Table 3 shows the items for each scale and sex differences for each of them. Eleven of the 29 items showed a sex difference. The greatest sex difference was found for the following item: "*I prefer to be safe rather than a gambler when it comes to money*".

### *Factor Analysis*

The model fit statistics for the 6 factor model were poor:  $CFI = .728$ ,  $TLI = .694$ ,  $RMSEA = .173$  (lower bound =  $.169$  and upper bound =  $.177$ ). Additionally some items loaded poorly on their expected factors. Consequently, an exploratory factor analysis was conducted on the data. To determine the number of factors to extract two tests were used: Velicer's MAP criteria and a parallel analysis on the polychoric correlation matrix. Both were conducted in R using the *psych* package (Revelle, 2017). Velicer's MAP suggested a four factor solution, however parallel analysis suggested a six factor solution. Consequently, an exploratory factor analysis was conducted extracting 4, 5 and 6 factors. Table 4 shows the factor loadings of each item from the four, five and six factor EFA.



*Insert Table 4 here*

Regardless of the number of factors some items were found to load poorly (less than .40) on any of the factors and others had significant cross-loading (loading .30 or greater on another factor). These items were dropped and a CFA was conducted for a four, five and six factor solution. For each factor solution modification indices were inspected and any items with significant cross variance (high modification indices) were dropped. The model fit statistics for each solution were as follows: Four Factor: CFI = .975, TLI = .966, RMSEA = .076 (.067 to .086) and Five Factor: CFI = .961, TLI = .947, RMSEA = .085 (.077 to .094). The Six Factor was not identified and the correlations between the six factors were found to be greater than one. This suggests that a six factor model is a poor fit for the underlying data.

*Insert Figure 1 here*

*Insert Tables 5 and 6 here*

We decided to do two sets of regressions. In the first group we used the original scales despite the poor alpha reliability and the poor model fit statistics from the confirmatory factor analysis for this model. In the second group of regressions we used the four factors derived from the four factor model as this model showed the best fit for the underlying data (see Figure 1). Additionally the four factor model aligns from a theoretical perspective in to four factors that describe the following typologies: *Fitbit*, *Status*, *Splasher* and *Anxious*. The items that form the fifth factor in the five factor solution do not link with one another theoretically: “There are lots of money bargains if you are prepared to search for them” and “I am very generous with the people I love”.

From Figure 1, it is clear the items on the first factor (Fitbit) seemed to be concerned with money obsessionality and focus, the second (Status) is about the respect and what money represents to others, the third (Splasher) is related to a desire to flash cash and with using money to influence others, and the fourth (Anxious). Based on the factor analysis items loading  $>.30$  on all four factors were combined to form new typologies. Alpha for these new factors was: Fitbit = .568; Status = .771; Splasher = .799; and Anxious = .749.

Six stepwise regressions were then computed with the six money types as the criterion variable and three groups of predictor variables: sex, age and class, ratings of wealth and work success and two general questions (spender vs saver) and happy childhood. The final step is shown in Tables 5 and 6. The results showed that some variables like education success at work and happy childhood were unrelated to any of the six types. On the other hand, sex, age, wealth and spender vs saver were significant. The regression which accounted for most of the variance (15%) indicated that younger males, who felt more wealthy, and were self-confessed spenders were more likely to be *Cash Splashers*. Two variables predicted whether one was a Hoarder: female savers. Similarly, for *Ostriches*: these were younger spenders. *Social Value* spenders were younger females, who considered themselves wealthy, spenders. Only one variable was related to being an *Anxious Trader*: people who rated themselves more wealthy tended to be anxious traders. Finally, *Fitbit Financiers* were more likely to be young, female savers who gave higher ratings for their wealth.

Those interested in further analysis of the data should contact the author ([adrian@adrianfurnham.com](mailto:adrian@adrianfurnham.com)) who would be happy to send them the SPSS file.

## **Discussion**

As Table 1 indicates there exists around half a dozen questionnaires designed to measure money beliefs and behaviors some of which have been used in many studies. This study tested a new measure designed not by psychometricians but financial advisors/consultants/journalists using focus group methods. The resulting questionnaire had six money types but the alphas failed to reach the generally acceptable .70 threshold except in one case. Indeed, the factor analysis confirmed the fact that the money types were not as coherent as they might be yielding seven identifiable analyses. There could be many reasons for this including non-professionals relative lack of ability to write items and understand the psychological dynamics of money beliefs.

Analyses of sex differences in Table 2 confirm many previous findings namely that females are more concerned with compulsive buying behavior (retail therapy) and present buying while males are more risky and likely to show off their wealth. Nearly every study on money beliefs and behaviors shows systematic and occasionally large sex differences (Furnham et al., 2014; von Stumm et al., 2013).

However, perhaps the most interesting feature of the study lies in the regression because of the way it highlights certain factors that seem consistently related to money beliefs. As noted in Tables 5 and 6 three variables seemed unrelated to money beliefs and practices. The first was education which was not related to money beliefs and behaviors. This perhaps counter-intuitive finding has been found before and can surprise financial experts and advisors that often very well-educated people are surprisingly ignorant about their money and vice versa (Furnham, 2014). Whereas specifically financial education is related to money beliefs general education is not. (Lay & Furnham, 2018). However, this was a relatively homogenous convenience sample and it may well be that if there were a wider range of educational attainment, some significant differences would become manifest.

The second factor was self-rated success at work which seemed unrelated to the money beliefs. It has been observed by many in this area that “money madness” and irrationality seems not to be associated with more or less successful people, whose success may be in part due to education (see above) (Furnham, 2014)

A third factor seeming unrelated to money beliefs was a report of a happy childhood. There is a vast literature inspired by psychoanalysis that suggests that money attitudes and beliefs are formed in childhood and often as a result of inappropriate parenting (Furnham et al., 2014). Many writers have noted that those with self-reported unhappy childhoods blamed that experience on their poor money management. However, this study failed to confirm this suggestion. On the other hand, we did not get details about the childhood, particularly parents’ economic socialization which could be crucial.

What the regression results (in Tables 5 and 6) did confirm was the importance of four factors to all money beliefs. The first was sex which has been demonstrated many times before. The results suggested that males were more likely to be *Fitbit Financiers*, *Social Value Spenders* and *Hoarders* and females *Cash Splashers*. Similarly, males scored higher on the factors *Money to influence others*, and *Respect and the psychological benefits of money*, while females scored higher on the fourth *Anxiety*, the fifth *Risk-aversion*, the sixth *Spending* and the final factor *Generosity*. As noted, many times before males associate money more with Power and females with Love (Furnham, 2014). It seems that money is associated more with affect in females.

The results also confirmed the associations between the money beliefs and age and wealth which are themselves positively associated ( $r=.18$ ,  $p<.01$ ). Younger people

tended to be associated with being a *FitBit Financier* and a *Cash Splasher* but also a Social Value spender and an Ostrich indicating perhaps the more technologically savvy but brash attitudes of young people. They were also more likely to associate money with influence and respect.

Actual Wealth was also associated with a number of beliefs. Thus, the wealthier people were more likely to be *FitBit Financiers*, *Anxious Traders*, *Cash Splashers*, and *Social Values Spenders*. This is clearly an interesting finding because they are such very different types, yet the participant's wealth was associated with all of them, particularly the latter two,

However, perhaps one of the most interesting findings to emerge from this study was the predictive power of the single question: "Are you a spender or saver?". Many studies of financially distressed couples noted at the heart of their financial difficulties was that one was a Spender and the other a Saver and that they could not resolve these two opposite instincts (Furnham, 2014). Indeed, this single item may be for financial advisors the single best place to try to start diagnosing the beliefs and behaviors of their clients.

Like all studies this had limitations. It had a relatively small convenience sample and all the data was self-report allowing no causal analysis. Replicating this on a bigger national sample would always allow for more confidence in the results but also the possibility of more sophisticated analysis like SEM. Further, both a strength and weakness of this study to take ideas and observation from those familiar with financial advice rather than the psychology of money. Whilst academic test developers might do well to seek the help and advice of those who attempt to understand, categorize and label the types of individuals they deal with, it may also help the latter to consult the academic literature. The question is whether this scale is different from, or better than other measures in the area (Lay & Furnham, 2018). Ideally any new scale would have to show convergent, discriminant and predictive validity of the new measure which is a considerable research undertaking.

One issue of interest is how financial advisors would react to the essential lack of empirical support for their typology. A few who took part in this study did not express great surprise and seemed happy to take into consideration the types that resulted from the factor analysis.

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*Table 1.* Empirical Studies: methodological characteristics and demographic and personality factors that do and do not influence money attitudes

Empirical Studies	Scale Used	<i>N</i>	Sample	Location	Factors that Influence Money Attitudes
Wernimont and Fitzpatrick (1972)	Modified Semantic Differential (MSD)	533	College students, engineers, religious sisters, etc.	Large U.S. Midwestern City	Work experience, socioeconomic level and gender
Yamanchi and Templar (1982)	Money Attitude Scale (MAS)	300	Adults from different professions	Los Angeles and Fresno, CA	
Furnham (1984)	Money Beliefs and Behaviour Scale (MBBS)	256	College students	England, Scotland and Wales	Income, gender, age, and education
Bailey and Gustafson (1986)	Money Beliefs and Behaviour Scale	NA	College students	U.S. Southwestern City	Gender
Gresham and Fontenot (1989)	Modified Money Attitude Scale	557	College students and their parents	U.S. Southwestern Cities	Gender
Bailey and Gustafson (1991)	Modified Money Beliefs and Behaviour Scale	472	College students	U.S. Southwestern City	Sensitivity and emotional stability
Hanley and Wilhelm (1992)	Money Beliefs and Behaviour Scale	143	NA	Phoenix, Tucson, Denver, and Detroit	Compulsive behaviour
Tang (1992)	Money Ethic Scale (MES)	769	College students, faculty, managers, etc.	Middle Tennessee City	Age, income, work ethic, social, political, and religious values
Bailey and Lown (1993)	Money in the Past and Future Scale	654	College students, their relatives and other professionals	Western U.S. States	Age
Tang (1993)	Money Ethic Scale (MES)	68 and 249	College students	Taiwan	
Wilhelm, Varesse & Friedrich (1993)	MBBS	559	Adult Americans	USA	Gender, financial progress
Bailey, Johnson, Adams, Lawson, Williams & Lown (1994)	MBBS	344, 291, and 328	Employed adults related to college students	U.S.A., Australia Canada	Geographical location
Lim & Teo (1997)	MBBS MAS	200	Students	Singapore	Gender differences
Roberts & Sepulveda (1999)	MAS	273	Adults	Mexican	Compulsive buying

Ozgen & Bayoglu (2005)	Money in the Past and Future Scale	300	Turkish students	Ankara, Turkey	Gender, age, family type
Burgess (2005)	Modified Money Attitude Scale	221	Urban South Africans	Major Metropolitan Cities	Values & culture
Engelberg & Sjoberg (2006)	MAS	212	Swedish students	Sweden	Emotional Intelligence
Christopher, Marek & Carroll (2010)	MPPS	204	Students	American	Materialism
Klontz, Britt, Mentser & Klontz (2011)	KMSI	422	Adults	American	Sex, age, race Education, gross income
Tatarko & Schmidt (2012)	MPPS	634	Adults	Russian	Social Capital
Furnham, Wilson & Telford (2012)	Short Money Type Measure (SMTM)	400	Adults	English	Age Ethnicity Salary Education Politics
Von Stumm, Fenton O'Creevy & Furnham (2013)	SMTM	109472	Adults	British	Education Income Financial Habits
Taylor, Klontz & Britt (2015)	KMSI-R	326	Students	American	Sex, Age, Education, etc
Lay & Furnham, 2017	NMAQ	268	Adults	British	Sex, Age, Ideology, work success

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Table 2

*Intercorrelations between the six proposed factors*

	2	3	4	5	6
1 Fitbit financier	.63***	.38***	.30***	.43***	.03
2 Anxious trader		.37***	.41***	.35***	.05
3 Social value spender			.62***	.17***	.20***
4 The Cash Splasher				.12*	.30***
5 The Hoarder					.06
6 The Ostrich					

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 3 *The results of factor analysis and one-way ANOVA*

Factor	Alpha	Items	<i>M (SD)</i>		<i>F</i>	1	2	3	4	5	6	7
			Male	Female								
Fitbit financier	.61	I get a real kick out of the business of managing my money.	4.11 (1.73)	3.86 (1.73)	2.07	<b>.69</b>	.27	.10	-.19	-.11	.07	-.09
		I think I check my financial affairs more than other people	4.42 (1.62)	4.31 (1.73)	.42	<b>.59</b>	.01	.14	.08	-.01	.13	-.02
		There are lots of money bargains if you are prepared to search for them	5.24 (1.38)	5.55 (1.10)	6.11*	<b>.37</b>	-.20	.10	.19	.27	.26	.16
		I spend a lot of time trying to find money bargains	4.52 (1.67)	5.17 (1.36)	18.47***	<b>.40</b>	.03	-.04	.22	.20	.18	.06
Anxious trader	.65	I follow the trends about money management	3.98 (1.68)	3.50 (1.54)	8.87**	<b>.62</b>	<b>.35</b>	.05	-.02	.01	.02	-.09
		I am constantly re-evaluating all my investments	4.27 (1.72)	4.03 (1.60)	2.00	<b>.61</b>	.20	.10	.05	-.13	.17	-.07
		You have to be vigilant about all money matters	5.30 (1.35)	5.49 (1.18)	2.25	<b>.42</b>	<b>-.31</b>	.19	.23	.17	.13	-.01
		I believe investing time in watching money programmes is worth it	4.11 (1.65)	3.70 (1.67)	6.07*	<b>.51</b>	.27	.07	-.03	.03	-.10	.07
Social value spender	.56	When it comes to spending money on myself its "because I am worth it"	4.08 (1.71)	3.79 (1.63)	3.07	<b>.32</b>	<b>.33</b>	.14	-.10	-.04	.08	.30
		I often demonstrate my love to people by buying them presents	3.71 (1.55)	3.84 (1.71)	.63	.19	.27	.15	.08	.04	<b>.41</b>	.17
		I am very generous with the people I love	4.93 (1.38)	5.58 (1.15)	25.94***	.11	-.10	-.02	-.06	.06	<b>.74</b>	.05
		The best present you can give to someone is money	3.31 (1.73)	3.01 (1.69)	3.02	.19	<b>.42</b>	.27	.13	-.07	-.05	-.14
		Money can help you be accepted by others	4.42 (1.48)	4.34 (1.67)	.20	.05	.14	<b>.69</b>	.08	.01	.15	.03
		I love retail therapy: shopping to cheer me up	3.01 (1.67)	3.75 (1.81)	17.13***	.01	<b>.31</b>	.12	.06	-.01	.19	<b>.55</b>
The Cash Splasher	.73	Having a lot of money is a sign of success	4.67 (1.64)	4.28 (1.60)	5.73*	.23	.16	<b>.65</b>	.08	.08	-.14	.19
		I rather enjoy letting people know how well-off I am	2.69 (1.51)	2.26 (1.40)	8.36**	.24	<b>.72</b>	.13	.01	-.15	.00	.17
		I use money to persuade people to do things for me	2.77 (1.64)	2.13 (1.41)	17.65***	.10	<b>.65</b>	.11	.08	-.18	-.10	.03
		I admit that I buy things to impress others	2.80 (1.59)	2.55 (1.52)	2.73	.13	<b>.64</b>	.13	.04	-.15	.03	<b>.32</b>
		You get respect from others when you have lots of money	4.58 (1.55)	4.45 (1.57)	.74	.18	.13	<b>.74</b>	.08	.06	.04	.00
The Hoarder	.53	I feel safe and secure if I have a lot of money saved	5.46 (1.36)	5.59 (.37)	.86	<b>.42</b>	-.08	.34	.14	.23	-.01	.15
		I prefer to be safe rather than a gambler when it comes to money	5.05 (1.42)	5.81 (1.20)	33.95***	.04	-.18	-.01	.05	<b>.68</b>	.04	.00
		I value having a lot of easy-to-access money in the bank	4.92 (1.49)	4.86 (1.46)	.15	<b>.50</b>	-.09	<b>.41</b>	.08	.11	.04	.24
		I am much more of a saver than a spender	4.78 (1.61)	4.65 (1.68)	.64	<b>.38</b>	.03	-.08	-.19	.28	-.02	<b>-.44</b>
		Essentially I am risk-averse when it comes to money investments	4.49 (1.52)	4.65 (1.51)	1.09	-.08	-.02	.20	.22	<b>.52</b>	.05	-.14
The Ostrich	.65	Thinking about money makes me anxious.	4.12 (1.65)	4.76 (1.69)	14.42***	-.14	.09	.12	<b>.78</b>	.11	.05	.03
		I dither a lot over money decisions.	4.01 (1.55)	4.22 (1.52)	1.75	.18	.22	-.03	<b>.55</b>	.09	-.03	.00
		I am really not interested in money matters.	3.09 (1.71)	3.00 (1.57)	.28	<b>-.49</b>	<b>.35</b>	-.22	.09	.13	.08	-.05
		I prefer to let others I trust make my important money decisions	2.82 (1.65)	2.73 (1.60)	.37	-.08	<b>.56</b>	-.02	.18	.10	.06	-.01
		I feel anxious and defensive about my personal finances	4.07 (1.80)	4.33 (1.67)	2.26	.06	.03	.19	<b>.76</b>	.05	-.03	.08
Eigenvalue from unrotated solution						5.66	3.20	2.65	1.75	1.58	1.31	1.05
% of variance						19.52	11.03	9.14	6.04	5.45	4.51	3.66

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

All loadings  $> .30$  have been bolded to make the reading of the table clearer

Table 4: Item loadings from EFA with four, five and six factors

	F1	F2	F3	F4	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5	F6
1	.287	<b>.805</b>	.008	-.293	.244	<b>.767</b>	.029	-.268	.045	<b>.807</b>	.210	.008	-.229	.018	-.026
2	.015	<b>.565</b>	.120	-.022	.014	<b>.472</b>	.110	-.026	.185	<b>.530</b>	-.050	.054	.047	.099	-.040
3	-.318	.366	.037	.217	-.254	.185	-.057	.172	<b>.472</b>	.217	-.285	-.059	.139	.394	.117
4	-.083	<b>.493</b>	-.157	.290	-.054	.359	-.215	.259	.354	.377	-.045	-.207	.206	.294	.134
5	.375	<b>.740</b>	-.143	-.031	.304	<b>.751</b>	-.092	.002	-.052	<b>.759</b>	.340	-.086	-.019	-.056	.078
6	.233	<b>.680</b>	-.012	-.035	.209	<b>.614</b>	-.011	-.030	.127	<b>.665</b>	.159	-.055	.036	.058	-.058
7	-.393	.321	.189	.166	-.382	.215	.197	.157	.200	.260	-.412	.136	.214	.084	.078
8	.291	<b>.551</b>	-.027	-.041	.233	<b>.561</b>	.024	-.013	-.065	<b>.582</b>	.238	.007	.010	-.090	.013
9	.402	.292	.206	-.089	.449	.205	.128	-.126	.227	.250	.355	.132	-.121	.241	-.129
10	.299	.197	.148	.127	.378	.069	.028	.074	.364	.083	.342	.082	-.045	.440	.034
11	-.218	.181	.039	-.002	-.093	-.037	-.158	-.092	<b>.652</b>	-.028	-.153	-.109	-.226	<b>.722</b>	.074
12	<b>.463</b>	.140	.153	.112	.388	.236	.239	.155	-.284	.222	<b>.450</b>	.261	.097	-.219	.086
13	.122	-.163	<b>.720</b>	.054	.131	-.175	<b>.718</b>	.052	-.033	-.168	.122	<b>.758</b>	-.039	.044	.107
14	.395	-.059	.235	.123	<b>.534</b>	-.226	.089	.045	.426	-.171	.393	.107	.037	.431	-.200
15	.187	-.027	<b>.714</b>	.040	.153	-.008	<b>.794</b>	.060	-.177	.019	.143	<b>.787</b>	.035	-.142	.072
16	<b>.790</b>	.230	.088	-.008	<b>.751</b>	.276	.089	.001	-.113	.288	<b>.730</b>	.112	-.021	-.044	-.104
17	<b>.774</b>	.070	.040	.027	<b>.714</b>	.176	.079	.054	-.262	.170	<b>.721</b>	.099	.041	-.187	-.098
18	<b>.722</b>	.126	.102	.044	<b>.740</b>	.114	.043	.022	.060	.145	<b>.667</b>	.055	.026	.098	-.182
19	.137	-.040	<b>.698</b>	.057	.109	-.026	<b>.760</b>	.076	-.143	-.026	.136	<b>.804</b>	-.025	-.068	.175
20	-.190	.231	.431	.103	-.178	.143	.436	.095	.140	.190	-.214	.398	.113	.080	.079
21	-.443	.035	.030	.236	-.434	-.021	.044	.230	.111	-.077	-.292	.145	.000	.185	.481
22	-.061	.286	<b>.510</b>	.001	-.038	.184	<b>.492</b>	-.012	.178	.255	-.140	.429	.075	.095	-.064
23	-.182	<b>.537</b>	-.208	-.146	-.272	<b>.597</b>	-.120	-.093	-.151	<b>.579</b>	-.079	-.032	-.319	-.085	<b>.504</b>
24	-.221	-.114	.113	.350	-.247	-.103	.163	.362	-.062	-.192	-.052	.308	.086	.056	<b>.553</b>
25	.040	-.298	.075	<b>.815</b>	.043	-.316	.079	<b>.783</b>	.051	-.303	.048	.029	<b>.819</b>	-.034	.009
26	.196	.169	-.190	<b>.602</b>	.152	.176	-.150	<b>.606</b>	-.019	.187	.183	-.200	<b>.651</b>	-.105	.023
27	.264	-.379	-.292	.301	.270	-.321	-.319	.285	-.058	-.422	.429	-.202	.055	.121	.238
28	<b>.521</b>	.022	-.199	.301	<b>.484</b>	.078	-.189	.303	-.100	.024	<b>.606</b>	-.101	.127	.028	.178
29	.059	-.121	.153	<b>.686</b>	.037	-.130	.190	<b>.680</b>	-.016	-.090	-.003	.084	<b>.857</b>	-.176	-.092

Note. Loadings below .20 have been greyed out and those above .45 are in bold to ease reading of the table

Figure 1:

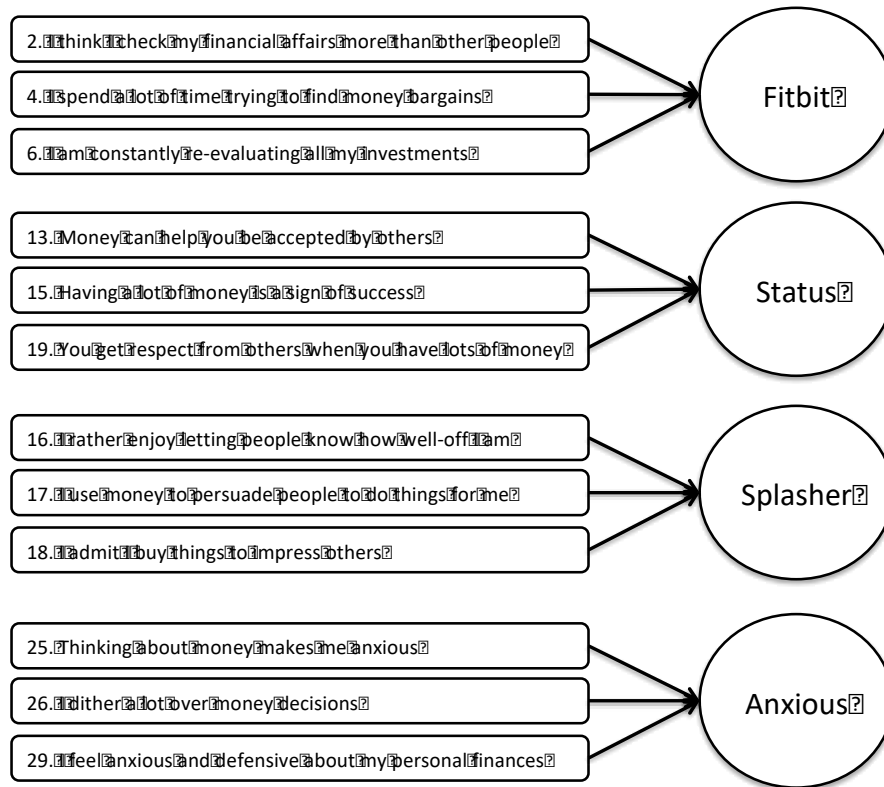


Table 5  
Results for the hierarchical regression

	Fitbit financier <i>F</i> = 3.83***, adj R <sup>2</sup> = .05		Anxious trader <i>F</i> = 2.80**, adj R <sup>2</sup> = .03		Social value spender <i>F</i> = 8.32***, adj R <sup>2</sup> = .12		The Cash Splasher <i>F</i> = 10.39***, adj R <sup>2</sup> = .15		The Hoarder <i>F</i> = 8.26***, adj R <sup>2</sup> = .12		The Ostrich <i>F</i> = 7.36***, adj R <sup>2</sup> = .10	
	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>
Gender	.13	2.61**	-.07	-1.34	.10	2.06*	-.14	-2.84**	.12	2.35*	.09	1.85
Education	-.02	-0.41	.06	1.08	.07	1.35	-.01	-0.20	-.02	-0.44	.03	0.64
Age	-.11	-2.10*	-.04	-0.70	-.10	-2.11*	-.20	-4.23***	.07	1.32	-.18	-3.60***
Wealth	.13	2.08*	.13	2.03*	.27	4.44***	.24	4.01***	.05	0.81	-.10	-1.74
Success at Work	.02	0.30	.01	0.21	-.03	-0.50	-.09	-1.51	-.05	-0.89	-.11	-1.77
Happy Childhood	-.04	-0.73	-.03	-0.60	-.08	-1.61	-.08	-1.65	-.02	-0.42	-.09	-1.81
Spender or Saver	.15	2.92**	.08	1.61	-.21	-4.19***	-.19	-3.88***	.34	6.92***	-.17	-3.48***

Note. \**p* < .05, \*\**p* < .01, \*\*\**p* < .001.

Table 6  
Results for the regression onto the factor scores

	F1 - Fitbit <i>F</i> = 3.42**, adj R <sup>2</sup> = .04		F2 - Status <i>F</i> = 1.22, adj R <sup>2</sup> = .00		F3 - Splasher <i>F</i> = 15.92***, adj R <sup>2</sup> = .21		F4 - Anxious <i>F</i> = 10.29***, adj R <sup>2</sup> = .14	
	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>
Gender	.11	2.11*	-.08	-1.53	-.12	-2.59*	.14	2.90**
Education	-.01	-.19	.00	.06	-.01	-.21	.02	.40
Age	-.15	-2.87**	-.04	-.68	-.25	-5.37***	-.18	-3.75***
Wealth	.11	1.83	.08	1.19	.28	4.96***	-.21	-3.50***
Success at Work	.05	.77	-.09	-1.48	-.05	-.94	-.10	-1.66
Happy Childhood	-.01	-.19	-.02	-.41	-.09	-1.92	-.07	-1.51
Spender or Saver	.11	2.07*	-.08	-1.62	-.22	-4.74***	-.14	-2.87**

Note. \**p* < .05, \*\**p* < .01, \*\*\**p* < .001.

**Appendix – Table A**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 I get a real kick out of the business of managing my money.														
2 I think I check my financial affairs more than other people	.430**													
3 There are lots of money bargains if you are prepared to search for them	.181**	.243**												
4 I spend a lot of time trying to find money bargains	.198**	.237**	.391**											
5 I follow the trends about money management	.532**	.320**	.123*	.278**										
6 I am constantly re-evaluating all my investments	.518**	.399**	.210**	.272**	.457**									
7 You have to be vigilant about all money matters	.130**	.318**	.411**	.287**	.131**	.208**								
8 I believe investing time in watching money programmes is worth it	.383**	.189**	.139**	.197**	.526**	.366**	.084							
9 When it comes to spending money on myself its “because I am worth it”	.357**	.254**	.102*	.098*	.320**	.242**	-.019	.261**						
10 I often demonstrate my love to people by buying them presents	.181**	.205**	.102*	.149**	.195**	.252**	.085	.153**	.271**					
11 I am very generous with the people I love	.084	.101*	.273**	.163**	.045	.121*	.183**	-.028	.044	.311**				
12 The best present you can give to someone is money	.258**	.157**	-.045	.133**	.328**	.177**	.017	.169**	.212**	.226**	-.063			
13 Money can help you be accepted by others	.171**	.136**	.168**	0.073	.146**	.223**	.153**	.086	.182**	.169**	.107*	.214**		
14 I love retail therapy: shopping to cheer me up	.093	-.003	.077	.130**	.102*	.127*	-.058	.094	.301**	.309**	.089	.055	.201**	
15 Having a lot of money is a sign of success	.178**	.198**	.140**	.165**	.188**	.187**	.182**	.242**	.237**	.184**	-.075	.304**	.476**	.199**
16 I rather enjoy letting people know how well-off I am	.392**	.184**	.004	.075	.351**	.302**	-.145**	.379**	.399**	.297**	-.077	.375**	.256**	.341**
17 I use money to persuade people to do things for me	.268**	.127*	-.150**	.012	.276**	.237**	-.158**	.261**	.328**	.245**	-.175**	.404**	.184**	.238**
18 I admit that I buy things to impress others	.250**	.132**	-.071	.087	.271**	.224**	-.134**	.229**	.329**	.338**	-.056	.271**	.197**	.452**
19 You get respect from others when you have lots of money	.243**	.184**	.174**	.108*	.201**	.214**	.228**	.182**	.161**	.252**	.019	.277**	.581**	.177**
20 I feel safe and secure if I have a lot of money saved	.291**	.273**	.279**	.184**	.194**	.204**	.326**	.210**	.165**	.140**	.104*	.141**	.248**	.132**
21 I prefer to be safe rather than a gambler When it comes to money	-.088	.025	.250**	.147**	-.026	-.075	.222**	-.020	-.028	.032	.107*	-.106*	.026	-.029
22 I value having a lot of easy-to-access money in the bank	.328**	.391**	.344**	.210**	.281**	.279**	.339**	.279**	.265**	.227**	.110*	.136**	.316**	.114*
23 I am much more of a saver than a spender	.328**	.184**	.071	.176**	.267**	.204**	.166**	.153**	-.055	-0.03	.054	.080	-.055	-.250**
24 Essentially I am risk-averse when it comes to money investments	-.113*	.003	.216**	.063	-.002	-.019	.089	-.044	-.064	.055	.028	.008	.153**	-.050
25 Thinking about money makes me anxious.	-.188**	.003	.118*	.149**	-.071	.009	.142**	-.068	-.037	.126*	-.006	.137**	.194**	.129**
26 I dither a lot over money decisions.	.086	.170**	.126*	.206**	.177**	.204**	.128**	.166**	.049	.168**	-.071	.133**	.082	.094
27 I am really not interested in money matters.	-.236**	-.272**	-.175**	-.142**	-.157**	-.238**	-.298**	-.194**	-.052	.003	-.035	.014	-.120*	.085
28 I prefer to let others I trust make my important money decisions	0.014	0.027	-0.068	.112*	.181**	0.075	-.167**	.147**	.171**	.160**	-0.021	.220**	.100*	.143**
29 I feel anxious and defensive about my personal finances	-0.079	0.093	.204**	.203**	0.035	0.089	.202**	0.048	-0.011	.115*	-0.057	.172**	.206**	.131**



**Table A cont.**

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1 I get a real kick out of the business of managing my money.														
2 I think I check my financial affairs more than other people														
3 There are lots of money bargains if you are prepared to search for them														
4 I spend a lot of time trying to find money bargains														
5 I follow the trends about money management														
6 I am constantly re-evaluating all my investments														
7 You have to be vigilant about all money matters														
8 I believe investing time in watching money programmes is worth it														
9 When it comes to spending money on myself its "because I am worth it"														
10 I often demonstrate my love to people by buying them presents														
11 I am very generous with the people I love														
12 The best present you can give to someone is money														
13 Money can help you be accepted by others														
14 I love retail therapy: shopping to cheer me up														
15 Having a lot of money is a sign of success														
16 I rather enjoy letting people know how well-off I am	.283**													
17 I use money to persuade people to do things for me	.168**	.593**												
18 I admit that I buy things to impress others	.265**	.621**	.502**											
19 You get respect from others when you have lots of money	.541**	.212**	.183**	.196**										
20 I feel safe and secure if I have a lot of money saved	.408**	.075	.007	.035	.322**									
21 I prefer to be safe rather than a gambler When it comes to money	.016	-.215**	-.226**	-.205**	.028	.205**								
22 I value having a lot of easy-to-access money in the bank	.403**	.118*	.039	.124*	.402**	.460**	.100*							
23 I am much more of a saver than a spender	-.010	-.024	-.053	-.084	.009	.155**	.223**	0.035						
24 Essentially I am risk-averse when it comes to money investments	.106*	-.065	-.053	-.065	.179**	.139**	.386**	.145**	.107*					
25 Thinking about money makes me anxious.	.162**	.077	.091	.060	.135**	.150**	.109*	0.057	-.174**	.261**				
26 I dither a lot over money decisions.	.105*	.220**	.186**	.183**	.139**	.165**	.071	.156**	-0.022	.120*	.447**			
27 I am really not interested in money matters.	-.224**	.104*	.181**	.088	-.179**	-.291**	.011	-.335**	-.098*	0.077	.110*	0.096		
28 I prefer to let others I trust make my important money decisions	.099*	.399**	.365**	.385**	0.071	-0.026	-0.058	-0.063	-0.024	.105*	.208**	.266**	.326**	
29 I feel anxious and defensive about my personal finances	.214**	.111*	.151**	.133**	.246**	.229**	0.056	.199**	-.162**	.185**	.620**	.421**	0.029	.154**