



The Effect of Risk and Stock Returns on the Quality of Profits of Industries Listed on the Tehran Stock Exchange

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Abstract

Purpose: The present study examines the relationship between profit quality and return and risk.

Design/methodology/approach: The research hypotheses are tested using a sample consisting of six industries listed on the Tehran Stock Exchange during the years 2014 to 2019 and using multiple regression based on the technique of integrated data and t-test.

Findings: The findings indicate that there is a significant positive relationship between profit quality and return and investment risk. The first hypothesis of the effect of return and risk on the quality of profit is accepted and the second hypothesis rejected.

Practical implications: The capital market, by directing stagnant micro-capitals to the production process, has played an important role in the economies of countries and acts as an important economic indicator. Therefore, it is necessary to pay attention to the basic decision-making principles of this type of market, especially in Iran, which has a young literature on this subject.

1. Introduction

Major manipulation of audited financial statements by state-owned companies can be problematic for investors and other users of a company's financial statements. Paying more attention to the concept of earnings quality over a period is a key criterion for the reliability of accounting information contained in corporate financial statements may be a response to perceptions that financial statement manipulation has increased (Demster, 2019). Revenue quality refers to "the ability of reported income to reflect actual income, as well as the usefulness of reported income in predicting future earnings" Accurate measurement of earnings is important because current earnings are useful for predicting future earnings. This is an indicator of the ability to pay dividends in the future. As it relates specifically to revenue management, the quality of revenue is also an ethical issue. As noted by (Abdul Ghani, 2005), the relationship between revenue quality and market pricing of stock claims includes important aspects of economic theory, accounting standard setting, and business ethics. The purpose of financial reporting is to provide information that helps investors, bankers, and other users make economic decisions. According to the theoretical foundations of Iran's financial reporting, the information provided by the accounting system can only meet the minimum required standards in the economic decision-making process. These are standards which are called qualitative characteristics of accounting information can increase the usefulness of information (Auditing Organization, 2007). Accepted principles and accrual basis accounting allow managers to apply their discernment and judgment in financial reporting in order to transfer information. In the financial reporting process, the judgment by managers in the financial reporting process is called earnings management. For years, accounting research has paid special attention to earnings management and its consequences. However, the question has always been whether earnings management improves the quality of accounting information or reduces its information content. In this article, the researcher examines the quality of industry profits relative to risk and its impact on increasing or decreasing systematic returns. An increase in systematic risk means an increase in the return on risk ratio (price determination) which indicates that revenues have been manipulated. Thus, the present study seeks to find empirical evidence to answer the question of whether

there is a significant relationship between profit quality and risk in the Iranian capital market or not. The findings of this study, while filling the research gap in this field, can be functional for managers, investors, stock market policymakers and other stakeholders is decision making.

2. Literature Review

For many years, financial researchers have been looking for factors that affect stock returns. One of the most significant researches on risk determination of macroeconomic variables has been investigated by (Chen et al. 1986).

They have assumed that the sudden changes of the macroeconomic variables play an alarming role for the stock prices and they concluded that the monthly growth rate of industrial production and sudden changes to risk and unforeseen inflation are factors that have an important explanatory power.

Based on international accounting literature, there are two different legal systems (i.e. the common-law legal system vs the code-law legal system) prevailing in a given country determining the accounting system employed in that country (Nobes, 1983; Berry, 1987; Mashayekhi and Mashayekh, 2008). Accordingly, current condition of Iran's legal system implies a code-law-based country, because it possesses some major characteristics of such system. To illustrate, the TSE is regarded as a weak equity market as compared to those markets in common-law countries. Furthermore, companies listed on the TSE prefer to meet their financing needs through banks or the government and usually undermine the outsider's equity approach. The preceding argument is consistent with Porta et al, (1999) suggesting the role of a particular type of legal system prevailing in a given country in determining its financing policy. To put it simply, a common-law legal system focuses on shareholders' rights and offers equity-based financing, whereas the code-law system emphasizes on debt financing and ignores investor protection policy. In the legal system of Iran, the government exerts a significant influence on setting accounting standards in line with the tax laws and consequently the financial reporting and disclosure are still of poor quality (Mashayekhi and Mashayekh, 2008).

Fama and French ,(1996) examined factors such as size, advantage, past returns, payable profit the ratio of profit to price and ratio of book value to the market value in relation to stock returns and concluded that the expected returns can be described only by two factors of the operating size and ratio of book value to market value. The Fama and French model has a slight ability to describe stock returns. In the research of Rao and Rajas Warry. (2000) "Macro Economic Factors and Equity Prices in India," 28 economic variables were studied. The main classes of these variables can be classified in four main groups including products, money, market capital and foreign trade. The results of the study showed that macroeconomic variables such as industrial production, agricultural production, interest rates, money supply and foreign exchange reserves and inflation have an important effect on the efficiency of assets during the study period.

Research on the Tehran Stock Exchange have determined the efficiency or Inefficiency of the stock exchange more by testing price changes, stock returns and dividends. The conducted by (Imami, 1990; Sinai, 1994; Fakhri, 1994; Sheishi, 1996; Hajazi, 1996; Namazi and Shoshtsrian, 1996; Namazi, 2003). All emphasized on the inefficiency of Tehran Stock Exchange. The research has rejected the randomization of stock prices.

(Javadi, 1995; Azizi, 1999). Conducted a research on the effect of macroeconomic variables on the price index of Tehran Stock Exchange. The results show that there is no significant relationship between macroeconomic variables and the stock price index of Tehran Stock.

2. Theoretical Foundations

2-1. Revenue Smoothing

The definitions of profit smoothing are so diverse that each researcher has provided a definition according to the method he uses for profit smoothing. Many researchers consider Hepworth to be the first one who defined profit-smoothing behavior. Profit smoothing is a deliberate action taken by managers to reduce earnings fluctuations periodic within the framework of common accounting principles and methods. Purposeful intervention in the process of external financial reporting for the purpose

of self-interest is called "profit management". Because the rate of financial crisis in recent years around the world is higher than ever before. In the last two decades, economic figures have shown an unprecedented increase in the extent of the financial crisis and consequently bankruptcy. It is one of the ways managers may hide their poor performance in financial crisis in order to seize opportunities and delay Bankruptcy. Bankruptcy is a manipulation to increase accounting profits (Rasner, 2003). which if done, will reduce the reliability of the profits of these companies. Hence, in the accounting literature, non-manipulation of earnings (lack of earnings management) is considered one aspect of high quality earnings. In addition, the results of foreign research indicate the fact that the quality of profits of companies in financial crisis, due to profit management, is at the lowest level (Garciala et al, 2009). One of the main goals in profit smoothing is to create a stable flow in order to support a higher level of payable profit. Stable profit flow can be perceived as a lower risk leading to higher stock prices and lower borrowing costs. Another goal of profit smoothing is the tendency of the business management to increase its stability and reduce its fluctuations. Investors can have a more accurate forecast of future profits (Pourheidari, 2006).

2-2. Cost of Capital

The expected rate of return is the minimum rate that the company must achieve as long as the wealth of its shareholders is not reduced. The expected rate of return is also called the cost of capital. There are two reasons to be careful about the expected rate of return: First, if that rate is set too high, the company will avoid implementing fully profitable plans. Second, if the rate is set too low, the company will implement schemes that reduce shareholders wealth. The business unit must accept plan that returns at least more than the cost of raising capital for that business unit (Foundation Delhi, 1998). The cost of capital is the minimum acceptance criterion or the minimum rate of return for a new investment. If the return on investment of a company is greater than the cost of its capital and this increase is without increasing the degree of risk, the wealth of shareholders will increase (P. Novo, Raymond, 2008). In other words, the cost of capital is the minimum rate of return that a company must achieve in order to satisfy its investors. It can be said that every company has its own risk and return. Each of the investment groups, for example, bondholders, preferred

stockholders and ordinary stockholders, wants a rate of return which equals to its risk. To accept a project, if the value is positive, the project is accepted, and if the current value is negative, it is rejected. Therefore, the minimum expected rate of return for each project is called its capital cost (Hejazi and Jalali, 2007).

2-3. Financial Markets

A financial market is a market in which individuals and legal entities can trade securities, commodities and other similar assets at low transaction costs, at prices that are subject to supply and demand. Guarantees include stocks, bonds, and some commodities (including precious metals or agricultural products). There are two types of public markets (where many types of goods are traded) and private markets (where only one type of goods is traded). Markets bring together many interested buyers and sellers, including households, companies, and government agencies, making it easy for them to find each other. An economy that relies primarily on transactions between buyers and sellers to allocate resources know as a market economy and the borrower usually gives a receipt to the lender that guarantees the repayment of the capital. These receipts are guarantee bonds, which are easily bought and sold. In return for lending money to the borrower, the lender expects a reward in the form of interest or dividends (Unston, 1988).

2-4. Model of Back Multifactorial

The basis of the Capital Asset Pricing (CAPM) model is derive from (Harry Markowitz, 1959). Portfolio model, which identifies risk and stock returns using variance and average stock returns (Merton, 1973; Black et al, 1972; Cox et al, 1985). One of the limitations of the Markowitz portfolio model is the focus on risk-prone asset selection. With the identification of risk-free assets (RF), portfolio theory moved towards capital theory and capital asset pricing model. This work is attributed to Nobel Prize-winning William Sharp (Royley and Keith,1997).The capital asset pricing model is a single-index pricing model that predicts a linear relationship between bond beta and expected returns (Budio et al, 1998).

Stephen Ross following the research developed the pricing of capital assets by presenting the theory of arbitrage, which is the most popular model among the multi-

index models. Ross Arbitrage Pricing Theory is considered a superior alternative to the capital asset pricing model. Unlike CAPM, APT assumes that a multi-index model generates bond returns.

3. Research Methods

Measuring Earnings Quality in Asset Pricing Models

The Portfolio's Opinion shows that special risk can be eliminated by variation. However, the fundamental problem is that with the diversification of the market, systematic risk cannot be removed. In other words, if a portfolio consists of all market stocks, there is still a systematic risk that annoys the investor. The CAPM model has been developed to measure systematic risk. Although the systematic risk cannot be eliminated this model, at least can predict its amount and link it to the expected returns.

The basic formula of the CAPM model that shows the relationship between risk and expected returns is as follows:

$$k_e = R_f + \beta(R_m - R_f)$$

In which k_e represents the expected return on shareholders, R_f risk-free, R_m represents market returns.

Previous researches suggest that the quality of a company's revenue should have an effect on the pricing of risks in the market. Therefore, our attempt to determine the impact of earnings management on financial return requires us to estimate the level of earnings quality independently and appropriately. There are two types of profit quality measurements in the literature: input-based measures taken from financial disclosure data and output-based measures that follow the expected consequences of earnings management for important financial series. Some examples of input measures include net levels or changes in the accrued and deferred accounts, the ratio of net operating assets to sales. Profit quality is divided into three categories of

profitability, levels of accrual accounting and the profit reflecting economic transactions. Sustainability of the profit means repeatability (continued) of current profit. The sustainability in a company means that it has power to maintain current profits. This ensures the company's profit quality. The levels of accrual accounting have a reverse relationship with the quality of profit because the higher the profitability of the cultivars, the quality of the company's profit decreases. In addition, the more accounting benefits are reflected in actual economic transactions, the profit quality increases (Mac Nails, 2002).

Relationship (2)

$$R_t - R_{rt} = \alpha + R_1\beta + b_2S + b_3V + e_t$$

R_t is a period of asset in the period T.

R_{rt} is a riskless rate, β beta is an asset market (as the sensitivity of the asset returns to those in the market basket), S measurement of firm size in investment in the market, V is the relative value of the firm measured by the ratio of the book to the market and e_t is a term error terminology at t time.

To obtain factor sensitivities, historical data of asset returns are examined using a method such as ordinary least squares in the actions of related factors. The estimated coefficients indicate the sensitivity of the factor. These can be used to predict the required securities returns. As long as the model is correct, the required returns can be considered a long-term forecast of the tendency to return the portfolio. In this research, we examine profit management of assets return in the regression equation through the multi-factor model of Fama and French. In this research, we use the one-factor model. We limit this model to returns and risk so that only the effect of returns and risk on the quality of profits can be examined. There are two patterns between profit quality and company market returns in our model. First, market participants identify that the profit quality as a long-term risk factor that should be reduced. Companies with relatively low profit quality pay systematically higher returns than risk-free rates. There is a probability that the distorting effects of revenue

manipulating shows the management of higher while when performance is poor, potentially reflect higher earnings management. In this scenario, earnings quality is regularly reduced and is assessed as part of the company's overall risk profile. The second possibility is that the quality of profits is determined periodically and explicitly as a part of the asset pricing process. The long-term returns are determined only by stable risk factors, but the short-term periodic returns differ according to the valuation of market profits, which are determined by the specific principles of the firm.

Therefore, two hypotheses can be proposed:

- 1- Companies with lower profit quality have higher systematic returns than risk rates.
- 2- Companies with higher profit quality have lower systematic returns than risk rates.

The statistical community in this study is six important industries listed on the Tehran Stock Exchange: agriculture, coal, metal ores, textiles, leather products, wood products. The statistical community of studied industries is related to the years 2014-2019. Data has been collected from the stock exchange site or seo.ir. Collected are related to the percentage of the industry returns which are shown below.

Table 1 Industry Index

Company Name	Industry
1- Agriculture and Livestock Mgsal 2- Pars National Agro-industry and Animal Husbandry	Agriculture
Coal is a precious stone	Coal
1- Mines Bafg 2-Bama 3-Mining and Industrial Chadormalu 4- Survey of Damavand 5- Gol Gohar Mining and Industrial 6- Sabanvar Mining and Industrial Development 7- Development of Mines and Metals 8- Mines Mngnzayran 9- Development of Mines on Iran	Metal ores
1 Textile Boroujerd 2- Iran Merino	Textiles
Group Industrialized Nation Holding	Leather products
Iran Fiber	Wooden products

Meanwhile, the risk of each industry obtained by the following formula.

$$G = \sqrt{\frac{\sum \sqrt{(r_i - \bar{r})^2}}{n}}$$

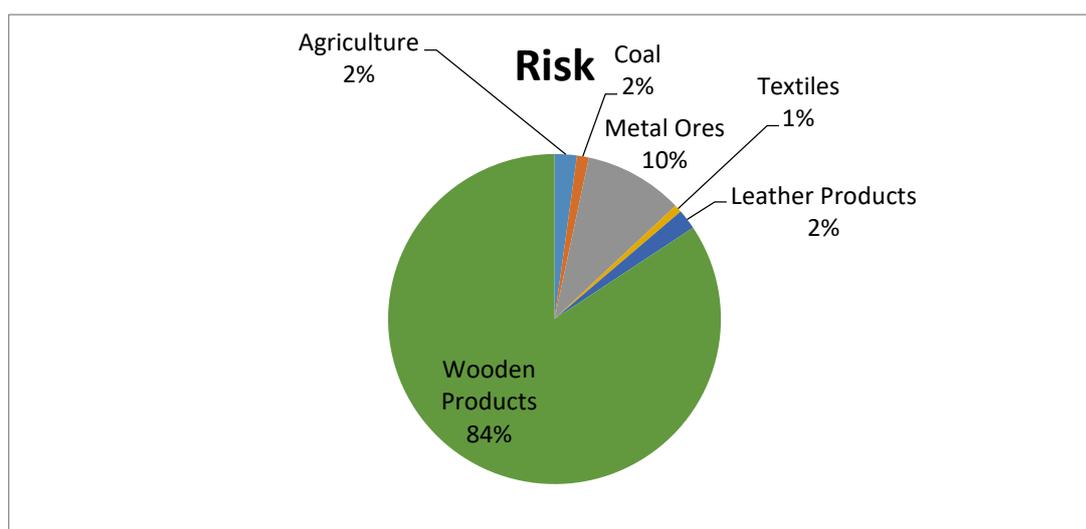
Table 2 Returns and risk obtained in each year

2019			2017		2016		2015		2014	Year
Total risk	Percentage of returns	Industry								
403.12	92,307	205.23	68,379	167.37	81,168	57.83	69,525	83.95	68,435	Agriculture
	25,914		13,933		10,617		6,925		9,307	Coal
	421,854		162,607		124,354		101,586		160,651	Metal ores
	14,195		13.34		15,805		15,202		11,409	Textiles
	21,137		19,022		12,809		8,0845		6,697	Leather products
	1127.1		587.905		483,664		163,607		223.46	Wooden products

Table 3 Total Return and Risk Obtained During the 5 Years under Review

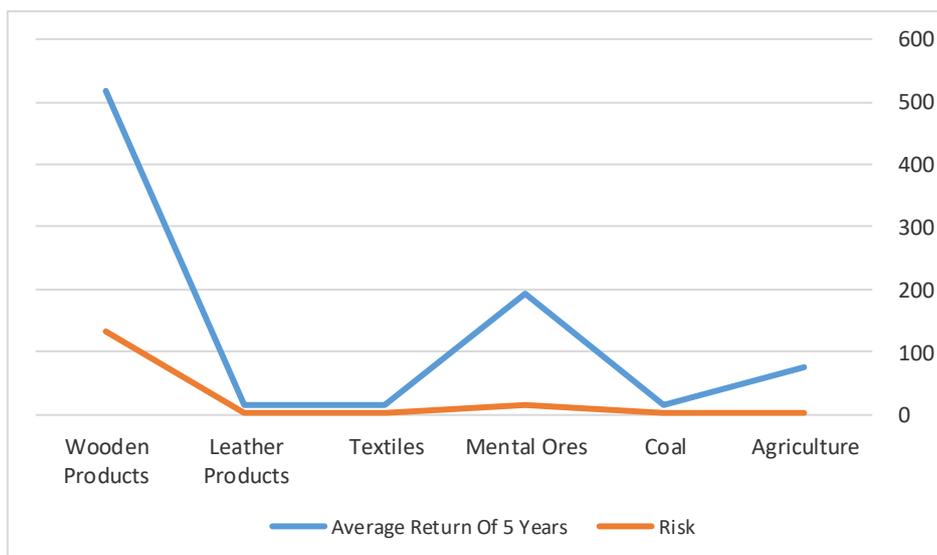
Industrial Risk		
Risk	Average Return 5 Years	Industry
3,366	75.9628	Agriculture
1,803	13.3392	Coal
15,008	194.2104	Metal Ores
1,154	13.9902	Textiles
3,064	13.5499	Leather Products
131.34	517.1472	Wooden Products

Figure 1 Risk Obtained From 2014-2019



During these 5 years, wood products had the highest risk of 84% and had the highest returns. The obtained correlation coefficient is equal to 0.964 and considering that coefficient is close to one, it indicates a strong relationship between return and risk. This means that the higher the efficiency of the industry, the higher the risk. The scatter plot is also extracted in this way.

Figure 2 Pearson Correlation Coefficient Scatter Plot



The Points in the scatter plot expressed the intensity, direction and type of relationship between two variables. In 2017, the regression line illustrates the most intensity, which indicates a strong and positive relationship between return and risk rates. Where there is no pattern, there is no relationship. When the slope of the points is from left to right upward (ascending), the relationship is positive. If the points have more intensity around the regression line and the distance between the points is less the relationship will be stronger. The research hypotheses are such that companies with lower profit quality than risk have higher systematic returns. This interpretation of profit reduction is based on the idea that profit management is likely to have a negative relationship with firm performance. In fact, the quality of the profit shows how honest the profit has been. The researcher tries to find out the profit manipulation by using the risk and return of industry stocks. Revenues are

manipulated when risk increases, or conversely, risk is significantly increased, when profits are manipulated. The data and statistical methods show that wood products with a return of over 64% and a risk of far above 84%, has the most manipulation. If we examine the risk by year, we see the lowest risk in 2014 and the highest risks in 2019.

Table 4 Exam T. Test

T-Test: Paired Two Sample For Means		
<i>Variable 2</i>	<i>Variable 1</i>	
25.95583333	138.0332833	Mean
2691.700907	39433.47776	Variance
6	6	Observations
Numbers	0.964372395	Pearson Coefficient
	0	Hypothesized Mean Difference
	5	df
	1.840299552	T Stat
	0.0625497	P (T <= t) One-Tail
	2.015048373	T Critical One-Tail
	0.1250994	P (T <= t) Two-Tail
	2.570581836	T Critical Two-Tail

The t-test is used to evaluate the statistical significance of the difference between the two groups of data. The results obtained from the data of t-test show that the two groups (variables) significant. In this test, the value of t start is 1.84, which is less

than the value of t critical which is equal to 2.57. The empty hypothesis, which indicates that the data is meaningless, is rejected.

4. Results

We examined the quality of industry profits to risk and its impact on increasing or decreasing systematic returns. The increase in systemic risk reflects that the earnings have been manipulated. Our attempt to determine the impact of earnings management on financial return requires us to estimate the level of earnings quality independently and appropriately. In order to achieve this target, samples of six important industries in Tehran Stock Exchange during the years of 2014 to 2019 have been examined. Therefore, two hypotheses can be proposed :

1- Companies that have lower profit quality have higher systematic returns than risk rate.

2-Companies that have higher profit quality have lower systematic returns than risk rate.

In this research, we examined profit management through the multi-factor model of Fama and French. Asset returns can be expressed with a regression equation using a one-factor model .We limit this model to return and risk so that only the effect of return and risk on the quality of profits is examined.

Wood products with maximum of 84-percentage risk during these 5 years suffered and the highest efficiency belongs to wood products. Correlation coefficient is equal to 0/964 and due to the proximity of the coefficient to one; it indicates a strong relationship between return and risk. This means that the higher the efficiency of the industry, the higher the risk. This article tries to find out the profit manipulation by using the risk and return of industrial stocks. Revenues are manipulated when risk increases. In other words, risk increases significantly when profits are manipulated. The correlation coefficient showed that both return and risk variables move in the same direction. In other words, as the returns increase, so does the risk. The earnings

manipulation has been considerable in the wood products with high efficiency of 64% and a much higher risk of 84%. If we examine the risk by year, the year 2014 has the lowest Risk and the year 2019 has the highest risk. In this test, the value of t start is 1.84, which is less than the value of t critical, which is equal to 2.57. The empty hypothesis, which indicates that the data is meaningless, is rejected. According to the obtained results, the first hypothesis is accepted and the second hypothesis is reject. This means that companies with the lower profit quality have higher systematic returns than risk rates. The higher the return and the risk are, the lower the quality of the profit and the higher the probability of profit manipulation.

5. Suggestion

The present study examines six important industries in a 5-year period. Researchers can conduct a series of empirical experiments on the relationship between accounting and long-term stocks return with more industries. These results strongly support our hypothesis that long-term returns are sensitive to the perception of profit manipulation. Despite the limitations this study, suggest ways for further development. The survey of a large sample can show the profit quality well and it shows how the market operates and how to assess the quality of corporate data. It is the best to use the indices of earnings quality. However ,we believe that this research contains an important step towards a better understanding of earnings quality assessment in financial markets. Market monitoring with reliance on financial reporting on earnings quality increases the transparency of the financial sector by providing an independent mechanism for assessing the related risks. Our findings show that firms involved in earnings management can suffer from a significant increase in capital costs. Thus, it increases the value of controls over internal auditing procedures.

6. Research Limitations

It should be noted there is no specific standard on how to report statistical and mathematical calculations in different research areas. In some field studies, due to lack of necessary reporting statistics, it was not possible to calculate the effect size; therefore, the researcher had to remove the mentioned researches from the statistical community. In addition, the results of this study are limited to the databases used, namely, Meg Iran, Normagz and Jihad Daneshgahi as well as Tehran Stock Exchange.

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