

## RESEARCH ARTICLE

# Working Capital Management and Profitability: Evidence from an Emergent Economy

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**Abstract:** The purpose of this paper is to study the impact of working capital management on the profitability of Argentine manufacturing firms, using the main theoretical framework suggested by the literature. Many studies have addressed this problem in developed economies, but such studies are quite rare in emerging and developing economies. The companies analyzed were selected using a stratified sampling technique based on an economic criterion. The data cover a time horizon of three years and were collected through a questionnaire. To achieve the study objectives, we used a fixed-effects regression model, which proved to be reliable to explain the effect of working capital management on profitability. The results highlighted a positive and statistically significant relationship between all components of working capital and profitability, suggesting that an increase in each variable considered determines an improvement in performance in terms of ROA and ROE. Conversely, leverage has shown a statistically significant negative relationship to profitability, suggesting that an increase in debt has a negative impact on firm performance.

**Keywords:** *Working Capital Management, Profitability, SMEs, Emerging Economy, Leverage.*

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## Introduction

Working capital management (WCM) is considered fundamental for the financial performance of companies, as it represents the link between liquidity and profitability [1, 2, 3, 4]. Consequently, firms must constantly monitor the relationships between assets and short-term liabilities, to favour the survival and development of the company and reduce the risk of financial distress [5, 6, 7, 8, 9].

Working capital management is even more important in developing and emerging economies, where the unstable conditions of the financial markets and the uncertainties linked to the economic situation lead to severe turbulence and general price instability [10]. Considering the current Argentine economic context, SMEs encounter considerable difficulties in accessing the credit market, which is strongly centred on

the banking system, and in finding the sources necessary to finance their investments. These difficulties are even more evident in the manufacturing sector, where companies tend to have a greater need for capital. In emerging economies, the literature has highlighted that the efficient management of working capital by companies is fundamental to favour profitability and productivity and, at the same time, to favour employment and economic stability [11]. Many previous studies have extensively investigated the relationship between working capital and profitability in developed economies [2, 12, 13, 14, 15, 16].

Only in recent years, literature has begun to pay attention to emerging countries [17, 18, 19, 20, 21, 22]. However, the results are still controversial and require further investigation to provide more empirical

evidence. In this perspective, the objective of the paper is to examine the effects produced by capital management on the profitability of Argentine SMEs. This topic is particularly relevant for several reasons. First, SMEs represent the backbone of the country's economy, contributing significantly to employment and social well-being. Consequently, an in-depth study of this topic can provide useful information to verify the health and competitive capacity of these companies. Secondly, given that the financial system is mainly centred on banks and SMEs have strong financial constraints [23, 24, 25].

The results can provide useful information to their owners and managers to make financing decisions appropriate to the characteristics of their business and the specific reference environment. The rest of the paper is organized as follows. Section two develops the literature review, while the next section describes the methodology used. The fourth section analyzes the findings and, finally, the last section contains the concluding remarks.

## Literature Review

The management of working capital concerns the company's current assets and liabilities, representing the link between liquidity and profitability. The effective and efficient management of working capital facilitates the continuity of company operations, as it favours the company's ability to have a cash flow to pay short-term obligations [26, 27, 28, 29, 30].

However, the optimal size of working capital is conditioned by the operational characteristics of the company and by the reference economic context. Therefore, especially in environments characterized by high environmental variability, identifying the optimal size is complex and requires continuous monitoring, to make the necessary adjustments.

Over the last few years, as previously mentioned, several studies have analyzed the relationship between working capital management and profitability in developing economies. In Nigeria, Falope and Ajilore [17] found a negative relationship between profitability and average collection period, inventory turnover, cash conversion cycle and average payment period. Bagchi and Khamrui [31] analyzed Indian companies,

finding a negative relationship between working capital and profitability. In Iran, Abbasi and Bosra [32] have found that the cash conversion cycle and the number of days of holding stocks have no significant effect, while account receivables and account payables have a significant negative effect on the ratio of gross operating profit to assets. Ahmed [33] analyzed the balance sheet data of Pakistani companies, suggesting that working capital has a positive impact on the performance of the company. In the same economic context.

Tufail and Khan [34] analyzed textile companies, finding a positive relationship between size and profitability and a negative relationship between working capital and performance. Similar results were highlighted by Rehman and Anjum [35] in Pakistani cement companies. In Kenya, Stephen ed Elvis [36] found that trade receivables and inventory period negatively impact the profitability of manufacturing SMEs.

The study by Prempeh and Peprah-Amankona [37] analyzed manufacturing companies listed on the Ghana Stock Exchange, highlighting a positive relationship between working capital management and profitability. Several studies have also been made in the Latin American context. Ribeiro de Almeda and Eid [22] found that investments in working capital are less profitable than a cash investment and that increasing working capital at the beginning of the year reduces the value of the Brazilian firms.

In the same economic context, Nakamura and Palombini [38] highlighted that the level of debt, size and growth rate have a significant impact on the management of working capital. Vazquez Carrazana et al. [39] studied Brazilian agri-food companies, suggesting a positive and significant correlation between profitability and liquidity.

Arcos and Benavides [40] have found that in Colombian companies, the CCC was inversely proportional to the profitability. Mandujano Herrera and Navarro Orihuela [41] studied manufacturing firms in Peru and Chile, highlighting a negative relationship between the cash conversion cycle and working capital requirement with profitability.

Vélez-Pareja et al. [42] found that Latin American companies have an excess of liquidity which leads to a destruction of value. In the same context, Payne and Bustos [43] highlighted that firms have used inadequate working capital management policies, highlighting that companies have excess liquidity. Terrain et al. [44] studied Argentine companies listed on the Buenos Aires Stock Exchange, noting that companies with higher working capital have higher profitability.

Furthermore, empirical findings contradict the literature that supports a negative relationship between liquidity and profitability, highlighting a negative relationship between liquidity and debt, and a positive relationship between changes in current capital and long-term debt. As is evident, the brief examination of the studies conducted in emerging and developing economies has shown conflicting results regarding the relationship between the management of working capital and profitability.

According to the prevailing literature, to adequately address this issue, it is necessary to simultaneously investigate the relationship between all the determinants of working capital and profitability, as there are reciprocal influences between each of its elements [45, 46]. Therefore, any decision that impacts one of its values necessarily affects others. Based on the theoretical reference framework suggested by the main literature, this study examines the individual components that make up the working capital (inventory, account receivables, account payables, cash conversion cycle),

using the current ratio, the size of the business and financial leverage. The variables just mentioned representing the independent variables that influence profitability, while the latter represents the dependent variable. The profitability of companies highlights the company's ability to use its resources and is measured through two indicators: ROA and ROE [47, 48, 49].

## Methodology

The purpose of this paper is to investigate the influence of working capital components on the profitability of Argentine manufacturing SMEs. The firms were selected using a stratified random sampling technique based on an economic criterion [21,50]. We chose this approach to improve the efficiency of the estimates [51] and to ensure that the sample was made up of sufficiently different companies in terms of turnover, number of employees and assets.

The data were collected through a questionnaire divided into two sections. The first contained general information regarding the company and its ownership. The second required all the balance sheet data necessary to calculate the indicators envisaged in our analysis. To neutralize the effects of inflation, we have normalized the balance sheet data. The time horizon analyzed is three years (2016-2018). We excluded all companies that submitted incomplete data from the analysis. At the end of the survey, 177 SMEs completed the questionnaire. The variables used to investigate the relationship between the determinants of working capital and profitability were calculated as shown in Table 1.

**Table 1: Variables**

Dependent Variable	
ROA	Ratio EBITDA/Total Assets
ROE	Ratio Net Income/Total Equity
Independent Variables	
IN	Inventory/Cost of Sales x 365
AR	Accounts Receivables/Sales x 365
AP	Accounts Payables/Sales x 365
CCC	(Receivables collection period + Inventory conversion period) – Payables deferrals period
CR	Ratio Current Assets/Current Liabilities
SIZE	Natural Log Total Assets
LEV	Ratio Total Liabilities/Total Assets

In line with other previous studies, this study uses a fixed-effects model. The regressions developed for each dimension of profitability are as follows:

$$ROA_{it} = \alpha_i + \beta_0 + \beta_1 IN_i + \beta_2 AR_{it} + \beta_3 AP_{it} + \beta_4 CCC_{it} + \beta_5 CR_{it} + \beta_6 SIZE_{it} + \beta_7 LEV_{it} + \epsilon_{it} \quad (1)$$

$$ROE_{it} = \alpha_i + \beta_0 + \beta_1 IN_i + \beta_2 AR_{it} + \beta_3 AP_{it} + \beta_4 CCC_{it} + \beta_5 CR_{it} + \beta_6 SIZE_{it} + \beta_7 LEV_{it} + \epsilon_{it} \quad (2)$$

Where

$\alpha_i$  = Constant (the intercept)

$\beta$  = Regression coefficient

$\beta_0$  = Constant

$\alpha_i$  = Firm-specific effect variable

$\epsilon_{it}$  = Within-firm error

$i$  = Firm

$t$  = time

## Results and Discussion

The descriptive statistics of the analyzed variables are shown in Table 2.

**Table 2: Descriptive Statistics**

	Mean	Median	Max	Min	St Dev
ROA	0.215	0.171	0.987	0.027	0.173
ROE	0.379	0.337	0.914	0.019	0.476
IN	7.873	8.156	19.967	0.413	4.791
AR	6.769	4.785	12.893	4.273	3.105
AP	1.467	1.483	3.567	1.065	1.119
CCC	12.108	11.783	18.287	4.986	3.876
CR	7.782	7.200	12.180	6.100	1.925
SIZE	7.231	8.164	10.987	0.981	4.228
LEV	9.176	8.129	16.975	5.482	2.903

Table 3 shows the correlation analysis between the variables investigated, to verify any collinearity problems.

**Table 3: Correlation Analysis**

	ROA	ROE	IM	AR	AP	CCC	CR	SIZE	LEV
ROA	1								
ROE	0.571	1							
IN	0.389**	0.479**	1						
AR	0.478**	0.401**	0.031	1					
AP	0.516**	0.517**	0.337**	-0.327*	1				
CCC	0.139*	0.359**	0.029	0.263*	0.029	1			
CR	0.399**	0.423**	0.041	0.019	0.057	0.129	1		
SIZE	0.371**	0.112*	0.048	-0.221*	0.129	0.218	0.139	1	
LEV	-0.462**	-0.459**	-0.031	0.143	-0.331	-0.187	0.047	0.327	1

\*, \*\* and \*\*\* show significance at 10%, 5% and 1%, respectively

The correlation coefficients between both profitability indicators (ROA and ROE) and IM, AR, AP, CCC, CR and SIZE are significant and positive, suggesting that increasing each independent variable determines a positive effect on the performance of firms. Financial leverage (LEV) on the other hand has a negative effect on profitability, highlighting that an increase

in debt determines a worsening of the company's performance. The correlation between the independent variables is zero or has minimal levels of significance. Table 4 shows the development of the fixed effects regression model, highlighting the impact produced by the individual determinants of working capital on ROA and ROE.

**Table 4: Panel Fixed Effects Regression**

	ROA	ROE
IN	2.576 (0.000)***	4.009 (0.000)***
AR	0.516 (0.000)***	0.081 (0.037)**
AP	0.663 (0.021)**	0.131 (0.000)***
CCC	0.089 (0.000)***	0.257 (0.000)***

CR	0.437 (0.000)***	0.291 (0.002)***
SIZE	0.141 (0.000)***	0.119 (0.023)**
LEV	-0.049 (0.004)***	-2.983 (0.000)***
Hausman test	0.002	0.012
R <sup>2</sup>	0.768	0.731
Adjusted R <sup>2</sup>	0.745	0.712

\*, \*\* and \*\*\* show significance at 10%, 5% and 1%, respectively

Control variables indicate that the model is reliable in explaining variations in ROA. Both profitability variables, ROA and ROE, are positively and significantly correlated with IN, AR, AP, CCC, CR and Size. Therefore, increasing each of these independent variables has a positive impact on profitability. Financial leverage (LEV), on the other hand, has a negative and significant impact on both performance indicators, highlighting that an increase in debt produces a negative effect on profitability.

The measures that can be taken from Table 4 indicate the impact of each variable on ROA and ROE. The results of this paper are consistent with some of the literature [37,43,50,51,52,53, among others], but diverge from the empirical findings of other studies [31,32,54,55 among others], highlighting that the results may be conditioned by the specific characteristics of the company, by the sector and by the reference economic context.

### Concluding Remarks

This paper aimed to investigate the impact of working capital management on the profitability of Argentine manufacturing firms, using the main theoretical framework suggested by the literature. Studies that have addressed this issue are widespread in developed economies but are quite rare in emerging and developing economies. The companies analyzed were selected using a stratified sampling technique based on an economic criterion.

The data concern the period 2014-2016 and were collected through a questionnaire. Overall, 194 companies were analyzed. To achieve the objectives of the study, we used a fixed-effects regression model. Tests carried out on the estimates suggested that the model is reliable in explaining the effect of working capital management on profitability.

The results showed a positive and statistically significant relationship between all components of working capital and profitability, showing that an increase in each variable considered determines an improvement in performance in terms of ROA and ROE.

Conversely, leverage has shown a negative and statistically significant relationship with profitability, suggesting that an increase in debt has a negative impact on firms' performance. The results of this study have several theoretical and practical implications.

First, empirical findings contribute to the existing literature, providing further evidence on the relationship between working capital management and profitability in the context of an emerging economy. Secondly, the results can help business managers to manage the various components of working capital more effectively and efficiently, by acting on the variables can improve performance.

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