

The Impact of Cash conversion cycle on firm's Profitability of Egypt

تأثير دورة التحويل النقدي على ربحية الشركة في مصر

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Abstract

The study seeks to evaluate how cash conversion cycle affects company profitability. Cash conversion cycle (CCC) is measured using three components: average collecting period (ACP), average inventory period (AIP), and average payment period (APP). Cash conversion cycle and its influences are thus considered as independent variables going forward. The dependent variable of this research involves measuring profitability through return on asset (ROA) and return on equity (ROE). The brain of this empirical research includes seven different companies from various sectors operating on the EGX between 2016–2023. The chosen companies supplied data for regression model hypothesis tests. The average payment period stands as the only exception to results that align with Telly & Ansori (2019) and Rizky & Mayasari (2018) regarding the negative relationship between average collecting period and average inventory period and firm profitability (ROA).

Key words: Cash Conversion Cycle, Profitability, Return on Asset, Return on Equity, AIP, ACP, APP.

ملخص الدراسة

تسعى الدراسة إلى تقييم كيفية تأثير دورة التحويل النقدي على ربحية الشركة. تقاس دورة التحويل النقدي باستخدام ثلاثة مكونات: متوسط فترة التحصيل (ACP)، ومتوسط فترة المخزون (AIP)، ومتوسط فترة الدفع (APP) وبالتالي تعتبر دورة التحويل النقدي وتأثيراتها كمتغيرات مستقلة في المستقبل. يتضمن المتغير التابع لهذا البحث قياس الربحية من خلال العائد على الأصول (ROA) والعائد على حقوق الملكية (ROE). ويشمل عقل هذا البحث التجريبي سبع شركات مختلفة من مختلف القطاعات العاملة في البورصة المصرية في الفترة ما بين ٢٠١٦-٢٠٢٣. قدمت الشركات المختارة بيانات لاختبارات فرضيات نموذج الانحدار. ويمثل متوسط فترة التحصيل الاستثناء الوحيد للنتائج التي تتفق مع نتائج تبلي وأنصوري (٢٠١٩) ورزقي ومياساري (٢٠١٨) فيما يتعلق بالعلاقة السلبية بين متوسط فترة التحصيل ومتوسط فترة المخزون وربحية الشركة (ROA).

الكلمات الرئيسية دورة التحويل النقدي، والربحية، والعائد على الأصول، والعائد على حقوق المساهمين، ومتوسط فترة التحصيل، ومتوسط فترة التحصيل، ومتوسط فترة التحصيل، والعائد على حقوق الملكية.

1. Introduction

Current business growth facilitates an escalating competition between organizations with similar business models (Kılıç and Atilla, 2024). Business survival becomes increasingly challenging when competition rises since companies must have excellent managerial control along with efficient resource utilization. Organizational resources need effective organization from management to enable decisions that help achieve future

business objectives. Business organizations attempt to maintain competitive leadership to optimize their profitability levels which guarantees organizational sustainability (Liu et al. 2022).

Organizations frequently measure how quickly they can convert revenues to cash. This duration affects their profitability in terms of return on assets (Kusuma, 2021). A company's ability to assess inventory turnover rates and manage cash flow effectively contributes to successful profitability. Companies require enough cash flow to handle aging short-term debts as well as future operational expenditures. The available cash requires strategic decisions about managing accounts payable and receivable and inventory maintenance as well as financial investment opportunities (Wajo, 2021).

Working capital management depends heavily on the Cash Conversion Cycle calculation which demonstrates the entire duration of purchasing materials from suppliers before payment receipt for marketed products. The Cash Conversion Cycle helps organizations properly execute financing choices during short-term periods through identification of methods to solve their money shortages by postponing debt expenses or hastening payment collections. A company applies CCC to determine its cash collection speed from financial profits thus defining required current asset amounts (Ahmed, 2022).

The management of company assets along with liabilities is affected by this condition which then determines the level of

profitability. Profitability levels of a business create a connection with cash conversion cycle duration since this reflects the period needed to recover operating funds (Susanti et al. 2020). The Cash Conversion Cycle functions as a vital tool to measure business performance regarding working capital resource management (Wang et al. 2020).

The success indicator of profitability takes the form of ratios which measure company income potential through different resources involving sales revenue and cash flow and employee expenses and branch operations (Karas and Režňáková, 2020). Executive effectiveness can be measured through profitability ratios which establish the relationship between profits and working capital together with costs and sales revenue. The ratios demonstrate how a company can maintain and grow its business operations into the future. A company with enhanced profitability demonstrates better prospects for market growth and extended operational existence. The occurrence of attractive business prospects usually draws investors who want to seize new chances (Banerjee and Guha Deb, 2024).

2. Literature Review: Cash Conversion Cycle and Firm Profitability

This section reviews existing literature on the Cash Conversion Cycle (CCC) and its relationship with firm profitability. Various studies have examined how components of the CCC—Average Collection Period, Average Age of

Inventory, and Average Payment Period—affect profitability measures like Return on Assets (ROA) and Return on Equity (ROE). The literature reveals mixed findings, with studies reporting positive, negative, or no significant relationship between CCC and firm profitability during the period 2011-2020.

2.1 Studies from Asia

Marisetty & Madasu (2020) investigated the factors influencing CCC and its impact on profitability among non-financial companies in the SENSEX S&P BSE Index in India from 2006-2020. Using Days Inventory Turnover (DIT), Days Receivable Outstanding (DRO), and Days Payable Outstanding (DPO) as CCC measures, they found a significant negative relationship between CCC and profitability indicators including ROCE, ROE, and ROA. Iqbal et al. (2020) examined 10 companies listed on the Pakistan Stock Exchange (PSX) from 2010-2018, focusing on Oil & Gas and Engineering sectors. Their regression analysis revealed a strong negative relationship between CCC days and organizational profitability measured as ROA.

Saraswat & Bernawati (2020) studied 309 manufacturing companies listed on the Indonesian Stock Exchange from 2011-2013. Their findings confirmed that the cash conversion period had a negative impact on company profitability measured by both ROA and ROE. Linh & Mohanlingam (2018) analyzed 34 listed companies in Thailand's agriculture and food industry from 2009-2013. Their regression analysis showed a significant

inverse relationship between CCC and profitability, suggesting shorter cash cycles improve financial performance.

2.2 Studies from Africa

Olorunfemi et al. (2020) investigated 10 food and beverage companies listed on the Nigerian Stock Exchange from 2014-2018. Using panel regression analysis, they found a significant negative relationship between CCC and profitability (measured by ROA). Tsagem et al. (2018) examined 311 Nigerian SMEs from 2007-2013. Their findings indicated negative relationships between cash conversion period, inventory holding period, accounts payable period and SME profitability. Oseifuah & Gyekye (2016) studied 75 non-financial firms listed on the Johannesburg Stock Exchange from 2003-2012. Their results aligned with CCC theory, showing negative relationships between working capital management, inventory conversion period, accounts receivables period and corporate profitability. Majanga (2015) examined 12 Malawian manufacturing firms from 2007-2015. The study revealed an inverse relationship between CCC and both return on investment and return on equity.

2.3 Studies from Europe

Yazdanfar & Ohman (2014) investigated Swedish SMEs from 2008-2011 using cross-sectional panel data covering 13,797 companies across four industries. Their seemingly unrelated

regression model provided evidence that CCC significantly and negatively affects profitability.

2.4 Studies Showing Positive Relationship Between CCC and Profitability

Zakari & Saidu (2016) examined ICT firms listed on the Nigerian Stock Exchange from 2010-2014. Their multiple linear regression analysis indicated a significant positive relationship between CCC and corporate profitability. Sin-Huei Ng et al. (2017) studied 122 companies in the Industrial Goods sector of Bursa Malaysia from 2007-2012. Their findings showed a positive relationship between cash conversion period and gross operating income, suggesting improved inventory conversion time benefits profitability.

Sharma & Kumar (2011) analyzed 263 non-financial firms listed on the Bombay Stock Exchange from 2000-2008. Their OLS multiple regression revealed positive relationships between accounts receivables days and cash conversion period with corporate profitability.

2.5 No Significant Relationship Between CCC and Profitability

AL-Abass (2017) collected data from companies listed on the Karachi Stock Exchange from 2012-2016. Pearson correlation and regression analysis showed that the relationship between CCC and both profitability and firm size was insignificant. AL-Shubiri & Abu Rumman (2013) examined 11

industrial sectors in Jordan from 2005-2011 listed on the Amman Stock Exchange. Their quantitative analysis found no significant relationship between the profitability indicator and CCC, although CCC showed significant positive relationships with debt, market, productivity, liquidity, and dividends indicators.

Yilmaz & Acar (2019) analyzed 66 non-financial companies over four years (2013-2016) using dynamic panel data analysis and the generalized method of moments. Results showed that CCC had nonlinear significant effects on gross profit margin and EBIT margin, but ROA was not affected by CCC or its components.

2.6 Mixed Results and Component-Specific Findings

Hashini (2019) examined selected corporations in Sri Lanka from 2015-2016. The study found that Inventory Conversion Period (ICP) and Debtor Conversion Period (DCP) had strong positive relationships with profitability, while Payable Conversion Period (PCP) negatively affected ROE and ROA. Overall, CCC was negatively correlated with profitability.

Sugathadasa (2018) collected data from 10 listed companies in the electrical appliances manufacturing sector on the Colombo Stock Exchange from 2013-2017. Results showed positive correlations between inventory conversion period, receivable conversion period, and ROA, but a negative correlation between payable conversion period and ROA. All CCC components showed negative correlations with ROE.

Oseifuah & Gyekye (2016) studied 75 non-financial firms listed on the Johannesburg Stock Exchange from 2003-2012. Their findings were consistent with CCC theory, showing negative relationships between working capital management and profitability, inventory conversion period and profitability, and accounts receivables conversion period and profitability. They found a positive relationship between accounts payable deferral period and profitability.

Therefore, it is hypothesized as follows:

H1: Cash conversion cycle has a significant effect on firm's profitability.

H1a: Average collection period has significant effect on firm's ROE.

H1b: Average inventory period has significant effect on firm's ROE.

H1c: Average payment period has significant effect on firm's ROE.

H1d: Average collection period has significant effect on firm's ROA.

H1e: Average inventory period has significant effect on firm's ROA.

H1f: Average payment period has significant effect on firm's ROA.

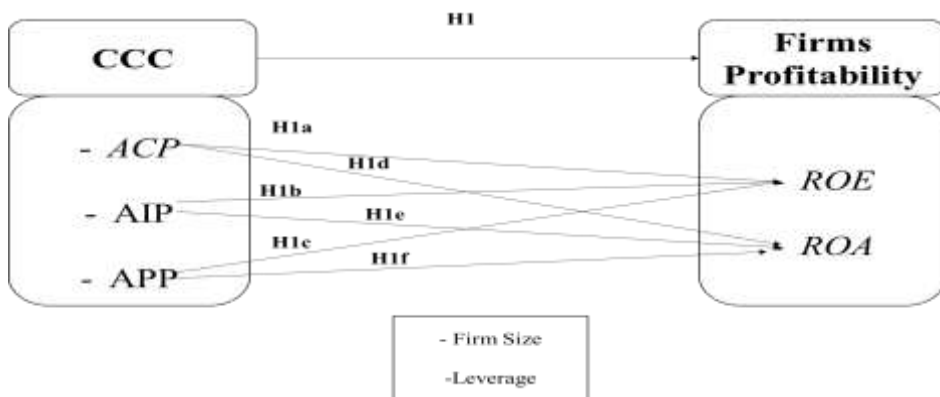


Figure 1. Research Model

Source: Developed by the author

A research model shows how Cash Conversion Cycle (CCC) affects firm profitability through the displayed illustration. Multiple specific hypotheses enable this conceptual structure to create a link between financial performance and working capital management. The model shows that CCC formed from three core elements (Average Collection Period and Average Inventory Period and Average Payment Period) may impact the profitability metrics consisting of Return on Equity and Return on Assets. In hypothesis H1 researchers explore the significant connection between general CCC and profitability but additional hypotheses H1a through H1f focus on specific component relationships.

Existing theoretical models can explain the described relationships. According to trade-off theory companies need to weigh the costs of capital constraints from high inventory and

credit policies against their positive impacts on business operations (Rodriguez, 2024). Working capital efficiency targets establishing the best resource allocation which drives most profit generation. The firms showing enhanced working capital management ability produce additional internal resources which decrease their requirement for costly external funding according to the pecking order theory. The business could enhance profitability thanks to cheaper financing methods brought on by lower capital needs (Mwangi, 2022).

According to agency theory the practice of suboptimal working capital management happens because it meets the self-interest goals of managers instead of enhancing shareholder value. Effective corporate governance systems help manage agency problems which therefore enhances the correlation between CCC and profitability. The liquidity-profitability trade-off theory reveals an important connection because higher liquidity obtained through shorter CCC reduces financial risk but can simultaneously diminish profitability by idle cash management rather than asset investment (Ketokivi and Mahoney, 2020).

The theory of transaction cost economics promotes profitability growth when companies reduce transaction expenditure related to payment collection from customers as well as inventory management and supplier payment costs. Better optimization of these processes enables better performance from

the CCC and heightens profitability potential (Putra et al. 2021). Finally, the resource-based view indicates that companies with superior capabilities in managing their working capital could develop a competitive advantage, resulting in better financial performance. This would support the hypothesized positive relationship between efficient CCC management and firm profitability metrics (Lima et al. 2025).

3. Methods

The research makes use of secondary data points collected from annual reports spanning from 2016 through 2023. The research obtained more reliable findings by incorporating website data from financial institutions to its data collection process. The data used for this study derives from secondary resources with particular focus on historical documentation. Records for data collection emanated from the annual reports of Egypt's 30 Firms of EGX30.

3.1 Sampling technique

Sharma (2017) explains that under census methodology all members of the entire population undergo assessment because this research method provides total coverage of population entities. The applications of this approach span the entire population structure because selection biases disappear simultaneously with the delivery of complete analysis information. Every population unit included by census methodology eliminates the requirement for probability calculations because it incorporates the entire population.

According to Cochran (1963), the appropriate Cochran sample technique rule is as follows:

$$n = \frac{z^2 \times p \times (1 - p)}{e^2} = \frac{(1.65)^2 \times (0.5) (0.5)}{0.1^2} \approx 68.0625 \approx 68$$

(1)

Therefore, the sample needs to exceed 68 respondents to obtain a margin of error of 0.1.

The research analyzed a total of seven companies listed on the Egyptian Exchange (EGX30) across various sectors. This empirical study evaluated Egyptian firms as its primary research subject, focusing on the relationship between cash conversion cycle and profitability metrics. Company selection was based on fundamental criteria including complete financial reporting availability for the period 2016 to 2023, which facilitated a comprehensive examination of working capital management practices and their financial outcomes.

The evaluation utilized financial report information from these seven companies spanning eight years, with cash conversion cycle components (average collection period, average inventory period, and average payment period) as independent variables, and profitability measures (ROA and ROE) as dependent variables. This framework allowed for thorough analysis of how working capital management influences corporate financial performance in the Egyptian market context.

Data analysis was conducted using regression modeling to

test the research hypotheses. The findings revealed alignment with previous research by Telly & Ansori (2019) and Rizky & Mayasari (2018), confirming a negative relationship between both average collection period and average inventory period with firm profitability as measured by ROA. However, the average payment period demonstrated different patterns, standing as an exception to these consistent relationships. Through this analytical approach, the research evaluated how various components of the cash conversion cycle directly impact the profitability of Egyptian companies. The study achieved an accurate assessment of working capital management practices and their financial implications for Egyptian firms through methodical data selection and statistical analysis focused specifically on EGX30 companies operating in the Egyptian market environment.

Independent variable:

i) ACP

365

Average receivable turnover ratio

(2)

ii) AIP

365

Inventory turnover

(3)

iii) APP

$$\frac{\text{Average Accounts Payable}}{\text{Total Credit Purchases/ Days}}$$

(4)

Dependent variable:

- ROA

$$\frac{\text{Net income}}{\text{Total assets}}$$

(5)

- ROE

$$\frac{\text{Net income}}{\text{Total Equity}}$$

(6)

In this study the, the following control variables are adopted by the study:

i) Firm Size

- Natural Log to total assets

ii) Leverage

$$\frac{\text{Total debt}}{\text{EBITDA}}$$

(7)

To test the research hypotheses, the researcher identifies the following empirical models:

$$ROE = \beta_0 + \beta_1 ACP + \beta_2 AIP + \beta_3 APP + \beta_4 FS + \beta_5 LV + \varepsilon_i$$

(8)

$$ROA = \beta_0 + \beta_1 ACP + \beta_2 AIP + \beta_3 APP + \beta_4 FS + \beta_5 LV + \varepsilon_i$$

(9)

Using Equations (8) and (9) this research evaluates the connection between company profitability expressed through ROE and ROA compared to the cash conversion cycle elements which include ACP, AIP, APP and the controlling variables of FS and LEV. The equations outline the relationships between these working capital management variables and their influence on corporate profitability metrics. The research findings establish direct links between each CCC component and firm profitability through comprehensive statistical analysis.

The study analyzes seven Egyptian companies listed on the EGX30 from 2016 to 2023 by employing regression models on the panel dataset. The cash conversion cycle management in different industries requires simultaneous handling of sectoral unique aspects and financial time pattern analysis due to its essential role for operational excellence and financial benefit enhancement.

The study implements suitable regression models to determine connections between researched variables. This research employs panel analysis since it analyzes the multiple periods to assess operational-performance-profitability linkages between different companies. The applied technique gets rid of business-specific factors so researchers can determine accurate relationships between CCC components (ACP, AIP, and APP)

and profit performance measures (ROA and ROE).

4. Results

4.1 Descriptive approach

Table (1): Descriptive statistic for the selected variables

Variable	Symbol.	Min	Max	Mean	SD	CV
<i>AIP</i>	x11	36.6	867.6	172.036	104.6789	60.85%
<i>ACP</i>	x12	0	717.29	155.0441	141.5542	91.30%
<i>APP</i>	x13	25.22	588.77	208.6335	116.1895	55.69%
<i>CCC</i>	X1	-298	798.4	118.4466	237.7453	200.72%
<i>Firm size</i>	X2	7.48	10.6	9.278	0.74961	8.08%
<i>Leverage</i>	X3	1.1	8.5	2.62	1.43752	54.87%
<i>ROE %</i>	Y1	-7.4	18.91	3.3779	4.21359	124.74%
<i>ROA %</i>	Y2	-14	52	3.3369	7.10652	212.97%

Source: Developed via STATA V.17

The descriptive statistics table reveals considerable variability in the cash conversion cycle components and profitability measures across Egyptian firms, with notably high coefficients of variation for CCC (200.72%) and ROA (212.97%), suggesting significant differences in working capital management practices and financial performance among the sampled companies.

4.2 Regression

Table (2): Results of the first hypothesis

Hypothesis	Dependent Variable	Independent Variables	R Square	F-value	B	t-value	Remark
H1a	ROE	AIP	.014	1.950 ^{NS}	-.005	-1.396 ^{NS}	Not Supported
H1b		ACP	.009	1.277 ^{NS}	-.003	-1.130 ^{NS}	
H1c		APP	.007	.993 ^{NS}	.003	.996 ^{NS}	
H1		CCC	.023	3.189 ^{NS}	-.003	-1.786 ^{NS}	

Source: Developed via STATA V.17

The value of F-statistic, which measures the common importance of the explanatory variables, is not statistically significant at the

5% level, according to the corresponding value of probability greater than 0.05. The values of R^2 suggest that small amount of the variation in ROE is explained by joint variations in the independent variables. Results show that all coefficients were statistically insignificant since the values of t-statistics were below 1.96 and a corresponding p- value greater than 0.05. In conclusion the results of the regression analysis show that no single variable of the selected ones has a statistical significant effect on ROE.

Table (3): Results of the second hypothesis

Hypothesis	Dependent Variable	Independent Variables	R Square	F-value	B	t-value	Remark
H1d	ROA	AIP	.058	8.560** (.004)	-.016	-2.926** (.004)	Supported
H1e		ACP	.040	5.719* (.018)	-.010	-2.391* (.018)	Supported
H1f		APP	.007	.919 (.339)	-.005	-.959 (.339)	Not Supported

Source: Developed via STATA V.17

The regression results show that both average inventory period (AIP) and average collection period (ACP) have significant negative relationships with return on assets (ROA) as evidenced by their significant negative coefficients and t-values, while average payment period (APP) shows no significant relationship with firm profitability.

4.3 Discussion

Laboratory findings match prior research about how cash conversion cycle elements affect profitability among firms. The

research data shows inconsistent effects of CCC components on profitability indicators when comparing the results between ROE and ROA measurements.

The results of regression evaluation confirm that both average inventory period (AIP) and average collection period (ACP) produce negative significant effects on return on assets (ROA). Multiple studies conducted in various geographical areas validate this research finding. A significant negative link exists between cash conversion cycle and profitability indicators which include ROA according to Marisetty & Madasu (2020) research on Indian companies. A strong negative relationship exists between cash conversion cycle days and return on assets in Pakistani firms based on the research by Iqbal et al. (2020). In Indonesian manufacturing firms Saraswat & Bernawati (2020) established that cash conversion period has detrimental effects on ROA.

Brisk inventory holding durations create negative effects on firm profitability because they reduce ROA. Tsagem et al. (2018) confirmed that inventory holding period negatively affects small business profitability in Nigeria according to their research findings. Companies with reduced inventory cycle times demonstrate improved asset utilization since they minimize costs of inventory storage along with decreasing products from expiring or becoming obsolete.

Similarly, the negative relationship between ACP and

ROA indicates that longer collection periods detract from profitability. The inconsistency in outcomes between ROA and ROE measurements seems due to their differing characteristics as profitability indicators. The efficiency assessment of asset management through ROA differs from the shareholder return evaluation by ROE because ROE focuses on equity values while ROA evaluates asset performance. Working capital efficiency seems to affect operational profitability (ROA) directly before influencing shareholder returns (ROE) since additional factors such as capital structure and dividend policies also affect ROE.

The inconsistent findings between different profitability metrics match the divergences observed by previous research studies. Studies by Zakari and Saidu (2016) and Sin-Huei Ng and colleagues (2017) showed a positive link between CCC elements and profitability but AL-Abass (2017) and AL-Shubiri together with Abu Rumman (2013) discovered insignificant relationships. The contradictory findings show that working capital management's impact on profitability depends heavily on multiple organizational conditions including economic situations and business characteristics and individual company characteristics.

The present research within an Egyptian setting introduces particular factors which shape the working capital management to profitability linkages. Country-specific factors as well as business practices in addition to regulatory environments might

reduce the influence of CCC components on firm performance. Studies by Zakari and Saidu (2016) and Sin-Huei Ng and colleagues (2017) showed a positive link between CCC elements and profitability but AL-Abass (2017) and AL-Shubiri together with Abu Rumman (2013) discovered insignificant relationships. The contradictory findings show that working capital management's impact on profitability depends heavily on multiple organizational conditions including economic situations and business characteristics and individual company characteristics.

The present research within an Egyptian setting introduces particular factors which shape the working capital management to profitability linkages. Country-specific factors as well as business practices in addition to regulatory environments might reduce the influence of CCC components on firm performance.

5. Conclusion

An examination of the financial performance relationship between cash conversion cycle components and Egyptian companies trading on the EGX during the 2016-2023 period was conducted. The study contributes important findings about the business practices of working capital management together with their financial performance effects within the Egyptian market framework. The analysis indicates that both average inventory period (AIP) and average collection period (ACP) exhibit negative relationships with return on assets (ROA) although average payment period (APP) fails

to demonstrate such correlation. The data showed no significant statistical connection between any component of cash conversion cycle and return on equity (ROE). Research evidence shows that working capital management choices create different profitability effects across ROA and ROE measurement.

Egyptian firms could boost profitability through better inventory management because a negative connection exists between inventory period and ROA. The negative relationship between collection period and ROA shows that companies can increase their profitability through improved accounts receivable policy implementation which in turn increases asset utilization. Extending payment durations to suppliers does not appear to create any meaningful impact on profitability measurements throughout the Egyptian business environment. The application of these research findings creates vital considerations for both financial managers as well as corporate decision-makers throughout Egypt. A strategic emphasis on shortening inventory times coupled with hastened receivables payment venues enables organizations to boost both their operational performance and asset productivity. The lack of substantial relationships between ROE and the study variables indicates that organizations should implement holistic financial management solutions to achieve better shareholder returns.

The research provides empirical data about this connection from the Egyptian market while expanding scholarly knowledge

about working capital management effects on profitability in emerging economies. Different profitability indicators and cash-conversion-cycle quantities reveal the complicated character of their relationship which demonstrates the need to consider business context throughout financial decision-making. Further research should examine extra variables that influence how CCC components impact profit rates including business sector conditions together with enterprise size elements and economic environment conditions. Time-based evaluations of changing relationships between working capital components and profitability insights would provide valuable understanding of optimal working capital management methods especially during economic market fluctuations. Examining working capital management strategies across different emerging markets would enable researchers to discover regional trends along with successful practices in this field.

5.1 Theoretical and Practical Implications

The discovery that Active Investment Program and Active Collection Program reduce Return on Assets without changing Return on Equity leads to essential theoretical and practical implications. Working capital management seems to utilize different pathways to influence profitability across its various dimensions according to theoretical assessments. Managers who want operational efficiency and asset utilization improvement

must minimize both inventory carrying time and payment collection span yet must realize these changes may not directly affect shareholder returns unless managers address additional financial management elements.

The insignificant relationship between APP and profitability indicators indicates that payment extension strategies would likely fail to enhance profitability rates within the Egyptian market. Evidence shows that the accepted financial principle linking supplier payment delays to better cash flow and profit generation does not hold true. The Egyptian business reality shows that other elements probably negate the potential advantages of payment term extensions when considering payments to suppliers. The successful management of inventory and accounts receivable proves essential for operational profitability in Egyptian firms yet financial managers must use a comprehensive financial plan to obtain both working capital efficiency and broad financial strategies to generate maximum firm performance and shareholder value.

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