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# The impact of conditional and unconditional conservatism on trade credit: evidence of Tehran Stock Exchange

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## Abstract

*The aim of this research is to examine the impact of conditional and unconditional conservatism on the trade credit of companies listed at the Tehran Stock Exchange. In this respect, using a systematic deletion sampling, 74 companies were chosen and studied during the period 2009 to 2013. The method of testing the research hypotheses was a multivariate regression using estimated generalized least square. The results of the research indicated that conditional and unconditional conservatism are positively and significantly related to the trade credit of the companies; in other words, if a higher level of conservatism is used and types of conservatism grow, more trade credit will accrue to companies.*

**Keywords:** Trade credit, conditional conservatism, unconditional conservatism, Tehran Stock Exchange.

**JEL Classification:** M41.

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## Introduction

Some of the sales done between companies are based on trade credits. Typically, such credits are unsecured, *i.e.* no interest accrues to them and the buyer is given an opportunity to pay his debt. Having analysed the financial situation and commercial history of their own clients (other companies), companies set out to make a decision about either granting credit or increasing or decreasing the maximum credit to granted to them. In this case, we can seek information from resources such as the commercial banks that hold the clients' accounts, a direct relationship with the client or from organizations which determine the degree of companies' credit. For instance, we can analyse a client's audited financial statements. Commercial banks with which clients work are good resources of obtaining information about the clients' credit status and can provide companies with information on their debt status and deposits. Organizations determining the credit of individuals usually provide and offer a great deal of information about the legal entities' credit situation and records of their debt settlement pattern, financial power and historical information on the company and its leaders. Once a decision is made to sell goods on account, we need to determine special credit condition of that client. Usually, the duration of the credit is determined on the basis of a conventional process in that industry with respect to the performance of business competitors.

Apart from the above, the article is focused on firms' trade credits. Recent research (Lu and Yang, 2011) states that suppliers and customers are the main creditors in trade credit transactions due to their information advantages over banks and other credit institutions, but their profit-making is not as transparent expected. However, a company seeking trade credit needs to sign a debt contract with a supplier or a customer (Dai and Yang, 2015). Thus, trade credit is a very important topic in corporate and organization business. For this reason, specifying some factors contributing to trade credit of companies is significant. Accounting conservatism is one of the factors aiming at reflecting debt contracts and thereby preventing harm to the interests of creditors and over-reporting of assets, and it is considered a basic feature of accounting reporting (Watts, 2003; Jiang and Zhang, 2007); therefore, the study of its effect on firms' trade credit seems justified. The present research uses the ideas of Dai and Yang (2015) and Zhang (2013) as well as both

types of conditional and unconditional conservatism and sets out to examine the effect of conservatism on the trade credit of companies listed at the Tehran Stock Exchange. The first section presents the theoretical foundations and the most important studies related to the present research; the second section introduces the study's research method, population and sample, as well as the models and research variables; the third section provides the analysis of the research findings. The final section is dedicated to the conclusion of the research.

## 1. Theoretical foundations and research background

Firms' trade credit involves strategies which are typically determined with regard to granting credit to customers in an effort to raise sales and determine credit conditions identical to what competitor companies offer to buyers. Conservative financial directors in organizations probably expect their customers to settle their previous debt in the first place. Moreover, in a conservative strategy, credit is only granted to customers who have very good track records in other sites and have quite a high credit in this respect. Ordinary customers and buyers cannot receive the same amount of credits. As an implication of conservative policies, it is possible for unpaid claims to be reduced to a minimum, in that all clients are warned about the cessation of their credit in the event of failure to pay the claims on the due date; however, proceeding with such a policy may not only lead to a fall in sales, but it also turns old customers away from the company and leads them to turn to competitor firms. Those financial managers who possess some sort of a bold policy would grant credit to customers with whom they have no sufficient acquaintance. When a new company enters a market, it requests suppliers to buy on account; the suppliers come across unknown circumstances, because it is possible that the work of the company booms and they become one of their important clients, and if they turn down their request in the first place and refuse to open a credit account for them, they will lose a great quantity of sales and future profits. Managers with a bold policy are decided to show positive response to the demands of old customers (concerning an increase in credit rate) so that they can increase the level of the firm's sales and profits. As an implication of bold policies, we can refer to a selling company that accepts further credit risks and,

accordingly, has a number of new and profitable customers who are attracted by the company. In an attempt to invoke a good image of itself in the customers' mind, selling companies refuses to intensively pursue some of their dishonoured customers and those who fail to settle their debts when they become due and payable. As a result, choosing conservative or bold policies takes on importance as far as the trade credit is concerned. The above are important facts about companies granting trade credit to various persons and customers. However, the main emphasis of the present research is put on the discussion of firms' trade credit and its influencing factors. In the following, we intend to offer an explanation about the levels of conservatism and trade credit of companies by considering the conservative policies of the organizations' managers and leaders.

Conservatism depends on various factors, including a contract between the commercial unit and other stakeholders, the possibility of legal claims, the efforts of reducing or delaying taxes, the protection of the public interest, increasing the quality of financial information, reducing political costs, reducing the information asymmetry and the level of competition. Despite the lack of a comprehensive definition on conservatism in the accounting and financial literature, two important characteristics of conservatism have been studied; first, a partiality for less real presentation of book value as opposed to market value; and second, a tendency for accelerating loss recognition and delaying profit recognition.

As for Iran's theoretical concepts of financial reporting, conservatism as a qualitative characteristic of financial information, which is a component of reliability, is considered "caution". Caution is the use of a degree of prudence necessary for judging the accounting estimations under ambiguous circumstances, in the sense that one cannot overstate income and assets and understate costs and liabilities.

Over time, many researchers investigated the various dimensions of conservatism and its relationship with other factors and interpreted them using various methods. In the present research, we took account of both conditional and unconditional conservatism. The faster pursuit of bad news is called news-dependent conservatism or conditional

conservatism. In addition to conditional conservatism, there is another form of conservatism which is independent from news and called "unconditional conservatism". According to Ball and Shivakumar (2005), unconditional conservatism refers to the adoption of accounting methods and processes which reduce earnings and net book value of assets independently from economic news. Considering the mentioned concepts of trade credit, as well as the scientific arguments raised by Dai and Yang (2015) and Zhang (2013) as to the relationship between conservatism and trade credit, the question is whether there is a significant relationship between various types of conservatism, its characteristics and the trade credit of firms.

Thus, it can be claimed that the study of the link between these two subject matters in the research literature using statistical methods is helpful for a better elaboration of this link and it assists firms with their financing practices, such as the use of trade credit in conjunction with the application of a specific level of conservatism. Although there is a difference between the various types of conservatism mentioned and the companies' motivations for using them, the existence of some similar motivations (see Beaver and Ryan, 2005) have led many to use both conservatism types in many studies in the same way as in the present research, in an attempt to measure the dimensions of conservatism.

IzadiNia and Taheri (2016) evaluated the relationship between accounting quality and trade credit in a sample consisting of 127 companies listed at the Tehran Stock Exchange between 2008 and 2013. The results showed that there is no significant correlation between the amount of trade credits and the earnings smoothness as well as conservatism; meanwhile, there is a significant negative relation between the amount of trade credit and earnings management.

Dai and Yang (2015) explored the influence of accounting conservatism on trade credit by considering monetary policies. They found that companies with a higher level of accounting conservatism benefit from more trade credit. Furthermore, a high level of accounting conservatism has a greater impact on trade credit during the rise of tighter monetary policies. They found that the backgrounds of suppliers and customers are

influential in the positive relationship between accounting conservatism and trade credit.

Talebnia and Mahdavi (2015) studied the effect of trade credit and financial depth on the amount of cash holdings during 2007-2011 on the Tehran Stock Exchange. They investigated whether there is a significant difference the cash held by companies with high and low financial depth or not. The results showed a significant inverse relationship between that trade credit and cash holdings. With an increase in trade credit, firms reduce their cash holdings. They study also showed that among the financial companies listed at the Tehran Stock Exchange; there is no significant relationship between the level of cash holdings and financial depth.

In an empirical research, Zhang (2013) explored the relationship between accounting conservatism and trade credit on a sample consisting of 3,371 companies listed in Shanghai and Shenzhen during 2007-2011. In order to measure accounting conservatism, they utilized Ahmed and Duellman's (2007) measure and studied commercial credits from the commercial credit mode and Above Quota Trade Credit perspectives. The results showed that: the more conservative the company's accounting policy, the easier it is to get a commercial credit at a lower cost; the more conservative enterprise' accounting policies, the easier it is to obtain commercial credit provided by suppliers, and when commercial credits exceed the company's needs need, excess commercial credit will emerge.

Ghafari, Jahanshad and Pourzamani (2013) evaluated the effect of trade credit and constraints of financing on dividend policy. For this purpose, they reviewed data of 185 firms from 2006 to 2011. The results of hypothesis testing indicated that the level of the Tehran Stock Exchange companies' trade credit and dividend ratio are directly and significantly related.

Hui, Klasa and Yeung (2012) argue that as accounting conservatism can recognize losses in a timely fashion, it can protect the interests of customers and suppliers when signing contracts and reduce potential losses from such transactions.

Pindando and Bastos (2009) contended that the use of trade credit by firms in different locations is not the same, though it is used by companies across the world. The best account that can be offered in this regard is

heterogeneous levels of creditor protection or quality in accounting systems in different countries. They studied the relationship between concepts of trade credit, creditor protection and accounting standards by using data from 13 countries. Their results indicated a positive effect of adverse selection on the trade credit extended and a negative effect of moral hazard on the trade credit extended. Furthermore, their analyses showed that the level of creditor protection and the accounting system mitigate the negative influence of moral hazard on trade credit.

Zhang (2008) maintained that higher accounting conservatism makes it easier for companies to violate restrictive clauses in debt contracts, and helps creditors to promptly enforce or re-sign contracts. Therefore, the higher the accounting conservatism, the lower the loan interest rate paid by the company. Similarly, accounting conservatism can also reduce information asymmetry, protect the interests of suppliers and customers to a greater extent, and help both parties to a contract to establish cooperative relations with mutual trust, so that suppliers and customers are willing to accept a certain degree of risk and provide more trade credit. Conversely, if a company's accounting reports are less conservative and the interests of suppliers and customers cannot be protected, the payment terms required by the suppliers and customers will be more stringent because they wish to protect their own interests and safely control risk. Accordingly, they will not provide a large amount of trade credit.

## 2. Research methodology

The present research method is applied by purpose, and correlational and descriptive by nature. In the present research, in an effort to collect and develop the theoretical foundations and research literature, Persian and Latin specialized journals were used. Essential financial data were also extracted from the financial statements of companies listed at the Tehran Stock Exchange (TSE) by means of some financial software applications and the Codal website (in Persian). After the data collection, some calculations of variables were performed by using Excel. The final analysis for testing the research hypotheses was conducted using the Eviews econometric software.

## 2.1. Research hypotheses

Given the theoretical foundation and the literature, the research hypotheses are put forward as follows:

**H<sub>1</sub>.** There is a positive and significant relationship between conditional conservatism and trade credit of companies.

**H<sub>2</sub>.** There is a positive and significant relationship between unconditional conservatism and trade credit of companies.

## 2.2. Research models and variables

In order to test the hypotheses, the adjusted model of Dai and Yang (2015) is used in this research as follows:

$$TC_{i,t} = \beta_0 + \beta_1 CC - Score_{i,t-1} + \beta_2 UC - Score_{i,t-1} + \beta_3 AGE_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 CFO_{i,t} + \beta_6 LIQ_{i,t} + \beta_7 EBIT_{i,t} + \beta_8 OI\_GROWTH_{i,t} + \beta_9 OWNCON_{i,t} + \beta_{10} BRDSZE_{i,t} + \beta_{11} BRDIND_{i,t} + \varepsilon_{i,t}$$

where

TC: is trade credit, calculated as follows:

$$TC = \frac{\text{Accounts payable} + \text{Notes payable}}{\text{Total assets}}$$

CC\_Score: conditional conservatism score, estimated using Khan and Watts' (2009) model.

Thus, corporate conservatism is first measured annually (see Ahmed and Duellman, 2012; Kim and Zhang, 2013) by using the following model:

$$UC_{Score} = (-1) \left( \frac{\text{the moving average of total accruals before depreciation}}{\text{average total assets}} \right)$$

AGE: the natural logarithm of the years since the company was established;

SIZE: the natural logarithm of total assets;

CFO: net cash flows from operating activities/total assets;

LIQ: current assets/total assets;

EBIT: earnings before interest and tax/total assets;

$$\begin{aligned} \frac{EPS_{i,t}}{Pri_{i,t-1}} = & \lambda_0 + \lambda_1 DT_{i,t} + \lambda_2 RET_{i,t} + \lambda_3 DT_{i,t} \\ & \times RET_{i,t} + \lambda_4 MC_{i,t-1} + \lambda_5 Lev_{i,t-1} \\ & + \lambda_6 MtB_{i,t-1} + \lambda_7 DT_{i,t} \times MC_{i,t-1} \\ & + \lambda_8 DT_{i,t} \times Lev_{i,t-1} + \lambda_9 DT_{i,t} \\ & \times MtB_{i,t-1} + \lambda_{10} RET_{i,t} \times MC_{i,t-1} \\ & + \lambda_{11} RET_{i,t} \times Lev_{i,t-1} + \lambda_{12} RET_{i,t} \\ & \times MtB_{i,t-1} + \lambda_{13} DT_{i,t} \times RET_{i,t} \\ & \times MC_{i,t-1} + \lambda_{14} DT_{i,t} \times RET_{i,t} \\ & \times Lev_{i,t-1} + \lambda_{15} DT_{i,t} \times RET_{i,t} \\ & \times MtB_{i,t-1} + v_{i,t} \end{aligned}$$

In the above model, EPS is the earnings per share; Pri is the stock price in the month before the fiscal year-end; RET is the company's annual stock return; DT is a dummy variable that equals 1 if RET is negative and zero otherwise; MtB is the market-to-book ratio; MC is the logarithm of the company's stock market value; and Lev is the ratio of the company's long-term liabilities to total assets.

In the end, with regard to the above model, conditional conservatism is calculated on the basis of Khan and Watts' (2009) score and Kim and Zhang's (2013), using the following formula:

$$\begin{aligned} CC\_Score_{i,t} = & \lambda_3 DT_{i,t} \times RET_{i,t} + \lambda_{13} DT_{i,t} \times RET_{i,t} \\ & \times MC_{i,t-1} + \lambda_{14} DT_{i,t} \times RET_{i,t} \\ & \times Lev_{i,t-1} + \lambda_{15} DT_{i,t} \times RET_{i,t} \\ & \times MtB_{i,t-1} \end{aligned}$$

UC\_Score: unconditional conservatism, calculated based on the research (by Ahmed et al. 2002; Ahmed and Duellman, 2012; Biddle, Ma and Song 2013; Givoly and Hayn, 2000) as follows:

OI\_GROWTH: (Operating income for the year - operating income for the previous year)/operating income for the previous year;

OWNCON: ownership concentration which is obtained of total square of shareholders ownership (except other shareholders) percent in current year (Herfindahl-Hirschman Index =  $\sum Si^2$ );

BRDSZE: total board members; and

BRDIND: board independence which obtained of boards non-executive members/total board members.

It should be noted that the definition of each variable is briefly presented in the Appendix.

### 2.3. Statistical population and sample

The population of the present research consists of all the companies listed at the Tehran Stock

Exchange during 2009-2013. This is important because there was a need for historical data for measuring and calculating some variables, including the types of conservatism and growth rate. Thus, the data from 2008 were collected and fully studied. Moreover, the study sample was determined by considering the conditions mentioned in **Table no. 1** and on the basis of systematic deletion sampling.

Table no. 1. Sample selection	
Process of sample selection	No. of observations
<b>Total number of available observations during 2009-2013</b>	<b>3005</b>
Deleted:	
Companies absent from 2008 to 2013 in the Stock Exchange and that lack essential information in their financial statements	980
Lack of a fiscal year-end by Esfand (March 15 <sup>th</sup> ) each year and a change in the date of the fiscal year-end during the study period	615
Deletion of investment, financial intermediary, bank and insurance, holding and leasing companies from the sample due to the lack of transparency in delineating operating from financing activities	320
A trade hiatus of more than three months during the research period	660
Occurrence of an operating loss during the study period	60
<b>Final sample (observations) after applying the above conditions</b>	<b>370</b>

Source: Authors' processing

Note: given the application of the conditions listed above, the final number of companies used for testing the research hypotheses is 74 companies (370 observations).

## 3. Results

**Table no. 2** shows the results of the descriptive statistics for the research variables.

Table no. 2. Descriptive statistics						
Variables	Obs.	Mean	Median	Min.	Max.	Std. dev.
TC	370	0.083	0.049	0.000	0.459	0.095
CC_Score	370	-0.043	0.000	-0.755	1.096	0.126
UC_Score	370	-4.60	-3.11	1.15	-2.32	3.48
AGE	370	3.085	3.178	0.693	4.060	0.667
SIZE	370	13.516	13.443	11.314	17.231	1.168
CFO	370	0.145	0.127	-0.282	0.620	0.133
LIQ	370	0.626	0.669	0.108	0.963	0.210
EBIT	370	0.182	0.159	-0.079	0.655	0.130
OI_GROWTH	370	0.523	0.150	-0.968	41.376	2.600
OWNCON	370	0.479	0.501	0.066	1.000	0.174
BRDSZE	370	5.021	5.000	2.000	6.000	0.264
BRDIND	370	0.639	0.600	0.000	1.000	0.167

Source: Authors' processing

As can be seen in **Table no. 2**, a number of 74 companies were studied during five years and 370 firm-years were observed. Given the accessibility of the study variables in this research, the number of observations for all variables is 370. Moreover, the approximate values of the variables' median and mean indicate that the population has a normal distribution.

**Table no. 3** shows the results of the correlation between the variables. The correlation coefficient is

a symmetrical relationship; the closer the correlation coefficient is to the value 1, the higher the correlation of both variables will be. As for the independent variables, a greater correlation coefficient of a model may distort the regression results. As it is presented in **Table no. 3**, there is no significant (collinear) correlation between the variables, since all of them are maintained at a reasonable level.

**Table no. 3. Correlation matrix**

	TC	CC_Score	UC_Score	Age	Size	CFO	LIQ	EBIT	OI_GROWTH	OWNCON	BRDSZE	BRDIND
TC	1											
CC_Score	0.032	1										
UC_Score	0.045	-0.118	1									
Age	0.008	0.001	0.080	1								
Size	0.035	0.094	0.101	0.006	1							
CFO	-0.173	0.020	-0.057	0.027	0.045	1						
LIQ	0.366	0.130	0.050	0.014	-0.256	-0.173	1					
EBIT	-0.243	0.118	-0.034	0.041	0.069	0.572	0.012	1				
OI_GROWTH	-0.038	-0.260	0.052	0.005	0.076	-0.024	-0.090	0.026	1			
OWNCON	0.116	-0.041	-0.029	0.006	-0.161	-0.135	0.151	-0.121	0.004	1		
BRDSZE	0.011	-0.037	0.021	0.076	0.180	-0.005	-0.103	-0.009	-0.011	-0.156	1	
BRDIND	-0.054	-0.007	0.080	-0.095	0.055	0.058	-0.054	0.076	0.009	-0.225	0.230	1

Source: Authors' processing

Furthermore, with respect to other statistical tests before the hypotheses test, in this research we used the White Test in order to determine the homogeneity or heterogeneity of variance. The results confirmed the variance heterogeneity in the research model. In order to fix this problem, we applied the estimated generalized least square method for estimating the research model.

Conversely, when we used synthetic data for hypotheses estimation, F-Limer test seemed necessary to determine the type of method and how to estimate. If the test result is based on the use of pooled data, then

model estimation is performed by pool data. If test result represents the use of panel data method, then the Hausman test will be used for determining the fixed or random effects of the pattern. The result of these two tests showed that we need to use panel data and fixed effects in order to estimate the research model.

### 3.1. Hypotheses testing

**Table no. 4** shows the results of research hypotheses testing by using estimated generalized least squares.

**Table no. 4. The results of first and second hypotheses estimation**

Variables	Coefficient	t-statistics	p-value
Constant	0.4634	8.7771	0.0000
CC_Score	0.0023	0.2857	0.0052
UC_Score	105270.8	7.1670	0.0000
AGE	-0.0111	-0.8298	0.4076
SIZE	-0.0221	-3.9004	0.0001
CFO	-0.0275	-3.0062	0.0029
EBIT	0.0043	0.3706	0.7115
LIQ	0.0768	8.5396	0.0000
OI_GROWTH	0.0001	0.7729	0.4403
OWNCON	0.0027	0.1597	0.8732
BRDIND	0.0145	5.4145	0.0000
BRDSIZE	-0.0193	-5.9923	0.0000
Adj. R <sup>2</sup>		0.9033	
DW		2.0461	
F-statistics		42.0497	
Prob (F-statistics)		0.0000	

Source: Authors' processing

With respect to the results presented in **Table no. 4**, there is a positive and significant relationship between conditional conservatism and trade credit. In relation to unconditional conservatism, the results indicated a positive and significant relationship between this variable and trade credit. Moreover, the adjusted coefficient of determination indicates that about 90% of the dependent variable's variation is explained by independent and control variables. F-statistic and its significance level in the research model demonstrate that the regression model is generally significant, and has no autocorrelation problem, considering the Durbin-Watson statistic. Therefore, given the results, the first and second hypotheses about a positive and significant relationship between various types of conservatism and trade credit of companies are confirmed.

## 4. Conclusions

The present research explored the impact of conditional and unconditional conservatism on the trade credit of the companies listed at the Tehran Stock Exchange, using a sample consisting of 74 companies during the period 2009-2013. Given the importance of conservatism separation and the differences and similarities that exist between the types of conservatism, we used both types of conservatism in this research: conditional and unconditional. In addition, we used the concepts

proposed by other researchers, particularly Dai and Yang (2015) and Zhang (2013) for measuring the relationship between various types of conservatism and trade credit.

According to the results of the research hypotheses estimation, we can state that both types of accounting conservatism, conditional and unconditional, can lead to a decrease in information asymmetry and protect the interests of suppliers and customers in a more effective manner. On the other hand, as interests of both parties are more secured and protected, both parties can develop their collaboration on the basis of agreements and contracts and reciprocal trust, thereby assuming a certain level of risk and provide further trade credit.

However, given the results of the research, we showed that trade credit is more probably attained as firms adopt conservative policies and procedures, either conditional or unconditional. It is thus recommended for standard-setters and legislators who attempt to delete conservatism principle from the accounting standards to act with care and to weigh up its aspects, by considering research carried out to date. For future studies, researchers are recommended to investigate other determinants of trade credit in the accounting and financial fields, with regard to the importance of trade credit.



### Appendix - Variables definitions

Variables	Definitions
TC	(Accounts payable + Notes payable)/Total assets.
CC_Score	Is calculated on the basis of Khan and Watts' (2009) score and Kim and Zhang's (2013).
UC_Score	Is calculated based on previous research (Ahmed et al., 2002; Ahmed and Duellman, 2012; Biddle, Ma and Song 2013; Givoly and Hayn, 2000).
AGE	The natural logarithm of the years since the company was established.
SIZE	The natural logarithm of Total assets.
CFO	Net cash flows from operating activities/Total assets.
LIQ	Current assets/Total assets.
EBIT	Earnings before interest and tax/Total assets.
OI_GROWTH	(Operating income for the year - Operating income for the previous year)/Operating income for the previous year.
OWNCON	Total square of shareholders ownership (except other shareholders) percent in current year (Herfindahl-Hirschman Index = $\sum Si^2$ ).
BRDSZE	Total number of board members.
BRDIND	Number of non-executive board members/Total number of board members.

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