The relationship between stock risk and accounting conservatism (Case study in Tehran Stock Exchange)

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Key Words
Downside risk, systematic risk, non-systematic risk and accounting conservatism.

Abstract
In this paper we examine the relationship between downside, systematic, non-systematic risks and accounting conservatism. I argue that in firms with higher risk, managers have higher incentives to delay to use accounting conservatism in financial reporting.

Consistent with my hypothesis, we find the significant and positive association between downside risk and accounting conservatism. Systematic and non-systematic risk, however, are not significantly related to conservatism. Our findings highlight the important role that downside risk may play in shaping mangers reporting behavior.

Introduction
Until late 1960s organizations were performing in a steady and stable atmosphere and were focused on increasing the efficiency. As the time went by, this situation changed into a dynamic and turbulent environment. Great development of IT, invention of the Internet and transmission of information, lack of economic stability and lots of other problems put organizations in a bran-new situation. Managers' decisions in these situations are highly depended on their perception of uncertainty. Uncertainty is what risk is all about and it expresses the danger which will occur due to uncertainty in some future event. Typically, as uncertainty increases, risk increases too.

From a realistic aspect uncertainty is an inevitable part of a company's routine and companies must simply learn how to live with it. So, many experts suggest that companies should use the Games theory to reduce uncertainty. Some companies also use other different ways such as innovation to produce certainty. Some other experts suggest focusing on short term decisions. Ritchie,et al.(1993) and Cyert, et al.(1992) believe that a way to reduce uncertainty is to induce standard procedures and regulations to the company which hopefully control at least a part of the company and could reduce uncertainty. These regulations and standards are experiments from that past which are the first reference in cases of problem. In the past managers used to use conservatism only when there was uncertainty. In other words, conservatism which is one of the sensible properties of financial reporting can be used as a solution against uncertainty that could drastically affect assets assessment calculating net profit. (Tariverdi, 2007)

Therefore the main purpose of this study is to experimentally investigate whether consistent with traditional theories, accounting conservatism is a reaction to uncertainty or it's caused by other factors in this sophisticated and turbulent environment of today. Then this study is looking for an answer to the following question: Does the risk associated with a stock affect the conservatism?

Hypotheses

Regarding the studies on aforesaid theories and the results from the past researches related to the current study, hypotheses are drawn as below:

H1: there is a positive correlation between downside risk and accounting conservatism in companies in Tehran stock exchange.

H2: there is a positive correlation between systematic risk and accounting conservatism in companies in Tehran stock exchange.

H3: there is a positive correlation between non-systematic risk and accounting conservatism in companies in Tehran stock exchange.

Conceptual framework and a review of related researches

In current situation of 21st century in which companies as open societies interacting with the environment are experiencing turbulent and uncertain situations, focusing on the concept of environment uncertainty is of a high importance. All companies are performing in physical, technological, cultural and social context which is called their environment. No company can survive independent of its environment. But hardship or ease of this survival depends on the relations between the company and its environment which is in fact a part of the company itself. (Rahman Seresht,1998).

Milliken (1987) and Richard (2009) believe that environment uncertainty means that decision makers don't have enough information about environment factors. But Mary Jo Hatch (2006) says that environment conditions are not what affect a company, rather it's the decision makers' perception of environment uncertainty. She affirms that the uncertainty is not embedded in the environment, what it is embedded in is the people considering the environment whilst making decisions. She claims that when managers suppose that the environment is unpredictable they feel uncertain, and this happens when they feel they don't have enough information to make proper decisions. Duncan (1972) associates environment uncertainty with lack of ability to allocate probabilities to probable events. Lawrence ,et al. (1967) see environment uncertainty as lack information about cause and effect relations. Also Downey, et al (1975) believe that environment uncertainty is a sort of disability to predict the probable outcomes associated with a decision.

An explanation about the relationship between uncertainty and risk is also necessary. Generally uncertainty forms the context of the risk and it expresses the danger associated with an event in the future due to uncertainty and as this uncertainty gets bigger the risks gets bigger too. Webster dictionary defines risk as being exposed to danger. Glitz defines risk as any kind of undulation in any kind of outcome. This definition shows that any probable change for a specific index in the future, whether positive or negative, exposes us to risk. Gilp has another definition of risk: anything that could pervert the outcome from what the investor expects is called risk. (Raee, 2008).

The first numerical index for the risk was introduced based on the quantitative definition by Harry Markowitz. He defined risk as the Standard Deviation of a variable in a number of periods. There is another view on the definition of the risk which only pays attention to the negative aspects of the fluctuations. Huib defines risk as the probable income reduction or capital loss. (Raee, 2008). so two views could be suggests on risk definition: 1st- risk as any probable fluctuations of economic output in the future, 2nd- risk as probable negative fluctuations of economic output in the future.

Based on the first view, total risk in any company is divided into 2 categories: 1. Systematic risk (inevitable risk or market risk) 2. Non-systematic risk (evitable risk or exclusive risk)

A part of changeability in total output of the stock which is due to change in the market economy is called market risk or systematic risk. Systematic risk is due to economic, political, or social crisis and issues and cannot be controlled and so they are called inevitable risk. Systematic risk affects all companies (all the market) and embraces all economic structures and bases. Beta is the name for the measuring index

for systematic risk. Beta is a tool by which changeability of each stock to average stock (market stock) is calculated. (Jones, 2007).

A part of changeability which is not related to total output of the stock is called non-systematic risk. It is due to management and internal issues of a company which can be controlled and are caused by issues like management, capital structure, defalcation… and could be removed or reduced considerably by management and capital structure revision and varying the investment combination. So, non-systematic risk depends on factors such as commercial or financial risk. (Jones, 2007).

To assess systematic and non-systematic risk whether single factor models and capital assets pricing model or multi factor models and arbitrage pricing model can be used. Is this study capital assets pricing has been use because it's easy, popular and standard.

Regarding the CAPM model and properties of the Variance, the Variance of a portfolio is:

$\partial^2_{(Yp)} = \beta^2_p . \partial^2_{(Ym)} + \partial^2_{(Yep)}$

Total Risk = Systematic Risk + Non-Systematic Risk

Based on the second view of the definition of risk, risk (negative return fluctuations) is undesired. In other words, with risk defined as loss probability, then desired changes (increase in return rate of the financial assets) is not included in risk and only events with lower outcome than the average are risk. (Rom and Kathleen ,1994).

It's calculated as:

$$SSD = \sqrt{\frac{\sum_{i=1}^{n}(\min[0,(Yg - Yit)])^2}{n}}$$

Y_g = Return for Period i

Y_{it} = Period Arithmetic Mean

N = Number of Periods

Definition of risk with two aforesaid views gives different norms and measures, different conclusions, and finally different suppositions of investment environment. So, standard deviation (SD) may measure investment risk rather than undesired risk. When return rate's distribution is symmetrical, both SD and downside risk give the right answer, while if return rate's distribution is a normal distribution, using SD won't give the right answer because it ignores the skew in return rate's distribution. However, a number of studies rejected the hypothesis of return rate's distribution being normal. Primarily research by Yuji Fama and Mandelbrot showed skew in return distribution. (Campbell, 1993).

According to the accounting theories, conservatism is one of the clear properties of financial reporting and could be a possible solution against uncertainty. Although in accounting principles conservatism is not mentioned, it can be crucial for assessing assets and determining net profit. (Tariverdi, 2007). Iranian Auditing Organization's technical committee has considered conservatism as one the modal properties of reliability, but instead of the term "conservatism", it has used "caution". "caution means using a level of observation which is needed in judgments through assessing in the cases of obscurity so that assets and incomes aren't measured higher than the actual amounts and reliabilities and expenses aren't measured lower. Indeed, conservatism could be considered as obscurity's fruit, whenever accountants face obscurity they use conservatism. In this statement it has been stated that when there is no obscurity there's no need to use conservatism and with higher levels of obscurity comes higher levels of conservatism. (Accounting Standards Setting Committee, 2011).

In traditional accounting, conservatism is based on uncertainty. As it is usually said, conservatism acts like a limiting factor on which reporting is based (if there is no uncertainty, reliable and credible information could be reported). To understand conservatism in accounting one should try to understand the situation under which it appears. Normally the meaning that incomes and assets should be measured by the least value possible and reliabilities and expenses by the most value possible, resides in the term conservatism. Conservatism also means that expenses ought to be determined as posterior as possible. So

it's assumed that in financial reporting pessimism is way better than optimism. (Hendriksen, 1977). In IASB's conceptual framework, conservatism is defined as following: "assets and incomes must not be measured more than the actual value and expenses and reliabilities less than the actual value". Also this conceptual framework suggests that conservatism does not allow deliberate understatement of assets and incomes and overstatement of reliabilities and expenses, because if it does, financial statements will lack neutralism, quality and reliability. Therefore, income management is not a good description of conservatism, because of the deliberate under/overstatements. (Kangarloo, et al, 2010).

There are two different points of view on conservatism. Some researchers consider conservatism good for users and interpreters of financial statements and grant it an informational role. While some others not only deny that granted informational role but also suggest that it could be harming to the users and preparers of financial statements. AICPA believes that conservatism reduces the quality of financial statements because it may lead to systematic orientation and garbling economic events. (Shorevarzi,2009). In current situation, comparing to the past, there is no propitious value to conservatism. Following this principle has led to determination of arbitrary or even inconsistence reserves or reliabilities in financial statements. (Riahi-Belkaoui, 2004).

Gregoriou and Skerratt (2007) think that applying accrual basis makes room for conservatism to penetrate. For instance, conservatism demands a reserve and depreciation loss for stock and investments. Although this reserve and the associated losses lead to a decrease in accounting profit, they don't affect cash flows. So naturally cash flows and items could not be affected by conservatism. Based on this very single definition, Givoly and Hayn (2000) used arbitrary (non-operational) accrual items to determine conservatism. Based on the aforesaid definition, conservativeness is used in determining and reporting events only when first of all, management is facing obscurity and uncertainty and has to choose one out of many choices and second, a procedure should be chosen and applied that reduces the aggregate profit as much as possible. Givoly and Hayn used arbitrary accrual items because on one hand, conservativeness resides in accrual basis and on the other hand, authorization form management in the case of uncertainty makes room for conservativeness to appear. The total accrual and arbitrary accrual items can be calculated as:

$ACC_{it}=(NI_{it}+DEP_{it})- CFO_{it}$

$OACC_{it}= \Delta(AR_{it}+I_{it}+P_{it})- \Delta(AP_{it}+TP_{it})$

$NOACC_{it}=ACC_{it}-OACC_{it}$

NI: Net income before extraordinary items, **I:** Inventories, **ACC:** Sum of Accrual items, **CFO:** cash flow from operational activities, **P:** prepaid expenses, **DEP:** depreciation expenses, **AR:** accounts receivable, **TP:** tax payable, **OACC:** operational accrual items, **AP:** accounts payable, **NOACC:** non-operational accrual items.

Givoly and Hayn (2000) showed that year by year non-operational accruals decreased meaningfully. According to the results they concluded that conservatism increased with time. This means as the time passes managers choose methods by which they could lower aggregate profit as much as possible. In above model as non-operational items decrease, conservatism increases.

Methodology

In this study, financial and accounting data for calculating stock risk and conservatism were collected from CDs of Tehran Stock Exchange reports and also financial statements of companies accepted in Tehran Stock Exchange. This study's methodology is post-event using information from the past. In this study Pierson's correlation test was used, which is one the parametric tests. Also for the statistical calculation SPSS software was used.

Sample and Descriptive Statistics

The sample consists of firms in the security exchange market in Tehran for fiscal years 2001 through 2011. Because despite the long history, Tehran Stock Exchange, had no considerable activity from

the beginning until the war against Iraq. And some companies don't have completely information for our research.

Table 1 present the mean, standard deviation for downside risk, ACC, OACC and NOACC. The mean of downside risk is 0.1589 .

Tale 1: Descriptive Statistics

	Mean	Std. Deviation	N
Downside Risk	.1589	.14471	399
ACC	-408177.2531	2.01302E6	399
OACC	168066.4837	5.07219E5	399
NOACC	-576243.7368	2.17256E6	399

Table 2 reports the pair wise Pearson correlations. For Pearson correlations we use 399 firm-year observations because as we said in downside risk formula: Min (0 and (YG -Yit)). So, most observations deleted from sample because they have (YG -Yit) below of zero. In this table most correlations are significant at the 5 percent level . For example, downside risk significantly positively associated with ACC, OACC and NOACC. It shows the Pearson correlation between risk of adverse and NOACC is 0.67 . It also shows that OACC is positively strengthen correlated with downside risk: the Pearson Correlation is 0.86 . This result supports H1 and provides some of the strongest evidence that positive correlation between downside risk and accounting conservatism.

Table 2: Correlations

		Risk of Adverse	ACC	OACC	NOACC
Downside risk	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	399			
ACC	Pearson Correlation	.094	1		
	Sig. (2-tailed)	.061			
	N	399	399		
OACC	Pearson Correlation	.086	-.201**	1	
	Sig. (2-tailed)	.087	.000		
	N	399	399	399	
NOACC	Pearson Correlation	.067	.973**	-.420**	1
	Sig. (2-tailed)	.181	.000	.000	
	N	399	399	399	399

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 reports the mean, standard deviation for total risk, systematic risk, non-systematic risk, ACC, OACC and NOACC. For example, the mean non-systematic risk is 0.554 and standard deviation is 0.776 .

Table 3: Descriptive Statistics

	Mean	Std. Deviation	N
Total Risk	7.3192	8.54055	2563
Systematic Risk	6.7644	8.35806	2563
Non-Systematic Risk	.5547	.77693	2563

ACC	-297640.2956	2.62731	2563
OACC	290775.4990	7.67863	2563
NOACC	-588415.7946	8.16869	2563

Table 4 reports the pair wise Pearson correlations. For Pearson correlations we use 2563 firm-year observations For example, total risk associated with OACC by 0.14 and It shows the Pearson correlation between total risk and NOACC is -0.019 . It also shows that the Pearson correlation between systematic risk and OACC is 0.011 and systematic risk related to NOACC by -0.017 . Finally, non-systematic risk has positive relation with OACC (0.030) and negative relation with NOACC (-0.027).This result don't support H2 and H3 because that provides negative correlation between systematic and non-systematic risk with accounting conservatism.

Table 4: Correlations

		Total Risk	Systematic Risk	Non-Systematic Risk	ACC	OACC	NOACC
Total Risk	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	2563					
Systematic Risk	Pearson Correlation	.996**	1				
	Sig. (2-tailed)	.000					
	N	2563	2563				
Non-Systematic Risk	Pearson Correlation	.278**	.191**	1			
	Sig. (2-tailed)	.000	.000				
	N	2563	2563	2563			
ACC	Pearson Correlation	-.019	-.020	.005	1		
	Sig. (2-tailed)	.340	.318	.790			
	N	2563	2563	2563	2563		
OACC	Pearson Correlation	.014	.011	.030	-.021	1	
	Sig. (2-tailed)	.493	.576	.128	.279		
	N	2563	2563	2563	2563	2563	
NOACC	Pearson Correlation	-.019	-.017	-.027	.342**	-.947**	1
	Sig. (2-tailed)	.341	.397	.179	.000	.000	
	N	2563	2563	2563	2563	2563	2563

**. Correlation is significant at the 0.01 level (2-tailed).

Conclusions

This study tests for an association stock risk and accounting conservatism. First, we examine the relationship between downside risk and accounting conservatism for 399 firm-year sample. Our results represent a significant and positive association between downside risk and accounting conservatism. So,

the managers in firms that have higher downside risk inclining to use accounting conservatism in financial accounting.

Second, we use 2563 firm-year sample for analyses the relationship between systematic and non-systematic risk with accounting conservatism. Our results from table 4 revealed that systematic and non-systematic risk have a negative correlation with accounting conservatism.

Our finding thus provide the evidence that downside risk may play an important role in shaping managers financial reporting behavior.

This study has several contributions. First, this research is the first study that provides empirical evidence on impact of downside risk on accounting conservatism. In addition, while previous literature shows the influence of the systematic risk on accounting conservatism, this study provides evidence on the association between systematic, non-systematic, downside risk and accounting conservatism.

Research limitations and direction for further research

In based of using the research database files from Tehran Stock Exchange, a limitation of the study is that there could still remain survivorship bias. In addition, a limitation to using database from Tehran Stock Exchange is that their sampling coverage includes an decrease in the percentage of some firms because their information losses over time.

We use ACC (that is income before extraordinary items less cash flows from operations plus depreciation expense deflated by average total assets), OACC (operational accrual items) and NOACC (non-operational accrual items) as the accrual-based measures of conservatism without incorporating other economic factors and firm's control variables, the results could pose some bias.

In future study, I propose to apply this research with other models that calculate conservatism. And, this would be a relevant area of research, the relationship between other factors of accounting information, for example, earning quality and market factors.

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