The Value-Relevance of Price and Return Models: An Empirical Evidence from Palestine Exchange (PEX)

Samih Yousef*

Ph.D. Accounting and Finance Ph.D. program, Faculty of High Studies, Arab American University- Palestine (AAUP)

Abstract: Explaining the association between earnings and stock returns has been a topic of international research for decades. Previous studies resulted in mixed results regarding the explanatory power of earnings-return models; many studies confirmed the significant earnings-return relationship, while some studies showed a weak association. This study is the first in Palestine to investigate alternative earnings-return specification models. The study used panel data of annual EPS and stock prices for the companies listed in the Palestine Exchange (PEX) over ten years from 2012 to **2021**. Employing regression analysis, three models were examined: the price model, the return model, and the differenced-price model. The results of this study revealed that all three models are significant at a 1% level in explaining the earnings-return relationship. However, it was demonstrated that there are differences in the explanatory power between the models; the study showed that the price model has more explanatory power over the two other models since it provides a higher response coefficient, higher R-squared, and more consistency over the years of the study. The high explanatory ability of the price model could be attributed to the fact that stock price contains more information about future earnings. These conclusions are consistent with previous studies. (Kothari & Zimmerman, 1995; Dumontier & Labelle, 1998; Ahmed, 2018; Agrawal & Bansal, 2021).

Keywords: Earnings, stock returns, price model, return model, differenced-price model.

INTRODUCTION

The return-earnings relation has been a widespread issue of study for recent decades. Ball and Brown (1968) studied this association early, and extensive accounting literature has been published to understand the motives of the returns-earnings relationship best, in addition to the capability of earnings to predict upcoming stock changes and vice-versa. (Beaver, Clark & Wright, 1979; Ohlson, 1989; Cotter, 1996; Kothari & Zimmerman, 1995; Martikainen, Kallunki & Perttunen, 1997; Dumontier & Labelle, 1998, Jaggi & Zhao, 2002; Ahmed, 2018; Agrawal & Bansal, 2021).

Earnings are supposed to facilitate forecasting returns and dealing with relative investment risks for analysts and investors. Numerous studies have tried to evaluate the possibility of achieving this objective (Barth, 1991; Ohlson, 1995; Agrawal & Bansal, 2021). Even though many studies showed a value relevance of earnings, findings in this issue presented a variation in the degree of the capability of earnings to interpret the variations in returns (Lev, 1989; Landsman, 1986; Harris, Lang & Moiler, 1994; Hidayat et al., 2020). If we can enlighten the causes that drive the return-earnings relation, we will have accomplished a significant step toward creating a less risky decision-making environment.

*Address correspondence to this author at the Ph.D. Accounting and Finance Ph.D. program, Faculty of High Studies, Arab American University-Palestine (AAUP); E-mail: samih.sbaih@yahoo.com

Examining the usefulness of accounting information in interpreting stock returns is still a current issue and one of the most critical topics in accounting and finance, so this study provides evidence about the extent of the usefulness of financial information using different specification models.

Market-based research can enhance the quality of investors' decisions and outcomes; most of the empirical evidence on the relationship between accounting information and stock returns supported the value relevance of accounting earnings in explaining the stock returns and showed that the accounting performance measures such as earnings and cash flows are helpful for both valuation and performance evaluation purposes (Ball & Brown, 1968). Understanding the earning-return association, as well as the relevant specification models of this association, enhance substantially taking better investment decisions; the abovementioned fact encouraged the researcher to study and analyze the different alternative earnings-returns models for companies listed in Palestine Exchange (PEX); this comes in light that the evidence about the value relevance of earnings in explaining stock returns in Palestine is still rare. The study of Awad and Daraghma (2009) can be considered the groundwork of market-based research in Palestine. One of the rare studies on the information content of earnings and cash flows was the study of Daraghma (2010), which tested the firms listed in the (PEX). However, to my knowledge, none of the previous studies has evaluated the value relevance of alternative price-return models on the Palestinian market. Based on this fact, this study will be the first that tests the relevancy of different alternative models (price model, return model, and differ-

enced-price model) that specify the relationship between earnings and returns for the firms listed in PEX.

This study is expected to provide a framework that guides choosing between these models, contributes to improving local investment decisions, and fills the gap in the existing literature in the Palestinian market. The study also benefits policymakers, investment analysts, and Palestine Exchange in directing regulations, analysis, and reporting.

The primary objective of this study is to examine and compare three alternative models of earnings-return specification for PEX-listed companies; in addition to that, the study aims to:

- Find out how well each model explains earnings and returns relationships.
- Determine which of the three models is more relevant in explaining the earnings-return relationship.
- Provide empirical evidence on the most relevant model that is better to use in the context of PEX-listed companies.

LITERATURE REVIEW

The earnings-return association is one of the widely studied topics of the financial market theory that has been reviewed by accounting and finance scholars; many studies concluded a significant association between different earnings indicators and stock returns (Bowen, 1981; Olsen, 1985; Landsman, 1986; Barth, Beaver & Landsman, 1992; Barth, 1991; Harris, Lang & Moiler, 1994). However, other studies did not confirm the significance of that association (Brown, Hagerman, Griffin & Zmijewski, 1987; Lev, 1989).

One of the important and early studies was conducted by Ball & Brown in 1968, which examined 261 firms; the study concluded a positive relationship between returns and earnings. The accounting literature was expanded by Beaver, Clark & Wright (1979), who found that the variation in return can be interpreted by relying on the importance of unanticipated variations in earnings. This means that the larger the move in unpredicted earnings, the larger the movement in unpredicted returns. As a result, the accounting earnings measurements have gained significant informational value.

A study conducted by Brown, Hagerman, Griffin & Zmijewski (1987) showed the low interpretive characteristic of earnings in the regression model applied to test the earnings-returns relationship. The study concluded that earnings generally only interpret up to 10% of the return variation.

Lev (1989) found that the variation in earnings explains, on average, 5% of the change in returns. This result was based on the change in EPS as an independent factor for the variation in returns over the market price.

Ohlson (1995) concluded that the main variable explaining the market stock return is EPS/Price, assuming a random walk of earnings and that the current earnings are suitable for controlling the stock price.

Kothari and Zimmerman (1995) examined price and return models; the researchers investigated the alternative price-earnings specifications, and three specifications were used (Price, Return, and Differenced-price). The study found that price models yield unbiased slope or earnings response coefficients if earnings follow a random walk and prices reflect broader information than current and past earnings time series. Return and differenced-price models, on the other hand, give skewed downward slope coefficients.

Daraghma (2010) studied the relative and incremental information content of earnings and operating cash flows in the Palestine Security Exchange (PSE); the results indicated the existence of value relevance of earnings, whereas there was no sufficient evidence to confirm that operating cash flows have information content.

Bouteska (2017) investigated the relationship between accounting earnings, dividends, stock prices, and stock returns for 57 companies listed on the Tunisian stock exchange from 2005-2015; results indicated a significant value relevance of accounting earnings and dividends reported by Tunisian companies.

Ahmed, I. (2018) studied what influenced the stock prices in Pakistan's textile composite business during 2005–2014. Using a multivariate regression model, the researcher examined associates between factors for 12 textile firms. Results showed that dividends and earnings per share significantly and favorably affected stock prices. The research also determined that dividends and earnings per share positively correlated.

Hidayat et al. (2020) studied the impact of Earnings Per Share (EPS), Debt to Equity Ratio (DER), and Return on Assets (ROA) on the stock prices of manufacturing companies traded on the Indonesia Stock Exchange between 2015 and 2017 using multiple regression analysis. Based on the findings of this study, it was concluded that EPS significantly impacts stock prices.

Agrawal & Bansal (2021) studied EPS and stock prices in the Indian stock market. Over 19 years, they analyzed data from 115 firms using a regression model and a cointegration test. The study found a significant correlation between the two, and earnings per share (EPS) affects the stock price.

This study examines the value relevance of earnings in explaining security returns in the context of PEX-listed firms through testing different alternative models of earnings-return association and provides empirical evidence on these models. Under this framework, and following Kothari and Zimmerman's (1995) approach, this study tests three return-earnings specifications, price model (in which prices are regressed on earnings per share), return model (in which returns are regressed on earnings variable), and differenced-price model (in which changes in prices are regressed on changes on earnings per share).

Based on these specifications, this study tests and intends to accept the following hypotheses in the context of PEX-listed firms:

The main Hypothesis*:* The study's three earning-return specifications (price, return, and differenced-price models) significantly explain the earnings-return relationship.

Sub hypotheses:

H1: The price model significantly explains the earnings-returns relationship.

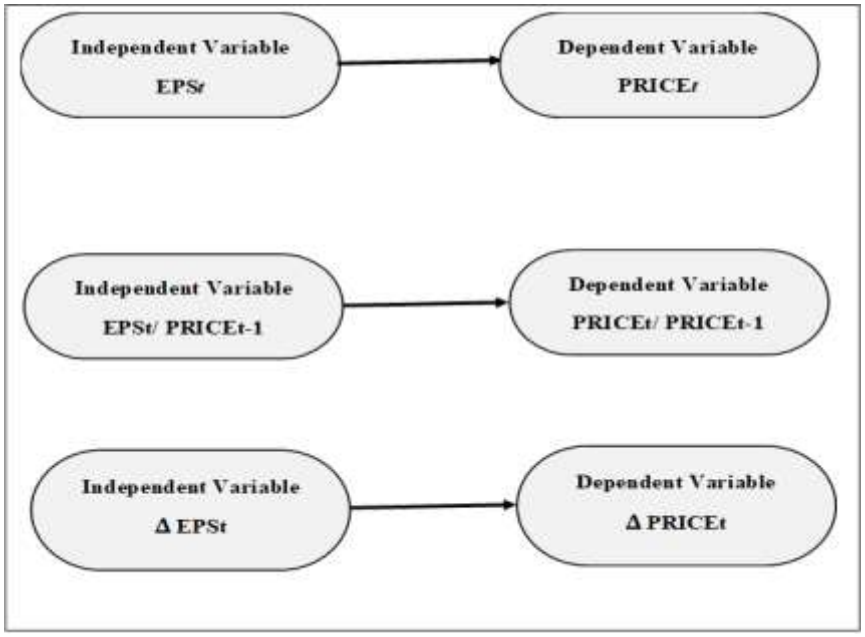

Fig. (1). The study model.

H2: The return model significantly explains the earnings-returns relationship.

H3: The differenced-price model significantly explains the earnings-returns relationship.

H4: The price model outperforms the return and differenced-price models in explaining the earnings-returns relationship.

METHODOLOGY

Data

This study uses panel data of annual stock prices and earnings per share for all listed companies on the Palestine Exchange (PEX) for ten years from 2012 to 2021. The final selected data consists of 290 company-year observations after excluding some due to incomplete data, non-trading stock, and loss-reporting companies.

Research Model and Variables

The study uses the following regression earnings-return models:

Price model: $$PRICE_{jt} = a_0 + a_1 EPS_{jt} + e_{jt} \quad (1)$$

Return model: $$\frac{PRICE_{jt}}{PPRICE_{j\,t-1}} = b_0 + b_1 \frac{EPS_{jt}}{PPRICE_{j\,t-1}} + e_{jt} \quad (2)$$

Differenced-price model:

$$\Delta PRICE_{jt} = c_0 + c_1 \Delta EPS_{jt} + e_{jt} \quad (3)$$

Where:

$PRICE_{jt}$:is the stock price for company j at the end of year *t*.

$PRICE_{jt-1}$:is the stock price for company j at the end of previous year (*t-1)*.

EPS_{jt} : is earnings per share for company j for the year *t*.

EPS_{jt-1} : is earnings per share for company j for the previous year (t-1).

$\Delta PRICE_{jt}$: $PRICE_{jt}$ - $PRICE_{jt-1}$

ΔEPS_{jt} : EPS_{jt} - EPS_{jt-1}

a_0, b_0, and c_0 are the intercepts.

a_1, b_1, and c_1 are the coefficients.

e_{jt}: is an error term.

The differenced (changes) model is used because we can produce a stationary series by differencing the price and earnings variables, so the econometric problems that may appear in the estimation of the price model could be mitigated by taking the differences (Christie, 1987). All JOD stocks will be translated to US dollars to have all the sample items in one currency (US dollars).

Therefore, the study tests the explanatory power of the following three associations:

EMPIRICAL RESULTS

To explain the earnings-return association, this section discusses the results of testing the three models of that association; we start this section with an initial look at descriptive statistics and correlation, then proceed to hypotheses testing.

Descriptive Statistics and Correlation

Table **1** displays the descriptive statistics of research variables for the pooled data of 35 companies from 2012 to 2021, resulting in 290 firm-year records.

The mean EPS and stock price are positive at 0.0235 and 2.431, respectively. In general, the positive mean of ΔEPS

Table 1. Summary Descriptive Statistics.

Variable	N	Minimum	Maximum	Mean	Std. Dev.
EPS_{jt}	290	0.001	3.120	0.235	0.320
$PRICE_{jt}$	290	0.320	17.600	2.431	2.140
$PRICE_{jt} / PRICE_{jt-1}$	290	0.526	2.727	1.080	0.245
$EPS_{jt} / PRICE_{jt-1}$	290	0.001	0.663	0.095	0.079
$\Delta PRICE_{jt}$	290	-2.550	7.150	0.134	0.636
ΔEPS_{jt}	290	-0.508	1.570	0.029	0.161

Table 2. Pearson Correlation Matrix.

Variable	EPS_{jt}	$PRICE_{jt}$	$PRICE_{jt} / PRICE_{jt-1}$	$EPS_{jt} / PRICE_{jt-1}$	$\Delta PRICE_{jt}$	ΔEPS_{jt}
EPS_{jt}	1					
$PRICE_{jt}$	.905	1				
$PRICE_{jt} / PRICE_{jt-1}$	.152**	.092	1			
$EPS_{jt} / PRICE_{jt-1}$	.478**	.196**	.495	1		
$\Delta PRICE_{jt}$	.507**	.434**	.631**	.355	1	
ΔEPS_{jt}	.495**	.260**	.170**	.486**	.469	1

Table 3. Statistics Summary Results of Hypothesis 1 Testing.

Description	Values / Conclusion
Dependent Variable	$PRICE_{jt}$
Independent Variable	EPS_{jt}
F-statistic	1305.49*, p-value (000). The model is significant
R	0.905, the variables are highly correlated
R squared	0.819, the independent variable explains 82% of the variations in the dependent variable (high interpretation).
Durbin-Watson	1.834, residuals are not autocorrelated (range between 1.5-2.5)
Intercept	1.012, T-statistic =15.242*, p-value (000). Significant constant
coefficient	6.049, T-statistic = 36.132*, p-value (000). Significant coefficient

- * Significant at 0.01

indicates an increase in earnings, and the positive mean of ΔPrice indicates an increase in stock prices.

Table **2** shows the results of the Pearson correlation; the table demonstrates a positive relationship between the variables in the same model (correlation between variables from different models is not relevant for this research).

- For the price model, there is a strong correlation between $PRICE_{jt}$ and EPS_{jt} (R = 0.905).
- For the return model, there is a moderate correlation between $PRICE_{jt} / PRICE_{jt-1}$ and $EPS_{jt} / PRICE_{jt-1}$, (R = 0.495).
- For the differenced-price model, there is a moderate correlation between $\Delta PRICE_{jt}$ and ΔEPS_{jt},
- (R = 0.469).

Hypotheses Testing

In this section, we evaluate the relevance of alternative models for explaining the earnings-return relationship. To this end, the parameters of the three models (price, return, and differenced-price models) are estimated using regression analysis.

Hypothesis 1 testing: Th Price Model

In the price model, stock prices (the dependent variable) are regressed on earnings per share (the independent variable). Table **3** summarizes the regression analysis statistics for this model, relying on the pooled data for all ten years of the study (2012-2021).

Table **3** shows that the result of the F-statistic test is significant at a 1% level (p-value = 0 is less than .01). Therefore,

we reject the null hypothesis and conclude that the price model significantly explains the earnings-returns relationship. In addition, the EPS response coefficient is positive, equaling 6.049. It is statistically significant at the 1% level (p-value =0 is less than .01), R is.905, which represents a strong correlation between EPS and stock price, R-squared is 0.82, which indicates that the independent variable (EPS) highly explains 82% of the variation in the dependent variable (Stock price). The Durbin-Watson value of 1.834 demonstrates that residuals are not autocorrelated.

On testing the price model for each year of the research period starting from 2013 (2012 is not tested since the previous year, and 2011 is not included in research data), the F-statistic results show that the price model is significant at 1% level for all years (p-value = 0 is less than .01), correlation coefficient R shows that correlation is strong for all years, R-squared demonstrates the high interpretation of the dependent variable for all years, this confirms the explanatory power of the price model in explaining the earnings-return relationship. Table **4** summarizes the regression results for each year.

Table 4. Yearly Statistic Results of the Price Model.

Year	R	R Squared	Durbin-Watson	F-statistic	p-value
2013	.895	0.80	2.03	117.16*	.000
2014	.860	0.74	1.75	71.06*	.000
2015	.932	0.87	2.35	191.18*	.000
2016	.785	0.62	1.92	48.05*	.000
2017	.928	0.86	1.96	198.72*	.000
2018	.928	0.86	1.90	191.13*	.000
2019	.947	0.90	2.21	279.89*	.000
2020	.919	0.84	2.14	168.51*	.000
2021	.954	0.91	2.41	330.86*	.000

* Significant at 0.01.

Hypothesis 2 testing: Th Return Model

In the return model, stock returns (the dependent variable) are regressed on scaled earnings variable (the independent variable). Table **5** summarizes the regression analysis statistics for this model, relying on the pooled data for all ten years of the study (2012-2021).

The table demonstrates that the result of the F-statistic test is significant at a 1% level (p-value = 0 is less than .01). Therefore, we reject the null hypothesis and conclude that the return model significantly explains the earnings-returns relationship. The response coefficient is positive, equaling 1.527, and it is statistically significant at the 1% level (p-value = 0); R is 0.495, which indicates a moderate correlation between the variables, R-squared is 0.245, which demonstrates a low interpretation of the dependent variable variation by the independent variable. The Durbin-Watson value of 2.28 indicates that residuals are not autocorrelated.

Table 5. Statistics Summary Results of Hypothesis 2 Testing.

Description	Values / Conclusion
Dependent Variable	$PRICE_{jt}$ / $PRICE_{jt-1}$
Independent Variable	EPS_{jt} / $PRICE_{jt-1}$
F-statistic	93.509*, p-vale (000). The model is significant
R	0.495, the variables are moderately correlated.
R squared	0.245, the independent variable explains 24.5% of the variations in the dependent variable (low interpretation).
Durbin-Watson	2.281, residuals are not autocorrelated (range between 1.5-2.5)
Intercept	0.934, T-statistic = 47.662*, p-value (000). Significant constant
coefficient	1.527, T-statistic = 9.67*, p-value (000). Significant coefficient

* Significant at 0.01.

When evaluating the model for each year of the study period beginning in 2013, the F-statistic test results indicate that the model is significant for four years at a 1% level, for two years at a 5% level, and for one year at a 10% level. However, the model is insignificant for the years 2017 and 2019. It is also noticed that the correlation fluctuates significantly over the years. The correlation is weak in 2014, 2015, 2017, and 2019; the R-squared reveals a low explanation of the dependent variable for all years. This suggests that the return model is less significant than the price model. The regression analysis findings are summarized for each year in Table **6**.

Table 6. Yearly Statistic Results of the Return Model.

Year	R	R Square	Durbin-Watson	F-statistic	p-value
2013	.528	.279	2.372	11.220	.002*
2014	.344	.118	2.168	3.348	.079***
2015	.439	.193	1.483	6.918	.014**
2016	.487	.237	2.151	9.303	.005*
2017	.209	.044	1.745	1.462	.235
2018	.758	.574	1.292	41.842	.000*
2019	.135	.018	1.752	.595	.446
2020	.384	.147	2.175	5.347	.028**
2021	.765	.585	2.158	46.508	.000*

* Significant at 0.01. ** Significant at 0.05. ***Significant at 0.10.

Hypothesis 3 testing: The Differenced-Price Model

In the differenced-price model, changes in stock price (the dependent variable) are regressed on changes in earnings (the independent variable). Table **7** summarizes the regression analysis statistics for this model, relying on the pooled data for all ten years of the study (2012-2021).

The table shows that the result of pooled data F-statistic test is significant at a 1% level (p-value = 0 is less than .01). Therefore, we reject the null hypothesis and conclude that the differenced-price model significantly explains the earnings-returns relationship. The ΔEPS response coefficient is positive, equaling 1.85, and it is significant at the 1% level (p-value = 0); R is 0.469, which indicates a moderate correlation between the variables, R-squared is 0.22, which means a low interpretation of the dependent variable by the independent variable. The Durbin-Watson value of 2.28 demonstrates that residuals are not autocorrelated.

Table 7. Statistics Summary Results of Hypothesis 3 Testing.

Description	Values / Conclusion
Dependent Variable	$\Delta\ PRICE_{jt}$
Independent Variable	$\Delta\ EPS_{jt}$
F-statistic	81.13*, p-value (000). The model is significant
R	0.469, the variables are moderately correlated.
R squared	0.220, the independent variable explains 22% of the variations in the dependent variable (low interpretation)
Durbin-Watson	2.272, residuals are not autocorrelated (range between 1.5-2.5)
Intercept	0.081**, T-statistic = 2.415, p-value (0.016). Significant constant
coefficient	1.849*, T-statistic = 9.007, p-value (000). Significant coefficient

* Significant at 0.01. ** Significant at 0.05.

On examining the model for each year of the study period beginning in 2013, the F-statistic test results indicate that the model is significant for one year at a 1% level, for one year at a 5% level, and for two years at a 10% level. However, the model is insignificant for five out of the nine years. It is also noticed that the correlation is weak for all years except for one year (2021); the R-squared reveals a low interpretation of the dependent variable for all years except for one year (2021). This indicates that despite the model being significant on the pooled data of the ten years, the significance of this model needs to be more consistent throughout the years. The model is the weakest among the three models. The findings of the regression are summarized for each year in Table **8**.

Table 8. Yearly Statistic Results of the Differenced-Price Model.

Year	R	R Square	Durbin-Watson	F-statistic	p-value
2013	.346	.120	1.884	3.95	.056***
2014	.117	.014	1.413	0.35	.561
2015	.052	.003	1.555	0.08	.779
2016	.216	.046	2.236	1.46	.236
2017	.122	.015	2.037	0.48	.493
2018	.294	.087	1.738	2.94	.096***
2019	.205	.042	1.922	1.41	.244
2020	.384	.147	2.160	5.36	.027**
2021	.849	.720	2.164	84.89	.000*

* Significant at 0.01. ** Significant at 0.05. ***Significant at 0.10

Hypothesis 4 testing: The Superiority of the price model

In light of testing each of the three models, we assess the superiority of the models based on the statistics measures summarized in Table 9 below.

Table 9. Comparing the explanatory power of the models

Model	Price Model	Return Model	Differenced-price Model
F-statistic (pooled data)	1305.49* p-value (000) Significant at 1%	81.13* p-value (000) Significant at 1%	93.509* p-value (000) Significant at 1%
Response coefficient	6.05	1.53	1.85
R-squared	0.82	0.25	0.22
F-statistic over the years	Significant at 1% level over all years (consistent)	Significant for four years at 1%, two years at 5%, one year at 10%, and insignificant for two years.	Significant for one year at 1%, one year at 5%, and two years at 10%. Insignificant for five years.

Table **9** shows that the price model response coefficient is more significant than the other two models; the R-squared indicates a higher interpretation of the price model; in addition, the price model was consistent over all year since it is significant at 1% for each year, while the other two models were insignificant in some years. Therefore, we conclude that the price model has more significant explanatory power over the return and the differenced-price models in explaining the earnings-returns relationship.

CONCLUSIONS

To explain the relationship between earnings and return, this research tested three alternative earnings-return specifications models in the context of Palestine exchange (PEX), the price model, the return model, and the differenced-price model using regression analysis.

The results revealed that all three models are significant at a 1% level in explaining the earnings-return relationship. However, it was demonstrated that there are differences in the explanatory power between the models; the research showed that the price model has more explanatory power

over the two other models since it provides a higher response coefficient, higher R-squared, and more consistency over the years of the research. The high explanatory ability of the price model could be attributed to the fact that stock price contains more information about future earnings. These conclusions are consistent with previous studies. (Kothari & Zimmerman, 1995; Martikainen, Kallunki & Perttunen, 1997; Dumontier & Labelle, 1998).

Investors and analysts should consider indications from a combined model that includes this research's three models focusing more on the price model outcomes for better investment decisions. Consultants and financial investment companies are to advise their clients to rely on the price model as a solid earnings-return indicator in their analysis of the movement of stock prices.

PEX and financial policymakers are to enhance and develop regulations that focus on more reporting on earnings linked to price movements to encourage more investments in the stock market.

This study adds to the existing literature on the earnings-returns relationship in the context of the Palestinian market; more variables could be entered into the models for further investigations on PEX-listed companies, like dividend per share, residual income, and economic value added. Other research also might be conducted on a sectorial basis, and comparative studies examining similar sock markets may yield additional benefits.

REFERENCES

Agrawal, O. P., & Bansal, P. K. (2021). A critical study on the relationship of EPS and stock price. *Materials Today: Proceedings*, *37*, 3011-3015.
https://doi.org/10.1016/j.matpr.2020.08.722

Ahmed, I. (2018). Impact of dividend per share and earnings per share on stock prices: A Case study from Pakistan (Textile Sector). *IJSSHE-International Journal of Social Sciences, Humanities and Education*, *2*(2), 1-10.

Awad, I., & Daraghma, Z. (2009). Testing the weak-form efficiency of the Palestinian securities market, International Research Journal of Finance and Economics,32.
http://www.eurojournals.com/finance.htm

Ball, R. and Brown, P. (1968). An empirical evaluation of accounting income numbers, *Journal of Accounting Research*, 6, 159–78. http://www.jstor.org/stable/pdf/2490232.pdf

Barth, M. E., Beaver, W. H., & Landsman, W. R. (1992). The market valuation implications of net periodic pension cost components. *Journal of Accounting and Economics*, 15(1), 27-62. DOI:10.1016/0165-4101(92)90011-P

Barth, Mary E., (1991). Relative measurement errors among alternative pension asset and liability measures. *The Accounting Review*, 66, 433-463. https://www.jstor.org/stable/247804.

Beaver, W. H., Clarke, R., & Wright, W. F. (1979). The Association between Unsystematic Security Returns and the Magnitude of Earnings Forecast Errors. *Journal of Accounting Research*, 17(2), 316–340. https://doi.org/10.2307/2490507

Bouteska, A., & Regaieg, B. (2017). The Association between Accounting Earnings, Dividends, Stock Prices, and Stock Returns: Value Relevance of Accounting Standards in the Tunisian Stock Market. *International Journal of Accounting and Financial Reporting*, 7(1), 171-189.

Bowen R. M. (1981). Valuation of earnings components in the electric utility industry. *The Accounting Review*, 56, 1-22.
https://www.jstor.org/stable/246459

Brown, Lawrence L. D., Hagerman, Robert L., Griffin, Paul A., Zmijewski, Mark E (1987). An evaluation of alternative proxies for the market's assessment of unexpected earnings. *Journal of Accounting and Economics*, 9, (2),159-193. https://doi.org/10.1016/0165-4101(87)90004-8

Cotter, J. (1996). Accrual and cash flow accounting models: A comparison of the value relevance and timeliness of their components. *Accounting and Finance*, 36(2),127-150.

Daraghma, Z. M. (2010). The Relative and Incremental Information Content of Earnings and Operating Cash Flows: Empirical Evidence from Middle East, the Case of Palestine. *European Journal of Economics, Finance and Administrative Sciences*, 22(5), 123-135. http://www.eurojournals.com

Dumontier, P., & Labelle, R. (1998). Accounting earnings and firm valuation: the French case. The European Accounting Review, 7(2), 163-183. https://doi.org/10.1080/096381898336439.

Harris, T. S. M. Lang. and H. P. Moiler, (1994). The value-relevance of German accounting measures: An empirical analysis. *Journal of Accounting Research*, 24, 187-209.
http://www.jstor.org/stable/pdf/2491281.pdf.

Hidayat, W., Tjaraka, H., Fitrisia, D., Fayanni, Y., Utari, W., Indrawati, M., ... & Imanawati, Z. (2020). The effect of earning per share, debt to equity ratio and return on assets on stock prices: Case Study Indonesian. *Academy of Entrepreneurship Journal*, *26*(2), 1-10.

Jaggi B. and R. Zhao. (2002). Information Content of Earnings and Earnings Components of Commercial Banks: Impact of SFAS No. 115. *Review of Quantitative Finance and accounting*, 18(4), 405-421.

Kothari, S. P., Zimmerman, J. L (1995). Price and return models. *Journal of Accounting and Economics*, 20, 155-192.
http://www.sciencedirect.com/science/article/pii/0165-4101(95)00399-4.

Landsman, W. R., (1986). An empirical investigation of pension fund property rights. *The Accounting Review*, 61, 662-691.
https://www.jstor.org/stable/247363.

Lev B. (1989). On the usefulness of earnings: Lessons and directions from two decades of empirical research. *Journal of Accounting Research*, 27(Suppl.), 153-192. https://doi.org/10.2307/2491070.

Martikainen, T., Kallunki, J., & Perttunen, J. (1997). Finnish earnings response coefficients: the information content of losses. The European Accounting Review, 6(1), 69-81.
https://doi.org/10.1080/096381897336872.

Olsen, C., (1985). Valuation implication of SFAS no. 33 data for electric utility investors. *Journal of Accounting Research*, 23 (Suppl.), 28-47. https://doi.org/10.2307/2490687.

Ohlson, J. A. (1989). Ungarbled earnings and dividends: An analysis and extension of the Beaver, Lambert, and Morse valuation model. *Journal of Accounting and Economics*, *11*(2-3), 109-115. https://doi.org/10.1016/0165-4101(89)90002-5.

Ohlson, J. A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary accounting research*, *11*(2), 661-687.
https://doi.org/10.1111/j.1911-3846.1995.tb00461.x.

Received: June 03, 2023 Revised: June 06, 2023 Accepted: June 08, 2023