*Eurasian Journal of Economics and Finance, 10(1), 2022, 1-10*
DOI: 10.15604/ejef.2022.10.01.001

**EURASIAN JOURNAL OF ECONOMICS AND FINANCE**

**www.eurasianpublications.com**

# A META-ANALYSIS OF THE IMPACT OF WORKING CAPITAL ON PROFITABILITY

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Received: January 23, 2022 Accepted: February 15, 2022

**Abstract**

Working capital and profitability are two important core concepts in financial management and accounting. The management of these two concepts can affect an investor's decision to invest in a firm. Thus, there have been many publications stressing the need to effectively manage working capital because of its significant impact on profitability. However, working capital has been hardly mentioned by any senior manager or executive as one of the value drivers that enhances profitability. Therefore, the aim of this study is to investigate the strength and the extent to which profitability depends on working capital. This study is motivated by a lack of research in this area. Using a meta-analysis of 32 published journal articles and dissertations, the study finds that working capital accounts for 37.8% of the variability in profitability. Also, the results of a Kolmogorov-Smirnov test reveal that the distribution of the coefficient of determination is not normally distributed and is not a good fit to explain the effect of working capital on profitability, hence independent of each other. The implication of this study is that research entitled "the effect of working capital management on profitability" should be scrutinized before being accepted for publication.

**Keywords**: Working Capital, Kolmogorov-Smirnov Test, Profitability, Meta Analysis

**JEL Classifications:** G11, G12, G15

## 1. Introduction

The concept of working capital management (WCM) is important in the day-to-day management of a business as it can assist the business in maintaining a strong cash flow position (Enow and Brijlal, 2014). This is made possible because of its direct link with the operational financing of the firm. This financial metric is mostly concerned with the liquidity position of a firm in order to ensure continuity and successfully leverage in liquidity reserves (Ayoush *et al.* 2021). WCM cuts across many firms irrespective of the industry, and some of its importance include the regular supply of raw materials, favorable market conditions, and favorable loan and solvency position for the business.

There have been many studies proposing that effective WCM significantly influences the profitability of a firm (Belay, 2010; Akinlo, 2012; Napompech, 2012; Ajao and Nkechinyere, 2012; Rehn, 2012; Aregbeyen, 2013; Ponsian *et al.* 2014; Enow and Brijlal, 2014; Ahmed *et al.* 2015).

Some studies pointed out that the cash conversion cycle, which is used mainly as a metric for WCM, should be reduced in other to increase profitability (Akinlo, 2012; Napompech, 2012; Serrasqueiro, 2014; Enow and Brijlal,2014; Hoang, 2015; Hogerle *et al.* 2020). Although other studies suggested the opposite (Belay, 2010; Rehn, 2012; Aregbeyen, 2013), WCM might not necessarily affect profitability.

The relevant literature uses regression analysis as a data analysis method with samples from different industries. As noted in the study of Rjoub *et al.* (2017), regression analysis can have bidirectional causality meaning that WCM can significantly influence profitability, and profitability can also influence WCM, hence rendering the study and research analysis misleading. In this case, the research publication becomes redundant as it is spurious for profitability to affect WCM.

As noted, several published journal articles proposed that WCM should be managed effectively to increase the profitability of a firm, however, none of the studies under consideration examined or established the direction of influence. Also, it is not clear whether the proposition that WCM significantly affects profitability either positively or negatively could be validated because the extent to which WCM can account for the variability in profitability is still lacking, and research titles should present the findings in line with a unidirectional causality, coefficient of determination (R-squared), and effect size. This is particularly true because most of the studies did not carefully analyze the extent to which WCM can be used to explain the variability in profitability or the effect sizes between the variables but rather prioritized the p-values and coefficients. As documented by Sullivan and Feinn (2012), effect sizes and the coefficient of determination should be prioritized above p-values because p-values do not reveal the magnitude of the effect. Furthermore, the main motivation of this stems from the fact that chief executive officers and other senior managers have hardly mentioned WCM as a value driver of profitability in any annual report (Miller and Mathisen, 2004; Vitkova *et al.* 2017), which contradicts the proposition put forth by Belay (2010), Akinlo (2012), Napompech (2012), Ajao *et al.* (2012), Rehn (2012), Aregbeyen (2013), Ponsian *et al.* (2014), Enow and Brijlal (2014), Ahmed *et al.* (2015), and many more. Therefore, the aim of this study is to use the distribution of R-squared to determine the variability of profitability that is attributed to WCM to examine the argument that WCM affects profitability. This is achieved by investigating whether WCM sufficiently accounts for variability in profits and whether profitability is dependent or independent of WCM. This study is of significant importance to academics, senior financial managers, and publishing houses as it is the first of its kind to empirically investigate the relationship between these two concepts using a meta-analysis.

The rest of the paper is structured as follows. Section 2 reviews the literature, whereas Section 3 discusses the methodology and Section 4 presents the findings. Finally, Section 5 concludes the paper.

## 2. Literature review

WC represents the operating activities in a firm, including the inflows and outflows, and it is the crux of liquidity management where inflows are balanced with outflows. Thus, the effect of WCM on profitability has been extensively investigated in different sectors across several countries. Using regression analysis, these studies presented dissimilar findings and different relationships on numerous occasions. Table 1 in the appendix summarizes 32 prior studies on this topic, including different variables and results used in studies. About 30 of these studies concluded that there is a significant positive or negative relationship between WCM and profitability. Yet, we argue that these studies lack in three aspects.

First, the level of effect size accounted for by the independent variables is not highlighted in mentioned studies. Second, none of the studies presented the direction of influence and whether WCM has a unilateral or bilateral relationship with profitability. Third, almost all the studies are salient on the coefficient of determination. Therefore, it is important to establish whether WCM can be used to explain the variation in profitability to avoid misleading recommendations proposed by these studies.

## 3. Methodology

A meta-analysis technique is used to observe the extent to which WCM can be used to explain the variability in profitability. More specifically, a Kolmogorov-Smirnov test (KS test) and a chi-square dependency test are utilized to determine the goodness of the fit and dependency of the profitability on WCM. The KS test is suitable to test the difference of one sample to a known statistical distribution (Filion, 2015). This is achieved by benchmarking whether the sample parameters have the same probability density function as the known theoretical value. The hypothesis for the KS test used in this study is given as follows.

- **H0:** R-squared is normally distributed and is a good fit for explaining the effect of WCM on profitability.
- **H1:** R-squared is not normally distributed and is not a good fit for explaining the effect of WCM on profitability.

A chi-square test for dependency is used to compare a categorical variable to an observed variable in order to determine whether the two variables are statistically related to or dependent on each other (Wegner, 2013). Generally, dependency connoted the extent to which the outcome of one variable is able to influence another. This is very useful as it is able to establish whether the correlation between the variables is purely by chance or there exists a genuine association between the variables (Wegner, 2013). In the dependency test, if the chi-square test value is lower than the critical value, the null is accepted and vice versa. Therefore, the following hypothesis is used for the chi-square analysis.

- **H0:** The chi-square test value is less than the critical value, inferring that there is no association between WCM and profitability, hence they are statically independent.
- **H1:** The chi-square test value is more than the critical value, inferring that there is an association between WCM and profitability, hence they are statically dependent.

The critical values are retrieved from the chi-square distribution table. Also, this study made use of the coefficient of dependence (R-squared) from a sample of 32 studies as R-squared is a metric of correlation which is the proportion of variation in the observed values (Chicco *et al.* 2021). It indicates how well a regression fits the dataset where its values range from 0 to 1 (Chicco *et al.* 2021). An R-squared value of 0.5 means that 50 percent of the variations in the dependent variable can be explained by the independent variables. The ontology lens of this study is that the effect of WCM can be analyzed objectively using the values of R-squared. Table 2 presents the authors, sample size, and R-squared compiled from the literature.

**Table 2. R-squared values from studies in the literature**

| Study | R-squared | Sample | Study | R-squared | Sample |
|---|---|---|---|---|---|
| Belay (2010) | 45.90% | 11 | Jamil *et al.* (2015) | 46.00% | 48 |
| Haq *et al.* (2011) | 67.80% | 14 | Samiloglu and Akgun (2016) | 18.92% | 120 |
| Akinlo (2012) | 33.00% | 66 | Kasozi (2017) | 14.36% | 69 |
| Rehn (2012) | 19.00% | 612 | Yakubu *et al.* (2017) | 38.00% | 25 |
| Napompech (2012) | 29.90% | 255 | Jana (2018) | 51.00% | 75 |
| Ajao and Nkechinyere (2012) | 43.20% | 36 | Pham *et al.* (2020) | 36.82% | 20 |
| Aregbeyen (2013) | 46.40% | 624 | Ndumia and Omagwa (2019) | 86.50% | 8 |
| Ponsian *et al.* (2014) | 47.00% | 3 | Hogerle *et al.* (2020) | 8.40% | 115 |
| Riaz *et al.* (2014) | 3.90% | 10 | Makina and Kenga'ra (2020) | 74.70% | 70 |
| Kiarie (2014) | 36.00% | 9 | Muhammad *et al.* (2020) | 79.00% | 25 |
| Bjorkman and Hillergren (2014) | 5.00% | 1485 | Oladimeji and Aladejebi (2020) | 49.00% | 97 |
| Enow and Brijlal (2014) | 82.60% | 15 | Hossain (2020) | 24.90% | 52 |
| Serrasqueiro (2014) | 2.44% | 3360 | Anton and Nucu (2020) | 16.0% | 719 |
| Hoang (2015) | 32.66% | 98 | Alvarez *et al.* (2021) | 75.95% | 177 |
| Aggarwal and Chaudhary (2015) | 25.53% | 364 | Nowak *et al.* (2021) | 6.90% | 105 |
| Ahmed *et al.* (2015) | 61.30% | 7 | Shaik (2021) | 5.00% | 100 |

## 4. Findings and discussion

The KS test and chi-square results are presented in Table 3. As seen, the maximum value of the difference between the actual values and norm distribution is 0.884. This value is higher than the KS test statistics value of 0.27. In other words, the maximum value falls in the area of rejection. In this case, the null hypothesis is rejected in favor of the alternative, implying that R-squared is not normally distributed and is not a good fit for explaining the effect of WCM on profitability. This finding is supported by the histogram plot created from the dataset as shown in Figure 1.

**Table 3. KS test results**

| R-squared value | Cumulative | Expected | Rank | INV. | Actual | Difference |
|---|---|---|---|---|---|---|
| 45.90% | 1 | 0.0313 | -0.0313 | -1.863 | 0.626 | 0.657 |
| 67.80% | 2 | 0.0625 | 0 | -1.534 | 0.884 | 0.884 |
| 33.00% | 3 | 0.0938 | 0.0313 | -1.318 | 0.423 | 0.392 |
| 19.00% | 4 | 0.1250 | 0.0625 | -1.150 | 0.225 | 0.163 |
| 29.90% | 5 | 0.1563 | 0.0938 | -1.010 | 0.375 | 0.281 |
| 43.20% | 6 | 0.1875 | 0.1250 | -0.887 | 0.584 | 0.459 |
| 46.40% | 7 | 0.2188 | 0.1563 | -0.776 | 0.633 | 0.477 |
| 47.00% | 8 | 0.2500 | 0.1875 | -0.674 | 0.642 | 0.455 |
| 3.90% | 9 | 0.2813 | 0.2188 | -0.579 | 0.087 | 0.131 |
| 36.00% | 10 | 0.3125 | 0.2500 | -0.489 | 0.470 | 0.220 |
| 5.00% | 11 | 0.3438 | 0.2813 | -0.402 | 0.095 | 0.187 |
| 82.60% | 12 | 0.3750 | 0.3125 | -0.319 | 0.963 | 0.650 |
| 2.44% | 13 | 0.4063 | 0.3438 | -0.237 | 0.078 | 0.265 |
| 32.66% | 14 | 0.4375 | 0.3750 | -0.157 | 0.417 | 0.042 |
| 25.53% | 15 | 0.4688 | 0.4063 | -0.078 | 0.311 | 0.095 |
| 61.30% | 16 | 0.5000 | 0.4375 | 0.000 | 0.825 | 0.388 |
| 46.00% | 17 | 0.5313 | 0.4688 | 0.078 | 0.627 | 0.158 |
| 18.92% | 18 | 0.5625 | 0.5000 | 0.157 | 0.224 | 0.276 |
| 14.36% | 19 | 0.5938 | 0.5313 | 0.237 | 0.174 | 0.357 |
| 38.00% | 20 | 0.6250 | 0.5625 | 0.319 | 0.502 | 0.061 |
| 51.00% | 21 | 0.6563 | 0.5938 | 0.402 | 0.700 | 0.106 |
| 36.82% | 22 | 0.6875 | 0.6250 | 0.489 | 0.483 | 0.142 |
| 86.50% | 23 | 0.7188 | 0.6563 | 0.579 | 0.974 | 0.318 |
| 8.40% | 24 | 0.7500 | 0.6875 | 0.674 | 0.120 | 0.568 |
| 74.70% | 25 | 0.7813 | 0.7188 | 0.776 | 0.929 | 0.211 |
| 75.95% | 26 | 0.8125 | 0.7500 | 0.887 | 0.931 | 0.181 |
| 79.00% | 27 | 0.8438 | 0.7813 | 1.010 | 0.950 | 0.169 |
| 49.00% | 28 | 0.8750 | 0.8125 | 1.150 | 0.672 | 0.141 |
| 24.90% | 29 | 0.9063 | 0.8438 | 1.318 | 0.302 | 0.542 |
| 16.00% | 30 | 0.9375 | 0.8750 | 1.534 | 0.191 | 0.684 |
| 6.90% | 31 | 0.9688 | 0.9063 | 1.863 | 0.108 | 0.798 |
| 5.00% | 32 | 1 | 0.9375 | | 0.095 | 0.843 |
| **Count** | | 32 | | | | |
| **Mean** | | 37.88 | | | | |
| **Standard Deviation** | | 25.0% | | | | |
| **Maximum** | | 0.884 | | | | |
| **Test Statistics (5%, n=32)** | | 0.27 | | | | |

**Notes:** The abbreviations are defined as follows. Cumulative: cumulative ranking of R-squared values, Expected: expected cumulative distribution, Rank: expected value less than 1, INV: inverse of standard normal distribution, Actual: actual cumulative distribution function, difference: difference between actual and rank.

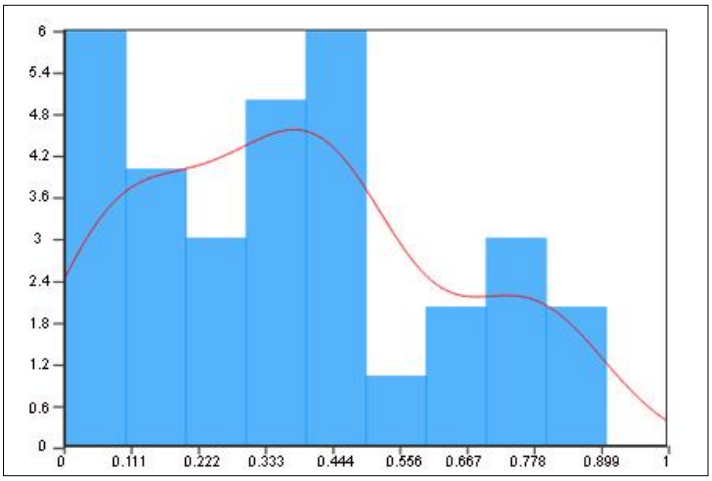


**Figure 1. R-squared histogram plot**

**Note:** Count values are shown in y-axis, whereas R-squared values are presented in x-axis.

Chi-square analysis is also conducted to confirm or reject the previous findings. The results of the test for independence between the WCM and profitability are reported in Table 4.

**Table 4. Results**

| Observed R-squared values | Expected R-squared values | $\frac{(\text{Observed} - \text{Expected})^2}{\text{Expected}}$ |
|---|---|---|
| 45.90% | 0.379 | 0.017 |
| 67.80% | 0.379 | 0.236 |
| 33.00% | 0.379 | 0.006 |
| 19.00% | 0.379 | 0.094 |
| 29.90% | 0.379 | 0.017 |
| 43.20% | 0.379 | 0.007 |
| 46.40% | 0.379 | 0.019 |
| 47.00% | 0.379 | 0.022 |
| 3.90% | 0.379 | 0.305 |
| 36.00% | 0.379 | 0.001 |
| 5.00% | 0.379 | 0.286 |
| 82.60% | 0.379 | 0.527 |
| 2.44% | 0.379 | 0.332 |
| 32.66% | 0.379 | 0.007 |
| 25.53% | 0.379 | 0.040 |
| 61.30% | 0.379 | 0.144 |
| 46.00% | 0.379 | 0.017 |
| 18.92% | 0.379 | 0.095 |
| 14.36% | 0.379 | 0.146 |
| 38.00% | 0.379 | 0.000 |
| 51.00% | 0.379 | 0.045 |
| 36.82% | 0.379 | 0.000 |
| 86.50% | 0.379 | 0.623 |
| 8.40% | 0.379 | 0.230 |
| 74.70% | 0.379 | 0.357 |
| 74.95% | 0.379 | 0.362 |
| 79.00% | 0.379 | 0.446 |
| 49.00% | 0.379 | 0.033 |
| 24.90% | 0.379 | 0.045 |
| 16.00% | 0.379 | 0.127 |
| 6.90% | 0.379 | 0.254 |
| 5.00% | 0.379 | 0.286 |
| **Chi-square test value** | 5.13 | |
| **Critical value** | 46.194 | |

The chi-square test value of 5.13 is lower than the critical value of 46.194, which means that the value falls in the area of acceptance. In this case, the null hypothesis is accepted, inferring that there is no association between WCM and profitability. Therefore, there is uniformity in the KS test results and chi-square test results. The results indicate that profitability is independent of WCM, and the latter cannot be used to explain the variations in profitability. This is also evident in the average R-square value, which was 37.9 percent, compiled from the sample of 32 studies. As already pointed out in the introduction, variables can be statistically significant with no real meaning between them. Our analysis makes it clear that the proposition put forth by Belay (2010), Akinlo (2012), Napompech (2012), Ajao and Nkechinyere (2012), Rehn (2012), Aregbeyen (2013), Ponsian *et al.* (2014), Enow and Brijlal (2014), Ahmed *et al.* (2015) is misleading, and publications of this nature should be extensively scrutinized because the significant regression results may be purely occurring by chance.

## 5. Conclusion

This study aimed to explore the extent to which WC affects profitability using a meta-analysis of the results of the prior studies. Despite the extensive literature on this topic and findings suggesting otherwise, this study reveals that WC cannot be used as a value driver for profitability, which has been demonstrated by the Kolmogorov-Smirnov test and chi-square test.

Although relevant, this study did not include control variables for the R-squared test, which may also influence the distribution as control variables are used to eliminate the variable bias in regression analysis, and they are used to obtain an unbiased estimation result of a causal effect. Also, only 32 studies were considered in this paper. Although involving more studies may not significantly change the outcome, future studies may consider including a higher number of studies to determine the distribution of R-squared, and other distribution techniques such as Shapiro–Wilk test and Lilliefors corrected KS test should be used to have a more robust analysis.

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## Appendix

**Table 1. Summary of literature on the effect of WCM on profitability**

| Study | Country | Variables | Findings |
|---|---|---|---|
| Belay (2010) | Ethiopia (2005-2009) | **DEP:** ROA, ROE, and OPM **IND:** ACP, APP, IT | Improving WCM leads to higher profitability. |
| Haq *et al.* (2011) | Pakistan (2004-2009) | **DEP:** ROI **IND:** DTR, ITR, CRTR | A moderate relationship exists between WCM and profitability. |
| Akinlo (2012) | Nigeria (1997-2007) | **DEP:** ROA **IND:** CCC, ACP, APP, and IT | There is an adverse but insignificant relationship between WCM and profitability. The decline in WCM leads to higher profitability. |
| Napompech (2012) | Thailand (2007-2009) | **DEP:** GOP **IND:** ID, ACP, and APP | There exists a significant negative relationship between ID, ACP, and GOP. Managers can increase profitability by reducing CCC, ID, and ACP. |
| Ajao and Nkechinyere (2012) | Nigeria (2006-2010) | **DEP:** ROA **IND:** ID, ACP, APP, and CCC | There is a significant positive relationship between ID, ACP, APP, CCC, and ROA. Firms should adequately manage their WC in order to improve profitability. |
| Rehn (2012) | Sweden (2002-2010) | **DEP:** GOP **IND:** ID, ACP, APP, CCC, and NTC | Results show evidence of effective WCM leading to an increase in shareholder value. |
| Aregbeyen (2013) | Nigeria (1993-2005) | **DEP:** GOP, ROA **IND:** ID, ACP, APP, CCC | Improving WCM is essential for enhancing profitability. |
| Ponsian *et al.* (2014) | Tanzania (2002-2012) | **DEP:** GOP **IND:** CCC, ACP, IT, and APP | There exists a positive relationship between CCC, APP, and profitability and a significant negative relationship between IT, liquidity, ACP, and profitability. The profitability of a firm will increase if firms are able to manage their WC effectively. |
| Kiarie (2014) | Kenya (2009-2013) | **DEP:** GOP **IND:** ACP, APP, CCC, and IT | There exists a significant positive relationship between ACP, APP, and profitability and a significant negative relationship between CCC and profitability. The profitability of manufacturing firms depends on effective WCM. |
| Serrasqueiro (2014) | Portugal (2002-2006) | **DEP:** ROA **IND:** ACP, APP, CCC, and IT | Results show a significant positive relationship between ACP, APP, and profitability and a significant negative relationship between CCC and profitability. |
| Bjorkman and Hillergren (2014) | Sweden (2012) | **DEP:** GPM **IND:** CCC | There is a significant positive relationship between CCC and GPM. |
| Riaz *et al.* (2014) | Pakistan (2009) | **DEP:** GOP **IND:** ACP, APP, CCC, and IT | Significant positive relationship between ACP, APP, IT, and GOP exists. |
| Enow and Brijlal (2014) | South Africa (2008-2012) | **DEP:** ROA **IND:** ACP, APP, CCC, and IT | Minimizing WCM increases profitability. |
| Hoang (2015) | Vietnam (2009-2014) | **DEP:** ROA **IND:** CCC, NTC, ACP, and APP | It shows a significant negative relationship between WCM and profitability. Managers can improve profitability by reducing WCM requirements. |
| Jamil *et al.* (2015) | Oman (2009-2013) | **DEP:** NOP **IND:** CCC and NWCR | There is a significant relationship between CCC, NWCR, and profitability |

**Notes:** The abbreviations are defined as follows; ACP: average collection period, APP: average payment period, CCC: cash conversion cycle, CM: cash management, CRTR: credit turnover ratio, DM: debtors management, DTR: debtors' turnover ratio, EBITDA: earnings before interest and tax depreciation and amortization, GOP: gross operating profit, GPM: gross profit margin ID: inventory days, IM: inventory management, IT: inventory turnover, ITR: inventory turnover ratio, MVA: market valued added, NOP: net operating profit, NPM: net profit margin, NTC: net trade cycle, OPM: operating profit margin, NWCR: net working capital ratio, ROA: return on asset, ROCE: return on capital employed, ROE: return on equity, ROI: return on investment.

**Table 1. Continued**

| Study | Country | Variables | Findings |
|---|---|---|---|
| Aggarwal and Chaudhary (2015) | India (2010*2014) | **DEP:** GOP<br>**IND:** ACP, APP, CCC, and IT | There is a significant negative relationship between CCC, IT, ACP, and profitability and a significant positive relationship between APP and profitability. |
| Ahmed *et al.* (2015) | Pakistan (2005-2012) | **DEP:** ROE and ROI<br>**IND:** CCC and NWC | Managers can increase the profitability of the firm by effectively managing CCC. |
| Samiloglu and Akgun (2016) | Turkey (2003-2012) | **DEP:** ROE, ROA, OPM, and NPM<br>**IND:** CCC, ACP, and APP | There exists a significant negative relationship between ACP and ROE, ROA, OPM, and NPM. Managers can create value by reducing ACP |
| Kasozi (2017) | South Africa (2007-2016) | **DEP:** ROA<br>**IND:** ACP, APP, and ID | Results demonstrate a significant positive relationship between ID and profitability and a significant negative relationship between ACP, APP, and profitability. Firms should maintain their inventory levels to ensure profitability |
| Yakubu *et al.* (2017) | Ghana (2010-2015) | **DEP:** ROA, ROE<br>**IND:** CCC, ACP, APP, and ID | Firms in Ghana should formulate sound WCM policies to improve profitability. |
| Jana (2018) | India (2013-2017) | **DEP:** ROI, ROA and ROE<br>**IND:** CCC, ACP, APP, and ID | Efficient WCM has a significant positive relationship with profitability. |
| Pham *et al.* (2020) | Vietnam (2010-2019) | **DEP:** ROA<br>**IND:** CCC, ACP, APP, and ID | WCM significantly affects profitability. |
| Ndumia and Omagwa (2019) | Kenya (2013-2018) | **DEP:** Revenue<br>**IND:** ACP, APP, and ID | Manufacturing firms should formulate policies that will assist in the effective management of account receivable and inventory to avoid losses. |
| Makina and Kenga'ra (2020) | Kenya (2014-2019)) | **DEP:** Performance<br>**IND:** IM, CM, DM | There is a positive correlation between WCM and performance. |
| Anton and Nucu (2020) | Poland (2007-2016) | **DEP:** ROA<br>**IND:** CCC, ACP, and APP | WCM has a positive effect on profitability up to the break-even point. |
| Muhammad *et al.* (2020) | Pakistan (2001-2006) | **DEP:** Profitability<br>**IND:** ACP, ID, Cash, and APP | There is a significant positive relationship between ACP, ID, cash, and profitability. Increasing cash, ID, and ACP will increase profitability. |
| Hogerle *et al.* (2020) | Germany (2011-2017) | **DEP:** ROCE and MVA<br>**IND:** CCC, ACP, APP, and ID | Results show a significant negative relationship between CCC and profitability and an insignificant positive relationship between ACP, ID, and profitability. Reducing WC will positively impact profitability. |
| Hossain (2020 | Bangladesh (2012-2017) | **DEP:** ROA, ROE<br>**IND:** CCC, ACP, APP, and ID | Effective WCM is important for increasing profitability. |
| Oladimeji and Aladejebi (2020) | Nigeria (2014-2018) | **DEP:** ROA<br>**IND:** CCC, ACP, APP, ID | SMEs should carefully manage their WC policies to improve profitability. |
| Alvarez *et al.* (2021) | Argentina (2016-2018) | **DEP:** ROE and ROA<br>**IND:** CCC, ACP, APP, and ID | There is a significant positive relationship between all components of working capital and profitability. |
| Nowak *et al.* (2021) | Czech Republic (2014-2018) | **DEP:** EBITDA<br>**IND:** ACP, APP, and ID | Results show an inverse relationship between WC and profitability |
| Shaik (2021) | Saudi Arabia (2008-2019) | **DEP:** ROA, ROE, GOP<br>**IND:** ACP, APP, and ID | Performance is directly related to ACP and ID. |

**Notes:** The abbreviations are defined as follows; ACP: average collection period, APP: average payment period, CCC: cash conversion cycle, CM: cash management, CRTR: credit turnover ratio, DM: debtors management, DTR: debtors' turnover ratio, EBITDA: earnings before interest and tax depreciation and amortization, GOP: gross operating profit, GPM: gross profit margin ID: inventory days, IM: inventory management, IT: inventory turnover, ITR: inventory turnover ratio, MVA: market valued added, NOP: net operating profit, NPM: net profit margin, NTC: net trade cycle, OPM: operating profit margin, NWCR: net working capital ratio, ROA: return on asset, ROCE: return on capital employed, ROE: return on equity, ROI: return on investment.