Scientific Annals of Economics and Business
71 (3), 2024, 315-336
DOI: 10.47743/saeb-2024-0022

Cash Flow Dynamics: Amplifying Swing Models in a Volatile Economic Climate for Financial Resilience and Outcomes

Enkeleda Lulaj*, Antonio Minguez-Vera**

Abstract: In a volatile economic climate, understanding cash flow dynamics is crucial for companies to improve financial resilience and outcomes. This research focuses on amplifying swing models such as Cash Flow Management (CFM), Solutions (CFS), Dynamics (CFD), Boosters (CFB), Innovations (CFI), and Strategic (CFS) - on cash flow dynamics in a volatile economic climate. By examining the relationship between these models and determinant variables, the study aims to provide insights that can assist companies in achieving financial resilience and outcomes. The data were collected from finance and accounting representatives of 200 companies ((manufacturing (107), services (56), and trade (37)) in Kosovo in 2023 (quarters 1, 2, 3, and the first two months of quarter 4), while processing was done through exploratory factorial, reliability, and multiple regression analyses conducted using SPSS and AMOS software. The results of the study reveal a significant relationship between each cash flow model and the determinant variables. This highlights the importance of these models in comprehending cash flow dynamics within a volatile economic climate. Factors such as optimization strategy clarity, continuous monitoring, effective working capital management, accurate financial decision-making, and technological improvements contribute to positive cash flow. Additionally, precise management of fluctuations, financial advantage, cooperative departmental approaches, and effective communication also play a role in cash flow dynamics. By extending swings models, the study provides valuable insights that can assist firms in achieving financial resilience and overcoming the challenges of a volatile economic environment.

Keywords: cash flow dynamics; volatile economic climate; financial resilience; outcomes; amplifying swings models.

JEL classification: E3; F47; F65; G3.

* Faculty of Business, University Haxhi Zeka, Kosovo; e-mail: *enkeleda.lulaj@unhz.eu* (corresponding author).
** Facultad de Economia y Empresa, University of Murcia, Spain; e-mail: *minver@um.es*.

Article history: Received 7 June 2024 | Accepted 22 September 2024 | Published online 23 September 2024

To cite this article: Lulaj, E., Minguez-Vera, A. (2024). Cash Flow Dynamics: Amplifying Swing Models in a Volatile Economic Climate for Financial Resilience and Outcomes. *Scientific Annals of Economics and Business*, 71(3), 315-336. https://doi.org/10.47743/saeb-2024-0022.

1. INTRODUCTION

In today's dynamic global economy, businesses must adeptly navigate volatile economic climates to ensure their survival and success. Raza and Khan (2024) and Ren *et al.* (2023) underscore the critical importance of this adaptability. Moreover, according to Gregory (1976), while the existing literature on cash flow has provided valuable insights, the application of swing models in the context of a volatile economic climate remains relatively underexplored. Liu *et al.* (2023) emphasized that the current economic climate is characterized by unprecedented levels of uncertainty, volatility, and unforeseen challenges. Furthermore, in the realm of cash flow management, Magerakis *et al.* (2023) highlight its crucial role in financial resilience and outcomes for companies, while Ma *et al.* (2023) further explore this topic by examining the intricacies of cash flow dynamics, particularly through the amplification of swing models.

Naseer *et al.* (2023) emphasize that businesses must proactively develop robust strategies to not only survive but also thrive amid adversity. In this context, El Ghoul *et al.* (2023) highlight that cash flow becomes even more crucial, as it is the vital force of any organization. Moreover, Fawzi *et al.* (2015) emphasized that understanding, predicting, and strategically managing cash flow dynamics is essential to sustaining operations and achieving financial success. This research advances conventional cash flow models by integrating cutting-edge innovations such as Cash Flow Management (CFM) as investigated by Galka and Wappler (2023), Cash Flow Solutions (CFS) and Cash Flow Dynamics (CFD) as explored by Ghiami (2023), in addition to Cash Flow Boosters (CFB) as examined by Alves *et al.* (2022). Furthermore, it also incorporates Cash Flow Innovations (CFI) as researched by Zhang and Zhou (2022), and Cash Flow Strategic (CFS) as investigated by Chen *et al.* (2023).

Therefore, this study aims to illuminate the intricacies of financial resilience and outcomes for companies confronting the challenges of economic volatility. To achieve this, a comprehensive analysis of CFM, CFS, CFD, CFB, CFI, and CFS models will be conducted to derive meaningful conclusions regarding their effectiveness in volatile economic climates. Furthermore, this research endeavors to identify statistically significant relationships between each model and key determinant variables, thus providing a sophisticated understanding of cash flow dynamics.

The novelty of this article lies in its comprehensive evaluation of six models: Cash Flow Management (CFM), Solutions (CFS), Dynamics (CFD), Boosters (CFB), Innovations (CFI), and Strategic (CFS). Unlike previous literature, this study not only investigates the impact of these models on cash flow dynamics but also uncovers significant relationships between each model and determinant variables. The primary objective is to provide valuable insights to assist companies in achieving financial resilience amidst economic volatility. Additionally, the research fills a critical gap by highlighting the importance of accurately managing fluctuations, leveraging financial assets, adopting collaborative departmental approaches, and fostering effective communication to influence cash flow dynamics. By shedding light on these issues, this study contributes to a deeper understanding of cash flow management in volatile economic climates and provides practical guidance for companies seeking to navigate and thrive in such challenging environments.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In today's dynamic and economically volatile environment, effective cash flow management has emerged as a pivotal factor for business survival and prosperity. The literature underscores the criticality of various cash flow models, notably Cash Flow Management (CFM), Cash Flow Solutions (CFS), Cash Flow Dynamics (CFD), Cash Flow Boosters (CFB), Cash Flow Innovations (CFI), and Cash Flow Strategic (CFS). These models have been widely acknowledged by scholars for their role in fostering financial resilience and achieving desired outcomes amidst economic volatility. Therefore, Righetto *et al.* (2016) emphasized that cash flow management is crucial for overcoming economic challenges. Moreover, Eskandari and Zamanian (2022) emphasized the importance of understanding, predicting, and strategically managing cash flow dynamics to achieve financial success. Furthermore, Lee *et al.* (2010) pointed out that the exploration of amplification of swing models within the framework of a volatile economic climate is an area that has received limited attention, indicating the need for new research to explore these models.

2.1 Cash Flow Management model

Concerning the Cash Flow Management (CFM) model and its pivotal factors such as the availability of cash flow information, effective management practices, accurate forecasting, the influence of sales volume, fostering departmental alignment with cash flow objectives, and comprehension of both short-term policies and long-term cash flow strategies. Drawing from these CFM model factors, Yi (2023) underscores that enhancing the level of information provision significantly mitigates cash flow sensitivity. Furthermore, Coulton *et al.* (2022) posit that bolstering the quality of financial reporting subsequent to cash flow forecasting directly impacts financial resilience and outcomes, especially within a volatile economic climate. According to Li *et al.* (2023), the significance of cash flow in sustaining a company's financial health and stability cannot be overstated. Stokes (2005) highlights the development of a dynamic model linking sales conditions and cash flow to enhance financial resilience. Furthermore, Arnold (2014) emphasizes that cash flow is influenced by firm-specific characteristics and industry conditions, which can amplify fluctuations in a volatile economic climate.

Drawing on the synthesized insights from the literature review, it is crucial to formulate the hypothesis for the Cash Flow Management (CFM) model, aiming to both validate and extend the findings of this study.

H1: Cash Flow Management model has a positive and statistically significant effect on Cash Flow in a volatile economic climate to achieve financial resilience and outcomes for businesses.

2.2 Cash Flow Solutions model

The Cash Flow Solutions (CFS) model encompasses several critical factors: a clear cash flow optimization strategy, ongoing cash flow monitoring to identify potential risks, effective working capital management, appropriate plans to address cash flow challenges, strategic financial decisions to optimize cash flow, and the integration of improved technology to enhance processes. Based on these factors, Leyman *et al.* (2019) emphasize the essential need

to enhance cash flow management strategies, particularly in the face of economic volatility, by employing amplifying swing models. So and Zhang (2022) highlight the importance of considering cultural heterogeneity in global operations for companies aiming to optimize cash flow. Barrett and Chaitanya (2023) argue that cash flow is crucial in determining the price of financial assets, thereby contributing to financial resilience and overall performance. Additionally, Maghsoudi *et al.* (2023) contend that digitizing cash flows can enhance speed, scalability, and financial transparency, especially for companies navigating a volatile economic climate.

Based on the synthesized insights derived from the literature review, it is essential to craft a hypothesis for the Cash Flow Solutions model, with the aim of validating and broadening the scope of the findings in this study.

H2: Cash Flow Solutions model has a positive and statistically significant effect on Cash Flow in a volatile economic climate to achieve financial resilience and outcomes for businesses.

2.3 Cash Flow Dynamics model

About Cash Flow Dynamics (CFD) model and its influencing factors: accurately managing cash flow fluctuations, recognizing positive cash flow contributions, rewarding contributing employees, promoting interdepartmental cooperation, implementing rigorous risk identification and mitigation processes, adopting cash flow management practices that enhance overall financial results, ensuring sufficient resources, and facilitating effective communication of goals and cash flow performance. According to Shehata (1976), the information generated from these factors is crucial for timely cash flow actions, helping to identify excess cash deficits and establish budgets based on various cash control policies. Yaari *et al.* (2016) recommend regularly reviewing cash flow to prevent distortions in CFD. Javadi *et al.* (2021) demonstrate that reducing cash flow retention can be mitigated by shareholders' ability in a volatile economic climate. Additionally, cash flow supports managerial decisions, as noted by Mioduchowska-Jaroszewicza (2022). Gupta and Krishnamurti (2023) suggest that firms fostering an employee-friendly environment with fair compensation, effective communication, and interdepartmental cooperation tend to achieve high cash flow, positively influencing financial resilience and outcomes.

Relying on the integrated insights synthesized from the literature review, it is crucial to formulate a hypothesis for the Cash Flow Dynamics model.

H3: Cash Flow Dynamics model has a positive and statistically significant effect on Cash Flow in a volatile economic climate to achieve financial resilience and outcomes for businesses.

2.4 Cash Flow Boosters model

In relation to the Cash Flow Boosters (CFB) model and its influencing factors, such as implementing measures to accelerate cash flow, ensuring effective communication about cash flow within the company, and providing adequate training to employees in cash flow management, Mullins (2020) suggests that companies aiming to improve their cash flow should address four key questions. These questions include understanding the sources and uses of cash, monitoring changes in profit margins, managing cash flow relationships with

customers and suppliers, and identifying strategies to improve financial resilience and positive outcomes. In contrast, Bloch (2017) highlights the need to reduce employee training budgets. Furthermore, Drissi *et al.* (2023) highlight that instability in the cash flow conversion cycle increases working capital requirements and limits self-financing capacity, particularly in a volatile economic climate.

Based on the integrated insights derived from the literature review, formulating a hypothesis for the Cash Flow Boosters model is essential.

H4: Cash Flow Boosters model has a positive and statistically significant effect on Cash Flow in a volatile economic climate to achieve financial resilience and outcomes for businesses.

2.5 Cash Flow Innovations model

The Cash Flow Innovations (CFI) model encompasses several critical factors: establishing clear procedures for managing accounts receivable, actively seeking opportunities to improve cash flow efficiency, optimizing invoicing and payment processes, and ensuring accurate cash flow reporting. Markus and Rideg (2021) assert a significant positive correlation between innovation efforts, as indicated by the CFI model, and competitiveness. This suggests that stronger cash flows correlate with improved competitive performance. Similarly, Francis *et al.* (2022) argue that the managerial approach to CFI influences firms' capability, capacity, and innovative efficiency, particularly in volatile economic conditions. Carter and Diro Ejara (2008) advise companies to maintain a focus on discounted cash flow and consider various internal and market factors that reflect their capabilities and capacity. Additionally, Adu-Ameyaw *et al.* (2022) emphasize that private firms tend to increase research and development spending relative to their cash flow, leverage, and industry information quality, highlighting the importance of financial resilience and outcomes over public counterparts.

Based on the integrated insights from the literature review, it is essential to formulate a hypothesis for the Cash Flow Innovations model.

H5: Cash Flow Innovations model has a positive and statistically significant effect on Cash Flow in a volatile economic climate to achieve financial resilience and outcomes for businesses.

2.6 Cash Flow Strategic model

In relation to the Cash Flow Strategic (CFS) model and its factors, Onjewu *et al.* (2023) underline the importance of negotiating favorable payment terms, addressing investment needs, and implementing cash flow strategies aligned with best practices. They assert that a substantial correlation exists between strategic planning and sales performance, attributing this to the direct impact of sales performance on cash flow. Moreover, they argue that this correlation is significantly enhanced by digitalization and e-commerce innovations, particularly in volatile economic conditions.

Formulating a hypothesis for the Cash Flow Innovations model is imperative, given the synthesized insights from the literature review.

H6: Cash Flow Strategic model has a positive and statistically significant effect on Cash Flow in a volatile economic climate to achieve financial resilience and outcomes for businesses.

Before presenting Figure no. 1, the text will include a brief introduction outlining the relationships between the hypotheses depicted in the figure. This introduction will provide context for the visual presentation of the constructed hypotheses and their interrelationships as elaborated in the literature review.

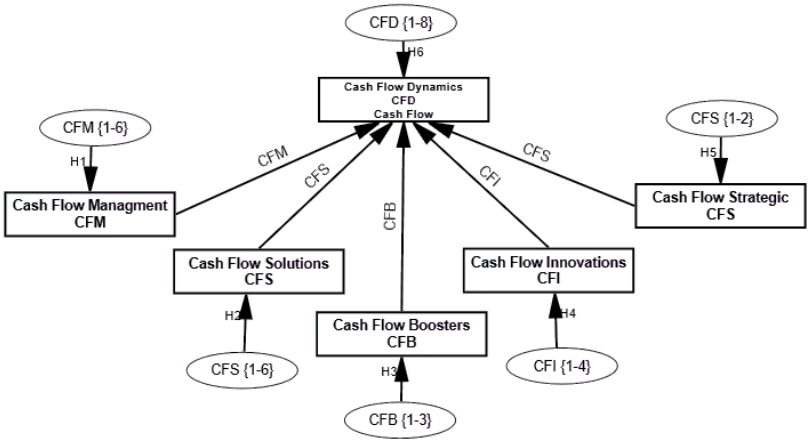

Figure no. 1 – Conceptual Model
Source: own elaboration (2023/24)

Figure no. 1 shows the conceptual model that highlights the relationships between the models such as: Cash Flow Management (CFM), Cash Flow Solutions (CFS), Cash Flow Dynamics (CFD), Cash Flow Boosters (CFB), Cash Flow Innovations (CFI), and Cash Flow Strategic (SFS) and their factors in the context of cash flow dynamics in a volatile economic climate to achieve financial resilience and outcomes for businesses. The effects of (CF←CFM, CF←CFS, CF←CFB, CF←CFD, CF←CFI, and CFD←CFS) are emphasized to verify the main hypotheses (H_1-H_6). Each factor follows a regression format, where $\hat{y}$ represents cash flow dynamics, α is the intercept term. Moreover, for the models include the corresponding factors with β coefficients indicating the strength and direction of their effects. A statistically significant relationship is indicated when these coefficients are significantly different from zero. Then, the error term μ accounts for unobservable factors that affect cash flow dynamics in a volatile economic climate to achieve financial resilience and outcomes for businesses. In general, this conceptual model aims to clarify the relationships between (CFM, CFS, CFD, CFB, CFI, and CFS) in the context of cash flow dynamics in a volatile economic climate to achieve financial resilience and outcomes for businesses.

3. METHODOLOGY

The research aims to explore the dynamics of cash flow in a volatile economic climate through amplifying swing models to assist companies in achieving financial resilience and

outcomes. Therefore, the research examines how the determinant variables effect each model to observe the dynamics of cash flow through amplifying swing models in a volatile economic climate. It also determines if there is a statistically significant relationship between each model and at least one factor (determinant variable). Overall, the research provides valuable insights and tools that businesses can utilize to improve their financial resilience, decision-making, risk management, and ultimately, achieve better financial outcomes.

3.1 Data collection

The data were collected from finance and accounting representatives of 200 companies in Kosovo in 2023 (quarters 1, 2, 3, and the first two months of quarter 4). These companies were categorized as manufacturing (107), services (56), and trade (37). The companies were selected to represent a diverse cross-section of the economy, including both listed companies and small and medium-sized enterprises (SMEs), in order to provide a comprehensive understanding of cash flow dynamics across different sectors. Data collection methods included an online questionnaire completed by 105 representatives and in-depth interviews conducted with 95 representatives. The online questionnaire was designed to collect quantitative data on various factors affecting cash flow using Likert scales (1=strongly disagree, 5=strongly agree). The in-depth interviews were designed to gather qualitative insights on the same topic, allowing participants to elaborate on their experiences and perspectives regarding cash flow dynamics. Their responses highlighted the significance of cash flow models and their factors (CFM1-6, CFS1-6, CFD1-8, CFB1-3, CFI1-4, and CFS1-3) in amplifying swing models in a volatile economic climate for financial resilience and outcomes. Table no. 1 provides a detailed summary of each variable, highlighting the importance of the six swing models in this research.

Table no. 1 – Definition and description of the study variables

Variable	Construct	Source
	Model 1: Cash Flow Management (CFM)	
CFM1	Current information about the company's cash flow is available	Lulaj and Iseni (2018)
CFM2	The company effectively manages and forecasts cash flow	Jermias *et al.* (2023)
CFM3	Cash flow forecasts are reliable and accurate	Jooste (2006)
CFM4	Sales volume affects the company's cash flow	Umit and Dagdemir (2023).
CFM5	Departments are encouraged to focus on cash flow goals	Andohol *et al.* (2024)
CFM6	Cash flow management policies, both short and long term, are known	
	Model 2: Cash Flow Solutions (CFS)	
CFS1	The company has a clear cash flow optimization strategy	Astami *et al.* (2017)
CFS2	Cash flow is constantly monitored to identify potential risks	Lulaj *et al.* (2023)
CFS3	The company manages working capital effectively	Steyn and Hamman (2003)
CFS4	The company has adequate contingency plans to address cash flow challenges.	Bejan *et al.* (2023)
CFS5	The company makes financial decisions with a focus on cash flow optimization.	
CFS6	The company uses technology to improve cash flow processes	
	Model 3: Cash Flow Dynamics (CFD)	
CFD1	The company has accurate management of cash flow	Rompotis (2024)
CFD2	fluctuations	Lulaj (2021), Lulaj

Variable	Construct	Source
CFD3	The company has priority for positive cash flow in financial decisions	(2023) Haskins *et al.* (1987) Yeboah (2023).
CFD4	The company recognizes and rewards employees who contribute to positive cash flow	
CFD5	The company has a collaborative approach to cash flow management across departments	
CFD6	The company has a rigorous process for identifying and addressing potential cash flow risks	
CFD7	The company has cash flow management practices that contribute positively to overall financial health	
CFD8	The company has provided sufficient resources for departments to align with cash flow goals	
	The company has effective communication of cash flow goals and performance	
	Model 4 ***Cash Flow Boosters (CFB)***	
CFB1	The company implements effective measures to accelerate the cash flow	Rusmin *et al.* (2014)
CFB2	The company has satisfactory cash flow communication within the organization	
CFB3	The company provides adequate cash flow management training to employees	
	Model 5 ***Cash Flow Innovations (CFI)***	
CFI1	The company has established clear procedures for managing accounts receivable	Lulaj *et al.* (2024a) Mohammadi *et al.* (2018) Rejón López *et al.* (2023)
CFI2	The company actively seeks opportunities to improve cash flow efficiency	
CFI3	The company's billing and payment processes contribute positively to cash flow	
CFI4	The company has accurate cash flow reporting	
	Model 6 ***Cash Flow Strategic (CFS)***	
CFS1	The company actively pursues opportunities to negotiate favorable payment terms	Lulaj *et al.* (2024b) Cheatham and Cheatham (1993),
CFS2	The company effectively balances investment needs with cash flow considerations	
CFS3	The company's cash flow strategies are consistent with industry best practices	

Source: prepared by the authors (2023/24)

Table no. 1 shows the factors for the six swing models of this research: Cash Flow Management (CFM), Solutions (CFS), Dynamics (CFD), Boosters (CFB), Innovations (CFI), and Strategy (CFS). The CFM model includes six factors (CFM1-6), CFS model includes six factors (CFS1-6), CFD model includes eight factors (CFD1-8), CFB model includes three factors (CFB1-3), CFI model includes three factors (CFI1-3), and CFS model includes three factors (CFS1-3).

3.2 Data analysis

The study thoroughly analyzed the data to assess how each model (1-6) effects cash flow dynamics. Advanced techniques such as exploratory factorial analysis (EFA), reliability analysis (Cronbach's alpha), multiple regression analysis (PCA), and regression weights were used. Specialized software, such as SPSS (64) and AMOS (23.0), facilitated the analysis. Furthermore, Spearman (1927) emphasized that key tests were conducted to evaluate the significance of the models and factors, as well as to validate the proposed hypotheses.

The multiple regression equation for the effects of the factors in their models:

$$\hat{y}\imath = \alpha_0 + \beta_1(xi) + \beta_2(x2) + \beta_3(x3) + \beta_4(x4) + \beta_5(x5) + \beta_6(x6) + \mu \neq 0$$

where, for $i = n$, observations,
$\hat{y}\imath$ = dependent variable (CFM,CFS,CFD,CFB,CFI,and CFS,
xi = explanatory (independent)variables
$\beta 0$ = y-intercept (constant term)
βp = slope coefficients for each explanatory variable
ϵ = the model's error term (also known as the residuals)for each model of this stud

Thus, to discern the impact of each factor within its model, the equations for each model and factor are elaborated below.

$$\text{H1: } \widehat{CFM} = \alpha_0 + \beta_1(CFM1) + \beta_2(CFM2) + \beta_3(CFM3) + \beta_4(CFM4) + \beta_5(CFM5) + \beta_6(CFM6) + \mu \neq 0$$

$$\text{H2: } \widehat{CFS} = \alpha_0 + \beta_1(CFS1) + \beta_2(CFS2) + \beta_3(CFS3) + \beta_4(CFS4) + \beta_5(CFS5) + \beta_6(CFS6) + \mu \neq 0$$

$$\text{H3: } \widehat{CFD} = \alpha_0 + \beta_1(CFD1) + \beta_2(CFD2) + \beta_3(CFD3) + \beta_4(CFD4) + \beta_5(CFD5) + \beta_6(CFD6) + +\beta_7(CFD7) + \beta_8(CFD8) + \mu \neq 0$$

$$\text{H4: } \widehat{CFB} = \alpha_0 + \beta_1(CFB1) + \beta_2(CFB2) + \beta_3(CFB3) + \mu \neq 0$$

$$\text{H5: } \widehat{CFI} = \alpha_0 + \beta_1(CFI1) + \beta_2(CFI2) + \beta_3(CFI3) + \beta_4(CFI4) + \mu \neq 0$$

$$\text{H6: } \widehat{CFS} = \alpha_0 + \beta_1(CFS1) + \beta_2(CFS2) + \beta_3(CFS3) + \mu \neq 0$$

Figure no. 2 presents the econometric framework for the swing models (CFM, CFS, CFD, CFB, CFI, and CFS) and their effect on each factor in the context of cash flow dynamics in a volatile economic climate to achieve financial resilience and outcomes for businesses. The research comprised four steps: in the first step (H1), exploratory factorial analysis (EFA) and its tests were used to analyze the data. In the second step (H2), reliability analysis and its tests were conducted. In the third step (H3), multiple regression analysis and its tests were employed to see the effect of each factor in each model, and in the fourth step (H4), regression weights and its tests were utilized to verify the hypotheses (H1-H6). These steps were undertaken to delve into cash flow dynamics.

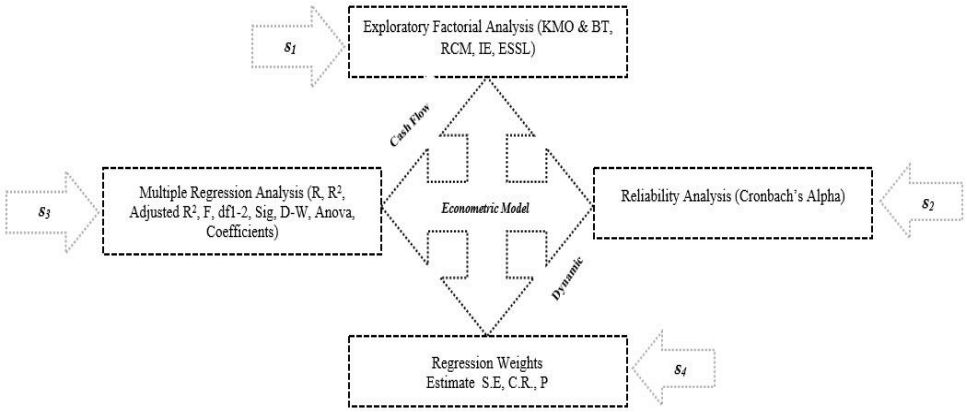

Figure no. 2 – Econometric Framework
Source: own elaboration (2023/24)

4. RESULTS

As described in the literature review and methodology outlined in the results section, the data were analyzed using tailored analyses for each cash flow dynamics model (CFM, CFS, CFD, CFB, CFI, and CFS).

Table no. 2 – Exploratory factorial analysis (EFA) reliability analysis (Cronbach's Alpha)

Item	Construct	Factor Loading λ	KMO and Bartlett's Test	Variance Explained (VE) Cronbach's Alpha	Interpretation
Model 1 Cash Flow Management (CFM)					
CFM1	Current information about the company's cash flow is available	0.824			
CFM2	The company effectively manages and forecasts cash flow	0.743	KMO=0.850 χ^2= 398.426 df=15 Sig.=0.000	54.2% α=0.829	(Kaiser, 1970) (Cronbach, 1951) Valid results
CFM3	Cash flow forecasts are reliable and accurate	0.643			
CFM4	Sales volume affects the company's cash flow	0.777			
CFM5	Departments are encouraged to focus on cash flow goals	0.671			
CFM6	Cash flow management policies, both short and long term, are known	0.744			
Model 2 Cash Flow Solutions (CFS)					
CFS1	The company has a clear cash flow optimization strategy	0.819			
CFS2	Cash flow is constantly monitored to identify potential risks	0.767	KMO=0.883 χ^2= 446.729 df=15 Sig.=0.000	58.2% α =0.856	Valid results
CFS3	The company manages working capital effectively	0.765			
CFS4	The company has adequate contingency plans to address cash flow challenges.	0.738			
CFS5	The company makes financial decisions with a focus on cash flow optimization.	0.760			

CFS6	The company uses technology to improve cash flow processes	0.725			
	Model 3 Cash Flow Dynamics (CFD)				
CFD1	The company has accurate management of cash flow fluctuations	0.608			
CFD2	The company has priority for positive cash flow in financial decisions	0.710			
CFD3	The company recognizes and rewards employees who contribute to positive cash flow	0.638	KMO=0.903		
CFD4	The company has a collaborative approach to cash flow management across departments	0.761	χ^2= 541.677 df=28	50.4% α = 0.858	Valid results
CFD5	The company has a rigorous process for identifying and addressing potential cash flow risks	0.751	Sig.=0.000		
CFD6	The company has cash flow management practices that contribute positively to overall financial health	0.699			
CFD7	The company has provided sufficient resources for departments to align with cash flow goals	0.700			
CFD8	The company has effective communication of cash flow goals and performance	0.793			
	Model 4 Cash Flow Boosters (CFB)				
CFB1	The company implements effective measures to accelerate the cash flow	0.763			
CFB2	The company has satisfactory cash flow communication within the organization	0.806	KMO=0.662 χ^2= 93.729 df=3	61.1% α = 0.681	Valid results
CFB3	The company provides adequate cash flow management training to employees	0.775	Sig.=0.000		
	Model 5 Cash Flow Innovations (CFI)				
CFI1	The company has established clear procedures for managing accounts receivable	0.780			
CFI2	The company actively seeks opportunities to improve cash flow efficiency	0.805	KMO=0.780 χ^2= 221.197 df=6	61.4% α = 0.790	Valid results
CFI3	The company's billing and payment processes contribute positively to cash flow	0.745	Sig.=0.000		
CFI4	The company has accurate cash flow reporting	0.803			
	Model 6 Cash Flow Strategic (CFS)				
CFS1	The company actively pursues opportunities to negotiate favorable payment terms	0.823			
CFS2	The company effectively balances investment needs with cash flow considerations	0.857	KMO=0.702 χ^2= 171.521 df=3	70.1% α =0.787	Valid results
CFS3	The company's cash flow strategies are consistent with industry best practices	0.832	Sig.=0.000		

Note: KMO=Kaiser-Meyer-Olkin, χ^2=Chi-Square, df =degrees of freedom, ***p<.001, α=Cronbach's Alpha.
Source: table prepared by the authors (2023/24).

Table no. 2 presents the Component Matrix-PCA by (EFA), which highlights the importance of the models such as Cash Flow Management (CFM), Cash Flow Solutions (CFS), Cash Flow Dynamics (CFD), Cash Flow Boosters (CFB), Cash Flow Innovations (CFI), and Cash Flow Strategic (CFS) models in the context of cash flow dynamics in a volatile economic climate to achieve financial resilience and outcomes for businesses. All factors in each model have values greater than 0.50, indicating their importance. The KMO test (Kaiser and Rice, 1974) confirms the reliable fit of the data to the models (CFM,

KMO=0.850; CFS, KMO=0.883; CFD, KMO=0.903; CFB, KMO=0.662; CFI, KMO=0.780; CFS, KMO=0.702), and Bartlett's Sphericity test shows the significant and meaningful correlation between the factors (Sig.=0.000). Also, the reliability analysis (Cronbach's Alpha) shows a high degree of reliability in the data of all models (CFM, CFS, CFD, CFB, CFI and CFS, $0.80 \leq \alpha \leq 0.83$, 0.86, 0.86, 0.68, 0.79, 0.79), while the Eigenvalues (VE) emphasize the importance of the variance, which has a value above 50% in each model (1-6).

Table no. 3 – Model Summary

Model Summary[b]											
Model	R	R^2	Adjusted R^2	S.E	Change Statistics-ANOVA					Durbin - Watson	Interpretation Model 1-6
					R^2 Change	F Change	df1	df 2	Sig. F Change		
CFM	0.988[a]	0.977	0.976	0.09690	0.977	1350.407	6	193	0.000	2.021	
CFS	0.967[a]	0.936	0.934	0.15696	0.936	468.251	6	193	0.000	1.924	Statistically
CFD	0.980[a]	0.960	0.958	0.12273	0.960	571.542	8	191	0.000	1.843	significant for all
CFB	0.938[a]	0.879	0.877	0.20913	0.879	475.999	3	196	0.000	1.763	models
CFI	0.942[a]	0.888	0.885	0.19652	0.888	385.065	4	195	0.000	1.910	($p < 0.05$)
CFS	0.935[a]	0.874	0.872	0.23309	0.874	453.792	3	196	0.000	1.585	F (Sig.=0.000)

Note: [b]Dependent variables: CFM, CFS, CFD, CFB, CFI, and CFS, S.E.- Std. Error of the Estimate, [a] Predictors: (Constant): (CFM1-6, CFS1-6, CFD1-8, CFB1-3, CFI1-4, and CFS1-3), *p<0.005.

Source: table prepared by the authors (2023/24)

Table no. 3 presents the model summary for all models (CFM, CFS, CFD, CFB, CFI, and CFS) and their factors (CFF1-6, CFS1-6, CFD1-8, CFB1-3, CFI1-4, and CFS1) -3) at the 0.05 level of significance in the context of cash flow dynamics in a volatile economic climate to achieve financial resilience and outcomes for businesses. According to R, for all models it is emphasized that there are positive and significant relationships between the models and their factors (predictors): CFM with (CFM1-6) of 99%, CFS with (CFS1-6) of 97%, CFD with (CFD1-8) of 98%, CFB with (CFB1-3) of 94%, CFI (1-4) of 94%, and CFS (1-3) of 94%. According to the R^2 for model 1 (.977), it is emphasized that 98% of the predictors influence CFM, while 2% is explained by variables outside the model. For model 2 (0.936) it is emphasized that 94% of the predictors influence CFS, while 6% is explained by variables outside the model. For model 3 (0.960), it is emphasized that 96% of the predictors influence CFD, while 4% is explained by variables outside the model. For models 4 and 5 (0.879, 0.888), 88% and 89% of the predictors influence CFB and CFI, while 12% and 11% are explained by variables outside the model. For model 6 (0.874) it is emphasized that 87% of the predictors influence CFS, while 13% are explained by variables outside the model, also the results of ANOVA (R2 change, S.E., F-test value and Sig.) confirm the appropriateness of the models and the statistical significance of the results. According to the Durbin-Watson test for all models 1-6 (2.021, 1.924, 1.843, 1.763, 1.910 and 1.585), there is no autocorrelation between the variables.

Table no. 4 – Coefficients

Coefficients[a]									
Model 1		U.C		S.C	t	Sig.	95.0% C.I for B		Interpretation
		B	S.E.	Beta			LB	UB	Model 1-6
CFM	(Constant)	0.159	0.046		3.427	0.001***	0.068	0.251	CFM 1-6 variables are statistically significant at 0.001 level (p<0.001)
	CFM1	0.147	0.010	0.234	14.504	0.000***	0.127	0.167	
	CFM2	0.169	0.011	0.209	14.933	0.000***	0.147	0.191	
	CFM3	0.160	0.009	0.230	17.836	0.000***	0.143	0.178	
	CFM4	0.171	0.011	0.238	16.033	0.000***	0.150	0.192	
	CFM5	0.168	0.010	0.214	16.194	0.000***	0.148	0.189	
	CFM6	0.146	0.010	0.218	14.957	0.000***	0.127	0.165	
Model 2									
CFS	(Constant)	0.183	0.074		2.470	0.014*	0.037	0.329	CFS1-6 variables are statistically significant at 0.05 and 0.001 levels (p<0.05, p<0.001)
	CFS1	0.157	0.020	0.206	7.851	0.000***	0.118	0.197	
	CFS2	0.151	0.017	0.213	8.864	0.000***	0.118	0.185	
	CFS3	0.113	0.018	0.150	6.270	0.000***	0.078	0.149	
	CFS4	0.155	0.017	0.218	9.178	0.000***	0.122	0.189	
	CFS5	0.192	0.019	0.248	10.368	0.000***	0.156	0.229	
	CFS6	0.181	0.018	0.234	10.009	0.000***	0.145	0.217	
Model 3									
CFD	(Constant)	0.281	0.060		4.696	0.000***	0.163	0.399	CFD1-8 variables are statistically significant at 0.001 level (p<0.001)
	CFD1	0.164	0.013	0.209	12.446	0.000***	0.138	0.191	
	CFD2	0.141	0.012	0.216	11.773	0.000***	0.117	0.164	
	CFD3	0.072	0.012	0.106	5.985	0.000***	0.048	0.096	
	CFD4	0.137	0.012	0.217	11.102	0.000***	0.113	0.162	
	CFD5	0.093	0.013	0.138	7.199	0.000***	0.067	0.118	
	CFD6	0.110	0.012	0.166	8.831	0.000***	0.085	0.134	
	CFD7	0.085	0.013	0.121	6.649	0.000***	0.060	0.111	
	CFD8	0.127	0.013	0.198	9.651	0.000***	0.101	0.153	
Model 4									
CFB	(Constant)	0.779	0.087		8.918	0.000***	0.607	0.951	CFB1-3 variables are statistically significant at 0.001 level (p<0.001)
	CFB1	0.345	0.021	0.457	16.219	0.000***	0.303	0.387	
	CFB2	0.264	0.020	0.385	13.204	0.000***	0.224	0.303	
	CFB3	0.218	0.017	0.356	12.523	0.000***	0.184	0.252	
Model 5									
CFI	(Constant)	0.406	0.095		4.262	0.000***	0.218	0.594	CFI1-4 variables are statistically significant at 0.001 level (p<0.001)
	CFI1	0.254	0.022	0.343	11.352	0.000***	0.210	0.299	
	CFI2	0.220	0.025	0.272	8.800	0.000***	0.171	0.269	
	CFI3	0.227	0.021	0.316	10.880	0.000***	0.186	0.269	
	CFI4	0.199	0.023	0.273	8.862	0.000***	0.155	0.244	
Model 6									
CFS	(Constant)	0.504	0.094		5.352	0.000***	0.319	0.690	CFS1-3 variables are statistically significant at 0.001 level (p<0.001)
	CFS1	0.248	0.025	0.319	10.014	0.000***	0.199	0.296	
	CFS2	0.351	0.027	0.436	12.952	0.000***	0.297	0.404	
	CFS3	0.273	0.025	0.358	11.058	0.000***	0.224	0.321	

Note: [b]Dependent variables: CFM, CFS, CFD, CFB, CFI, and CFS; S.C-Standardized Coefficients, U.C-Unstandardized Coefficients, S.E- Std. Error, LB-Lower Bound, UB-Upper Bound, C.I-Confidence Interval for B, *p<.005, Predictors: (Constant): (CFM1-6, CFS1-6, CFD1-8, CFB1-3, CFI1-4, and CFS1-3), *** p<.001, *p<.05

Source: table prepared by the authors (2023/24)

Table no. 4 presents the results of the model coefficients (CFM, CFS, CFD, CFB, CFI, and CFS) and their factors (CFF1-6, CFS1-6, CFD1-8, CFB1-3, CFI1-4, and CFS1) -3) at a significance level of 0.05 and 0.001 in the context of cash flow dynamics in a volatile economic climate to achieve financial resilience and outcomes for businesses. Findings of the model for cash flow management (CFM): regarding model 1 (CFM), it is emphasized that the constant is (0.159), emphasizing that if the independent variables (CFM1-6) are zero, then the companies will have cash flow management of 16%. All independent variables of the CFM model have an important and significant impact on the model, therefore an increase in the availability of current cash flow information (CFM1) will increase by 15% (CFM), an increase in effective cash management (CFM2) will increase by 17% (CFM), an increase in accurate and reliable cash forecasting (CFM3) will increase by 16% (CFM), an increase in sales volume (CFM4) will increase by 17% (CFM), an increase in encouraging departments to focus on cash flow targets (CFM5) will increase by 17% (CFM), an increase in the management of long-term and short-term monetary policies (CFM6) will increase by 15% (CFM). According to the standardized beta coefficient, all variables have a significant impact on the model, with the most important variables being CFM4 (24%) and CFM1 (23%), which highlight the impact of sales volume and currently available cash flow information on cash flow management.

$$\widehat{CFM} = \alpha_0 + \beta_1(CFM1) + \beta_2(CFM2) + \beta_3(CFM3) + \beta_4(CFM4) + \beta_5(CFM5) + \beta_6(CFM6) = 0.159 + 0.147x_1 + 0.169x_2 + 0.160x_3 + 0.171x_4 + 0.168x_5 + 0.146x_6 + 0.02\mu$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* for variables CFM1-6 is smaller (p<0.001). Therefore, all factors effect the FCM model.

Findings of the model for cash flow solutions (CFS): regarding model 2 (CFM), it is emphasized that the constant is (0.183), emphasizing that if the independent variables (CFS1-6) are zero, then companies will have forward flow solutions of 18%. Further, all the independent variables of the CFS model have an important and significant impact on the model, therefore an increase in the clarity of the cash flow optimization strategy (CFS1) will increase by 16% (CFS), an increase in the monitoring of continuous cash flow to monitor potential risks (CFS2) will increase by 15% (CFS), an increase in the effective management of working capital (CFS3) will increase by 13% (CFS), an increase in appropriate plans the company's ability to address challenges (CFS3) will increase by 16% (CFS), an increase in the accuracy of financial decisions (CFS4) will increase by 19% (CFS), an increase in technology improvement (CFS6) will to increase by 18% (CFS). According to the standardized Beta coefficient, it is emphasized that all variables have a significant impact on the model, but the most important variables are (CFS5=25%, CFS6=23%) or the accuracy in financial decision-making and the improvement of technology will increase the choices of the flow of money.

$$\widehat{CFS} = \alpha_0 + \beta_1(CFS1) + \beta_2(CFS2) + \beta_3(CFS3) + \beta_4(CFS4) + \beta_5(CFS5) + \beta_6(CFS6) = 0.183 + 0.157x_1 + 0.151x_2 + 0.113x_3 + 0.155x_4 + 0.192x_5 + 0.181x_6 + 0.06\mu$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* for variables CFS1-6 is smaller (p<0.001). Therefore, all factors effect the CFS model.

Findings of the model for cash flow dynamics (CFD): regarding model 3 (CFD), it is emphasized that the constant is (0.281), which emphasizes that if the independent variables (CFD1-8) are zero, then the companies will have cash flow dynamics of 28%. Furthermore, all the independent variables of the CFD model have an important and significant influence on the model. Therefore an increase in the accurate management of cash flow fluctuations (CFD1) will increase by 16% (CFD), an increase in the positive advantage of the company in financial flows (CFD2) will increase by 14% (CFD), an increase in the remuneration of employees who contribute to the positive cash flow (CFD3) will increase by 7% (CFD), an increase in the cooperation of departments for cash flow management (CFD4) will increase by 14% (CFD), an increase in identifying and addressing potential cash flow risks (CFD5) will increase by 9% (CFD), an increase in effective management practices that contribute positively to overall financial health (CFD6) will increase by 11% (CFD), an increase in ensuring sufficient resources for departments (CFD7) will increase by 9% (CFD), an increase in effective communication of goals and performance (CFD8) will increase by 13% (CFD). According to the standardized Beta coefficient, it is emphasized that all variables have a significant impact on the model, but the most important variables are (CFD2=22%, CFD4=22%) or the positive advantages of the company in financial decisions, as well as the cooperative approach of the departments for management cash flow.

$$\begin{aligned}\widehat{CFD} &= \alpha_0 + \beta_1(CFD1) + \beta_2(CFD2) + \beta_3(CFD3) + \beta_4(CFD4) + \beta_5(CFD5) + \beta_6(CFD6) \\ &\quad + \beta_7(CFD7) + \beta_8(CFD8) \\ &= 0.281 + 0.164x_1 + 0.141x_2 + 0.072x_3 + 0.137x_4 + 0.093x_5 + 0.110x_6 \\ &\quad + 0.085x_7 + 0.127x_8 + 0.04\mu\end{aligned}$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* for variables CFD1-8 is smaller ($p<0.001$). Therefore, all factors effect the CFD model.

Findings of the model for cash flow boosters (CFB): regarding model 4 (CFB), it is emphasized that the constant is (0.779), which emphasizes that if the independent variables (CFB1-3) are zero, then companies will have cash flow boosters of 78%. Further, all the independent variables of the CFB model have an important and significant impact on the model, therefore, an increase in the implementation of effective measures to accelerate cash flow (CFB1) will increase by 35% (CFB), an increase in satisfactory cash flow communication within the organization (CFB2) will increase by 26% (CFB), an increase in the provision of adequate training for employees for cash flow management (CFB3) will increase by 22% (CFB). According to the standardized Beta coefficient, it is emphasized that all variables have a significant impact on the model, but the most important variable is (CFB1=46%) or the implementation of effective measures to accelerate cash flow.

$$\begin{aligned}\widehat{CFB} &= \alpha_0 + \beta_1(CFB1) + \beta_2(CFB2) + \beta_3(CFB3) \\ &= 0.779 + 0.345x_1 + 0.264x_2 + 0.218x_3 + 0.12\mu\end{aligned}$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* for variables CFB1-3 is smaller ($p<0.001$). Therefore, all factors effect the CFB model.

Findings of the model for cash flow innovations (CFI): regarding model 5 (CFI), it is emphasized that the constant is (0.406), which emphasizes that if the independent variables (CFI1-4) are zero, then companies will have cash flow innovation of 41%. In addition, all

the independent variables of the CFI model have an important and significant impact on the model, therefore, an increase in the establishment of clear procedures for the management of accounts receivable (CFI1) will increase by 25% (CFI), an increase in opportunities to improve cash flow efficiency (CFI2) will increase by 22%, an increase in the company's invoicing and payment processes (CFI3) will increase by 23%, an increase in accurate cash flow reporting (CFI4) will increase by 20% (CFI). According to the standardized Beta coefficient, it is emphasized that all variables have a significant impact on the model, but the most important variable is (CFI1=34%) or the establishment of clear procedures for the managing of accounts receivable.

$$\widehat{CFI} = \alpha_0 + \beta_1(CFI1) + \beta_2(CFI2) + \beta_3(CFI3) + \beta_4(CFI4)$$
$$= 0.406 + 0.254x_1 + 0.220x_2 + 0.227x_3 + 0.199x_4 + 0.11\mu$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* for variables CFI1-4 is smaller (p<0.001). Therefore, all factors effect the CFI model.

Findings of the model for strategic cash flow (CFS): regarding model 6 (CFS), it is emphasized that the constant is (0.504), which emphasizes that if the independent variables (CFS1-3) are zero, then companies will have a cash flow strategy of 50%. Furthermore, all the independent variables of the CFS model have an important and significant impact on the model, therefore an increase in the possibility of negotiating favorable payment terms (CFS1) will increase by 25% (CFS), an increase in the effective balancing of investment needs with cash flow considerations (CFS2) will increase by 35% (CFS), an increase in effective company strategies in line with industry best practices (CFS3) will increase by 27% (CFS). According to the standardized Beta coefficient, it is emphasized that all variables have a significant impact on the model, but the most important variable is (CFS2=44%) or the effective balancing of investment needs with cash-flow considerations.

$$\widehat{CFS} = \alpha_0 + \beta_1(CFS1) + \beta_2(CFS2) + \beta_3(CFS3)$$
$$= 0.504 + 0.248x_1 + 0.351x_2 + 0.273x_3 + 0.13\mu$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* for variables CFS1-3 is smaller (p<0.001). Therefore, all factors effect the CFS model.

Table no. 5 – Regression Weights and Standardized Regression Weights of the models (Verification of cash flow models)

Regression Weights							**Standardized Regression Weights**
Model	**Paths**	**Estimate**	**S.E.**	**C.R.**	**P**	**Interpretation**	**Estimate**
1	CF <--- CFM	0.680	0.071	9.643	***	Accepted	0.678
2	CF <--- CFS	0.639	0.084	7.628	***	Accepted	0.549
3	CF <--- CFD	0.713	0.081	7.601	***	Accepted	0.543
4	CF <--- CFB	0.817	0.079	10.372	***	Accepted	0.723
5	CF <--- CFI	0.648	0.073	8.874	***	Accepted	0.630
6	CF <--- CFS	0.821	0.085	9.621	***	Accepted	0.677

Source: Table prepared by the authors (2023/24). Note: *p<.005. Hypotheses (1-5)

Table no. 5 presents the regression weights and standardized regression weights of the models (CFM, CFS, CFB, CFI, and CFS) in CFD and their factors (CFM1-6, CFS1-6, CFB1-3, CFI1-4, and CFS1-3) at the significance level of 0.05 in the context of cash flow dynamics in a volatile economic climate to achieve financial resilience and outcomes for businesses. According to Model 1 (CF←CFM), it is emphasized that cash flow management (CFM) has a significant and positive effect on cash flow (CF), meaning that an increase in cash flow management will be accompanied by a sustainable increase in the cash flow, therefore, (H_1) is accepted. According to Model 2 (CF←CFS), it is emphasized that cash flow solutions (CFS) have a significant and positive effect on cash flow (CF), meaning that an increase in cash flow solutions will be accompanied by a sustainable increase in the cash flow, therefore, (H_2) is accepted. According to Model 3 (CF←CFB), it is emphasized that cash flow boosters (CFB) have a significant and positive effect on cash flow (CF), meaning that an increase in cash flow boosters will be accompanied by a sustainable increase in the cash flow, therefore, (H_3) is accepted. According to Model 4 (CF←CFI), it is emphasized that cash flow innovations (CFI) have a significant and positive effect on cash flow (CF), meaning that an increase in cash flow innovations will be accompanied by a sustainable increase in the cash flow, therefore, (H_4) is accepted. According to Model 5 (CF←CFS), it is emphasized that cash flow strategic (CFS) has a significant and positive effect on cash flow (CF), meaning that an increase in cash flow strategies will be accompanied by a sustainable increase in the cash flow dynamics, therefore, (H_5) is accepted. Therefore, it is emphasized that all hypotheses for all the models are confirmed, concluding their significance and significant effect in a volatile economic climate to achieve financial resilience and outcomes for businesses.

5. DISCUSSION

In today's financial environment, effective cash flow management is paramount for navigating volatile economic conditions. Notably, various models such as Cash Flow Management (CFM), Cash Flow Solutions (CFS), Cash Flow Dynamics (CFD), Cash Flow Boosters (CFB), Cash Flow Innovations (CFI), and Strategic Cash Flow (CFS) have emerged as indispensable tools for strengthening financial resilience and shaping outcomes. Scholars have highlighted the intricate interplay of cash flow dynamics as pivotal for strategic decision-making, particularly in volatile economic climates. This discussion synthesizes insights from previous research by Keefe and Nguyen (2023), and Zhu *et al.* (2023) to elucidate existing paradigms in cash flow management.

In terms of the swing models and their factors, prior studies by Larkin (2013), Nallareddy *et al.* (2020), and Lin *et al.* (2022) highlight the significance of factors such as positive customer evaluation, consistent cash flows exceeding profits, and the impact of dual-class structures on net operating cash flow. Furthermore, this discussion delves into the unique contributions of the present research, elucidating how the amplified swings within the cash flow dynamics foster financial resilience and favorable outcomes amidst economic volatility.

The data analysis techniques employed, including exploratory factorial analysis, reliability analysis, and multiple regression analysis, support the reliability and validity of the relationships between the models and their factors. Statistical tests such as the Kaiser-Meyer-Olkin (KMO) and Bartlett's Sphericity confirm the data's goodness of fit, while

reliability analysis underscores data consistency across all models. Specifically, findings from the CFM model underscore the significance of effective cash flow management practices, while the CFS model emphasizes the identification and implementation of tailored cash flow solutions. Similarly, insights from the CFD model underscore the importance of managing cash flow fluctuations and fostering interdepartmental cooperation.

Moreover, the findings from the CFB and CFI models reinforce the importance of accelerating cash flow and implementing innovative strategies. Finally, the CFS model highlights the significance of negotiating favorable terms and aligning investments with cash flow considerations. Overall, the validation of hypotheses across all models and their factors confirms the positive effects of these factors and models in improving financial resilience and driving favorable outcomes in volatile economic climates. By leveraging the insights from these models, businesses can improve their cash flow management practices and foster financial growth.

6. CONCLUSIONS AND FUTURE STUDIES

The research, centered on amplifying swings models to understand cash flow dynamics in a volatile economic climate, provides crucial insights. Using advanced techniques such as exploratory factorial analysis, reliability analysis, and multiple regression analysis, the study scrutinized six models (CFM, CFS, CFD, CFB, CFI, and CFS). The findings confirm the pivotal role of these models in comprehending cash flow dynamics. Statistical tests, including the KMO test and Bartlett's Sphericity test, affirm the models' reliable fit, while Cronbach's Alpha underscores high data reliability. Eigenvalues emphasize the significance of variance in each model. The results hold practical implications for businesses aiming to navigate economic volatility. The CFM model underscores the importance of effective cash flow management practices, while the CFS model focuses on forward flow solutions, highlighting the role of factors like technology improvement. The CFD model emphasizes the significance of positive advantages in financial decisions and cooperative departmental approaches. Similarly, the CFB and CFI models shed light on the importance of specific measures and innovations in achieving cash flow boosters. The study relies on data collected exclusively from companies in Kosovo in 2023, potentially limiting the generalizability of the findings to broader contexts. Additionally, the online questionnaire may introduce response bias, impacting the robustness of the results. Future research can explore additional factors and variables that influence cash flow dynamics and validate the findings across different industries and regions. Overall, the findings confirm the significance of effective cash flow models in navigating a volatile economic climate and achieving financial resilience and outcomes for businesses. By implementing insights from these models, companies can bolster their cash flow practices, navigate economic uncertainties, and foster overall financial health.

ORCID

Enkeleda Lulaj http://orcid.org/0000-0002-5325-3015
Antonio Minguez-Vera http://orcid.org/0000-0002-6879-2089

References

Adu-Ameyaw, E., Danso, A., Hickson, L., & Lartey, T. (2022). R&D Spending Intensity of Private vs Public Firms: The Role of Cash Flow, Leverage and Information Quality. *Journal of Applied Accounting Research*, *23*(4), 770-787. http://dx.doi.org/10.1108/JAAR-07-2021-0179

Alves, D., Alves, P., Carvalho, L., & Pais, C. (2022). Cash Holdings: International Evidence. *Journal of Economic Asymmetries*, *26*(November), 1-13. http://dx.doi.org/10.1016/j.jeca.2022.e00273

Andohol, J. T., Ijirshar, V. U., Ogunjemilua, O. D., & Gbaka, S. (2024). Exchange Rate Changes and Trade Flows in East Asia. *71*(1), 129-153. http://dx.doi.org/10.47743/saeb-2024-0007

Arnold, M. (2014). Managerial Cash Use, Default, and Corporate Financial Policies. *Journal of Corporate Finance*, *27*(August), 305-325. http://dx.doi.org/10.1016/j.jcorpfin.2014.05.014

Astami, E. W., Rusmin, R., Hartadi, B., & Evans, J. (2017). The Role of Audit Quality and Culture Influence on Earnings Management in Companies with Excessive Free Cash Flow: Evidence from the Asia-Pacific Region. *International Journal of Accounting & Information Management*, *25*(1), 21-42. http://dx.doi.org/10.1108/IJAIM-05-2016-0059

Barrett, S., & Chaitanya, R. S. G. (2023). Getting Private Investment in Adaptation to Work: Effective Adaptation, Value, and Cash F lows. *Global Environmental Change*, *83*(December), 1-8. http://dx.doi.org/10.1016/j.gloenvcha.2023.102761

Bejan, B. M., Pop, C. M., & Sirbu, G. N. (2023). How can Retailers Help Consumers to Recycle? Exploratory Views on the Romanian Market. *Scientific Annals of Economics and Business*, *71*(1), 107-128. http://dx.doi.org/10.47743/saeb-2024-0001

Bloch, H. P. (2017). Subject Category 42 - Training Strategies for Success *Petrochemical Machinery Insights* (pp. 611-656). Cambridge, United States: Elsevier.

Carter, T., & Diro Ejara, D. (2008). Value Innovation Management and Discounted Cash Flow. *Management Decision*, *46*(1), 58-76. http://dx.doi.org/10.1108/00251740810846743

Cheatham, L., & Cheatham, C. (1993). Utilizing Financial Statements as Cash Flow Planning and Control Tools. *Managerial Finance*, *19*(8), 35-49. http://dx.doi.org/10.1108/eb013740

Chen, W., Liu, X., & Hong, Y. (2023). Two Heads Better than One? Strategic Alliance and Firms Excess Cash Holdings. *Finance Research Letters*, *52*(March), 103575. http://dx.doi.org/10.1016/j.frl.2022.103575

Coulton, J. J., Saune, N., & Taylor, S. L. (2022). Are Analysts' Cash Flow Forecasts Associated with Improved Earnings Quality? Australian Evidence. *Pacific-Basin Finance Journal*, *73*(June), 101758. http://dx.doi.org/10.1016/j.pacfin.2022.101758

Cronbach, L. J. (1951). Coefficient Alpha and the Internal Structure of Tests. *Psychometrika*, *16*(1), 297-334. http://dx.doi.org/10.1007/BF02310555

Cronbach, L. J., & Shavelson, R. J. (2004). My Current Thoughts on Coefficient Alpha and Successor Procedures. *Educational and Psychological Measurement*, *64*(3), 391-418. http://dx.doi.org/10.1177/0013164404266386

Drissi, H., Lamzaouek, H., Amellal, I., & Mialed, K. (2023). Cash Flow Bullwhip Control Mechanisms in a Major Crisis Situation: A Case Study from the COVID-19 Crisis. *EuroMed Journal of Business*, *18*(4), 660-681. http://dx.doi.org/10.1108/EMJB-02-2022-0026

El Ghoul, S., Guedhami, O., Mansi, S., & Wang, H. (2023). Economic Policy Uncertainty, Institutional Environments, and Corporate Cash Holdings. *Research in International Business and Finance*, *65*(April), 1-47. http://dx.doi.org/10.1016/j.ribaf.2023.101887

Eskandari, R., & Zamanian, M. (2022). Cost of Carry, Financial Constraints, and Dynamics of Corporate Cash Holdings. *Journal of Corporate Finance*, *74*(June), 1-29. http://dx.doi.org/10.1016/j.jcorpfin.2022.102216

Fawzi, N. S., Kamaluddin, A., & Sanusi, Z. M. (2015). Monitoring Distressed Companies through Cash Flow Analysis. *Procedia Economics and Finance*, *28*(2015), 136-144. http://dx.doi.org/10.1016/S2212-5671(15)01092-8

Francis, B. B., Hasan, I., & Yilmaz, G. (2022). Management Capability and Innovation. In S. P. Ferris, K. John, & A. K. Makhija (Eds.), *Empirical Research in Banking and Corporate Finance* (Vol. 21, pp. 29-74): Emerald Publishing Limited. http://dx.doi.org/10.1108/S1569-373220220000021002

Galka, S., & Wappler, M. (2023). Integration of Cash Flow Management and Further Aspects of the Supply Chain Management in Production System Design. *IFAC-PapersOnLine, 56*(2), 947-952. http://dx.doi.org/10.1016/j.ifacol.2023.10.1687

Ghiami, Y. (2023). An Analysis on Production and Inventory Models with Discounted Cash-Flows. *Omega, 117*(June), 1-17. http://dx.doi.org/10.1016/j.omega.2023.102847

Gregory, G. (1976). Cash Flow Models: A Review. *Omega, 4*(6), 643-656. http://dx.doi.org/10.1016/0305-0483(76)90092-X

Gupta, K., & Krishnamurti, C. (2023). Does Employees' Interest Matter More than Shareholders' Interest in Determining Cash Management Policy? *International Review of Economics & Finance, 84*(March), 568-589. http://dx.doi.org/10.1016/j.iref.2022.11.020

Haskins, M. E., Higgs, R. D., & Ketz, J. E. (1987). Cash Flow Planning. *Planning Review, 15*(6), 38-44. http://dx.doi.org/10.1108/eb054210

Javadi, S., Mollagholamali, M., Nejadmalayeri, A., & Al-Thaqeb, S. (2021). Corporate Cash Holdings, Agency Problems, and Economic Policy Uncertainty. *International Review of Financial Analysis, 77*(October), 1-57. http://dx.doi.org/10.1016/j.irfa.2021.101859

Jermias, J., Fu, Y., Fu, C., & Chen, Y. (2023). Budgetary Control and Risk Management Institutionalization: A Field Study of Three State-Owned Enterprises in China. *Journal of Accounting & Organizational Change, 19*(1), 63-88. http://dx.doi.org/10.1108/JAOC-06-2021-0086

Jooste, L. (2006). Cash Flow Ratios as a Yardstick for Evaluating Financial Performance in African Businesses. *Managerial Finance, 32*(7), 569-576. http://dx.doi.org/10.1108/03074350610671566

Kaiser, H. F. (1970). A Second Generation Little Jiffy. *Psychometrika, 35*(4), 401-415. http://dx.doi.org/10.1007/BF02291817

Kaiser, H. F., & Rice, J. (1974). Little Jiffy, Mark Iv. *Educational and Psychological Measurement, 34*(1), 111-117.

Keefe, M., & Nguyen, P. H. (2023). The Influence of Cash Flow Volatility on Firm Use of Debt of Different Maturities or Zero-Debt: International Evidence. *International Review of Economics & Finance, 86*(July), 684-700. http://dx.doi.org/10.1016/j.iref.2023.03.035

Larkin, Y. (2013). Brand Perception, Cash Flow Stability, and Financial Policy. *Journal of Financial Economics, 110*(1), 232-253. http://dx.doi.org/10.1016/j.jfineco.2013.05.002

Lee, T. H., Min, J. U., & Park, J. S. (2010). Analyzing Impact of Financial Information Sharing on Supply Chain Performance and Stability: System Dynamics Approach. *Journal of International Logistics and Trade, 8*(2), 91-116. http://dx.doi.org/10.24006/jilt.2010.8.2.91

Leyman, P., Driessche, N. V., Vanhoucke, M., & Causmaecker, P. D. (2019). The impact of solution representations on heuristic net present value optimization in discrete time/cost trade-off project scheduling with multiple cash flow and payment models. *Computers & Operations Research, 103*, 184-197. http://dx.doi.org/DOI:10.1016/j.cor.2018.11.011

Li, X., Gupta, J., Bu, Z., & Kannothra, C. G. (2023). Effect of Cash Flow Risk on Corporate Failures, and the Moderating Role of Earnings Management and Abnormal Compensation. *International Review of Financial Analysis, 89*(October), 1-40. http://dx.doi.org/10.1016/j.irfa.2023.102762

Lin, J., Shi, W. Z., Tsai, L. F., & Yu, M. T. (2022). Corporate Cash and the Firm's Life-Cycle: Evidence from Dual-Class Firms. *International Review of Economics & Finance, 80*(July), 27-48. http://dx.doi.org/10.1016/j.iref.2022.02.006

Liu, J., Deng, G., Yan, J., & Ma, S. (2023). Unraveling the Impact of Climate Policy Uncertainty on Corporate Default Risk: Evidence from China. *Finance Research Letters, 58*(Part B), 1-21. http://dx.doi.org/10.1016/j.frl.2023.104385

Lulaj, E. (2021). Quality and Reflecting of Financial Position: An Enterprises Model through Logisticregression and Natural Logarithm. . *Journal of Economic Development, Environment and People, 10*(1), 26-50. http://dx.doi.org/0.26458/jedep.v10i1.690

Lulaj, E. (2023). A Sustainable Business Profit through Customers and Its Impacts on Three Key Business Domains: Technology, Innovation, and Service (TIS). . *Business, Management and Economics Engineering, 21*(1), 19-47. http://dx.doi.org/10.3846/bmee.2023.18618

Lulaj, E., Dragusha, B., & Hysa, E. (2023). Investigating Accounting Factors through Audited Financial Statements in Businesses toward a Circular Economy: Why a Sustainable Profit through Qualified Staff and Investment in Technology? *Administrative Sciences, 13*(3), 1-28. http://dx.doi.org/10.3390/admsci13030072

Lulaj, E., Dragusha, B., Hysa, E., & Voica, M. C. (2024a). Synergizing Sustainability and Financial Prosperity: Unraveling the Structure of Business Profit Growth through Consumer-Centric Strategies—The Cases of Kosovo and Albania. *International Journal of Financial Studies, 12*, 1-17. http://dx.doi.org/10.3390/ijfs12020035

Lulaj, E., Gopalakrishnan, A., & Kehinde Lamidi, K. (2024b). Financing, Investing in Women-led Businesses: Understanding Strategic Profits, Entrepreneurial Expectations by Analysing the Factors that Determine Their Company Success. . *Periodica Polytechnica Social and Management Sciences*(January). http://dx.doi.org/10.3311/PPso.22532

Lulaj, E., & Iseni, E. (2018). Role of Analysis CVP (Cost-Volume-Profit) as Important Indicator for Planning and Making Decisions in the Business Environment. *European Journal of Economics and Business Studies, 4*(2), 104-120. http://dx.doi.org/10.26417/ejes.v4i2.p104-120

Ma, C., Cheok, M. Y., & Chok, N. V. (2023). Economic Recovery through Multisector Management Resources in Small and Medium Businesses in China. *Resources Policy, 80*(January), 103181. http://dx.doi.org/10.1016/j.resourpol.2022.103181

Magerakis, E., Gkillas, K., Floros, C., & Peppas, G. (2022). Corporate R&D Intensity and High Cash Holdings: Post-Crisis Analysis. *Operational Research, 22*(4), 3767-3808. http://dx.doi.org/10.1007/s12351-021-00660-3

Magerakis, E., Pantzalis, C., & Park, J. C. (2023). The Effect of Proximity to Political Power on Corporate Cash Policy. *Journal of Corporate Finance, 82*(October), 102448. http://dx.doi.org/10.1016/j.jcorpfin.2023.102448

Maghsoudi, A., Harpring, R., Piotrowicz, W. D., & Kedziora, D. (2023). Digital Technologies for Cash and Voucher Assistance in Disasters: A Cross-Case Analysis of Benefits and Risks. *International Journal of Disaster Risk Reduction, 96*(October), 1-16. http://dx.doi.org/10.1016/j.ijdrr.2023.103827

Markus, G., & Rideg, A. (2021). Understanding the Connection between SMEs' Competitiveness and Cash Flow Generation: An Empirical Analysis from Hungary. *Competitiveness Review, 31*(3), 397-419. http://dx.doi.org/10.1108/CR-01-2020-0019

Mioduchowska-Jaroszewicza, E. (2022). Use of A Deterministic Cash Flow Model to Support Manager Decisions. *Procedia Computer Science, 207*(2022), 1417-1426. http://dx.doi.org/10.1016/j.procs.2022.09.198

Mohammadi, M., Kardan, B., & Salehi, M. (2018). The Relationship between Cash Holdings, Investment Opportunities and Financial Constraint with Audit Fees. *Asian Journal of Accounting Research, 3*(1), 15-27. http://dx.doi.org/10.1108/AJAR-07-2018-0016

Mullins, J. (2020). Are your Cash-Flow Tools Recession Ready? *Business Horizons, 63*(6), 693-704. http://dx.doi.org/10.1016/j.bushor.2020.04.003

Nallareddy, S., Sethuraman, M., & Venkatachalam, M. (2020). Changes in Accrual Properties and Operating Environment: Implications for Cash Flow Predictability. *Journal of Accounting and Economics, 69*(2–3), 101313. http://dx.doi.org/10.1016/j.jacceco.2020.101313

Naseer, M. M., Khan, M. A., Bagh, T., Guo, Y., & Zhu, X. (2023). *Firm climate change risk and financial flexibility: Drivers of ESG performance and firm value*: Borsa Istanbul Review. http://dx.doi.org/DOI:10.1016/j.bir.2023.11.003

Onjewu, A. K. E., Nyuur, R. B., Paul, S., & Wang, Y. (2023). Strategy creation behaviour and "last gasp" digitalization as predictors of sales performance and cash flow. *International Journal of Entrepreneurial Behaviour & Research*. http://dx.doi.org/DOI:10.1108/IJEBR-02-2023-0165

Raza, S. A., & Khan, K. A. (2024). Climate Policy Uncertainty and Its Relationship with Precious Metals Price Volatility: Comparative Analysis Pre and During COVID-19. *Resources Policy, 88*(January), 104465. http://dx.doi.org/10.1016/j.resourpol.2023.104465

Rejón López, M., Rodríguez Ariza, L., Valentinetti, D., & Flores Muñoz, F. (2023). Risk Disclosures and Non-Financial Reporting: Evidence in a New European Context. *Scientific Annals of Economics and Business, 70*(4), 547-565. http://dx.doi.org/10.47743/saeb-2023-0039

Ren, X., Yan, H., & Gozgor, G. (2023). Climate Policy Uncertainty and Idiosyncratic Volatility: Evidence from the Non-Financial Listed Chinese Firms. *Journal of Climate Finance, 5*(December), 100026. http://dx.doi.org/10.1016/j.jclimf.2023.100026

Righetto, G. M., Morabito, R., & Alem, D. (2016). A Robust Optimization Approach for Cash Flow Management in Stationery Companies. *Computers & Industrial Engineering, 99*(September), 137-152. http://dx.doi.org/10.1016/j.cie.2016.07.010

Rompotis, G. (2024). Cash Flow Management, Performance and Risk: Evidence from Greece. *EuroMed Journal of Business*(February). http://dx.doi.org/10.1108/EMJB-09-2023-0245

Rusmin, R., Astami, E. W., & Hartadi, B. (2014). The Impact of Surplus Free Cash Flow and Audit Quality on Earnings Management: The Case of Growth Triangle Countries. *Asian Review of Accounting, 22*(3), 217-232. http://dx.doi.org/10.1108/ARA-10-2013-0062

Shehata, H. H. (1976). Systems Dynamics and Cash Flow Planning-A Model for Accountants. *Managerial Finance, 2*(3), 163-179. http://dx.doi.org/10.1108/eb013381

So, J., & Zhang, J. F. (2022). The Effect of Cultural Heterogeneity on Cash Holdings of Multinational Businesses. *Research in International Business and Finance, 61*(October), 101660. http://dx.doi.org/10.1016/j.ribaf.2022.101660

Spearman, C. (1927). *The Abilities of Man*. New York: The Macmillan Company.

Steyn, B. W., & Hamman, W. D. (2003). Cash Flow Reporting: Do Listed Companies Comply with AC 118? *Meditari Accountancy Research, 11*(1), 167-180. http://dx.doi.org/10.1108/10222529200300011

Stokes, J. R. (2005). Dynamic Cash Discounts when Sales Volume is Stochastic. *The Quarterly Review of Economics and Finance, 45*(1), 144-160. http://dx.doi.org/10.1016/j.qref.2004.08.001

Umit, A. O., & Dagdemir, A. (2023). Panel Data Analysis of the Impact of External Debt on Economic Growth and Inflation: The Case of Emerging Market Economies. *Scientific Annals of Economics and Business, 70*(4), 529-546. http://dx.doi.org/10.47743/saeb-2023-0034

Yaari, U., Nikiforov, A., Kahya, E., & Shachmurove, Y. (2016). Finance Methodology of Free Cash Flow. *Global Finance Journal, 29*(February), 1-11. http://dx.doi.org/10.1016/j.gfj.2015.05.003

Yeboah, E. (2023). Does Foreign Direct Investment and Trade Openness Support Economic Development? Evidence from Four European Countries. *Scientific Annals of Economics and Business, 70*(4), 585-601. http://dx.doi.org/10.47743/saeb-2023-0033

Yi, R. (2023). Corporate Governance, Information Disclosure and Investment-Cash Flow Sensitivity. *Finance Research Letters, 55*(Part B), 103942. http://dx.doi.org/10.1016/j.frl.2023.103942

Zhang, X., & Zhou, H. (2022). The Effect of Market Competition on Corporate Cash Holdings: An Analysis of Corporate Innovation and Financial Constraint. *International Review of Financial Analysis, 82*(July), 102163. http://dx.doi.org/10.1016/j.irfa.2022.102163

Zhu, J., Han, W., & Zhang, J. (2023). Does Climate Risk Matter for Gold Price Volatility? *Finance Research Letters, 58*(Part C), 104544. http://dx.doi.org/10.1016/j.frl.2023.104544