WORKING CAPITAL MANAGEMENT, COVID-19, AND PROFITABILITY OF UK RETAIL FIRMS

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Abstract

This study examines the impact of working capital management and COVID-19 on the financial performance of UK retail firms over the period from 2001 to 2022. Employing a panel data analysis using ordinary least squares (OLS), fixed effects, and random effects, we analyze a sample of 27 firms to explain the relationship between working capital and financial performance. Our findings indicate that working capital variables, particularly inventory turnover days and receivables turnover days, significantly decrease the financial performance of these firms, highlighting the critical role of legal frameworks and regulatory quality in fostering business success. Additionally, we find that the high liquidity ratio is associated with lower profitability. This result suggests that excessive liquidity may not be in favor of business, as this process would result in inefficient asset utilization and missed promising investment opportunities. Regarding the leverage, results indicated that a high debt-to-equity (D/E) ratio leads to a decline in profitability, since firms with a higher debt ratio are more likely to expose financial risks and interest expenses. Finally, the COVID-19 pandemic has negatively affected the financial performance of UK retail companies. This research contributes to the understanding of how working capital factors affect financial outcomes in the UK retail sector, providing valuable insights for policymakers, regulators, and managers aiming to enhance financial performance.

Keywords: Profitability, Working Capital, Retail

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1. INTRODUCTION

Working capital management plays a significant role in shaping the operational efficiency and financial performance of firms. In the retail sector, survival and growth require vital management for liquidity and short-term assets. The retail sector operates with a high level of inventory and rapid cash conversion cycles, which demands the importance of effective working capital practices (Lazaridis & Tryfonidis, 2006). In the same context, they argued that a company's profitability and liquidity are directly impacted by sound working capital management, which is a crucial component of financial management

In the same context, empirical studies have highlighted arguments associated with working capital. Deloof (2003) suggested that excessive working capital may diminish the liquidity risk, safeguarding the smooth operation of the business. On the other hand, Zariyawati, Annuar, et al. (2009) underscored that high levels of working capital may tie up funds that could otherwise be invested in other investment opportunities, thus reducing overall profitability. Despite a large amount of literature on working capital management, few

studies have combined the context of economic shocks, particularly the COVID-19 pandemic, into their analysis. While previous studies, such as those by Aktas et al. (2015) examined the relationship between working capital elements and profitability under normal business conditions, it is still debatable to recognize how this relationship grows during systemic crises. Additionally, the role of liquidity and leverage in this relationship has been underexamined, mainly in a post-crisis context. Given the structural transformation of the UK retail landscape, there is a pressing need to reconsider and expand existing models using more recent and disruptive periods of analysis.

The contribution of this paper is to investigate the effect of working capital management on financial performance in UK retail firms over the two-decade period (2001–2022), including stable periods and the significant disruption of the COVID-19 pandemic. By employing a panel data approach with ordinary least squares (OLS), fixed effects, and random effects estimations, this study assesses how main working capital metrics, namely cash conversion cycle, inventory days, receivables days, and payables turnover, affect profitability, as measured by return on assets (ROA) and return on equity (ROE). Notably, this paper also assesses the role of liquidity and leverage, providing a holistic view of financial performance dynamics during both normal and crisis conditions.

This is mostly vital in the context of the UK, where the retail industry is a significant driver of economic growth and employment. S. Teuteberg (2020) pointed out that the sector employed around 3.4 million people as of the third quarter of 2019, contributing significantly to the UK economy. Nevertheless, the COVID-19 pandemic disrupted the retail sector, resulting in store closures, supply chain issues, and shifts in consumer behavior towards e-commerce.

The pandemic underscored the importance of robust working capital management since corporations struggled to sustain liquidity, cover overhead expenditures, and adapt to the rapidly changing environment. This unprecedented crisis highlighted the need for retailers to safeguard an adequate level of working capital to navigate disruptions while protecting profitability (Filbeck & Krueger, 2005). Thus, the main research question presented in this study is:

RQ: What is the impact of working capital management on the profitability of UK retail firms, particularly during the COVID-19 pandemic?

The purpose of this paper is to look at the impact of working capital management on profitability in the UK retail sector by focusing on a more recent period from 2001 to 2022 and taking into account the COVID-19 pandemic. Examining more recent data (2001–2022), taking into account the retail industry's likely pauses and impediments throughout the pandemic, to evaluate how working capital management affects profitability. Investigating how working capital management influences retail business stability and resilience may help regulators to set suitable regulatory frameworks. Study findings may also be beneficial for policymaking as they can form policies that promote effective working capital management, decrease financial distress risks, and boost the UK economy. Due to retail's importance, this study's findings may affect economic growth, job creation, and prosperity.

This study aims to fill this gap by using financial data from publicly listed UK retail firms. The study evaluates how key working capital components impact profitability measures such as ROA and ROE. By providing insights into this relationship, the research seeks to inform managerial decisions on optimizing working capital strategies to enhance profitability in a competitive retail industry.

This study is divided into five sections. Section 1 covers an introduction, importance, and objectives of this study, while Section 2 presents a literature review and hypotheses development. Section 3 outlines methodology, data description, and the empirical model. Section 4 introduces and discusses empirical findings. Finally, Section 5 presents the conclusion and policy implications.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Efficient working capital management is a crucial element of financial management, directly influencing a business's liquidity, operational efficiency, and profitability. The effective management of its components, such as inventory, receivables, and payables, shows the business's ability to meet short-term obligations while ensuring the business's capability to balance these components to improve financial performance, whereas inefficiencies may lead to financial distress.

The relationship between working capital management and corporate profitability has been examined in several studies. The first component we discuss is the cash conversion cycle (CCC), which measures the time required for a firm to convert its investments in current assets into cash flows. As such, it is a fundamental determinant of firm profitability, particularly in sectors with high inventory levels or extensive credit terms. The CCC is accounted for as a crucial indicator of liquidity and operational efficiency.

An efficient CCC is widely acknowledged since it can enhance the profitability of a firm by reducing the amount of capital tied up in the production and sales processes. Deloof (2003) reveals that shorter CCCs are related to higher financial performance as firms can reinvest cash flows quickly into operations or growth opportunities. Inversely, longer CCCs may indicate inefficiency, leading to higher working capital requirements and opportunity costs. With respect to inventory management, Shin and Soenen (1998) pointed out that firms with good inventory management are more likely to perform better financially, highlighting the importance of decreasing inventory turnover days without compromising product availability. Lazaridis and Tryfonidis (2006) indicate that firms with shorter receivables days tend to enjoy better cash flow.

In the same context, Makori and Jagongo (2013) analyzed firms in Kenya and concluded that optimizing CCC components directly impacts profitability measured by return on assets and return on equity. In India, Agarwal and Varma (2013) investigated the impact of working capital management on the profitability of Indian firms that are listed on the National Stock Exchange (NSE). They underscored that the CCC enhances profitability, suggesting that the effective management of working capital can result in improved profitability. According to the literature mentioned above, the first hypothesis can be stated as follows:

H1: Shorter cash conversion cycle (CCC) leads to enhanced profitability of UK retail firms.

With respect to inventory, this variable is one of the key metrics in working capital management, it measures how efficiently a firm manages its inventory. High inventory turnover often implies well-organized inventory management, while low turnover may indicate overstocking, obsolescence, or lower sales reflecting inefficiency of inventory management. Gaur et al. (2005) argue that retail firms can benefit from high inventory turnover. On the contrary, capital-intensive industries may not experience direct profitability benefits due to longer lead times and bulk ordering. Other prior studies, such as Deloof (2003) and Lazaridis and Tryfonidis (2006), highlight that efficient management of inventory would result in improving cash flow and profitability by reducing costs associated with storage and obsolescence. Sathyamoorthi et al. (2018) revealed that the inventory period had a statistically insignificant negative impact on the profitability of listed pharmaceutical firms in Botswana. Also, Bellouma (2011) suggested that the small and medium-sized exporters in Tunisia have shown that decreasing inventory turnover may boost profits. Overall, the second hypothesis can be formulated as follows:

H2: An increase in inventory turnover days leads to a decrease in the profitability of UK retail firms.

Moving to receivables turnover days, which is considered a vital component in working capital management. This variable contributes to generating a firm's liquidity and profitability. It identifies the length of period that the firm takes to collect cash from clients, underscoring the importance of effective credit policies as a shorter time to collect receivables is linked to improved profitability. This argument is supported by García-Teruel and Martínez-Solano (2007), Lazaridis and Tryfonidis (2006), and Deloof (2003), who highlighted that firms with shorter receivables days reveal higher profitability metrics. Deloof (2003), who examined Belgian firms and suggested that firms with shorter receivables turnover days are able to perform better, justifying that the reduction in the capital tied up in receivables would lead to allocating these funds to other investment opportunities and decreasing the risk of bad debts. Likewise, Lazaridis and Tryfonidis (2006) investigated Greek firms and pointed out that profitability is enhanced by short receivables turnover days, emphasizing the importance of effective receivables management in improving the profitability of firms. They suggested that sound collection policies safeguard steady cash flows and reduce reliance on funding from external parties. In other countries in emerging markets, Dong and Su (2010) analyzed Vietnamese firms and found that extended receivables days to secure customer loyalty often result in cash flow challenges and increased financial costs. Overall, these literatures support the argument that effective management of receivables turnover days tends to enhance profitability via improving liquidity, reducing financing costs, and minimizing exposure to credit risk. Therefore, the third hypothesis can be presented as follows:

H3: A decrease in receivables turnover days leads to improved profitability of UK retail firms.

The relationship between payables turnover days and firm profitability has received much attention from different scholars (Lyngstadaas & Berg, 2016; Wasiuzzaman & Arumugam, 2013; Gill et al., 2010), particularly in recent years. This variable measures how quickly a company pays its suppliers, which is a critical element of working capital management in terms of current liabilities. Also, this element of working capital can be influenced by industry, market conditions, and firm-specific factors. Deloof (2003) pointed out that firms can gain short-term liquidity via longer payables turnover days, which can be reinvested to improve profitability. However, extremely long payables turnover days could harm supplier relationships and lead to interruptions in the supply chain, thus harming profitability. Regarding the market structure, Wasiuzzaman and Arumugam (2013) suggested that in highly competitive industries, longer payables turnover days may lead to unfavorable terms provided by suppliers, resulting in lower profitability. Aktas et al. (2015) argue that firms are exposed to operational risks if they extend their payment term beyond optimal levels, leading to supply chain disruption. These risks stress the importance of balanced payables management. Lyngstadaas and Berg (2016) confirmed that quicker payables turnover days are beneficial for firms operating in industries where supplier relationships are vital to ensure the supply chain's stability. They also highlighted that extending payment to suppliers may adversely impact operational efficiency if not managed properly. Similarly, Setiawan and Tarigan (2022) asserted that postponing payments may negatively impact supplier relationships, resulting in harming profitability. Based on the above discussion, the fourth hypothesis can be generated as follows:

H4: An increase in payables turnover days leads to harm profitability of UK retail firms.

Maintaining a sufficient level of liquidity supports businesses in meeting short-term obligations and operational expenditures, which can positively affect profitability. Altawalbeh (2020) stated that sustaining an optimal level of liquidity by companies leads to improved profitability levels, particularly in industries with unstable market environments. Likewise, Guo and Wang (2019) pointed out that firms can minimize costs resulted from financial distress by maintaining higher liquidity ratios, resulting in improving profitability. Another study conducted by Panigrahi (2020) on firms in the Asia-Pacific region suggested that excessive liquidity reduces profitability, justifying that higher liquidity might otherwise be invested in promising projects, and recommended that corporations should maintain optimal liquidity levels. Overall, the fifth hypothesis can be introduced as follows:

H5: An increase in the liquidity ratio leads to a reduction in the profitability of UK retail firms.

3. DATA AND METHODOLOGY

Assessing firm performance is not an easy task, as it involves assessing the interaction among a firm's specific factors affecting its financial performance of a firm. This section provides a detailed research methodology to examine the impact of working capital management on the UK's retail enterprises listed on the London Stock Exchange (LSE) for the period of 2001–2022. This paper examines a sample of 27 firms' data obtained as panel data from the Bloomberg database by employing fixed and random effects regression models.

Panel data may have a group of effects, time effects, or both, and these effects can be fixed or random. Our paper utilized unbalanced panel data combining cross-section and time series data. The decision to use the fixed effects or random

effects model is based on the implementation of the Hausman test. If the value obtained by the Hausman test is less than the 5% significance level, the study must reject the null hypothesis (H_0) that supports the random effects model in favor of the alternative hypothesis (Baltagi, 2008).

3.1. Variable definition

This study assesses the financial performance of UK retail firms by employing *ROA* and *ROE*, respectively (Eljelly, 2004; Azeez et al., 2016). *ROA* measures a company's profitability relative to its total assets, indicating how efficiently a firm utilizes its assets to generate profits (Azeez et al., 2016). Conversely, *ROE* evaluates profitability in relation to shareholder equity, thus representing the return for shareholders (Azeez et al., 2016). Regarding the independent variables, this study examines the cash conversion cycle (*CCC*) to provide a holistic assessment of how quickly a firm can convert its inventory and receivables into cash. A shorter CCC indicates a faster generation of cash (Eljelly, 2004). Inventory turnover in days (*INV*) represents the average time required to convert raw resources into finished goods suitable for sale, demonstrating the effectiveness of inventory management (Ahmeti et al., 2022).

Table 1. Variable definitions

Variables	*Description*
Dependent variables	
ROA	Return on assets is to measure of a company's profitability in relation to its total assets.
ROE	Return on equity is to measure of a company's profitability in relation to its shareholders' equity.
Independent variables	
CCC	Cash conversion cycle measured by the time it takes for a company to convert its resources into cash flow.
INV	Inventory turnover in days is measured by how quickly a company sells its inventory.
RD	Account receivable days is measured by the time it takes for a company to collect cash from clients.
PT	Payable turnover days.
CR	Current ratio is the ability of a company to meet its short-term financial obligations.
D/E	Debt-to-equity is a financial ratio that shows how much debt and equity were utilized to finance the assets of a company. The ratio, often known as risk, gearing, or leverage, is closely related to leveraging.
Cashr	Cash ratio demonstrates a company's capacity to meet its short-term obligations entirely with cash and cash equivalents.
LnTA	Natural logarithm of total assets ratio defined as the assets owned by the entity that has an economic value whose benefits can be derived in the future. Assets are recorded in the balance sheet.
COVID19	A dummy variable taking 1 for pandemic period, 0 otherwise.

Source: Bloomberg database.

The account payables period (*PT*) denotes the average time a firm takes to pay off suppliers for products or services acquired, and a longer payable period suggests a lower level of liquidity (Alsulayhim, 2019). Whilst the account receivables period (*RD*) indicates the average duration it takes for customers to settle their outstanding bills, with a higher number implying longer receivables recovery time (Chand et al, 2019). In addition, we employed the current ratio (*CR*) to assess a firm's short-term liquidity position by comparing its current assets to its current liabilities, reflecting its ability to meet immediate obligations (Azeez et al., 2016). Debt-to-equity (D/E) is employed as a control variable to measure the leverage, representing the proportion of debt financing to equity financing (Azeez et al, 2016). Lastly, the cash ratio, consisting of a company's cash and cash equivalents to its current liabilities, evaluates its ability to fulfill urgent commitments using available financial resources (Azeez et al., 2016).

3.2. The regression model

This study uses unbalanced panel data, fixed effects, and random effects models to control for unobserved heterogeneity, and we examine the suitability of fixed effects versus random effects for this model based on a Hausman specification test, whilst also applying robust standard errors to correct heteroscedasticity as noted by (Baltagi et al., 2005). To empirically examine how working capital impacts the profitability of UK retail firms, our paper employs the following model:

$$Ln\,LNP_{it} = \beta_0 + \sum_{k=1}^{n} \beta_{it}\, WC_{it} + \sum_{k=1}^{n} CV_{it} + DV_{it} + \varepsilon_{it} \quad (1)$$

In eq. (1) i denotes an individual firm; t represents the year; LNP_{it} is employed to represent the financial performance of a firm; WC_{it} is a measure of working capital components; CV_{it} is denoted for control variables, and DV_{it} is used to capture the impact of COVID-19 on the financial performance of UK retail firms.

$$LnROA_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 INV_{it} + \beta_3 RD + \beta_4 PT_{it} + \beta_5 CR_{it} + \beta_6 Cashr_{it} + \beta_7 LnTA_{it} + \beta_8 D/E_{it} + \text{COVID19}_{it} + \varepsilon_{it} \quad (2)$$

Next, *ROE* is used as a dependent variable representing profits of firms as well as steps of eliminating variables are repeated, respectively:

$$LnROE_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 INV_{it} + \beta_3 RD + \beta_4 PT_{it} + \beta_5 CR_{it} + \beta_6 Cashr_{it} + \beta_7 LnTA_{it} + \beta_8 D/E_{it} + \text{COVID19}_{it} + \varepsilon_{it} \quad (3)$$

In eq. (2) and eq. (3), *it* is the subscript indicating firm *i* at time *t*. *LnROA* and *LnROE* are used as dependent variables to represent profitability measures of UK retail firms, as *LnROA* is the natural logarithm of return on total assets, and *LnROE* is the natural logarithm of return on total equity (Lyngstadaas & Berg, 2016; Wasiuzzaman & Arumugam, 2013; Gill et al., 2010). Regarding the independent variables, *CCC* is employed to represent the cash conversion cycle; *INV* is used to denote inventory turnover days, whilst *RD* refers to accounts receivable days, and *PT* denotes accounts payable days. With respect to liquidity, *CR* is a measure of the current ratio, and *Cashr* represents cash ratio, debt-to-equity (*D/E*), and company size (*TA*).

4. EMPIRICAL FINDINGS AND DISCUSSION

Table 2 shows the descriptive statistics for the variables examined. The profitability variable measured by ROA exhibits an average of 7.42 and a standard deviation of 9.39. ROE reports a mean of 20.79 and a standard deviation of 37.24%. These results show that *LnROA* and *LnROE* perform inconsistently. With respect to independent variables, the *CCC* has a broad range of values, with a mean of 4.072 and a standard deviation of 1.03, ranging from -0.7387 to 5.837. Inventory turnover days, represented by the *INV* variable, show an average of 77.40 and a standard deviation of 58.64. Receivable days (*RD*) exhibits a mean of 32.045 and a standard deviation of 50.72. The current ratio (*CR*), which is one of the working capital elements, reported a mean of 1.5713 and a standard deviation of 1.014, ranging from 0.3209 to 7.094, indicating UK retail firms have no liquidity issues.

Table 2. Descriptive statistics

Variables	*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*
ROA	477	7.4188	9.3978	-36.3611	79.4871
ROE	472	20.790	37.241	-104.5952	265.572
CCC	348	4.0725	1.0366	-0.7387	5.83764
INV	465	77.404	58.644	7.1637	310.199
PT	463	9.3816	5.5569	1.7539	57.769
RD	480	32.045	50.762	0	255.020
CR	480	1.5714	1.0145	0.3209	7.0983
Cashr	495	0.35363	0.4049	0	4.268
LnTA	480	6.2366	2.127	0.8696	10.949
D/E	391	3.4929	1.7736	-4.853	10.458

Table 3 shows multicollinearity among independent variables because an increase in one variable decreases the other. It shows that the independent variables have a slightly favorable correlation.

Table 3. Correlation matrix

Variables	*CCC*	*INV*	*PT*	*RD*	*CR*	*Cashr*	*LnTA*	*D/E*
CCC	1							
INV	0.4372	1						
PT	0.0553	-0.3929	1					
RD	0.5418	-0.0707	-0.0487	1				
CR	0.5799	0.1041	0.0078	0.7374	1			
Cashr	0.2539	0.0348	0.1603	0.1354	0.4904	1		
LnTA	-02674	-0.2027	-0.0627	-0.1124	-0.2341	-0.1551	1	
D/E	0.1425	-0.0260	0.2482	0.1950	-0.0675	-0.2290	0.3230	1

Regarding the regression analysis, Table 4 and Table 5 reveal a negative relationship between the cash conversion cycle (*CCC*) and the profitability of UK retail firms, signifying that a decrease in the CCC is related to improved profitability of UK retail firms. This result is consistent with Yazdanfar and Öhman (2014) and Deloof (2003), who found that a shorter CCC positively impacts firm profitability in Swedish small and medium-sized enterprises and Belgian firms, respectively, and thereby *H1* is supported. This finding highlights the efficient management of inventory and account receivables, allowing firms to invest in promising opportunities, reduce borrowing costs, and sustain financial stability. This result provides a policy implication for the UK retail firms where competition is strong, as reducing the CCC by efficiently managing inventory, lowering receivables collection periods, and extending payables days can result in superior financial performance. This finding emphasizes the significance of employing vital inventory and receivables management policies to boost profitability and maintain the stability of the business.

With respect to inventory turnover days, findings in all regression models indicate that there is a negative relationship between inventory turnover (*INV*) and the profitability of UK retail firms measured by *LnROA* and *LnROE*. This finding suggests that holding inventory for a longer period can diminish profitability, as it ties up working capital, and thereby costs associated with storage and handling will be increased, resulting in the risk of inventory obsolescence. This finding aligns with recent studies by Bin Syed Mohamad et al. (2016), who pointed out that longer inventory periods negatively impact financial performance, underscoring the importance of effective inventory turnover to improve the profitability of businesses. In the same context, Abdurrasik (2020) found that effective inventory management is crucial for firm performance in Malaysian retail business, highlighting that inefficient practices can result in increased costs and reduced profitability. The findings suggest a need for formulating policies toward reducing the inventory turnover period via improving demand forecasting, implementing just-in-time inventory systems, improving marketing strategies, and maintaining the soundness of supplier relationships. All of which can lead to a boost profitability of the retail business. Therefore, based on this finding, the *H2* has been accepted.

Table 4. Regression results using the dependent variable: Natural logarithm of return on assets (*LnROA*)

Independent variables	*OLS*	*Random effect (1)*	*Random effect (2)*	*Random effect (3)*	*Random effect (4)*
CCC	0.5997*** (6.99)	0.3182*** (2.97)	0.24794*** (2.56)	0.3091*** (2.89)	0.2335** (2.37)
INV	-0.0051*** (-3.01)	-0.0059*** (-2.58)	-0.0042** (-2.00)	-0.0063*** (-2.84)	-0.0043* (-1.94)
PT	-0.0216** (-1.77)	-0.01925 (-1.55)	-0.01468 (-1.30)	-0.0241** (-1.94)	-
RD	-0.0030* (-1.38)	-0.0042** (-2.03)	-	-0.0049*** (-3.06)	-0.0013 (-0.65)
CR	-0.2201* (-1.97)	-0.0424 (-0.49)	-0.2320*** (-3.04)	-	-0.1598 (-1.52)
Cashr	0.0151 (0.05)	-	0.5412** (2.16)	0.2144 (0.97)	0.3480 (1.30)
LnTA	0.02521 (0.63)	0.0925 (1.60)	0.0774 (1.34)	0.0873 (1.51)	0.1034* (1.82)
D/E	-0.0890 (-1.42)	-0.0972*** (-2.93)	-0.0935*** (-2.79)	-0.0821*** (-2.41)	-0.0957*** (-2.85)
COVID19	-0.6687*** (-3.12)	-0.6025*** (-3.59)	-0.6764*** (-3.92)	-0.6318*** (-3.70)	-0.6691*** (-3.86)
R-square	0.3478	0.3366	0.3424	0.3203	03413
F-statistics	7.14 (0.0000)	-	-	-	-
Wald chi	-	48.79 (0.0000)	49.39 (0.0000)	49.60 (0.0000)	47.91 (0.0000)
Hausman test	-	7.32 (0.5976)	8.24 (0.4107)	8.13 (0.4208)	9.20 (0.3258)

*Note: t-statistics in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.*

Our findings regarding the receivables turnover days (*RD*) show that the average number of days it takes for a firm to collect cash from its clients leads to a decrease in the profitability of UK retail firms. This result advocates that longer collection periods would increase the risk of bad debts, which in turn raises financing costs, resulting in lower profitability of retail firms, and hence, hypothesis three is accepted. In this respect, Kasozi (2017) reached the same finding when he examined South African manufacturing companies, he revealed that longer receivables collection periods tend to decline the profitability of manufacturing firms. Likewise, Tago and Ponsian (2024) confirmed that a longer collection period erodes the profitability of businesses, specifying that firms can boost profitability by reducing their receivables collection days. Thus, adopting policies to reduce receivables turnover periods in terms of effective credit policies, offering early payment discounts, or other kinds of incentives may lead to freeing up capital and enhancing financial performance. Also, our results suggest that an increase in the average number of days a firm takes to pay its suppliers is associated with a decline in profitability for the UK retail firms and thus supporting *H4*. This finding underscores that longer payment days may harm supplier relationships, resulting in supply disruptions, which in turn negatively impact business profitability.

Regarding the liquidity, regression findings show that the increase in the current ratio, which measures a company's ability to cover its short-term debts with its short-term assets, is related to diminished profitability for UK retail firms aligned with (Deloof, 2003; Shin & Soenen, 1998). This result suggests that retaining extremely high liquidity can result in the misuse of assets that could otherwise be invested in other promising projects. These findings indicate that UK retail companies should reconsider their policy in managing liquidity to ensure that assets are efficiently utilized in promising investment opportunities. The opportunity cost associated with holding unproductive assets can be avoided by sustaining an optimal current ratio, rather than an excessively high one, to secure long-term profitability and survival.

Regarding the control variables, our results show that the leverage measured by D/E negatively affects the profitability of UK retail firms. A high D/E ratio reflects a heavy dependence on debt financing, resulting in increased financial risk and interest expenses, and thus dropping profitability. In this respect, Guo and Wang (2019) argued that profitability of firms is eroded by a high D/E ratio which in turn lead to increase financial obligations, mostly during periods of volatility in sales revenues. Likewise, Adewuyi (2016) highlights that a higher debt ratio in the retail sector leads to reduced profitability as firms face difficulties managing debt reimbursements during decreasing sales. Finally, the COVID-19 pandemic has negatively affected the financial performance of UK retail companies. Empirical studies found that COVID-19 resulted in a decline in sales and increased costs for retailers (e.g., Zheng et al., 2022). Similarly. According to a study by Donthu and Gustafsson (2020), the pandemic interrupted supply chains and changed consumer behavior, forcing many retail firms to incur additional costs while experiencing reduced revenues. In addition, Sikos et al. (2022) highlight that the sudden shift to online shopping during the pandemic strained traditional brick-and-mortar retailers, who struggled to compete with e-commerce platforms. Generally, these studies indicated that COVID-19 has had a deep effect on the profitability of UK retail companies, generating new challenges for this sector in the UK.

Table 5. Regression results using the dependent variable: Natural logarithm of return on equity (*LnROE*)

Independent variables	*OLS*	*Random effect (1)*	*Random effect (2)*	*Random effect (3)*	*Random effect (4)*
CCC	0.5885*** (6.29)	0.2928*** (2.93)	0.34240*** (3.07)	0.3558*** (3.22)	0.2343** (2.30)
INV	-0.0063*** (-3.15)	-0.0051** (-2.30)	-0.0075*** (-3.25)	-0.0065*** (-2.75)	-0.0045* (-1.95)
PT	-0.00175*** (-2.64)	-0.02564** (-2.21)	-0.0356*** (-2.77)	-0.0291** (-2.27)	-
RD	-0.00174 (-0.75)	-	-0.0060*** (-3.69)	-0.0038* (-1.83)	-0.0001 (-0.06)
CR	-0.4049*** (-3.30)	-0.3316*** (-4.24)	-	-0.1483* (-1.68)	-0.28441*** (-2.63)
Cashr	0.3393 (0.96)	0.5535** (2.17)	0.0774 (0.34)	-	0.3512 (1.28)
LnTA	0.0041 (0.09)	0.0863 (1.41)	0.0980 (1.57)	0.1001* (1.63)	0.1238** (2.04)
D/E	0.07811* (1.74)	0.01934 (0.57)	0.0317 (0.91)	0.01402 (0.42)	0.0116 (0.34)
COVID19	-0.6324*** (-2.66)	-0.6337*** (-3.62)	-0.5638*** (-3.23)	-0.5589*** (-3.27)	-0.6339*** (-3.58)
R-square	0.3731	0.3537	0.3227	0.3582	0.3674
F-statistics	6.88 (0.0000)	-	-	-	-
Wald chi	-	37.46 (0.0000)	32.87 (0.0001)	35.92 (0.0000)	31.95 (0.0001)
Hausman test	-	5.00 (0.7573)	4.79 (0.7798)	4.89 (0.7688)	6.55 (0.5856)

*Note: t-statistics in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.*

5. CONCLUSION

This paper examined the impact of working capital management and COVID-19 on the profitability of UK retail firms. We utilised panel data analysis using OLS, fixed effect, and random effect to obtain reliable findings. A sample of 27 UK retail firms was selected for the period of 2001–2022. The findings show that the cash conversion cycle (CCC) tends to reduce UK firm profitability, confirming that reducing the CCC improves financial performance. Our paper also indicated that the inventory turnover days (ITD) variable adversely impacts the financial performance, supporting the argument that holding inventory for longer periods would increase storage costs and intensify the risk of inventory obsolescence. Likewise, we found that longer receivables turnover days (RD) negatively affect the profitability of UK retail firms, as postponed collections increase the risk of bad debts and raise financing costs. Moreover, findings of this study show that extended payables turnover days (PT) adversely affect profitability, underscoring that extended payment periods can damage supplier relationships and lead to supply disruptions, resulting in reduced profitability.

Regarding the liquidity, this study finds that higher current ratios are associated with lower profitability. This result suggests that excessive liquidity may not be in favor of business, as this process would result in inefficient asset utilization and missed promising investment opportunities. Regarding the leverage, results indicated that a high D/E ratio leads to a decline in profitability, since firms with a higher D/E ratio are more likely to expose financial risks and interest expenses. Finally, the COVID-19 pandemic has negatively affected the financial performance of UK retail companies. These factors lead to declining sales and increased operational costs, exposing structural weaknesses in the UK retail sector.

Policy implications that can be generated for UK retail firms are associated with improving inventory and receivables management via adopting just-in-time inventory systems, improving demand forecasting, and improving marketing policies to reduce holding costs and improve turnover efficiency. Regarding the receivables collection process, employing sound credit policies is very crucial, offering early payment discounts, and involving technology for better credit risk assessment to reduce bad debts and free up capital for future investments. In terms of liquidity, to avoid unnecessary liquidity, firms should maintain an optimal current ratio to invest their financial resources in promising projects.

However, there are several limitations to this study. First, the data used in this analysis only covers the period from 2001 to 2022, which means the findings may not capture long-term trends or the full impact of earlier economic factors before 2001. Future research could examine the long-term effects of financial crises and other economic disruptions on retail firms' financial performance. Additionally, investigating the influence of market structure, competition, and e-commerce on profitability would provide a more comprehensive understanding of the factors affecting the UK retail sector. However, we recommend future research to examine the long-term effects of economic issues and financial crises on the financial performance of retail firms. Also, future research could investigate how market structure, competition, and digitalization impact the profitability of retail firms.

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