

Projected Cash Flow Model by Activities for Decision Making in Private Companies in Peru

R.W. Caballero-Montañez^{1*}, H.R. Huanca-Callasaca², A.M. León-Zarate³, R. Polo-Luz⁴, J.J. Zapata-Urdiales⁵, A.C. Ordoñez-Ferro⁶

^{1,2,3,4,5,6}Universidad Nacional del Callao, Faculty of Accounting Sciences, Av. Juan Pablo II 306, Bellavista, Callao, Perú; E-mail: rwcaballerom@unac.edu.pe

Abstracts: The objective of the research was to develop a projected cash flow model by activity, a situation that is not shown in traditional cash flows. The article uses a deterministic cash flow model based on the liquidity position at the date on which the financial statement is formulated, according to which the total cash flow, that is, the net change in cash, will be realized according to the balance of the Statement of Cash Flows, Operating Flows and the Investment Flows that may be present, although they are infrequent and at the same time are normal activities of a company. It also shows a contribution to the theories and practices is the expansion of knowledge in financial theory on cash resources, which were confirmed by the research and conclusions regarding the analysis of open capital companies in the emerging market. It was concluded that the analyzed model can form the basis for improving decision making and finance management in companies.

Keywords: Cash Flow, Financial Statement, Decision Making, Managerial Accounting, Management Accounting.

1. INTRODUCTION

The management of financial statements is a fundamental and extremely important activity in the different activities of companies [1]. The mismanagement of financial statements with cash flow problems interrupts the different activities developed in the company, sometimes even leading to bankruptcy [2]. However, financial statements do not provide all the information to users for their economic decision making, because they only contain financial information and reflect the financial effect of past events [3]. For this reason, managers implement management information systems to effectively manage their financial statements and improve decision making [4].

The relationship between cash flow and cash remains a highly controversial topic in the field of corporate finance with implications for management information systems. For example, research by [5] have found a positive correlation with cash flow, arguing that companies accumulate cash reserves to cover future cash flow shortfalls. On the other hand, [6] have identified a significant negative correlation between cash flow and cash. While [7] finds no positive or negative differences in the sensitivity of cash flow in relation to cash flow.

This research is more closely related to the literature on cash flow uncertainty and the uncertainty that can be generated by the standard model used. That is, in the face of higher cash flow uncertainty, a firm is more likely to increase its current investment to avoid higher financing costs in the future [8]. However, some scholars argue that cash flow uncertainty may actually restrict corporate investment. A firm with greater cash flow uncertainty is more conservative and cautious in its investment decisions and, therefore, reduces its current investment [9].

For private companies the financial dimension in a production planning context, replacing the objective of total operating cost minimization with the financial objective of wealth maximization. Total wealth represents the sum of the net present values of all future cash flows. This is still the main objective of finance in private companies, as stated by [10]. The importance of this objective has also been recognized in the production planning literature. In addition, as a financial consideration, the time value of money has attracted a lot of attention in creating cash flow analysis models [10]. For example, some cash flow models since the work of [11] where one aspect of the time value of money has been addressed largely based on the classical model. [12] in various industrial contexts develops a multilevel lot-sizing model oriented to cash flow in the manufacturing resource planning system.

This assumption about proposing cash flow models according to the intrinsic need of the business context has resulted in the proposal of a wide range of methods and techniques to help companies analyze cash flow by eliminating the degree of uncertainties and assess the consequences of cash flow problems [13]. The procedure applied to propose this new cash flow model projected by activities, aims to develop a model based on the already defined structure of the Cash Flow Statement, finding the corresponding differences and advantages.

2. LITERATURE REVIEW

2.1. Cash Flow Theory

2.1.1. Conceptualization

The studies of [14] conceptualize that cash flow is the way in which different parties (firms, consumers) exchange goods, services and labor. This exchange is crucial to the interdependence between these parties and is indicative of a healthy industrial society, especially in a capitalist system, visualizing that the network of exchanges, where firms and consumers are the nodes and the actual exchanges are influenced by the decisions made in the management of cash flow. [15] defines cash flow as a method where a set of cash information is used with a balance sheet and income statement. these flows represent the sum of money flowing in and out of companies that is closely related to the balance of cash inflows and outflows covering all operating, investing and financial activities. By subtracting these two balance sheets, it becomes relatively simple to identify the transactions that are ultimately reflected in the financial statement.

Having a cash flow statement is crucial for any company, as it provides a fundamental view of its financial situation. It allows you to determine whether the company can address its short- and long-term economic challenges, while providing clarity on cash inflows and outflows in a specific period. The cash flow statement provides a detailed and accurate representation of the company's overall performance, allowing it to identify whether profits are being earned or whether additional financing is required on a timely basis [16]. The cash flow statement, according to [17], it fulfills several fundamental objectives for the financial management of a company. First, it provides an effective means of monitoring and controlling the movement of cash during a given period, allowing for more accurate management of financial resources. It also establishes a minimum cash threshold necessary to identify periods of shortage or excess liquidity, which is vital for maintaining financial stability. Finally, the cash flow serves as a predictive tool by allowing the establishment of future income projections, which facilitates the planning of financing and the coverage of the company's operating expenses.

2.1.2. Types of Cash Flow

Cash flow is broken down into three categories. First, operating cash flow [18] includes cash flows derived from the company's business operations, such as sales revenues and expenses for payments to suppliers. Second, investment cash flow [19] reflects cash flows related to the company's investments, including income and expenses for non-current assets. This type of flow represents the money that comes in and goes out as a result of an investment. Finally, the financial cash flow [20] includes cash generated by the issuance of equity or debt, as well as dividend disbursements to shareholders.

2.1.3. Financial Statements and Operating Activities

The financial statement is the information on a company's capacity to generate cash and cash equivalents, as well as its liquidity needs. The accuracy and clear structure of the information presented in this financial statement reduces uncertainty and supports the decision-making process in a company and makes it possible to guarantee the availability of funds to provide information on the flow of income and expenses, which ensures stable and constant liquidity for the development of the company [21]. To consider an item as part of the financial statement, it is necessary that it be truly liquid and capable of meeting short-term payments. In the case of financial investments, in order to be classified as cash equivalents, they must be easily convertible into a specific amount of money and present a minimum risk of variation in their value [22].

The International Accounting Standard (IAS 8) addresses accounting policies, changes in accounting estimates and errors. It also specifies that the presentation of the Statement of Cash Flows should be adjusted according to the nature of the company's activities, but should be categorized into operating, investing and financing activities. This classification allows users to evaluate the company's financial position, as well as the ending balance of its cash and cash equivalents [23]. These standard frames operating activities as indicators that make it possible to evaluate which actions have generated adequate resources to repay loans, maintain the entity's operations, distribute dividends and invest without relying on external sources of financing. Knowing the details of operations is valuable for forecasting future cash flows derived from these activities [21].

2.2. Cash Flow Model

The cash flow model proposed by [24] is a generalized model based on the daily operations of the company, in order to collect all the details related to the entity's activities, in order to provide directors or managers with a better analysis of the company's financial operations, especially for the microenterprises to which this research is directed. Table 1 shows a general cash flow model, which shows the initial cash balance, income and expenses with their respective final balance. Both revenues and expenses are divided into operating and non-operating and are subdivided according to the activity inherent to each company. In order to keep this model optimized, a certain number of days-sales must be set for keeping cash, i.e., there is an implicit cost for keeping cash and, in addition, the cost of not having it to cover commitments, i.e., the missing cost and the excess cost, and based on this determine the optimal amount for maintaining operations.

The advantages of this cash flow model is that it allows tracking all of a company's financing and investing activities over a given period of time, including the extent to which cash has been generated and absorbed. Lenders currently rely on the generalized cash flow statement as a measure of corporate performance because it "represents" the probability distribution of future cash flows relative to borrowing capacity.

Table 1: Generalized cash flow model

Concept	Month 01	Month 02	Month 03	Month 04	Month ...	Month n
Revenues						
Initial Cash						
Bnacario Loan						
Sales						
IGV (received)						
Total Revenues						
Expenses						
Raw Materials						
IGV (paid)						
Direct labor						
Indirect variable manufacturing cost						
Indirect fixed manufacturing cost						
Rental of premises						
Salaries						
Bank loan interest						
Income tax						
Workers' participations						
Regularization of IGV						
Total Expenses						
Ending Balance (cash)						

3. DEVELOPMENT

3.1. Design of the Projected Cash Flow Model by Activity

The projected cash flow model by activities (Table 2) provides better accounting information that helps to distinguish the origins and applications of funds, which are very important elements in the decision making process of private companies. The projected cash flow model by activity proposes a partial use of the company's historical information as part of the basic financial statements based on the model used for historical financial statements, specifically the generalized cash flow statement. On the other hand, the Conceptual Framework of the International Accounting Standards issued by the Accounting Standards Board provides the basis for the presentation of the financial statements, since they refer to general financial statements and historical information. On the other hand, the International Standard No. 1 of the Accounting Standards Board, makes reference to the financial statements, these are of general purpose, this means that the cash flow projected by activities proposes to be a tool for managerial use tailored to each company.

The projected cash flow model by activities (Table 2) is designed in two large groups for easy operationalization, in Operating Cash Flows and Financial Cash Flows. Unlike the structure of the Statement of Cash Flows, the part of Operating Cash Flows includes those of Investment Cash Flows that may occur, although they are infrequent and at the same time are still normal activities of a company, on the other hand, the Statement of Cash Flows is oriented to provide historical information and not projected information as proposed.

The purpose of this new form of presentation for decision makers is to provide them with an agile and clear tool to have useful financial information for decision making and that over time this new form of presentation of this managerial financial statement will be instituted. On the other hand, in the proposed Cash Flow, the operational flows comprise the main items or concepts for which income and expenses are generated. Regarding Income, it is subdivided into Accrued Income, which corresponds to income whose commitment comes from previous periods, and on the other hand, the other item that generates income are the collections or operational income of the business line, we also have the item Other Income which could be any other income other than the concepts described above, finally, within this concept of Operational Income is reported the Investment Income in the case that there is, it is not very frequent, however, a situation may occur that should be considered in this item as an Operational Activity.

The Operating Expenses are classified according to the most relevant concepts that occur in a company, i.e.: Taxes, Remunerations, Suppliers, Other operating payments and Investment Expenses. This order allows for clarity in the information and, above all, it is structured according to the nature and relevance of each concept. In the traditional cash flow (Table 1), there is no such order, each company designs it in a disorderly manner and there is no clarity in each of the concepts for which the cash flows are made and with respect to the Financing Activities in the proposed structure it is proposed separately from the other activities, however, in the traditional Cash Flow (Table 1) normally this Financing Activity is not separated.

Table 2: Projected cash flow model by activities

Concepts / Period	Monthly flows						Total
	Month 01	Month 02	Month 03	Month 04	Month ...	Month ...n	
I. OPERATIONAL ACTIVITIES							
Operating Income							
1.1 Accounts receivable accrued							
I.1 Operating Income							
I.2 Other Income							
I.3 Investment Income							
Operating income flow							
Operating Expenses							
I.3 Taxes payable							
I.4 Remunerations							
I.5 Suppliers							
I.6 Other operational payments							
I.7 Investment Expenses							
Operating cash flow							
NET OPERATING CASH FLOW							
II. FINANCING ACTIVITIES							
II.1 Revenues							
II.2 Expenditures							
II.3 Accrued liabilities							
NET CASH FLOW FROM FINANCING							
NET FLOW FOR THE PERIOD							
III. OPENING BALANCE							
IV. ENDING BALANCE							

CONCLUSION

This research is developed as a function of strategic planning in a real financial situation of the companies, within the framework of managerial accounting, generating information and responding clearly to the measure of the financial requirements of the companies. The reduction of financial uncertainty and strategic positioning is very important information that serves as a starting point to formulate a projected cash flow model, a fundamental instrument for financial decision making. The projected cash flow is a financial statement that is not regulated by the governing bodies, such as the Accounting Standards Board, College of Accountants, etc.; that is to say, other alternatives can be found to manage finances. Accordingly, it is concluded that the cash flow projected by activities is a very effective tool to optimize the future financial management of private companies. This tool provides us with projected information of future income and expenses according to the nature of cash flows, very useful information for financial decision making, being a model adaptable to companies around the world, after analysis of the legal basis of the country.

REFERENCES

- [1] Elghaish F, Abrishami S, Abu Samra S, Gaterell M, Hosseini MR, Wise R. Cash flow system development framework within integrated project delivery (IPD) using BIM tools. *Int J Constr Manag.* 2021;21(6):555–70. <https://doi.org/10.1080/15623599.2019.1573477>
- [2] Zayed T, Liu Y. Cash flow modeling for construction projects. *Eng Constr Archit Manag.* 2014;21(2):170-189. <https://doi.org/10.1108/ECAM-08-2012-0082>
- [3] Ferrer A. Normas Internacionales de Información Financiera Texto Concordado de las Normas e Interpretaciones NIC, NIIF, SIC Y CINIIF Incidencia tributaria y criterio financiero. Inst Pacífico SAC Lima 2019.
- [4] Laudon KC, Laudon JP. Sistemas de información gerencial. Naucalpan de Juárez, Estado de México Pearson Educación de México, SA de CV P 68 2012.
- [5] Bao D, Chan KC, Zhang W. Asymmetric cash flow sensitivity of cash holdings. *J Corp Financ.* 2012;18(4):690–700. <https://doi.org/10.1016/j.jcorpfin.2012.05.003>
- [6] Riddick LA, Whited TM. The corporate propensity to save. *J Finance.* 2009;64(4):1729–66. <https://doi.org/10.1111/j.1540-6261.2009.01478.x>
- [7] Vadilyev AA. Firms from financially developed economies do not save less. In: *Firms from Financially Developed Economies Do Not Save* 2553

- Less: Vadilyev, Alexander A. [SI]: SSRN; 2022.
- [8] Boyle GW, Guthrie GA. Investment, uncertainty, and liquidity. *J Finance* 2003;58(5):2143–66. <https://doi.org/10.1111/1540-6261.00600>
- [9] Amin A, Ansari R, Taherkhani R, Hosseini MR. Developing a novel cash flow risk analysis framework for construction projects based on 5D BIM. *J Build Eng.* 2021;44:103341. <https://doi.org/10.1016/j.jobe.2021.103341>
- [10] Bian Y, Lemoine D, Yeung TG, Bostel N, Hovelaque V, Viviani JL, et al. A dynamic lot-sizing-based profit maximization discounted cash flow model considering working capital requirement financing cost with infinite production capacity. *Int J Prod Econ.* 2018;196:319–32. <https://doi.org/10.1016/j.ijpe.2017.12.002>
- [11] Trippi RR, Lewin DE. A present value formulation of the classical EOQ problem. *Decis Sci.* 1974;5(1):30–5. <https://doi.org/10.1111/j.1540-5915.1974.tb00592.x>
- [12] Helber S. Cash-flow oriented lot sizing in MRP II systems. In: *Beyond Manufacturing Resource Planning (MRP II) Advanced Models and Methods for Production Planning.* Springer; 1998. p. 147–83.
- [13] Mioduchowska E. Use of A Deterministic Cash Flow Model To Support Manager Decisions. *Procedia Comput Sci.* 2022;207:1417–26. <https://doi.org/10.1016/j.procs.2022.09.198>
- [14] Gregory G. Cash flow models: a review. *Omega* 1976;4(6):643–56. [https://doi.org/10.1016/0305-0483\(76\)90092-X](https://doi.org/10.1016/0305-0483(76)90092-X)
- [15] Glantz M, Mun J. Chapter 6 - Cash Flow Analysis. In: Glantz M, Mun JBTCE for B (Second E, editors. Boston: Academic Press; 2011. p. 99–128.
- [16] Jam, F. A., Rauf, A. S., Husnain, I., Bilal, H. Z., Yasir, A., & Mashood, M. (2014). Identify factors affecting the management of political behavior among bank staff. *African Journal of Business Management*, 5(23), 9896-9904.
- [17] Castañeda RA. Flujo de caja como herramienta financiera para mejorar la liquidez de la empresa comercializadora exportadora INBC SRL, Lambayeque 2019. 2021.
- [18] Flores J. Flujo de Caja y el Estado de Flujos de Efectivo 2010.
- [19] Jurado E, Cedeño AR. El flujo de caja libre, operativo y del accionista, los elementos creadores de valor. Los value drivers o inductores de valor corporativos. *INNOVA Res J.* 2016;1(3):21–75. <https://doi.org/10.33890/innova.v1.n3.2016.15>
- [20] Hinojoza DM, Falcón EP. Flujo de caja y tasa de corte para la evaluación de proyectos de inversión. *Ind Data.* 2005;8(2):0.
- [21] Kaleem, M. . (2023). The Impact of the Use of Soft Power in Social Media on Public Diplomacy for International Co-existence. *International Journal of Membrane Science and Technology*, 10(3), 372-388. <https://doi.org/10.15379/ijmst.v10i3.1541>
- [22] Anaya HO, Niño DAO. Flujo de caja y proyecciones financieras con análisis de riesgo 2009.
- [23] Soto RV. Estado de flujo de efectivo. *InterSedes.* 2007;8(14).
- [24] Novelo JO. Análisis de estados financieros. Editorial Digital UNID 2016.
- [25] Herrero S, Monserrate L. Análisis de la NIC 8 políticas contables, cambios en las estimaciones contables y errores, y la NIC 12 impuesto a las ganancias 2017.
- [26] Flores J. Flujo de caja, estados financieros proyectados, estados de flujo de efectivo concordado con las Normas Internacionales de Información Financiera. Lima Editor Inst Pacífico SAC. 2013.

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