

## NONLINEAR INFLUENCE OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF TOURISM FIRMS: PANEL DATA EVIDENCE FROM DEVELOPED AND DEVELOPING COUNTRIES

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### Abstract

Having an optimal working capital level can balance firms' costs and benefits and maximizes their profitability. This study examines the influence of working capital management (WCM) on profitability (ROA) in tourism sub-sectors in 74 countries between 2005 and 2017 in terms of the countries' development levels. Findings from the fixed-effects panel data regression models indicate that there exists an inverted U-shaped association between WCM and ROA in the tourism industry around the world. However, when we consider the development levels of the countries, our empirical results show that an inverted U-shaped nonlinear association between WCM and ROA is more valid in tourism sub-industries in developing countries. Moreover, our empirical findings for tourism sub-industries in developed countries show the existence of a positive linear relationship between WCM and ROA for H&M and F&B firms, but a non-linear U-shaped association between WCM and ROA for L&R firms. The findings from this paper offer important implications for managers working in the tourism industry in both developed and developing countries to improve the use of working capital.

**Keywords:** Tourism Financing; Working Capital; Profitability; Developed and Developing Countries.

## INFLUÊNCIA NÃO LINEAR DA GESTÃO DO CAPITAL DE GIRO NA RENTABILIDADE DAS EMPRESAS DE TURISMO: EVIDÊNCIA DE DADOS EM PAINEL DE PAÍSES DESENVOLVIDOS E EM DESENVOLVIMENTO

### Resumo

Ter um nível ótimo de capital de giro pode equilibrar os custos e benefícios das empresas e maximizar sua lucratividade. Este estudo examina a influência da gestão do capital de giro (WCM) na lucratividade (ROA) nos subsetores de turismo em 74 países entre 2005 e 2017 em termos de níveis de desenvolvimento dos países. Os resultados dos modelos de regressão de dados em painel de efeitos fixos indicam que existe uma associação em forma de U invertido entre WCM e ROA na indústria do turismo em todo o mundo. No entanto, quando consideramos os níveis de desenvolvimento dos países, nossos resultados empíricos mostram que uma associação não linear em forma de U invertido entre WCM e ROA é mais válida em subindústrias de turismo em países em desenvolvimento. Além disso, nossos resultados empíricos para sub-indústrias de turismo em países desenvolvidos mostram a existência de uma relação linear positiva entre WCM e ROA para empresas H&M e F&B, mas uma associação não linear em forma de U entre WCM e ROA para empresas L&R. As descobertas deste artigo oferecem implicações importantes para os gerentes que trabalham na indústria do turismo em países desenvolvidos e em desenvolvimento para melhorar o uso do capital de giro.

**Palavras-chave:** Financiamento ao Turismo; Capital de Giro; Rentabilidade; Países Desenvolvidos e em Desenvolvimento.

## INFLUENCIA NO LINEAL DE LA GESTIÓN DEL CAPITAL DE TRABAJO EN LA RENTABILIDAD DE LAS EMPRESAS TURÍSTICAS: EVIDENCIA DE DATOS DE PANEL DE PAÍSES DESARROLLADOS Y EN DESARROLLO

### Resumen

Tener un nivel de capital de trabajo óptimo puede equilibrar los costos y beneficios de las empresas y maximizar su rentabilidad. Este estudio examina la influencia de la gestión del capital de trabajo (WCM) en la rentabilidad (ROA) en los subsectores turísticos en 74 países entre 2005 y 2017 en términos de los niveles de desarrollo de los países. Los resultados de los modelos de regresión de datos de panel de efectos fijos indican que existe una asociación en forma de U invertida entre WCM y ROA en la industria del turismo en todo el mundo. Sin embargo, cuando consideramos los niveles de desarrollo de los países, nuestros resultados empíricos muestran que una asociación no lineal en forma de U invertida entre WCM y ROA es más válida en las subindustrias turísticas de los países en desarrollo. Además, nuestros resultados empíricos para las subindustrias turísticas en los países desarrollados muestran la existencia de una relación lineal positiva entre WCM y ROA para las empresas de H&M y F&B, pero una asociación no lineal en forma de U entre WCM y ROA para las empresas de L&R. Los hallazgos de este documento ofrecen implicaciones importantes para los gerentes que trabajan en la industria del turismo tanto en países desarrollados como en desarrollo para mejorar el uso del capital de trabajo.

**Palabras clave:** Financiamento Turístico; Capital de Trabajo; Rentabilidad; Países Desarrollados y en Desarrollo.



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## 1 INTRODUCTION

Financial management decisions cover the firms' long-term investment, capital structure, working capital management (WCM), and other related financial matters. Working capital management (WCM) is short-term operation, and WCM is related to managing cash, inventories, receivables and payables to increase sales and profit while minimizing risks.

Moreover, well-managed working capital helps companies stay out of bankruptcy. (Le, Ha and Huy, 2021). Excessive current assets can cause a firm to realise a substandard return on investment. However, firms with very few current assets may experience shortages and face difficulties in maintaining day-to-day operations (Van Horne & Wachowicz, 2008). Moreover, well-managed working capital helps companies stay out of bankruptcy.

Tourism does not only affect the social and cultural life, it also affects the economy of a region or a country (Pimentel, 2020; Zepeda Hernandez, 2021). Besides this importance, the tourism industry is sensitive to external situations, e.g. outbreak (Abdin & Kumar, 2020; Korstanje, 2021; Vidal et al., 2021) unexpected economic conditions, natural disasters, financial crises, war and terrorist attacks (Koščak & O'Rourke, 2017; Bayraktaroglu et al., 2021).

As a specific example, the Covid-19 pandemic has directly impacted destinations and companies on issues related to the working capital required to continue their operations (Vidal et al., 2021) and working capital management became one of the important matters for finance managers, especially in times of crises.

On the other hand, Seasonality may cause profitability to fluctuate due to the fact that it poses a significant challenge for tourism firms. Hence, although efficient working capital is essential in terms of all firms, it is of vital importance for those in the hospitality and tourism industry (Chambers & Cifter, 2022).

In finance theory and working capital literature, it's generally accepted that low investment in working capital (i.e. an aggressive working capital strategy) is related to higher risk and higher return. On the other hand, high investment in working capital (i.e. a conservative working capital strategy) is connected to lower risk and lower return (Banos-Caballero, Garcia-Teruel & Martinez-Solano, 2012). Banos-Caballero et al. (2012) pointed out that there may not be a linear relationship between the investment in working capital and profitability.

In other words, they asserted that less investment in working capital might not lead to higher profitability. They argued that this approach overlooks, for example, that a low level of working capital may result in a greater

risk of sales loss and deductions in the process of production.

Therefore, there may be a level of working capital in which a reduction in working capital adversely influences the profitability of the firm. Deloof (2003) argued that profitability may decrease if the costs of higher investment in working capital increase faster than the benefits of holding more stock and/or providing more trade credits to customers. Consequently, because of the costs and benefits of investing more in working capital, there may be a non-linear rather than linear relationship between firms' profitability and investment in working capital (Banos-Caballero et al., 2012).

Firms having an optimal working capital level can balance their costs and benefits and maximizes their profitability. Investing in working capital may increase firm profitability up to the optimal level, but investing more in working capital after the optimal working capital level may lead to a decrease in profitability. For this reason, an inverted U-shaped association may emerge between working capital investment and profitability (Banos-Caballero et al., 2012; Anton & Nucu, 2021).

This study aims to examine the influence of WCM on profitability in tourism sub-sectors in 74 developed and developing countries between 2005 and 2017 in terms of the development levels of countries. For this purpose, we have developed twelve regression models that include the full sample and the sub-samples of hotels and motels (H&M), food and beverage (F&B), and leisure and recreation (L&R).

This paper contributes to the literature in three main ways. Firstly, as far as we know, there are only three studies (Thapa, 2013; Mun & Jung, 2015; Chambers & Cifter, 2022) related to the tourism industry in terms of non-linear relationships. Unlike the studies mentioned above, we employ a sample of 786 tourism companies operating in 74 developed and developing countries between 2005 and 2017 in this study.

Secondly, different from the cross-country study of Chambers & Cifter (2022), in this study, countries are considered in two groups depending on their level of development in order to examine whether the working capital-profitability linkage in the tourism sub-sector differs according to the development level of the countries. Therefore, this study is the first to examine the working capital-profitability relationship within the framework of developed and developing countries.

Finally, this paper provides important managerial implications for the tourism industry. Our findings show a non-linear association between working capital and profitability in the H&M, L&R, and F&B sectors in developing countries and the L&R sector in developed countries. Managers who want to maximize firm profitability must take into account the inverted U-shaped effect of working capital on profitability.

More clearly, managers can increase the working capital up to the optimal level for profit maximization, but they should not ignore that the increased working capital harms profitability after reaching the optimal level. However, this policy is not valid for H&M and F&B sectors in developed countries. Because, there is a positive linear association between the two variables.

Within this context, this study was structured in five sections. After a brief introduction, the literature review presented in the second section, the methodology was presented in section three. The section four covered the study findings and lastly, in section five the findings were discussed within the theory and literature, and some inferences were made.

## 2 LITERATURE REVIEW

There is extensive literature examining the linkage between WCM and firm performance. Previous studies investigating the WCM-firm performance relationship have generally used working capital ratio or cash conversion cycle (CCC) variables as a measure of working capital.

These empirical studies are carried out using both country-level samples (e.g. Shin & Soenen, 1998; Deloof, 2003; Lazaridis & Tryfonidis, 2006; Ching, Novazzi, & Gerab, 2011; Abuzayed, 2012; Enqvist, Graham & Nikkinen, 2014; Jayarathne, 2014; Pais & Gama, 2015; Samiloglu & Akgun, 2016; Dalci et al., 2019; Le, 2019; Moussa, 2019; Kafeel et al., 2020; Ahangar, 2021; Braimah et al., 2021; Lin & Wang, 2021), and cross-country samples (e.g. Boțoc & Anton, 2017; Chang, 2018; El-Ansary & Al-Gazzar, 2020; Mardones, 2021; Chambers & Cifter, 2022; Setianto et al., 2022).

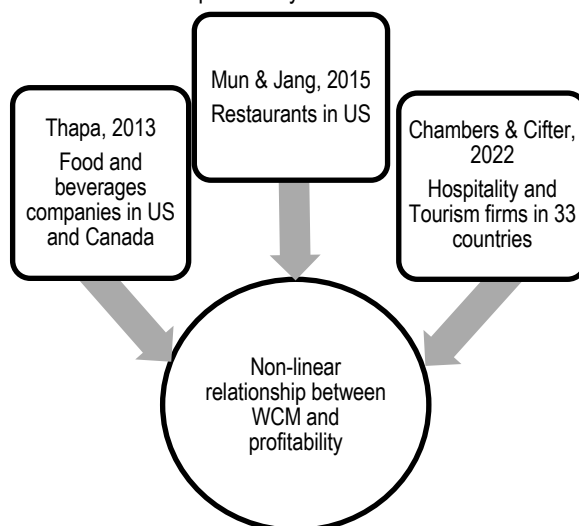
However, previous studies in the corporate finance literature do not provide a general consensus on how working capital influences firm profitability. Many of these studies (e.g. Deloof, 2003; Enqvist, Graham & Nikkinen, 2014; Pais & Gama, 2015; Dalci et al., 2019; Korkmaz & Yaman, 2019; Kafeel et al., 2020; Braimah et al., 2021; Lin & Wang, 2021) have reported a negative linkage between the two variables. However, some studies (e.g. Kendirli & Cankaya, 2016; Larasati & Purwanto, 2022) have reported that this association is positive; while others (e.g., Baños-Caballero et al., 2012; Thapa, 2013; Afrifa et al., 2014; Mun & Jang, 2015; Aktas et al., 2015; Boțoc & Anton, 2017; Singhania & Mehta, 2017; Altaf & Shah, 2018; Yilmaz & Acar, 2019; Anton & Nucu, 2021; Jaworski & Czerwonka, 2022; Chambers & Cifter, 2022) have found an inverted U-shaped relationship.

As seen in Figure 1, there are only three studies investigating the possible non-linear association between WCM and profitability in the tourism industry.

Of these studies, Thapa (2013) examined the influence of WCM on 30 food and beverage companies' profitability in the U.S. and Canada for the period spanning from 2000 to 2009. Mun & Jang (2015) investigated the effect of working capital on profitability for 298 restaurant firms in the U.S. over the period of 1963-2012. Chambers & Cifter (2022) used a sample of 1156 firms in the hospitality and tourism industry from 33 countries over the period 2004-2019.

In these three studies, it is reported that WCM has an inverted U-shaped effect on profitability for firms operating in the tourism sector. Thus, the findings of these studies reveal the existence of an optimal level of working capital that maximizes benefits for tourism companies.

**Figure 1.** The studies investigated the non-linear relationship between WCM and profitability in tourism.



Source: own elaboration.

Empirical studies in the past literature show that there is no study examining the nonlinear WCM-profitability relationship in the tourism sector by considering the development level of countries. Therefore, this study aims to fill this gap in the literature.

## 3 METHODOLOGY

### 3.1 Dataset and Econometric Model

This study aims to empirically examine the association between WCM and profitability performance. Our sample is an unbalanced panel dataset of 786 tourism firms operating in 74 developed and developing countries over the years 2005–2017.

The financial data of firms and macroeconomic indicators are obtained from the Thomson Reuters

Eikon database. All variables are winsorised at the 1st and 99th percentiles to eliminate the impact of outliers.

Our baseline model specification investigating the impact of WCS on profitability performance of the tourism firms takes the form:

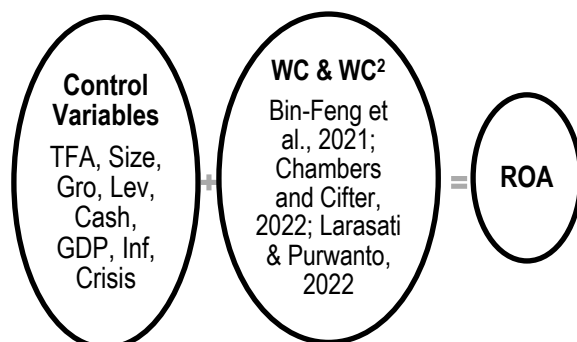
$$ROA_{it} = \beta_0 + \beta_1 WC_{it} + \beta_2 WC_{it}^2 + \sum_{j=1}^5 FLCV_{it} \beta_3 + \sum_{j=1}^2 MLCV_t \beta_4 + \beta_5 GFC_t + f_i + d_t + \varepsilon_{it} \quad (1)$$

In the above equation, the subscript  $i$  and  $t$  denote the individual firms and the time period, respectively.  $ROA_{it}$  is profitability of the  $i$ th firm at time  $t$  and is measured as the ratio of net profit after taxes to total assets;  $WC_{it}$  is working capital investment strategy of the  $i$ th firm at time  $t$ .

In this study, the ratio of net working capital to total assets is employed to measure working capital investment strategy based on prior studies such as Bin-Feng et al. (2021), Chambers and Cifter (2022), and Larasati and Purwanto (2022).  $WC_{it}^2$  is square of  $WC_{it}$ .  $FLCV_{it}$  is a set of firm-level control variables that may affect profitability;  $MLCV_t$  is a set of macro-level control variables;  $GFC_t$  is the dummy variable representing the global financial crisis;  $f_i$  and  $d_t$  denote the unobserved firm- and year-fixed effects, respectively; and  $\varepsilon_{it}$  is the error term. When an inverted U-shaped relationship is predicted between working capital and profitability, a positive sign on  $\beta_1$  and a negative sign on  $\beta_2$  are expected.

The study's main basic model specification is shown in Figure 2. Estimations are conducted via traditional panel data estimators such as random effects and fixed effects. The Hausman test is performed to decide which panel estimator is the most appropriate estimator.

Figure 2. Basic model specification.



Source: own elaboration.

A detailed summary of independent and control variables in the profitability model are presented in Table 4 (Appendices). The coefficients of the independent and control variables in the profitability

model are expected to take the following signs: On the one hand, firms that invest more in working capital can be expected to have higher profitability.

Because of the production activities are less likely to be disrupted in firms with high working capital, which contributes to the development of business volume and increase in sales. In addition, firms with a higher level of working capital are less likely to be unable to meet their obligations (Aktas et al., 2015; Jaworski & Czerwonka, 2022).

On the other hand, the increase in financing needs of companies with high working capital may lead to additional costs. therefore, an increase in costs may reduce the benefit of investing in working capital for shareholders and adversely affect profitability (Chang, 2018; Anton & Nucu, 2021).

As a result, the expected impact of investment in working capital on profitability can be positive or negative. This discussion, which has recently attracted great interest from researchers, indicates that the association between working capital investment and profitability level is not linear. In other words, the effect of investment in working capital on profitability may be positive up to a certain point.

However, further investments in working capital beyond that point could be detrimental to profitability (Baños-Caballero et al. 2012; Aktas et al. 2015; Mun & Jang 2015; Chang, 2018; Anton & Nucu, 2021; Chambers & Cifter, 2022; Jaworski & Czerwonka, 2022).

The sign of tangible assets could be positive or negative. Firms can increase their profitability with profitable investment opportunities by showing tangible assets as collateral and finding the opportunity to benefit from various cheap financing alternatives.

On the other hand, especially in economic downturn times, idle capacity is the main problem of the companies, resulting as operating assets with low efficiency and capacity can have a reducing effect on the level of profitability (Demirci, 2017). The studies in the literature show that there is a positive relation between tangibility and profitability (Deloof, 2003; Abuzayed, 2012).

This result is also seen in food and beverage services, sports and entertainment activities, and travel agency sub-sectors in a study conducted by Chambers & Cifter (2022). Contrary to this proof seen in literature, a negative impact has been seen for SMEs and real sector firms (Ahangar, 2021; Isik, 2017a).

Firm size, calculated as the natural logarithm of total assets, gives chance to firms to benefit from economies of scale in production, diversification of activities, which enables such companies to be more successful in the face of market adjustments and helps them to reduce their overall costs and reach cheaper

sources of finance. Thereby size may cause an increase in profitability (Isik & Tasgin, 2017; Gharaibeh & Khaled, 2020). So as seen in literature, the firm size can affect the firm profitability positively (Ahkam & Alom, 2018; Pervaiz & Akram, 2019). The finding is also valid for the tourism sector (Chambers & Cifter, 2022), and for the food and beverage sector (Thapa, 2013; Le et al., 2021). Some studies demonstrated that there are negative impacts of size on profitability (Mun & Jang, 2015; Aissa & Goaid, 2016; Isik, 2017b).

The firm's sales are major determinants to increase its profits if the costs and expenses are below the income. Such a firm can increase their profitability by increasing its sales, so the effect of growth variable in terms of sales on profitability is expected as positively (Deloof, 2003; Botoc & Anton, 2017; Pervaiz & Akram, 2019). The same findings were also detected in the tourism sector (Korkmaz & Yaman, 2019), and especially for the accommodation, sports and entertainment activities, and travel agency sub-sectors (Chambers & Cifter, 2022). The same finding has reached also for the US restaurant firms (Mun & Jang, 2015).

As it is known, cash is the most liquid asset, but it is the least profitable and is the main key of liquidity management (Mun & Jang, 2015). Firms can get advantages to invest opportunities by having enough cash holding. Firms may also suffer from inadequate cash holding in case of needs to take advantage of the moment.

On the other hand, if the cash level of the firm is very high, it will cause financing costs and decrease the profitability of the firm. Moreover, excessive cash holding will result in idle funds (Abushammala & Sulaiman, 2014; Akben-Selcuk, 2016). So, cash holding is expected to have a positive or negative impact on profitability.

A higher level of firm debt will increase the firm's financial risk (Van Horne & Wachovicz, 2008). High debt use may cause increased capital costs as it makes the firm risky. In addition, if the income to meet the interest and debt payment obligations cannot be obtained as a result of the activities and the shareholders cannot meet this obligation, the firm may face the risk of bankruptcy (Brigham & Houston, 2009).

Thus, it is expected, as is seen in the literature, that the impact of leverage to be negative (Deloof, 2003; Abuzayed, 2012; Thapa, 2013; Mun & Jang, 2015; Botoc & Anton, 2017; Isik & Tasgin, 2017; Ahkam & Alom, 2018; Beyazgul & Karadeniz, 2020; Le et al., 2021; Larasati & Purwanto, 2022). On the contrary, some studies showed the positive impact of leverage on profitability (Ahangar, 2021; Chambers & Cifter, 2022).

During economic downturns, corporate

profitability is significantly lower, and it is higher during economic boom times. Financial crises will cause a slowdown in activities and will reduce firm sales. Therefore, these decreases will affect operating income and profit margins. However, the need for working capital will increase and this will increase the losses of the companies (Enqvist et al., 2014).

As seen in the literature, GDP growth affects positively the firms' profitability (Isik & Tasgin, 2017; El-Ansary & Al-Gazzar, 2020; Jaworski & Czerwonka, 2022) whereas the financial crisis impacts the tourism firms' profitability negatively (Isik, 2017a; Chambers & Cifter, 2022). On the other hand, the crisis has no impact on the profitability of high-growth firms in emerging countries (Botoc & Anton, 2017). Therefore, a positive impact is expected of growth in GDP on profitability. Whereas the crisis is expected to have a negative impact on profitability.

An inflationary economic environment decreases demand, and trade is negatively impacted. Inflation reduces the consumers' purchasing power (Dayı, 2020) and, if it's continuous, results in an economic recession. Inflation also increases the firm's costs. It will reduce firm sales and increase expenses; thus, the profitability will diminish.

On the other hand, the effect of inflation depends on its anticipated or not. In anticipated inflation, firms may adjust their prices to ensure higher revenues and take adequate cost management which will result in a profit increase (Bhutta & Hasan, 2013; Pervan, Pervan & Curak, 2019).

Table 5 (Appendices) provides summary statistics about the variables employed in the analyses. We report the mean, the standard deviation and the number of observation (N) for full sample covering all firms, as well as for the sub-samples of firms from developed and developing countries.

Additionally, we compare the mean values of variables for firms in developed and developing countries using a T-test. As reported in Table 6 (Appendices), the mean values of variables such as TFA, SIZE, LEV and CASH for firms in developed countries are statistically better than those for firms in developing countries. However, the results of t-tests demonstrate that ROA, WC, and GRO are higher for tourism firms in developing countries on average.

Before proceeding to the econometric analysis, we perform a correlation analysis. Table 6 (Appendices) summarizes the results of the Spearman correlation analysis performed to test the association between independent variables and control variables. The fact that the highest correlation coefficient in the correlation matrix is 0.49 reveals that the multicollinearity between these variables included in the profitability model is not an important issue.

#### 4 ESTIMATION RESULTS

We begin the analysis by estimating the relations between WC and ROA for all tourism firms. The findings for all sample are summarized in Table 1.

We find a significant positive effect of WC on ROA as column 1 of Table 7 (Appendices) indicates, whereas the coefficient of WC<sup>2</sup> is found to be statistically negative at the 1% level of significance. This suggests that WC and ROA have a concave association and that the increases in WC improve the ROA of firms to a point, after which the increases in WC lead to a reduction in ROA.

The findings obtained in the study are in line with the findings of Thapa (2013), Mun & Jang (2015) and Chambers & Cifter (2022). According to the finding supporting the literature, we can say that there is an optimal level of working capital for tourism business companies, which increases profitability up to a certain level and decreases profitability after this level.

We next re-estimate our model with the same specification for tourism sub-industries. In columns 2, 3, and 4 of Table 7 (Appendices), the coefficient of WC is positive and significant, while the coefficient of WC<sup>2</sup> is negative and significant for sub-samples of H&M firms, L&R firms, and F&B firms, respectively.

The estimates for the two working capital variables together show that there is an inverted U-shaped association between WC and ROA. These results demonstrate that there is a non-linear (inverted-U shape) relations between WC and ROA in both the main sample and sub-samples of tourism firms.

**Table 1.** Summary of the study findings for all firms.

	Full Sample	H&M	L&R	F&B	Compatible with
WC	+	+	+	+	Thapa (2013), Mun & Jang (2015), Chambers & Cifter (2022)
WC <sup>2</sup>	-	-	-	-	

Source: own elaboration.

The estimated coefficient of the LEV variable is negative and significant at the 10% level of significance only in the main sample including all firms, indicating that highly leveraged firms tend to have lower profitability. Although weak, this finding is consistent with the results found in the majority of previous studies (e.g. Deloof, 2003; Abuzayed, 2012; Thapa, 2013; Mun & Jang, 2015; Isik & Tasgin, 2017; Larasati & Purwanto, 2022).

The positive and statistically significant coefficient of CASH indicates that firms with higher cash levels tend to perform better in terms of ROA. These findings are not valid for the F&B industry. As expected, we find that GDP has a positive and significant influence on

profitability in both the main sample and industry sub-samples. This finding, which supports related literature (Isik & Tasgin, 2017; El-Ansary & Al-Gazzar, 2020; Jaworski & Czerwonka, 2022), implies that an improvement in economic condition increases ROA.

In terms of the INF variable, we found that the effect of this variable on profitability is positive and significant only for the L&R industry. This means that managers anticipate inflation expectations and adjust their prices to improve firm profitability.

Contrary to our expectations, the effect of the crisis dummy variable on profitability is positive and significant. This finding indicates that tourism companies perform better in terms of profitability during the crisis years. However, this effect is only valid in the main sample and in the H&M industry. In addition to these results, TFA and SIZE variables are found to be significant neither in the main sample nor in the industry subsamples.

In order to analyze in-depth whether the results obtained from the sample covering all countries differ according to the development levels of the countries, the countries are divided into two groups: developed countries and developing countries. The estimation results for the developed countries subsample are summarized in Table 2 and are presented in Table 8 (Appendices).

From column 1 of Table 8 (Appendices), we observe that the statistically positive and negative coefficients of WC and WC<sup>2</sup> reveal that WC increases the ROA of tourism firms up to the breakpoint, after which, the increase in WC reduces the ROA. When the industry-level estimation results for developed countries are examined, we conclude that the inverted U-shaped association between working capital and profitability is valid only for L&R firms.

**Table 2.** Summary of the study findings for the developed country firms.

	Full Sample	H&M	L&R	F&B	Compatible with
WC	+	+	+	+	Thapa (2013), Mun & Jang (2015), Chambers & Cifter (2022)
WC <sup>2</sup>	-		-		

Source: own elaboration.

Finally, we also re-estimated our quadratic model for developing countries and their tourism sub-industries in order to check whether results for developing countries hold for developed countries. The estimation results for the developing countries and their tourism sub-industries are summarized in Table 3 and are shown in Table 9 (Appendices). The coefficients on WC and WC<sup>2</sup> variables remain similar to those of Table 7 (Appendices).

**Table 3.** Summary of the study findings for the developing country firms.

	Full Sample	H&M	L&R	F&B	Compatible with
WC	+	+	+	+	Thapa (2013), Mun & Jang (2015), Chambers & Cifter (2022)
WC <sup>2</sup>	-	-	-	-	

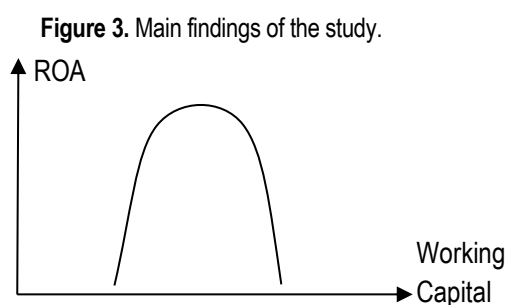
Source: own elaboration.

Our results demonstrate that an inverted U-shaped impact of working capital strategy on profitability exists not only for the subsample of tourism firms from developing countries but also for tourism sub-industries. Consequently, these results mean that there is an optimal level of working capital in tourism sub-sectors in developing countries compared to developing countries.

Furthermore, we observe that the firm level, macro level and crisis control variables that affect the profitability of tourism firms from developed and developing countries show significant differences.

## 5 DISCUSSION AND CONCLUSION

In this article, we empirically investigate the impact of working capital investment strategy on profitability for tourism firms around the world. For this purpose, we consider a sample of 786 tourism firms from 74 developed and developing countries for the period 2005 to 2017 and utilize the traditional panel data estimators as the estimation method.



Source: own elaboration.

As is seen in Figure 3, the inverted U-shaped effect means that WC increases ROA up to a certain level, after this level WC reduces ROA. The empirical findings obtained from this article allow us to conclude that: (i) WC has an inverted U-shaped effect on ROA, which supports prior studies (Thapa, 2013; Mun & Jang, 2015; Chambers & Cifter, 2022), irrespective of focusing on the development level of the countries; (ii) the inverted U-shaped association between WC and ROA exists for all firms operating in the tourism sub-industry from developing countries; (iii) for H&M and F&B firms, WC has a positive effect on ROA, while for

L&R firms WC has an inverted U-shaped effect on ROA in developed countries and (iv) the effects of the global financial crisis, firm-level and country-level variables on the profitability of tourism firms show significant differences depending on the development levels of the countries. Consequently, the study proved that there is an optimal level of working capital for tourism companies, so the managers should pay attention to determining the working capital level for good working capital management.

Tourism sector decision makers should pay particular attention on working capital strategy because of the fact that both the working capital financing strategy and the working capital investment strategy are closely related to firms' liquidity, risk, and profitability.

Thus, our empirical results suggest that when deciding on a proper working capital strategy, tourism sector managers should consider the diversity of the association between working capital and profitability in tourism sub-industries in countries with different levels of development.

Finally, similar to other empirical studies, this study has some limitations. First, our results are valid only for firms operating in the tourism industry. That is, these results cannot be generalized for other sectors. Secondly, the use of net working capital to total assets as an indicator of investment in working capital and the use of ROA to represent the profitability performance of tourism firms may be considered as another limitation of this study.

In future studies, the working capital-profitability linkage can be tested by employing alternative working capital and performance indicators. Additionally, a limited number of macroeconomic indicators are used in this study. In future studies, variables specific to the tourism sector can be included in the research model. Moreover, the research topic can be expanded by using different economic methods.

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## APPENDICES

**Table 4.** Variables definitions.

Variable	Definition	Notation	Expected Sign
<b>Panel A: dependent variable</b>			
Return on assets	Net profit after taxes/total assets	ROA	
<b>Panel B: independent variables</b>			
Working capital investment	(Current assets - current liabilities)/total assets	WC	+
Working capital investment squared	Square of WC	WC <sup>2</sup>	-
<b>Panel C: firm-level control variables</b>			
Tangibility	The ratio of tangible fixed assets to total assets	TFA	+/-
Firm size	Natural logarithm of total assets	SIZE	+/-
Firm growth	(Current year sales/previous year sales) – 1	GRO	+/-
Leverage	The ratio of total debt to total equity	LEV	+/-
Cash holding	The ratio of cash and short-term investments to current assets	CASH	+/-
<b>Panel D: macro-level control variables</b>			
Economic growth	Gross domestic product (% change)	GDP	+
Inflation	Consumer price index (% change)	INF	+/-
<b>Panel E: Crisis control variable</b>			
Global financial crisis	Dummy variable for the years 2008, 2009 and 2010	CRISIS	-

Source: own elaboration.

**Table 5.** Descriptive Statistics.

	Full Sample			Developed Countries			Developing Countries		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
ROA	.027	.089	9840	.025	.083	4735	.029*	.095	5105
WC	.046	.222	9840	.012	.199	4735	.077*	.237	5105
WC <sup>2</sup>	.051	.107	9840	.04	.087	4735	.062*	.122	5105
TFA	.496	.28	9840	.505*	.275	4735	.488	.285	5105
SIZE	11.793	1.859	9840	12.24*	1.829	4735	11.378	1.789	5105
GRO	.12	.445	9692	.084	.342	4686	.153*	.521	5006
LEV	1.417	2.852	9832	1.858*	3.349	4727	1.01	2.22	5105
CASH	.464	.275	9815	.472*	.263	4711	.456	.286	5104
GDP	.032	.032	9907	.014	.023	4761	.048*	.03	5146
INF	.029	.032	9907	.014	.016	4761	.044*	.036	5146

Note: \* indicates statistically significant differences between developed and developing countries subsamples, where statistical significance is measured at the 1% level.

Source: own elaboration.

**Table 6.** Spearman correlation between independent and control variables for the full sample.

	WC	WC <sup>2</sup>	TFA	SIZE	GRO	LEV	CASH	GDP	INF
WC <sup>2</sup>	0.272*								
TFA	-0.418*	-0.303*							
SIZE	-0.121*	-0.173*	-0.070*						
GRO	0.021	-0.008	-0.041*	0.035*					
LEV	-0.385*	-0.114*	-0.030*	0.290*	0.052*				
CASH	0.340*	0.125*	-0.155*	-0.006*	0.014	-0.216*			
GDP	0.101*	0.015	0.024	-0.164	0.192*	-0.160*	-0.105*		
INF	0.059*	-0.034*	0.110*	-0.182*	0.105*	-0.154*	-0.190*	0.490*	
GFC	-0.031*	0.008	0.015	-0.028*	0.012	0.006	-0.037*	-0.121*	0.043*

Note: \* indicates the level of significance at 1%.

Source: own elaboration.

**Table 7.** Estimation results for the full sample.

	Full Sample (1)	H&M (2)	L&R (3)	F&B (4)
<b>WC</b>	0.113*** (0.0135)	0.0881*** (0.0169)	0.125*** (0.0210)	0.126*** (0.0333)
<b>WC<sup>2</sup></b>	-0.117*** (0.0228)	-0.0908*** (0.0338)	-0.104*** (0.0343)	-0.182*** (0.0538)
<b>TFA</b>	-0.00680 (0.0145)	-0.0137 (0.0179)	0.0228 (0.0289)	-0.0379 (0.0337)
<b>SIZE</b>	0.00512 (0.00358)	0.00611 (0.00576)	0.00484 (0.00619)	0.00507 (0.00676)
<b>GRO</b>	0.0126*** (0.00271)	0.0126*** (0.00303)	0.0126*** (0.00459)	0.0109 (0.00808)
<b>LEV</b>	-0.00116* (0.000632)	-0.00156 (0.000949)	-0.000735 (0.000982)	-0.00134 (0.00120)
<b>CASH</b>	0.0301*** (0.00724)	0.0363*** (0.00726)	0.0352** (0.0145)	0.00613 (0.0223)
<b>GDP</b>	0.227*** (0.0445)	0.145*** (0.0500)	0.243** (0.115)	0.502*** (0.113)
<b>INF</b>	0.0306 (0.0501)	-0.0548 (0.0649)	0.243** (0.104)	0.0851 (0.153)
<b>GFC</b>	0.00860** (0.00380)	0.0121*** (0.00455)	-0.00556 (0.00757)	0.0130 (0.00870)
constant	-0.0605 (0.0448)	-0.0643 (0.0733)	-0.0750 (0.0774)	-0.0431 (0.0848)
Hausman	49.84***	45.01***	34.26**	34.60**
F-statistic	15.61***	10.13***	5.84***	7.03***
Within R <sup>2</sup>	0.0964	0.1049	0.1090	0.1055
Number of obs.	9,635	4,161	2,587	2,887
Number of firms	786	338	210	238

**Note:** All the models are estimated with firm- and year-fixed effects. Robust standard errors are clustered at firm level and reported in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Source: own elaboration.

**Table 8.** Estimation results for developed countries' firms.

	Full Sample (1)	H&M (2)	L&R (3)	F&B (4)
<b>WC</b>	0.122*** (0.0250)	0.0433** (0.0202)	0.194*** (0.0458)	0.154*** (0.0453)
<b>WC<sup>2</sup></b>	-0.0793* (0.0439)	-0.0269 (0.0674)	-0.148** (0.0580)	-0.0724 (0.0896)
<b>TFA</b>	0.00883 (0.0227)	-0.00251 (0.0204)	0.0533 (0.0566)	-0.0122 (0.0422)
<b>SIZE</b>	0.000852 (0.00614)	0.00746 (0.0111)	-0.0149 (0.0101)	0.00872 (0.00929)
<b>GRO</b>	0.0119** (0.00556)	0.0176** (0.00750)	0.0112 (0.00867)	0.00607 (0.0107)
<b>LEV</b>	-0.00107 (0.000663)	-0.000266 (0.000940)	0.000139 (0.00111)	-0.00214** (0.00102)
<b>CASH</b>	0.0171 (0.0113)	0.0182* (0.0108)	0.0436* (0.0249)	-0.0269 (0.0266)
<b>GDP</b>	0.245*** (0.0597)	0.0427 (0.0831)	0.325** (0.154)	0.289 (0.175)
<b>INF</b>	-0.0650 (0.118)	0.181 (0.135)	-0.0948 (0.273)	-0.447 (0.359)
<b>GFC</b>	-0.000194 (0.00541)	-0.0177** (0.00780)	0.00360 (0.0104)	0.00615 (0.0109)
constant	-0.00467 (0.0790)	-0.0766 (0.141)	0.161 (0.125)	-0.0706 (0.127)
Hausman	33.05**	28.74***	38.05***	32.27***
F-statistic	9.72***	6.17***	7.29***	7.45***
Within R <sup>2</sup>	0.0837	0.0794	0.1451	0.1035
Number of obs.	4,647	1,354	1,231	2,062
Number of firms	377	110	99	168

**Note:** All the models are estimated with firm- and year-fixed effects. Robust standard errors are clustered at firm level and reported in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Source: own elaboration.

**Table 9.** Estimation results for developing countries' firms.

	Full Sample (1)	H&M (2)	L&R (3)	F&B (4)
<b>WC</b>	0.106*** (0.0155)	0.107*** (0.0221)	0.0939*** (0.0189)	0.117** (0.0528)
<b>WC<sup>2</sup></b>	-0.132*** (0.0260)	-0.112*** (0.0399)	-0.0847** (0.0394)	-0.243*** (0.0651)
<b>TFA</b>	-0.0137 (0.0188)	-0.0178 (0.0233)	0.0234 (0.0334)	-0.0765 (0.0545)
<b>SIZE</b>	0.00962** (0.00449)	0.00984 (0.00664)	0.0156** (0.00753)	0.00269 (0.0110)
<b>GRO</b>	0.0122*** (0.00308)	0.0117*** (0.00330)	0.0121** (0.00524)	0.0128 (0.0116)
<b>LEV</b>	-0.00120 (0.00138)	-0.00256 (0.00165)	-0.00210 (0.00190)	0.00155 (0.00332)
<b>CASH</b>	0.0399*** (0.00945)	0.0423*** (0.00929)	0.0316* (0.0165)	0.0464 (0.0374)
<b>GDP</b>	0.131** (0.0580)	0.0786 (0.0681)	0.207 (0.146)	0.325* (0.178)
<b>INF</b>	0.00390 (0.0573)	-0.0920 (0.0696)	0.276** (0.119)	0.153 (0.185)
<b>GFC</b>	0.0206*** (0.00559)	0.0268*** (0.00591)	-0.00890 (0.0113)	0.0383* (0.0208)
constant	-0.114** (0.0544)	-0.107 (0.0837)	-0.204** (0.0945)	-0.0268 (0.109)
Hausman	41.22***	55.49***	30.56***	31.90***
F-statistic	11.48***	8.60***	4.08***	7.10***
Within R <sup>2</sup>	0.1198	0.1411	0.1212	0.1567
Number of obs.	4,988	2,807	1,356	825
Number of firms	409	228	111	70

**Note:** All the models are estimated with firm- and year-fixed effects. Robust standard errors are clustered at firm level and reported in parentheses. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Source:** own elaboration.

**Table 10.** Credit author statement.

Term	Definition	Author 1	Author 2	Author 3
Conceptualization	Ideas; formulation or evolution of overarching research goals and aims	x	x	x
Methodology	Development or design of methodology; creation of models	x	x	x
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components	x	x	x
Validation	Verification, whether as a part of the activity or separate, of the overall replication/ reproducibility of results/experiments and other research outputs	x	x	x
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data	x	x	x
Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection	x	x	x
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools	x	x	x
Data Curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later reuse	x	x	x
Writing - Original Draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation)	x	x	x
Writing - Review & Editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision –including pre-or post-publication stages	x	x	x
Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/ data presentation	x	x	x
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team	x		

Project administration	Management and coordination responsibility for the research activity planning and execution	x		
Funding acquisition	Acquisition of the financial support for the project leading to this publication	x		

**Source:** adapted from Elsevier (2022, s/p), based upon Brand et al. (2015).

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