

INVESTIGATING THE ASSOCIATION BETWEEN LIQUIDITY AND PROFITABILITY:
A CASE STUDY ON COMPANIES OPERATING IN THE RETAIL SECTOR LISTED AT
BORSA ISTANBUL



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A CASE STUDY ON COMPANIES OPERATING IN THE RETAIL SECTOR LISTED AT
BORSA ISTANBUL

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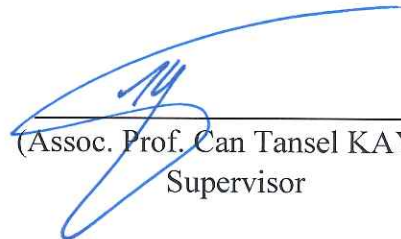
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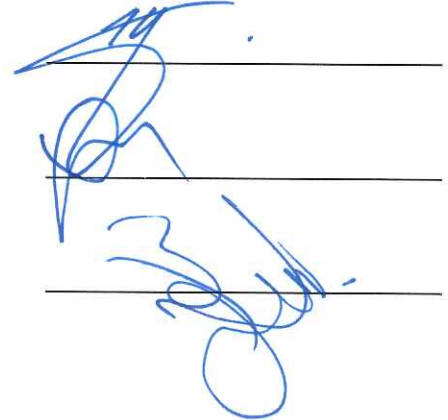

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ABSTRACT

One of the main objectives of modern finance theory is to increase the welfare level of enterprise's shareholders. This can only be achieved by increasing the market value of the enterprise, in other words, by increasing the value of the stocks in the investors' hands. Increasing the market value of the enterprise will become possible by continually increasing the efficiency and productivity of the enterprise. At this point, activity, liquidity and profitability ratios which are the main indicators that the enterprise is managed on the basis of the right decisions are important. Effective working capital management (WCM), high inventory turnover and receivables turnover ratios inevitably affect the profitability of the enterprise. Therefore, increasing the market value of the enterprise depends on the balance between effective liquidity management and profitability.

The purpose of this study is to investigate the relationship between liquidity and profitability with the help of financial ratios. A balanced panel dataset obtained from the published annual financial statements of the 11 companies in retail trade sector and traded in Istanbul Stock Exchange (ISE) in the 2010-2015 period was used to accomplish this purpose. In the study, Return on Assets (ROA), Return on Equity (ROE) and Net Profit Margin (NPM) are considered as dependent variables. The independent variables of the study are Receivables Turnover Ratio (RTR), Inventory Turnover Ratio (ITR) and Quick Ratio (QR). System Generalized Moments Method (System GMM), which is one of the best dynamic panel data estimation methods was used to determine the relationship between dependent and independent variables. According to the analysis results, while a statistically significant and negative relationship was found between dependent variable ROA and independent variable ITR, there was no statistically significant relationship between ROA and other independent variables, QR and RTR. On the other hand, while a statistically significant and negative relationship was found between NPM which is another dependent variable and QR, there was no statistically significant other independent variables, ITR and RTR. Similarly, while a statistically significant and negative relationship was found between ROE which is another dependent variable of the study and QR, there was no statistically significant relationship between ROE and other independent variables, ITR and RTR.

Keywords: Profitability, liquidity, dynamic panel data analysis

ÖZET

Modern finans teorisinin temel amaçlarından birisi işletme ortaklarının refah düzeyini arttırmaktır. Bu amaca ancak işletmenin piyasa değerinin bir başka ifadeyle yatırımcıların ellerindeki hisse senetlerinin değerinin arttırılması ile ulaşılabilir. İşletmenin piyasa değerinin arttırılması ise işletmenin verimliliğinin ve etkinliğinin sürekli olarak arttırılması ile mümkün hale gelebilecektir. Bu noktada işletmenin doğru kararlar üzerine yönetildiğinin temel göstergeleri olan etkinlik ve karlılık oranları önem arz etmektedir. Etkin çalışma sermayesi yönetimi, yüksek stok ve alacak devir hızları kaçınılmaz bir şekilde işletmenin karlılığını da etkilemektedir. Dolayısıyla işletmenin piyasa değerini arttırmak ancak etkin likidite yönetimi ile karlılık arasındaki dengeye bağlıdır.

Bu çalışmanın amacı; likidite ile karlılık arasındaki ilişkiyi finansal oranlar yardımıyla araştırmaktır. Bu amacı gerçekleştirmek için; Borsa İstanbul’da işlem gören ve perakende ticaret sektöründe yer alan 11 işletmenin, 2010-2015 dönemine ait yıllık mali tablo verilerinden elde edilen dengeli panel veri seti kullanılmıştır. Çalışmada Aktif Karlılık, Öz Sermaye Karlılığı ve Net Kar Marjı bağımlı değişkenler olarak ele alınmıştır. Çalışmanın bağımsız değişkenleri ise; Alacak Devir Hızı, Stok Devir Hızı ve Asit Test Oranıdır. Bağımlı ve bağımsız değişkenler arasındaki ilişkiyi tespit edebilmek için en iyi dinamik panel veri tahmin yöntemlerinden biri olan System GMM tahmin yöntemi kullanılmıştır. Analiz sonuçlarına göre; bağımlı değişken Aktif Karlılık ile bağımsız değişken Stok Devir Hızı arasında istatistiksel olarak anlamlı ve negatif yönlü bir ilişki tespit edilirken; Aktif Karlılık ile diğer bağımsız değişkenler olan Asit Test Oranı ve Alacak Devir Hızı arasında ise istatistiksel olarak anlamlı herhangi bir ilişki tespit edilememiştir. Bununla birlikte diğer bir bağımlı değişken olan Net Kar Marjı ile Asit Test Oranı arasında anlamlı ve negatif yönlü bir ilişki tespit edilirken; Net Kar Marjı ile diğer bağımsız değişkenler (Stok Devir Hızı, Alacak Devir Hızı) arasında istatistiksel olarak anlamlı herhangi bir ilişki tespit edilememiştir. Benzer şekilde, çalışmanın diğer bir bağımlı değişkeni olan Öz Sermaye Karlılığı ile Asit Test Oranı arasında anlamlı ve negatif yönlü bir ilişki tespit edilirken; Öz Sermaye Karlılığı ile diğer bağımsız değişkenler (Stok Devir Hızı, Alacak Devir Hızı) arasında istatistiksel olarak anlamlı herhangi bir ilişki tespit edilememiştir.

Anahtar Kelimeler: Karlılık, likidite, dinamik panel veri analizi

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LIST OF ABBREVIATIONS & SYMBOLS

W	Positive Semi-Definite Weighting Matrix
μ	Mean of Distribution
$\hat{\theta}_{GMM}$	GMM estimator
$Y_{i,t}$	Dependent Variable
$Y_{i,t-l}$	Lagged Value of Dependent Variable
ε_{it-1}	Lagged Value of Error Term
ΔY_{it}	First-Differenced Form of Dependent Variable
$\Delta Y_{i,t-1}$	First-Differenced Form of Lagged Dependent Variable
$\Delta \varepsilon_{it}$	First-Differenced Form of Error Term
ε_{it}	Error Term of Model
u_i	Unobservable Individual Affects
μ_i	Unobserved Country Specific Effects
pi	Lag Order
t_δ	T-Statistic
N	Number Of Cross Section
S_N	Estimator of The Average of The Ratio Of Long-Run to Short-Run Standard Deviation
σ^2_ε	Estimated Variance of The Error Term
$STD(\delta)$	Standard Deviation of δ
μ^*_{mT}	Mean Adjustment
σ^*_{mT}	Standard Deviation Adjustment
ϕ	Standart Normal Cumulative Distribution Function
i	Number of Firms
t	Time Period
L	Logit Test
Z	Inverse Normal Test
GMM	Generalized Method of Moments
System GMM	System Generalized Method of Moments
MM	Momentum Method
OLS	Ordinary Least Square
LSM	Least Squares Method
AB	Arellano-Bond

ROA	Return on Assets
ROE	Return on Equity
NPM	Net Profit Margin
ITR	Inventory Turnover Ratio
RTR	Receivables Turnover Ratio
QR	Quick Ratio
LR	Liquid Ratio
DR	Debt Ratio
CR	Current Ratio
CCC	Cash Conversion Cycle
ROS	Return on Sales
ROI	Return on Investment
WACC	Weighted Average Cost of Capital
ROCE	Return on Capital Employed
EVA	Economic Value Added
NIM	Net Interest Margin
APPR	Average Payment Period
ACP	Average Collection Period
ICP	Inventory Conversion Period
NDAP	Number of Days Accounts Payable
NDAR	Number of Days Accounts Receivable
NDI	Number of Days Inventory
ARP	Accounts Receivable Period
APP	Accounts Payable Period
ITP	Inventory Turnover Period
RCP	Receivable Collection Period
ARCP	Average Receivable Collection Period
ACIP	Average Conversion Inventory Period
PP	Payment Period
IP	Inventory Period
AITP	Average Inventory Turnover Period In Days
NTC	Net Trade Cycle
WCM	Working Capital Management
GPM	Gross Profit Margin

OPM	Operating Profit Margin
GOP	Gross Operating Profit
NOM	Net Operating Margin
XTAST	BIST Non-Metal Mineral Products Index
ISE	Istanbul Stock Exchange
PWC	Price Waterhouse Coopers
TAMPF	Federation of Shopping Centers and Retailers
TURKSTAT	Turkish Statistical Institute
TEPAV	Economic Policy Research Foundation of Turkey
CSE	Colombo Stock Exchange
JSE	Johannesburk Stock Exchange
ADF	Augmented Dickey Fuller
FMCG	Fast Moving Consumer Goods

1. INTRODUCTION

Working capital and liquidity management are the key points enterprise managers should be aware of so that enterprises can sustain their daily activities without disrupting, continue their production in an efficient and profitable manner, minimize potential risks that may arise and survive under tough competition conditions. Enterprises aim to balance cash flows and to achieve effective liquidity management by providing maturity matching. With effective liquidity management, enterprises can increase their profitability by reducing the use of idle funds. Conversely, as a result of ineffective and inefficient liquidity management, enterprises will have a tendency to lower their profitability because they will lose the opportunity to make more profit in the long term. When carrying out the daily activities of the enterprises, paying the debts at due date, and its importance in the realization of long-term plans are taken into consideration, the necessity of liquidity management will emerge again.

As in the theory of finance, there are three elements that ensure the sustainability of the enterprises and affect their survival. These are the capital structure decisions during the establishment phase of the enterprise, the capital budgeting decisions after the establishment of the enterprise and in the following process, and finally the working capital decisions for carrying out the daily activities. Liquidity management which covers a significant part of working capital decisions is a matter that enterprises often ignore, as seen in the literature review. The problems faced by the enterprises without optimal liquidity management may reduce the profitability of the enterprises in the long-term and ultimately cause them to enter the bankruptcy process.

Effective management of the liquidity management cycle which can be expressed as the sum of the time between the collection period of receivables and the payment period of debts is crucial in order that enterprises can maintain their continuity in a

more stable way, be one step ahead of their competitors under tough competition conditions, reduce potential risks such as financial difficulties, bankruptcy.

As a general evaluation, it appeared that there are some problems with liquidity management in Turkey. It is observed that factors such as the fact that financing management is not performed by experts and that its importance is not perceived enough, and the failure to comply with the financial reporting standards and Basel criterias may be effective in the emergence of these problems. Failure to obtain sufficient success in liquidity management of even the enterprises that are able to make good investment decisions and make investments in this direction, establish good relationships with their customers and continue their marketing activities successfully, suggested that it is necessary to perform more studies on this field and provide the suggestions that can shed light on the managers. On the other hand, when considering the importance of liquidity management and profitability in terms of ensuring sustainability of enterprises, the ability to pay off the debts, performing the activities efficiently, and reducing the financial risks that may be encountered; business managers should not neglect the other one by giving importance to only one of these two variables, but on the contrary, they must follow a path towards an optimal balance between the two variables.

Taking into account the theory of finance, these two decision-making variables which have vital importance in increasing the market value of enterprises should be addressed so as to cover both investors and enterprise's shareholders as well as all parties involved in relationship based on mutual interests with the enterprise. Otherwise, the short-term comfort of liquidity-driven enterprises will show itself as profit decrease in the long-term. This will lead to an increase over the cost of debt of the enterprises or cause existing investors to claim more returns.

The final situation to be faced by the enterprises that focus on profitability and less emphasis on liquidity management will be similar. The profitability curve will start to fall after a point, and as a result of this situation, the probability of entering the bankruptcy process in the enterprise will increase together with the financial

difficulties, because of the increase in the costs beared to meet the liquidity needs in the short term in the enterprises minimizing liquidity to increase profitability .

This study has been prepared to examine how much importance do the companies in retail trade sector and traded in ISE place on liquidity management in the current situation and to investigate the effects of the liquidity on profitability. According to the results obtained from the study, it will be revealed that profitability and liquidity management need to be prominent and widespread. For this purpose, the relationship between liquidity variables and profitability variables is examined by various statistical methods in the study. As seen in the literature review phase, QR, RTR and ITR are widely used as liquidity variables. The effect of each of these variables giving clues about the liquidity management of the enterprise on the profitability variables presents significant outputs for the managers. It is an inevitable fact that liquid funds tied up in inventories and receivables will increase the enterprise's need for liquidity. However, the study examines how much significant change does this effect provide on profitability variables and the results are presented in detail in Chapter 4 of the study. The main purpose of the study is to determine the effect of effective liquidity management on profitability. It is hoped that this achievement will ultimately be felt on the variables of profitability, while the fact that QR, RTR and ITR are in a continuous increase process indicates that the enterprise has an effective liquidity management. For this purpose, it is investigated how the changes in the liquidity ratios of the companies traded in ISE between the 2010-2015 years have had an impact on these enterprises' profitability ratios which are considered as ROA, ROE and NPM. In this research, System GMM method which is one of the best dynamic panel data estimation methods is used. It is seen that a significant part of the results obtained from the study is consistent with the literature.

The study will consist of five chapters. Following this introduction chapter, the theoretical framework of the study will be explained and the literature summary will be given in the second chapter. In the third chapter of the study, methodology in which the method of analysis to be used in the research, data, hypotheses and models to be established, research design, data collection and analysis prosedures,

framework of research model and research variables are explained will be presented. The analysis and findings obtained from analysis will be explained in the fourth chapter of the study. The conclusion, evaluation, discussion and suggestions will be included in the fifth and the final chapter of the study.

1.1. The Purpose of the Study

The aim of this study is to investigate the relationship between the liquidity and profitability of the companies in the retail trade sector traded in ISE with the help of financial ratios. The financial data of 11 companies which were traded continuously from 2010 to 2015 were included in the scope of the study in order to realize this aim. While ITR, RTR and QR were used as liquidity variables in this study where the effect of liquidity on profitability was discussed, ROA, ROE and NPM were used as profitability variables. A total of three different dynamic models were established and hypotheses related to these models were tested by System GMM method, dynamic panel data estimation method, in this study where profitability variables were considered as dependent variables and liquidity variables were considered as independent variables. Findings of research intends to shed light on the measures to be taken in order to enhance profitability. Additionally it intends to shed light on the areas which have no association at all.

1.2. The Importance of the Study

The retail trade sector have become one of the fastest growing sectors in Turkey in recent years. This sector where both domestic and foreign investors are actively involved is also growing day by day in terms of the number of companies traded in ISE. The fact that the retail trade sector companies start to listing on ISE one by one and purchases in this sector mostly are made by foreign investors in recent years shifted attention to this sector. For this purpose, performance analyzes for the related sector have been started to be followed closely by investors. It is seen that

profitability and liquidity variables are generally used as financial performance indicators in the literature review.

A number of studies addressing liquidity management, profitability and business performance in many aspects are available in the literature. However, it is seen that a large majority of these studies were performed on banking and manufacturing industries and the studies on the retail trade sector are limited in the literature. For this reason, this study is important to investigate the effects of the liquidity of companies operating in the retail trade sector in Turkey on profitability. Additionally, this study differs from past studies because it is the first study in where used GMM method which is a dynamic panel data estimation method, in order to investigate the relationship between profitability and liquidity ratios of the companies in the sector. Therefore, this study is expected to fill a gap in the literature due to both the subject matter discussed and the methodological approach used.

2. THEORICAL FRAMEWORK

2.1. Liquidity and Profitability

Financial management, which is based on financial decisions and investment decisions, went beyond these two functions in duty definition and was moved to a different dimension now. Capital budgeting, establishing capital structure and management of working capital are the most important tasks of finance managers today. There is also a need for a WCM that will make these investments dynamic from a static point of view as well as fixed asset investments in the enterprises established with capital raising and effective debt management. The most fundamental elements of the working capital approach are liquidity and liquidity management.

Liquidity and profitability are one of the most sought-after management decisions that are most endeavored by managers in business management today. The preference of one of the two factors to the other can lead to disruption of business activities, difficulties in short-term and long-term planning, some financial difficulties, even facing the risk of bankruptcy, as seen in the results of the researches. Therefore, this section of the present thesis study will focus firstly on the concepts of liquidity, liquidity management and their importance and then the concept of profitability and its importance, and finally the balance between liquidity and profitability will be addressed.

2.1.1. The concept of liquidity, liquidity management and its importance

2.1.1.1. The concept of liquidity

The general aim of finance theory is to increase the welfare of the shareholders by making the enterprise profitable. Finding the resources that the enterprise needs at the most cost and using the supplied resources in the most efficient way is one of the

factors that affect the profitability and ultimately increase the market value of the enterprise. In this respect, one of the most important ways for a enterprise to reach its targets is the effective use of liquidity according to Coşkun and Kök (2011).

Liquidity has been the subject of many studies from past to present. It is expected that people and companies will feel safe in the face of unexpected events, reduce risk situations by investing in different assets and convert these assets into cash and overcome liquidity difficulties in difficult situations thanks to liquidity.

Although there is no generally accepted definition of liquidity in the literature, the widespread definition of liquidity suggests that an enterprise will not have problems paying for short-term liabilities. The biggest problem in the area of finance related to liquidity is to be confused with cash assets. Liquid assets have a broad definition including cash assets. In this sense, more generally, liquidity should also be considered in terms of converting the assets of the enterprise into cash immediately without losing their value. Thus, as expressed by Ross et al. (2011), liquid assets are not only cash or cash equivalents but also all assets that can be converted into cash at any time and without any loss of money or value. It is seen that liquidity is defined as the power to access cash by Allen and Bolton (2004).

On the other hand, liquidity is expressed as assets that have the ability to be converted into cash within one year, that are easy to transfer, that do not depreciate when they are converted into cash, and those that are in current assets account group according to the definition made by Brigham and Houston (2007). Additionally, Coşkun and Kök (2011) define liquidity as the ability of the enterprise to pay off debts.

Bekçi (2012) discussing the definition of liquidity in terms of working capital defined liquidity as not only the ability of the enterprise to pay off the current liabilities but also an element that reveals net working capital.

Additionally, liquidity is defined as the assets that are tied up in production factors from the beginning of production to the time of getting income and then return to the enterprise by selling the products by Aşıkoğlu et al. (2011). According to Aydın (2008), liquidity is the ability to convert an asset into cash at its real value when required.

On the other hand, Liquidity is the power to convert any asset into cash according to Sayılğan (2003). Allman-Ward and Sagner (2003) defining the liquidity as an asset's ability to convert into cash emphasized that this ability can only emerge during the payment of current liabilities. Sayman (2006), on the other hand, considered the assets that can be converted into cash quickly and without loss of value as liquidity elements by generalizing the definitions of all liquidity.

Appuhami and Ranjith (2008) stated that liquidity is not only required for the use of daily activities, but also necessary for fixed asset investments. Smith (1979) defined liquidity as the fact that cash equivalents required for continuity of daily activities of the enterprises, marketable securities, receivables, inventories and similar assets are converted into cash at least once a year. Since this point also shows the risk level of the enterprise, liquidity can be said to be equal to the risk of the enterprise.

Liquidity is important for an enterprise to work at full capacity, to increase the credit value, to expand the business volume and to avoid the difficulties that may be encountered in terms of finance (Akgüç, 1994). According to Akgüç (1994) who explained liquidity with an example, liquidity refers to the transition of the activities of enterprises from the static to the dynamic, like the purchase of the gasoline needed to move a vehicle. Enterprises should have sufficient cash and equivalents, marketable securities, accounts receivable, inventories and the assets that are convertible into cash within one year or less than one year in order to be able to sustain these activities profitably. Teker et al. (2016) stated that liquidity is one of the important indicators giving information about the financial status of the company and it is also an element indicating whether it can meet short term obligations or not.

As can be seen from the previous definitions of liquidity, liquidity is one of the lifelines that give life to enterprise. In this context, it is important for the enterprise to manage this liquidity as much as supplying liquidity. In this respect, liquidity management and its importance will be explained in the next chapter of the study.

2.1.1.2. Liquidity management and its importance

The financial analyzes to be carried out during the operations of the enterprise provide important indications for managers, shareholders and all stakeholders of enterprise. As Aypek (2014) stated, some financial ratios in these analyzes are more important than others. The liquidity among these significant group of ratios is the key of the enterprise. The author emphasizing the importance of liquidity management noted that the debt repayment situation is crucially important for a company that has borrowed too much money in the past and is involved in a failure due to its debt.

Liquidity management is basically a management function that enables the enterprises to effectively manage their liquid assets and prevent excessive investment in an asset. Thus, it is aimed that the enterprises will achieve continuity and profitability by preventing unnecessary use of fund and unnecessary funding behavior (Akgüç, 2011; Toraman and Sönmez, 2015; Dursun and Ayriçay, 2012).

Working capital which allows enterprises to move from static situation to dynamic situation requires to focus more on liquidity management. At this point, liquidity management also affects the profitability and continuity of enterprises due to the solution of resource problems and execution of their operations without disruption.

The liquid assets to be used for the uninterrupted execution of the operations of the enterprises are important for the profitability structure of the enterprises as a result of production (Toraman and Sönmez, 2015). Effective liquidity management provides the necessary optimization between liquidity and profitability by avoiding excessive investment in any current assets within the current assets account group. It is therefore aimed at avoiding the financial difficulties faced by enterprises and

reducing bankruptcy risk with effective liquidity management (Dursun and Ayricay, 2012). Additionally, keeping the funds idle can be prevented and profitability can be increased by preventing unnecessary financing with debt of the enterprise thanks to an effective liquidity management.

Liquidity management is an important decision variable not only for internal decision makers but also for exterior decision makers as expressed by Akgüç (2011). If liquidity management is effective, the borrowing costs of the enterprise will be lower than those that do not implement liquidity management. This issue which may be an element of confidence for investors plays an important role in influencing investors' investment decisions in a positive way. According to Çakır (2000), an effective liquidity management allows working at full capacity of the enterprise, the continuity of production without interruption, the expansion of the business volume, decrease in the risk of not meeting the cash requirement, and thus increase in credit rating. While the short term return on all of these is efficiency and productivity, the long term return is profitability and continuity.

There are a number of ratios that finance executives should follow in relation to liquidity management. Current ratio (CR), QR and cash ratio which are the most widely used ratios in the literature are slowly losing their validity nowadays and leaving their place to RTR and ITR, also known as activity ratios (Toraman and Sönmez, 2015). While the high level of these ratios indicates that the enterprise has effective liquidity management, the low level of these ratios indicates that the enterprise has an unsuccessful liquidity management. Inefficient liquidity management, on the other hand, directly affects working capital decisions as it is directly related to working capital.

The amount of liquidity should be calculated by taking into account the quantity relationships between the balance sheet items of the enterprise according to Önce (2013). The objective in financial analysis is to evaluate the solvency and profitability level of the enterprises and to analyze the current situation of the enterprises. At this point, effective liquidity management will only be possible with a

clear understanding of the results of the activities. According to the author, if the current assets' distribution between the balance sheet items, the minimum and maximum values of inventory quantities, and the quality status of inventories and receivables are known and an assessment related to the liquidity situation of enterprise are performed, the degree of accuracy of the decisions to be taken will increase. These opinions are also supported by Aksoy (1993). According to Aksoy (1993), enterprises have to pay attention to profitability and risk factors when investing in current asset, especially in the amounts tied up in liquidity. Because the amount of liquidity to be determined depends on the term of debt to be used by enterprises and the liquidity level of the assets they have.

There is an opportunity cost of having excessive amounts of liquid assets. This situation affects the profitability of enterprises in a negative way but eliminates the difficulties in meeting their short term obligations and thus reduces liquidity risks. On the other hand, while low liquidity leads to the risk of not be able to meet their short term obligations, it allows liquid assets to be evaluated in more profitable investment opportunities and to increase profitability (Mekonnen, 2011). For this reason, the liquidity in the enterprises should be neither inadequate nor excessive. The issues to be considered for determining the optimal level of liquidity at this point are important. The factors that should be taken into account in the liquidity management are listed as the structure of the enterprise, volume and area of operation, production process and number of products, conditions of purchase/sale on account, the terms of short term debts, inventory turnover and accounts receivables turnover by Aksoy and Yalçiner (2008). The authors emphasizing that these issues should be taken into consideration in liquidity management suggested that idle funds and liquidity risk can be avoided by determining the optimal level of liquidity in this way. When considering these recommendations of the authors who gave some suggestions on how liquidity management should be, the things to be taken care of by finance managers can be listed as creating the proforma sales budgets to minimize the liquidity risk that could prevent continuous and steady growth in sales, reducing the need for liquidity by increasing activity ratios, taking

advantage of opportunities that will emerge at optimal level of liquidity (Sevil and Başar, 2012; Çetiner, 2010).

Coşkun and Kök (2011) arguing that most of the problems faced by enterprises are caused by insufficient liquidity stated that the liquidity situation should be followed carefully. Additionally, the development process of the net working capital which is the current assets' part exceeding the current liabilities and the rate of this item to total assets and sales should be followed over time according to the authors.

Önce (2013) stating that all unforeseen conditions should be taken into account in liquidity management, argued that even interruption of sales or not being able to collect the receivables should be included in the liquidity risk. According to Yıldız (2009) supporting this view, liquidity problem is the first step of the disruption in the solvency of the enterprise. On the other hand, the surplus of liquidity is also an indicator that the current working capital was not utilized efficiently. Because the higher this ratio means that the higher working capital, in other words, enterprise has more than enough liquid assets to meet its short term debts and there is a opportunity cost of having these excessive assets for enterprise. As a result of this situation, profitability of the enterprise reduces.

While effective liquidity management eliminates the potential negative effects in the process of meeting the short term obligations of the enterprise, it also prevents the enterprise from investing too much in current assets (Eljelly, 2004).

2.1.2. Profit and profitability concepts and importance of profitability

2.1.2.1. Profit and profitability concepts

Considering the definitions of profit in the literature, it is seen that there is no generally accepted definition. Given the profit definition made by the Turkish Language Association, it is explained as difference between selling price and cost price. When examining the definition of profit in terms of accounting, it is expressed

as the remaining part after deducting all direct and indirect expenses incurred to obtain such revenue from all revenue obtained at the end of certain activity and period.

According to Sabuncuoğlu and Tokul (2001), the excess resource that enterprises need to sustain their operations and they obtain as a result of their operations is expressed as profit. The emergence of this excess resource, called profit, is only achieved by reducing the costs to the minimum and by increasing the sales to the maximum.

Apak and Demirel (2010) argue that two approaches are valid to define the profit. According to the authors, profit definitions made should be based on balance sheet and income approaches. According to the balance sheet approach, the positive difference between the sum of the equity values owned by the enterprise at the beginning of the period and the sum of the equity values at the end of the period, at a certain time, except for the resources which are reduced in the enterprise and replaced is defined as profit. According to the income approach, the positive difference obtained as a result of deduction of the costs incurred to obtain such income from the amount of the income generated in a certain period by the enterprise is defined as profit.

In the definition made by Bulutoğlu (2004), the concept of profit is considered in terms of tax law and is expressed as regular and continuous economic values obtained by introducing production factors into the production process.

In addition to the definition of Bulutoğlu (2004), according to Nadaroğlu (1996) the fee charged by participation of labor in the production process, the interest as a return on capital, the return arising from the use of natural resources, elements of profit derived from undertaking risk and so on are considered as income. The values acquired for a reason other than these are not included in the concept of "profit".

According to Çabuk et al. (2013), there are two sources of profit that arises in enterprises. These are ordinary operations and extra-ordinary operations. While the positive difference arising as a result of the purchase and sale in relation to the main operation field of the enterprises constitutes the ordinary operation profits of the enterprises; the incomes from affiliations, commissions and interest incomes, gains on security sales, foreign exchange gains are expressed as profits from extra-ordinary operations.

In one of the most general definitions made in terms of profitability, Mucuk (1993) defined the profit as a sum of the earnings of the enterprises at the end of a certain period. In other words, profit is the positive difference between the incomes and expenditures in a given period and is the result of the enterprise's operations in a particular period. Profit is an important concept for enterprises and is a means of measuring the success of enterprises, a means of auditing, a means of motivating productive employees, and first of all, a means of surviving.

Ülgen and Mirze (2004) expressing that profit and profitability concepts are widely confused with each other defined profit as an absolute concept and profitability as a relative concept. According to the authors indicating that profitability is a percentage of the rate achieved by the proportion of the enterprise's profits in a given period to the capital used, this ratio is also an indicator of the performance of the enterprise. If an enterprise's profitability values are above the sector average, the enterprise is successful, and if it is below the sector average, the enterprise is unsuccessful. On the other hand, Çetin (2013) expressed profitability as the ratio of the total net profit from the operations in a given time period to the total cost of production in that time period. After giving information about profit and profitability concepts in this chapter of the study, the next chapter of the study will explain the importance of profitability.

2.1.2.2. The importance of profitability

Increasing the welfare of shareholders that is one of the main aims of finance theory can be provided only with a profitable enterprise. The profit achieved by deduction of expenses from income obtained from sales of the products produced as a result of the production activities enables the growth of the enterprises. A profitable enterprise will attract investors' interest and increase the demand for stocks, thus it will increase the market value of the enterprise and eventually the welfare of its shareholders. But to maximize the profit of the business and to increase the welfare of the partners should not be confused with each other. These two events should be examined on the cause and effect axis. Otherwise, taking a position on one side may lead to negative consequences for business.

According to Berk (1998), the ability of the company to provide a satisfying profit for capital invested is a key indicator in determining the effectiveness of firm management in well-functioning financial markets. The entrepreneurs avoid investing in the areas where profitability is low and financial investors do not invest capital for these. On the other hand, lenders are also not willing to give credit to companies with low profitability. Because of such reasons, profitability is a very important indicator for enterprises in many respects and the determination of profitability correctly is also of great importance.

As stated by Sayılğan and Gürdal (2004), it is important that the enterprises make satisfactory profits to please investors. According to the authors, the satisfactory profit that the enterprise should obtain should be at the level of meeting the financial obligations of shareholders and investors. According to the results, the inability to obtain profit or expected profits can directly affect the continuity of the enterprise, as well as result in bankruptcy. At this point, it is important that risk-return and expected-actual profit levels of enterprises are determined well and the company make profits so as to satisfy its shareholders / investors.

As a result of the literature review about why the profit of the enterprise is important, the following points can be listed (Apak and Demirel, 2010; Oluç, 1963; Ülgen and Mirze, 2004):

- It meets the enterprise's tax and other legal obligations,
- It helps to find resource and make resource optimization clearly,
- It gives hints as to whether the enterprise's plans for the future can be achieved,
- It helps to increase the market value of the enterprise and reduce the resource costs,
- It helps to contribute to the workforce and ensure the development of the national economy,
- It motivates and rewards managers and employees,
- It affects pricing decisions,
- It helps to maintain the enterprise's marketing activities and operational diversity,
- It indicates the success of the enterprise.

The profits made/to be made by enterprises are important. However, it is beneficial that these profits are evaluated not by absolute values but by percentage values. Investors' decision-making processes are also accelerated thanks to this method which is used to find out which of the enterprises with the same amount of profit is more successful.

According to Bolak (1990) profitability ratios are utilized in determining whether enterprise operations are profitable. Profitability ratios show how much profit the enterprise has made compared to assets or equity of the enterprise at a certain period. There are three different profit ratios that are commonly used in the literature for this. These are ROE, ROA and NPM and these ratios provide significant benefits for investors. Detailed information about these ratios which are widely used as profitability variables will be also given in the later chapters of the study.

2.1.3. The balance between liquidity and profitability

As expressed by Afza and Nazir (2008) and Deloof (2003), effective WCM, especially the effectiveness of liquidity management, directly affects the market value and profitability of the business. While this emerging effect reveals itself as profitability in the short term, it also increases the market value of enterprise in the long term as indicated by Şamiloğlu and Demirgüneş (2008).

Thanks to effective liquidity management, the enterprises are less affected by macroeconomic and business-based events and can sometimes get advantages from these situations. According to Appuhami and Ranjith (2008), the enterprises with effective liquidity management can gain advantage in the face of extraordinary circumstances that may arise as a result of the increase in raw material prices and market conditions together with interest and inflation in financial markets, and can evaluate this advantage as profitability. On the other hand, in case of unexpected increases in raw material prices or interest rates, the enterprises with insufficient liquidity or non-effective liquidity may encounter with losses. Therefore, considering in this respect, the fact that the liquidity is too much or too less, as well as whether the existing liquidity is used effectively or not, affects the profitability positively or negatively. In relation to this issue, Afza and Nazir (2008) stated that the business performance is also directly related to liquidity management.

Kargar and Bulementhal (1994) found more striking findings regarding liquidity management. According to the authors, mistakes in the management of working capital, especially in liquidity management, can lead to situations that may result in bankruptcy, even if the enterprise is profitable. Accordingly, the high level of working capital not only shows that the enterprise has a low liquidity risk but also causes the profitability to be low due to inefficient liquidity management. This management approach ongoing in this way can make the company's bankruptcy inevitable. According to Zariyawati et al. (2009) just the contrary can also cause bankruptcy of the enterprise. The authors arguing that the effectiveness of liquidity management alone is not enough, suggested that enterprises should take into account

the liquidity risk. The authors stating that the optimal amount of liquidity should be calculated and the transactions should be made based on this amount, emphasized that any amount below this amount will create a liquidity risk. Liquidity risk may ultimately has an impact that may result in the bankruptcy of the enterprise. Therefore, the optimization between liquidity management and profitability should be caught and it should be focused on WCM in a balanced way.

(2003) suggesting that liquidity management also depends on cash flows stated that another issue to be closely monitored to ensure the balance between liquidity and profitability depends on cash conversion cycle (CCC) and RTR. At this point, Deloof (2003) expressed that effective liquidity management will be achieved with high RTR and low CCC. As a consequence of the realization of these two facts, the enterprise will be exposed to less cost of debt and thus profitability will be increased.

Liquidity management protects enterprises from the risk of payment difficulty and it is also important in terms of directly affecting the profitability of the enterprises. The reason for this effect is that enterprises use debt for financing working capital. Enterprises should maintain a balance between liquidity and profitability while carrying out daily activities. However, managers of enterprise have a dilemma between liquidity and profitability to increase enterprise' value. The main reason for bankruptcies of enterprises is the failure of financial managers in planning and controlling their current assets and current liabilities (Smith, 1973).

The enterprises with inadequate liquidity may face with the situations such as failure to evaluate profitable investment opportunities, short-term liquidity problems, and eventually decreasing the credibility score compared to other enterprises (Chiou et al., 2006). On the other hand, the surplus of liquidity indicates that funds in the hands of enterprises can not be efficiently assessed and are kept in an idle state. As a result of this situation, decreasing the profitability of enterprises is inevitable. For this reason, the level of liquidity in the enterprises should be at the optimum level, in other words neither excessive nor inadequate (Singh and Pandey, 2008).

An enterprise that wants to increase liquidity should invest more in liquid assets and finance those investments with long term funds. However, while this situation affects the enterprise's liquidity positively, affects the profitability negatively (Weinraub and Visscher, 1998).

Puneet and Parmil (2012) explained the relationship between liquidity and profitability with the help of a straight line. While the midpoint of the line expresses the balance between liquidity and profitability, one side of the line shows profitability and the other side shows liquidity. The study stated that as long as we deviate from the middle point, one of the sides is approached and it is drifted away from the other. According to this study, enterprises move away from profitability as they attach more importance to liquidity and move away from liquidity as they attach more importance to profitability. In other words, a balance should be maintained between the two sides because one of these sides causes the other's loss. In the light of all this information, this balance that should be maintained between profitability and liquidity seems to be of great importance in terms of both survival and continuity of enterprises under tough competition conditions and growth and performance.

2.2. Retail Sector

2.2.1. The concept and scope of retailing

“Providing time and place utilities to consumers is the most important purpose of the physical distribution channel. One of the most important elements of the distribution channel that aims to have the right products at the right time, from the right price, at the right amount and in the right place is retailing” (Kotler, 2000, p.378).

There are various definitions in the literature on the concept of retailing. Some of these are listed below:

“Retailing is the last link of the distribution chain between consumer and product (especially consumer goods) manufacturers. In other words, retailing is an activity that plays a role in the purchase and consumption phase of goods and services” (Arikbay, 1996, p.1).

According to Gilbert (1999), retailing is a business that manages marketing efforts to satisfy the end customer on the basis of organizing the sale of goods and services as a means of distribution.

In addition, retailing is a socio economic system that brings people together for the exchange of goods and services for money, matches the needs of the end consumers with the needs of the producers, not just meeting the daily needs of life, but promoting new lifestyles at the same time. (Rudrabasavaraj, 2010)

On the other hand, “retailing includes all activities related to the marketing of products and services directly to end users, provided that they are not used for commercial purposes and are not sold again, and used only for personal or family needs” (Tek and Demirci Orel, 2006, p.4). In other words, “retailing manages all activities to add value to goods and services sold for personal or family use to consumers” (Levy and Weitz, 2004, p.6).

All the units in the retailing operations, from manufacturers to wholesalers, distributors and retailers, are engaged in retailing. Broadly speaking, retailing refers to the activities of units operating at all stages between producers and consumers. In the narrow sense, retailing refers to sales points such as grocery stores, supermarkets, and chain grocery stores, which operate in the final stage when the product is delivered to the end consumer (Ülgen, 1999).

“Since they are located at the closest point to the consumers on the distribution channel, retailers are also involved in some sales and after sales service phases. Examples to these are services such as informing the consumer about the products

being marketed and helping the consumer during the product warranty process” (Kaya, 2009, p.7)

In addition, “retailers have the potential to directly influence the success of the distribution channel due to the importance of their position on marketing distribution channels. For this reason all of their activities are of great importance for the distribution channel” (Tek & Demirci Orel, 2006, p.8). The position of the retailers in the distribution channel are presented in Figure 2.1. below.

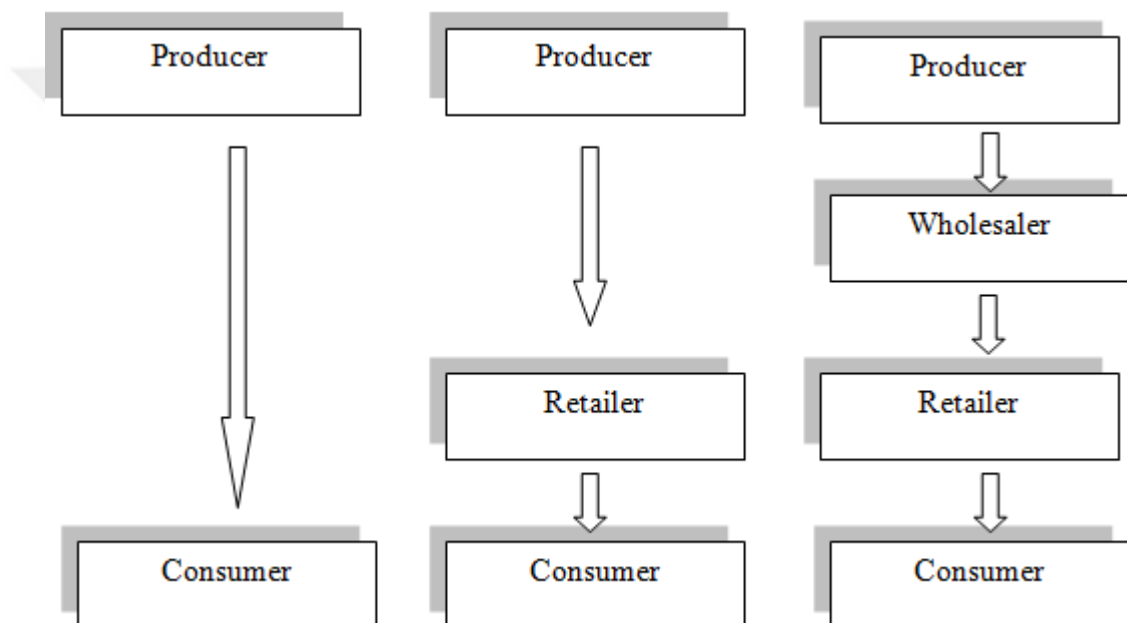


Figure 2.1. Position of Retailers In The Distribution Channel

Source: Kotler & Armstrong, 2008, p.338.

Retailers, which are an important part of the distribution channel, have some important functions in the channel. These functions are; “providing an assortment of products and services, breaking bulk, holding an inventory and providing services” (Levy & Weitz, 2004, p.7).

Retailers create some utilities by fulfilling these functions. There are five utilities created by retailers; Place, Time, Form, Possession and Information.

“Place Utility is that retailers provide products or services at locations where consumers want or need it” (Varinli and Oyman, 2013, p.25). In this way, customers will be able to access the products they need in a short period of time and quickly so that they will save time as well as save the cost of supplying these products from a different location (Coyle 2012; Varinli and Oyman, 2013).

“Time Utility occurs as a result of buying and keeping in inventory the products, and keeping them ready when consumer want, by means of predict” (Kurşunluoğlu, 2011, p.4). In this respect, the retailer will be able to control the duration of keeping the product in inventory as well as reduce its costs by eliminating the disadvantages of consumers and the losses of manufacturers that arise from overproduction (Gürman, 2006).

“Form Utility happens as retailers make changes in the direction of consumer demands on the products they sell. For example, adjusting the size of the clothes according to the wishes of the customer” (Kurşunluoğlu, 2011, p.5).

“Possession Utility is transferring of their ownership immediately to consumers, although retailers sell their goods and services on account” (Varinli ve Oyman, 2013, p.25). In this period, retailers take risks by increasing their inventory level with high purchasing power. The reason they take risk is to help possession utility arise by providing consumers to buy products under better conditions. (Gürman, 2006)

“Information Utility occurs when retailers inform customers about products and thus helping customers make purchasing decisions. Since there is communication with customers in information utility, the elements of the promotion mix (advertising, direct marketing) and in-store staff are important” (Kurşunluoğlu, 2011, p.5).

As it can be seen, retailing has an important and indispensable position in the distribution channel with the functions it has and the benefits it provides.

2.2.2. Development and structure of retail sector in the World and in Turkey

2.2.2.1 Development and structure of retail sector in the World

Retailing has always been an important part of the economy with the benefits that it offers to the global economy and the employment it creates. The retail sector is growing day by day both in scale and in parallel with the investments made. Retailers in this sector have developed various formats within their respective countries to try to meet the needs of the consumers they addressed in the market at the optimum level and later they have moved these activities out of the country borders. Looking at the development of retailing, it can be seen that it has developed at a great pace in the last few centuries. It is the middle of 19'th century that retailing reaches a professional level (Gambarov, 2007). In this period, changes were made in the form of retail and retailing methods. In order to meet the needs of the consumers, general stores were formed in which many different types of products such as clothes, hardware and furniture were kept in inventory and sold in limited quantities. While on the counter sales method was applied in some of these stores, the self-select method, which allows low-priced goods to be sold at a single price, was implemented in others. The most important development in the 19'th century was the emergence of a department store format. Thanks to this retail format, a large number of different types of goods have been sold in retail at separate departments and it has been ensured that customer needs are met in the most appropriate and cost-effective way. (Gürman, 2006)

“20'th century has been the century of the Retailing Revolution. In this period, the birth of self-service, big stores generally being located outside the city center and similar innovations were born in the U.S. at the beginning of this century” (Gürman, 2006, p.33). Self-service becoming widespread has brought along a new retailer format. It is the supermarkets that have shaped the retailing revolution. The supermarket phenomenon that emerged in the 1930s in the U.S. reached its maturity with the discount stores in the 1950s (Bocutoğlu and Atasoy, 2001; Cengiz and Özden, 2002).

The scarcity in food products and the inadequacy of building materials during World War II prevented the opening of new stores until 1945. After World War II, supermarket retailers have shown the greatest growth in their history (Levy and Weitz, 2004; Hasty and Reardon, 1997; German and Leed, 1994).

There is an intense competition in the retail sector as well as in other sectors in the US. After the 1960's, various retail store formats such as Food Discounting, Wholesale Markets, Warehouse Stores, Super Warehouse Stores, Convenience Stores, Limited-Assortment Stores, Super Stores and Wholesale Clubs have emerged in the U.S. retailing sector (Azabağaoğlu, 1999; Dursun, 2006). These retail store formats show some differences compared to the formats in the Europe retail sector. The most important reason for this is the difference in European and American consumers' shopping habits. While American consumers prefer places where they can shop and have fun outside the city, European consumers prefer hypermarkets where many products are available in a single store (Levy and Weitz, 2004).

“In the United States, which is the center of the entire economy and not just the retail sector, retailers specializing in one area, such as McDonald's, GAP, Toys R Us, are also expanding globally with an increasing speed” (Kotler and Keller, 2006, p.508).

With the increase in immigration to major cities and the increase in the number of working and core families, seen in Europe as well as in the U.S. the shopping habits and consumption patterns of consumers have also changed. Along with these changes in the market, a change has also occurred in Europe retail outlets (Arasta, 1999)

Retailing movements in Europe have emerged through shopping cooperatives. The examples were first seen in Switzerland, and later in France and Germany. Later on, with the chain store system that started in Holland in 1932, other products as well as food products began to be sold (Sedillot, 1997). Similar chain stores were later established in Belgium, Switzerland, Germany, England and France.

“France became the first country in Europe to meet with large-scale retailing. For this reason, France has reached a certain level of maturity in the retail sector. The most advanced country in the sales field of the retailing sector has been Germany” (Cengiz and Özden, 2002, p.2).

After the 1960's, traditional retailers were replaced by modern retailers in the Europe retail industry (Serpil et al., 1998). When the second half of the twentieth century is examined, it is seen that the market shares of department stores and variety stores have declined, and discount stores, different food retail formats began to appear. An important development in the 1990s is opening of the wide range of specialty stores selling non-food items (clothing, stationery, electronics, kitchen utensils, home appliances, sports equipment, toys, souvenirs etc.) (Azabağaoğlu, 1999). In Table 2.1, the countries where retail formats are strong or weak in Europe are shown

Table 2.1. Superiority of Retail Formats in Different Countries in Europe

Countries	Strong	Intermediate	Weak
Germany	High discount store Hypermarket	Supermarket	Super store
France	Hypermarket	Supermarket	High discount store Super store
England	Super store	High discount store	Hypermarket
Spain	Hypermarket	Supermarket Independent Retailers	High discount store
Italy	Supermarket Independent Retailers	-	Hypermarket Highdiscount store

Source: Azabağaoğlu, 1999, p. 27.

As can be seen in Table 2.1, in Germany high discount store and hypermarket, in France and Spain hypermarket, in England super store, and in Italy supermarket and independent retailer formats are strong. In addition, it can be seen that super store in Germany, high discount stores and super store in France, hypermarkets in England, high discount stores in Spain, hypermarkets and high discount stores in Italy are weak retail formats.

When we look at the list of the top 250 retail companies operating in the world, we see that American retail companies share the first three ranks, with American Retail giant Wal-Mart in the first rank, followed by Costco in the second rank, and The Kroger in the third rank (Table 2.2.). On the another hand, 99 percent of top 250 retail companies are European origin. Additionally, among the top 250 retail companies, it is seen that the largest number of companies are in the food-retail sector.

Table 2.2. Global Retail Companies

Top 250 Rank	Company	Country of Origin	FY2015 Retail Revenue (US\$M)	Dominant Operational Format
1	Wal-Mart Store	US	482,130	Hypermarket/Supercenter/Superstore
2	Costco Wholesale Corporation	US	116,199	Cash & Carry/Warehouse Club
3	The KrogerCo.	US	109,830	Supermarket
4	Schwarz	Germany	94,448	Discount Store
5	Wallgreens BootsAlliance,	US	89,631	Drug Store/Pharmacy
6	The Home Depot, Inc.	US	88,519	Home Improvement
7	Carrefour S.A.	France	84,856	Hypermarket/Supercenter/Superstore
8	Aldi	Germany	82,164	Discount Store
9	Tesco PLC	UK	81,019	Hypermarket/Supercenter/Superstore
10	Amazon.com, Inc.	US	79,268	Non-Store
11	Target Corporation	US	73,785	Discount Department Store
12	CVS Health Co.	US	72,007	Drug Store/Pharmacy

Table 2.2. (continue)

13	Metro Ag	Germany	68,066	Cash & Carry/Warehouse Club
14	Aeon Co., Ltd.	Japan	63,635	Hypermarket/Supercenter/Superstore
15	Lowe's Comp, Inc.	US	59,074	Home Improvement
16	Auchan Holding SA	France	59,050	Hypermarket/Supercenter/Superstore
17	Albertsons Comp, Inc.	US	58,734	Supermarket
18	Edeka Group	Germany	52,477	Supermarket
19	Casino Guichard-Perrachon S.A.	France	51,257	Hypermarket/Supercenter/Superstore
20	Seven & i Holdings Co., Ltd.	Japan	47,795	Convenience/Forecourt Store
21	Wesfarmers Limited	Australia	44,679	Supermarket
22	Rewe Combine	Germany	43,607	Supermarket
23	Koninklijke Ahold N.V. (now Ahold Delhaize)	Netherlands	42,435	Supermarket
24	Woolworths Limited	Australia	41,366	Supermarket
25	Best Buy Co., Inc.	US	39,528	Electronics Specialty

Source: Deloitte "Global Powers of Retailing 2017"

When we look at the economic situation of the top 10 companies among the top 250 retail companies operating globally, it is seen that the retail revenues of these companies reached US\$1,308,065 million in FY2015 and their total share within 250 retail companies reached 30.4% (Table 2.3.). Among these companies, Wal-Mart, which has the highest retail revenue among these companies with US\$482,130 million, appears to have only -0.7% retail growth revenue. When we look at the retail growth revenues of other companies in this list, we see that While Wallgreens Boots Alliance has the highest retail growth revenue among all companies with a retail growth revenue of 17.3%, Amazon, the largest e-retailer, follows Wallgreens Boots Alliance with a growth revenue of 13.1%.

It is also seen that Carrefour and Wal-Mart have the highest share among these companies in terms of the number of countries in which they operate. On the other hand, when we look at the retail income distribution of the companies, it is seen that

German retailers Aldi and Schwarz, and French retailer Carrefour, make a significant portion of their revenues from foreign operations (Deloitte, 2017).

Table 2.3. Top 10 Retail Companies

Top 250 Rank	Company	Country Of Origin	FY2015 Retail Revenue (US\$M)	FY2015 Retail Revenue Growth	FY2015 Net Profit Margin	#Countries of Operation	% Retail Revenue From Foreign Operations
1	Wal-Mart Store	US	482,130	-0.7%	3.1%	30	25.8%
2	Costco Wholesale Corporation	US	116,199	3.2%	2.1%	10	27.4%
3	The Kroger Co.	US	109,830	1.3%	1.9%	1	0.0%
4	Schwarz	Germany	94,448	8.1%	n/a	26	61.3%
5	Wallgreens Boots All.	US	89,631	17.3%	4.1%	10	9.7%
6	The Home Depot, Inc.	US	88,519	6.4%	7.9%	4	9.0%
8	Aldi	Germany	82,164	11.5%	n/a	17	66.2%
9	Tesco PLC	UK	81,019	-12.7%	0.6%	10	19.1%
10	Amazon.com Inc.	US	79,268	13.1%	0.6%	14	38.0%
Top 10			1,308,065	2.9%	3.8%	15.7	28.7%
Top 250			4,308,416	5.2%	3.0%	10.1	22.8%
Top 10 share of Top 250 retail revenue			30.4%				

Source: Deloitte “Global Powers of Retailing 2017”

It is also seen that the majority of retailers among the top 250 retail companies are selling fast-moving consumer goods. On the other hand, 133 of the 250 retailers in the list sell food and similar fast-moving consumer goods. The average retail revenues of these companies in FY2015 are US\$21.6 billion and 21.5% of these revenues are from foreign operations.

World retail giants that achieve adequate development within their national boundaries turn their attention to countries with developing economies and a higher density of young population. Among these countries, Turkey is one of the attractive

country markets with a large part of its population made up of young people and being a high consumption country.

2.2.2.2. Development and structure of retail sector in Turkey

“Retailing started to develop rapidly in Anatolia since the Middle Ages, especially in the field of food substances. Since mass production with industrialization began later than Europe, modern retailing has also developed later in Turkey” (Cengiz and Özden, 2002, p.2)

“Retailing operations in Turkey are shaped by two revolutions. The first revolution is the beginning of the state-sponsored retailing movement. The second revolution is the period when competition from privatization has intensified after the 1990s, when modern retailing fully began” (Dursun, 2006, p.55). In the first years of the Republic, the state played a major role in the retail sector, in order to distribute the necessary products to meet the needs of the people and to ensure the social and political order of the country. For this reason, governments have been involved in the food distribution system indirectly and directly (Ülgen, 1999).

In the middle of 1950s, inadequacy of organization in capital and distribution systems and low production were seen. As a result of the food shortage seen especially in large cities, the first chain store ventures were established (Bocutoğlu & Atasoy, 2001; Cengiz & Özden, 2002).

With the enactment of the Foreign Subsidies Encouragement Law, Migros Cooperatives Association of Switzerland was invited to Turkey by the government to improve the distribution system, reduce distribution costs and increase competition in Turkey. Another important initiative seen in this period is the establishment of Gima A.Ş. in 1956 in order to provide basic food items to consumers.

“In the 1960s the private sector began to enter the retailing market. Towards the end of 1970’s, a change towards specialization in food products occurred. The largest

form of retailing in the 1960s and 1970s was consumption cooperatives” (Tek, 1999, p.25).

Migros and Gima were privatized as a result of the privatization laws enacted in 1987. As a result of tax reductions, expansion of the scope of incentives and ease of lending, retailing has become a sector favored by investors (Bocutoğlu & Atasoy, 2001).

In 1988, Metro, a German grosmarket, opened the first cash payment hypermarket in Turkey. Large stores, which have increased rapidly in numbers in the 1990s, have increased their competitiveness through factors such as the advantages of collective purchasing and the increase in the quality of services owing to the size of the capital they own (Erdoğan, 2003). “With Carrefour entering the market in 1991 and Continent in 1992, a revival in the retail sector began” (Kaya, 2009, p.37).

“Discount markets has been a rapidly developing retail format in Turkey in recent years. BİM, ŞOK, A101 are shown as examples of this format in Turkey.” (Kaya, 2009, p.39). When we look at situation of retail sector in Turkey, retailing has become a sector demonstrating major developments in Turkey in recent years. The investments of domestic and foreign investors in Turkey have an important effect on this rapid development. In this context, the main factors that make retailing in Turkey attractive are listed as follows (Tahiroğlu, 1999, p.51):

- Increases in consumption
- Opening of large stores that are rapidly increasing in the retail market
- Provision of regular cash flow for the retail sector based on the principle of buying in account and selling for cash
- Effect of foreign partnerships
- Investors who intend to invest in the retail sector encouraged to make long-term and profitable investments due to the areas in which they can build large stores being limited and expensive.

2.2.2.3. Current situation of the retail sector in Turkey

The current profile of the retail sector in Turkey reflects a consistent progress in parallel to the global trends. It may be argued that, various factors including increase in the number of young people and employed women, progressive growth in the use of credit cards, and changes in the country's economy leading to altered consumption habits as well as the rise in disposable income per capita have all driven the advancements in the Turkish retail sector.

Since the beginning of 2000s, Turkish retail sector has begun to evolve from its traditional profile into a modernization process in parallel to social and economic advancements. The study by Price Waterhouse Coopers (PWC) and Federation of Shopping Centers and Retailers (TAMPF) reveals that about 67% of the turnover generated by the retail sector in Turkey is made up of traditional retail while 33% originates from the organized retail sector. The biggest contributor to the retail sector in Turkey is food retail that accounts for 62% of overall retail sales (PWC & TAMPF, 2016). Table 2.4. shows the turnover data generated by the retail sector in Turkey.

Table 2.4. Retail Trade Sector Turnover Data for Turkey

Retail Sector Turnover Data						
	2014			2015		
	Billion TRY			Billion TRY		
Total Turnover	608	100%		663	100%	
Traditional Retail	414	68%		446	67%	
Organised Retail	194	32%		217	33%	
Food Retail	367	60%	100%	411	62%	100%
Traditional Food	287	47%	78%	316	48%	77%
Organised Food	80	13%	22%	95	14%	23%
Non-Food Retail	241	40%	100%	252	38%	100%
Traditional Non-Food Retail	127	21%	53%	129	20%	51%
Organised Non-Food Retail	114	19%	47%	123	18%	49%

Source: TurkStat, PWC

In addition, attaining a gigantic sales area and boom driven by the constant increase in the number of shopping malls in Turkey, the organized retail sector is expected to turn out to be a more critical player in the Turkish economy (PWC & TAMPF, 2016).

On the other hand, the fastest growing channel in the organized retail sector of Turkey is discount stores. “As of November 2016, there are 24,671 stores in Turkey and 75 percent of them are discount stores.” (USDA Foreign Agricultural Service, 2016, p.5). According to Deloitte’s report of 2017 titled “Global Power of Retailing”, BİM, the first discount store of Turkey, ranks 147’t^h in the top 250 retail companies standing of the world. Furthermore, BİM is the unique Turkish retail company in this classification and also the 19’t^h fastest growing retail giant of the world (Deloitte, 2017).

As part of a review of the retail sales volume in Turkey, Turkish Statistical Institute’s (TurkStat) data reveal that the retail sales volume index grew by 29.5% from 2010 to 2016 (Figure 2.2.).

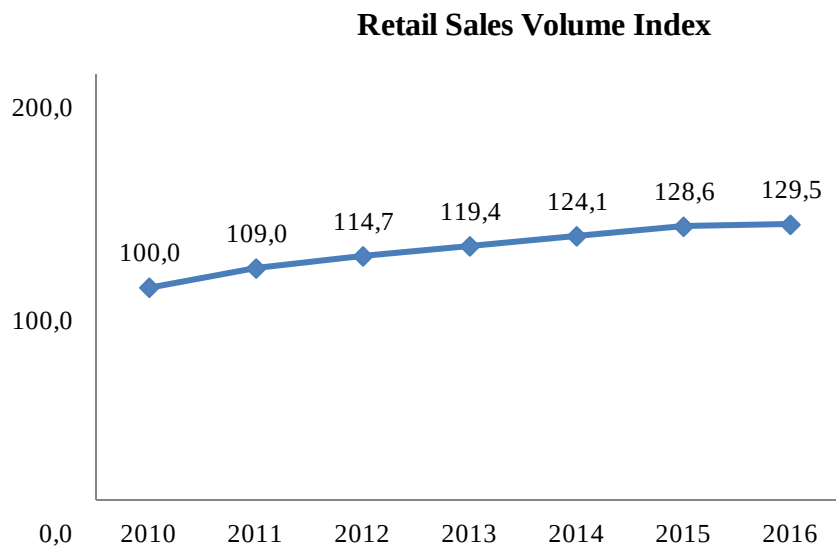


Figure 2.2. Retail Sales Volume Index For Turkey

Source: TurkStat database, calendar-adjusted retail sale volume index (VAT included); 2010=100

In addition, the retail trade confidence index shows a decline from 108.2 in 2011 to 101.99 in 2016, marking the sharpest drop over the last 6 years (Figure 2.3.).

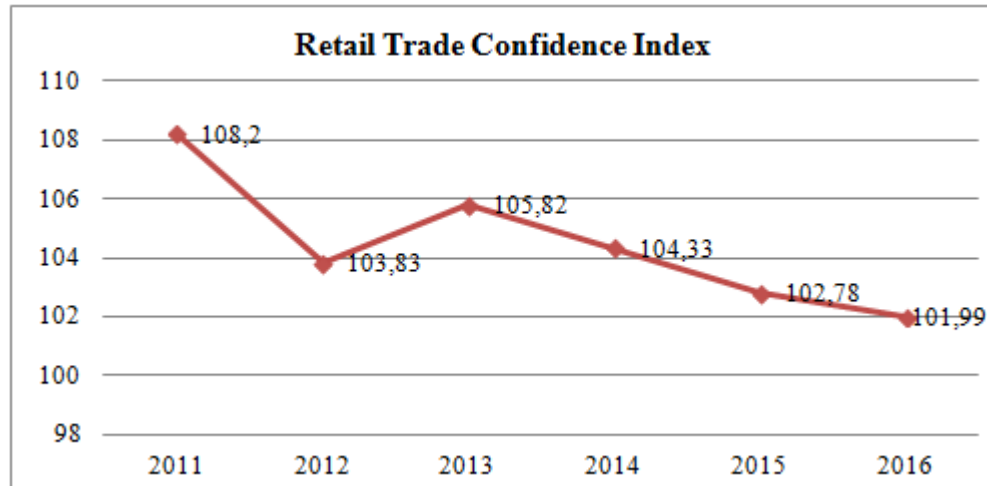


Figure 2.3. Retail Trade Confidence Index for Turkey

Source: TurkStat database, seasonally adjusted retail trade confidence index

On the other hand, while revenues produced by the retail sector globally exceeds US\$4.3 trillion in 2015 its Turkish peer hit US\$214 billion. Share of food in this growth is 62% while share of non-food is 38% (USDA Foreign Agricultural Service 2016; Deloitte, 2017).

According to TurkStat's data, Turkey's population is almost 80 million as at the end of 2016, and majority of this population is represented by young people with high consumption potential. And such high consumption potential plays a critical role in driving the retail sector in Turkish economy towards being one of the fastest growing and emerging sectors (USDA Foreign Agricultural Service, 2016).

On the other hand, the growing Turkish economy and weight of the young population makes employment one of the top priorities of the country. At this point, the retail sector satisfies its role defined in parallel to the growth of the country, and makes valuable contributions to reducing unemployment. The development and progress of the retail sector both in the world and in Turkey also cultivates the number of people employed in the sector. TurkStat's retail trade employment index

data for the 2010-2016 period reveals that the index hit 121.8 in 2016 after a 21.8% jump from 2010 (Figure 2.4.).

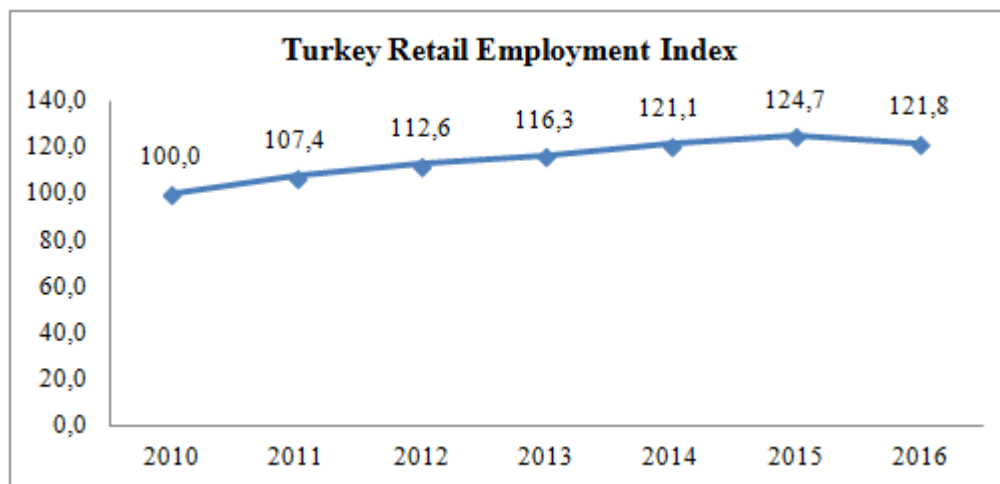


Figure 2.4. Turkey Retail Employment Index

Source: TurkStat database

Moreover, a research conducted by the Economic Policy Research Foundation of Turkey for the 2011-2016 period reveals that the retail trade sector is one of the top markets accommodating the highest percent of payroll-registered employees in Turkey. Table 2.5 shows the percentage of payroll-registered employees represented by each industry.

Table 2.5. The Percentage of Payroll-Registered Employees Represented by Each Industry

Industry	2011	2012	2013	2014	2015	2016
Retail Trade	10	9.5	9.3	9.1	9.1	9.0
Building Construction	8.4	8.8	8.8	8.7	9.1	9.2
Education	4.8	4.4	4.4	4.7	5.3	5.0
Building and Landscaping Activities	2.2	2.4	2.6	4.3	4.7	4.7
Wholesale Trade	4.2	4.2	4.2	4.4	4.6	4.8
Food and Beverage Services	3.3	3.4	3.8	4.1	4.2	4.4
Landline and Pipeline Transportation Activities	4.9	5.0	5.0	4.5	4.1	3.9
Clothing Manufacturing	3.6	3.7	3.7	3.7	3.5	3.3
Food Products Manufacturing	3.3	3.3	3.2	3.2	3.1	3.2
Other	56.0	55.3	55.0	53.3	52.3	52.5
All Industries	100	100	100	100	100	100

Source: Economic Policy Research Foundation of Turkey (TEPA V)

According to a joint research by Price Waterhouse Coopers (PWC) and Federation of Shopping Centers and Retailers (TAMPF), the global wholesale and retail industry is estimated to produce an additional job opportunity in a net volume of 1.6 million during the 2012-2025 period (PWC & TAMPF, 2016).

Recently, there has been a boom in e-commerce transactions in Turkey. Among them, particularly e-commerce in retail has attained a giant growth potential both in the world and Turkey thanks to its advantages of eliminating restrictive factors in shopping such as time and place, culminating in much faster and smoother flow of shopping. According to TurkStat's data, there are around 49 million internet users and 76.6 million GSM users in Turkey for the year 2016, and consumer e-transactions via internet and cellular phones in 2016 amount to US\$26.7 billion, representing a 23% leap compared to 2015 (TurkStat, 2016; USDA Foreign Agricultural Service, 2016). In the light of this data, it may be argued that driving factors such as technological advancements, improved internet infrastructure and resulting increase in the number of internet and GSM users in Turkey have played a supporting role in the growth of the retail sector.

One of the most dynamical sectors of the Turkish economy with its contribution to employment and turnover size, "the retail sector is anticipated, like its previous performance, to keep growing in subsequent years and roughly score a turnover of TRY 880 billion in 2018" (PWC & TAMPF, 2016, p.6).

2.3. Empirical Literature Review

There are many domestic and international studies in which liquidity and profitability are compared or the relationship between the two is examined. Some of them are presented below.

2.3.1. International studies which examine the relationship between liquidity and profitability

Ahmadi et al. (2012) investigated the relationship between WCM and profitability. The sample of the study consisted of annual financial data of 33 food industry companies which were traded in Tehran Stock Exchange and covered the period of 2006-2011. Regression and correlation analyses were applied to determine this relationship in the study. In the study where variables of average inventory turnover period in days, CCC and average payment period (APPR) were used to measure the effectiveness of the companies' WCM, the dependent variable was operational profit and the control variables were CR, debt ratio (DR) and company size. According to the findings of the study, it was found that there was a negative significant relationship between WCM of companies and profitability indicators. According to this result, when debt payment period, collection cycle, inventory turnover and CCC increase the companies' profitability decreases.

Ajanthan (2013) investigated the relationship between liquidity and profitability of companies operated in Sri Lanka. Sample of the study was chosen from among companies traded in Colombo Stock Exchange (CSE). In the study conducted by utilizing the financial data of eight companies traded in CSE in the period of 2008-2012, correlation and regression analyses were used to present the relationship between liquidity and profitability. The study included liquidity ratio (LR), CR and QR as liquidity ratios, and ROA, ROE as profitability ratios. According to the findings obtained in the study where profitability variables were dependent and liquidity variables were independent variables; increasing the wealth levels of shareholders, that is, increasing the market value of the company was directly related to liquidity management. Additionally, a positive significant relationship was found between liquidity management and profitability. Accordingly, it was concluded that companies which want to increase their profitability should keep liquidity ratios high.

Akhtar et al. (2015) investigated the relationship between liquidity and profitability of sugar production companies traded in Pakistan. In this study the annual financial data of the companies regarding the period of 2007-2012 was used as data set. And also, multiple regression and correlation analyses were applied for driving the result of the study. In the study conducted based on the effects of CR, inventory turnover and receivables turnover on profitability, statistically significant positive relationships were found between profitability indicators and all variables at a 5% significance level. According to the results of the study, the way for companies to increase their profitability is effective and efficient liquidity management.

In the study conducted by Bolek (2013), the relationship between liquidity, profitability and risk was investigated. The data set of the study conducted on developing companies in the New Connect Market in Warsaw consisted of non-financial companies and covered the period of 2007-2012. In the study where gross margin, income net margin, operating profit margin (OPM), ROA and ROE variables were used as profitability indicators, CR, CCC, net cash flow and free cash flow were used as liquidity indicators. DR, liability structure, asset structure were included in the study as indicators of the companies' risk. According to the results of the study that used regression analysis and five different models; while CR had a positive significant relationship with gross margin, CCC had a negative significant relationship with OPM and income net margin. On the other hand, while net cash flow had a positive significant relationship with ROA, free cash flow had a positive significant relationship with all profitability ratios. And also there was no significant relation between other liquidity and profitability ratios.

Boute and Lambrecht (2007) investigated the effects of ITR on company performance by choosing a sample from the manufacturing, wholesale and retail sectors operated in Belgium. They also investigated differences in inventory ratios between these sectors and compared various inventory systems in terms of financial performance. The sample of the study where only used data of the year 2004 consisted of different numbers from the sectors. ROA was used as the dependent variable, ITR was used as the independent variable in the study involving 883 retail,

3386 wholesale and more than 1000 manufacturing companies. In the study analysis of variance was used to control the significance of differences between sectors. According result of the study, ITR of the retail sector was found significantly higher than that of the wholesale sector. However, another result suggested that companies with high ITR have lower ROA. Thus, a negative relationship was found between ITR and profitability, but this result was not valid for all sectors.

Gill et al. (2010) investigated the relationship between WCM and profitability. Data set of study included 88 American companies traded in the New York Stock Exchange and covered a period of three years from 2005 to 2007. The methods of correlation and regression analysis were applied in the study which used the variables of gross operating profit (GOP), number of days accounts receivable (NDAR), number of days accounts payable (NDAP), number of days inventory (NDI), CCC, firm size, financial debt ratio. According to the findings of study, there was a positive significant relationship between CCC and GOP. According this result, as CCC of companies increases, their profitability increases. On the other hand, while there was a negative significant effect of NDAR on GOP, there was no significant effect of firm size, NDAP and NDI that was held on GOP

Another study that investigated the effects of WCM on firm profitability was conducted by Kumar and Aswathanarayana (2015). The data set of the study involving three large firms traded in Indian Stock Exchange covered the period of 2005-2014. The authors, who claimed that the negative working capital was an indicator of the lower cost of capital, stated that it was also an indicator of high firm risk due to weak liquidity management. According to finding of study, the negative working capital had a positive significant effect on profitability of firm.

Lartey et al. (2013) investigated the relationship between liquidity and profitability in banks traded in Ghana Stock Exchange. In the study ratio analysis, times series analysis, correlation and regression analysis were used. The data set of the study covered the period from 2005 to 2010. In the study while ROA which was indicator of profitability was used as dependent variable, temproray investment ratio which

was indicator of liquidity was used as independent variable. According to the result of the study, a positive relationship was found between liquidity and profitability of the banks listed in Ghana Stock Exchange, but this relationship was quite weak.

Makori and Jagongo (2013), who stated that WCM plays an important role in increasing the profitability of companies, investigated the relationship between working capital and profitability of companies traded in Nairobi Securities Exchange. Data set of the study included a total of five manufacturing and construction companies and covered period of 2003-2012. In the study correlation and Ordinary Least Square (OLS) regression analysis were applied to research relationship between WCM and profitability. And also, in the study ACP, ICP, APP and CCC were used as independent variable ROA used as dependent variable and firm size, sales growth, CR and DR were used as control variables. According to the results of the study, while profitability had a negative significant relationship with NDAR and CCC, it had a positive significant relationship with NDI and NDAP. On the other hand, there was a significant relationship between profitability and firm size, CR, financial leverage and sales growth.

Muscettola (2014) investigated the effects of CCC on firm profitability. In the study sample of 4226 Italian manufacturing firms whose data covered four years from 2007-2010 was selected. Cluster analysis method was applied to investigate relationship between CCC and profitability in the study. According to the results of the study where variables used such as earning before interest, taxes, depreciation and amortization Ebitda/net sales, NDAR, NDI, NDAP and CCC, there was a statistically significant and positive relationship between profitability and accounts receivable, CCC. According to this result, as firms collect their accounts receivable faster, they gain more profits. Similarly, firms with higher CCC have greater profitability. Another finding of the study was that there was no significant relationship between profitability and NDI.

In the study conducted by Ngwenya (2012) relationship between WCM and profitability were investigated. Data set of the study contained 69 firms traded in the

Johannesburk Stock Exchange (JSE). In the study which covered period from 1998-2008, GOP was dependent variable, CCC and its component, NDI, NDAR, NDAP were independent variables and company size, CR, financial debt ratio, fixed financial assets ratio were control variables. According to results of the study, NDAP and NDI had a significant positive effect on profitability. The results also showed that CCC and NDAR had a negative significant effect on profitability.

Niresh (2012), who indicated that one of the most important issues in company financing is the relationship between profitability and liquidity, performed an analysis on manufacturing companies operating in Sri Lanka. Sample of the study consisted of annual financial data of 31 manufacturing companies traded in CSE and covered the periof of 2007-2010. In the study while variables of CR, QR and LR were used in order to measure liquidity, variables of net profit ratio, ROE and return on capital employed (ROCE) were used in order to measure profitability. In the study in which profitability indicators were dependent variables, liquidity indicators were independent variables, correlation analysis was applied to investigate dependent and independent variables. According to result of the study, there was no significant relationship between the liquidity and profitability of companies.

Another study that investigated relationship between liquidity and profitability conducted by Owolabi et al. (2011). A sample of companies listed on the stock exchange in Nigeria was selected. In the study correlation and regression analyses were employed to investigate relationship between liquidity and profitability. According to the results of the study, while there was a negative relationship between liquidity and profitability of companies operating in banking sector, there was a positive relationship between liquidity and profitability of companies operating in processing and manufaturing industries.

On the other hand, Panigrahi (2013), who asserted that today's companies form their strategies largely on liquidity management, performed a comparative analysis on cement companies operated in India. The sample of the study consisted of financial data of the five largest cement companies and covered the period of 2000-2010. In

the study, after providing descriptive statistics and conducting analyses on the data, the liquidity position of the companies were discussed using various ratios. According to the results of the study that used variables such as CR, QR, current assets, current liabilities, working capital, working capital to current assets ratio relatively small companies had better financial performances than relatively large ones in terms of liquidity. Additionally, the author, who stated that company that work with negative working capital generally use the policy of aggressive working capital management, indicated that this carries significant risks for the company.

Priya and Nimalathan (2013) investigated the relationship between liquidity management and profitability of manufacturing companies operated in Sri Lanka. The sample of the study consisted of annual financial data of manufacturing companies traded in CSE and covered the period of 2008-2012. In the study ROA and ROE were used as dependent variables, CR, debtors collection period, creditor payment period, inventory sales period, net profit to value added ratio, operating cash flow ratio were used as independent variables. In the study, correlation and regression analyses were employed to investigate relationship between liquidity and profitability. According to findings of the study, there was a significant relationship between liquidity and profitability of companies. Accordingly, ROA had a positive and significant relation with inventory sales period, CR and operating cash flow. Considering the relationship between ROE and independent variables of the study, ROE had a positive significant relationship with only the variables of creditors payment period and operation cash flow.

Another study that investigated the relationship between liquidity and profitability conducted by Rehman et al. (2015). In the study, sample of 99 companies traded in the Saudi Stock Exchange for period of 2008-2012 was selected. While ROA and ROE variables were used for measurement of profitability, CR, QR and cash ratio variables were used for measurement of liquidity in the study. In the study where profitability variables were dependent variables and liquidity variables were independent variables, correlation and regression analyses were employed. According to the findings of the study, while there was a significant positive

relationship between CR and ROA, there was no significant relationship between ROA and variables of QR and cash ratio. On the other hand, no significant relationship was found between the other profitability variable of the study, ROE and three liquidity variables.

On the other hand, Saleem and Rehman (2011) investigated the effects of liquidity ratios on profitability. In the study which was conducted on Oil and Gas companies operated in Pakistan, while the variables of ROA, ROE and return on investment (ROI) were used as indicator of profitability, variables of CR, QR and LR were used indicator of liquidity. In the study which covered the period of 2004-2009, data of total of 26 companies were analysed by using panel data analysis technique. According to findings of the study, while ROA had only a positive significant relationship with LR, it had no significant relationship with QR and CR. Furthermore, while ROI had a significant relationship with three variables, QR, CR, LR, ROE had no significant relationship with these three variables.

Another study that investigated the effects of liquidity on profitability was conducted by Zygmunt (2013). The liquidity structure and profitability of companies were compared in the study involving companies operated in the information technologies sector in Poland. A sample of 11 IT companies listed on the Warsaw Stock Exchange for the period from 2003 to 2011 was selected. In the study, while ROA, ROE and return on sales (ROS) were used for measurement of profitability, CR, QR, receivable conversion cycle, ICP, accounts payable conversion period and CCC were used for measurement of liquidity. In the study where profitability variables were dependent variables and liquidity variables were independent variables, correlation and regression analyses were employed. According to the findings of the study, there was statistically significant relationship between liquidity and profitability.

Eljely (2004) investigated the relationship between profitability and liquidity with the help of the variables of CR and CCC. Sample of the study composed of 29 companies traded in Saudi Arabia Stock Exchange for a period from 1996 to 2000. In the study correlation and regression analyses were employed to investigate

relationship between liquidity and profitability. According to the findings of the study, there was a negative significant relationship between a companies' liquidity and profitability. While this result occurs especially in companies with high liquidity more distinctly, it is in a weak form for companies that are close to the sector average. Additionally, another result of the study was that CCC was more important for measurement of liquidity than CR and it affected profitability more.

The negative significant relationship between liquidity and profitability obtained by Eljely (2004) was supported by Marques and Braga (1995). The authors who conducted a study on food companies provided similar results to those of Eljely (2004). Another study supporting these results was conducted by Blatt in 2001. Therefore, as seen in these studies, having high liquidity does not always affect profitability positively. In the study conducted by Perobelli et al. in 2007, the importance of liquidity was emphasized for companies to sustain their financial and economic existence in the long-run. The authors, who investigated the effects of the liquidity structure of a companies on ROE, also investigated the effects of financial debt on the companies' financial state. The authors, who stated that the liquidity of companies in question affects their profitability, provided as an additional finding that the auto-financing and growth of the companies will also be improved with liquidity.

On the other hand, the study conducted by Raheman and Nasr (2007) used the data of 94 companies traded in the Karachi Stock Exchange in Pakistan for period of 1999-2004, and investigated WCM and profitability of these companies. According to the findings of the study, it was found a negative significant relationship between the liquidity of the companies and their profitability.

Another study investigating the effects of WCM on profitability was conducted by Lazaridies and Tryfonidis (2006). The sample of the study consisted of financial data of 131 companies traded in the Athens Stock Exchange and covered the period of 2001-2004. According to the findings of the study, there was a statistically significant negative relationship between CCC and GOP. In the study, it was also

asserted that profitability levels may be increased by the right management of working capital.

The study conducted by Sayaduzzaman (2006) investigated the effects of WCM on profitability. The sample of the study consisted of annual financial data of the largest tobacco company operating in Bangladesh and covered the period of 1999-2003. In the study, the variables such as CR, QR, ROA, ROE, Gross Profit Margin (GPM), net operating margin (NOM) were used to investigate relationship between working capital and profitability. According to results of the study, while there was a negative relationship between QR and ROA, there was a positive relationship between QR and the other profitability variables. On the other hand, the results of the study showed that while CR had a negative effect on GPM and NOM, it had a positive effect on the other profitability variables. However, it was indicated that all relationships that found was not statistically significant.

Another study that investigated relationship between liquidity and profitability conducted by Lairodi et al. (1999). The sample of the study consisted of annual financial data of companies traded in London Stock Exchange and covered the period of 1993-1997. In the study, CCC, CR and QR used as liquidity indicators, ROE, ROA and NPM were used as profitability indicators. According to the findings of the study, there was a negative and significant relationship between liquidity variables and profitability variables.

The study conducted by Bagchi and Khamjui (2012) investigated the relationship between WCM and profitability. The sample of the study consisted of annual financial data of 10 fast moving consumer goods (FMCG) companies and covered the period of 2000-2010. In the study, correlation and regression methods were applied to investigate WCM and profitability. According to findings of the study, position of liquidity and solvency had a significant effect on profitability. And also findings of the study showed that there was a negative significant relationship between WCM and profitability. Therefore, the study emphasized that companies with ineffective working capital had lower profitability. However, opposite results

were found in the study conducted by Goddarda, Tavakolib and Wilson (2005). In their study that used the data of manufacturing and service companies operated in Belgium, France, Italy and the United Kingdom for the period of 1993-2001, the authors investigated the relationship between profitability and liquidity of these companies. According to the results of the study, companies with high liquidity were more profitable.

In other studies conducted outside Turkey that investigated the relationship between liquidity and profitability, the obtained results agreed with the results of previous studies. According to this; Kolias, Dimelis and Filios (2011) found a negative relationship between gross margin and ITR in retail sector. Choudhary and Tripathi (2012) found a negative relationship between inventory days and financial performances of companies in Indian organized retail industry. Kaur and Singh (2013) emphasized importance of the optimal level of working capital in their studies. According to the findings of their study, companies that have optimal working capital level had high profitability. The study conducted by Vishnani and Shah (2007) investigated the relationship between liquidity and profitability of companies operated in the Indian Consumer Electronics Industry. According to the results of the study, companies with optimal level of working capital had relatively higher profitability than other companies. Chakrabarti (2014) investigated the effect of liquidity on the profitability of FMCG companies. The finding of the study showed that liquidity variables had a strong and negative effect on companies' profitability.

2.3.2. The studies conducted in Turkey which examine the relationship between liquidity and profitability

In a study conducted by Burucu and Öndeş (2016) who stated that one of the fundamental priorities of persistent and continuous profitability was possible through a debt-equity structure, the financial performance of 50 companies which were traded in ISE in period of 1990-2014 were analyzed with GMM method; a method of dynamic panel data analysis. Especially in the study in which manufacturing sector

was predicated on, four dependent and eight independent, and in total 12, variables were used in a way to contain variables of profitability, liquidity level, firm size, growth rate, CR, asset structure, firm risk, debt/total assets, equity/total assets, growth ratios, total short term debt/total assets, total long term debt/total assets. According to results of the study, while there was negative relationship between profitability, CR, firm size, asset structure and borrowing, there was positive relationship between growth rate and borrowing. It was also found that there was no relationship between firms risk and the other all variables of the study.

Toraman and Sönmez (2015), who defend, contrary to Burucu and Öndeş (2016), that sustainable profitability is possible through liquidity management, remarked that companies can increase productivity by attaching importance to working capital in particular and that this condition may cause an increase in profitability as a result. The authors, who used annual financial statements of 11 companies in retail trade sector listed on ISE in period of 2009-2013, investigated the effect of working capital on profitability. In the study, gross profit, which was indicator of profitability, was used as dependent variable, ITP, receivable collection period (RCP), payment period (PP), net trade cycle (NTC), which were indicators of working capital, used as independent variable. In the study, panel data analysis was employed to investigate relationship between working capital and profitability. According to result of the study, no statistically significant effect of working capital on profitability was found.

Another study that investigates relationship between working capital and profitability was conducted by Güngör and Öz (2007). The sample of the study consisted of annual financial data of 68 manufacturing companies listed on ISE and covered period of 1992-2005. In the study, while gross profit, which was indicator of profitability, was used as dependent variable, ITP, RCP, PP, NTC, which were indicators of working capital used as independent variables. In the study, panel data analysis was employed to investigate relationship between working capital and profitability. As a result of the study, it was found that ITP, RCP, PP, NTC which were indicators of working capital had negative and significant effect on profitability.

In the study conducted by Demireli et al. (2014), the effect of working capital on financial performance indicators was analyzed. In the study in which the data of five sectors which were traded in ISE were compared, the sample covered the period of 1998-2010. In the study in which the financial performances of Real Estate Investment Trust, Mining, Technology, Commercial and Manufacturing sectors were compared, panel data analysis was used as the analysis technique. In the study variables such as ROE, ROA used as dependent variables, variables such as RTR, ITR, QR, CR, DR, current assets/total assets used as independent variables. According to result of the study, while CR, DR and current assets/total assets had statistically significant effect on ROA and ROE, the rest of variables of the study had no significant effect on ROA and ROE.

In the study conducted by Karcıoğlu and Özer (2014), the effect of the financial performances of 113 companies in manufacturing sector which were traded in ISE on stock returns was analyzed. In this study static and dynamic panel data analyses were employed comparatively. While positive significant effect of variables such as QR, GPM, CR, size, book value/market value, economic value added (EVA), earnings/price on stock return was found, no significant effect of ROA and the rest of variables on stock return was found. According to this, efficient management of liquidity increases the stock returns in a company, and inefficient and ineffective management of liquidity decreases the stock returns. According to the other findings obtained in consequence of dynamic panel data analysis in which GMM method was used, having liquidity more than enough in order to meet short term debts will cause a decrease in profitability and this situation will cause a decrease in stock returns eventually. As a result, it is remarked that optimal liquidity management will increase both profitability and stock returns. Furthermore, in the result of the said study, it was found out that in the studies which focus on stock returns and on liquidity, dynamic panel models give more efficient results compared to static panel models, and GMM model creates more successful estimations compared to other models.

In the study conducted by Dursun and Ayriçay (2012), the effect of working capital on profitability was investigated. A sample of 120 manufacturing and trading companies traded in ISE for period from 1996 to 2005 was selected and Least Squares Method (LSM) was applied for investigation. In the study, while GPM used as dependent variable, working capital and its components such as ITP, RCP, PP, NTC used as independent variables. According to result of the analyses, a negative significant relation was found between working capital and profitability. According to this situation, having excessive working capital creates a negative effect on profitability of company.

Karadeniz and İskenderoğlu (2011) aimed to investigate variables which affect ROA of companies in their study. The sample of the study consisted of the quarterly financial data of tourism companies listed on ISE and covered period of 2002-2009. In the study where ROA was used as dependent variable, RTR, ITR, asset turnover leverage ratio, firm size and net working capital/total assets used as independent variables. Pooled regression analysis was employed to investigate relationship between dependent and independent variables. According to the results of the study, a negative significant relationship was found between leverage ratio and ROA while positive significant relationship was found between firm size, asset turnover, net working capital turnover and ROA. Furthermore, a significant effect of RTR and ITR was not found on ROA.

Büyüksalvarcı and Abdioğlu (2010) conducted a research on the determination of the variables which affect requirement of working capital. Sample of the study consisted of financial data of 154 manufacturing companies which were traded in ISE and covered the period of 2005-2009. In the study 2005-2007 period was chosen for before crisis and 2008-2009 period was chosen for during crisis. In the study, while working capital requirement used as dependent variable, ITR, RTR, NPM, GPM, ROA, ROE, leverage ratio, Tobin q value and fixed asset ratio used as independent variables. According to results of the study, leverage ratio and fixed assets ratio had a negative and significant effect on working capital requirement before crisis and during crisis. Additionally, it was found that inventory turnover, Tobin q value had a

negative and significant effect on working capital requirement during crisis while they had no effect on working capital requirement before crisis. On the other hand, no significant relationship was found between the other variables analyzed and working capital requirement both before crisis and during crisis period.

Another study which researched relationship between WCM and company performance during crisis period was conducted by Aksoy (2013). Aksoy (2013) used financial data of 146 manufacturing companies which were traded in ISE between 2003-2012. The period of the sample was divided into two sub periods which were pre crisis and post crisis. In the study, while ROA and tobin q value used as dependent variables, CR, CCC and its components such as inventory turnover period (ITP), accounts receivable period (ARP), accounts payable period (APP) were used as independent variables. Panel data analysis was employed to investigate relationship between dependent and independent variables. According to results of the study, while there was a negative relationship between performance indicators and ARP, there was a positive relationship between performance indicators and CR. It was also found that while ITP had a positive effect on tobin q value in the pre crisis period, it had a negative effect on tobin q value in the post crisis period. On the other hand, APP had a significant negative effect on only tobin q value. It was also observed that CCC had a negative effect on ROA and a positive effect on tobin q value.

Another study which researched relationship between working capital policies and company performance was conducted by Şahin (2011). Similar to Büyükşalvarcı and Abdioğlu (2010), the author performed the research on manufacturing companies which were traded in ISE and used the data set which covered the period of 2005-2010. In the study, while ROA, ROE and Tobin q values were used as dependent variables, working capital policies ratios (current assets/total assets and short term debts/total assets) were used as independent variables. Panel data analysis were performed to investigate relationship between dependent and independent variables. According to results of the study, while aggressive working capital in investment and financing policies had negative effect on ROE, ROA and Tobin q value, conservative

working capital in investment and financing policies had positive effect on ROE, ROA and Tobin q value. Therefore, it was suggested to use conservative working capital in investment and financing policies in order to enhance companies performance.

Polat (2014) investigated relationship between working capital and profitability. The sample of the study consisted of financial data of 120 manufacturing companies which were traded in ISE and covered the period of 2003-2012. In the study, while liquidity ratios such as CR, QR and cash ratio were used as indicator of working capital, NPM and EVA were used as indicator of profitability. And also leverage ratio and firm size used as control variables. On the other hand, regression analysis was applied for investigation in the study. According to results of the study, a positive significant relationship was found between liquidity ratios (CR, QR, cash ratio) and profitability ratios (NPM, EVA).

Another study which was conducted on the effect of working capital policies on profitability was made by Coşkun and Kök (2011). Data set of the study consisted of financial data of 74 manufacturing companies which were traded in ISE and covered the period of 1991-2005. In the study, while CCC and its components (ARP, IP, APP) were used indicator of working capital, ROA was used indicator of profitability. In the study where profitability indicators were used as dependent variable and working capital indicators were used as independent variables, System GMM estimation method was employed for investigation. As a result of the study, It was found that aggressive investment policy had a positive effect on company performance, in other words if companies reduce their IP and ARP by following aggressive investment policy, this situation can increase their profitability. Additionally, it was observed that APP had a positive effect on company profitability.

Akbulut (2011), who specified that the management of working capital had a distinguished place in the management of finance, remarked that the path to survival and to investments with long term plans is possible through efficient working capital.

Expressing that the working capital concept which has a distinguished place to this extent should be kept at an optimal level in the companies, Akbulut (2011) used the annual financial data of 127 manufacturing companies which were traded in ISE between 2008-2009. In the study in which the effect of WCM on profitability was also analyzed; ROA used as indicator of profitability and CCC and its components were used as indicator of working capital. In the study where profitability indicators were used as dependent variables, working capital indicators were used as independent variables, regression analysis was applied for investigation. As a result of the study, it was found that there was a negative relationship between working capital and profitability, but this negative relation was not at a significant level.

Albayrak and Akbulut (2008) aimed to determine the factors which affected the profitability of companies which were in industrial and service sectors and which were traded in ISE. The authors used many financial ratios such as ROA, ROE, NPM, GPM, leverage ratio, LR, activity ratios, firm size in order to obtain result in respect to this situation in their study. The sample of study consisted of 55 companies operating industrial and service sectors and covered the period of 2004-2006. LSM was employed for investigation. According to the results of the study, the variables which were important for explaining profitability structures in the general sense showed difference. Nevertheless, among the most important indicators which defined profitability structures were LR, capital structure, firm size and ITR indicators. In the study, it was determined that the firm size, ITR, capital structure and market value variables were important indicators in explaining ROE of companies which operate in industrial and service sectors traded in ISE. When the relations among these variables were investigated, it was found that there was a positive relation between ROE and ITR, firm size, market value variables; and that there is a negative relation between ROE and capital structure variables. In a similar way, it was determined that capital structure was the most important financial indicator in explaining ROA and that this indicator had a negative relation with ROA. On the other hand, it was also found that that LR, ITR, capital structure, firm size and market value were among the most important indicators which explained NPM. In the study conducted, it was identified that there was a negative relation between these variables and NPM.

Altan and Şekeroğlu (2013) investigated effects of working capital policies on company profitability. The sample of the study consisted of 16 companies in weaving sector which were traded in ISE and covered the period of 2003-2012. In the study, ROA was used for profitability indicator while CR was used for working capital indicator. In the study in which profitability indicator were dependent variable, working capital indicator was independent variable, simple regression method was applied in order to investigate relationship between these variables. As a result of the study, it was found that there was a significant relationship between profitability and working capital policies. Accordingly, it was observed that the companies had the highest ROA by applying brash financing policy and the companies had the lowest ROA by applying conservative financing policy.

In the study conducted by Çakır (2013), the effect of CCC on firm profitability was emphasized on a sector by sector basis. The sample of the study consisted of 52 manufacturing firms which were traded in ISE and covered the period of 2000-2010. In the study, return on capital employed (ROCE) was used as indicator of profitability while CCC, asset turnover, leverage ratio, ITP, ARP, APP were used as independent variables. Panel data analysis was applied for investigation. As a result of the study, it was found that ROCE had a positive relation with asset turnover, leverage ratio and CCC in manufacturing sector. Additionally, it was emphasized that this result was general for manufacturing sector and not valid all sub sectors of manufacturing sector. When looking at findings of study for sub sectors, it was seen that there was a negative relationship between CCC and profitability.

In their study, Ayaydın and Karaaslan (2014) investigate the factors which determined liquidity risks in Turkish banking sector. The sample of the study consisted of financial data of 23 commercial banks operating in Turkey and covered the period of 2003-2011. In the study, while liquidity variables used as dependent variable, variables such as ROA, ROE, net interest margin (NIM) were used as independent variables. GMM estimation method was applied to investigate relationship between independent and dependent variables. According to the results

of the study, a negative significant relation was found between liquidity variables and profitability variables.

Emphasizing the importance of WCM for improving the wealth level of shareholders, in other words, for increasing the market value of a company, which is one of the fundamental assumptions of modern finance theory, Aygün (2012) investigated the effect of working capital on profitability. The sample of the study consisted of financial data of 107 manufacturing companies which were traded in ISE and covered the period of 2000-2009. In the study, ROA was used for profitability indicator while CCC was used for working capital. CCC was measured by APP, ITP, ARP variables. Additionally, some variables such as firm size, CR were used control variables. In the study, regression and correlation analyses were applied for investigation. According to results of the study, while profitability had a negative relation with APP, ITP and ARP, it had a positive relation with firm size and CR.

Aytekin and Güler (2014) were investigated the relation between CCC and profitability. The sample of the study consisted of financial data of 26 industrial companies traded in BIST Non-Metal Mineral Products Index (XTAST) and covered the period of 2009-2012. In the study, the dependent variables were ROA, ROE and earning before interest and tax ratios while the independent variables were CCC, average receivable collection period (ARCP), average conversion inventory period (ACIP), APPR. Additionally, firm size was used as control variables. According to result of the study, a negative relation was found between ROA and ACIP, APPR. And also a positive relation was found between ROA and CCC. The similar result was observed between ROE and ACIP, APPR, CCC.

Stating that working capital is important not only for the big companies but also for SMEs, Aytürk and Yanık (2015) made a research on the effect of working capital on SMEs profitability. The sample of the study consisted of annual financial data of 1123 SME's and covered period of 2009-2013. According to the results of study in which the variables such as CCC, gross sales profit/total assets, financial leverage

ratio were used; a significant and negative relationship was found between profitability and CCC which indicator of working capital. Accordingly, it was emphasize that profitability of the companies which had low level of CCC was higher compared to other companies.

On the other hand, Uyar (2009) investigated relationship between CCC and firm profitability and firm size in their study. A sample of 166 manufacturing and merchandising companies traded in ISE for the year 2007 was selected. In the study emprical investigation was done by using ANOVA and correlation analyses. According to result of the study where ROA and ROE variables were used in order to measure profitability, while there was a negative significant relationship between ROA and CCC, there was no significant relationship between ROE and CCC.

Another study which was carried out in order to identify the determinants of profitability indicators of banks was conducted by Gülhan and Uzunlar (2011). In this study in which the data set from 1990 to 2008 was used, the profitability determinants of banks were analyzed with panel data analysis for the relevant period. The sample of the study consisted of 51 domestic and foreign private capital banks which operated in Turkey. In the study ROA was used as dependent variable, liquidity, operational costs and another variables used as independent variables. In the study tree models were developed. First one for all banks, the second one for domestic banks and third one for foreign banks. These model estimation results were observed in two period. First period was 1990-2000 and the second period was 2002-2008. According to result of the study, while it was found that relationship between liquidity and profitability was significant and positive for foreign and all banks models; a negative and insignificant relationship was found for domestic banks in the first period. Another hand, in the second period while it was found that relation between liquidity and profitability was negative and significant for foreign and all banks models; a negative and insignificant relationship was found for domestic banks models.

Güneş (2015), who researched determinants of profitability for banks in a different way, studied the issue by considering internal, external and sectoral differences regarding the banking sector. Panel data analysis were used to examine a data set that covered the period of 2002-2012. The sample of study included 22 banks and a total of 242 observations. In the study ROA and ROE were used as dependent variables; asset size, capital size, liquidity, risk management, cost management, non-performing loans, as well as macroeconomic and sectoral variables were used as independent variables. According to the results of the study; in the 2002-2012 period, changes in asset size, capital size and inflation created a positive significant effect on ROA, while non-performing loans created a negative significant effect on ROA. On the other hand, no significant relationship was found between ROA and the variables of risk management, cost management, GDP, concentration and liquidity. Additionally, as a result of the same study, while there was a positive significant relationship between ROE and variables of capital size and inflation, no relationship was found between asset size and variables of risk management, cost management, non-performing loans, GDP, concentration and liquidity.

Kiracı (2009) who claimed that the competitive power of firms will increase by effective and efficient usage of resources, investigated the relationship between inventory management and profitability. In the study financial ratios of firms in manufacturing sector traded in ISE were used and period of the data set was 2002-2006. Correlation and regression analyses were applied to investigate relationship between inventory management and profitability. In the study, while variables such as ITR, inventory/total assets, inventory/net working capital, inventory/current assets used as independent variables, variables such as GPM, OPM, NPM, ROA, ROE were used as dependent variables. According to result of the study, there was a positive significant relationship between ITR and variables of ROA, ROE and NPM, while there was a negative significant relationship between ITR and GPM. Accordingly, firms with high ITR had higher ROA, ROE and NPM, while their gross profits were lower.

Küster and Demirgüneş (2007) investigated the factors which affect profitability in retailing firms operating in Turkey. The sample of the study consisted of financial data of retailing firms traded in ISE and covered the period of 1997-2006. In the study, while ROA was used as dependent variable, RTR, ITR, market share, leverage ratio, firm size and net working capital were used as independent variables. Profitability was measured by ROA, while liquidity was measured by net working capital. In the study, pooled regression analysis was applied for investigation. According to the results of study, profitability had a negative relation with firm size and borrowing while it had a positive relation with market share and working capital investments. Additionally, it was seen that other variables of the study had no significant effect on firm profitability.

3. METHODOLOGY

In this study, the relationship between liquidity and profitability ratios was investigated using System GMM, one of the dynamic panel data estimation methods. The analyses revealed that the estimated model has a dynamic structure, therefore, it was decided to employ System GMM estimation method that yields best estimation results in dynamic panel data analyses.

In this part of the study, the basic framework of System GMM estimation method is introduced first. Next, the theoretical part of the panel unit root tests used to explore the stationarity of series is explained. Then, the research sample, research design, conceptual model and data collection procedures are described. And finally, dependent and independent variables used, hypotheses and models developed in the study are detailed.

3.1. Generalized Moments Method

An effective dynamic panel data estimation method, Generalized Moments Method (GMM) method has recently gained considerable popularity especially in economics and finance. GMM method was first developed in Hansen's study (1982). In his study on GMM estimators, Hansen (1982) showed that consistent estimators can generally be obtained even from moment conditions under weak assumptions.

Thanks to GMM method, models and certain estimators can be formulated without the need to strong distribution assumptions (Greene, 2002). The key feature of GMM is that it allows much more moment conditions than current estimation parameters. In other words, in case model is over identified, it will have the capability of solving the equation systems to be estimated. Furthermore, particularly where the models involve endogeneity, GMM estimator is more consistent and unbiased compared to

other estimators. Moreover, GMM is superior in time series data where serial correlation is found (Wooldridge, 2001).

To briefly explain how GMM model works, in general, calculations are made such that a mean of distribution is based on the mean of sample, or a variance of distribution is based on the variation of sample. Hence; the purpose here is to calculate $\mu = E[y]$ parameter. For this purpose, the predicted μ value should be calculated. $\hat{\mu} = (\frac{1}{N}) \sum_{i=1}^N y_i$ will help to find this value. Representing the sample analogue of the population moment condition, this calculation will also help to solve the sample moment condition.

$$\left(\frac{1}{N}\right) \sum_{i=1}^N (y_i - \mu) = 0 \quad (3.1)$$

$$E[y] - \mu = 0 \quad (3.2)$$

The estimators solving the sample moment conditions during the estimation phase are called momentum method (MM) estimators. Moments Method constitutes the basis of the Generalized Method of Moments. “Moments Method only works when the number of moment conditions equals the number of parameters to be estimated” (Drukker, 2010, p.9). Otherwise, the model will not work. At this point, the method preferred by Generalized Method of Moments (GMM) estimators, a more advanced version of the Moments Method estimators, is to implement estimation methods such that the quadratic form of sample moment conditions is minimized. In this regard, GMM has the advantage of solving the over-identified sample moment equation system.

Expanding on the subject, the process of obtaining GMM starts with identifying the population moment conditions. Said population moment conditions are defined as follows:

$$E[m(w_i, \theta)] = 0 \quad (3.3)$$

In the equation above; m is the function of the vector $q \times 1$ whose expected values in the population are zero. w_i represents the data on the person i . And finally, θ is the vector of $k \times 1$ parameters, $k \leq q$.

The sample moment conditions derived from population moment conditions are as follows:

$$\bar{m}(\theta) = \left(\frac{1}{N}\right) \sum_{i=1}^N m(w_i, \theta) \quad (3.4)$$

- In case $k < q$, in other words, if the number of moment conditions is greater than the number of unknown parameters, GMM adopts the method of choosing the parameters that are most likely to solve the over-identified momentum equation systems.

Namely;

$$Q_T(\theta) = \bar{m}(\theta)' W \bar{m}(\theta) \quad (3.5)$$

As a result, GMM estimator is defined as follows:

$$\hat{\theta}_{GMM} \equiv \arg \min_{\theta} Q_T(\theta) \quad (3.6)$$

- In case $k = q$, namely if the number of moment conditions is equal to the number of unknown parameters, MM estimator is capable of overcoming $\bar{m}(\theta)$ problem. Hence, the equation becomes as follows;

$$\bar{m}(\theta)' W \bar{m}(\theta) = 0 \quad (3.7)$$

Besides, parameter W (positive semi-definite weighting matrix) of the above equation that is used in the estimation process has a critical role in effecting the efficiency of the GMM model. Namely;

- In case $W = I$, estimation results will be consistent but inefficient.

- In case $W = \text{Cov}[\bar{m}(\theta)]^{-1}$, it is possible to argue that GMM estimation is efficient.

As a result, more efficient GMM estimations can be achieved with various variations such as those provided above (Drukker, 2010).

On the other hand, since explanatory variables in static estimation models are exogen and have no correlation with error terms, structure of error terms is shown to be acceptable. In dynamic models, however, since the dynamic nature of the error term will create a correlation between the dependent variable and error terms, panel data estimations would produce biased results (Hsiao, 2002). To explain this condition with a dynamic panel data model,

$$Y_{i,t} = a + \beta Y_{i,t-1} + e_t \quad (3.8)$$

Presence of $Y_{i,t-1}$ in the explanatory variable of the model illustrated above would cause that potential estimation errors are collected by the error term and also in $Y_{i,t-1}$ as well. In this case, a correlation will be created between $Y_{i,t-1}$ and e_t , the estimation results will be biased (Baltagi, 2005).

Such bias resulting from the relationship between the explanatory variables and the error term can be solved by means of first differences method and the Instrumental Variable (IV) Estimator. In this method, the difference equation is built from the first differences of observations, followed by conversion. In this case, individual effects are eliminated, and it is ensured that the error term is not correlated with the explanatory variables. Though yielding unbiased and consistent results, the Instrumental Variable (IV) Estimator is not the efficient estimator with lowest variance. This is because Instrumental Variable (IV) Estimator does not meet all of the appropriate moment conditions in the model (Baltagi, 2005).

GMM estimator developed by Arellano and Bond (1991) has a lower variance compared to Instrumental Variable (IV) Estimator as it utilizes data from all moment conditions. This GMM method was first proposed by Holtz-Eakin et al. (1988) and was later developed by Arellano and Bond (1991). The method is also known as Difference GMM.

The method consists of two basic steps in view of the moment conditions on which the model is founded. First is to calculate the first-differenced form of the model. The second is to calculate the lagged values of dependent variables that are uncorrelated with the error term.

Therefore, this method will first calculate the first differenced form of the model, hence eliminate the potential biased estimations induced by the unobservable heterogeneity problem. Moreover, by employing the calculated lagged value of endogenous regressors as instruments, this method will address the dynamic endogeneity problem of the lagged dependent variable (Mileva, 2007; Roodman, 2009).

In dynamic models built using data sets with larger N (number of indicators) and smaller T (time period), parameters are calculated in the following form:

$$Y_{it} = \beta_1 + \gamma Y_{i,t-1} + X_{it} \beta_2 + u_i + \varepsilon_{it} \quad (3.9)$$

where $i = \{1, \dots, N\}$ and $t = \{1, \dots, T\}$; $Y_{i,t-1}$ represents the lagged dependent variable, and this value is correlated with unobservable individual affects (u_i). Directly removing u_i from the model would lead to an inconsistent calculation in terms of the T time value.

Calculating the first-differenced form of the model as described above;

$$\Delta Y_{it} = \gamma \Delta Y_{i,t-1} + \Delta X_{it} \beta_2 + \Delta \varepsilon_{it} \quad (3.10)$$

unobservable individual affects (u_i) would be eliminated, however, $Y_{i,t-1}$ value in $\Delta Y_{i,t-1}$ is a function of the ε_{it-1} error term. In the linear equation, ε_{it-1} is already included in $\Delta \varepsilon_{it}$. Therefore, $\Delta Y_{i,t-1}$ is correlated with $\Delta \varepsilon_{it}$ (Arellano & Bond, 1991).

On the other hand, Arellano and Bover (1995) and Blundell and Bond (1998) argue that, lagged values of endogenous regressors proposed by Arellano and Bond (1991) are not strong instruments for first differenced regressors.

In order to overcome this disadvantage, System GMM method was proposed. The System GMM is an improved version of difference GMM. This method is based on the combination of the differenced equation with levels equations. In other words, System GMM estimator employs the levels equation to obtain two equations systems. One of these equations is differenced, and the other one is in levels. Combining the second equation, namely the equation in levels, with the differenced equation is useful to obtain the additional instruments (Mileva, 2007). As a result, “the variables in levels in the second equation are instrumented with their own first differences” (Mileva, 2007, p.7). And this would generally contribute to enhancing the efficiency of the model. (Mileva, 2007).

Furthermore, Blundell and Bond (1998) and Blundell et al. (2000) showed that differenced GMM has a poor estimation ability in finite sampling, and that estimations of coefficients were biased, and found that estimation ability of System GMM is relatively higher. For this reason, System GMM method has been employed in this study.

In this part of the study, first the basic framework of GMM method is introduced, followed by the description of panel unit root tests used in stationarity analyses.

3.2. Panel Unit Root Tests

One of the considerations in regression analysis is that the series used in the models must be stationary. The reason the series has been made stationary is to be able to provide assumptions about error terms. These assumptions consist of zero mean and constant variance of the series. If a model established with non-stationary variables is estimated by LSM, then nonexistent relationships can be obtained between the relevant variables after any shock. This causes to a problem expressed spurious regression (Sims, 1980). In the regression analysis, unit root tests are performed to ensure stationarity in the series.

On the other hand, it is specified that panel unit root tests that take into account the knowledge about both time and cross section dimensions of the data are statistically more powerful than time series unit root tests that take into account only the knowledge about time dimension (Levin, Lin and Chu, 2002; Im, Pesaran and Shin, 2003; Maddala and Wu, 1999). Because, the addition of the cross section dimension into the analysis increases the variability in the data (Charemza and Deadman, 1997). Therefore, panel unit root tests including Levin, Lin and Chu (Levin, Lin and Chu, 2002), ADF - Fisher Chi Square (Maddala and Wu, 1999) and PP-Fisher Chi Square (Choi, 2001) were used to test the stationarity in our study.

3.2.1. Levin Lin & Chu panel unit root tests

Considering the theoretical infrastructure of Levin Lin & Chu panel unit root test as one of the panel unit root tests used in the study, this test uses Augmented Dickey Fuller (ADF) regression equation shown below:

$$\Delta y_{it} = \delta y_{it-1} + \sum_{j=1}^{p_i} \beta_{ij} \Delta y_{it-j} + \alpha X_{it} + \varepsilon_{it} \quad (3.11)$$

where $i=1, 2, \dots, N$: cross section units, $t=1, 2, \dots, T$: time dimension, X_{it} : exogenous variables including any fixed effect or individual trend component, ε_{it} : independent error term and p_i : lag order.

In the framework of the zero hypothesis ($H_0: \delta = 0$) indicating the unit root existence and the alternative hypotheses ($H_1: \delta < 0$) indicating non-existence of unit root, Levin et al. (2002) used t-statistics with standard normal distribution for the regression without individual intercept and time trend. This t-statistic for testing $\delta = 0$ is given by

$$t_\delta = \frac{\hat{\delta}}{STD(\hat{\delta})}, \quad (3.12)$$

where,

$$\hat{\delta} = \frac{\sum_{i=1}^N \sum_{t=2}^T \rho_i \tilde{V}_{it-1} \hat{\epsilon}_{it}}{\sum_{i=1}^N \sum_{t=2}^T \rho_i \tilde{V}_{it-1}^2}, \quad (3.13)$$

and

$$STD(\hat{\delta}) = \sigma_\epsilon \left[\sum_{i=1}^N \sum_{t=2}^T \tilde{V}_{it-1}^2 \right]^{\frac{1}{2}}, \quad (3.14)$$

$$\sigma_\epsilon^2 = \frac{1}{NT} \left[\sum_{i=1}^N \sum_{t=2}^T (\hat{\epsilon}_{it} - \hat{\delta} \tilde{V}_{it-1})^2 \right] \quad (3.15)$$

In the model developed by Levin et al. (2002) considering the model with individual intercept and time trend, adjusted t statistic is presented as follows:

$$t_\delta^* = \frac{t_\delta - NT S_N \sigma_\epsilon^{-2} STD(\delta) \mu_{mT}^*}{\sigma_{mT}^*} \quad (3.16)$$

where, N : number of cross section, T : average number of observation per individual, S_N : estimator of the average of the ratio of long-run to short-run standard deviation, σ_ϵ^{-2} : estimated variance of the error term, $STD(\delta)$: standard deviation of δ , t_δ : conventional t-statistic for testing $\delta = 0$, and μ_{mT}^* : mean adjustment, σ_{mT}^* : standard deviation adjustment (Krenz, 2012; Levin, Lin & Chu, 2002).

Furthermore, Levin, Lin & Chu (2002) Panel Unit Root Test introduces a restriction of that the first order autoregressive dynamics must be same for all cross sectional members in the panel, and also allows all other characteristics of the model including deterministic component, higher order autoregressive dynamics and error term variances to vary along with the cross sectional dimension (Herwartz and Siedenburg, 2007). On the other hand, when looking at the characteristics of the Levin, Lin & Chu panel unit root test, this test can only be applied to balanced panels (Tatoğlu, 2012). Also this test is more suitable for micro-economic panel data sets (Baltagi, 2005).

3.2.2. ADF Fisher Chi Square and PP Fisher Chi Square panel unit root tests

Maddala and Wu (1999) and Choi (2001) developed a Fisher (1932) type test based on the combining of the p values obtained from the unit root test statistics applied for each cross section as follows:

$$P = -2 \sum_{i=1}^N \ln p_i \quad (3.19)$$

In this equation, p_i represents the asymptotic p value obtained from any individual unit root test (ADF, PP) for i cross section unit. The P value indicates Fisher's test statistic. This statistic has a chi-square distribution with $2N$ degree of freedom as $T_i \rightarrow \infty$ for all N .

The H_0 hypothesis on the existence of individual unit root is tested in these panel unit root tests (Choi, 2001; Maddala and Wu, 1999).

$$y_{it} = \rho_i y_{it-1} + z_{it} \gamma_i + u_{it} \quad (3.20)$$

The hypotheses developed by considering equation (3.20) are as follows:

$$H_0: \rho_i = 0 \text{ for all } i \text{ versus alternative } H_1: \rho_i < 0 \text{ for at least one } i.$$

Choi (2001) proposed two other test statistics as well as Fisher's inverse chi-square test statistic P .

The first is the inverse normal test Z given below:

$$Z = \frac{1}{\sqrt{n}} \sum_{i=1}^n \phi^{-1}(p_i) \quad (3.21)$$

In this equation ϕ refers to standard normal cumulative distribution function. Since

$0 \leq p_i \leq 1$, $\phi^{-1}(p_i)$ is a $N(0,1)$ random variable and as $T_i \rightarrow \infty$ for all i , $Z \rightarrow N(0,1)$.

The second is the logit test L given below:

$$L = \sum_{i=1}^n \ln\left(\frac{p_i}{1-p_i}\right) \quad (3.22)$$

where $\ln\left(\frac{p_i}{1-p_i}\right)$ has the logit distribution with mean 0 and variance $\pi^2/3$. As $T_i \rightarrow \infty$

for all i , $\sqrt{mL} \rightarrow t_{5n+4}$ where $m = \frac{3(5n+4)}{\pi^2 n(5n+2)}$.

In addition, when n is large, Choi (2001) proposed a modified P test which is shown below (Choi, 2001; Maddala and Wu, 1999).

$$P_m = \frac{1}{2\sqrt{n}} \sum_{i=1}^n (-2 \ln p_i - 2) \rightarrow N(0,1) \quad (T_i \rightarrow \infty \text{ followed by } n \rightarrow \infty) \quad (3.23)$$

One of the advantages of these tests is that they do not require a balanced panel data. These tests can also use different lag lengths in individual Augmented Dickey-Fuller (ADF) regressions. These features provide more flexibility than other tests (Baltagi, 2005)

This section of the study has explained the basic framework of GMM estimation method which yields the best estimation results among the dynamic panel data analysis methods, and described the theoretical infrastructure of panel unit root tests used in stationarity analyses. The next section of the study will provide information

about research sample and variables used in the study, the hypotheses and models developed to investigate the relationship between liquidity and profitability ratios.

3.3. Research Sample

In the study, annual data set consisting of published annual financial statements of 11 companies operating in retail trade sector, which are regularly quoted in ISE, covering the 2010-2015 period was used. Data were obtained from the official web site of ISE and Public Disclosure Platform and the balanced panel data set was used.

3.4. Research Design

The research described here studies the effects of liquidity ratios on profitability, hence the type of research design is a (explanatory) correlational one. The author undertakes dynamic panel data regression models to examine the relationship between the independent and the dependent variables.

3.5. Research Model

In this part of the study, the research model developed in the light of the literature given in second part of the study is presented. The research model in Figure 3.1 shows the relationship between dependent variables of the study, namely ROA, ROE and NPM and independent variables, namely QR, ITR, RTR.

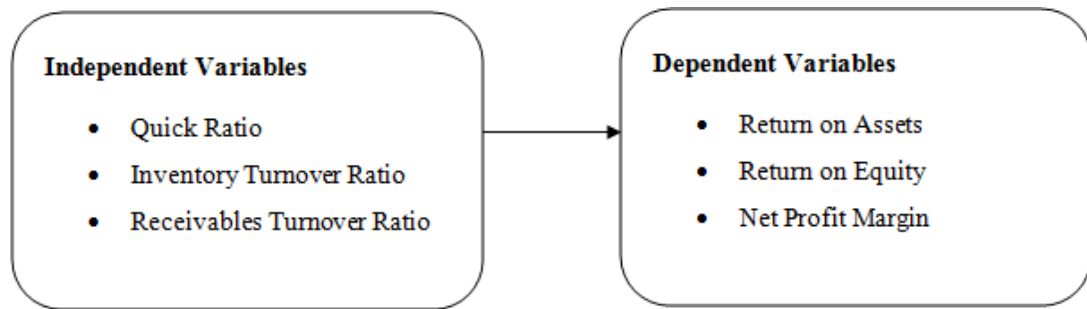


Figure 3.1. Research Model - The Relationship Between Liquidity and Profitability

Source: Author (2017)

3.6. Research Hypothesis

In this study, a total of 18 hypotheses were developed to investigate the relationship between liquidity and profitability. These hypotheses are listed below:

- H₁₋₀: There is no significant relationship between ROA and QR.
- H₁₋₁: There is significant relationship between ROA and QR.
- H₂₋₀: There is no significant relationship between ROA and ITR.
- H₂₋₁: There is significant relationship between ROA and ITR.
- H₃₋₀: There is no significant relationship between ROA and RTR.
- H₃₋₁: There is significant relationship between ROA and RTR.
- H₄₋₀: There is no significant relationship between ROE and QR.
- H₄₋₁: There is significant relationship between ROE and QR.
- H₅₋₀: There is no significant relationship between ROE and ITR.
- H₅₋₁: There is significant relationship between ROE and ITR.
- H₆₋₀: There is no significant relationship between ROE and RTR.
- H₆₋₁: There is significant relationship between ROE and RTR.
- H₇₋₀: There is no significant relationship between NPM and QR.
- H₇₋₁: There is significant relationship between NPM and QR.
- H₈₋₀: There is no significant relationship between NPM and ITR.
- H₈₋₁: There is significant relationship between NPM and ITR.

H₉₋₀: There is no significant relationship between NPM and RTR.

H₉₋₁: There is significant relationship between NPM and RTR.

3.7. Data Collection Procedure

The data set required for this study have been collected from the published annual financial statements of the companies operating retail trade sector. Secondary data has been used in the study. The study covers a period of six years starting from 2010 to 2015.

3.8. Research Variables

In the light of the literature presented in the second part of the study, this study, which investigates the relationship between profitability and liquidity ratios, has used profitability ratios as dependent variables and liquidity ratios as independent variables. It has utilized from the variables of ROA, ROE, and NPM to measure profitability ratios, and the variables of QR, ITR and RTR to measure liquidity ratios.

3.8.1. Dependent variables

3.8.1.1. Return on assets

One of the main ratios demonstrating the profitability of a company' investments is ROA ratio. This ratio shows what a company has earned from all of its invested capital (assets). In other words, it measures how efficiently and successfully a company can manage its assets (Aktan & Bodur, 2006; Brealey et.al, 2012).

The lower values of this ratio indicates that the company is in a conservative position on lending or investing, or the company's corporate costs are at high levels (Rasiah, 2010). On the other hand, the higher values of this ratio indicates that the company works close to its full capacity. One of the biggest goals of the company is to

maximize its ROA, therefore achieving a higher ROA ratio is a situation that is desired by company managers.

ROA ratio is calculated as follows:

$$ROA = \frac{\text{Net Profit}}{\text{Total Assets}}$$

According to the Du Pont System, NPM is insufficient in the calculation of ROA ratio, so asset turnover should also be taken into account (Aksoy & Yalçın, 2008; Kolb & Rodriguez, 1996). In this case, ROA equals the multiplication of asset turnover and NPM. According to this system, ROA ratio is calculated as follows:

$$ROA = \frac{\text{Net Profit}}{\text{Total Sales}} \times \frac{\text{Total Sales}}{\text{Total Assets}}$$

3.8.1.2. Return on equity

Another one of the main ratios that shows companies' investment profitability is the ROE. ROE calculates the return on equity invested by shareholders in a company, and shows performance of the company as a whole (Aydın et al., 2010; Brealey et al., 2012). ROE, on the other hand, demonstrates how effective a company uses its equity. The higher values of this ratio indicates that equity is used effectively and efficiently. On the other hand, the lower values of this ratio indicates that the company has idle equity or does not use it efficiently. ROE is found by proportioning net profit after tax to total equities, and is expressed as follows (Van Horne & Wachowicz, 1995):

$$ROE = \frac{\text{Net Profit}}{\text{Total Equities}}$$

3.8.1.3. Net profit margin

NPM measures how well a company is profitable after deduction of all the expenses and taxes. In other words, it shows at what net profit rate a company earns from a

unit sale, and is obtained by proportioning net profit (for the period) to sales. Net profit for the period is a income statement item that includes the results of almost all company activities. Therefore, NPM is a part of the knowledge on the company's activities, investment and finance policies and is calculated by the following formula:

$$\text{NPM} = \frac{\text{Net Profit}}{\text{Sales}}$$

A high NPM is indicator of a positive situation for the company. The high NPM indicates that the company follows appropriate investment, production, pricing and financing policy (Aydın, Başar & Coşkun, 2010). It is also possible for companies to increase their NPM as a result of keeping their costs as low as possible and sales as high as possible, thereby increasing the positive margin between their costs and sales.

3.8.2. Independent variables

3.8.2.1. Quick ratio

This ratio is obtained dividing the value that is calculated through subtracting the inventories with lower liquidity from the current assets, by the current liabilities. QR is a ratio that completes CR and makes it more meaningful (Akgüç, 1995). This ratio is a clearer ratio than CR and only accounts for cash and near cash assets, instead of addressing all current assets (Berk & DeManzo, 2014). Therefore, inventories with a very low convertibility are excluded from the calculation process.

Despite of being different in every sector, this ratio is considered to be sufficient in case it equals to 1 (Çabuk & Lazol, 2005). If this ratio is 1, then it shows that the company can easily meet its short-term obligations through its cash/cash equivalents and assets with high convertibility. However, if this ratio is equal to or less than 1, it does not always refer that company's liquid position is good or bad. If the company has highly convertible inventories and it can collect its accounts receivable in short

time, it may not be a problem for the company to have the ratio less than 1 (Özer, 1997).

QR is calculated as follows:

$$QR = \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$$

3.8.2.2. Inventory turnover ratio

ITR, which shows the relationship between sales and inventories, refers to how many times company inventories turn into sales in a year. In other words, ITR can be regarded as an indication of the ability of companies to use inventories and the power of sales policy (Coşkun and Kök, 2011). In general, high ITR indicates that the company has a good inventory management and can convert its inventories into cash in a shorter period of time (Ceylan, 1998). In addition, a company with a high ITR will be able to expand its sales volume, thus increase its profitability.

In addition, since a company with a high ITR has the opportunity to sell its inventories through sales, funds tied up in these inventories can be returned to the company sooner, and thus the financing opportunities of the company can be increased. Moreover, as mentioned above, since companies' resources are tied up in inventories in a shorter period of time, it will require less working capital. Furthermore, the companies with high ITR can have the opportunity to reduce their holding costs (Kıracı, 2009). Also, high ITR also reduces the risks accrued by price, fashion and demand fluctuations.

On the other hand, the lowness of inventory turnover means that sales are weak, a false inventory policy is followed, or inventory investments cause inventory costs to rise and decrease profits. At this point, besides the inventory policies of the companies, it is necessary to pay attention to the sales policies at the same time (Büyüksalvarcı & Abdioğlu, 2010).

ITR is calculated as follows:

$$\text{ITR} = \frac{\text{Cost of Good Sold}}{\text{Average Inventories}}$$

The following formula is used to find the average inventory used in the formula above.

$$\text{Average Inventories} = \frac{\text{Beginning Inventories} + \text{Ending Inventories}}{2}$$

3.8.2.3. *Receivables turnover ratio*

RTR of a company shows how many times the company can collect its receivables in a year. In other words, RTR measures a company's ability to collect its receivables. High RTR suggests that the company's collection of receivable is effective. This situation makes it easier for the company to repay the debts, even if its liquidity ratios are low. High RTR also indicates that the company will need less working capital while carrying out its activities (Altuğ, 1988). In other words, the sooner a company can collect its receivables, the sooner the cash inflow to the company will be ensured. As a result, the need of companies to keep working capital will decrease. Therefore, the companies want this ratio to be very high (Şahin, 2011).

On the other hand, low RTR of a company can be a result of the fact that the company has difficulty in collecting the receivables, does not have an effective collection policy, or have a bad credit policy (Aktan & Bodur, 2006). A company experiencing this situation needs to change its collection policy. In addition, tying up excessive funds in receivables will increase the company's need for higher working capital.

RTR is calculated as follows:

$$\text{RTR} = \frac{\text{Sales}}{\text{Average Receivables}}$$

3.9. Data Analysis Procedure

In this study aimed at exploring the relationship between profitability and liquidity ratios using System GMM method, six years data, covering the 2010-2015 period, of 11 companies operating in retail trade sector and traded in ISE were utilized. A balanced panel data set was built based on this data.

At the beginning of the study, first the descriptive statistics of the series used were determined, and then these series' mean, minimum and maximum values were investigated.

Then, panel unit root tests were conducted to explore the stationarity of the series used in the study. Subsequently, three basic tests were applied for the consistency of System GMM estimator. These include Sargan test which shows whether the instrumental variables used in the models are valid, Arellano-Bond test which shows whether there are auto correlation problem in the models and Wald test which indicates whether the models are significant as a whole. A total of three dynamic models were developed in the study and these models were analysed by the System GMM estimation method which is a dynamic panel data estimation method.

In the study, Eview 9.5 econometric analysis package software was used for descriptive statistics and panel unit root tests, and Stata 12 econometric analysis package software was used for System GMM analysis.

3.10. Developing the Model

A total of three different dynamic panel data models were developed to test the hypotheses presented in the third chapter of the study. The models developed are listed below:

$$\text{Model 1: } ROA_{i,t} = \beta_0 ROA_{i,t-1} + \beta_1 QR_{i,t} + \beta_2 ITR_{i,t} + \beta_3 RTR_{i,t} + \varepsilon_{it}$$

$$\text{Model 2: } ROE_{i,t} = \beta_0 ROE_{i,t-1} + \beta_1 QR_{i,t} + \beta_2 ITR_{i,t} + \beta_3 RTR_{i,t} + \varepsilon_{it}$$

$$\text{Model 3: } NPM_{i,t} = \beta_0 NPM_{i,t-1} + \beta_1 QR_{i,t} + \beta_2 ITR_{i,t} + \beta_3 RTR_{i,t} + \varepsilon_{it}$$

Model 1 was developed in order to explore the relationship between the dependent variable ROA and the independent variables QR, ITR, RTR. Similarly, Model 2 was developed in order to explore the relationship between ROE, the other dependent variable, and the independent variables. Finally, Model 3 was developed in order to explore the relationship between NPM, the other dependent variable, and the independent variables.

Descriptions of variables used in the models are as follows:

- ROA_{i,t} : ROA dependent variable
- ROE_{i,t} : ROE dependent variable
- NPM_{i,t} : NPM dependent variable
- QR_{i,t} : QR independent variable
- ITR_{i,t} : ITR Independent variable
- RTR_{i,t} : RTR independent variable
- ROA_{i,t-1} : Lagged value of ROA
- ROE_{i,t-1} : Lagged value of ROE
- NPM_{i,t-1} : Lagged value of NPM

Furthermore, in the models above, *i* indicates the firms (*i* = 1, ..., 11) and *t* indicates the time period (*t* = 2010, ...2015), and ε_{it} represents the unobservable error term of the model, which consists of the observation specific errors, u_{it} and the unobserved country specific effects, μ_i .

4. FINDINGS AND RESULTS

In this part of the study which investigates the relationship between profitability and liquidity ratios, by using the dataset of the 11 companies operating retail trade sector listed on ISE for the period between 2010 and 2015, the effects of the independent variables, namely QR, ITR, RTR, on the dependent variables, namely ROA, ROE and NPM are examined with System GMM Estimation Method and the results of the analysis are presented. In this part of the study, firstly descriptive statistics results related to the variables of the examined series are presented. Then, the results of the panel unit root tests that investigate whether the series are stationary are presented. At the last step, the results of the analysis performed with System GMM Estimation Method are presented and the formulated hypotheses are tested.

4.1. Panel Unit Root Tests and Descriptive Statistics Results

In this part of the study, descriptive statistical analysis results and panel unit root test results are presented. Firstly, descriptive statistical analysis results of the variables are shown below.

Table 4.1. Descriptive Statistics Results

	Minimum	Maksimum	Mean	Observations
ITR	1.83	85.92	11.63	66
RTR	6.49	366.72	60.46	66
QR	0.13	1.85	0.55	66
ROA (%)	-37.63	17.90	0.53	66
ROE (%)	-123.59	49.09	1.41	66
NPM (%)	-29.77	7.98	-0.59	66

When we look at the descriptive statistics results, as it is seen in Table 4.1, ITR series has a positive mean value (11.63) in the related period (2010-2015). In the sector, the highest and the lowest values of ITR are 85.92 and 1.83 respectively. When we look at RTR series, it is observed that it has a positive mean value (60.46) in the related period. Considering one year as including 360 days, it is easy to state that these companies, which collect their receivables approximately every 6 days, will not face serious problems in terms of liquidity. On the other hand, the highest and the lowest values of RTR are 366.72 and 6.49 respectively.

When we look at QR series, it is observed that it has a positive mean value (0.55) in the related period and in the sector, the highest and lowest values of QR are 0.13 and 1.85 respectively. On the other hand, mean value of the companies' ROE in the sector is positive and it is found as 1.41% for the total of six years period. Additionally, it is observed that there are periods in which ROE is negative due to high loss in the sector. Furthermore, in the sector the highest ROE is 49.09%, the lowest ROE is -123.59%.

Unlike ROE variable, ROA variable exhibits a more positive table on sectoral basis. In the six years period covering 2010-2015, mean value of the companies' ROA in the sector was calculated as 0.53%. In this sector the highest and the lowest ROA values are 17.90% and -37.63%, respectively. The difference between these values is lower compared to ROE variable, indicating that this series is more stable.

On the other hand, in the period between 2010 and 2015, it was determined that mean value of companies' NPM in the sector was negative (-0.59%). The existence of profitable companies together with the existence of non-profitable companies in the sector also observed due to this result. In other words, some companies have high ROA and ROE, while some companies make losses. And also, this situation exhibits that not all of the companies in the sector operate in the same activity level. When we look at the highest and the lowest value of NPM as the indicators of this situation, it is observed that the highest and the lowest NPM values are 7.98% and -29.77%, respectively.

Table 4.2. Panel Unit Root Test Results At Level

Variables	Levin, Lin & Chu		ADF-Fisher Chi-square		PP - Fisher Chi-square	
	Statistic	P-Value	Statistic	P-Value	Statistic	P-Value
ITR	-12.9330	0.0000*	40.7793	0.0088*	68.9248	0.0000*
RTR	-3.4465	0.0000*	11.6981	0.0078*	21.9328	0.0086*
QR	-9.1837	0.0000*	26.5820	0.0218**	57.1098	0.0001*
ROE	-12.4234	0.0000*	32.2330	0.0409**	57.2506	0.0000*
ROA	-20.3700	0.0000*	40.8081	0.0087*	62.4503	0.0000*
NPM	-9.6036	0.0000*	31.7435	0.0419**	59.1668	0.0000*

Note: *, **, *** denote statistical significance at the 1%, 5% and %10 level of significance, respectively. The optimal lag lengths were chosen according to AIC.

As it is seen in Table 4.2 showing the results of three panel root tests (Levin, Lin and Chu, ADF-Fisher Chi-square and PP - Fisher Chi-square) used in the study, all series are stationary at level, in the other words they have no unit roots.

4.2. System GMM Analysis Results and Hypothesis Testing

Following the investigation of descriptive statistics, panel unit root tests' results, the results of the consistency tests applied for System GMM estimators and the results of the model estimation obtained by using System GMM Estimation Method are presented and the formulated hypotheses are tested in this part of the study. Three basic specification tests are applied for the consistency of System GMM estimators. These are Sargans test, which indicates whether instrumental variables used in the models are valid, Arellano-Bond test, which indicates whether there is an autocorrelation problem in the models and Wald test, which indicates whether the models are significant as a whole. The System GMM estimation results of the three models formulated in the study and the relevant Sargan, Arellano-Bond and Wald test results are presented in Table 4.3.

In Table 4.3, the estimated model results for ROA, ROE and NPM dependent variables are presented in the second, third and fourth columns, respectively. QR, ITR and RTR indicators in Table 4.3 represent independent variables, whereas $ROA_{i,t-1}$, $ROE_{i,t-1}$ and $NPM_{i,t-1}$ indicators represent a lagged value of dependent variables.

Firstly, three basic specification tests suggested by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1997) are applied to control GMM dynamic panel data assumptions. These are Sargan, Arellano-Bold autocorrelation and Wald tests. In the first step, Wald test is applied to determine whether the models are significant as a whole. In the next step, Sargan test is applied to examine the validity of instrument variables (checking whether there is a correlation between error term and explanatory variables). In the last step, the autocorrelation in the models are checked by Arellano-Bold autocorrelation test. This test is applied to the residuals in differences. As a result of this test, second order autocorrelation ($E[\Delta u_{it}\Delta u_{it-2}] = 0$) should not occur for GMM dynamic panel data estimators to be efficient. For second order autocorrelation, the null hypothesis " H_0 : There is no autocorrelation" is formulated and H_0 is expected to be accepted (Roodman, 2009; Tatoğlu, 2012).

Table 4.3. Summary of System GMM Estimation Results

Dependent Variables	ROA	ROE	NPM
$ROA_{i,t-1}$	0.6993 (0.000)*		
$ROE_{i,t-1}$		-0.1459 (0.235)	
$NPM_{i,t-1}$			0.7194 (0.001)*
QR	-0.0603 (0.108)	-1.1029 (0.071)***	-0.0552 (0.087)***
ITR	-0.0008 (0.007)*	-0.1416 (0.556)	-0.0003 (0.595)
RTR	0.0001 (0.125)	-0.0055 (0.744)	0.0003 (0.376)
Wald Test (<i>p-value</i>)	[0.000]*	[0.001]*	[0.000]*
AR (2) Test (<i>p-value</i>)	[0.720]	[0.498]	[0.874]
Sargan Test (<i>p-value</i>)	[0.868]	[0.925]	[0.753]

Note: P values are shown in parentheses. *, **, *** denote statistical significance at the 1%, 5% and 10% level of significance, respectively.

In this part of the study, the results of the analysis represented collectively in Table 4.3 are discussed and interpreted separately.

4.2.1. Model 1: System GMM estimation results investigating the relationship between return on assets and liquidity variables

Model 1 investigates the relationship between ROA as the dependent variable and liquidity variables (ITR, RTR, QR) in the study and its regression equation and hypotheses are as follows;

Regression equation is:

$$ROA_{i,t} = \beta_0 ROA_{i,t-1} + \beta_1 ITR_{i,t} + \delta_1 RTR_{i,t} + \gamma_1 QR_{i,t} + \varepsilon_{it} \quad (4.1)$$

Hypotheses are:

- H₁₋₀: There is no significant relationship between ROA and QR.
- H₁₋₁: There is significant relationship between ROA and QR.
- H₂₋₀: There is no significant relationship between ROA and ITR.
- H₂₋₁: There is significant relationship between ROA and ITR.
- H₃₋₀: There is no significant relationship between ROA and RTR.
- H₃₋₁: There is significant relationship between ROA and RTR.

and System GMM analysis results related to Model 1 are presented in Table 4.4

Table 4.4. Model 1 Analysis Results of the Relationship Between ROA and Liquidity Variables

Model 1	
Dependent Variable: $ROA_{i,t}$	
$ROA_{i,t-1}$	0.6993 (0.000)*
$QR_{i,t}$	-0.0603 (0.108)
$ITR_{i,t}$	-0.0008 (0.007)*
$RTR_{i,t}$	0.0001 (0.125)

Table 4.4. (continue)

Model 1	
Wald (<i>p-value</i>)	(0.000)*
AR(2) (<i>p-value</i>)	(0.720)
Sargan (<i>p-value</i>)	(0.868)

Note: P values are shown in parentheses. *, **, *** denote significance levels at 1%, 5% & 10% levels, respectively.

First of all, when we look at the specification test results to determine whether the result of model estimated by using System GMM estimator is consistent with the dynamic panel data assumptions, according to AR (2) test results, it seems that the result of AR (2) test, which measures second order autocorrelation in the first differenced errors in the model, is insignificant as it is expected. Second order autocorrelation should not occur for GMM dynamic panel estimators to be efficient, and the hypothesis formulated as " H_0 : There is no autocorrelation" is expected to be accepted for second order autocorrelation. As a result of the AR (2) test given in Table 4.4, H_0 is accepted due to p value of $AR(2) > 0.05$ ($p=0.720$), and there is no autocorrelation problem in the model as well. When the results of Sargan test, which measures the validity of the instrumental variables used in the model, are examined; high p value of sargan statistic ($p=0.868 > 0.05$) indicates that the instruments are valid, in other words overidentifying restrictions are valid and the null hypothesis formulated as "overidentifying restrictions are valid" is not able to be rejected. On the other hand, according to Wald test result it is seen that model is significant as a whole. In other words, the independent variables as a whole in the model have a statistically significant effect at 1% level on the dependent variable.

Accordingly, there is no validity problem in the model, and it is observed that the instrumental variables used in the estimated models are not correlated with the error term, in other words, they are valid. Additionally, model that is estimated is significant as a whole and there is no autocorrelation problem in the model.

Considering the results of System GMM analysis of the estimated final model as a result of the realization of these assumptions, it is observed that ROA is positively affected from its lagged value at the significance level of 1%. According to this result, the companies that obtained a positive ROA in the previous year also have a positive ROA in the current year. On the contrary, the companies that generated losses in the previous year also faced losses in the current year. On the other hand, QR does not statistically significantly affect ROA of the companies. According to this result, QR components such as cash and equivalents, marketable securities, accounts receivable have statistically neither positive nor negative effect on ROA of the companies. Accordingly, it is not reasonable to assume that companies with higher QR have higher ROA and companies with lower QR have less ROA. Therefore, the hypothesis " H_{1-0} : There is no significant relationship between ROA and QR" is not able to be rejected.

On the other hand, it is observed that there is a statistically significant relationship between ITR and ROA at the significance level 1%. According to this result, while the increase of ITR of the companies decreases their ROA, the decrease of ITR increases their ROA. Therefore, there is a negative relationship between ITR and ROA of the companies. Therefore, the hypothesis formulated as " H_{2-0} : There is no significant relationship between ROA and ITR" is rejected.

Additionally, it is observed that there is a positive relationship between RTR and ROA. According to this result, the decrease in RTR of the companies decreases their ROA. In the opposite case, collection of receivables of the companies in the short term, that is to say the increase in RTR, increases ROA of the companies. However, this result is not statistically significant at the significance levels of 1%, 5% and 10%. Therefore, the hypothesis formulated as " H_{3-0} : There is no significant relationship between ROA and RTR" is accepted. This situation is a result that could be encountered in the literature, but usually the opposite case is observed.

4.2.2. Model 2: System GMM estimation results investigating the relation between return on equity and liquidity variables

Model 2 investigates the relationship between ROE as the dependent variable and liquidity variables (ITR, RTR, QR) in the study and its regression equation and hypotheses are as follows;

Regression equation is:

$$ROE_{i,t} = \beta_0 ROE_{i,t-1} + \beta_1 ITR_{i,t} + \delta_1 RTR_{i,t} + \gamma_1 QR_{i,t} + \varepsilon_{it} \quad (4.2)$$

Hypotheses are:

- H₄₋₀: There is no significant relationship between ROE and QR.
- H₄₋₁: There is significant relationship between ROE and QR.
- H₅₋₀: There is no significant relationship between ROE and ITR.
- H₅₋₁: There is significant relationship between ROE and ITR.
- H₆₋₀: There is no significant relationship between ROE and RTR.
- H₆₋₁: There is significant relationship between ROE and RTR.

and System GMM analysis results related to Model 2 are presented in Table 4.5.

Table 4.5. Model 2 Analysis Results of the Relationship Between ROE and Liquidity Variables

Model 2	
Dependent Variable: ROE_{i,t}	
ROE_{i,t-1}	-0.1459 (0.235)
QR_{i,t}	-1.1029 (0.071)***
ITR_{i,t}	-0.1416 (0.556)
RTR_{i,t}	-0.0055 (0.744)
Wald (<i>p-value</i>)	(0.001)*
AR(2) (<i>p-value</i>)	(0.498)
Sargan (<i>p-value</i>)	(0.925)

Note: P values are shown in parentheses. *, **, *** denotes significance level at 1%, 5% & 10% levels, respectively.

When looked at the test results to determine whether the model, that is estimated in order to examine the relationship between ROE and liquidity variables, is consistent with the dynamic panel data assumptions, it is observed that there is no autocorrelation problem in the model, because the result of AR(2) test (p value of $AR(2)=0.498>0.05$) is insignificant as expected. When the result of Sargan test is examined; high p value of sargan statistic ($p=0.925>0.05$) indicates that the instrumental variables are valid, in other words overidentifying restrictions are valid in the model. On the other hand, according to Wald test result it is seen that model is significant as a whole.

Considering the results of the System GMM analysis of the estimated final model as a result of the realization of these assumptions, it is observed in this analysis result that there is no relationship between ROE and its lagged value. On the other hand, QR has a statistically significantly and negative effect on ROE of the companies at the significance level of 10%. According to this result while the increase of QR of the companies decreases their ROE, the decrease of QR increases their ROE. Therefore, the hypothesis formulated as " H_{4-0} : There is no significant relationship between ROE and QR" is rejected.

When the effect of ITR on ROE is examined, it is found that there is an inverse relationship between these variables. According to this result, companies which have increased their ITR faced decrease in ROE. On the contrary, companies which have decreased ITR faced increase in ROE. However, this result is not statistically significant at all three levels of significance. Hence, the hypothesis " H_{5-0} : There is no significant relationship between ROE and ITR" is accepted.

On the other hand, when the relationship between RTR and ROE is considered, while the increase in RTR decreases ROE; the decrease in RTR increases ROE. This negative relationship between RTR and ROE is observed as statistically insignificant. According to this result, the hypothesis " H_{6-0} : There is no significant relationship between ROE and RTR" is accepted.

4.2.3. Model 3: System GMM estimation results investigating the relation between net profit margin and liquidity variables

Model 3 investigates the relationship between NPM and liquidity variables (ITR, RTR, QR). Its regression equation and hypothesis are as follows;

Regression equation is:

$$\text{NPM}_{i,t} = \beta_0 \text{NPM}_{i,t-1} + \beta_1 \text{RTR}_{i,t} + \delta_1 \text{RTR}_{i,t} + \gamma_1 \text{QTR}_{i,t} + \varepsilon_{it} \quad (4.3)$$

Hypotheses are:

- H_{7-0} : There is no significant relationship between NPM and QR.
- H_{7-1} : There is significant relationship between NPM and QR.
- H_{8-0} : There is no significant relationship between NPM and ITR.
- H_{8-1} : There is significant relationship between NPM and ITR.
- H_{9-0} : There is no significant relationship between NPM and RTR.
- H_{9-1} : There is significant relationship between NPM and RTR.

and System GMM analysis results related to Model 3 are presented in Table 4.6.

Table 4.6. Model 3 Analysis Results of the Relationship Between NPM and Liquidity Variables

Model 3	
Dependent Variable: $\text{NPM}_{i,t}$	
$\text{NPM}_{i,t-1}$	0.7194 (0.001)*
$\text{QR}_{i,t}$	-0.0552 (0.087)***
$\text{ITR}_{i,t}$	-0.0003 (0.595)
$\text{RTR}_{i,t}$	0.0003 (0.376)
Wald (<i>p-value</i>)	(0.000)*
AR(2) (<i>p-value</i>)	(0.874)
Sargan (<i>p-value</i>)	(0.753)

Note: P values are shown in parentheses. *, **, *** denotes significance level at 1%, 5% & 10% levels, respectively.

When looked at the test results to determine whether the model, that is estimated in order to examine the relationship between NPM and liquidity variables, is consistent with the dynamic panel data assumptions, as in the previous models, it is also observed that there is no autocorrelation and validity problem in the model. Considering the assumption of not having a second order autocorrelation for GMM dynamic panel estimators to be efficient, as a result of the analysis performed, it is observed that AR (2) test result, which measures second order autocorrelation in the model, is insignificant as expected, in other words p value of $AR(2) = 0.874 > 0.05$. Therefore, there is no autocorrelation problem in the model. In addition, high p value of sargan statistic ($p = 0.753 > 0.05$) shows that the instrumental variables are valid as a result of Sargan test. Accordingly, there is no validity problem in the estimated model, in other words the instrumental variables used in the estimated model are not correlated with the error term and they are valid. On the other hand, according to Wald test result it is seen that model is significant as a whole.

Considering the results of System GMM analysis of the estimated final model as a result of the realization of these assumptions, it is observed that NPM is positively affected from its lagged value at the significance level of 1%. According to this result, the companies that obtained high NPM in the previous year also have high NPM in the current year. On the contrary, the companies that obtained low NPM in the previous year also have low NPM in the current year.

On the other hand, when we look at the relationship between NPM and QR, it is observed that there is a statistically significant negative relationship between these variables at the significance level of 10%. According to this result, while the increase of QR of the companies decreases their NPM, the decrease of the QR increases their NPM. Therefore, the hypothesis formulated as " H_{7-0} : There is no significant relationship between NPM and QR" is rejected.

When the relationship between NPM and ITR is examined, it is found that there is a negative relationship between these variables. According to this result, companies which have increased their ITR faced decrease in NPM. On the contrary, companies

which have decreased ITR faced increase in NPM. However, this result is not statistically significant at all three levels of significance. Hence, the hypothesis " H_{8-0} : There is no significant relationship between NPM and ITR" is accepted.

On the other hand, when the relationship between NPM and RTR is considered, while the increase in RTR increases NPM; the decrease in RTR decreases NPM. This positive relationship between RTR and NPM is observed as statistically insignificant. According to this result, the hypothesis " H_{9-0} : There is no significant relationship between NPM and RTR" is accepted



5. DISCUSSION AND CONCLUSION

Today, enterprises operate in intensive competition environment both in domestic and foreign markets. Liquidity management, profitability and maintaining an optimal balance between these gained importance in order for enterprises to survive in this intense competitive environment, to continue their daily operations effectively and productively, to pay off their debts at due date, to realize their short and long term plans successfully.

In this study, the financial performances of the companies in the retail trade sector and traded in the ISE were analyzed through the variables of liquidity and profitability. In the study, firstly, it was revealed whether the companies in the sector have the solvency for their short-term obligations through the liquidity ratios obtained by the ratio analysis method. And then, the relationship between the liquidity and profitability ratios of these companies was investigated.

Liquidity ratios are the significant ratios used to measure the solvency for the short-term liabilities of enterprises in the sector and to assess the adequacy of their liquidity. In this study, QR, ITR and RTR were used as liquidity variables. The effect of these ratios, which are used as independent variables, on profitability variables, which are considered as dependent variable, was investigated by System GMM method which is a dynamic panel data estimation method. In the study, ROE, ROA and NPM were used as profitability variables. While ROE is expressed as the ratio of the net profit of the enterprise to the total equities, ROA is expressed as the ratio of the net profit of the enterprise to total assets (Brealey et.al, 2012; Aktan & Bodur, 2006). However, NPM measures how well a company is profitable after deduction of all the expenses and taxes (İlarslan, 2011). ROE is of great importance to enterprises because it measures how much profit the shareholders will make in return for the investments they made in the enterprise. High ROE indicates that the equity of enterprise is used more effectively and efficiently. However, ROA also shows how efficiently the total assets are used. Therefore, the fact that this ratio is higher is a

desirable situation for the managers of enterprise. Similarly, the higher NPM is a positive indicator for enterprises. The fact that this ratio is high indicates that the enterprise follows appropriate investment, production, pricing and financing policies (Aydin et al., 2010).

A total of three different dynamic models and a total of 18 different hypotheses related to these models were developed in this study where profitability variables were considered as dependent variables and liquidity variables were considered as independent variables. Prior to testing these hypotheses, descriptive statistics results for each of the variables were obtained. Then, whether the series formed by these variables were stationary was tested using by panel unit root tests. Consistency tests were then applied for System GMM estimators. In the last step, the models were estimated by using System GMM estimation method and the developed hypotheses were tested.

First of all, considering the results of descriptive statistics tests, it is seen that in the sector, the highest and the lowest values of ITR are 85.92 and 1.83 respectively. The companies in the sector are also seen to have positive mean of inventory turnover (11,63) in the given period (2010-2015). It can be said that the enterprises with high inventory turnover can turn their inventories into cash in the shortest possible time, and that it is a sign that inventories are effectively managed. Furthermore, it can be said that the enterprises that can manage their inventories efficiently can determine the optimum inventory level which can reduce the inventory costs to the minimum level and can increase their profitability.

Similarly, RTR series has a positive mean value (60.46). In light of this information, when it is evaluated as 360 days a year, it can be said that these enterprises in the sector collecting their receivables approximately every 6 days have efficient receivables collection policy and they have not a significant problem in terms of liquidity. On the other hand, it is seen that the highest and the lowest values of RTR are 366.72 and 6.49 respectively

Considering the results of QR series, it is seen that the highest and lowest values of QR are 0.13 and 1.85 respectively. On the other hand, this series has a positive mean value (0,55). Despite of being different in every sector, this ratio is considered to be sufficient in case it equals to 1 (Çabuk & Lazol, 2005). However, if this ratio is less than 1 or equal to 1, it is not always a sign that the liquidity position of the enterprise is bad or good. If the company has highly convertible inventories and it can collect its accounts receivable in short time, the fact that this ratio is less than 1 may not be a problem for the enterprise.

Considering the results of the analysis of ROE series which is one of the profitability variables, similarly, this series was also found to have a positive mean (1,41%). In light of this information, it can be said that the sector has a profitable structure in general. On the other hand, it was determined that ROE was negative in some periods in the sector. Additionally, the highest and the lowest values of ROE were found 49.09% and -123.59%, respectively. Similarly, ROA series appears to have a positive mean (0.53%), even at low levels. The lowest ROA value in this sector where the maximum ROA value was calculated as 17.90% was calculated as -37.63%. The fact that the difference between the maximum and minimum values was lower than in ROE series indicated that this series was more stabile.

Finally, considering the descriptive statistic analysis results of NPM series, the sector was found to have a negative mean of NPM in the given period. According to this result, the existence of non profitable enterprises together with the existence of profitable enterprises in the sector also appeared. In other words, it can be said that every enterprise in the sector does not operate at the same efficiency level. When we look at the highest and the lowest value of NPM as the indicators of this situation, it is observed that the highest and the lowest NPM values are 7.98% and -29.77%, respectively.

After the descriptive statistics tests, panel unit tests were applied to investigate whether the series are stationary. According to result of these tests, it was seen that all series were stationary at level and they had no unit roots.

After that, three basic tests were applied to control the dynamic panel data assumptions. These are Sargan, Arellano-Bold autocorrelation and Wald tests. In the first step, Wald test is applied to determine whether the models are significant as a whole. In the next step, Sargan test are applied to examine the validity of instrumental variables (checking whether there is a correlation between error term and explanatory variables). In the last step, the autocorrelation in the models are checked by the Arellano-Bold autocorrelation test. This test is applied to the residuals in differences. As a result of this test, second order autocorrelation should not occur for GMM dynamic panel estimators to be efficient. For second order autocorrelation, the null hypothesis " H_0 : There is no autocorrelation" is formulated and H_0 is expected to be accepted (Tatoğlu, 2012; Roodman, 2009).

Considering the results of Wald test in this direction, it is seen that models are significant as a whole. In other words, the independent variables as a whole in each models have a statistically significant effect at 1% level on the dependent variables.

On the other hand, when looking at results of Sargan test, high p values of Sargan statistics obtained ($p > 0.05$) indicate that the instrumental variables used in the models are valid. Accordingly, there is no validity problem in the models, in the other words, the instrumental variables used in the estimated models are not correlated with the error term and overidentifying restrictions are valid.

Additionally, p values of AR (2) test were checked to determine whether there was second order autocorrelation in the models. These results showed that p values of $AR(2) > 0.05$. Therefore, these results revealed that there was no second order autocorrelation in the estimated models.

When the results of System GMM analysis on the estimated final models were examined as a consequence of the realization of these assumptions, a statistically significant and negative relationship was found between ROA, one of the dependent variables of the study, and ITR, one of the independent variables. This shows that enterprises which have sufficiently high levels of inventory decrease costs of

disruption in the production process and business loss because of shortage of products. Having high levels of inventories also protects enterprises against price fluctuations, uncertainties in demand and decreases the enterprises supply costs. As a result of all this, the profitability of the enterprises is affected positively.

On the other hand, over increase in inventory turnover might cause inventory shortage. In this case, the enterprises may face with the cost of not carrying inventory. In other words, the enterprises might not fulfill order in time and they might have a loss of business. This might cause narrowing their market share and decreasing their profitability in long term.

Considering the relationship between RTR which is another independent variable of the study and ROA which is the dependent variable, a positive relationship between these two variables was found. According to this result, the decrease in RTR of the enterprises decreases their ROA. On the contrary, the collection of the receivables of the enterprises in shorter period, that is to say the increase in RTR, increases ROA of the enterprises. However, this result was not statistically significant at 1%, 5% and 10% significance levels. Receivables turnover basically indicates that how many times the company can collect its receivables in a year. Because the extension of this period increases the cash needs of the enterprise, the necessity of debt will emerge. In this case, the cost of debt will decrease the profitability of the enterprise. On the other hand, because an enterprise with a high receivables turnover have the high circulation of cash and cash equivalents, the liquidity-related problems in the short term is not expected. Because the collection of short-term receivables at high speed in terms of liquidity management prevents possible using debt, it has a positive impact on profitability. The theoretical expectation in the researches performed is that there is a statistically significant and positive relationship between RTR and ROA. However, the results obtained after the statistical tests made contradict the theoretical expectation. This result can be attributed to the fact that the enterprises subject to the examination have a cash-based sales sytem rather than a receivable-based sales system. The large number of the enterprises with supermarket/hypermarket formats especially in the examined sector can be one of the important

factors of this outcome. Hence, because the fact that these enterprises take an important place in the index subject to examination and create sales without on credit, any relationship between RTR and profitability variables may not be find. This result is consistent with the results of studies performed by Ajanthan (2013), Demireli et al. (2014), Karadeniz and İskenderoğlu (2011), Küller and Demirgüneş (2007) who also indicated that there was no relationship between ROA and RTR.

Similarly, it is seen that QR, another independent variable, does not affect ROA of the enterprises at statistically significant level. According to this result, the most liquid assets, held in the hands of the enterprises have neither a positive nor negative effect on ROA of the enterprises. The enterprises in the retail trade sector and traded in ISE were included in the analysis in this study and the fact that such enterprises operate with high inventory amount is an important detail. Considering the fact that QR measures the liquidity sufficiency as a result of the exclusion of inventories from current assets, the inventories were found to have an important place in current assets of the enterprises subject to investigation. Therefore, in calculating QR, the result obtained by proportioning the value reached after excluding inventories from current assets to current liabilities is much lower than CR. This result also shows that inventories have a significant place among the current assets of the enterprises. Because of this effect, QR of the enterprises in the sector are not expected to have any significant effect on the profitability ratios. The result obtained from the study also supports this argument. As mentioned before, it can be said that this situation arises from the fact that the companies analyzed within the scope of the study operate with the inventory intensive capital structure. This result is consistent with the results of studies performed by Ajanthan (2013), Rehman et al. (2015), Sayaduzzaman (2006), Saleem and Rehman (2011) who also indicated that there was no relationship between ROA and QR.

Considering the relationship between ROE, another dependent variable, and QR, the independent variable, it is seen that there is a statistically significant negative relationship between these two variables at the significance level of 10%. According to this result, it can be said that the enterprises with high QR have low ROE and the

enterprises with low QR have high ROE. QR is increasing and decreasing in direct proportion to the amount of liquid assets held by the enterprises in order to eliminate the possible liquidity problems. ROE of enterprises increases naturally because low QR means that enterprises use the funds in their hands with maximum efficiency.

On the other hand, ITR another independent variable was found to not affect ROE of the enterprises at a statistically significant level. Lower ITR of enterprises can cause them to need more liquidity. When enterprises need liquidity, the first applied resources by enterprises is the credit institutions, not the shareholders. Because the cost of debt is higher than the cost of equity, an interest payment emerges due to this transaction. While the fact that the enterprise pays a portion of its profits for the interest and principal of the loan used affects ROA, it does not affect ROE. The fact that ROE is not affected by this change is due to the fact that equity amount of the enterprise has not changed. Therefore, the fact that the liquidity need arising due to low inventory turnover is usually met by using debt and the amount of equity has not changed can be shown as a reason for the statistically insignificant relationship between ITR and ROE. In other words, this situation is in fact related to the enterprise's preference for using funds and is a likely result.

Considering the relationship between RTR, another independent variable of the study, and ROE, the dependent variable, it was found that there was an inverse relationship between these two variables but this relationship was not statistically significant. In other words, it can be said that there is no significant effect of RTR of the enterprises on ROE. A result similar to the result of the relationship between ITR and ROE was seen for the relationship between RTR and ROE and similar reasons apply to the results of the relationship between the two variables in question. Enterprises with low receivables turnover need more liquidity. Enterprises obtain this liquidity from the foreign sources (as loan) which are more cost effective. This does not cause any change in the amount of equity. The repayment of principal and interest of the used loan directly affects ROA, but has a limited or no effect on the ROE. According to the results of the study, although increasing or decreasing RTR variable was found to have an effect on reducing or enhancing ROE variable, this

result was found to be not statistically significant. Additionally, the findings obtained are consistent with the results of the study performed by Demireli et al. (2014) who indicated that there was no relationship between ROE and RTR.

Considering the relationship between NPM, the last dependent variable of the study, and QR, the independent variable, it was found that there was a statistically significant negative relationship between the two variables at the significance level of 10%. According to this result, if QR of enterprises increases, their NPM decreases or if QR of enterprises decreases, their NPM increases. The reason is that the enterprises have or do not have idle funds. If the enterprise holds more than the optimum amount of liquid fund in its hand, this will cause the funds of the enterprise to remain idle and not to be used for more profitable investments. As a result, NPM of these enterprises can decrease. On the contrary, if enterprises can use liquid funds above the optimum level more effectively and productively, they can increase their NPM. This relationship between NPM and QR is statistically significant at the significance level of 10% and is a matter that should be carefully monitored by managers of enterprises. Moreover, this result is consistent with the theoretical expectation, and it is also parallel with the study performed by Lairodi et al. (1999) who indicated a negative relationship between NPM and QR.

Given the relationship between ITR, another independent variable, and NPM, the dependent variable, it was observed that ITR have a negative impact on NPM. In other words, if ITR of enterprises increase, their NPM decreases or if ITR of enterprises decrease, their NPM increases. The way to the pricing strategies which are a step in the marketing activities intensely used by enterprises that want to increase their market share in the market are through the fact that the price of the products sold by the enterprise is lowered compared to their competitors. At this stage, the sales of the enterprises which reduce price of the products increase, this situation indirectly leads to an increase in inventory turnover of enterprises. At the end of this situation, net profit per unit of the enterprise has decreased due to the sales volume that will be obtained due to the price reductions that led to the increase in inventory turnover. Another reason for the negative relationship between

inventory turnover and NPM is that production costs, management and sales costs may have increased faster than the increase in sales volume.

Considering the relationship between RTR and NPM, a positive relationship between these two variables was found. According to this result, the decreases in RTR of the enterprises increases their NPM. On the contrary, the collection of the receivables of the enterprises in shorter period, that is to say the increase in RTR, increases NPM of the enterprises. However, this result was not statistically significant at 1%, 5% and 10% significance levels. As mentioned earlier, receivables turnover basically indicates that how many times the company can collect its receivables in a year. Because the extension of this period increases the cash needs of the enterprise, the necessity of debt will emerge. In this case, the cost of debt will decrease the profitability of the enterprise. On the other hand, because an enterprise with a high receivables turnover have the high circulation of cash and cash equivalents, the liquidity-related problems in the short term is not expected. Because the collection of short-term receivables at high speed in terms of liquidity management prevents possible using debt, it has a positive impact on profitability. The theoretical expectation in the researches performed is that there is a statistically significant and positive relationship between RTR and NPM. However, the results obtained after the statistical tests made contradict the theoretical expectation. This result can be attributed to the fact that the enterprises subject to the examination have a cash-based sales sytem rather than a receivable-based sales system. The large number of the enterprises with supermarket/ hypermarket formats especially in the examined sector can be one of the important factors of this outcome. Hence, because the fact that these enterprises take an important place in the index subject to examination and create sales without on credit, any relationship between receivables turnover and profitability variables may not be find. Moreover, this result obtained is parallel to results of the study performed by Toraman and Sönmez (2015).

5.1. Recommendations for Managers

Liquidity management became one of the most important instruments of efficient and effective company management. If the level of optimal liquidity is not caught, it is likely that the long-term plans of the company will be affected as well as the disruption of the daily operational activities. Liquidity inadequacy may cause the disruption of the daily operations of the companies, and problems caused by liquidity inadequacy may also mean that the company has trouble with all shareholders. The use of foreign resources, which is seen as a way of getting rid of this emerging situation, will cause the companies to become more risky. Increased risk premium caused by the fact that the companies became more risky will increase the cost of debt. This will ultimately increase WACC of the companies. An company with an increased WACC will reduce its profitability and this situation will cause the partners of the company to oversee the partnership situation. In this respect, increasing profitability through effective liquidity management by company managers is at the forefront of what should be paid attention to for the continuity and stability of the company.

Generally, it is observed that tie up excessive liquid funds on inventories and receivables cause decrease in the indicators of profitability of companies. Accordingly, managers should give up the application of tying excessive liquid funds on their inventories and receivables and determine the optimal level for both situations because they may create liquidity problem. Moreover, the fact that company managers have unnecessarily high amounts of liquid assets by acting more cautious than adequate has a negative effect on profitability variables. Hence, managers should determine the optimal liquidity level and focus on WCM accordingly. In this way, the daily operations of the company can be continued efficiently as well as the financial risks that may be encountered can be minimized and the opportunities can be turned to advantage.

5.2. The Limitations of the Study

The most important limitation of this study is about data set. Despite the existence of a large number of companies operating in retail trade sector in Turkey, due to the fact that there was a problem about gathering financial data of these companies, only the companies in retail trade sector, which are traded in ISE, were included in the study. The fact that the number of companies that are traded in ISE is only 11, led to limited data set of the study at this point. Although indexing period of companies went back till 1997, the number of indexed companies is not continuous and the financial data of some companies can not be reached. That's why, dataset period was considered as 2010-2015 period. The 6 years data set for this period was obtained from the annual financial statements of the companies.

5.3. Suggestions for Future Studies

In this study, 11 companies operating in the retail trade sector that are traded in ISE due to data limitation were analyzed using the financial data for the period 2010-2015. It is suggested that this study is performed on another sector with a more comprehensive data set covering the longer period and using a larger number of companies, by using the same variables and the same analysis method. In this respect, BIST Bank Index (XBANK), which has a relatively high number of companies and a relatively large number of retrospective data, can be considered as a study in which the GMM method can be used on the axis of liquidity and profitability. Moreover, this study was conducted on only companies in the retail trade sector operating in Turkey. It is suggested that next studies should include companies operating in the same or different sectors in different countries.

REFERENCES

- Afza, T. & Nazir, M. S. (2008), Working Capital Approaches and Firm's Profitability in Pakistan, *Pakistan Journal of Commerce and Social Sciences*, 1, 25-36.
- Ahmadi, M., Arasi, I. S., Garajafary, M. & Branch, A. (2012), Studying the Relationship between Working Capital Management and Profitability at Tehran Stock Exchange: A Case Study of Food Industry. *Research Journal of Applied Sciences, Engineering and Technology*, 4(13), 1868-1874.
- Ajanthan, A. (2013), A Nexus Between Liquidity & Profitability: A Study Of Trading Companies In Sri Lanka. *European Journal of Business and Management*, 5(7), 221-237.
- Akbulut, R. (2011), İMKB'de İmalat Sektöründeki İşletmelerde İşletme Sermayesi Yönetiminin Karlılık Üzerindeki Etkisini Ölçmeye Yönelik Bir Araştırma, *İstanbul Üniversitesi İşletme Fakültesi Dergisi*, 40 (2), 195-206.
- Akgüç, Ö. (1994), *Finansal Yönetim*, 6.Baskı, Muhasebe Enstitüsü Yayını, İstanbul.
- Akgüç, Ö. (2011), *Mali Tablolar Analizi*, Avcıol Basım-Yayın, İstanbul.
- Akhtar, S., İbrahim, M., Riaz, M., Abbas, M. & Asif, M. (2015), Impact of Liquidity on Profitability in Sugar Sector of Pakistan. *Research Journal of Finance and Accounting*, 6(15), 10-19.
- Aktan, B. ve Bodur, B. (2006), Oranlar Aracılığı ile Finansal Durumumuzu Nasıl Çözümlersiniz?, *Yaşar Üniversitesi Dergisi*, 1, 49-67.
- Aksoy, E. E. (2013), İşletme Sermayesi Yönetimi ile Firma Performansı İlişkisi: 2008 Krizi Örneği. *Finans Politik & Ekonomik Yorumlar*, 50, 586.
- Aksoy, A. ve Yalçın, K. (2008), *İşletme Sermayesi Yönetimi*, Gazi Kitabevi, İstanbul.
- Alagöz, A. (1993), Sanayi İşletmelerinde Çalınma Sermayesi Yönetimi ve Bir Uygulama, *Yüksek Lisans Tezi*, Selçuk Üniversitesi, Sosyal Bilimler Enstitüsü: Konya.
- Albayrak, A. S. ve Akbulut, R. (2008), Karlılığı Etkileyen Faktörler: İMKB Sanayi ve Hizmet Sektörlerinde İşlem Gören İşletmeler Üzerine Bir İnceleme. *Zonguldak Karaelmas Üniversitesi Sosyal Bilimler Dergisi*, 4(7), 55-83.
- Allen, F. & Bolton, P. (2004), Liquidity and Financial Instability: An Introduction. *Journal of the European Economic Association*, 2(6), 925-928.
- Allman-Ward, M. & Sagner, J. (2003), *Essentials of Managing Corporate Cash*, John Wiley & Sons, New Jersey.

- Altan, M., ve Şekeroğlu, G. (2013), Çalışma Sermayesi Finanslama Stratejilerinin Firma Karlılığı Üzerine Etkileri: İMKB’de Kayıtlı Firmalar Üzerinde Bir Araştırma. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 30, 223-228.
- Altuğ, O. (1988), *Finansal Yönetim İlkeler, Uygulamalar*, Marmara Üniversitesi Yayınları, İstanbul.
- Altuğ, F. (2010), Finansal Analiz Sürecinde SistematiK Bir Yaklaşım ve Öneriler, *Doktora Tezi*, Marmara Üniversitesi, Sosyal Bilimler Enstitüsü: İstanbul.
- Apak, S. ve Demirel, E. (2010), *Finansal Yönetim*, Papatya Yayıncılık, İstanbul.
- Appuhami, B. & Ranjith, A. (2008), The Impact of Firms’ Capital Expenditure on Working Capital Management: An Empirical Study Across Industries in Thailand. *International Management Review*, 4(1), 8-21.
- Arellano, M. & Bond, S. (1991), Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations, *The Review of Economic Studies*, 58, 277 – 297.
- Arıkbay, C. (1996), *Perakendecilikte Gelişmeler ve Yeni Yaklaşımlar*, Milli Produktivite Merkezi Yayınları, Ankara.
- Aslan, A., & Kula, F. (2008), Türkiye İmalat Sanayinde Fiyat-Maliyet Marjları: Dönemler ve Sektörler İtibariyle Karşılaştırmalı Bir Analiz, 2. Ulusal İktisat Kongresi, 20-22 şubat, Dokuz Eylül Üniversitesi, İzmir. 01.02.2017 tarihinde https://www.researchgate.net/profile/Ferit_Kula adresinden alınmıştır.
- Aşıkoğlu, R., Demir, S., Kaderli, Y. & Çelikkol, Y. (2011), *Yatırım Projelerinin Hazırlanması Değerlendirilmesi ve Realize Edilmesi*. 2.Baskı, SözkeseN Matbaacılık, Ankara.
- Ata, H. A., Gür, F. A. ve Yakut, E. (2008), Çalışma Sermayesi Yönetimi ve Karlılık İlişkisi: İmalat Sektörü Uygulaması, *12.Ulusal Finans Sempozyumu*, 223-237, Kayseri.
- Ayaydın, H. ve Karaaslan, İ. (2014), Likidite Riski Yönetimi: Türk Bankacılık Sektörü Üzerine Bir Araştırma. *Gümüşhane Üniversitesi Sosyal Bilimler Elektronik Dergisi*, 11, 237-256.
- Aydın, K. (2005), *Perakende Yönetiminin Temelleri*, Nobel Yayın Dağıtım, Ankara.
- Aydın, N. (2008), *Finansal Yönetim*, T.C. Anadolu Üniversitesi Yayınları, Eskişehir.
- Aydın N., Başar M. & Coşkun M. (2010), *Finansal Yönetim*, Detay Yayıncılık, Ankara.
- Aygün, M. (2012), Firma Performansı Üzerinde Çalışma Sermayesinin Etkisi: Türk İmalat Sektörü Üzerine Bir Uygulama. *Ege Akademik Bakış*, 12(2), 215-223.

- Aypek, N. (2014), *Finansal Yönetimin Temelleri*, Nobel Yayıncılık, Ankara.
- Aytekin, S. ve Güler, S. (2014), Nakit Dönüş Süresi ve Karlılık Arasındaki İlişkinin Belirlenmesi: BİST Taş ve Toprağa Dayalı Sanayi Endeksi'nde (XTAST) Ampirik Bir Uygulama. *Kafkas Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 5(8), 79-98.
- Aytürk, Y. ve Yank, S. (2015), Çalışma Sermayesi Yönetimi Türkiye'deki KOBİ'lerde Karlılığı Nasıl Etkiler? *Muhasebe ve Finansman Dergisi*, Ekim, 157-167.
- Azabağaoğlu, M. Ö. (1999), Türkiye'de Süpermarket-Hipermarket Perakendeciliği Hareketi ve Tüketici Davranışı, *Doktora Tezi*, Trakya Üniversitesi, Fen Bilimleri Enstitüsü: Tekirdağ.
- Bagchi, B. & Chakrabarti, J. (2014) Modeling Liquidity Management for Indian FMCG Firms, *International Journal of Commerce and Management*, 24(4), 334-354.
- Bagchi, B. & Khamrui, K. (2012), Relationship Between Working Capital Management and Profitability: A Study of Selected FMCG Companies in India. *Business and Economics Journal*, 2012, 1-11.
- Baltagi, B. H. (2005), *Econometrics Analysis of Panel Data*, 3th Edition, John Wiley & Sons Ltd., West Sussex, UK.
- Baltagi B. H. & Kao, C. (2000), Nonstationary Panels, Panel Cointegration and Dynamic Panels, *Advances in Econometrics*, 15, 7-52, JAI Press, Amsterdam.
- Bekci, İ., (2012), *Muhasebe Verilerinin Hisse Senedi Yatırımlarındaki Rolü*, Detay Yayıncılık, Ankara.
- Berk, N. (1998), *Finansal Yönetim*, Türkmen Kitapevi, İstanbul.
- Berk, J. & DeManzo, P. (2014), *Corporate Finance*, 3th Edition, Pearson Education Inc., New York.
- Beyaert, A. & Camacho, M. (2008), TAR Panel Unit Root Tests and Real Convergence: An Application to the EU Enlargement Process, *Review of Development Economics*, 12(3), 668-681.
- Bhunja, A., Khan, S. I. U. & Mukhuti, S. (2012), Prediction of Financial Distress-A Case Study of Indian Companies, *Asian Journal of Business Management*, 3(3), 210-218.
- Blundell, R. & Bond, S. (1998), Initial Conditions and Moment Restrictions in Dynamic Panel Data Models, *Journal of Econometrics*, 87, 115-143.
- Blundell, R., Bond, S. & Windmeijer, F. (2000), Estimation in Dynamic Panel Data

- Models: Improving on the Performance of the Standard GMM Estimator. *Advances in Econometrics*, 15, 53-91.
- Bocutoğlu, E. & Atasoy, Y. (2001), Yükselen Süpermarket Olgusu Karşısında Bakkaliye Sektörünün Yeri ve Trabzon Örneği. *Trabzon Esnaf ve Sanatkarlar Odaları Birliği (TESOB) Yayınları*, 1-13.
- Bolak, M. (1990), Beta Katsayıları Zaman İçinde Tutarlılık ve Portföy Etkisi. *Para Dergisi*, 1, 4.
- Bolek, M. (2013), Function Basing on the New Connect Market in Poland. *European Scientific Journal*, 9(28), 1-15.
- Boute, R., & Lambrecht, M. (2007), An Analysis of Inventory Turnover in the Belgian Manufacturing Industry, Wholesale and Retail and the Financial Impact on Inventory Reduction. *Electronic Journal*, 1-12.
- Brealey, R., Myers, S. C. & Marcus, A. J. (2012), *Fundamental of Corporate Finance*, McGraw Hill, New York.
- Brigham, E. F. & Houston, J. F. (2007), *Fundamentals of Financial Management*, 11th Edition, Thomson South Western, USA.
- Bulutoğlu, K. (2004), *Türk Vergi Sistemi*, Batı Türkeli Yayıncılık, İstanbul.
- Burucu, H., ve Öndeş, T. (2016), Türk İmalat Sanayi Firmalarının Sermaye Yapısını Etkileyen Faktörlerin Analizi. *Çankırı Karatekin Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 6 (1), 201-225.
- Büyüksalvarcı, A. ve Abdioğlu, H. (2010), Kriz Öncesi ve Kriz Dönemlerinde İşletmelerde Çalışma Sermayesi Gereksiniminin Belirleyicileri: İMKB İmalat Sanayi Şirketleri Üzerine Ampirik Bir Uygulama. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 24 (2), 47-71.
- Cengiz E. ve Özden, B. (2002), Perakendecilikte Büyük Alışveriş Merkezleri ve Tüketicilerin Büyük Alış Veriş Merkezleri İle İlgili Tutumlarını Tespit Etmeye Yönelik Bir Araştırma. *Ege Akademik Bakış, Ekonomi, Uluslararası İlişkiler ve Siyasi Bilimler Dergisi*, 2, 1-12.
- Ceylan, A. (1998), *İşletmelerde Finansal Yönetim*, 5. Baskı, Etkin Kitapevi, Bursa.
- Chaudhary, H. & Tripathi, G., (2012), An Analysis of Inventory Turnover and Its Impact on Financial Performance in Indian Organized Retail Industry. *Journal of Services Research*, 12(1), 43-64.
- Chiou, J.R., Cheng, L. & Wu, H.W. (2006), The Determinants of Working Capital Management. *Journal of American Academy of Business*, 10, 149–155.
- Choi, I. (2001), Unit Root Tests for Panel Data. *Journal of International Money and Finance*, 20, 249-272.

- Coşkun, E. ve Kök, D. (2011), Çalışma Sermayesi Politikalarının Kârlılık Üzerine Etkisi: Dinamik Panel Uygulaması. *Ege Akademik Bakış*, 11(Özel Sayı), 75-85.
- Coyle, J. J., Langley, C.J., Novack, R.A. & Gibson, B. (2012), *Supply Chain Management: A Logistic Perfective*, 9th Edition, South-Western College Pub, USA.
- Çabuk, A. & Lazoı, İ., (2005), *Mali Tablolar Analizi*, Nobel Yayınevi, Ankara.
- Çakır, A. (2000), Enflasyonist Ortamda Alacakların Yönetimi ve Sivas'ta Bir Uygulama. *Yüksek Lisan Tezi*, Cumhuriyet Üniversitesi, Sosyal Bilimler Enstitüsü: Sivas.
- Çakır, H. M. (2013), Nakit Döngüsünün Firma Kârlılığına Etkisinin Sektörel Analizi. *Yaşar Üniversitesi Dergisi*, 30(8), 4948-4965.
- Çetiner, E. (2010), *İşletmelerde Mali Analiz*, Gazi Kitabevi, Ankara.
- Çoban, S. (2014), The Interaction Between Firm Growth And Profitability: Evidence From Turkish Manufacturing Firms. *Bilgi Ekonomisi ve Yönetimi Dergisi*, 9(1), 41-50.
- Deloof, M. (2003), Does Working Capital Management Affect Profitability of Belgian Firms?, *Journal of Business Finance and Accounting*, 30 (3), 573-587.
- Deloitte (2017), Global Powers of Retailing 2017.
- Demirci Orel, F. ve Nakıboğlu, B. (2004), İndirimli Market Müşterilerinin Profili. *Pazarlama ve İletişim Kültürü Dergisi*, 3(10), 4-12.
- Demireli, E., Başcı, E. S. ve Karaca, S. S. (2014), İşletme Sermayesi ve Performans Göstergeleri Arasındaki İlişkiler: Borsa İstanbul Üzerine Bir Uygulama. *Ege Stratejik Araştırmalar Dergisi*, 5(1), 79-98.
- Demirgüneş, K. (2016), The Effect of Liquidity on Financial Performance: Evidence from Turkish Retail Industry. *International Journal of Economics and Finance* 8(4), 63-79.
- Drukker, D. M. (2010), An Introduction to GMM Estimation Using Stata. *Stata Conference and Users Group meetings*, June, 1-29. Retrieved from <https://www.stata.com/meeting/germany10> on 03-12-2016.
- Dursun, E. (2006), Gıda Ürünleri Pazarında Gıda Perakendeciliğinin Yeri Ve Sektörel Analiz, *Yüksek Lisans Tezi*, Trakya Üniversitesi, Fen Bilimleri Enstitüsü: Tekirdağ.

- Dursun, A. ve Ayriçay, Y. (2012), Çalışma Sermayesi-Karlılık İlişkisinin İMKB Örneğinde 1996-2005 Dönemi Analizi. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 26(3), 199-214.
- Erdoğan, T. (2003), Rekabet Hukuku Açısından Perakende Sektöründe Alım Gücü, *Uzmanlık Tezi*, Rekabet Kurumu Yayınları.
- Eljelly, A. M. (2004), Liquidity – Profitability Tradeoff: An Empirical Investigation in an Emerging Market. *International Journal of Commerce and Management*, 14(2), 48-61.
- Euler Hermes (2016), Turkey Country Report.
- Filiz, Y. (2009), Çalışma Sermayesi Yönetiminin Firma Karlılığı Üzerine Etkileri: İMKB Şirketleri Üzerine Bir Uygulama, *Yüksek Lisans Tezi*, Atatürk Üniversitesi Sosyal Bilimler Enstitüsü: Erzurum.
- Fisher, R.A. (1932), *Statistical Methods for Research Workers*, Oliver and Boyd, Edinburgh.
- Gambarov, V. (2007), Perakendeci Mağazalarda Atmosfer: Azerbaycan'da Tüketicilerin Mağaza Seçimini etkileyen Faktörler Üzerine Bir Araştırma, *Yüksek Lisans Tezi*, Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü: İzmir.
- German, G. A. & Leed, T. W. (1994), *Food Merchandising: Principles and Practices*, Lebharr-Friedman, New York.
- Gilbert, D. (1999), *Retail Marketing Management*, Prentice Hall, UK.
- Gill, A., Biger, N. & Mathur, N. (2010), The Relationship Between Working Capital Management And Profitability: Evidence From The United States. *Business and Economics Journal*, 10(1), 1-9.
- Goddarda, J., Tavakolib, M. & Wilson, J.O.S., (2005), Determinants of Profitability in European Manufacturing and Services: Evidence from a Dynamic Panel Model. *Applied Financial Economics*, 15, 1269–1282.
- Greene, W. H. (2002), *Economic Analysis*, 5th Edition, Prentice Hall, New Jersey.
- Gül, E., & Kamacı, A. (2012). Dış Ticaretin Büyüme Üzerine Etkileri: Bir Panel Veri Analizi. *Uluslararası Alanya İşletme Fakültesi Dergisi*, 4(3), 81-91.
- Gülhan, Ü., ve Uzunlar, E. (2011), Bankacılık Sektöründe Kârlılığı Etkileyen Faktörler: Türk Bankacılık Sektörüne Yönelik Bir Uygulama. *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 15 (1), 341-368.
- Güneş, N. (2015), Banka Kârlılığının Belirleyicileri: 2002-2012 Dönemi Türk Mevduat Bankaları Üzerine Bir İnceleme. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 20(3), 265-282.

- Güngör B., Öz, Y. (2007), Çalışma Sermayesi Yönetiminin Firma Kârlılığı Üzerine Etkisi: İmalat Sektörüne Yönelik Panel Veri Analizi. *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 10(2), 319-332.
- Gürman, A. A. (2006), Dünya Perakendeciliğinde Globalleşme Eğilimleri ve Türk Perakendecilik Sektörüne Etkileri, *Yüksek Lisans Tezi*, Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü: İzmir.
- Güvemli, Ö. (1977), *İşletmelerde Nakit Akışı Planlaması*, Çağlayan Kitap Evi, İstanbul.
- Hadri, K. (2000), Testing for Stationarity in Heterogenous Panels. *Econometrics Journal*, 3, 148-161.
- Hansen, P. L. (1982), Large Sample Properties of Generalized Method of Moments Estimators, *Econometrica: Journal of the Econometric Society*, 50(4), 1029-54.
- Hasty, R. & Reardon, J. (1997), *Retail Management*, McGraw Hill, New York.
- Herwartz, H. & Siedenburg, F. (2008), Homogenous Panel Unit Root Tests under Cross Sectional Dependence: Finite Sample Modifications and the Wild Bootstrap, *Computational Statistics & Data Analysis*, 53(1), 137-150.
- Hsiao, C. (2002), *Analysis of Panel Data*, 2nd Edition, Cambridge University Pres, UK.
- Holtz-Eakin, D., Newey, W. & Rosen, H. (1988), Estimating Vector Autoregressions with Panel Data, *Econometrica*, 56, 1371 – 1395.
- Im, K. S., Pesaran, M. H. & Shin, Y. (2003), Testing for Unit Roots in Heterogeneous Panels, *Journal of Econometrics*, 115(1), 53-74.
- İlarslan, K. (2011), Birleşme ve Satın Almaların Finansal Oranlar Yoluyla İşletmelerin Finansal Performansı Üzerindeki Etkisinin İncelenmesi, *Doktora Tezi*, Afyon Kocatepe Üniversitesi, Sosyal Bilimler Enstitüsü: Afyon.
- Karadeniz, E. ve Koşan, L. (2017), Hastane Hizmetleri Sektörünün Aktif ve Özsermaye Karlılık Performansının Analizi: Hastane Hizmetleri Sektör Bilançolarında Bir Araştırma, *İşletme ve İktisat Çalışmaları Dergisi*, 5(1), 37-47.
- Karadeniz, E. ve İskenderoğlu, Ö. (2011), İstanbul Menkul Kıymetler Borsası'nda İşlem Gören Turizm İşletmelerinin Aktif Kârlılığını Etkileyen Değişkenlerin Analizi. *Anatolia: Turizm Araştırmaları Dergisi*, 22(1), 65-75.

- Karacıoğlu, R. ve Özer, A. (2014), BİST’de Hisse Senedi Getirilerini Etkileyen Faktörlerin Belirlenmesi: Statik ve Dinamik Panel Veri Analizi. *Uludağ Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 33(1), 43-70.
- Kargar, J. & Blumenthal, R.A., (1994), Leverage Impact on Working Capital in Small Business, *TMA Journal*, 14(6), 46-53.
- Kaur, H. V., Singh, S. (2013), Managing efficiency and Profitability Through Working Capital: An Empirical Analysis of BSE 200 Companies. *Asian Journal of Business Management*, 5(2), 197-207.
- Kaya, B. F. (2009), Perakendecilik Sektöründe Müşteri Memnuniyeti Düzeyinin Belirlenmesi: İndirim Marketleri Üzerine Bir Uygulama, *Yüksek Lisans Tezi*, Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü: Adana.
- Kıracı, M. (2000), İşletmelerin Finansal Başarısızlığında Çalışma Sermayesi Yönetiminin Rolünün Oranlar Yardımıyla Tespiti ve Ampirik Bir Araştırma, *Yüksek Lisans Tezi*, Osmangazi Üniversitesi, Sosyal Bilimler Enstitüsü: Eskişehir.
- Kıracı, M. (2009), Stok Yönetimi ve Karlılık ilişkisinin Finansal Oranlar Yardımıyla İncelenmesi: İMKB İmalat Sektöründe Bir Araştırma. *ODTÜ Gelişme Dergisi*, 36 (Haziran), 161-195.
- Krenz, A., (2012), A Panel Co-integration Analysis of Industrial and Services Sectors' Agglomeration in the European Union, *Center for European Governance and Economic Development Research Discussion Papers*, 146.
- Kolb, R. W. & Rodriguez, R. J. (1996), *Financial Management*, Wiley-Blackwell, Vermont.
- Kolias, G. D., Dimelis, S. B. & Filios, V. P, (2011), An Empirical Analysis of Inventory Turnover Behaviour In Greek Retail Sector: 2000–2005. *International Journal of Production Economics*, 133(1), 143–153.
- Korkmaz, Ö. ve Karaca, S. S. (2014), Üretim İşletmelerinde Firma Karlılığının Finansal Belirleyicileri ve BİST İmalat Sanayi Uygulaması. *Ege Akademik Bakış*, 14(1), 21-29.
- Kotler, P. & Armstrong, G. (2008), *Principles of Marketing*, Prentice Hall, New Jersey.
- Kotler, P. & Keller, K. L. (2006), *Marketing Management*, Pearson Education, New Jersey.
- Külter, B. ve Demirgüneş, K. (2007), Perakendeci Firmalarda Karlılığı Etkileyen Değişkenler: Hisse Senetleri İMKB’de İşlem Gören Perakendeci Firmalar Üzerinde Ampirik Bir Çalışma. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 16(1), 445-460.

- Kumar, M., & Aswathanarayana, T. (2015), An Impact of Negative Working Capital on Profitability – A Case Study of Selected Cement Companies in India. *International Journal of Applied Research*, 1(9), 170-173.
- Kurşunluoğlu, E. (2011), Perakendecilikte Müşteri Hizmetleri Yolu İle Müşteri Memnuniyeti ve Sadakati Yaratılması: İzmir İlinde Bir Araştırma, *Doktora Tezi*, Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü: İzmir.
- Lartey, V. C., Antwi, S., & Boadi, E. K. (2013), The Relationship Between Liquidity and Profitability of Listed Banks in Ghana. *International Journal of Business and Social Science*, 4(3), 48-56.
- Lazaridies, I. & Tryfonidis, D. (2006), Relationship Between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange. *Journal of Financial Management and Analysis*, 19(1).
- Levin, A., Lin, C. F. & Chu, C. (2002), Unit Root Tests in Panel Data: Asymptotic and Finite Sample Properties, *Journal of Econometrics*, 108(1), 1-24.
- Levy, M. & Weitz, B. (2004), *Retailing Management*, Mc Graw-Hill, New York.
- Lewis, G. (1991), Strategic Management Concepts in US Food Retailing and Wholesaling, *International Journal of Retail & Distribution Management*, 19(6), 21-26
- Lyroutdi, K., Mc Carty, D., Lazaridis, J. & Chatzigagios, T. (1991), An Empirical Investigation of Liquidity: The Case of UK Firms, Presented at the Annual Financial Management Association Meeting in Orlando, October 1999.
- Maddala, G.S. & Wu, S. A. (1999), Comparative Study of Unit Root Tests with Panel Data and a New Simple Test, *Oxford Bulletin of Economics and Statistics*, 61, 631-652.
- Makori, D. M. & Jagongo, A. (2013), Working Capital Management and Firm Profitability: Empirical Evidence from Manufacturing and Construction Firms Listed on Nairobi Securities Exchange, Kenya. *International Journal of Accounting and Taxation*, 1(1), 1-14.
- Mekonnen, M. (2011), The Impacts of Working Capital Management of Firms Profitability, *Addis Ababa University*, Addis Ababa.
- Mileva, E., (2007) Using Arellano-Bond Dynamic Panel GMM Estimators in Stata: Tutorial with Examples Using Stata 9.0, Fordham University.
- Mucuk, İ. (1993), *Modern İşletmecilik Bilgisi*, Üniversite Vakfı Yayınları, İstanbul.

- Muscettola, M. (2014), CCC and Firm's Profitability: An Empirical Analysis on a Sample of 4,226 Manufacturing SMEs of Italy. *International Journal of Business and Management*, 9(5), 25-35.
- Nadaroğlu, H. (1996), *Kamu Maliyesi Teorisi*, 9.Baskı, Beta Basım Yayım Dağıtım A.Ş., İstanbul.
- Nazir, M. S. & Afza, T. (2009), Impact of Aggressive Working Capital Management Policy on Firms' Profitability, *The IUP Journal of Applied Finance*, 15(8), 19-30.
- Ngwenya, S. (2012), The Relationship Between Working Capital Management and Profitability of Companies Listed on the Johannesburg Stock Exchange. *Journal of Modern Accounting and Auditing*, 8(8), 1204-1213.
- Niresh, J. A. (2012), Trade-Off Between Liquidity & Profitability: A Study of Selected Manufacturing Firms in Sri Lanka. *Journal of Arts, Science & Commerce*, 3(4), 34-40.
- Oluç, M. (1963), *İşletme Organizasyonu ve Yönetimi*, Sermet Matbaa, İstanbul.
- Owolabi, S., Obiakor, R. & Okwu, A. (2011), Investigating Liquidity-Profitability Relationship in Business Organizations: A Study of Selected Quoted Companies in Nigeria. *British Journal of Economics, Finance and Management Sciences*, 1(2), 11-29.
- Önce, S. (2013), *Finansal Tablolar Analizi*, Anadolu Üniversitesi Açıköğretim Fakültesi Yayınları, Eskişehir.
- Özer, M. (1997), *Vergi Kanunları ve Tek Düzen Muhasebe Sistemi Kapsamı Mali Tablolar ve Finansal Analiz*, 587, 2. Baskı, Özkan Matbaacılık, Ankara.
- Pala, M. ve Saygı, B. (2004), Gıda Sanayinde Büyük Mağazaların Özel Markalı Ürün Uygulamaları. *İstanbul Ticaret Odası Yayınları*, 73, 18-19.
- Panigrahi, A. K. (2013), Liquidity Management of Indian Cement Companies – A Comparative Study. *IOSR Journal of Business and Management*, 14(5), 49-61.
- Philip K. (2000), *Marketing Management*, The Millenium Edition, Prentice Hall, USA.
- Polat, Y. (2006), İmalat Sanayi Firmalarının Çalışma Sermayeleri ile Karlılık Arasındaki İlişki Üzerine: BİST-100 Uygulama Örneği, *Yüksek Lisans Tezi*, Aksaray Üniversitesi, Sosyal Bilimler Enstitüsü: Aksaray.
- Priya, K. & Nimalathasan, B. (2013), Liquidity Management and Profitability: A Case Study of Listed Manufacturing Companies in Sri Lanka. *International Journal of Technological Exploration and Learning*, 2(4), 161-165.

- Puneet, S., Parmil, K., (2012) Liquidity and Profitability Trade Off. *International Journal of Advanced Research in Management and Social Science*. 1(3), 77-84.
- PWC & TAMPF (2016), Retail Industry of Turkey: *Growing While Transforming*.
- Raheman, A. & Nasr, M. (2007), Working Capital Management and Profitability-Case of Pakistani Firms. *International Review of Business Research Papers*. 3(1), 279 – 300.
- Rasiah, D. (2010), Theoretical Framework of Profitability as Applied to Commercial Banks in Malaysia, *European Journal of Economics, Finance and Administrative Sciences*, 19, 74-95.
- Rehman, M. Z., Khan, M. N. & Khokhar, I. (2015), Investigating Liquidity-Profitability Relationship: Evidence from Companies Listed in Saudi Stock Exchange (Tadawul). *Journal of Applied Finance & Banking*, 5(3), 159-173.
- Roodman, D. (2009), How to do xtabond2: An Introduction to Difference and System GMM in Stata. *The Stata Journal*, 9(1), 86-136.
- Ross, S. A., Westerfield, R., Jaffave, W. & Jordan, B.D. (2011), *Fundamentals of Corporate Finance*, McGraw-Hill, Irwin.
- Rudrabasavaraj, M. N. (2010), *Dynamic Global Retailing Management*, Himalaya Publishing House, Mumbai.
- Sabuncuoğlu, Z. ve Tokul, T. (2001), *İşletme*, 1.Baskı, Ezgi Yayınları, Bursa.
- Saleem, Q. & Rehman, R. U. (2011), Impacts of Liquidity Ratios on Profitability. *Interdisciplinary Journal of Research in Business*, 1 (7), 95-98.
- Sayaduzzaman, M. (2006), Working Capital Management: A Study on British American Tobacco Bangladesh Company Ltd. *The Journal of Nepalese Business Studies*, 3(1), 78-84.
- Sayılğan G. (2003), *İşletme Finansmanı*, Turhan Kitabevi, Ankara.
- Sayılğan, G. ve Gürdal, K. (2004), Yatırım ve Yönetim Kararları Açısından Kar Kavramındaki Değişim, *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 22(1), 115-135.
- Sayman, Y. (2006), Hisse Senetleri IMKB’de İşlem Gören İmalat İşletmeleri Açısından Nakit Yönetimini Etkileyen Faktörler, *Yüksek Lisans Tezi*, Ankara Üniversitesi, Sosyal Bilimler Enstitüsü: Ankara.
- Sedillot, R. (1997), Değiş Tokuştan Süpermarkete, *Market Dergisi*, 34, 16-17.
- Serpil A., Nişsel, R., Ağaoğlu, A. ve Karapazar Y. (1998), Bakkaliye Sektörünün Profili ve Rekabet Olanakları, *İstanbul Ticaret Odası Yayınları*, 4.

- Sevil, G. ve Başar, M. (2012), *Finansal Yönetim-I*, Anadolu Üniversitesi Açıköğretim Fakültesi Yayınları, Eskişehir.
- Sims, C. A. (1980), Macroeconomics and Reality, *Econometrica*, 48(1), 1-48.
- Smith, K. (1973), State of the Art of Working Capital Management, *Financial Management (Autumn)*, 50-55.
- Smith, V. K. (1979), *Guide to Working Capital Management*, Mc Graw Hill Book Company, New York.
- Singh, J. P. & Pandey, S. (2008), Impact of Working Capital Management in the Profitability of Hindalco Industries Limited, *The ICFAI University Journal of Financial Economics*, 36, 64-79.
- Şahin, O. (2011), İMKB'ye Kayıtlı İmalat Şirketlerinde Çalışma Sermayesi Politikaları ve Firma Performansı İlişkileri, *Osmangazi Üniversitesi, İktisadi İdari Bilimler Fakültesi Dergisi*, 6(2), 123-141.
- Şamiloğlu, F. & Demirgüneş, K. (2008), The Effect of Working Capital Management on Firm Profitability: Evidence From Turkey, *The International Journal of Applied Economics and Finance*, 2(1), 44-50.
- Şekeroglu, G. & Altan, M. (2014), The Relationship Between Inventory Management and Profitability: A Comparative Research on Turkish Firms Operated in Weaving Industry, Eatables Industry, Wholesale and Retail Industry, *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 8(6), 1665-1670.
- Tahiroğlu, F. (1999), Müşteri Odaklı Kaliteli Servis Ekipleri, *Human Resources*, 8, 51.
- Tatoğlu, F. Y. (2012), *İleri Panel Veri Analizi*, Beta, İstanbul.
- Taylor, M. & Sarno, L. (1998), The Behaviour of Real Exchange Rates During the Post-Bretton Woods Period, *Journal of International Economics*, 46, 281-312.
- Tek, Ö. B. (1999), *Pazarlama İlkeleri Global Yönetimsel Yaklaşım Türkiye Uygulamaları*, Beta, İstanbul.
- Tek, Ö. B. ve Demirci Orel, F. (2006), *Perakende Pazarlama Yönetimi*, Birleşik Matbaacılık, İzmir.
- Teker, D., Teker, S. & Güner, A. (2016), Financial Performance of Top 20 Airlines, *Procedia-Social and Behavioral Sciences*, 235, 603-610.
- Tenekecioğlu, B., Tokol, T., Çalık, N., Karalar, R., Timur, N. ve Öztürk, S. (2004), *Pazarlama Yönetimi*, 2.Baskı, Anadolu Üniversitesi Web Ofset Tesisleri, Eskişehir.

- Toraman, C. ve Sönmez, A. R. (2015), Çalışma Sermayesi ve Karlılık Arasındaki İlişki: Perakende Ticaret Sektörü Üzerine Bir Uygulama. *Erzincan Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 8 (1), 15-24.
- USDA Foreign Agricultural Service (2016), *Turkey Food Retail Sector Report*.
- Uyar, A. (2009), The Relationship of CCC with Firm Size and Profitability: An Empirical Investigation in Turkey, *International Research Journal of Finance and Economics*, 24, 186–193.
- Ülgen, Ö. (1999), Türk Perakendecilik Sektörünün Senaryolar Yardımıyla Analizi, *Yayınlanmamış Yüksek Lisans Tezi*, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü: İstanbul.
- Ülgen H. ve Mirze S. K. (2004), *İşletmelerde Stratejik Yönetim*, Literatür Yayıncılık, İstanbul.
- Weinraub, H. J. & Visscher, S. (1998), Industry Practice Relating to Aggressive Conservative Working Capital Policies, *Journal of Financial and Strategic Decision*, 11 (2), 11-18.
- Wooldridge, J. (2001), Applications of Generalized Method of Moments Estimation, *Journal of Economic Perspectives*, 15, 4.
- Van Horne, J. & Wachowicz, J. M. (1995), *Fundamentals of Financial Management*, International Editions, Prentice Hall, New Jersey.
- Varinli İ. & Oyman M. (2013), *Perakendeciliğe Giriş*, Anadolu Üniversitesi Açıköğretim Fakültesi Yayını, Eskişehir.
- Vishnani, S. & Shah, B. K. (2007), Impact of Working Capital Management Policies on Corporate Performance: An Empirical Study. *Global Business Review*, 8(2), 267-281.
- Yıldız, F. (2009), Çalışma Sermayesi Yönetiminin Firma Kârlılığı Üzerine Etkileri: İMKB Şirketleri Üzerine Bir Uygulama, *Yüksek Lisans Tezi*, Atatürk Üniversitesi Sosyal Bilimler Enstitüsü: Erzurum.
- Zygmunt, J. (2013), Does Liquidity Impact on Profitability? A Case of Polish Information Technology Companies. *Conference of Informatics and Management Sciences*, March 25-29, 247-251. Retrieved from <http://www.ictic.sk> on 03-11-2016.