Comparative analysis of working capital management in Turkish apparel industry in terms of firm sizes

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GULSEREN KARABAY
YUSUF KAYA
GİZEM KARAKAN GÜNAYDIN

ABSTRACT – REZUMAT

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Working capital, which businesses need to carry out their daily activities and pay their short-term debts, also significantly affects the profitability of companies. The Covid-19 pandemic in 2020 forced countries to close during the periods when the disease increased, which led to almost cessation of domestic and foreign trade. Many enterprises with weak liquidity had to close their short-term debts. With the pandemic, working capital has become much more important for enterprises. In this study, apparel enterprises operating in Turkey and whose financial statement data can be accessed through the Central Bank were classified according to their size and the liquidity ratios of these companies between 2011–2020 were analysed. In the last 10 years, it has been determined that especially large and medium-sized enterprises have strengthened their liquidity and significantly increased their cash and cash equivalents. However, such an increase was not observed in the cash power of small enterprises. In addition, the factors affecting the profitability of the companies were analysed in the study, and it was determined that the decrease in the Financial Leverage and Debt to Equity ratios in large enterprises increased the profitability. In medium-sized enterprises, it has been determined that the increase in current ratio and receivables collection periods increased profitability. It has been determined that the only significant ratio that affects profitability in small-scale enterprises is the current ratio.

Keywords: *working capital, ratio analysis, financial analysis, apparel sector*

Analiză comparativă a managementului capitalului de lucru în industria de îmbrăcăminte din Turcia raportat la dimensiunea firmelor

Capitalul de lucru, de care afacerile au nevoie pentru a-și desfășura activitățile zilnice și pentru a-și plăti datoriile pe termen scurt, influențează, de asemenea, în mod semnificativ profitabilitatea companiilor. Pandemia de Covid-19 din 2020 a forțat țările să se închidă în perioadele în care boala s-a extins, ceea ce a dus aproape la încetarea comerțului intern și exterior. Multe întreprinderi cu lichiditate slabă au fost nevoite să-și închidă datoriile pe termen scurt. Odată cu pandemia, capitalul de lucru a devenit mult mai important pentru întreprinderi. În acest studiu, întreprinderile de îmbrăcăminte care operează în Turcia și ale căror date din situațiile financiare pot fi accesate prin intermediul Băncii Centrale au fost clasificate în funcție de dimensiunea lor și au fost analizate ratele de lichiditate ale acestor companii în perioada 2011–2020. În ultimii 10 ani, s-a stabilit că, în special întreprinderile mari și mijlocii și-au consolidat lichiditatea și și-au crescut semnificativ numerarul și echivalentele de numerar. Cu toate acestea, o astfel de creștere nu a fost observată în puterea de numerar a întreprinderilor mici. În plus, în cadrul studiului au fost analizați factorii care influențează profitabilitatea companiilor și s-a determinat că scăderea ratei Levier Financiar și Îndatorare la capitaluri proprii la întreprinderile mari a crescut profitabilitatea. În întreprinderile mijlocii, s-a stabilit că creșterea ratei curente și a perioadelor de încasare a creanțelor a crescut profitabilitatea. S-a stabilit că singura lichiditate semnificativă care afectează profitabilitatea întreprinderilor mici este lichiditatea curentă.

Cuvinte-cheie*: capital de lucru, analiză a raportului, analiză financiară, sectorul articolelor de îmbrăcăminte*

INTRODUCTION

Business finance covers three key areas: capital budgeting, capital structure and working capital management. While capital budgeting and capital structure are related to long-term investment and financing decisions, working capital management focuses on the management of a firm's short-term financing and investment decisions [1]. With the strong competition state in domestic and foreign markets, the financial crisis increased the significance of corporate finance. Due to the Covid-19 pandemic, the rupture of supply chains and the cessation of trade have deteriorated cash flows and once again revealed the importance of working capital.

Working capital is related to the managing of current assets and current liabilities of a firm. Managing the short-term assets and liabilities is significant for the being of the companies on a smooth course. Therefore, working capital neither should be excessive nor deficient but should be enough to cater for the daily requirement of a company. A surplus amount of working capital decreases profitability. Conversely, its insufficiency can induce of lack of liquidity and stock out. Ineffective working capital management causes non-operative assets and

decreases the liquidity and profitability of a firm [2]. Working capital is an important issue for financial decisions, as it is part of asset investment, which requires appropriate funding. On the other hand, working capital is being disregarded in financial decisions as it is related to short-term financing. Moreover, as it does not give a contribution to return on equity, it acts as a restrain in financial performance [3].

Working capital is deliberated as a measure of the capability of paying its liabilities back in case of liquidation. However, according to the new perspective, liquidity depends on the persistence of the company and it does not ride on the liquidation of the assets. In place of this, it relies on the cash flows that emerge from these assets [4]. The cash conversion cycle is the delay between the spending for the purchasing of raw materials and the collection of receivables from sales. Therefore, it is defined as an extensive measure of working capital [5]. Managers should be conscious of not only the final profit for their company but also the cash conversion cycle for their company [6]. Even if a business appears to produce very good products, sell effectively, and manage its long-term assets very well, it can be said that if its working capital is poorly managed, the business may face the risk of bankruptcy. The reason for this is not the loss of the business or low sales, but the inability to continue its daily activities [7]. The significant point in working capital management of a company is required to sustain its liquidity for daily operations to provide it's even running and fulfils its duties [8].

Surviving and growing, which are the main objectives of businesses, push companies to use their resources more effectively and this situation becomes more and more important in an increasingly competitive environment. Effective working capital management provides sustaining a firm's capability to gain a satisfactory balance between profitability and liquidity by preventing excessive investment in current assets. Thus, the efficient working capital management system has a crucial part in increasing profitability and getting a competitive advantage [9].

Working capital management can provide a competitive advantage for firms. Working capital is the assets that provide income flow to the business that are connected to the factors of production during the period from the production of the goods to the income generated from the products. Making a profit is the most significant factor for maintaining existence. While profitability is a long-term target for a company that it needs for surviving, liquidity is a comparatively short-term target that requires being collected to relieve the firm from bankruptcy [10]. Concentrating on long-term profitability at the cost of liquidity can cause a financial nuisance for companies. Therefore, the managers must concentrate on both and a balance between them must be set [11].

The firm size affects the working capital management and profitability [12–14]. The working capital needs of enterprises differ by firm size and their activity. Small businesses can limit their investment in fixed assets by renting them out. However, there is no way to avoid stocks and receivables. In this respect, current assets are very important for managers in small businesses. For these companies, the opportunity of finding long-term funds is very limited. For this reason, there is a tendency towards short-term funds in financing. Large enterprises have more opportunities in the capital market than small enterprises [15].

The apparel industry has the potential to create production volume, employment, and foreign trade gains for many countries, especially the developing countries, due to its labour-intensive structure and traditional production process. Turkey with a population of about 85 million people constitutes a large domestic market for apparel products. Having a high capacity of cotton growing and textile process facilities, the textile industry has always been a leader in the country's economic development. Turkey's close economic relations with Europe provided major trading areas with countries such as Germany, the Netherlands and other Europe countries. Moreover, the crumble of the former Soviet Union and the rise of new Turkic republics have resulted in new trades with Turkey and Russia and some Turkic republics such as Azerbaijan and Kazakhstan [16]. The Turkish apparel industry achieved 17.1 billion dollars of exports in 2020 and ranked third with its share in overall exports [17]. Therefore, it has an important place in the Turkish economy.

There are many performed works addressing the issues of working capital, liquidity etc. in the textile apparel sector. Samo and Murad investigated the effect of liquidity and financial leverage on the profitability of 40 textile companies using pooled panel regression and descriptive statistics models. The findings showed that there is a positive relationship between liquidity and profitability and a negative relationship between financial leverage and profitability [18]. Solanki analysed the working capital growth/efficiency of 22 textile companies in India over 10 years period. They concluded that the companies show different performances in terms of working capital ratios [19]. Muhammad and Ayub studied the relationship between working capital management and profitability of 138 textile firms in Pakistani. The results displayed the regression coefficient of firm size, inventory days, payables days, receivables days and days of cash cycle were statistically insignificant at a 5% significance level. Therefore, they concluded the relationship between working capital management and the profitability of firms of Pakistani was not supported statistically [20]. Karabay examined the profile of the Turkish clothing industry in terms of, capital structure, the working capital management strategies and the association between working capital and profitability by using the balance sheet of the industry published by the Central Bank of Turkey. Finally, she concluded that apparel firms should decrease the days of the debt collection, and the cash conversion cycle and found a balance between liquidity and profitability [21]. Shahid explored the relationship between working capital management and the profitability of textile firms in Pakistan. The results showed that average days in inventory, average days

receivable, and average days payable have a significant economic impact on return on assets [22]. Khan et al. conducted research to analyse the working capital management performance of 49 textile companies in Dhaka for the period 2000–2018 by using a regression model. They found that there is a negative relationship between a firm's profitability and a positive relationship between cash conversion and firm value [2]. Sheikh and Rafique's paper's objective was to examine the effect of firm-specific variables and board attributes on the working capital ratio of textile composite, spinning, weaving and overall firms listed on the Pakistan Stock Exchange during 2008–2014. They concluded while the firm-specific variables have a significant effect, the board attributes have a slight impact on the working capital ratio [23].

In these studies, it has been determined that there are significant differences between sectors in terms of the level of working capital investments and financing decisions. Various working capital indicators such as debt collection period, inventory turnover period, debt turnover period and cash conversion period differ significantly from sector to sector.

The overwhelming majority of early research has been generally conducted in analysing financial analysis of companies listed on the stock market in certain sectors. In general, the companies in the stock market constitute a small part of the sector. The size of the sample population is important in accurately reflecting the main population. Unlike other studies, in our study, financial statement data of all companies in the apparel industry in the country were collected through the Central Bank and financial analysis was performed, and the factors affecting their profitability were comparatively analysed by classifying the companies according to their sizes.

MATERIAL & METHOD

Aim of the study

In this study, the working capital of the companies operating in the apparel industry in Turkey was analysed according to their size and it was aimed to determine the internal factors that affect the profitability of these companies. In addition, companies were divided into three categories according to their size and the differences between the classes were revealed. In Turkey, the companies traded on the stock exchange are large textile and apparel enterprises and represent a few of the industries. However, when the whole sector is considered, a significant majority of the enterprises consist of small and medium-sized enterprises. In addition, the number of companies traded in the stock market is 19 and this is a very small part of large enterprises in Turkey. The sector's place in the Turkish economy is indispensable due to employment and the export income it provides. For this reason, using the consolidated balance sheets of the companies operating in the sector provided by the Central Bank of the Republic of Turkey will reveal more accurate results about the real situation of the sector. These balanced sheets were formed by the consolidation of financial statements of 6024 firms. In addition, since the presented data grouped the companies in the sector based on their size, a comparative analysis of the relationship between the working capital and profitability of the companies according to the size of the enterprises was also possible. Among the studies carried out so far, a comparative analysis study for the whole sector has not been encountered. Hence, it was aimed to contribute to the literature and the sector with this aspect.

Scope and method of research

The data used in this study was obtained from financial statements of the Turkish clothing industry published by the Central Bank of the Republic of Turkey on its website for the period 2011–2020.

The companies in the sector were divided into 3 groups according to their sizes within our study. According to a published report of KOSGEB; "Enterprises with less than 50 employees and less than 25 million TL of annual net sales are small businesses; Enterprises with less than 250 employees and whose annual sales revenue does not exceed 125 million TL are medium-sized enterprises; Businesses with more than 250 employees and a sales revenue of more than 125 million TL are classified as large enterprises" [24]. Additionally, 10-year liquidity, activity, financial structure, and profitability ratios were calculated for each group. The ratios and calculation methods used in the study are shown in table 1.

Table 1

MEASUREMENT OF VARIABLES

Variables	Measurement
Current Ratio (CR)	Current Assets / Current Liabilities
Receivables Collection Period (RCP)	360 / (Sales/ Accounts Receivables)
Inventory Turnover Period (ITP)	360 / (Cost of Goods Sold / Inventory)
Financial Leverage Ratio (FL)	Total liabilities / Total assets
Debt to Equity Ratio (DE)	Total liabilities / Shareholder's equity
Return on assets ratio (ROA)	Net income / Total assets

Within the scope of the study, data of 338 large companies, 1809 medium-sized companies and 3877 small-scale companies were evaluated as of 2020.

Ordinary least-squares regression analysis

Ordinary least squares (OLS) regression is frequently used in social sciences. It is beneficial to estimate the values of a continuous response variable using one or more explanatory variables. It helps also identify the strength of the relationships between these variables [25].

In the study, the dependent variable Return on Assets Ratio (ROA) was chosen to determine the factors affecting the profitability of large, medium and small

enterprises. Current Ratio (CR), Receivables Collection Period (RCP), Inventory Turnover Period (ITP), Financial Leverage Ratio (FL) and Debt to Equity Ratio (DE) ratios were chosen as independent variables. Three different regression models are presented for large, medium and small enterprises.

Model 1: $ROA_{Big} = \beta 0 + \beta 1\ CRt + \beta 2\ RCPt + \beta 3\ ITPt + \beta 4\ FLt + \beta 5\ DEt + et$

Model 2: $ROA_{Medium} = \beta 0 + \beta 1\ CRt + \beta 2\ RCPt + \beta 3\ ITPt + \beta 4\ FLt + \beta 5\ DEt + et$

Model 3: $ROA_{Small} = \beta 0 + \beta 1\ CRt + \beta 2\ RCPt + \beta 3\ ITPt + \beta 4\ FLt + \beta 5\ DEt + et$

FINDINGS

Analysis of working capital of enterprises

Liquidity ratios measure the short-term solvency of businesses and the adequacy of working capital. The companies subject to the study in table 2 are divided into 3 groups according to their sizes and their liquidity ratios have been indexed based on 2011.

When table 2 is examined, it can be said that there have been fluctuations over the years and that a certain trend has not occurred, but in general, enterprises have improved the adequacy of their working capital. The rise of quick and cash ratios in large and medium-sized enterprises draws attention, especially in recent years. On the other hand, in small-scale enterprises, it was determined that the level of 2011 was maintained in general, and there was some improvement in all ratios only in 2020. In all three categories, it was determined that the cash ratio increased significantly during that time. In Turkey, the business is performed on order bases in the apparel industry. In the Covid-19 pandemic period, the number of stocks of the enterprises to be purchased and the receivables from the customers decreased with the decrement in the orders. As a consequence of this situation, the enterprises aimed to reduce the risk by investing more in their cash and cash equivalents during that period.

Ordinary least-squares regression (OLS) analysis

In the study, three different regression models were established for large, medium and small-sized enterprises. OLS results for the three models are shown in table 3.

Table 2

10-YEAR CHANGE IN LIQUIDITY RATIOS										
Year	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Big Size Companies										
Current Ratio	100	97	111	108	97	107	111	110	117	108
Quick Ratio	100	105	113	112	117	114	116	114	135	128
Cash Ratio	100	94	106	111	106	104	114	87	123	179
Medium Size Companies										
Current Ratio	100	97	94	93	93	97	97	105	110	110
Quick Ratio	100	96	93	93	94	95	99	107	111	120
Cash Ratio	100	82	98	93	104	94	121	112	129	171
Small Size Companies										
Current Ratio	100	101	99	95	93	94	94	99	98	103
Quick Ratio	100	99	100	89	91	91	96	99	101	110
Cash Ratio	100	88	98	77	86	91	77	94	99	117

Table 3

Regression Models						
Variables	**Model I (Big Comp.)**		**Model II (Medium Comp.)**		**Model III(Small Comp.)**	
	Coefficient	**Prob.**	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
Current Ratio (CR)			0.0481	0.0042	0.0569	0.0078
Receivables Collection Period (RCP)			0.3849	0.0003		
Inventory Turnover Period (ITP)						
Financial Leverage Ratio (FL)	–0.063509	0.018				
Debt to Equity Ratio (DE)	–0.464573	0.0001	–0.0469	0.0503		
Durbin Watson	1.3035		1.4510		1.8483	
Adjusted R-squared	0.3890		0.4967		0.2971	
F-statistic	7.2082		10.624		5.1228	
Sig.	0.0002		0.0001		0.0023	

When table 3 is examined, it has been determined that the factors affecting profitability in large enterprises are FL and DE ratios. It was determined that the decrease in both ratios increased the profitability. The decrease in these ratios, which show the debt burden of the enterprise according to the assets and equity, increases the profitability of the enterprise, as it also reduces the interest burden of the enterprise.
Enterprises operating in Turkey bear high financial expenses due to high-interest rates. Particularly, large-scale enterprises, due to their financing policies, include more foreign resources, so interest expenses increase with them, and this situation negatively affects profitability. It has been determined that the ratios affecting profitability for medium-sized enterprises are CR, RCP and DE. Accordingly, while the increase in CR and RCP ratios increased the profitability of the enterprise, the decrease in DE affected the profitability of the enterprise positively. It is logical that an increase in the CR, which shows the ratio of current assets to current liabilities, will positively affect profitability as it also increases the liquidity of the enterprise. The increase in the RCP ratio also means that the collection power of the enterprise increases, and it collects its receivables in a shorter time.
This will also have a positive impact on profitability. As in large enterprises, the profitability of the enterprise increased as the DE ratio decreased in medium-sized enterprises. It can be said that the reason for this situation is the decrease in interest expenses. In small businesses, on the other hand, it has been determined that the only rate that affects profitability is CR. Increasing liquidity power also increases profitability in small businesses.

CONCLUSION

The apparel industry, with its labour-intensive structure, has the potential to create employment and foreign trade gains. The Turkish apparel industry, which has an increasing share in the economy with its development since the 80s, still maintains its place in the economy. For this reason, companies in the sector need to continue their existence. One of the important milestones of this is working capital management. Even if a business appears to produce very good products, sell effectively, and manage its long-term assets very well, it can be said that the business may face the risk of bankruptcy if its working capital is poorly managed. The reason for this may not be the loss of the business or low sales, but the inability to continue its daily activities. The ability to keep daily operations hangs on the level of investment in working capital. The firms should manage their working capital efficiently. Thus, they can meet their short-term obligations while they are avoiding excessive investment in current assets. By not investing too much in current assets, it can be ensured that the funds in hand are directed to important investments that need to be made in the future.
This study examined the working capital management of the Turkish apparel industry considering the firm size comparatively. The findings have shown that while the small-size firms' quick and cash ratios of maintaining the level of 2011, big and medium-size firms display an incrementing course. The fact that large and medium-sized companies are more successful in stock management than small businesses and that they are more competitive in the collection of receivables than small businesses may be effective in this result. In 2020, the cash ratio of all-size firms increased. The reason for this is the decrease in business stocks and receivables because of the decline of orders due to the Covid19 pandemic, and companies' investing more in cash and cash equivalents.
The results of the regression analysis showed that the relationship between the working capital of the apparel enterprises and the profitability differs according to the size of the firm. Financial leverage and debt to equity ratio in large enterprises, current ratio and receivables collection period in medium-sized enterprises, and current ratio in small enterprises are effective in the relationship between working capital and profitability of apparel enterprises. In this difference, the financial policies applied by the enterprises according to their size, their efficiency in stock management and the level of competitiveness in the collection of their receivables are effective.
It is important for businesses to consider the impact of their existing working capital structures on their profitability and to implement an effective working capital management policy in terms of increasing their profitability and sustainability of their assets.

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Authors:

GULSEREN KARABAY[1], YUSUF KAYA[2], GİZEM KARAKAN GÜNAYDIN[3]

[1]Dokuz Eylul University, Faculty of Engineering, Department of Textile Engineering, 35390, Buca, Izmir, Turkey

[2]Pamukkale University, Buldan Vocational School, Accounting and Tax Programme, 20400, Buldan, Denizli, Turkey

[3]Pamukkale University, Buldan Vocational School, Fashion&Design Programme, 20400, Buldan, Denizli, Turkey

Corresponding author:

GİZEM KARAKAN GÜNAYDIN
e-mail: ggunaydin@pau.edu.tr