



Financial Identity Scale: Testing the International Validity of Its Variable-Centered and Person-Centered Models

Angela Sorgente¹ · Margherita Lanz¹ · Shikha Bhatia² · Carla Crespo³ · Judit Dunai⁴ · Gabriela Fonseca^{5,6} · Žan Lep^{7,8} · Tamás Martos^{4,9} · Oana Negru-Subtirica¹⁰ · Alda Portugal¹¹ · Mette Ranta¹² · Ana Paula Relvas^{5,6} · Viola Sallay^{4,9} · Nidhi Singh¹³ · Ulrike Sirsch¹⁴ · Rimantas Vosylis¹⁵ · Maja Zupancič⁷ · Soyeon Shim¹⁶ · Joyce Serido¹⁷

Accepted: 8 July 2025
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Abstract

A robust body of research provides evidence of a strong connection between identity development and age-related functioning. A sense of *financial identity* may be an important precursor of adult self-sufficiency. For this reason, the study of financial identity (i.e., the answer to the question “Who am I from a financial point of view?”) as a domain-specific component of identity development during the transition to adulthood is a timely and important topic worldwide. In order to properly investigate the financial identity domain, a reliable and valid instrument is needed. The aim of the current study is to test both a variable-centered model and a person-centered model of the 12-item Financial Identity Scale in an international sample of 4,960 emerging adults from ten different countries: Austria, Finland, Hungary, India, Italy, Lithuania, Portugal, Romania, Slovenia, and the United States. The variable-centered model of the Financial Identity Scale suggests that the 12 items measure four latent factors, each corresponding to a different identity status: achievement, foreclosure, diffusion, and moratorium. Confirmatory factor analysis confirmed this model in seven out of ten countries, and approximate measurement invariance indicated that Financial Identity Scale scores were comparable across these countries. The person-centered model of the Financial Identity Scale suggests that the four statuses of financial identity present three different configurations in the population: pathfinders, followers, and drifters. The latent profile analysis conducted in the current study identified four distinct profiles, the first three of which correspond to those in the original model, and a fourth which was labelled “Indecisive”. Theoretical and practical implications of these findings are discussed.

Keywords Financial identity · Emerging adults · Financial identity scale · Identity statuses · Identity profiles · Validity

Introduction

The transition to adulthood, which takes place primarily during the period of emerging adulthood (a period spanning from ages 18 to 29), is characterized by intense identity explorations (Arnett, 2024) and gradual attainment of financial self-sufficiency (Serido et al., 2020). The intensity of identity explorations can vary across life domains, and the formation of domain-specific identity commitments need not occur simultaneously (Fadjukoff et al., 2005, 2016).

Given the central role of money, credit, and consumption in navigating the path towards adult financial self-sufficiency, exploring financial identity—encompassing one’s beliefs, attitudes, and behaviors about managing money during emerging adulthood (Barber et al., 2011)—is an important and timely topic of study worldwide. In the consumer finance literature, financial identity from the perspective of financial institutions is construed as individual “credit-worthiness” (Lauer, 2010). In this context, financial identity refers to an objective indicator of one’s ability to repay

This is one of several papers published together in Journal of Family and Economic Issues on the Special Issue on Methods and Measures in Family Finance

Extended author information available on the last page of the article

borrowed money and does not account for the self-beliefs or social norms that influence their financial management capabilities (Wheeler & Brooks, 2023). The current study views financial identity from a broader perspective to focus on the latter domain.

To properly study this broader conceptualization of financial identity, more specifically, the formation of the financial self during emerging adulthood, a reliable and valid instrument is needed (Sorgente et al., 2020). The first instrument designed specifically to assess the formation of the financial self is the Financial Identity Scale (Barber et al., 2011), with preliminary evidence of its validity conducted by Sorgente et al. (2020). The current study aims to expand and enrich these past two studies in two ways. First, this study simultaneously tests both variable-centered and person-centered models of the Financial Identity Scale. Second, the data for the study represents an international sample of emerging adults from 10 different countries: Austria, Finland, Hungary, India, Italy, Lithuania, Portugal, Romania, Slovenia, and the United States. Testing the same instrument in different countries is essential to assess the instrument's performance and applicability in different cultural contexts and to provide a more comprehensive and generalizable understanding of the theoretical models on which the instrument is based (Matsumoto & van de Vijver, 2011).

A Subjective Conceptualization of Financial Identity

To conceptualize financial identity, Barber and colleagues (2011) adopted a well-established framework from personal identity research—the classical identity status model (Marcia, 1966). Originating from Erikson's work on adolescent identity development (Erikson, 1963), Marcia's model posits that identity formation involves two general processes: exploration and commitment. This model also posits that four identity statuses can be differentiated depending on the presence or absence of exploration and commitment. In line with Marcia's concept, Barber et al. (2011) proposed four corresponding financial identity statuses: *achieved*, *foreclosed*, *moratorium*, and *diffused* (Barber et al., 2011). The first two reflect established financial styles, with *achievement* reflecting a style adopted following personal explorations of several alternatives and *foreclosure* involving the adoption of parental financial behaviors. The latter two statuses indicate a lack of a defined approach to financial management, with *moratorium* status characterized by struggles to reach commitments and active explorations and *diffusion* marked by a lack of interest in establishing one's individual financial style. Barber et al. (2011) tested and found support

for the four-status structure both with the U.S. and Australian college students.

Subsequent studies (e.g., Bosch et al., 2016; Shim et al., 2013) investigating financial identity found evidence indicating that the four statuses were associated with various aspects of financial capability. For example, achieved financial identity was associated with higher financial knowledge, higher financial self-efficacy, financial controllability, and responsible financial attitudes and behaviors (Shim et al., 2013). Moreover, there were significant associations between family financial interactions (e.g., parental financial role modeling) and financial identity. Therefore, it would seem reasonable to conclude that parents' financial interactions with their offspring influence financial identity formation, which, in turn, may promote healthy financial behaviors (Bosch et al., 2016). Vosylis and Erentaitė (2020) addressed this indirect association and found that financial identity was an important proximal outcome of family financial socialization aspects and acted as an intervening variable between financial socialization and healthy financial behaviors. Further, Wheeler and Brooks (2023) found that parental instruction on money management was linked to greater spending self-control, both directly and indirectly, via the achieved financial identity status, while family financial distress was directly related to financial anxiety and also indirectly via the moratorium status of financial identity.

A recent longitudinal study investigated the reciprocal links between financial identity and emerging adults' sense of adult status, highlighting that financial identity commitments made after a period of exploration can also contribute to how emerging adults feel in terms of reaching adulthood (Serido et al., 2023). Specifically, this study showed that participants with a more developed financial identity felt more "adult" in the subsequent measurement occasions. Importantly, the sense of adulthood did not predict subsequent changes in financial identity. It seems reasonable to conclude that a sense of one's financial identity promotes a perception of adult status, not vice versa.

Why Is It Important to Study Financial Identity During Emerging Adulthood?

Arnett (2024) defined "emerging adults" as individuals aged 18–29, who are no longer adolescents but not yet adults. This transition period from adolescent dependence to adult independence is a time when most individuals are expected to assume increased responsibility with regard to choices, such as whether (and whom) to marry, what career to pursue, choosing to attend college, even when (or if) to move out of the parental home or become a parent themselves. These choices involve nearly every aspect of life, often involving decisions related to finances (Galliher et al., 2017). This is

why we contend that financial identity formation during emerging adulthood is important for understanding the transitional pathways to adulthood (Serido et al., 2020).

Recent macroeconomic shocks underscore the global importance of the topic with financial turbulence (stock market fluctuations, volatile labor market, the 2008 economic crisis, the COVID-19 pandemic), increasing financial uncertainty, and the need for prudent financial management. Lanz and Serido (2020) noted that current global economic instability has exacerbated the challenges of contemporary emerging adulthood, adding an increased urgency to examining identity within the financial domain during this life stage.

Instruments to Measure Emerging Adults' Financial Identity

To our knowledge, two different instruments have been developed to measure financial identity, and both have been tested on samples of emerging adults. The first to be developed is the Financial Identity Scale (FIS; Barber et al., 2011) described earlier. The instrument measures Marcia's (1966) four statuses of identity (achievement, foreclosure, diffusion, moratorium) by adopting 12 items (three for each status) that were adapted from the Extended Objective Measure of Ego Identity Status, one of the most widely used identity instruments (Kunnen & Metz, 2015). The FIS has already been tested on different samples: Australian, U.S., Lithuanian, and Italian emerging adults (Barber et al., 2011; Sorgente et al., 2020).

The subsequent instrument proposed by Vosylis et al. (2022) aims to assess financial identity based on the three-factor identity model (Crocetti et al., 2008b). This model assumes that two iterative cycles underlie identity development (formation and evaluation) and conceptualizes three core processes involved in identity development. *Commitment* reflects a process of making, holding on to, and enacting life domain-specific choices. *In-depth exploration* reflects a process of active reflection of the enacted commitments. *Reconsideration of commitment* reflects a process of comparison of current commitments to possible alternatives and efforts to change them (Crocetti, 2018; Crocetti et al., 2008b). In line with this model, the three processes in the financial domain of life are defined as (a) the process of making and holding on to a certain manner of managing personal finances (commitment), (b) the process of active reflection on current financial management practices (in-depth exploration), (c) and the process of comparison of current commitments to possible alternatives emanating from dissatisfaction with the current manner of personal finance management (reconsideration of commitment). These three processes can be measured through a 9-item scale (three

items for each process), adapted from The Utrecht-Management of Identity Commitments Scale. This alternative financial identity instrument has been tested only on a Lithuanian sample of emerging adults (Vosylis et al., 2022).

In sum, the FIS developed by Barber et al. (2011) is better suited to capture financial *statuses*, i.e., the outcome of the financial identity formation process at a given moment in life. In contrast, the scale developed by Vosylis et al. (2022) is more suitable for capturing and investigating factors that drive exploration and commitment *processes*. In the current study, we decided to investigate the validity of the FIS internationally for two reasons. First, there is more evidence for the validity of FIS, including cross-national evidence. Second, previous research has demonstrated that the FIS is an adequate instrument to use both when adopting a variable-centered (Bosch et al., 2016; Sorgente et al., 2020) and a person-centered (Serido et al., 2023; Shim et al., 2013) approach.

The Financial Identity Scale (FIS): Variable- and Person-Centered Models

Scholars can adopt one of two empirical approaches in studying individuals: variable- or person-centered (Laursen & Hoff, 2006). The fundamental assumption of the *variable-centered* approach is that the population is homogeneous with respect to the relation among variables (Howard & Hoffman, 2018). This implies that the associations among the variables can be statistically studied across individuals. For example, if the researcher assumes that the relation between level of achievement and the level of foreclosure (or diffusion, moratorium) in one's financial identity is homogeneous in a given population, they will provide a single set of parameters (e.g., correlation coefficients) that summarize an entire population. The focus is on variables (and their relation) and not on the individuals (and the differences they may present).

In contrast, the fundamental assumption of the *person-centered* approach is that the population is heterogeneous with respect to how variables are related. This assumption implies the necessity of allowing for differences among individuals in how variables relate to one another (Howard & Hoffman, 2018). The person-centered approach delineates typical configurations of variables and assigns participants to these configurations. In other words, if the researcher assumes that the relation between the level of achievement and the level of foreclosure (or diffusion, moratorium) in one's financial identity is heterogeneous in a given population, they will adopt statistical techniques (e.g., profile, class, or cluster analyses) that allow to identify different patterns of those four variables. The population will be divided into sub-groups, each representing a specific configuration

of variables. The person-centered approach focuses on the classification of individuals into unique subpopulations and not on the variables per se. As Howard and Hoffman (2018) stressed, neither approach is better than the other; however, each approach addresses a different research question. Therefore, having an instrument that can be adopted in both approaches expands the questions the researchers can pose.

Variable-Centered Approach of FIS: Four-Status Model

The Financial Identity Scale (FIS) was originally developed in a variable-centered framework (Barber et al., 2011). The authors stated that financial identity could be studied through four *variables*, each corresponding to a different status of Marcia's (1966) theory: achievement, foreclosure, diffusion, and moratorium. The FIS was so composed of four sub-scales, one for each variable, and those variables have been adopted in following studies (e.g., Bosch et al., 2016), expecting that the relationship among these four variables as well as the relations between them and other external variables would be homogeneous in the population. Within this variable-centered approach, the validation paper by Sorgente et al. (2020) tested the four-factor model of the FIS across three countries: the US, Lithuania, and Italy. Results of this study confirmed that in the US the 12-item FIS measures the four statuses of financial identity (achievement, foreclosure, diffusion, moratorium) and that the instrument is stable over time (i.e., it maintained the same psychometric properties when tested on the same participants across four different time points). Furthermore, Sorgente et al. (2020) found that the Lithuanian translation of the scale worked perfectly on a sample of 481 students and was able to measure the four statuses of financial identity in this country as well. Finally, the study found that the Italian translation of the FIS needed to be adjusted. In particular, with a sample of 485 Italian emerging adults, item 8 ("I've never really questioned my views about saving and spending. If it's right for my parents, it must be right for me."), which should be a measure of foreclosure, loaded on both foreclosure and diffusion factors. The authors speculated that this was due to the item's formulation, which was composed of two separate sentences. When the first part of the sentence is read independently from the second, it could be construed as a measure of "lack of exploration," a characteristic of the diffused status. As the Italian language is characterized by the use of long sentences (Druker & Lerner, 2018), the authors suggested reformulating the item as follows, "I've never really questioned my views about saving and spending *because* if it's right for my parents, it must be right for me." In sum, despite this problematic item in the Italian sample, evidence collected to date on the FIS

supports the four-factor model of the scale within the variable-centered approach.

Person-Centered Approach of FIS: Three-Profile Model

Shim et al. (2013) was the first study to adopt the FIS within a person-centered approach. The scale was used to identify different types of *persons* from the financial point of view through different configurations of the four dimensions of the FIS scale (achievement, foreclosure, diffusion, moratorium). Indeed, although individuals may endorse one identity status more strongly than another, there is likely to be considerable variation in the strength of each endorsement and the pattern of endorsement across the four statuses (Waterman, 1999). That is, the configuration of endorsement of each status might better indicate how one approaches problem-solving or, in our case, how emerging adults make financial decisions. Applying this framework to the financial domain, Shim et al. (2013) ran a cluster analysis with the four identity statuses (observed variables of the FIS) as reported by a sample of U.S. college students and identified three different financial identity configurations (or *profiles*). The first profile, *Pathfinder*, scored highest on the achieved financial identity status while scoring medium to low on other statuses (i.e., the students accomplished a financial style that emerged from reflection and experience). The second profile, labeled *Follower*, scored highest on the foreclosed status with medium to high levels on other statuses (i.e., the students adopted their parents' financial management style). The third profile, labeled *Drifter*, scored highest on moratorium (i.e., still exploring), high on diffused (i.e., not particularly concerned about money), and lowest on achieved and foreclosed (i.e., the students had not yet adopted a defined financial management style). In examining the role of financial socialization factors on these three profiles, Pathfinders reported higher levels of parental direct teaching and communication. In comparison, Followers reported higher levels of parental role modeling. In addition, Pathfinders, compared to Followers and Drifters, reported higher levels of self-agency, actively seeking out financial knowledge and information on their own.

Serido et al. (2023) extended the work of Shim et al. (2013) in two ways. First, Shim et al. applied the person-centered approach on a sample of U.S. students who reported their data in 2010, when they were in their third year of college. These data were drawn from the Arizona Pathways to Life Success for University Students (APLUS) project, a longitudinal study of a college student cohort attending a single university in the Southwest US (for further details, see Shim et al., 2010). The research project consisted of five waves: Wave 1 in 2008 (when participants were in their first year of college), Wave 1.5 in 2009, Wave 2 in 2010, Wave

3 in 2013, and Wave 4 in 2016. While Shim et al. (2013) explored the presence of different financial identity profiles at Wave 2 only, Serido et al. (2023), using a Latent Profile Analysis, tested the three-profile model across four waves (Wave 1, 2, 3, and 4). This suggests that the three profiles identified by Shim et al. (pathfinders, followers, drifters) are adequate to describe the heterogeneity of both U.S. students (Wave 1 and 2) as well as of U.S. workers (Wave 3 and 4), as most of the participants completed their education before Wave 3.

Furthermore, Serido et al. (2023) adopted a longitudinal perspective and were thus able to test for profile transitions among emerging adults over time. In particular, researchers found that approximately half of the participants who conformed to a particular profile at the first wave of the survey continued to match that profile over time. Only the participants who conformed to the Follower profile at Wave 3 deviated from this tendency. At the end of the transition to adulthood (from Wave 3 to Wave 4), Followers tended to shift toward one of the other profiles (Pathfinders or Drifters) at Wave 4. This suggests that fewer emerging adults adopted their parents' financial management style at the end of the transition to adulthood. In sum, despite being tested only on U.S. samples, the available evidence regarding the FIS supports the three-profile model of the scale within the person-centered approach.

The Current Study

The current study aims to collect new validity evidence for the FIS variable- and person-centered model, testing these models on a wide range of countries (Austria, Finland, Hungary, India, Italy, Lithuania, Portugal, Romania, Slovenia, and the U.S.).

Regarding the *variable-centered* model, we expect to confirm FIS's four-status (achievement, foreclosure, diffusion, moratorium) model across the ten countries. In particular, we expect that, in each country, the 12 items measure the same four latent factors (three items per factor), each corresponding to a different status. We also aim to test measurement invariance across countries to verify that observed test scores convey the same psychological meaning in each country (i.e., the meaning attributed to each status is the same across countries) and justify cross-countries comparisons (Dimitrov, 2010). As this four-factor model of FIS was not fully confirmed in the Italian sample due to a problematic item, a modified version of item 8 has been administered to Italian participants for the current study (Sorgente et al., 2020). This means that the Italian participants included in the current study are not the ones from the Sorgente et al. study (2020). However, the data from the US (at Wave 3) and Lithuania analyzed in the current study are the same as

those used in the previous validation study. In other words, the new data from Italy are useful to test whether the new version of item 8 is sufficient to resolve the misfit of the Italian model, while the inclusion of data from the US and Lithuania are useful to enrich the cross-national comparison made in the current study.

Within the *person-centered* model, we expect to confirm the three-profile (Pathfinders, Followers, Drifters) model of FIS across the ten countries. The model will not be tested separately for each country but just on one merged international sample. There are two arguments for this choice. First, after testing the measurement invariance, we are assured that the observed test scores convey the same psychological meaning across countries so scores from different countries can be considered together. Second, analysis within the person-centered approach should be performed on samples as big and heterogeneous as possible to increase the probability of detecting all the possible different configurations (i.e., profiles) that the observed variables can present (Masyn, 2013). The three-profile model of FIS has been tested only on U.S. emerging adults who attended college. Testing this model with a larger sample that includes individuals from other countries as well as individuals who did not attend college is necessary to verify whether three profiles are sufficient to describe the heterogeneity emerging adults display in terms of financial identity.

Methods

Participants

Emerging adult respondents included in the current study ($N=4,960$) ranged in age from 18 to 29 years old ($M=22.77$, $SD=2.82$) and were mainly female (61.7%). They lived in ten different countries: Austria ($n=591$), Finland ($n=1,000$), Hungary ($n=360$), India ($n=392$), Italy ($n=150$), Lithuania ($n=481$), Portugal ($n=339$), Romania ($n=317$), Slovenia ($n=379$), and USA ($n=951$). Approximately two-thirds of the respondents (68.25%) were enrolled in education. Table 1 displays a detailed description of the sample by country.

These participants were drawn from a dataset developed for a broader research initiative, Emerging Adults' Financial Well-Being Worldwide (Sorgente et al., 2024). The research project focuses on developing a network of scholars studying emerging adults' financial lives with the aim of sharing data and knowledge, which could help build international models and theories of financial development. Data were collected independently across countries. Each researcher secured approval of the institutional review board at their home institution before data collection began. Most countries relied on convenience and snowballing sampling

Table 1 Sample description

	N	% female	Age range	Age mean (S.D.)	% never in higher education	% currently in higher education	% completed higher education
Austria	591	74.8	18–29	23.22 (2.77)	3.7	91.4	4.9
Finland	1000	48.5	18–29	23.53 (3.44)	40.9	40.9	18.1
Hungary	360	71.9	19–29	22.99 (2.14)	0	100	0
India	392	44.6	18–29	23.55 (2.71)	1.8	62.5	35.7
Italy	150	69.3	20–29	24.73 (2.12)	6.0	71.1	22.8
Lithuania	481	57.8	18–25	20.27 (1.39)	0	100	0
Portugal	339	68.1	18–29	21.65 (3.11)	2.7	85.2	12.2
Romania	317	76.8	18–29	20.01 (1.75)	0.3	96.2	3.5
Slovenia	379	61.7	18–27	20.84 (1.88)	4.0	92.9	3.2
USA	951	64.3	23–29	24.34 (0.58)	1.8*	34.0	64.2
Total	4960	61.7	18–29	22.77 (2.82)	10.0	68.3	21.7

*For the USA sample (wave 3 data drawn from a longitudinal study that included freshmen at wave 1), this group consisted of individuals who left higher education without obtaining a degree

methods. The one exception was Finland, where an online web panel was used to collect data from a sample that represented the general population regarding age, gender, and geographic area. In Table S1 of the Online Supplementary Materials (OSM), we provide additional details about data collection within each country.

The full cross-sectional study sample included over 6,000 emerging adults from twelve countries. For the present study, we only included data from ten countries as the other two countries involved in this project (Canada and Turkey) did not integrate the FIS in their survey. Furthermore, across the 10 countries included in the current study, we only retained the emerging adults who responded to at least one item of the FIS. This inclusion criterion is based on the estimation method we used to manage missing data: full information maximum likelihood, as including the cases with incomplete data increases the precision and accuracy of parameter estimates (Enders & Bandalos, 2001). Data adopted in the current study are publicly available here: <http://osf.io/sa5u2/files/osfstorage>.

Instruments

Although the cross-cultural project collected data covering a wide range of variables on several topics, only the variables used in the present study are discussed.

Socio-demographic variables: To describe the sample (see Table 1), we collected information on gender, age, educational status, and educational level. For the gender variable, respondents had to select female or male. For the age variable, emerging adults had to indicate their age in years. In most countries, participants' educational status was collected using the following response options: (a) I'm enrolled in high school; (b) I'm enrolled in a bachelor's degree program; (c) I'm enrolled in a master's degree

program; (d) I'm enrolled in a Ph.D. program or other specialization; (e) I'm not enrolled in an educational program/have already completed my education. The education level was collected using the following response options: (a) high school diploma or less; (b) bachelor's degree; (c) master's degree; (d) doctoral degree or specialization. As some countries (e.g. Finland, Hungary) used different options for educational status or level, we recoded the educational status and level variables of all countries with the aim of creating a new variable that is comparable across countries. This variable groups participants into three categories: "never in higher education" includes emerging adults who have a high school diploma (or less) as their highest level of education and are not enrolled in higher education; "currently in higher education" includes emerging adults who are currently enrolled in any type of higher education (bachelor's, master's, doctoral, or other specialization); "completed higher education" includes emerging adults who have *at least* a bachelor's degree as their highest level of education and are not currently enrolled in higher education.

Financial Identity Scale: The Financial Identity Scale (FIS; Barber et al., 2011) consists of 12 items evaluated on a 5-point scale (1 = strongly disagree; 5 = strongly agree). This scale is comprised of four subscales that measure four financial identity statuses: achievement (e.g., "I have tried different ways to manage my personal finances and now I have a clear idea of what makes sense for me."), foreclosure (e.g., "My parents know what's best for me in terms of how I should take care of my finances."), moratorium (e.g., "There are so many different ways to manage money. I haven't decided which to follow, but I'm trying to figure it out."), and diffusion (e.g., "I haven't really thought much about money management style. I'm not too concerned about credit ratings or paying bills."). The English, Lithuanian, and Italian versions of this scale have already been made available

(Sorgente et al., 2020). The other countries developed their version of the FIS, translating the original English version of the scale. All translations of FIS are publicly available here: <https://osf.io/n83h9/files/osfstorage>.

Data Analysis

All models were run in Mplus, and missing data was managed using the full information maximum likelihood method. After verifying the distribution of responses to FIS items (some items had a kurtosis higher than 1), we decided to adopt the Maximum Likelihood estimation with robust standard errors (Rhemtulla et al., 2012) in all analyses run to test the variable- and person-centered models of financial identity. Input and output files are publicly available here: <https://osf.io/cqg82/files/osfstorage>.

Variable-Centered Approach

We first tested the original four-factor model proposed in the validation paper of the FIS (Sorgente et al., 2020) separately for each country. The goodness of model fit was evaluated with the following indices: the root mean square error of approximation (RMSEA); the standardized root mean square residual (SRMR), which indicates good fit when lower than .08; as well as the comparative fit index (CFI) and Gamma hat, which indicate good fit when higher than .90 (Fan & Sivo, 2007; Marsh et al., 2004). The following analyses were run to include only countries with an adequate model fit.

We proceeded by testing the measurement invariance of the scale across the countries in which the original model was confirmed. In other words, we verified that the instrument maintains the same regression relations between any observed item score and the respective factor score in the CFA model across different groups. This allowed for inferring that the observed test scores convey the same psychological meaning in the respective populations (invariant items' factor loadings) and justifies cross-population comparisons (invariant item intercepts; Dimitrov, 2010).

When comparisons are made across a small number of groups (i.e., countries), exact measurement invariance is usually tested, but this approach "can be problematic when applied to large-scale and widely diverse cultural groups" (Byrne & van de Vijver, 2017, p. 541). In such cases, approximate measurement invariance using maximum likelihood alignment (Asparouhov & Muthén, 2014) is recommended. We first attempted to employ exact measurement invariance, and after confirming that this was not the best approach to use, we proceeded with approximate measurement invariance. As suggested by Asparouhov and Muthén (2014), we first performed an analysis of approximate

measurement invariance with *free* alignment optimization, but we switched to *fixed* alignment optimization in case Mplus produced an error indicating that the free alignment model might be poorly identified. The results of this analysis consist of the parameters (i.e., factor loadings and intercepts) that are non-invariant across the groups (i.e., countries) of interest. If the non-invariant parameters are less than 25% of the total number of parameters derived from the alignment, the results are considered reliable (Asparouhov & Muthén, 2014), and consequently it is possible to compare the latent means of the FIS across countries. This is also a prerequisite for including data from different countries in the same Latent Profile Analysis (LPA) model (see next section).

Person-Centered Approach

Including only countries that shared the same factorial model of the FIS (i.e., measurement invariance), we ran a series of Latent Profile Analysis (LPA) in order to identify sub-groups of people who share a homogeneous profile (or pattern) with respect to the four dimensions of financial identity (achievement, foreclosure, diffusion, moratorium). We examined fit indices of LPA measurement models, beginning with one profile and adding profiles incrementally. We compared the identified models in terms of both descriptive measures and statistical tests of relative fit indices and, based on previous studies that tested the person-centered model of the FIS (Serido et al., 2023; Shim et al., 2013), we expected to find three different profiles (i.e., Pathfinders, Followers, and Drifters).

Five information criteria (I.C.) were used as descriptive measures of relative model fit. Specifically, the Akaike information criterion (AIC), the Consistent Akaike Information Criterion (CAIC), the Approximate Weight of Evidence (AWE), the Bayesian Information Criterion (BIC), and the Sample-size Adjusted Bayesian Information Criterion (ssBIC) were used. Smaller I.C. values indicate a better fit. We furthermore compared the different LPA solution using the following statistical tests: the Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR-LRT; Lo et al., 2001; Vuong, 1989), the adjusted Lo-Mendell-Rubin likelihood ratio test (adjusted LMR-LRT; Lo et al., 2001), and the parametric bootstrapped likelihood ratio test (BLRT; McLachlan & Peel, 2000). These three tests compare a (k-1)-profile model with a k-profile model; a statistically significant p-value suggests that the k-profile model fits the data significantly better than a model with one less profile. Conversely, if it is not significant, the k-profile model is as good as the (k-1)-profile model, so the (k-1) profile model is preferred according to the parsimony criterion.

Once the best model was selected, the quality of its classification (i.e., the assignment of people to profiles) was

evaluated (Masyn, 2013). The most common diagnostic classification is entropy (E), where values closer to 1 indicate a better classification of cases. We also evaluated the quality of the classification by checking the class proportion (C.P. or π), the modal class assignment proportion (mcaP), the average posterior probability (avePP), and the odds of correct classification (OCC). Particularly, classification can be considered good when the mcaP for each profile is included in the 95% CI of the π , avePP values are equal to .70 or higher, and OCC values are above 5 (Masyn, 2013; Sorgente et al., 2019).

Results

Variable-Centered Approach

To test the four-factor model of the FIS, we ran a CFA separately for each country. As reported in Table 2, the four-factor model was fully confirmed (RMSEA < .08; CFI > .900; Gamma hat > .900; SRMR < .08) in seven countries out of 10. In Portugal and Romania, the CFI was slightly lower than the cut-off, while in Slovenia, CFI and RMSEA suggested a misfit. Though in these three countries, the fit could be improved with small changes to the model (e.g., adding a cross-loading), we did not proceed in this direction because, for the purpose of this paper, the factorial model must be exactly the same across countries in order to perform measurement invariance and then use the FIS total score to perform LPA.

In sum, within the variable-centered approach, the FIS is confirmed to measure the expected four identity statuses (achievement, diffusion, moratorium, foreclosure) in the following countries: Austria, Finland, Hungary, India, Italy, Lithuania, and the US. In particular, in these countries, both the fit indices (RMSEA < .08; CFI > .900; Gamma hat > .900; SRMR < .08) and the model results (i.e., factor loadings higher than .30 and significant for $p < .001$; McDonald's Omega > .60) confirmed the four-factor model of FIS. For

more details about the results of each country in terms of factor loadings, reliability of each factor, and correlations among factors, see Table S2 of the OSM.

Considering only these seven countries, we proceeded to test the measurement invariance. We first tested the *exact* measurement invariance. The configural model sufficiently fit the data [χ^2 (336) = 995.059; $p < .001$; RMSEA = 0.059 (0.055, 0.063); $p < .001$; CFI = 0.935; SRMR = 0.054]. When we constrained factor loadings to be equivalent across countries, we found that metric invariance did not hold because the metric model fit [χ^2 (384) = 1202.950; $p < .001$; RMSEA = 0.062 (0.058, 0.066); $p < .001$; CFI = 0.919; SRMR = 0.069] was too different from the configural model one (i.e., $\Delta\text{CFI} > |0.010|$; Chen, 2007). As suggested by Dimitrov (2010), we proceeded with testing the partial metric invariance and released three factor loadings (item 9 for the Hungarian sample, Item 10 for the Lithuanian sample, and item 1 for the Finnish sample) in order to reach a model [χ^2 (381) = 1136.747; $p < .001$; RMSEA = 0.059 (0.056, 0.063); $p < .001$; CFI = .925; SRMR = 0.064] that was sufficiently similar to the configural one ($\Delta\text{CFI} = 0.010$). Finally, we tested the partial scalar invariance constraining intercepts to be equivalent across groups for items that had invariant factor loadings. As this model [χ^2 (426) = 2012.876; $p < .001$; RMSEA = 0.082 (0.078, 0.085); $p < .001$; CFI = .843; SRMR = 0.089] was substantially (i.e., $\Delta\text{CFI} = 0.082$) different from the previous one, we concluded that a sufficient level of scalar invariance was not reachable adopting the exact measurement invariance and we tested the *approximate* measurement invariance.

As the approximate measurement invariance model with the alignment method has the same fit as the configural model (Asparouhov & Muthén, 2014) and our configural invariance model held with a reasonable fit, we were justified in moving on to test the approximate measurement invariance, starting with the free alignment approach. As we obtained a Mplus error indicating that the free alignment model may be poorly identified, we switched to the fixed alignment optimization, fixing the means of factors

Table 2 Testing the four-factor model of the financial identity scale

	N	χ^2	df	p	RMSEA (90% CI)	CFI	Gamma	SRMR
Austria	591	157.821	48	<0.001	0.062 (0.052 0.073)	0.909	0.970	0.047
Finland	1000	216.324	48	<0.001	0.059 (0.051 0.067)	0.920	0.973	0.057
Hungary	360	119.806	48	<0.001	0.064 (0.050 0.079)	0.923	0.968	0.071
India	392	99.561	48	<0.001	0.052 (0.038 0.067)	0.949	0.979	0.049
Italy	150	89.271	48	<0.001	0.076 (0.051 0.100)	0.910	0.956	0.070
Lithuania	481	104.431	48	<0.001	0.049 (0.036 0.062)	0.960	0.981	0.054
Portugal	339	143.687	48	<0.001	0.077 (0.062 0.091)	0.890	0.955	0.059
Romania	317	123.022	48	<0.001	0.070 (0.055 0.086)	0.886	0.962	0.061
Slovenia	379	190.782	48	<0.001	0.089 (0.076 0.102)	0.851	0.940	0.066
USA	951	196.617	48	<0.001	0.057 (0.049 0.065)	0.948	0.975	0.044

χ^2 =chi-square; df=degree of freedom; RMSEA=Root Mean Square Error of Approximation; CI=Confidence Interval; CFI=Comparative Fit Index; Gamma=Gamma hat; SRMR=Standardized Root Mean Square Residuals

belonging to the Indian sample at 0, as it was the country that—on average—had the mean level of latent factor(s) closest to zero (Asparouhov & Muthén, 2014).

Evidence of noninvariance pertinent to both the factor loadings and item intercepts by country is reported in Table 3. Focusing on factor loadings, we found nine out of 12 items that are invariant across countries (see Table 3). The other three items have non-invariant loadings in just one or two countries out of seven. Focusing on intercepts, we found six out of 12 items that are invariant across countries (see Table 3). The other six items have non-invariant intercepts in one to three countries out of seven. Taken together, the percentage of the non-invariant parameters was within the 25% cut-off (Asparouhov & Muthén, 2014) both for factor loadings (5 out of 84; 5.95%) and intercepts (12 out of 84; 14.29%).

These results of the measurement invariance suggest that the factorial model of emerging adults' financial identity is sufficiently invariant across Austria, Finland, Hungary, India, Italy, Lithuania, and the US, and it is possible to compare factor means across these countries. For each country, the achievement, foreclosure, diffusion, and moratorium sub-scale scores have been computed and statistically compared (see Table 4). Since most of the national samples in the current study were not representative, differences between their means have to be read with caution. Austrian and Lithuanian emerging adults reported the highest levels of achieved financial identity, while the lowest were reported by Finnish and Italian emerging adults. The highest levels of foreclosure and moratorium were reported in India and Italy, while the lowest were in Austria. Finally, the highest levels of diffusion were reported in Finland, India, and Lithuania, while the lowest levels were reported in Austria. More details about the comparison across countries (post-hoc analysis) are reported in the OSM.

Person-Centered Approach

Including only the countries that share the same and original variable-centered model of the FIS (Austria, Finland, Hungary, India, Italy, Lithuania, USA), we performed the LPA on an international sample of 3,925 emerging adults. We estimated seven different models of LPA (from 1-profile to 7-profile) using the four FIS sub-scales' total scores (achievement, foreclosure, moratorium, diffusion) as observed variables. We did not proceed with estimating the 8-profile model as the last three tested models (5-, 6-, and 7-profile) all included a profile composed of too few participants (less than 5%; Masyn, 2013).

As shown in Table 5, the descriptive measures of relative model fit progressively decrease when the number of profiles increases. This is not uncommon and, in these cases,

Table 3 Non-invariant Factor Loadings and Intercepts by Country for the 12 items of the Financial Identity Scale

Items	Non-invariant factor loadings							Non-invariant intercepts						
	AU	FI	HU	IN	IT	LT	US	AU	FI	HU	IN	IT	LT	US
1														
2		*			*									
3		*												
4														
5										*				*
6														
7														
8						*						*		*
9			*					*						
10														
11								*		*			*	
12									*		*			

Group labels: AU = Austria; FI = Finland; HU = Hungary; IN = India; IT = Italy; LT = Lithuania; US = United States. Asterisks indicate the group where a parameter is significantly different from other groups

Table 4 Mean Level (S.D.) of the four sub-dimensions of the Financial Identity Scale Across the Seven Countries

	Achievement	Foreclosure	Diffusion	Moratorium
Austria	3.52 (0.83)	2.18 (0.95)	1.83 (0.80)	2.52 (0.95)
Finland	3.12 (0.85)	2.43 (0.93)	2.66 (0.91)	2.97 (0.83)
Hungary	3.21 (0.87)	2.58 (1.02)	2.01 (0.89)	3.13 (0.93)
India	3.30 (0.82)	3.07 (0.89)	2.59 (0.92)	3.23 (0.84)
Italy	3.17 (0.87)	2.79 (0.97)	2.02 (0.87)	3.33 (0.88)
Lithuania	3.45 (0.87)	2.54 (0.95)	2.52 (0.94)	3.09 (0.95)
USA	3.21 (0.89)	2.45 (1.02)	2.09 (0.88)	2.91 (0.96)
Total	3.27 (0.87)	2.50 (0.99)	2.29 (0.94)	2.96 (0.93)

it can be useful to plot the values of the AIC, CAIC, AWE, BIC, and ssBIC to visually display the values and inspect for an “elbow” of point of diminishing returns in model fit

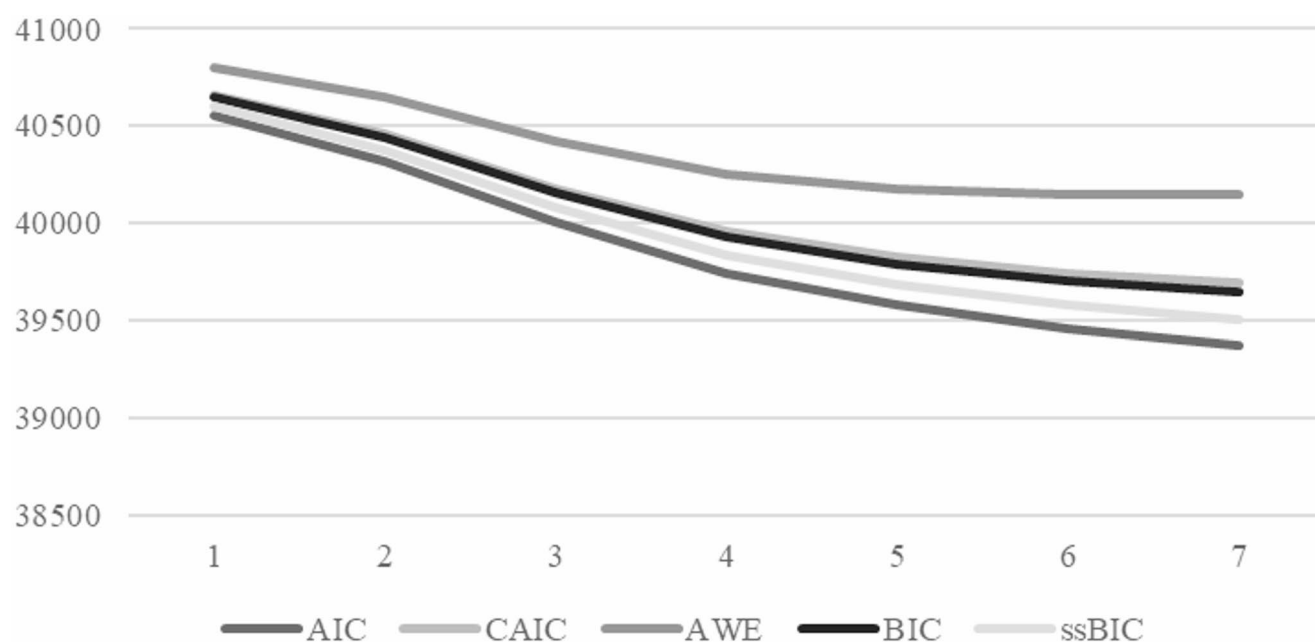
(e.g., small decreases in the I.C. for each additional latent profile; Nylund-Gibson & Choi, 2018). Our plot (see Fig. 1) presents the elbow in correspondence with the four-profile solution (i.e., the best solution according to the descriptive measures of relative model fit).

The statistical tests of the relative fit we used to compare the LPA model suggest that the 6-profile model is not significantly different from the 5-profile model (see the VLMR-LRT and the LMR-LRT in Table 5) and thus, the 5-profile model should be preferred for the parsimony criterion. At the same time, the 5-profile model has a profile that includes only 23 participants (out of 3925; 0.59%). Most of the guidelines about LPA specify avoiding solutions that include profiles that are one or more too small. They

Table 5 Relative model fit indices for seven latent profile models

Model	LL	AIC	CAIC	AWE	BIC	ssBIC	VLMR-LRT test	LMR-LRT test	BLRT test	E	Profiles size
1-profile	-20,265.609	40,559.22	40,661.07	40,804.92	40,647.07	40,602.58	/	/	/	/	3925
2-profile	-20,140.183	40,318.37	40,456.59	40,651.82	40,437.59	40,377.22	$p < 0.001$	$p < 0.001$	$p < 0.001$	.626	2386; 1539
3-profile	-19,978.645	40,005.29	40,179.89	40,426.50	40,155.89	40,079.63	$p < 0.001$	$p < 0.001$	$p < 0.001$	.633	1004; 1196; 1725
4-profile	-19,843.783	39,745.57	39,956.54	40,254.52	39,927.54	39,835.40	$p < 0.001$	$p < 0.001$	$p < 0.001$	.695	766; 1066; 1696; 397
5-profile	-19,755.434	39,578.87	39,826.22	40,175.58	39,792.22	39,684.19	$p < 0.001$	$p < 0.001$	$p < 0.001$	.731	447; 1051; 733; 1671; 23
6-profile	-19,691.421	39,460.84	39,744.57	40,145.30	39,705.57	39,581.65	$p = .119$	$p = .124$	$p < 0.001$	.747	1018; 45; 1644; 753; 442; 23
7-profile	-19,641.747	39,371.49	39,691.60	40,143.70	39,647.60	39,507.79	$p < 0.001$	$p < 0.001$	$p < 0.001$	.792	811; 1128; 1157; 409; 378; 22; 20

LL=loglikelihood; AIC=Akaike information criterion; CAIC=Consistent AIC; AWE=Approximate Weight of Evidence criterion; BIC=Bayesian information criterion; ssBIC=sample-size adjusted BIC; VLMR-LRT=Vuong-Lo-Mendell-Rubin likelihood ratio test; LMR-LRT=Lo-Mendell-Rubin likelihood ratio test; BLRT=bootstrapped likelihood ratio test; E=Entropy

**Fig. 1** Plot of Information Criterion values for the seven models of LPA

specifically state that each profile should not contain fewer than 50 cases (e.g., Killian et al., 2019) and/or less than 5% of the sample (e.g., Nylund-Gibson & Choi, 2018).

Consequently, we excluded the 5-profile model as a potential solution and proceeded to investigate only the four-profile solution through the classification diagnostics. As reported in Table 6, the four-profile model satisfied all classification diagnostic criteria; for each profile, the mcaP is included in the 95% CI of the π , avePP values are higher than .70, and OCC values are above 5 (Masyn, 2013; Sorgente et al., 2019). The entropy of this model ($E=0.695$) is close to the ones found in the previous validation paper of the person-centered model of financial identity (Serido et al., 2023).

In sum, the best LPA solution to describe the heterogeneity in our sample of 3,925 emerging adults is the four-profile model. These four profiles are represented in Fig. 2 (section a). Comparing these profiles with the three identified in the Shim et al. (see Fig. 2, section b) and Serido et al. (see Fig. 2, section c) it is evident that the first three profiles of the current solution exactly correspond to the original one, so we named them at the same way: The first profile was named “Pathfinders” as its participants ($n=1066$) endorsed an active and engaged approach to financial management with high levels of achievement and low levels of the other financial identity dimensions. The second profile was named “Drifters” as its participants ($n=766$) were characterized by their high exploration status but lack of commitment to any particular financial management approach. In the original paper, the third profile was named “Followers” as its participants scored higher on the “foreclosure” indicator than the other two, suggesting that they were continuing to rely on the financial management approach they had learned from their parents. As in the current study this is true for both the third and the fourth profile, we did a closer inspection to decide which profile to name after the third profile of the original paper. As shown in Fig. 2, the third profile ($n=1696$) of our four-profile solution is the one most similar to the “Followers” profile in Shim et al.’s (2013) and Serido

et al.’s (2023) papers, as these profiles show more or less equivalent averages across the four dimensions of financial identity (achievement, foreclosure, diffusion, moratorium).

On the other hand, the fourth profile ($n=397$) of our solution is new compared to what has been identified so far because, in addition to high levels of “foreclosure,” it shows even higher levels of the dimensions that indicate processes of exploration (moratorium) and procrastination (diffusion). We have therefore named this fourth profile “Indecisive” because it seems that these emerging adults’ decision to adopt their parents’ money management style is only temporary. In the meantime, they are taking into consideration alternative solutions.

As this fourth profile seems very similar to the third one in the mean levels of the financial identity sub-dimensions (achievement, foreclosure, diffusion, moratorium), we questioned if the presence of this fourth profile was justified. One way to answer this question is through a process of validation of the four-profile solution. In particular, some methodological papers (e.g., Petersen et al., 2019; Weller et al., 2020) suggest verifying whether the different profiles of the LPA solution are differently associated to outcome variables. To this end, we verified if participants assigned to the four profiles of the four-profile model present different levels of financial well-being as well as life satisfaction across profiles (for more details, see Section B of OSM). We found that the profiles identified through the four-profile solution were able to differentiate emerging adults according to their level of financial well-being and life satisfaction. In particular, the emerging adults belonging to the Pathfinder groups had the highest level of financial well-being and life satisfaction. Participants belonging to the “Indecisive” profile had similar levels of life satisfaction but lower levels of financial well-being than the “Pathfinders”. Furthermore, the “Indecisive” profile was well-differentiated from the “Followers” profile as well because the “Followers” reported significantly lower levels of both financial well-being and life satisfaction than the “Indecisive” emerging adults. Finally, the “Drifters” reported the same levels of financial well-being as “Followers” but have significantly lower life satisfaction levels.

In sum, the person-centered financial identity approach proposed in Shim et al. (2013) and Serido et al. (2023) was partially confirmed. In particular, the three profiles (Pathfinders, Drifters, Followers) that were identified in these U.S. studies were detected in the current study as well, but a new fourth profile (Indecisive) seems necessary to best describe the heterogeneity of emerging adults around the world.

Once we accepted this four-profile model, we tested whether the four profiles were equally distributed across countries. We found that the Pathfinders profile was more

Table 6 Classification diagnostics for the four-profile model

Entropy (E)	Profile (N)	C.P	mcaP	AvePP	OCC
0.695	Profile 1 (1066)	0.277 (0.251–0.308)	0.272	0.854	15.27
	Profile 2 (766)	0.204 (0.171–0.265)	0.195	0.789	14.59
	Profile 3 (1696)	0.413 (0.386–0.439)	0.432	0.833	7.09
	Profile 4 (397)	0.107 (0.021–0.138)	0.101	0.815	36.77

E=Entropy; C.P.=class proportion; mcaP=modal class assignment proportion; avePP=average posterior probability; OCC=odds of correct classification

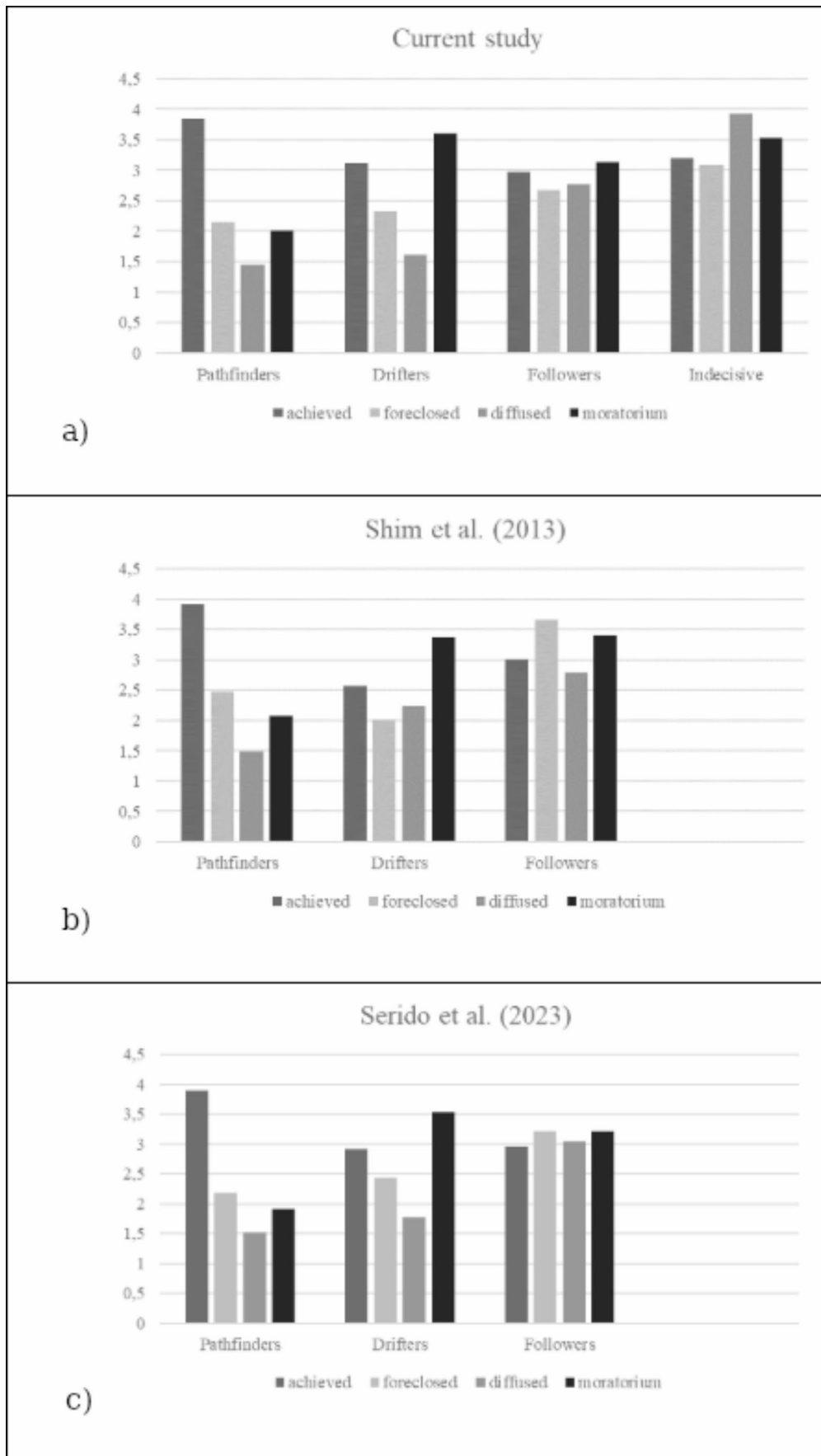


Fig. 2 Profiles of financial identity according to the four-profile model obtained in the current study (section a) and the three-profile model obtained in the studies of Shim et al. (section b) of Serido et al. (section c). Each profile is defined by mean levels of the four dimensions of the financial identity scale: achievement, foreclosure, diffusion, moratorium. The representations in sections b and c have been drawn using the mean levels of the four dimensions of FIS as reported in the relative paper. For the Serido et al. (2023), where the model was tested across four different waves of data, we reported the mean levels that were invariant over time

frequent than would be expected by chance in Austria and less frequent in Finland. Conversely, the Followers profile was more frequent than expected in Finland and less likely in Austria. The Drifters profile was more frequent than expected in Italy and Hungary and less likely in Finland. Finally, the Indecisive profile was more likely to be in Finland and India and less likely to be in Austria and the US. Again, due to the fact that most of the national samples in the current study were not representative, comparison across countries has to be interpreted with caution. For more details about the distribution of the four profiles across countries, see Section C of the OSM.

Discussion

Today, young adults worldwide are struggling to manage the responsibilities of adult life, particularly responsibilities involving finances (Galliher et al., 2017). Given the strong connection between identity development and age-related functioning (Crocetti, 2018) as well as empirical support that a well-developed financial identity helps emerging adults feel more like adults and complete their transition to adulthood (Serido et al., 2023), it is important to investigate financial identity during emerging adulthood to understand what facilitates the flourishing of emerging adults in the financial domain.

To this end, the scientific community needs a valid instrument to measure emerging adults' financial identity worldwide. The current study aimed to test the validity of the Financial Identity Scale (FIS) in an international sample of 4,960 emerging adults from ten different countries: Austria, Finland, Hungary, India, Italy, Lithuania, Portugal, Romania, Slovenia, and the United States. This 12-item scale can be adopted both within a variable-centered and a person-centered approach, so we tested the scale's international validity within both approaches.

Variable-Centered Model of FIS

The FIS model within the variable-centered approach suggests that financial identity could be studied through four *variables*, each corresponding to a different status of

Marcia's (1966) theory: achievement, foreclosure, diffusion, and moratorium. This four-factor model was developed by Barber et al. (2011) with a sample of Australian and U.S. college students and then was confirmed by Sorgente et al. (2020) with a U.S. 4-wave longitudinal sample and with a Lithuanian sample of students. Sorgente et al. (2020) also tested the four-factor model with an Italian sample, although the model was not fully confirmed in this country due to a problematic item.

In the current study, the four-factor model was fully confirmed in seven countries: Austria, Finland, Hungary, India, Italy, Lithuania, and the United States. In particular, it is worth noting that the Italian version of the scale where the problematic item was slightly modified (as reported earlier) was sufficient to solve the misfit Sorgente et al. (2020) found for the FIS in the Italian context. In the current study, we instead found a misfit of the four-factor model of FIS in three countries: Portugal, Romania, and Slovenia. As reported in Table 2, the fit of these three countries was very close to being sufficient and thus does not preclude potential suitability of the 4-factor model of the FIS in these countries, but certainly not with the Portuguese, Romanian, and Slovenian versions used in the current study. Since the misfit is relatively small, we speculate that use of the 4-factor model is still plausible in these countries, although a minor problem may exist in the item wording. For the current project, the translation of the items from English to the country-specific language was done using the back-translation procedure, however, involvement of the target population to check the comprehensibility and applicability of the item content was not done. As recommended by Beaton et al. (2000), we suggest that prior to using this scale in Portugal, Romania, and Slovenia, or other countries where the scale has not yet been tested, researchers should first conduct cognitive interviews with emerging adults to validate item translation prior to quantitative data collection. During this process, if researchers from Portugal, Romania, or Slovenia identify problematic items, the data and output files in this study (which are publicly available here (<https://osf.io/sa5u2/files/osfstorage>)) can be used to determine whether these are the same items that were problematic in the current study. This would help these scholars to modify such items with more certainty. Overall, we consider the four-factor model of FIS confirmed, as it was fully replicated in seven out of ten countries and produced only a small misfit in the other three countries. We expect that, as it was for the Italian version, a slight adjustment to the item formulation can address this misfit and provide confirmation of the four-factor model in these countries as well. This is an important finding for at least two reasons. First, this suggests that the financial domain of identity presents the same four possible statuses that the general identity (Marcia et al., 1993) and

other specific domains of identity (Solomontos-Kountouri & Hurry, 2008) present. This facilitates the study of this domain of identity and its comparison with other domains. Furthermore, the full confirmation of the four-factor model in India and Hungary suggests that this model also fits in eastern cultures (i.e., India) as well as in emerging and developing economies (India and Hungary; International Monetary Fund, n.d.). This is an important result because it facilitates the use of a common measure in international studies. This is not the case for other constructs related to the financial life of emerging adults (e.g., subjective financial well-being; Sorgente et al., 2024), where the original model of the scale was confirmed only in western and developed countries.

Person-Centered Model of FIS

The FIS model within the variable-centered approach suggests that financial identity could be studied through three *profiles* (Pathfinders, Followers, Drifters), each corresponding to a different configuration of the four statuses described above: achievement, foreclosure, diffusion, and moratorium. The same three profiles were also detected in a recent study by Serido et al. (2023) where the person-centered model of FIS was tested on a longitudinal dataset of U.S. emerging adults.

Applying a person-centered technique (i.e., Latent Profile Analysis) to the seven countries for which the variable-centered model holds, we confirmed that the emerging adults are not homogeneous in terms of financial identity configurations and identified *four* different profiles. The first three profiles we detected replicate the ones detected by Shim et al. (2013) and Serido et al. (2023) and were thus named Pathfinders, Followers, and Drifters. The new profile was named “Indecisive” because this profile presented medium-to-high levels of commitment (i.e., achievement and foreclosure identity), but even higher levels of moratorium and diffused identity. This configuration is similar to the “searching moratorium” identity status (Crocetti et al., 2008a) identified within the literature of the three-factor identity model (Crocetti et al., 2008b). Individuals in the searching moratorium cluster are seeking to revise commitments that have already been enacted, and they are able to do so from the secure base provided by their current commitments. This may explain why we found that the Indecisive emerging adults reported high levels in both financial well-being and life satisfaction.

If future studies confirm the presence of this fourth profile (Indecisive) in their emerging adult samples, the absence of this profile in the studies by Shim et al. and Serido et al. may be explained by the sampling strategy these authors employed; they used samples composed only of U.S.

emerging adults *who attended* college at Wave 1. This means that subsequent waves of that data used to test the FIS model (see Sorgente et al., 2020) were composed mostly of emerging adults “currently in higher education” or that have already “completed higher education” (see Table 1). It is plausible that this specific sample does not represent all the heterogeneity that emerging adults present worldwide in terms of financial identity, and this affected the likelihood of finding all possible combinations of financial identity statuses. In support of this hypothesis, in the study by Serido et al. (2023), the four-profile model was the one with the best relative fit but was excluded because it produced a fourth profile with too few members: “We found that although the lowest information criteria values corresponded to the four-profile solution at each time point (followed by the three-profile solution), the four-profile solution included a class with too few members (e.g., only three members at time 3) and therefore could not be retained.” (Serido et al., 2023, p.105). This possible explanation is also supported by the fact that when we tested the frequency of the four profiles across the seven countries (see OSM), we found that the “Indecisive” profile is less likely than expected by chance to be present in the U.S. sample. To further support this interpretation, we have also tested the frequency of the four profiles across the three educational statuses of the participants (never in higher education, currently in higher education, completed higher education). In line with our interpretation (see Table S5 of the OSM), the “Indecisive” profile is more likely to be present in the “never in higher education” group (i.e., the group not well represented by the US sample) than expected by chance.

Comparison Across Countries

After testing the variable- and person-centered approach of FIS across countries, we could verify how financial identity statuses (variable-centered approach) and financial identity profiles (person-centered approach) are distributed across the seven countries where the FIS models were confirmed. As stated above, since most of the national samples in the current study were not representative, these comparisons across countries have to be considered with caution. This means that some of the differences we found between countries may depend more on the characteristics of these particular samples than on their respective populations. For example, some samples (e.g., Hungarian, Lithuanian, Austrian) over-represent students. Other samples (e.g., U.S. and Italian) include respondents who are on average older than emerging adults in other samples (e.g. Lithuania). In addition, two countries (i.e., Finland and India) collected data after the Covid-19 pandemic, while the others collected data before emerging adults experienced this unpredictable

event. To support this idea that difference across countries may also depend on data collection procedures related to the individuals sampled (educational status, age) and period in which data were collected respect to the Covid-pandemic, we dedicated Section D of the OSM to detail how groups based on educational status (never in higher education, currently in higher education), age (less than 25 vs. 25 or more) and data collection period (pre-Covid vs. post-Covid) are differently distributed across profiles (see Tables S5-S7 of OSM). Nevertheless, we believe that some of the differences we found may also depend on the economic variability of the countries included in the current study. In particular, the youth unemployment rates, one of the major contextual determinants of emerging adults' financial well-being (e.g., Brügger et al., 2017), vary a lot across the involved countries. In particular, this study includes countries that had both very high levels of youth unemployment in the year data were collected, such as Italy (29.2% in 2019), India (24.6% in 2020), and Finland (21.2% in 2020), as well as countries where the unemployment was less frequent among youth, such as Hungary (11.4% in 2019), Lithuania (11.1% in 2018), US (10.4% in 2016), and Austria (8.8% in 2019) (World Bank Group, 2024).

In light of these considerations, we believe that some of the differences we found are worthy of interpretation and we have commented on these results separately by country in Section D of the OSM.

Implications

While the primary focus of this study has been to provide evidence for the validity of the financial identity instrument, the findings yield practical insights for those interested in improving the financial lives of emerging adults. First, across the seven countries where the measure was validated, emerging adults in the Pathfinder profile registered the highest levels of both financial well-being and life satisfaction whereas those in the Follower and Drifter profiles were lower in both. In line with the identity development literature (e.g., Crocetti, 2018), individuals who commit to a financial identity *after considering options* (Pathfinders) make more informed financial choices. Similarly, we speculate that individuals in the Indecisive group may have higher financial well-being and life satisfaction than Followers and Drifters because even if they are currently adopting their parents' money management style (which may provide a sense of security that those in the Drifter group may lack), in the meantime, unlike Followers, they are exploring alternative solutions (i.e., higher levels of moratorium) that should support a stronger sense of financial self. In other words, this exploration process increases their awareness

and helps them make more informed financial decisions. In this sense, teaching emerging adults about finances through dialogue in the context of their current financial situation may spark an active interest and motivate them to seek out information before making financial choices (Mountain et al., 2021), providing opportunities to envision possible outcomes. Such a didactic approach could be incorporated into both formal instruction as well as informal conversations (e.g., embedded Chatbot applications). Second, this study offers a glimpse into the financial identity of emerging adults across multiple countries, revealing commonalities that exist despite coming of age in different cultures and at different times. While financial identity occurs within the diverse and dynamic experiences of the individual, at its core, it represents a self-awareness about how one sees oneself in relation to the use of available resources to meet life demands. For self-assessment, the FIS may serve as a practical tool for financial educators and practitioners to use with emerging adults when talking about making more informed life choices with limited resources. Finally, while this study focuses on financial identity among emerging adults, a rapidly changing, technology-driven world provides access to financial opportunities and threats that target young people. Financial services and community organizations that encourage more open discussion about finances in family decision making could introduce the concept of the financial self as a way to promote self-reflection among family members.

Limitation and Future Studies

To the best of our knowledge, this is the first study in which an instrument measuring emerging adults' financial identity has been tested across a wide range of countries. Nevertheless, we need to interpret these findings in light of the following limitations. First, in most countries, the data were collected using a convenience sampling procedure, limiting the generalizability of the results of the current study and the meaningfulness of mean comparisons across countries. In particular, the convenience samples were unbalanced for variables such as gender (more females than males) and educational status (more students than workers), which usually make a difference when it comes to financial issues (e.g., Buchler et al., 2009; Zyphur et al., 2015). Furthermore, even if our study includes emerging adults from 10 different countries, most of these countries represent the Western, Educated, Industrial, Rich, and Democratic (WEIRD) side of the world. Future studies testing the FIS models in countries from South America and Africa are welcome. Finally, we did not perform cognitive interviews to test with the target population the translation of FIS items across

the different countries. Cognitive interviews are useful for testing the comprehensibility and representativeness of the items for the target population (Willis, 2004). These interviews should be done before to collect quantitative data in order to have the occasion to adjust the translation of items if needed. This may partly explain the misfit we found for the Portuguese, Romanian, and Slovenian versions of the scale.

Conclusion

Given the state of financial instability worldwide, we anticipate a growing interest in the concept of financial identity and the need for a valid and reliable instrument. In the current study, we tested both the variable-centered model and the person-centered model of the 12-item Financial Identity Scale in an international sample of 4,960 emerging adults from ten different countries: Austria, Finland, Hungary, India, Italy, Lithuania, Portugal, Romania, Slovenia, and the United States. As expected, the FIS measures four different financial identity statuses within the variable-centered approach: achieved, foreclosed, diffused, and moratorium. Within the person-centered approach, we detected the three financial identity profiles (Pathfinders, Drifters, Followers) identified in previous studies (Serido et al., 2023; Shim et al., 2013) but we also detected a new fourth profile, we named Indecisive.

Summing up, we recommend that researchers use the variable-centered approach for investigating financial identity when they assume that the population is homogeneous with respect to the relationship among variables. The person-centered approach is more appropriate when researchers expect differences among individuals in how variables relate to one another. No approach is better than the other, and each can be used to address different research questions regarding emerging adults' financial identity.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10834-025-10054-8>.

Funding Open access funding provided by Università Cattolica del Sacro Cuore within the CRUI-CARE Agreement. Open access funding provided by Università Cattolica del Sacro Cuore within the CRUI-CARE Agreement. Mette Ranta received funds from the Strategic Research Council (SRC) established within the Academy of Finland (Grant Number: #352545, #352544). Maja Zupančič and Žan Lep received funds from the Slovenian Research Agency, Ljubljana, Slovenia (Research programme: Applied Developmental Psychology; Code: Nr. P5-0062). Rimantas Vosylis received funds from the European Social Fund under the No. 09.3.3-LMT-K-712 "Development of Competencies of Scientists, Other Researchers, and Students through Practical Research Activities" measure. Grant no: 09.3.3-LMTK-712-02-0156.

Declarations

Conflict of interest The authors have no competing interests to declare that are relevant to the content of this article.

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Authors and Affiliations

Angela Sorgente¹ · Margherita Lanz¹ · Shikha Bhatia² · Carla Crespo³ · Judit Dunai⁴ · Gabriela Fonseca^{5,6} · Žan Lep^{7,8} · Tamás Martos^{4,9} · Oana Negru-Subtirica¹⁰ · Alda Portugal¹¹ · Mette Ranta¹² · Ana Paula Relvas^{5,6} · Viola Sallay^{4,9} · Nidhi Singh¹³ · Ulrike Sirsch¹⁴ · Rimantas Vosylis¹⁵ · Maja Zupančič⁷ · Soyeon Shim¹⁶ · Joyce Serido¹⁷

✉ Angela Sorgente
angela.sorgente@unicatt.it

Margherita Lanz
margherita.lanz@unicatt.it

Shikha Bhatia
shikha.bhatia@imi.edu

Carla Crespo
carlacrespo@psicologia.ulisboa.pt

Judit Dunai
juditdunai.psy@gmail.com

Gabriela Fonseca
gabriela.fonseca@fpce.uc.pt

Žan Lep
zan.lep@ff.uni-lj.si

Tamás Martos
tamas.martos@psy.u-szeged.hu

Oana Negru-Subtirica
oananegru@psychology.ro

Alda Portugal
alda.portugal@staff.uma.pt

Mette Ranta
mette.ranta@helsinki.fi

Ana Paula Relvas
aprelvas@fpce.uc.pt

Viola Sallay
viola.sallay@psy.u-szeged.hu

Nidhi Singh
nidhi.singh@jaipuria.ac.in

Ulrike Sirsch
ulrike.sirsch@univie.ac.at

Rimantas Vosylis
rimantasv@mruni.eu

Maja Zupančič
maja.zupancic@ff.uni-lj.si

Soyeon Shim
soyeon.shim@wisc.edu

Joyce Serido
jserido@umn.edu

- ¹ Department of Psychology, Università Cattolica del Sacro Cuore, Largo Gemelli, 1, 20123 Milan, Italy
- ² International Management Institute New Delhi, New Delhi, India
- ³ Faculty of Psychology, CICPSI, University of Lisbon, Lisbon, Portugal
- ⁴ Institute of Psychology, University of Szeged, Szeged, Hungary
- ⁵ Faculty of Psychology and Educational Sciences, University of Coimbra, Coimbra, Portugal
- ⁶ Centre for Social Studies, University of Coimbra, Coimbra, Portugal
- ⁷ Department of Psychology, Faculty of Arts, University of Ljubljana, Ljubljana, Slovenia
- ⁸ Centre for Applied Epistemology, Educational Research Institute, Ljubljana, Slovenia
- ⁹ Faculty of Psychotherapy Science, Sigmund Freud Private University, Vienna, Austria
- ¹⁰ Department of Psychology, Babeş-Bolyai University, Cluj-Napoca, Romania
- ¹¹ Department of Psychology, University of Madeira, Madeira, Portugal
- ¹² Faculty of Educational Sciences, University of Helsinki, Helsinki, Finland
- ¹³ Jaipuria Institute of Management, Noida, India
- ¹⁴ Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Vienna, Austria
- ¹⁵ Institute of Psychology, Mykolas Romeris University, Vilnius, Lithuania
- ¹⁶ Department of Consumer Science, School of Human Ecology, University of Wisconsin–Madison, Madison, USA
- ¹⁷ Family Social Science, University of Minnesota, St. Paul, MN, USA