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Investigating the Relationship between Stock Prices and Earnings Quality Using Leuz Parton-Simko and Penman Models in Firm's Life Cycle Stages.

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ABSTRACT

The main purpose of this study is to review the relationship between stock prices and earning quality using leuz, barton-simko and penman models during firm's life cycle stages.Analysis of data collected in this study was conducted in two stages. First, samples were classified to growth، maturity and decline stages. Then، running pooled cross-sectional regression analysis and paired-t test two tail comparisons. the hypothesis were tested during 2004-2009 The results are shown leuz and barton-simko models in growth، maturity and decline stages are significant and penman model regression in growth، maturity and decline stages is not significant. In growth stage , the barton-simko model، have stronger relationship than leuz model with stock price. In maturity stage،the barton –simko model، have stronger relationship than leuz model with stock price.. In decline stage، the leuz model، have the stronger relationship than barton-simko model with stock price.results demonstrate there is a significant differences relationship with models in growth، maturity and decline stages.

KEYWORDS: earning quality, firm's lifecycle, leuz model , barton-simko model , penman model.

INTRODUCTION

Financial reports are among the most important outcomes of accounting systems. One of their main goals is to supply the needed data in order to assess performance and profitability of a business entity. One of the accounting items، presented by financial reports، is net profit which has several uses. Usually profit is considered as a factor to establish profit division policies and it is a guideline for investment and decision-making and finally a factor for forecasting (Khosh-tinat & Esmaeeli، 2005). Some researchers have studied the relationship between stock price and earnings quality (Anthony & Ramesh، 1992). But these researchers have not studied the effect of firms' life cycle on the relationship between stock price and earning quality. According to life cycle theory، firms represent different traits in different periods of life cycle regarding financial and economical issues. In other words، financial and economical characteristics of a firm are affected by stage of life cycle in which it is located (Bixia، 2007). Also the results of the previous researches show that the reaction of capital market to accounting information in different stage of life cycle has had meaningful differences (Aharony & Yehuda، 2006). In fact representing the earnings quality data causes the reaction of investors. It seems that the reaction of investors causes fluctuations in stock price itself. On the other hand، firms show different endurances. against the created reaction in different stages of life cycle. Thus، presenting data related to the effect of financial data quality on investors' reaction (the price of stock market) during the different stages of life cycle have information contents.

In this research، earnings quality criterion by using models proposed by Leuz (2003), Barton-Simko (2002) and Penman (2001). its relationship with market stock price during different periods of firms' life cycle was investigated.

Conceptual framework of earnings quality

The theory of earnings quality was first posed by financial analysts and Stock Exchange agents. They inferred that the reported profit does not show the firms' profitability as it is imagined. They found out that analyzing firms' financial statements is a difficult task due to the different weak points in assessing accounting information. We should not solely consider the amount reported to announce the profitability in determining the firms' value، but should also consider the quality of the reported profit. By earnings quality، we mean the potential profit growth and the probable amount of realization of future profits. In other words، the value of a share does not depend solely on the profit of each firm share's profit in the current year and it depends on our expectations of our firm's future and future years' profitability and assurance coefficients compared with the future profit gains (Jahankhani، 1995).

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The concept of earnings quality considers two characteristics for quality determination: 1) Profitability in decision-making، and 2) The relationship between earnings quality and economical profit. In other words، earnings quality is honest expression of the reported profit. That is a high earnings quality shows the usefulness of profit information for decision-making by the users and also it is more adjusted with economic profit (Ahmadpoor & Ahmadi، 2008). The investors' general understanding of the real profit concept is the profit resulted from the common performances which can be repeated in the future years and can create cash flows. Investors consider accounting net profit as the best criterion for determining profitability of a business unit.

Financial analysts generally different from the reported earnings as actual profit. The reasons for this difference are manipulating earnings by managers. Financial analysts try to assess the firms' profit perspective. Profit perspective refers to the desired and undesired net profit features' composition. Firms with recurring profit have a higher earnings quality in income statement compared with other firms. Thus، analysts can predict firm's future profitability with more assurance capability (Esmaeeli، 2007).

Regarding the emphasis by those who design financial accounting standards about usefulness. it is believed that earnings quality and financial reporting quality on the whole is considered more by those who use them for exchange and decision-making goals. Additionally، standard determiners consider earnings quality indirectly as a criterion for assessing the quality of financial reporting standards (Rahimian & Jaafari، 2006).

Revsine (1999) considers a profit to be more qualified which is more consistent. Richardson & et al (2001) introduced earnings quality as the consistency degree of profit gain in future periods. Banish & Wargass (2002) consider earnings quality as consistency probability of current profit gain in the future. Penman & zhang (2002) identify earnings quality as the ability to show future profits. Hodge (2003) introduced earnings quality as the difference degree of the reported net profit of the real profit. Mikhail & et al (2003) consider earnings quality as a degree of relationship between firm's previous profits and its future cash flow. White (2003) states that earnings quality is the amount of conservancy employed in the reported profit. Chrescan Highter & Melomad (2004) consider a earnings qualified which is more related to firm's value in long-term and includes more information content. Scholer (2004) describes earnings quality in a form of a relationship between promissory items and cash flows.

One of the reasons of the diversity in the descriptions above is the fact that earnings quality can consist of different approaches by different researchers. Thus، earnings quality is a complicated issue and there has not any concise description presented for it.

Conceptual framework of firms' life cycle

One of applied models regarding the analysis of the position and status of the company is life cycle model of the firm. Firms are created in a period of time، develop، get matured and then enter saturation stage and finally get old and decay. Inefficient programming of the performances and its occurrence with its old ages simultaneously causes the occurrence of the firm's decay to be more probable (Karami & omrani، 2010).

Accounting data and information can affect the firm's main decision-makings. Main decision-makings are considered to be crucial in doing business activities which result in the change of firms' value. Studies of life cycle showed business activities' effectiveness accords with the changes of the firm's value during the different periods of life cycle. Business entities follow a certain policy regarding each period of their economic existence. These policies are somehow reflected in firms' accounting information (Jaafer، 2010).

Researchers have introduced the following 4 main phases as the firm's life cycle:

Stage one: existence

Known as the entrepreneurial (Quinn and Cameron، 1983) or birth stage (Lippitt and Schmidt، 1967)، Existence (Churchill and Lewis، 1983) marks the beginning of organizational development. The focus is on viability، or simply identifying a sufficient number of customers to support the existence of the organization. Decision-making and ownership are in the hands of one، or a few، and the organizational structure is very simple. Organizations in this stage tend to enact or create (Bedeian، 1990) their own environments.

Stage two: survival

As firms move into the Survival stage they seek to grow (Adizes، 1979; Downs، 1967)، develop some formalization of structure (Quinn and Cameron، 1983)، and establish their own distinctive competencies (Miller and Friesen، 1984). Goals are formulated routinely in this stage، with the primary goal being the generation of enough revenue to continue operations and finance sufficient growth to stay competitive (Churchill and Lewis، 1983). The Survival stage provides several interesting alternatives: Some organizations grow large and prosper well enough to enter the next stage، some “hit and miss،” earning marginal returns in some fiscal cycles، and others fail to generate sufficient revenue to survive. Most organizations in this stage are structured in a functional manner، and decision-making is more decentralized than the Existence stage.

Stage three: success

Commonly called maturity (Adizes، 1979)، the Success stage represents an organizational form where formalization and control through bureaucracy are the norm (Quinn and Cameron، 1983). A common problem in this stage is what many businesses have long referred to as "red tape" (Miller and Friesen، 1984)، a condition of wading through layers of organizational structure to get anything accomplished. Job descriptions، policies and procedures، and hierarchical reporting relationships have become much more formal. Such organizations have passed the survival test، growing to a point that، at times، they may seek to protect what they have gained instead of targeting new territory. The top management team focuses on planning and strategy، leaving daily operations to middle managers. Organizational structure is varied، but many firms tend to be organized by product or geographic divisions due to the need to serve wide markets.

Stage four: decline

Although firms may exit the life cycle at any stage، the Decline stage can trigger the demise. The Decline stage is characterized by politics and power (Mintzberg، 1984)، as organizational members become more concerned with personal goals than they are with organizational goals. Control and decision-making tend to return to a handful of people، as the desire for power and influence in earlier stages has eroded the viability of the organization.

Earnings quality prior studies

Baroa (2006) has studied the criteria for measuring quality of earnings، using quality characteristics of financial data included in conceptual framework of FASB. The results showed that firms with high relevancy and reliability of profit have higher profits. profit reaction coefficient and descriptive power of value regression than those which benefit lower relatedness and reliability of profit.

Quinn & Wikky (2008) studied the relationship between earnings quality and investing of capital assets during 1988 to 2005. The results showed that those firms which have less earnings quality allocate their sources to capital assets less and benefit less asset yield rates.

Jhau & Chen (2009) concluded in their study of quality of earnings and firm ownership blockholder that firms obeying those rules have less unusual accruals in their financial reports and thus have a higher quality of profit and lower profit management.

Bao and Bao (2004) argue that lower variability of earnings does not guarantee that income smoothers will have higher firm values. They point out that quality earnings smoothers have the highest price-earnings multiple while non-quality non-smoothers have the lowest price-earnings multiple.

Chan & et al (2006) studied the relation between promissory goods (difference between profit and cash flows) and future stocks yields and showed that in firms with high amount of promissory goods in the period after financial data reporting، stock yield will decrease. An interpretation of these results is that firms with low quality of profit (i.e. firms with high promissory goods) incur a decrease in yield in the period after profit reporting، because stockholders find out about low profit quality of the firms and equilibrate the stocks' value accordingly.

Firm's life cycle prior studies

Park & Chen (2006) studied the effect of conservancy on the reaction of investors towards the net performance assets and unusual performance profit in different stages of the firm's life cycle and found out that in development and maturation stage، it is more important for the investors to know about net yield of performance assets and unusual performance profit of conserving firms in comparison to those firms which use unprecedented accounting approaches. While it is proved that in decay period it is vice versa.

Miller and Friesen (1984) report that firms in the maturity and revival phases put significantly more emphasis on formal cost controls than do firms in the growth stage.

Md. Auzair and Langfield-Smith (2005) use a self-categorization measure based on the firm's own assessment of its life cycle stage and report that organizational life cycle، among other contingent variables، has a significant effect on the design of a firm's management control systems. In this paper، we investigate if the use of the activity-based cost-accounting system differs across life cycle stages of the firm.1 The life cycle literature.

Khosravi (2009) compared the effect of financial data based on cash flows and Accruals in predicting stock yield during firms' life cycle. He concluded that in development phases and the Accruals decay period has more explanation ability compared with financial data based on cash flows. While it is corroborated that in maturation period it is vice versa.

Research Hypothesis

1-Information content of earnings quality with leuz and penman models have significantly different in firm's life-cycle stages.

1-1) In growth stage ، information content of earnings quality with leuz and penman models have significantly different.
1-2) In maturity stage ، information content of earnings quality with leuz and penman models have significantly different.
1-3)In decline stage ،information content of earnings quality with leuz and penman models have significantly different.
2-Information content of earnings quality with leuz and barton-simko models has significantly different in firms life-cycle stages.
2-1)In growth stage ، information content of earnings quality with leuz and barton-simko models have significantly different.
2-2) In maturity stage ، information content of earnings quality with leuz and barton-simko models have significantly different.
2-3)In decline stage ، information content of earnings quality with leuz and barton-simko models have significantly different.
3-Information content of earnings quality with barton-simko and penman models has significantly different in firms life-cycle stages.
3-1)In growth stage ، information content of earnings quality with barton-simko and penman models have significantly different.
3-2) In maturity stage ، information content of earnings quality with barton-simko and penman models have significantly different.
3-3)In decline stage ، information content of earnings quality with barton-simko and penman models have significantly different.

RESEARCH METHODOLOGY

The present study is correlation-descriptive and the methodology used is based on market.
The study of the application in terms of gathering and information collection is from past data.

Condition separates the firms in life cycle stages

To classify sample firm-years into life-cycle stages، this study uses the following four classification variables commonly used in prior research on life-cycle Anthony and Ramesh (1992): age of the firm (AGE)، sales growth (SG)، capital expenditure divided by total value of the firm (CE)، and annual dividend payout divided by net income (DP).

In this research we have ignored the emergence period and described life cycle to include 3 periods of development، maturation and decay because stock exchange for the newly established firms was inactive.
In this research the firms' division into development، maturation and decay periods was done by using the four variables mentioned and Park & chen's (2006) methodology.
Division phases in Park & chen's approach:

1- The 4variables were calculated for each year.
2- The 4 variables were arranged based on year-firm. According to table (1)، numbers were appropriated in accordance with the category.
3- An aggregate mark was gained for each year-firm which is categorized regarding the following conditions in one of development، maturation and decay stage:
   a) If the sum of marks is between 16 and 20، growth stage
   b) If the sum of marks is between 9 and 15، maturity stage
   c) If the sum of marks is between 4 and 8، decline stage (Park & chen، 2006)

Table 1- life cycle model

Industry Quintile	Life-Cycle Descriptors			
	(AGE)	(SG)	(CE)	(DPR)
0%-20%	5	1	1	5
20%-40%	4	2	2	4
40%-60%	3	3	3	3
60%-80%	2	4	4	3
80%-100%	1	5	5	3

We can see operating definition of variables in table 2 :

Table2- operating definition of research variables

frame	symbol	variable
$= [1-(Sale_{it} / Sale_{it-1})] \times 100$	SG_{it}	sales growth
$= (DPS_{it} / EPS_{it}) \times 100$	DPR_{it}	dividend payout ratio
$=(\Delta fa/vm)\times 100$	CE_{it}	capital expenditure divided by total value of the firm
=SD(OI)/SD(CFO)	EQ_l	Leuz model earning quality
=NOA/NS	$EQ_{b\text{-}s}$	Barton-Simko model earning quality
=CFO/NI	EQ_p	Penman model earning quality
= (SIZE/NS)	TOR	Turn over
Eps=earnings per share Dps= common stock dividends Net sale=NS SIZE = assets capital expenditure = Δfa		OI=Operating income net income= NI SALE= net sales Net operating income= NOA VM=market value CFO=cash flow from operation

Model presentation

$Y_{it}=\alpha_0+\alpha_1 x_{it}+\alpha_2 \sum control_{it}+\varepsilon_{it}$

Multi-variable regression using aggregate data was used to analysis the data.

Table3-regression model variables

definition	symbol
Earning quality index	X_{it}
Size ، TOR	Control
Δp	Y_{it}

The normality of variables is one of the presuppositions of regression validity. To test the data normality، Kolmogorov-Smirnov (K-S) test was used. According to the results of table4، the significant level of stock's market price is more than %0/05 and %95 assurance stock's market price with a normal distribution. Then Durbin-Watson test was used to study the lack of convergence problem between the variances of the values stated (leftover sentences) which is approximately 2 and there is no convergence problem. Regarding VIF statistics which is less than 5، there is no co-linearity problem among research variables.

Table4- Kolmogorov-Smirnov (K-S) To test the dependent variables normality

P	variables
1/031	Kolmogorov-Smirnov Z
0/238	sig

Sample selection

Our statistic society was firms listed in Tehran Stock Exchange. First archiving method was utilized to collect data about theoretical literature and then data collection was done through financial statements of firms and other authentic sources in Tehran Stock Exchange (CDs and rdis.ir & irbourse.com sites).

Our sampling method was systematic deletion (filtering). Thus، selection requirements included:

1-Firms have the same financial periods and ended to esfand.

2-The firm's financial information for research period was gettable.

3-There is not any dealing stoppage more than 3 months.

4- Firms before year 2002 matriculate in Tehran stock exchange.

5-The sample is not among investing industry or brokerage or monetary and banking institutions.

6- The research period includes the years between 2004 and 2009

Findings

Descriptive statistics

Table 5 is containing Descriptive statistics of researches data for use in multi-variable regression.

Regarding use the aggregate data to test the hypothesis، Number of 65 firms was selected.

Table 5-Descriptive Statistics

TOR	Size	P	Ql	Qb	Qp	variable
390	390	390	390	390	390	N
0/07	10/57	-993/00	-13/48	-6/54	-81/82	minimum
950/95	16/61	980/00	28/88	5/58	165/86	maximum
0/7135	12/9012	-79/800	0/1324	0/0059	0/4688	mean
0/38953	1/2959	349/1511	2/34479	0/68584	12/6022	Std. Deviation

Table 6-Descriptive Statistics in growth stage

TOR	Size	P	Ql	Qb	Qp	variable
45	45	45	45	45	45	N
71/72	10/57	-0/830	-4/39	-6/54	-54/6	minimum
138/12	15/25	82	3/96	0/94	38/34	maximum
101/635	12/3713	18/05	-0/0350	-0/1132	2/6403	mean
3/1201	0/97431	85	1/17125	0/23642	6/54302	Std. Deviation

Table 7-Descriptive Statistics in maturity stage

TOR	Size	P	Ql	Qb	Qp	variable
318	318	318	318	318	318	N
48/82	11/68	-120	2/801	-3/21	108/51	minimum
950/95	16/61	980	28/88	5/58	165/86	maximum
801/8467	15/9581	22/897	11/3222	0/0042	125/80	mean
4/26004	1/31270	1/521	2/53996	0/75014	9/78653	Std. Deviation

Table 8-Descriptive Statistics in decline stage

TOR	Size	P	Ql	Qb	Qp	variable
27	27	27	27	27	27	N
0/07	10/99	-993	-13/48	-5/8	-81/82	Minimum
180/98	16/28	140	4/21	0/54	16/03	Maximum
43/0061	13/1137	0/81	-0/4126	-0/0540	2/5872	Mean
3/884	1/39277	8/985	1/07270	0/23950	32/77653	Std. Deviation

According to table 6 ، 7 and 8 earnings quality with leuz ، braton-simko and penman models in growth stage have mean -0/035 ، -0/1132 and 2/6403.in maturity stage have mean 11/3222 ، 0/0042 and 125/80. in decline stage have mean -0/4126 ، -0/0540 and 205872.each 3 model in maturity stage have the most earning quality.

Result test

First main hypothesis - the information content of earnings quality with Leuz's and penman models in life cycle stages has significant differences.

1-1)In growth stage ، information content of earnings quality with leuz and penman models have significant differences.

Table 9-result the regression between stock price and earnings quality with leuz and penman models in growth stage

Penman growth stage		Leuz growth stage				Variable name	symbol	Variable type
t-value	beta	t-value	beta	t-value	beta			
0/008	-2/656	-17/359	0/001	1/102	3/173	Alfa	α	constant
0/127	-3/042	-0/571	0/042	-0/745	-0/023	ΔQ	X1	Dependent Variable
0/000	-1/113	-0/172	0/000	-0/780	-0/079	TOR	Control variables	
0/043	-2/029	-2/037	0/001	-0/694	-0/354	SIZE		
_	_	1/828	_	_	1/870	Durbin-Watson	-	
0/001	_	4/942	0/000	_	7/963	F	-	
_	_	0/366	_	_	0/349	R Square	-	
_	_	0/366	_	_	0/348	Adjusted R Square	-	

As it can be seen in table 9، earnings quality variable with Leuz's model has a significant relationship with stock price، while earnings quality with Penman's model does not have a significant relationship with stock price. In Leuz's model، earnings quality، flowing rate of assets and firms' size and in Penman's model، assets' flowing rate and firm's size have a significant relationship with stock price. Earnings quality with Leuz's and Penman's model and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F

statistics، regression models has been balanced and is significant. Regarding the balanced determination coefficient، leuz's model can explain 35 percent and Penman's model can explain 37 percent of stock price changes.
1-2)In maturity stage ، information content of earnings quality with leuz and penman models have significant differences.

Table 10-result the regression between stock price and earnings quality with leuz and penman models in maturity stage

Penman maturity stage		Leuz maturity stage			Variable name	symbol	Variable type
t-value	beta	t-value	beta	t-value	beta			
0/026	-2/226	-15/944	0/000	13/276	79/239	Alfa	α	constant
0/829	-0/217	-0/083	0/016	-3/216	-0/440	ΔQ	X1	Dependent Variable
0/002	-1/181	-0/184	0/001	-2/388	-0/276		Control variables	
0/014	-2/470	-2/477	0/002	-1/336	-0/044	SIZE		
_	_	1/879	_	_	1/920	Durbin-Watson	-	
0/35	_	2/598	0/000	_	45/683	F	-	
_	_	./348	_	_	0/413	R Square	-	
_	_	./345	_	_	0/412	Adjusted R Square	-	

As it can be seen in table 10، earnings quality variable with Leuz's model has a significant relationship with stock price، while earnings quality with Penman's model does not have a significant relationship with stock price. In Leuz's model، earnings quality، flowing rate of assets and firms' size and in Penman's model، assets' flowing rate and firm's size have a significant relationship with stock price. Earnings quality with Leuz's and Penman's model and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F statistics، regression models has been balanced and is significant. Regarding the balanced determination coefficient، leuz's model can explain 42 percent and Penman's model can explain 35 percent of stock price changes.
1-3)In decline stage ، information content of earnings quality with leuz and penman models have significant differences.

Table 11-result the regression between stock price and earnings quality with leuz and penman models in decline stage.

Penman decline stage		Leuz decline stage			Variable name	symbol	Variable type
t-value	beta	t-value	beta	t-value	beta			
0/057	-1/904	-14/592	0/000	11/014	103/309	Alfa	α	constant
0/302	-2/992	-0/563	0/014	-4/251	-0/184	ΔQ	X1	Dependent Variable
0/000	-1/084	-0/169	0/000	-1/615	-0/299		Control variables	
0/062	-1/872	-1/905	0/005	-17/62	-22/084	SIZE		
_	_	1/833	_	_	1/893	Durbin-Watson	-	
0/004	_	3/022	0/000	_	50/544	F	-	
_	_	0/349	_	_	0/389	R Square	-	
_	_	0/347	_	_	0/387	Adjusted R Square	-	

As it can be seen in table 11، earnings quality variable with Leuz's model has a significant relationship with stock price، while earnings quality with Penman's model does not have a significant relationship with stock price. In Leuz's model، earnings quality، flowing rate of assets and firms' size and in Penman's model، assets' flowing rate and firm's size have a significant relationship with stock price. earnings quality has a reverse relationship with Leuz's and Penman's model and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F statistics، regression models has been balanced and is significant. Regarding the balanced determination coefficient، leuz's model can explain 39 percent and Penman's model can explain 35 percent of stock price changes.

Table12- result the output pair T-Test with leuz and penman models in firms life cycle stages

significiant	Life stage	model
0/011	growth	Leuz-penman
0/921	maturity	Leuz-penman
0/281	decline	Leuz-penman

Regarding the significant level of comparison test couples according to table 12، we can conclude that except development phase there is not any significant relationship between the two models posed by Leuz and Penman. According to table 21، Penman's model does not have a significant relationship with stock market price in growth phase. Thus، using leuz's models is preferred.

Second main hypothesis- the information content of earnings quality with Leuz's and Barton-Simko's models in life cycle stages has significant differences.

2-1)In growth stage ، information content of earnings quality with leuz and barton-simko models have significant differences.

Table 13-result the regression between stock price and earnings quality with leuz and barton-simko models in growth stage.

Barton-simko growth stage		**Leuz growth stage**				Variable name	symbol	Variable type
t-value	**beta**	**t-value**	**beta**	**t-value**	**beta**			
/.200	1/294	3/261	0/001	1/102	3/173	Alfa	α	constant
0/043	-0/766	-0/026	0/042	-0/745	-0/023	ΔQ	X1	Dependent Variable
0/000	-0/768	-0/093	0/000	-0/780	-0/079		Control variables	
0/546	-0/604	-0/498	0/001	-0/694	-0/354	SIZE		
_	_	1/939	_	_	1/870	Durbin-Watson	-	
0/000	_	7/963	0/000	_	7/963	F	-	
_	_	0/461	_	_	0/349	R Square	-	
_	_	0/460	_	_	0/348	Adjusted R Square	-	

As it can be seen in table 13، earnings quality variables with Leuz's and barton-simko's models have a significant relationship with stock price. In Leuz's and barton-simko models، earnings quality، flowing rate of assets and firms' size have a significant relationship with stock price. earnings quality with Leuz's and barton-simko's models and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F statistics، regression models has been balanced and is significant. Regarding the balanced determination coefficient، leuz's model can explain 35 percent and barton-simko's model can explain 47 percent of stock price changes.

2-2)In maturity stage ، information content of earnings quality with leuz and barton-simko models have significant differences.

Table 14-result the regression between stock price and earnings quality with leuz and barton-simko models in maturity stage.

Barton-simko maturity stage		**Leuz maturity stage**				Variable name	symbol	Variable type
t-value	**beta**	**t-value**	**beta**	**t-value**	**beta**			
0/000	13/571	79/980	0/000	13/276	79/239	Alfa	α	constant
0/001	-3/417	-0/499	0/016	-3/216	-0/440	ΔQ	X1	Dependent Variable
0/017	-2/388	-0/276	0/001	-2/388	-0/276		Control variables	
0/182	-1/336	-0/044	0/002	-1/336	-0/044	SIZE		
_	_	1/987	_	_	1/920	Durbin-Watson	-	
0/000	_	45/683	0/000	_	45/683	F	-	
_	_	0/366	_	_	0/413	R Square	-	
_	_	0/358	_	_	0/412	Adjusted R Square	-	

As it can be seen in table 14، earnings quality variables with Leuz's and barton-simko's models has a significant relationship with stock price. In Leuz's model، earnings quality، flowing rate of assets and firms' size and in barton-simko model earnings quality and flowing rate of assets have a significant relationship with stock price. earnings quality with Leuz's and barton-simko's models and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F statistics، regression models has been balanced and is significant. Regarding the balanced determination coefficient، leuz's model can explain 42 percent and barton-simko's model can explain 36 percent of stock price changes.

2-3)In decline stage ، information content of earnings quality with leuz and barton-simko models have significant differences.

Table 15-result the regression between stock price and earnings quality with leuz and barton-simko models in decline stage.

Barton-simko decline stage		Leuz decline stage				Variable name	symbol	Variable type
t-value	beta	t-value	beta	t-value	beta			
0/0000	11/015	103/870	0/000	11/014	103/309	Alfa	α	constant
0/0001	-4/078	-0/1750	0/014	-4/251	-0/184	ΔQ	X1	Dependent Variable
0/010	-1/615	-0/2990	0/000	-1/615	-0/299		Control variables	
0/2351	-17/622	-22/084	0/005	-17/62	-22/084	SIZE		
_	_	1/963	_	_	1/893	Durbin-Watson	-	
0/000	_	50/544	0/000	_	50/544	F	-	
_	_	0/389	_	_	0/389	R Square	-	
_	_	0/382	_	_	0/387	Adjusted R Square	-	

As it can be seen in table 15، earnings quality variables with Leuz's and barton-simko's models has a significant relationship with stock price. In Leuz's and barton-simko models، earnings quality، flowing rate of assets and firms' size have a significant relationship with stock price. earnings quality with Leuz's and barton-simko's models and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F statistics، regression models has been balanced and is significant. Regarding the balanced determination coefficient، leuz's and barton-simko's models can explain 39 percent of stock price changes.

Table16- result the output pair T-Test with leuz and barton-simko models in firms life cycle stages

significiant	Life stage	model
0/002	growth	Leuz-barton
0/000	maturity	Leuz-barton
0/011	decline	Leuz-barton

Regarding the significant level of comparison test couples according to table 16، we can conclude that except development phase there is significant relationship between the two models posed by Leuz and barton-simko. According to table 21،in growth and maturity stages barton-simko's model have relationship stronger than leuz model with stock market price. In decline stage ، leuz model have relationship stronger than barton-simko model with stock market price.

Third main hypothesis- the information content of earnings quality with penman and Barton-Simko's models in life cycle stages have significant differences.

3-1)In growth stage ، information content of earnings quality with penman and barton-simko models have significant differences.

Table 17-result the regression between stock price and earnings quality with penman and barton-simko models in growth stage.

Penman growth stage			Barton-simko growth stage			Variable name	symbol	Variable type
p-value	t-value	beta	p-value	t-value	beta			
0/008	-2/656	-17/359	/.200	1/294	3/261	Alfa	α	constant
0/127	-3/042	-0/571	0/043	-0/766	-0/026	ΔQ	X1	Dependent Variable
0/000	-1/113	-0/172	0/000	-0/768	-0/093		Control variables	
0/043	-2/029	-2/037	0/546	-0/604	-0/498	SIZE		
_	_	1/828	_	_	1/939	Durbin-Watson	-	
0/001	_	4/942	0/000	_	7/963	F	-	
_	_	0/366	_	_	0/461	R Square	-	
_	_	0/366	_	_	0/460	Adjusted R Square	-	

As it can be seen in table 17، earnings quality variable with barton-simko's model has a significant relationship with stock price، while earnings quality with Penman's model does not have a significant relationship with stock price. In barton-simko's model، earnings quality and flowing rate of assets and in Penman's model، assets' flowing rate and firm's size have a significant relationship with stock price. earnings quality with barton-simko's and Penman's model and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F statistics، regression models has been balanced and is significant. Regarding the balanced determination

coefficient، barton-simko's model can explain 46 percent and Penman's model can explain 37 percent of stock price changes.
3-2)In maturity stage ، information content of earnings quality with penman and barton-simko models have significant differences.

Table 17-result the regression between stock price and earnings quality with penman and barton-simko models in maturity stage.

Penman maturity stage			Barton-simko maturity stage			Variable name	symbol	Variable type
p-value	t-value	beta	p-value	t-value	beta			
0/026	-2/226	-15-944	0/000	13/571	79/980	Alfa	α	constant
-3/417	0/829	-0/217	-0/083	0/001	-3/417	ΔQ	X1	Dependent Variable
0/002	-1/181	-0/184	0/017	-2/388	-0/276		Control variables	
0/014	-2/470	-2/477	0/182	-1/336	-0/044	SIZE		
_	_	1/879	_	_	1/987	Durbin-Watson	-	
0/350	_	2/598	0/000	_	45/683	F	-	
_	_	0/348	_	_	0/366	R Square	-	
_	_	0/345	_	_	0/358	Adjusted R Square	-	

As it can be seen in table 18، earnings quality variable with barton-simko's model has a significant relationship with stock price، while earnings quality with Penman's model does not have a significant relationship with stock price. In barton-simko's model، earnings quality and flowing rate of assets and in Penman's model، assets' flowing rate and firm's size have a significant relationship with stock price. earnings quality with barton-simko's and Penman's model and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F statistics، regression models has been balanced and is significant. Regarding the balanced determination coefficient، barton-simko's model can explain 36 percent and Penman's model can explain 35 percent of stock price changes.
3-3)In decline stage ، information content of earnings quality with penman and barton-simko models have significant differences.

Table 17-result the regression between stock price and earnings quality with penman and barton-simko models in decline stage.

Penman decline stage			Barton-simko decline stage			Variable name	symbol	Variable type
p-value	t-value	beta	p-value	t-value	beta			
0/057	-1/904	-14/592	0/000	11/015	103/870	Alfa	α	constant
0/302	-2/992	-0/563	0/001	-4/078	-0/1750	ΔQ	X1	Dependent Variable
0/000	-1/084	-0/169	0/010	-1/615	-0/2990		Control variables	
0/062	-1/872	-1/905	0/235	-17/622	-22/084	SIZE		
_	_	1/833	_	_	1/963	Durbin-Watson	-	
0/004	_	3/022	0/000	_	50/544	F	-	
_	_	0/349	_	_	0/389	R Square	-	
_	_	0/347	_	_	0/382	Adjusted R Square	-	

As it can be seen in table 19، earnings quality variable with barton-simko's model has a significant relationship with stock price، while earnings quality with Penman's model does not have a significant relationship with stock price. In barton-simko's model، earnings quality and flowing rate of assets and in Penman's model، assets' flowing rate and firm's size have a significant relationship with stock price. earnings quality with barton-simko's and Penman's model and assets' flowing rate and firm's size have a reverse relationship with stock price. Regarding the amount of F statistics، regression models has been balanced and is significant. Regarding the balanced determination coefficient، barton-simko's model can explain 39 percent and Penman's model can explain 35 percent of stock price changes.

Table20- result the output pair T-Test with penman and barton-simko models in firms life cycle stages

significiant	Life stage	model
0/000	growth	Penman-Barton
0/120	maturity	Penman- Barton
0/240	decline	Penman- Barton

Regarding the significant level of comparison test couples according to table 20، we can conclude that except growth phase there is not any significant relationship between the two models posed by barton-simko and Penman. According to table 21، Penman's model does not have a significant relationship with stock market price in growth phase. Thus، using barton-simko's model is preferred.

DISCUSSION AND CONCLUSION

This research was carried out to study the relationship between market price of stock and earnings quality using three models posed by Leuz، Penman and Barton-Simko during different periods of firms' life cycle stages in 65 firms accepted in Tehran Stock Exchange during the years between 2004 and 2009. The statistical method used in this research is multi-variable regression by using aggregate data. The results are briefly shown in table 21 and they show that in Leuz's model and during all three phases of life cycle (growth، maturity and decline)، stock price has a negative and significant relationship with earnings quality. In Penman's model، stock price has a negative and not significant relationship with earnings quality during all three phases of life cycle (growth، maturity and decline). In Brton-Simko's model، stock price has a negative and significant relationship with earnings quality during all three phases of life cycle(growth، maturity and decline).

In Leuz-Penman model and in growth and decline phases، Penman's model has a more strong relationship with stock price in comparison to Leuz's model. In maturation phase a completely reverse situation was proved which shows that there is a significant difference between these two models in maturation phase.

In Leuz-Barton model and in growth and maturity phases، Barton-Simko's model has a more strong relationship with stock price in comparison to Leuz's model. In decline phase a completely reverse situation was proved which shows that there is a significant difference between these two models in growth and maturity phases.

In Penman-Barton model and in growth and decline phases، Penman's model has a more strong relationship with stock price in comparison to Barton-Simko's model. In maturity phase a completely reverse situation was proved which shows that there is a significant difference between these two models in maturation phase.

Table 21: The research models earnings quality coefficients

significiant	Decline stage	significiant	Maturity stage	significiant	Growth stage	earnings quality coefficient
significant	-0/184	significant	-0/440	significant	-0/023	Leuz model
significant	-0/175	significant	-0/499	significant	-0/026	Barton-simko model
Un significant	-0/563	Un significant	-0/083	Un significant	-0/571	Penman model

Table 22: compare the earnings quality coefficient of research model

Decline stage	Maturity stage	Growth stage	model
Leuz < Barton	Leuz> Barton	Leuz > Barton	Leuz- Barton
Leuz > Penman	Leuz < Penman	Leuz > Penman	Leuz- Penman
Penman < Barton	Penman> Barton	Penman < Barton	Penman- Barton

Research limitations

There were some limitations in careful administration of this research and they should be considered in analysis and interpretations of the results and their generalization which include:

The items in financial statements are not balanced because of inflation effects. Thus، the comparable quality of items can affect the research results and limit the generalization of the results.

Suggestions resulted from this research

Regarding the information content of earnings quality on stock price which causes differences in purchase and sale exchanges and observing the phases in firms' life cycle، the following proposals are suggested for investors، managers and financial analysts:

1-In growth stage، access to earnings quality data creates information priority with Penman، Barton-Simko and Leuz models، respectively. But since earnings quality coefficient in Penman's model is not significant، Barton-Simko's model is preferred.

2- In maturity stage، access to earnings quality data creates information priority with Leuz، Barton-Simko and Penman models، respectively. In this phase earnings quality coefficient was not significant with Penman's model.

3-In decline stage، using Leuz's model emerged data priority better than other models.

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