Financial Literacy Metrics for Financial Wellbeing in a Socioeconomic Environment: the FWI Model in a Circular Economy and Climate Finance

Enkeleda Lulaj[1]*, Ani Mekaniwati[2]

[1]*Faculty of Business, University Haxhi Zeka*
Eliot Engel st., 30.000 Peja, Kosovo
E-mail. enkeleda.lulaj@unhz.eu; enkeleda_lulaj@hotmail.com
(Corresponding author)*

[2]*Kesatuan Institute of Business and Informatics*
Jl. Rangga Gading No.1 Bogor, West Jawa, Indonesia
Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia (UTHM)
Pesiaran Tun Dr. Ismail, 86400 Parit Raja, Johor, Malaysia
E-mail. mekaniwatiani@gmail.com

This research aimed to investigate measurement analyses that could promote sustainable financial literacy practices, thereby enhancing financial well-being in a socioeconomic environment. It focused on examining the factors of the Financial Well-Being Index (FWI) model and identifying gaps in financial literacy within the context of a circular economy and climate finance. Confirmatory Factorial Analysis (CFA) and Structural Equation Modeling (SEM) were employed using data collected from 402 families in Kosovo during the years 2022-2023. The analyses revealed interrelationships among financial literacy, financial well-being, and the socioeconomic environment. Strong financial behavior was associated with a reduced need for financial education, while the lack of financial balance hindered resilience and well-being. Savings positively impacted the quality of life and homeownership. Additionally, the need for financial education positively influenced financial attitude, and financial resilience indirectly affected the financial situation. Financial literacy had both direct and indirect effects on the socioeconomic environment through its impact on financial well-being. The study confirmed the significant role of financial literacy in improving financial well-being and the socioeconomic environment. Future research should evaluate the effectiveness of financial education interventions and explore the relationship between financial literacy, climate policy, and income distribution within the framework of the circular economy and climate finance.

Keywords: *Climate Finance; Circular Economy; Financial Literacy; Financial Wellbeing Index (FWI); Socioeconomic Environment; SEM; Sustainable Finance; Climate Change; Households.*

Introduction

In the socioeconomic environment, sustainable financial well-being is aimed at individuals, families, societies, and countries (BrUggen *et al.,* 2017). The global community now recognizes an increasingly urgent need for financial education to transition towards a circular economy, particularly after Covid-19, through the use of the Global Fintech Index (Lyons *et al.,* 2022), where financial decision-making incorporates environmental considerations for green innovation (green finance and green financing) (Warren, 2020) energy efficiency, and decarbonized economies (Anu *et al.,* 2023) (Imran *et al.,* 2023) for families and communities in general, to achieve financial well-being, while climate change requires innovative financial strategies that utilize resources towards climate-friendly actions and decarbonized economies (Lee *et al.,* 2022), (Care & Weber, 2023), with an emphasis on the importance for finance researchers to pay more attention to climate finance (Cheng *et al.,* 2022) and energy transitions (Long *et al.,* 2022), as well as financial education for carbon emission reduction (Atsu &

Adams, 2021) since climate financing significantly exacerbates economic risks (Zhao *et al.,* 2022) and climate-related financial risks (Chenet *et al.,* 2021) as it is not possible to determine the "efficient" price in a socioeconomic environment for household economies (Monasterolo *et al.,* 2019), furthermore, climate financing is limited and insufficient (Manuamorn *et al.,* 2020) relying on conventional arguments that seek compensation for previous economic growth, climate damages, or both (Kotchen, 2020). Financial education for international climate funds (Yao *et al.,* 2015) is essential to support climate change adaptation policies (Scandurra *et al.,* 2020) for financial well-being in a socioeconomic environment of a circular economy and climate finance. As developed states face moderate negative effects, while less developed states experience significant threats (Barret, 2013), financial education is required for financial well-being in the socioeconomic environment due to the lack of information and difficulties in implementing international contracts (Brunner & Enting, 2014). According to Lulaj (2020), it is emphasized that the budget is presented as one of the main factors in economic and social life. Therefore,

public agencies (investors Botta, 2019) should provide financing for the private sector (individuals, families) (Kotchen & Costello, 2018) in mitigating and adapting, (Dietz *et al.,* 2009) to climate change (home energy renovation with prices) (Wilson *et al.,* 2015), and improving the efficiency of households in a circular economy (Agyapong and Tweneboah, 2023) and climate finance for the socioeconomic environment (Poortinga *et al.,* 2003) in the increase of financial well-being (Mazzarano, 2022). In summary, this research is crucial as it addresses the significant need for financial education to promote sustainable financial well-being amidst the socioeconomic challenges posed by climate change and the transition to a circular economy. The originality of this study lies in the introduction of the Financial Wellbeing Index (FWI) model, which integrates financial literacy metrics with principles of climate finance and the circular economy. This comprehensive framework has not been previously explored in the literature. The study aims to deepen understanding of the complex relationships among financial literacy, financial well-being, and the socioeconomic environment, presenting the FWI model as a key tool. The research questions driving this study include how financial literacy metrics can be effectively integrated into the FWI model, the impacts of climate finance on financial well-being, and how the circular economy influences financial decision-making. This research addresses a critical gap in the literature concerning the connection between financial literacy and climate finance. Bridging this gap is essential to promote informed financial decisions, better resource management, and enhanced financial well-being in a rapidly evolving socioeconomic environment.

Literature Review and Hypothesis Development

In accordance with the purpose of this research, developed and constructed hypotheses by drawing on the insights provided by other authors in the literature review.

Money Matters: the role of Financial Literacy in Building a Sustainable Future in a Circular Economy and Climate Finance

Financial literacy empowers individuals and families to navigate the complexities of a circular economy and climate finance, leading to improved financial well-being and greater sustainability outcomes (given that money matters for production, prices, interest rates, ensuring energy supply, etc.) for families and the country (Galvin, 2020), and financial literacy through financial advisors or individuals and families with high financial capabilities (especially adults, and families or individuals with high incomes (Nguyen *et al.,* 2022) increase financial well-being (Liu & Lu, 2023), and efficiency (Ye & Yue, 2023) reduce stress in making decisions (Gignac *et al.,* 2023) sustainable for investments (e.g. to invest in energy renewal (Asmare *et al.*, 2023), and the behavior of individuals or families as employees in businesses has a great impact on financial literacy (Lulaj, 2023) in families with a high level of financial literacy for differences from financially uneducated or aged families (Li *et al.,* 2020) in a circular economy and climate finance. According to (Twumasi *et al.,* 2022) it is emphasized that financial literacy has a positive

effect on the adoption of renewable energy, economic benefits, financial well-being (Grohmann *et al.,* 2018). However, it is noted that the value of their homes has a negative effect, thus necessitating financial awareness and education to reduce costs and invest in energy-efficient equipment (Brounen *et al.,* 2013), especially in developing economies where they face challenges and slowdowns in financial well-being due to financial education (Zehra & Singh, 2023) and financial knowledge of families in financial decision-making (Zhang *et al,* 2021) and financial resilience (Garci & Vila, 2020) as well as financial adaptation to climate change (Soo *et al.,* 2023).

Hypothesis 1: *Financial literacy has a positive effect on financial well-being in a circular economy and climate finance.*

Money Talks: the Intersection of Financial Wellbeing, Financial Literacy, and Socioeconomic Environment in a Sustainable Future

In a sustainable future, the convergence of financial well-being, financial education, and the socio-economic environment assumes paramount importance, considering the advancements made in family economics research over the past two decades (Sonnenberg, 2008). "Money Talks" delves into the intricate correlation between these factors and their influence on attaining sustainability, by increasing financial literacy, individuals (families) tend to be more financially resilient (planning for retirement and having fewer debt issues, saving for the future) (Hasler *et al.,* 2023) as well as promoting favorable socio-economic conditions, individuals (families) can foster a more sustainable future where economic well-being and environmental responsibility (environmental goods through monetary valuation) (Neuteleers & Engelen, 2015). According to Lulaj (2024), it is emphasized that spending on goods and clothing of families deviates from the desired values, emphasizing the complex relationship between money, climate change and sustainable finance. Mistakes in financial decision-making of family economies do not predict a significant improvement (Altman, 2020) while relative incomes have a greater importance in life satisfaction (Hong *et al.,* 2023). Furthermore, families with higher incomes have better financial well-being and socio-economic environments compared to families with lower incomes (Carbonell, 2005). Monitoring progress towards social and economic goals in terms of sustainability is necessary in a safer environment (Custodio *et al.,* 2023), through the Sustainable FWI model of the Family (Peng *et al.,* 2022). This is because some family economies experience long-term financial stress (Lulaj, 2022), an increase in financial risk exposure (Li, 2018), as well as a lack of access to digital financial services (Hanna *et al.,* 2022) and credit (Suri *et al.,* 2021). Financial literacy empowers households to achieve financial well-being, even in a socio-economic environment where income is fairly distributed based on the country's priorities (Lulaj *et al,* 2022).

Hypothesis 2: *Financial well-being mediates the relationship between financial literacy and socioeconomic environment in a circular economy and climate finance.*

Breaking the Cycle: the Power of Financial Literacy for a Sustainable Socioeconomic Environment in a Circular Economy and Climate Finance

Financial knowledge emerges as a powerful catalyst for positive change, breaking the cycle of finance and fostering transformative outcomes. So, it is essential to prioritize resources and tools that promote financial education, fostering a sustainable and prosperous future for all (Wang et al, 2018) as financial education starts from early studies (Corsini & Giannelli, 2021). This is because businesses must prioritize the increase and development of workers' skills, including financial knowledge, as it directly impacts both business profits and the financial well-being of individuals and families (Lulaj *et al.,* 2023) According to (Niemela *et al.,* 2017), it is emphasized that the renovation of houses at low cost in a socio-economic environment stems from the financial knowledge capabilities of individuals (families) who save their income and maintain a quality life as homeowners, However, there is still a need for a faster pace of house renovation due to the risk of rent increases and interference with family savings (Mangold *et al.,* 2016), as well as the use

of scarce fuel due to a lack of financial knowledge capabilities (McLean *et al.,* 2019). In underdeveloped economic areas, families face significant challenges in the ecological environment and social transformation (Xiao *et al.,* 2022), hence the need for country-level strategies to address the disproportionate impacts on family financial well-being in a socio-economic environment of a circular economy and climate finances (Mareddy, 2017). According to (Grijalvo & Wang, 2023), it is emphasized that in order to have a stable socio-economic environment, the power of financial knowledge is intertwined with the proposal and creation of a sustainable value of savings, property ownership, and quality of life.

Hypothesis 3: Financial Literacy has a positive effect on the socioeconomic environment in a circular economy and climate finance
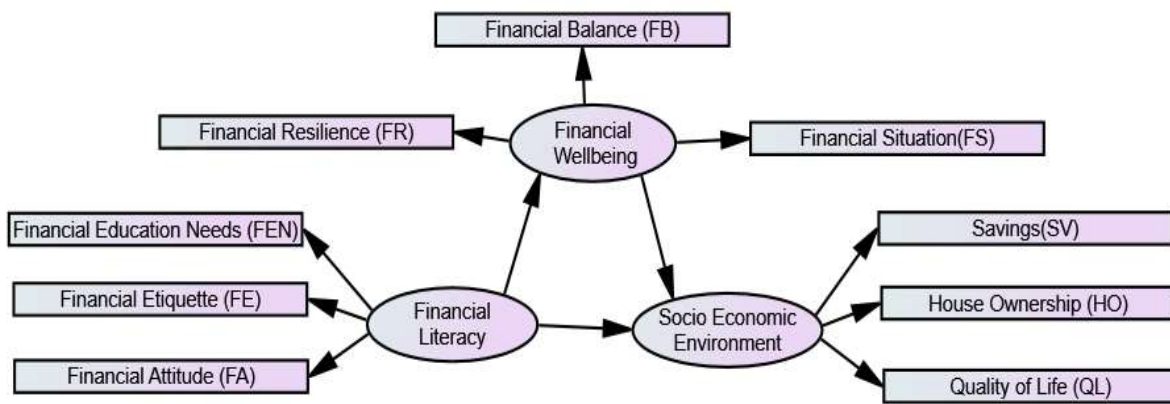

Figure 1. Conceptual Model- The FWI Model in a Circular Economy and Climate Finance

Figure 1 illustrates the conceptual model of the study, resulting from confirmatory analysis to test the direct effect of financial literacy on the socio-economic environment, as well as the indirect effect of financial literacy on the socio-economic environment through financial well-being. Additionally, it examines the direct effects of financial literacy on financial well-being and the socio-economic environment's financial well-being. When examining the financial literacy factor, it should be noted that three subfactors are included: Financial Education Needs (FEN), Financial Etiquette (FE), and Financial Attitudes (FA), each of which includes their respective variables. Regarding the factor of Financial Wellbeing, it should be emphasized that three sub-factors are included: Financial Resilience (FR), Financial Balance (FB), and Financial Situation (FS), with each sub-factor encompassing its own variables. Furthermore, according to the factor of Socioeconomic Environment, it should be highlighted that three sub-factors are included: Savings (SV), House Ownership (HO), and Quality of Life (QL), with each sub-factor encompassing its own variables. Lastly, it should be emphasized that the development of the purpose, analyses, and results will contribute to the construction of this model through the formulated hypotheses for each section.

Methodology

The Purpose of the Paper

The purpose of this research is to examine and identify measurement analyses to promote sustainable financial literacy practices that can enhance financial well-being in a socio-economic environment, by establishing the linkages among the factors of the FWI model. It also investigates current gaps in financial literacy in a circular economy and climate finance. Therefore, through this objective, will be able to identify specific metrics and strategies that can be used to promote and enhance financial well-being and sustainability in a socio-economic environment.

Respondents and Data Collection for the FWI Model in a Circular Economy and Climate Finance

The target of this research were individuals and households in Kosovo during the years 2022-2023. This study employed a qualitative approach through the completion of questionnaires by 402 families, in order to assess the interrelationships between factors and variables as emphasized in the research aim and conceptual model. The research utilized Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) analysis (Gaskin, 2021) to process the data using IBM-SPSS and AMOS 26.0 software programs (IBM, 2016).

The Analyses Utilized in the FWI Model in a Circular Economy and Climate Finance

The suitability of the data for factor analysis in the context of financial literacy, financial well-being, and the socioeconomic environment in a circular economy and climate finance was assessed using the Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy and Bartlett's Test of Sphericity (Dziuban & Shirkey, 1974). Initially, an exploratory factor analysis (EFA) was conducted on the three factors and their sub factors and variables, employing maximum likelihood extraction and eigenvalues greater than 1, without rotation. Subsequently, a Promax Rotation was applied to the EFA with a three-factor solution to examine the findings of the analysis (O'Connor, 2000). Moreover, to rigorously validate the FWI model, a comprehensive suite of fit indices is employed, aligning closely with the reviewer's suggestions for methodological rigor and tool justification in Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). These indices encompass critical measures for evaluating model adequacy. Key indicators such as Chi-Square (χ^2) and Degrees of Freedom (*df*) assess the model's goodness of fit using the (N – 1) FML discrepancy function in ML estimation, where a χ^2/df ratio $\leq$ 2 signifies acceptable fit (Steiger & Lind, 1980; Tabachnick & Fidell, 2007), (Hooper *et al.,* 2008). Additionally, Root Mean Square Residual (RMR) and Goodness of Fit Index (GFI) metrics are employed, with RMR $\leq$ 0.05 indicating acceptable fit, and GFI values $\geq$0.9 considered reasonable, $\geq$ 0.95 excellent (Diamantopoulos & Siguaw, 2000; Hu & Bentler, 1998; Kline, 2005). Adjusted indices such as Adjusted Goodness of Fit Index (AGFI) and Parsimony Goodness of Fit Index (PGFI) refine evaluation by accounting for model complexity (Mulaik *et al.,* 1989). Baseline comparisons like Normed Fit Index (NFI) and Comparative Fit Index (CFI) benchmark model adequacy, with NFI values near 1 indicating ideal fit and CFI values $\geq$ 0.95 demonstrating excellent fit (Bollen, 1989; Bentler & Bonett, 1980; Hu & Bentler, 1999; West *et al.,* 2012, Bentler,1990). Parsimony-adjusted Metrics-Parsimony Ratio (PR), Parsimony Normed Fit Index (PNFI), and Parsimony Comparative Fit Index (PCFI)—simplify evaluation while maintaining accuracy (Mulaik & Brett, 1982). Non-Centrality Parameter (NCP) evaluates model fit relative to non-central chi-square distribution, and Index of Model Fit (FMIN) provides confidence intervals to assess fit accuracy. Finally, Root Mean Square Error of Approximation (RMSEA), where values $\leq$ 0.05 are excellent, along with confidence intervals, ensures precise estimation of model adequacy (MacCallum *et al.,* 1996; Steiger, 1990; Browne & Cudeck, 1993). These fit indices collectively validate the FWI model, robustly demonstrating its capacity to elucidate the complex relationships among

financial literacy, financial well-being, and the socioeconomic environment. Therefore, regarding the CMIN (χ2) test, its equation for the FWI model is presented below.

$$\chi^2 - \chi'^2 = \sum_{i=1}^{k} \frac{\chi_i^2}{m_i} - \sum_{i=1}^{k} \frac{\chi^2}{m_i'} \qquad 1)$$

As elaborated above, the equation for the CFI test is presented as

$$CFI = 1 = \frac{\chi_M^2 - df_M}{\chi_B^2 - df_B}, \qquad 2)$$

However, it should be noted that items with significantly skewed distributions can have an impact on both the factor loadings and the ease of interpreting the factors (Gorsuch, 1983). The performance evaluation of the model involves the examination of various "goodness-of-fit" statistics, including the Comparative Fit Index (CFI), Normed Fit Index (NFI), consistent Akaike's information criterion (CAIC), and root mean square error of approximation (RMSEA).

The RMSEA (Root Mean Square Error of Approximation) test is crucial for evaluating the FWI (Financial Literacy, Financial Wellbeing, Socioeconomic Environment) model. For the model to be deemed acceptable, the RMSEA value must be $\leq$ 0.05. This criterion serves as a vital measure to assess how well the model fits the observed data, ensuring that it accurately reflects the complex relationships among financial literacy, financial wellbeing, and the socioeconomic environment.

$$RMSEA = \sqrt{\frac{\chi_M^2 - df_M}{df_M(N-1)}}, \qquad 3)$$

These statistics assess the level of agreement between the implied variances and covariances of the model and the observed variances and covariances in the data (Kline, 1998). A good fit is indicated when the implied model closely aligns with the observed data, accurately capturing the interrelationships among the items within the FWI model (Ramsay, 2000).

Empirical Results

The examination and identification of variables were performed through confirmatory factor analysis (CFA) and Structural equation modeling (SEM) as follows:

Confirmatory factorial analysis and Structural equation modeling for Financial Literacy (the WFI model in a circular economy and climate finance)

The latent construct for financial literacy in a circular economy and climate finance was operationalized through three factors (FEN, FE, and FA), each consisting of ten variables. These variables were assessed based on respondents' perceptions and opinions using a Likert scale ranging from 1 to 5, as presented in the table below:

Construct/ Variable	Item Code	Item Scale
		Financial Literacy
	FEN1	Awareness of sustainable financial practices
Financial	FEN2	Understanding of the circular economy and its relevance to personal finance
Education	FEN3	Knowledge of climate finance and its potential impact on personal finances
Needs	FEN4	Perception of the importance of financial literacy in the context of sustainability
(FEN)	FEN5	Confidence in managing personal finances in a sustainable way
	FEN6	Perception of barriers to adopting sustainable financial practices

Construct/ Variable	Item Code	Item Scale
	FEN7	Willingness to make changes to personal financial practices to support sustainability goals
	FEN8	The effectiveness of current financial education programs in promoting sustainable financial practices
	FEN9	The potential financial benefits of adopting sustainable financial practices
	FEN10	The role of government in promoting sustainable financial practices
Financial Etiquette (FE)	FE1	How often do you seek out information and resources to support your sustainable financial practices.
	FE2	The effectiveness of sustainable financial incentives and education in promoting behavior change
	FE3	How confident are you in your ability to balance your financial responsibilities with your environmental and social values.
	FE4	The importance of sustainable financial practices in promoting a healthy environment
	FE5	How important is it to you to invest in companies that prioritize sustainability and the circular economy
	FE6	Do you believe that financial institutions and policymakers have a responsibility to promote sustainable financial practices among households
	FE7	To what extent do you prioritize long-term financial and environmental goals over short-term financial gains
	FE8	The potential environmental benefits associated with adopting sustainable financial practices
	FE9	Do you believe that financial etiquette and sustainable financial practices can promote positive environmental and social outcomes
	FE10	To what extent do you consider the environmental and social impact of your financial decisions
Financial Attitude (FA)	FA1	Willingness to adjust spending habits to achieve sustainable financial goals
	FA2	Willingness to take on financial risk for long-term sustainable financial benefits
	FA3	Willingness to pay a premium for sustainable financial products and services
	FA4	Frequency of engaging in sustainable financial practices (e.g. investing in renewable energy, purchasing eco-friendly products, reducing energy consumption
	FA5	Willingness to accept a lower financial return for sustainable financial investments
	FA6	The level of financial sacrifice required to adopt sustainable financial practices
	FA7	The level of financial benefit associated with adopting sustainable financial practices
	FA8	The level of social benefit associated with adopting sustainable financial practices
	FA9	The level of environmental benefit associated with adopting sustainable financial practices
	FA10	The level of personal financial responsibility for promoting sustainable financial practices

After data processing through CFA and SEM, variables that did not yield significant results were removed from each factor, as shown in the following tables:

Table 1

CFA and SEM for Financial Literacy (the FWI Model on a Circular Economy and Climate Finance)

Regression Weights							Standardized Regression Weights				Interpretation
Path	Item	Nexus		Estimate	S.E.	C.R.	P	Estimate			
Financial Education Needs (FEN)	FEN2	<---	FEN	1.000				FEN2	<---	FEN	0.697	Supported? Yes Why? p≤0.001
	FEN4	<---	FEN	1.139	0.102	11.203	***	FEN4	<---	FEN	0.669	
	FEN7	<---	FEN	1.222	0.113	10.812	***	FEN7	<---	FEN	0.745	
	FEN10	<---	FEN	1.200	0.119	10.086	***	FEN10	<---	FEN	0.728	
Financial Etiquette (FE)	FE1	<---	FE	1.000				FE1	<---	FE	0.694	Supported? Yes Why? p≤0.001
	FE3	<---	FE	1.025	0.084	12.158	***	FE3	<---	FE	0.719	
	FE7	<---	FE	1.304	0.132	9.875	***	FE7	<---	FE	0.698	
Financial Attitude (FA)	FA3	<---	FA	1.000				FA3	<---	FA	0.720	Supported? Yes Why? p≤0.001
	FA4	<---	FA	1.165	0.102	11.399	***	FA4	<---	FA	0.808	
	FA5	<---	FA	1.085	0.101	10.788	***	FA5	<---	FA	0.745	
Correlations											
	FEN	<-->	FE	1.004							
	FEN	<-->	FA	0.755							
	FE	<-->	FA	0.787							

Source: Table prepared by the authors. Notable symbols: ***p<0.001 indicates statistical significance.

Table 1 presents the results of the CFA and SEM for financial literacy concerning the unobserved variables FEN (Financial Education Needs), FE (Financial Etiquette), and FA (Financial Attitude) with their respective financial items (FEN2, FEN4, FEN7, and FEN10), (FE1, FE3, and FE7), and (FA3, FA4, and FA5). The effect of FEN on the variables (FEN2, FEN4, FEN7, and FEN10) is significant. Similarly, for FE, it is emphasized that its effect on the variables (FE1, FE3, and FE7) is significant, as well as for FA, and its effect on the variables (FA3, FA4, and FA5) is significant as well. Standardized Regression Weights indicate that the three factors (FEN, FE, and FA) have a significant effect, as their values are greater than 0.5. FEN7 (Willingness to make changes to personal financial practices to support sustainability goals) has the greatest impact on FEN, further FE3 (How confident are you in your ability to balance your financial responsibilities with your environmental and social values) has the highest impact on FE, and FA4 (Frequency of engaging in sustainable financial practices, e.g., investing in renewable energy, purchasing eco-friendly products, reducing energy consumption) has the highest impact on FA. According to

Hair et al. (2003), in the correlation analysis, it is emphasized that FEN has a very strong correlation with FE (r=1.004). The factor FEN has a high correlation with FA (r=0.755), and FE has a high correlation with FA (r=0.787).
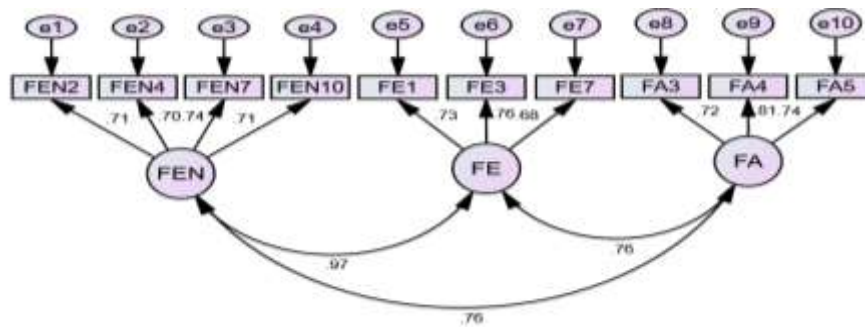

Figure 2. CFA and SEM for Financial Literacy (the FWI model in a circular economy and climate finance)

Figure 2 illustrates the relationship between the factors (FEN, FE, and FA) of financial literacy in a circular economy and climate finance with their subfactors (FEN2, FEN4, FEN7, and FEN10), (FE1, FE3, and FE7), and (FA3, FA4, and FA5), highlighting a strong correlation between the factor of financial education needs (FEN) and the factor of financial etiquette (FE) with a correlation coefficient of (r=0.97). The factor of financial etiquette (FE) and the factor of financial attitudes (FA) also have a high correlation coefficient of (r=0.76), and the factor of financial education needs (FEN) exhibits a high correlation with the factor of financial attitudes (FA) with a correlation coefficient of (r=0.76).

Table 2

Model Fit for Financial Literacy (the FWI Model on a Circular Economy and Climate Finance)

Model Fit Summary													
CMIN							RMR, GFI		**Measure**	**Estimate**	**Threshold**	**Interpretation**
Model	NPAR	CMIN	DF	P	CMIN/DF	RMR	GFI	AGFI	PGFI	CMIN	79.332	--	--
Default model	23	79.332	32	.000	2.479	.032	.947	.909	.551	DF	32	--	--
										CMIN/DF	2.479	Between 1 and 3	Excellent
Baseline Comparisons										CFI	0.961	>0.95	Excellent
Model	NFI Delta 1	RFI rho1	IFI Delta 2	TLI rho 2	CFI	RMSEA	LO 90	HI 90	PCLOSE	SRMR	0.043	<0.08	Excellent
										RMSEA	0.074	<0.06	Acceptable
Default model	.937	.911	.961	.945	.961	.074	.054	.095	.027	PClose	0.027	>0.05	Acceptable

Source: Table prepared by the authors. Notable symbols: PClose>0.05, CFI>0.95

Table 2 presents the Fit model results for financial literacy in a circular economy and climate finance. According to CMIN/DF (p=2.479≈2.5), it is emphasized that there is a good fit of the model (FWI) data, which is also confirmed by Kline (1998), who states that if the CMIN/DF value is ≤ 3, then the data have acceptable fit, while according to Marsh & Hocevar (1985), if the value is ≤ 5, then the data have reasonable fit. According to the RMR test (p=0.032≈0.3), GFI (p=0.947≈95%), AGFI (p=0.909≈91), NFI (p=0.937≈94), RFI (p=0.911≈91%), IFI (p=0.961≈96), TLI (p=0.945≈95%), CFI (0.961≥0.95), RMSEA (0.074≤0.05), and PCLOSE (p=0.027), it is highlighted that there is a perfect fit. The PGFI test (p=0.551) and (LO 90=0.054 and HI 90=0.095) indicate the degrees of freedom and the confidence interval for the lower and upper bounds of the WFI model.

Table 3

Standardized Direct, Indirect and Total Effects - Two Tailed Significance for Financial Literacy (the FWI Model in a Circular Economy and Climate Finance)

	Standardized Direct Effects - Two Tailed Significance			**Standardized Indirect Effects - Two Tailed Significance**			**Standardized Total Effects - Two Tailed Significance**		
	FE	FEN	FA	FE	FEN	FA	FE	FEN	FA
FEN	0.016	...	...	...	...	...	0.016	...	...
FA	0.582	0.459	...	0.459	...	...	0.009	0.459	...
FA5	...	...	0.005	0.014	0.474	...	0.014	0.474	0.005
FA4	...	...	0.009	0.014	0.474	...	0.014	0.474	0.009
FA3	...	...	...	0.009	0.459	...	0.009	0.459	...
FE1	0.011	...	...	...	...	...	0.011	...	...
FE3	0.019	...	...	...	...	...	0.019	...	...

Standardized Direct Effects - Two Tailed Significance			Standardized Indirect Effects - Two Tailed Significance			Standardized Total Effects - Two Tailed Significance		
FE7	...	...	...	...	...	...	...	...	...
FEN10	...	0.005	...	0.016	...	...	0.016	0.005	...
FEN7	...	0.003	...	0.016	...	...	0.016	0.003	...
FEN4	...	0.003	...	0.009	...	...	0.009	0.003	...
FEN2	...	...	...	0.016	...	...	0.016	...	...

Source: Table prepared by the authors.

Table 3 presents the significant effects of financial literacy factors (FEN, FE, and FA) at a confidence level of 0.05. The analysis reveals that the Standardized Direct Effect of (FE) on (FEN) is statistically significant at the 0.05 level (p=0.016), while it is not significant on (FA) (p=0.582). Furthermore, the Standardized Direct Effect of the (FE) factor on its respective variables (FE1 and FE3) is found to be significant. On the other hand, the Standardized Effect of the (FEN) factor does not exhibit statistical significance on financial attitudes (p=0.459); nevertheless, it demonstrates a positive effect on its own variables (FEN10, FEN7, and FEN4). Similarly, the Standardized Direct Effect of the (FA) factor shows a positive effect on its own variables (FA5 and FA4). Moving on to the Standardized Indirect Effect of the (FE) factor, it is not statistically significant on (FA), but it does exhibit significance on the variables associated with (FE), which indirectly impact (FA5, FA4, and FA3). Additionally, the variables (FEN10, FEN7, FEN4, and FEN2) demonstrate a positive indirect impact on (FE). Conversely, the Standardized Indirect Effect of (FEN) is not significant on the variables of (FA) at the specified values (FA5, FA4, and FA3).

Examining the Total Effect, it is observed that the (FE) factor has a significant effect on both the (FEN) factor (p=0.016) and the (FA) factor (p=0.009). Furthermore, it exerts a notable influence on (FA5, FA4, and FA3), its own variables (FE1, FE3), as well as variables related to (FEN10, FEN7, FEN4, and FEN2). However, the Total Standardized Effect (direct and indirect) of (FEN) does not demonstrate a significant impact on (FA) and the associated variables (FA5, FA4, and FA3). Nonetheless, it does exert a significant influence on its own variables (FEN10, FEN7, FEN4, and FEN2). Lastly, the Total Standardized Effect of the (FA) factor is significant on its own variables (FA5 and FA4).

Confirmatory Factor Analysis and SEM for Financial Wellbeing (the FWI Model on a Circular Economy and Climate Finance)

The latent construct for financial well-being in a circular economy and climate finance comprises three factors: FR, FB, and FS. These factors encompass five variables that have been examined by considering respondents' perceptions and opinions, utilizing a Likert scale with values ranging from 1 to 5. The table below provides an overview of these variables:

Construct/ Variable	Item Code	Item Scale
		Financial Wellbeing
	FR1	The level of financial preparedness for unexpected expenses related to the circular economy and climate finance (e.g. home repairs due to environmental damage, higher energy costs due to carbon taxes)
Financial Resilience (FR)	FR2	The level of financial resources required to achieve financial resilience (e.g. savings, investments)
	FR3	The level of financial resources currently possessed
	FR4	The level of financial stability required to achieve financial resilience
	FR5	The level of financial preparedness for long-term expenses related to the circular economy and climate finance (e.g. investments in renewable energy, retrofitting homes for energy efficiency)
	FB1	I have a clear understanding of the financial benefits of achieving financial balance in the context of the circular economy and climate finance
Financial Balance (FB)	FB2	I feel confident in my ability to make informed financial decisions in the context of the circular economy and climate finance
	FB3	I feel confident in my ability to achieve financial balance in the context of the circular economy and climate finance
	FB4	I feel motivated to pursue greater financial balance in the context of the circular economy and climate finance
	FB5	I feel satisfied with my household's current level of financial balance in the context of the circular economy and climate finance
	FS1	I feel confident in my ability to reduce my household's carbon footprint while maintaining financial stability
Financial Situation (FS)	FS2	I feel confident in my ability to take advantage of financial incentives related to the circular economy and climate finance
	FS3	I feel satisfied with my household's current level of financial stability in the context of the circular economy and climate finance
	FS4	I feel that my household's financial situation is negatively affected by the current state of the environment
	FS5	I feel that my household's financial situation is improving in the context of the circular economy and climate finance

Following the data processing through confirmatory factor analysis (CFA) and SEM, non-performing variables were removed from each factor, resulting in the elaborated tables below:

Table 4

CFA and SEM for Financial Wellbeing (the FWI Model in a Circular Economy and Climate Finance)

Variable	Item	Nexus		Estimate	S.E.	C.R.	P	Standardized Regression Weights				Interpretation
								Estimate				
Financial Resilience	FR3	<---	FR	1.000				FR3	<---	FR	0.728	Supported? Yes Why? p≤0.001
	FR2	<---	FR	1.068	0.083	12.820	***	FR2	<---	FR	0.774	
	FR1	<---	FR	1.120	0.083	13.426	***	FR1	<---	FR	0.834	
Financial Balance	FS3	<---	FS	1.000				FB3	<---	FB	0.664	Supported? Yes Why? p≤0.001
	FS2	<---	FS	0.991	0.071	13.920	***	FB2	<---	FB	0.802	
	FS1	<---	FS	0.991	0.069	14.267	***	FB1	<---	FB	0.861	
Financial Situation	FB3	<---	FB	1.000				FS3	<---	FS	0.756	Supported? Yes Why? p≤0.001
	FB2	<---	FB	1.328	0.122	10.906	***	FS2	<---	FS	0.800	
	FB1	<---	FB	1.014	0.099	10.207	***	FS1	<---	FS	0.828	
Correlations												
		FR	<-->	FS	0 .720							
		FR	<-->	FB	0-.475							
		FS	<-->	FB	-0.497							

Source: Table prepared by the authors. Notable symbols: ***p<0.001 indicates statistical significance.

Table 4 presents the findings of the confirmatory factor analysis conducted for assessing financial wellbeing within the FWI model in a circular economy and climate finance. The analysis includes three unobserved variables: Financial Resilience (FR), Financial Balance (FB), and Financial Situation (FS). Each variable is associated with specific items: FR1, FR2, FR3, FB1, FB2, FB3, FS1, FS2, and FS3. The results of the analysis highlight the significant impact of FR on its respective variables (FR1, FR2, and FR3). Similarly, FB shows a significant effect on its corresponding variables (FB1, FB2, and FB3), and FS demonstrates a significant influence on its associated variables (FS1, FS2, and FS3). The Standardized Regression Weights reveal that all three factors (FR, FB, and FS) hold substantial influence, as their values surpass 0.5. Within the FR factor, the most influential item is FR1, which assesses the level of financial preparedness for unexpected expenses related to the circular economy and climate finance. For FB, the primary driver is FB1, which captures a clear understanding of the financial benefits associated with achieving financial balance in the context of the circular economy and climate finance. Similarly, FS1 plays a pivotal role within the FS factor, reflecting the confidence individuals have in their ability to reduce their household's carbon footprint while maintaining financial stability. The correlation analysis reveals significant relationships among the factors. FR exhibits a strong positive correlation with FS (r=0.720), while a negative correlation is observed between FR and FB (r=0.475), as well as between FS and FB (r=-0.497).
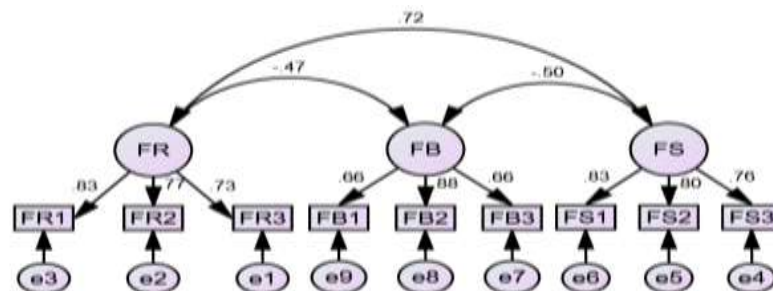

Figure 3. CFA for Financial Wellbeing (the FWI Model in a Circular Economy and Climate Finance

Figure 3 illustrates the relationship between the factors (FR, FB, and FS) of financial wellbeing in a circular economy and climate finance, along with their respective sub-factors (FR1, FR2, and FR3), (FB1, FB2, and FB3), and (FS1, FS2, and FS3). The figure emphasizes a strong association between the Financial Resilience (FR) factor and the Financial Situation (FS) factor, with a correlation coefficient of 0.72. Additionally, the Financial Resilience (FR) factor exhibits a negative correlation with the Financial Balance (FB) factor, with a coefficient of -0.47. Similarly, the Financial Balance (FB) factor shows a negative correlation with the Financial Situation (FS) factor. It underscores that a lack of financial balance hinders financial resilience, thereby exacerbating the financial situation in a circular economy and climate finance context.

Table 5

Model Fit for Financial Wellbeing (the FWI Model in a Circular Economy and Climate Finance)

Model Fit Summary												
CMIN								RMR, GFI	**Measure**	**Estimate**	**Threshold**	**Interpretation**
Model	NPAR	CMIN	DF	P	CMIN/DF	RMR	GFI	AGFI	PGFI	CMIN	37.756	--	--
Default model	21	37.756	24	.037	1.573	.042	.976	.955	.521	DF	24	--	--
										CMIN/DF	1.573	Between 1 and 3	Excellent
Baseline Comparisons										CFI	0.977	>0.95	Excellent
Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI	RMSEA	LO 90	HI 90	PCLOSE	SRMR	0.037	<0.08	Excellent
										RMSEA	0.041	<0.06	Excellent
Default model	.971	.957	.989	.984	.989	.041	.011	.065	.696	PClose	0.696	>0.05	Excellent

Source: Table prepared by the authors. Notable symbols: PClose>0.05, CFI>0.95

Table 5 presents the results of the Fit model for financial wellbeing in a circular economy and climate finance. The conducted tests yielded the following values: CMIN/DF (p=1.573≈1.6), RMR (p=0.042≈0.4), GFI (p=0.976≈98%), AGFI (p=0.955≈96), NFI (p=0.971≈97), RFI (p=0.957≈96%), IFI (p=0.989≈99), TLI (p=.984≈98%), CFI (0.989≥0.95), and RMSEA (0.041≤0.05). These values indicate a perfect fit. Additionally, the PGFI test (p=0.521) and the LO 90 (0.011) and HI 90 (0.065) tests provide information on degrees of freedom and confidence intervals for the lower and upper limits of the WFI model.

Table 6

Standardized Direct, Indirect and Total Effects - Two Tailed Significance for Financial Wellbeing (the FWI Model in a Circular Economy and Climate Finance)

	Standardized Direct Effects - Two Tailed Significance			Standardized Indirect Effects - Two Tailed Significance			Standardized Total Effects - Two Tailed Significance		
	FR	FB	FS	FR	FB	FS	FR	FB	FS
FB	0.021	...	...	...	...	...	0.021	...	...
FS	0.009	0.031	...	0.025	...	...	0.025	0.031	...
FB1	...	0.011	...	0.014	...	...	0.014	0.011	...
FB2	...	0.009	...	0.025	...	...	0.025	0.009	...
FB3	...	0.013	...	0.019	...	...	0.019	0.013	...
FS1	...	...	0.030	0.021	0.037	...	0.021	0.037	0.030
FS2	...	...	0.016	0.032	0.042	...	0.032	0.042	0.016
FS3	...	...	0.009	0.016	0.035	...	0.016	0.035	0.009
FR1	0.009	...	...	...	...	...	0.009	...	...
FR2	0.021	...	...	...	...	...	0.021	...	...
FR3	0.007	...	...	...	...	...	0.007	...	...

Source: Table prepared by the authors.

Table 6 presents the significant effects of the financial wellbeing factors (FR, FB, and FS) at a confidence level of 0.05. The Standardized Direct Effect of FR on FB is found to be significant at the 0.05 level (p=0.021), and on FS it is also significant (p=0.009). Furthermore, FR has a direct effect on FR1, FR2, and FR3. The factor FB has a direct effect on FS (Sig.=0.031), as well as on its variables (FB1, FB2, and FB3). Similarly, the factor FS has a direct effect on its variables (FS1, FS2, and FS3). FR exhibits an indirect effect on FS (p=0.025), as well as on the variables of the financial balance factor (FB1, FB2, and FB3), and the variables of the financial situation factor (FS1, FS2, and FS3). In terms of the Total Effect, FR shows significance with FB at a value of (p=0.021), and with FS at a value of (p=0.025). Moreover, it has a total effect on the variables of

the financial balance factor (FB1, FB2, and FB3), the variables of the financial situation factor (FS1, FS2, and FS3), as well as its own variables (FR1, FR2, and FR3).

Confirmatory Factorial Analysis and SEM for Socioeconomic Environment (the WFI Model in a Circular Economy and Climate Finance)

The latent construct for the socio-economic environment in a circular economy and climate finance, three factors (SV, HO, and QL) were incorporated, encompassing a range of variables that were examined based on respondents' perceptions and opinions. The variables were assessed using a Likert scale ranging from 1 to 5, and the results are presented in the table below:

Construct/ Variable	Item Code	Item Scale
		Socioeconomic Environment
Savings SV	SV1	I am able to save money while maintaining environmentally sustainable practices
	SV2	I feel that investing in renewable energy is a good use of my household's savings
	SV3	I feel motivated to save money in order to invest in environmentally sustainable practices
	SV4	I feel that my household's savings are negatively affected by the current state of the environment
	SV5	I feel that my household's savings would benefit from greater investment in circular economy practices and climate finance
House Ownership HO	HO1	Owning a home is an important part of your financial security that climate finance can help you achieve that goal
	HO2	Owning a home is an important way to invest in environmentally sustainable practices
	HO3	Owning a home is an important part of my contribution to the circular economy and climate finance initiatives
	HO4	I feel that my home is aligned with my values and goals related to the environment
	HO5	I feel that my home is aligned with my values and goals related to the environment
Quality of Life QL	QL1	I feel that living in a sustainable way is an important part of my quality of life
	QL2	I feel that my quality of life is improved by having access to environmentally sustainable products and services
	QL3	I feel that my financial well-being is improved by investing in circular economy practices and climate finance
	QL4	I feel that my mental health and physical health is improved by living in an environmentally responsible way
	QL5	I feel that my quality of life is improved by having access to circular economy practices

After conducting CFA and SEM analyses for each factor, variables that did not produce conclusive results were excluded, as shown in the tables below:

Table 6

CFA and SEM for Socioeconomic Environment (the FWI Model in a Circular Economy and Climate Finance)

Variable	**Regression Weights**							**Standardized Regression Weights**				**Interpretation**
	Item		Nexus	Estimate	S.E.	C.R.	P	Estimate				
Savings (SV)	SV1	<---	SV	1.000				SV1	<---	SV	0.707	Supported? Yes Why? p≤0.001
	SV2	<---	SV	0.986	0.091	10.892	***	SV2	<---	SV	0.817	
	SV3	<---	SV	0.791	0.079	9.961	***	SV3	<---	SV	0.704	
House Ownership (HO)	HO1	<---	HO	1.000				HO1	<---	HO	0.657	Supported? Yes Why? p≤0.001
	HO3	<---	HO	1.424	0.158	9.025	***	HO3	<---	HO	0.710	
Quality of Life (QL)	QL1	<---	QL	1.000				QL1	<---	QL	0.884	Supported? Yes Why? p≤0.001
	QL2	<---	QL	0.933	0.059	15.897	***	QL2	<---	QL	0.820	
	QL3	<---	QL	0.827	0.067	12.392	***	QL3	<---	QL	0.683	
							Correlations					
			SV	<-->	HO	0.678						
			SV	<-->	QL	0.720						
			HO	<-->	QL	0.881						

*Source: Table prepared by the authors. Notable symbols: ***p<0.001 indicates statistical significance.*

Table 6 presents the results of confirmatory factor analysis conducted for the Socioeconomic Environment in the FWI model within a circular economy and climate finance. It provides an overview of the unobserved variables SV (Savings), HO (Home Ownership), and QL (Quality of Life), along with their respective items (SV1, SV2, and SV3), (HO1 and HO3), and (QL1, QL2, and QL3). The analysis reveals significant effects of SV on its variables (SV1, SV2, and SV3), HO on its variables (HO1 and HO3), and QL on its variables (QL1, QL2, and QL3). Furthermore, standardized regression weights demonstrate that all three factors (SV, HO, and QL) exert a significant influence, as their values exceed the threshold of 0.5. Notably, SV2 (I feel that investing in renewable energy is a good use of my household's savings) has the strongest impact within the SV factor, HO3 (Owning a home is an important part of your financial security that climate finance can help you achieve that goal) has the greatest influence within the HO factor, and QL1 (I feel that living in a sustainable way is an important part of my quality of life) exhibits the highest impact within the QL factor. In terms of correlation, a strong relationship is observed between the HO and QL factors (r=0.881), indicating their interdependence. Additionally, a high correlation is found between the SV and QL factors (r=0.720), while a moderate correlation exists between the SV and HO factors (r=0.678).
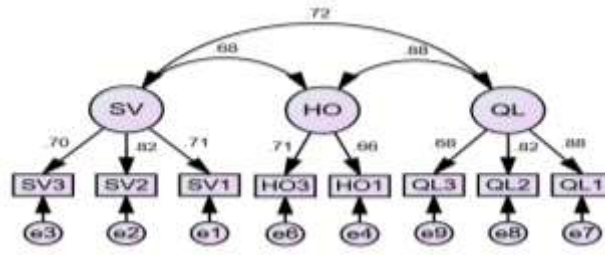
Figure 4. CFA for Socioeconomic Environment (FWI model on a circular economy and climate finance)

Figure 4 depicts the relationship between the factors (SV, HO, and QL) of the Socioeconomic Environment within a circular economy and climate finance, along with their corresponding sub factors (SV1, SV2, and SV3), (HO1, and HO3), and (QL1, QL2, and QL3). It highlights a strong correlation between the home ownership factor (HO) and the quality of life factor (QL) with a correlation coefficient of (r=0.88). The savings factor (SV) demonstrates a high correlation with the quality of life factor

(QL) with a correlation coefficient of (r=0.72). Additionally, the savings factor (SV) exhibits a correlation with the home ownership factor (HO) with a correlation coefficient of (r=0.68). These findings emphasize that savings play a crucial role in enabling individuals and families to achieve homeownership and a higher quality of life within the context of a circular economy and climate finance.

Table 7

Model Fit for Socioeconomic Environment (the FWI Model on a Circular Economy and Climate Finance)

Model Fit Summary												
CMIN							RMR, GFI		**Measure**	**Estimate**	**Threshold**	**Interpretation**
Model	NPAR	CMIN	DF	P	CMIN/DF	RMR	GFI	AGFI	PGFI	CMIN	15.975	--	--
Default model	22	15.975	14	.315	1.141	.015	.986	.963	.383	DF	14	--	--
										CMIN/DF	1.141	Between 1 and 3	Excellent
Baseline Comparisons										CFI	0.977	>0.95	Excellent
Model	NFID elta1	RF Irho1	IFID elta2	TLI rho2	CFI	RMSEA	LO 90	HI 90	PCLOSE	SRMR	0.025	<0.08	Excellent
Default model	.984	.967	.998	.996	.998	.023	.000	.065	.821	RMSEA	0.023	<0.06	Excellent
										PClose	0.821	>0.05	Excellent

Source: Table prepared by the authors. Notable symbols: PClose>0.05, CFI>0.95

Table 7 presents the results of the Fit for Socioeconomic Environment model in the context of a circular economy and climate finance. The tests indicate that the model demonstrates a perfect fit, as evidenced by the following values: CMIN/DF (p=1.141≈1.1), RMR (p=0.015≈0.2), GFI (p=0.986≈99%), AGFI (p=0.963≈96), NFI

(p=.984≈98), RFI (p=0.967≈97%), IFI (p=0.998≈100), TLI (p=0.996≈100%), CFI (0.998≥0.95), and RMSEA (0.023≤0.05). Furthermore, the PGFI test (p=0.383) and the (LO 90=0.000 and HI 90=0.065) values provide information about the degrees of freedom and the confidence interval for the lower and upper boundaries of the WFI model.

Table 8

Standardized Direct, Indirect and Total Effects-Two Tailed Significance for Socioeconomic Environment (the FWI Model in a Circular Economy and Climate Finance)

	Standardized Direct Effects - Two Tailed Significance			Standardized Indirect Effects - Two Tailed Significance			Standardized Total Effects - Two Tailed Significance		
	SV	QL	HO	SV	QL	HO	SV	QL	HO
QL	0.006	...	...	...	...	...	0.006	...	...
HO	0.499	0.013	...	0.015	...	...	0.007	0.013	...
HO3	...	...	0.012	0.009	0.019	...	0.009	0.019	0.012
HO1	...	...	...	0.007	0.013	...	0.007	0.013	...
SV1	0.016	...	...	...	...	...	0.016	...	...
SV2	0.009	...	...	...	...	...	0.009	...	...
SV3	...	...	...	...	...	...	...	...	...
QL3	...	0.009	...	0.006	...	...	0.006	0.009	...
QL2	...	0.013	...	0.007	...	...	0.007	0.013	...
QL1	...	...	...	0.006	...	...	0.006	...	...

Source: Table prepared by the authors.

Table 8 presents the significance effects of the Socioeconomic Environment factors (SV, HO, and QL) at a confidence level of 0.05. The direct standardized effect of (SV) on (QL) is found to be statistically significant at the 0.05 level (p=0.006), but not significant with (HO) at 0.05 (p=0.499). However, it demonstrates significance with its own variables (SV1, and SV2). The factor (QL) exhibits significance with (QL) at the (p=0.013) level, as well as with its own variables (QL3, QL2, and QL1). The factor (HO) is significant with one of its own variables (HO3). Regarding the indirect standardized effects of all three factors, the following observations are made: the factor (SV) shows significance with (HO) at the (p=0.015) level, specifically in the variables of the homeownership factor (HO3, and HO1). It also demonstrates significance with the quality of life factor variables (QL3, QL2, and QL1). The factor (QL) is significant with the homeownership factor variables (HO1, and HO3), whereas the factor (HO) does not display significance with any factors or variables in an indirect manner. Regarding the total standardized effect of all three factors, the following findings emerge: the factor (SV) is significant with the (QL) factor at the (p=0.006) level and with the (HO) factor at the (p=0.007) level. It also exhibits significance with all variables of the three factors (SV, QL,

and HO). In terms of the factor (QL), it is significant with the (SV) and (HO) factors at the (p=0.013) level, as well as with all variables of the factors (QL and HO). On the other hand, the factor (HO) is only significant in total with the variable (HO3).

Verification of Hypotheses through SEM Mediation Analysis

In accordance with the aforementioned, the study was examined across three sections: Financial Literacy (FEN, FE, and FA), Financial Wellbeing (FR, FB, and FS), and Socioeconomic Environment (SV, HO, and QL). Three hypotheses were formulated:

Hypothesis 1: *Financial literacy has a positive effect on financial wellbeing in a circular economy and climate finance.*

Hypothesis 2: *Financial wellbeing mediates the relationship between financial literacy and socioeconomic environment in a circular economy and climate finance.*

Hypothesis 3: *Financial literacy has a positive effect on socioeconomic environment in a circular economy and climate finance*

Table 9

SEM Mediation Analysis (the FWI Model in a Circular Economy and Climate Finance)

Construct	Path	Construct	Estimate	S.E.	C.R.	P	Results
Financial_Wellbeing	<---	Financial_Literacy	0.584	0.052	11.185	***	Significant
Socio_Economic_Environment	<---	Financial_Wellbeing	0.397	0.056	7.124	***	Significant
Socio_Economic_Environment	<---	Financial_Literacy	0.372	0.058	6.432	***	Significant

*Source: Table prepared by the authors. Notable symbols: ***p<0.001 indicates statistical significance*

Table 9 presents the SEM Mediation Analysis for three constructs with their respective factors and variables in a circular economy and climate finance context: Financial Literacy (FEN, FE, and FA), Financial Wellbeing (FR, FB, and FS), and Socioeconomic Environment (SC, HO, and QL). Financial literacy has a significant positive effect on

financial wellbeing (p=0.000). Financial wellbeing is significantly associated with socioeconomic environment and mediates the relationship between financial literacy and socioeconomic environment (p=0.000). Additionally, financial literacy has a positive effect on socioeconomic environment (p=0.000).

Table 10

SEM Mediation Analysis-Two Tailed Significance (the FWI Model in a Circular Economy and Climate Finance)

	Standardized Direct Effects - Two Tailed Significance		Standardized Indirect Effects - Two Tailed Significance		Standardized Total Effects - Two Tailed Significance		Conclusion
Relationship	Financial_Literacy	Financial Wellbeing	Financial_Literacy	Financial Wellbeing	Financial_Literacy	Financial Wellbeing	The type of meditation is partial meditation because the directs and indirect effects are significant
Financial Wellbeing	0.010***	...		...	0.010***	...	
Socio_Economic_Environment	0.010***	0.010***	0.010***	...	0.010***	0.010***	

*Source: Table prepared by the authors. Notable symbols:***p<0.001 indicates statistical significance*

Table 10 presents the SEM Mediation Analysis with Two-Tailed Significance for three constructs along with their respective factors and variables: Financial Literacy (FEN, FE, and FA), Financial Wellbeing (FR, FB, and FS), and Socioeconomic Environment (SV, HO, and QL). For all

three factors, it is noteworthy that the hypotheses are found to be statistically significant, indicating a significant relationship between the factors and their interconnections (p=0.000).
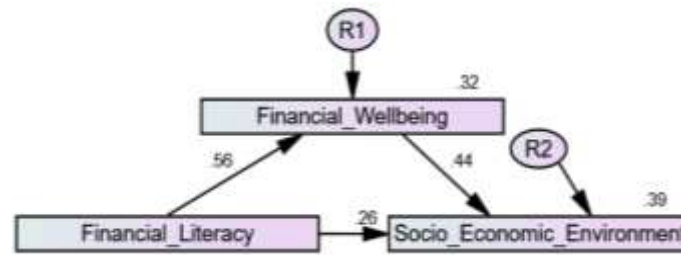
Figure 5. Results of SEM Mediation Analysis in a Circular Economy and Climate Finance (the WFI model)

Figure 5 presents the verification of the conceptual model developed in the hypothesis development and methodology through SEM Mediation Analysis, focusing on the examination of the direct effect of financial literacy on the socioeconomic environment. The results highlight that financial literacy has a significant direct effect on the socioeconomic environment (r=0.26). Additionally, the analysis explores the indirect effect of financial literacy on the socioeconomic environment through financial well-being, indicating that financial literacy indirectly influences the socioeconomic environment through its impact on financial well-being. Moreover, the study examines the direct effects of financial literacy on financial well-being and the direct effects of financial well-being on the socioeconomic environment. Notably, it is observed that financial literacy has a significant and positive direct influence on financial well-being (r=0.56), and financial well-being, in turn, has a significant and positive direct influence on the socioeconomic environment (r=0.44).

Discussion

Money Matters: the role of Financial Literacy in Building a Sustainable Future in a Circular Economy and Climate Finance

Financial literacy plays a crucial role in guiding the transition towards a sustainable future in a circular economy and climate financing. Based on (Lugo *et al.,* 2023), further research (Cimen, 2021) is needed to enhance financial knowledge for financial well-being. (Lee & Perdan, 2023) emphasizes the importance of financial education for raising awareness about sustainability, financial inclusion, and the role of social capital (Bridgland & Whitehead, 2005) in achieving financial well-being in a socio-economic environment. (Chien *et al.*, 2023) highlights the need for studies on technological innovations, for family economies' well-being (Zahid *et al.,* 2019). Sustainable financial practices focusing on investments, assessments, and standards (Begeman *et al.,* 2023), (Quatrini, 2021 are emphasized in relation to FE1, considering political polarizations surrounding sustainable finance and climate policy (Fuest & Meier, 2023. In countries with financial knowledge inequalities, promoting financial inclusion and diversity is crucial for attaining financial well-being (Jawad & Naz, 2023). According to the findings of this study, in CFA and SEM analyses, it's clear that financial etiquette (FE) significantly effects financial literacy (FEN), but FEN does not effect financial attitude (FA), and FE does not effect FA. However, all three factors are related to their respective variables and fit the data well. FE directly effects

FEN, financial attitude and financial literacy. It also directly effects FA and indirectly effects financial attitude (FA), especially in relation to the need for financial education. FEN directly effects FA and its own variables. Moreover, FA effects only its own variables and not the other factors. The hypothesis confirms that FE positively effects FEN (r=0.77), FEN positively effects FA (r=0.47), and FE indirectly effects FA (r=0.37). This suggests that individuals with good financial behavior may not always need financial education, but their financial attitudes play a crucial role in promoting a sustainable future in circular economy and climate finance.

Money Talks: the Intersection of Financial Wellbeing, Financial Literacy, and Socioeconomic Environment in a Sustainable Future

In this section, we explore the intricate convergence of financial well-being, financial literacy, and the socio-economic environment, with a primary objective of establishing a sustainable future (Kozak *et al.,* 2022). Research by (Bao *et al.,* 2022), (Zheng *et al.,* 2023) underscores the positive impact of mental accounting, social conformity, and monetary compensation on the allocation of family assets, while noting the varying influences of the financial market and social insurance. Based on this study, financial well-being, financial literacy, and the socio-economic environment are key factors in shaping a sustainable future. Through CFA and SEM analyses, it's clear that financial resilience, balance and situation positively effects unobserved variables (FR, FB and FS). The SEM analysis shows that financial resilience has a significant impact on financial balance, and financial balance has a significant impact on financial situation. All three factors have significant relationships with their respective variables, and the model fits the data well. Financial resilience directly and significantly affects financial balance, has both direct and indirect effects on financial situation, and has overall effects on financial balance variables. Financial balance directly affects financial situation and has a total effect on its own variables. Financial resilience only has a total and direct effect on its own variables, and has an indirect negative effect on financial resilience. The hypothesis is confirmed that financial resilience has a negative effect on financial balance (r=-0.47), financial balance has a negative effect on financial situation (r=-0.20), and financial resilience has a positive indirect effect on financial situation (r=0.62). In conclusion, individuals with higher financial well-being, stability and security are better equipped to use their financial literacy skills in the context of circular economy

and climate finance. On the other hand, individuals with lower financial well-being may have difficulty applying their financial literacy skills in these areas.

Breaking the Cycle: The Power of Financial Literacy for a Sustainable Socioeconomic Environment in a Circular Economy and Climate Finance

The critical importance of financial education as a catalyst for transformative actions and the advancement of sustainable socio-economic development within the context of a circular economy and climate finance as emphasized by (Wei *et al.,* 2023), climate change poses a significant challenge for humanity in the future, affecting carbon taxes on household incomes (Goulder *et al.,* 2019), and encouraging investments in renewable energy systems to influence savings, homeownership, and the overall quality of life for households (Ghaith & Epplin, 2017) with regard to sustainability aspects (Belis *et al.,* 2017). According to Lulaj et al. (2021), the lack of financial behavior to save for emergencies underscores the importance of financial education. The findings in this section show that financial education can positively effect the socio-economic environment in circular economy and climate finance. Using CFA and SEM analyses, it's clear that savings (SV), home ownership (HO), and quality of life (QL) are very crucial. The SEM analysis shows that SV significantly effects QL, furthermore QL significantly effects HO, but SV doesn't directly effect HO. All three factors have significant relationships with their variables, and the model fits the data well. SV has a direct effect on QL, a direct and indirect effect on HO, and an indirect effect on HO and QL. QL has a direct effect on HO and an indirect effect on HO. Moreover HO has a direct effect only on its own variables. The hypothesis is confirmed that SV has a positive effect on QL (r = 0.72), QL has a positive effect on HO (r = 0.82), and SV has an indirect effect on HO (r = 0.09). This means that savings can improve the quality of life, with homeownership playing a role. Lack of savings can affect homeownership in circular economy and climate finance.

Conclusions and Future Studies

The study explored the role of financial literacy in promoting financial well-being within the context of a circular economy and climate finance. The Financial Wellbeing Index (FWI) model was introduced, integrating financial literacy metrics with principles of climate finance and the circular economy. This model aimed to deepen understanding of the relationships among financial literacy, financial well-being, and the socioeconomic environment. The research focused on how financial literacy metrics

could be integrated into the FWI model, the impacts of climate finance on financial well-being, and how the circular economy influenced financial decision-making.

Implications and Significance

The findings underscored the crucial role of financial literacy in fostering a sustainable future. Enhanced financial knowledge proved essential for improving financial well-being and raising awareness about sustainability and financial inclusion. This had significant practical applications, particularly in technological innovations, green energy, and sustainable technologies, all vital for the well-being of family economies. The importance of sustainable financial practices, including investments and assessments, was highlighted, especially amid political polarizations.

Academic Implications

For the academic community, this study addressed a critical gap in the literature by linking financial literacy with climate finance and the circular economy. The originality of this study lay in the introduction of the FWI model, a framework not previously explored. This model could serve as a key tool for future research, enabling a deeper understanding of how financial literacy impacted sustainable financial well-being.

Limitations and Future Research

The scope was limited to a specific socioeconomic environment, which may affect the generalizability of the results. Another limitation may be only one country included or a considerable number of variables. Future studies can explore the effectiveness of financial education interventions, evaluate the impact of financial literacy on specific sustainable practices, and examine the relationship between financial education, climate policy, and income distribution. Furthermore, future studies should investigate the effectiveness of different models of financial education in promoting sustainable financial practices in the circular economy and climate financing.

In conclusion, financial literacy was fundamental for a sustainable future in a circular economy and climate financing. This research emphasized the importance of financial education in empowering individuals and communities to make informed financial decisions that drive positive change. By addressing the significant need for financial education amidst the socioeconomic challenges posed by climate change and the transition to a circular economy, this study contributed to the ongoing discourse on sustainable financial well-being.

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Author's Biography

Enkeleda Lulaj holds a Ph.D. in Economic Sciences with a focus on Finance and serves as an Assistant Professor at the Faculty of Business, Haxhi Zeka University in Kosovo. With extensive international experience, she has been a visiting professor at universities worldwide and a featured speaker at various academic events. Dr. Lulaj is an accomplished academic with a strong publication record, having worked as an editor, reviewer, and author for prestigious academic journals. She is also an active member of editorial and review boards for journals indexed in Scopus and Web of Science. In addition to her academic work, Dr. Lulaj has completed training programs at leading universities and has participated in various projects. Her contributions to the field have earned her recognition and awards, both locally and globally, as a distinguished student and professor in global education.

Ani Mekaniwati, SE., MP. The author continued her education at the National Development University of Jakarta, majoring in Banking. She works as a supervisor at LIPPO BANK, a manager at CV Sakamuda Tama, and an entrepreneur and lecturer at IBI Kesatuan, Indonesia. She studied at STIEK, majoring in financial management; she continued her S2 education, majoring in Industrial Profession (MP) at IPB Bogor, and graduated in 2010. Further studies are in the Doctoral Program at Universiti Tun Hussein Onn Malaysia. Writing articles and books on small and medium enterprises, financial management, entrepreneurship, business management, business ethics, and digital marketing.