QUARTERLY EARNINGS ANNOUNCEMENT AND ITS IMPACT ON CORPORATE FINANCIAL PERFORMANCE*

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ABSTRACT

Using event study methodology and regression analysis method, this study had examined quarterly earning announcement and its impact on the stock returns. The earning announcements were divided in to three groups: (1) Good news (quarterly positive earnings announcement), (2) No news (quarterly neutral earnings announcement) and (3) Bad news (quarterly negative earnings announcement). The study result confirmed that both the good news and the bad news had a strong impact which is significant statistically on the share returns. While no news did not show any impact which is significant statistically. The study is in line with the information content hypothesis, as the good news (bad news) event announcement had impacted to the abnormal returns positively (negatively) and significant statistically. The study also found a positive and statistically significant relationship between quarterly earnings and stock price.

Keywords: Quarterly Earnings Announcement, Event Study Methodology, Abnormal Returns, Cumulative Abnormal Returns, OLS Regression, Stock Returns

JEL Classification: G14, G15, G17

ÇEYREK KAZANÇ DUYURUSUNUN KURUMSAL FİNANSAL PERFORMANS ÜZERİNDEKİ ETKİSİ

ÖZ

Çalışmanın amacı, olay çalışma metodolojisi ve regresyon analiz yöntemini kullanarak çeyrek kazanç duyurusunu ve hisse senedi getirileri üzerindeki etkisini incelemektir. Kazanç duyuruları üç gruba ayrılmıştır: (1) İyi haber (olumlu kazanç duyurusu), (2) Haber yok (nötr kazanç duyurusu) ve (3) Kötü haber (olumsuz kazanç duyurusu). Çalışma sonuçları hem iyi haberin hem de kötü haberin hisse getirileri üzerinde istatistiksel olarak önemli bir etkiye sahip olduğunu doğrulamıştır. Haber yok (nötr kazanç), istatistiksel olarak önemli olan herhangi bir etki göstermemiştir. Bu çalışma, bilgi içeriği hipotezi doğrultusunda iyi haber (kötü haber) olay duyurusu

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anormal getirileri olumlu (olumsuz) ve istatistiksel olarak anlamlı şekilde etkilemiştir. Çalışma aynı zamanda çeyrek kazanç ile hisse senedi fiyatı arasında pozitif ve istatistiksel olarak anlamlı bir ilişki olduğunu tespit edilmiştir.

Anahtar Kelimeler: Çeyrek Kazanç Duyurusu, Olay Çalışması Metodolojisi, Anormal Getiriler, Kümülatif Anormal Getiriler, OLS Regresyonu, Hisse Senedi Getirileri

JEL Sınıflandırması: G14, G15, G17

1. INTRODUCTION

Stock prices react to different event news such as: merger and acquisition, issuing equities, dividend and earnings. However, this study will examine the relationship between quarterly earnings announcement and stock returns. The earning announcement is divided in to three distinct groups: (1) **Good News** (positive earning announcement); occurs when the actual earning is greater than the estimated earning, (2) **No News** (neutral earning announcement); occurs when the actual earning is equal to the estimated earning and (3) **Bad News** (negative earning announcement); occurs when the actual earning is less than the estimated earning. The publicly listed companies are required to disclose their audited financial reports to the public regularly. However, managers use the financial reports disclosure such as the earnings announcement as a signal specially when the actual earning is greater than the estimated earning or when the current earnings surpassed by the previous earnings. Like the dividend announcement sends a signal, earning announcement also sends a signal. For example, a positive earning announcement creates stock price increase, while a negative earning announcement also creates stock price decrease. Therefore, it is very important managers to understand the type of announcement and investor reactions towards the announcement. Rational investors are value maximizers, therefore the positive earning announcement creates a good expectation in the minds of the investors, while a negative earning announcement creates a bad expectation. Based on these conclusions, it is expected that neutral earning announcements have no influence on the value maximizing investors.

Capital market plays a very important role for the development of the country's economy. To work the capital market properly, participants should have an equal access to the information relating the capital markets and companies listed in it with out a cost. When the capital market is efficient, it is expected to absorb and adjust new information and no one can get abnormal returns. However, the existance of information asymmetry gives the insider traders and informed investors to be more aggressive than the uninformed investors around the event announcement dates. Numerous studies, including Ball and Brawn (1968); Alzahrani and Skerratt (2009); Kross (1982); Schroeder and Kross (1984); Bamber (1986); Mahmoudi and Salari (2016); Sare, Akuoko and Esumanba (2013); Chari and Ofer (1986), find that stock price responds positively to announcements of earning increase and stock

price responds negatively to announcements of earning decrease. This study examines the reactions of NYSE and NASDAQ stock exchanges to the quarterly earning information. If these two capital markets are in the semi-strong form of efficiency, then they should absorb all public information and investors should earn only normal returns.

1.1. Problem Statement

The main purpose of this study is to examine whether quarterly earning announcements have an impact on the company stock returns. Especially, the study will investigate three earning announcement cases (positive, neutral & negative) earning announcements and their impact on the stock returns. This study is also examining whether earning announcement is in line with the information content hypothesis and efficient market hypothesis (EMH). Then we will test the following questions:

1.2. Research Questions

Does quarterly earning announcement has an impact on the company share returns?

Does positive earning announcement have an impact on the company share returns?

Does neutral earning announcement have an impact on the company share returns?

Does negative earning announcement have an impact on the company share returns?

Is there any relationship between the earning factor and company share prices?

Does earning announcement convey a valuable information to the market?

1.3. Research Hypothesis

H_0: Earning announcement has no impact on the company share returns

H_1: Earning announcement has an impact on the company share returns

$H_{0\ a}$: Positive earning announcement has no impact on the company share returns

$H_{1\ a}$: Positive earning announcement has an impact on the company share returns

$H_{0\ b}$: Neutral earning announcement has no impact on the company share returns

$H_{1\ b}$: Neutral earning announcement has an impact on the company share returns

$H_{0\ c}$: Negative earning announcement has no impact on the company share returns

$H_{1\ c}$: Negative earning announcement has an impact on the company share returns

H_0: There is no relationship between earnings (income) and company share prices

H_2: There is a relationship between earnings (income) and company share prices

The rest of the study is organized as the following: Literature review is provided in section 2. Data and methodology are explained in section 3. Empirical study results are presented in section 4, and finally, section 5 concludes and summaries the study findings briefly.

2. LITERATURE REVIEW

Ball and Brown (1968) had investigated the accounting income numbers & its information content and they have segregated income change as expected and unexpected element income change. **Bad news** is assigned when the forcast error is negative which means, when the actual income is less than the expected income, for this case the residual ($\hat{u}<0$) should be less than zero. On the other hand, a **good news** is assigned when the forcast error is positive which means, when the actual income is greater than the expected income, for this case the residual ($\hat{u}>0$) should be greater than zero. Based on the study results, the accounting income numbers contains information that affects the company stock prices. The study supportes that, positive association between the sign of the forcast error income and the abnormal performance index. The study also found a relationship between the income sign and the rate of return residuals.

Alzahrani and Skerratt (2009) had examined how Saudi Stock Market (SSM) reacts to the earnings announcements. According to the results presented in this study the Saudi stock market underreacts the positive earnings announcement and then the underreaction slowly tends to gain strong which indicates the existence of the post-event announcement drift. In contrast to this, the Saudi stock market reacts to the negative earning announcements.

Kross and Schroeder (1984), had examined the relationship between quarterly announcement timing such as (early or late), types of news (good or bad) and the association between stock prices and the timing around earnings announcement dates. This study had found that earnings announcement time is an important factor and associates with the company abnormal returns. The study result confirmed that, companies announced their earnings early had significantly gained higher returns than the firms announced their earnings late because companies which realize positive earnings ($\hat{u}>0$) usually rushes to disclose their accounting income numbers as early as possible to convey the good news to the public, while companies realized negative earnings ($\hat{u}<0$) prefer to delay the disclosure of their accounting income numbers as much as they could to postpone the bad news.

Bamber (1986) had conducted a research about the information content of the annual earnings in terms of trading volume. Especially, the study examines the relationship between unexpected earnings, firm size, and trading volumes. The study showed that, firm size and unexpected earnings were

associated with the annual earnings announcement. The study addes that, the greater the magnitude of the surprise, the greater the trading volume around the announcement date.

Mahmoudi and Salari (2016) had examined whether investors in the capital market react rationally to the information signals of the earnings announcement released by the company management. An event study method was used to examine underreactions of the post-earning announcements. The study was conducted in Iranian market to test if the disclosure of the earning changes announcement conveys information to the investors in Tehran stock market. The study result indicates that, there is a statistical significance on the event date (t_0). Earning increase announcement correlates with a positive stock price reaction, while earning decrease announcement correlates with a negative stock price reaction.

Sare, Akuoko and Esumanba (2013) had investigated corporate earning announcement on Ghana Stock Exchange (GSE). A sample data from 19 companies which made earning announcements between 2009 to 2012 were used in the study. An event study methodology proposed by Brown and Warner (1985) was used to test and the research findings suggests that the earning announcement contains information on which investors base their decisions. The study found that, investors react to the earnings announcement positively or negatively depending on whether the announcement was an earning increase or an earning decrease. Chari and Ofer (1988) had studied quarterly earning announcement and its impact on earning announcement. This research examines whether earning announcement affects differently on small and large firms. Both average returns and variance returns were found to be significantly different for both groups. The earning announcement affect was great on small firms than the larger firms.

Firth (1976) had examined whether a publicly announcement made by a company affects the share price of its competing companies. According to the results drawn from this study, the event announcement's impact is not confined only to the companies made the announcement but also impacts to the competing firms. This generally happens when ever a closely related firm makes a public announcement, the competing firms' share price also adjusts accordingly based on whether the announcement was a **good news** (the competing companies gain positive abnormal returns) or a **bad news** (the competing company will gain negative abnormal returns).

Brown (1978) conducted a study to test the efficient market hypothesis in order to confirm or deny this hypothesis. The objective of this study is to provide further information about the market efficiency. As the study results indicates, there has been a market ineffiencies existed over the the course period in which the sample securities were tested. The cumulative abnormal returns' (CAR) trend of the sample securities was significant statistically over the window period considered and market failure to adjust the earning per share (EPS) informations quickly shows that, at least with respect of the study sample securities, the market exhibited inefficiencies.

Givoly and Lakonishok (1978) carried out a study assesses the information content from the forcasts made by the financial analysts and stock price behavior. The study findings show that, the financial analyst's forcast conveys information which affects the company share prices and significant abnormal returns with a considerable magnitude were confirmed as early as two months before the announcement of the financial analyst's forcast. This shows, the financial analyst's forcast and its impact on the investor decisions. The result confirmes, the existence of market inefficiency at least for the securities in the sample because of cumulative abnormal return's (CAR) statistically significant and the market failure to adjust it immediately to the new earnings announcement.

According to a research conducted by Dsouza and Mallikarjunappa (2016) in India which examines whether quarterly earnings announcement news is significant to the Bombay Stock Exchanges (BSE-500) and testing the semi-strong form efficient hypothesis. The study had divided the sample data in to three groups: (1) Good news portfolio, (2) Bad news portfolio and (3) Full sample portfolio. The study result indicates that, the average abnormal returns (AAR) were found to be insignificant statistically for all the three portfolios. However, the cumulative average abnormal returns (CAAR) were found to be significant statistically for all the portfolios. The study concluded that, the BSE-500 is inefficient in semi-strong form because it failed to adjust the publicly announced earning news. The objective of the study conducted by Kross (1982) was to determine whether an early disclosure of the earnings is perceived as a sign of a good news or a later disclosure of the earnings are perceived as a sign of a bad news by capital market investors. Based on the study results, companies which report their earnings late were found to be earning lower residuals in the days surrounding the event announcement than the companies which report their earnings early.

Landsman, Maydew and Thornock (2012) had investigated International Financial Reporting Standards (IFRS) and non-International Financial Reporting Standards (non-IFRS) adopted countries and whether information content from the earnings announcement affect to each of this group differently. International Financial Reporting Standard is a system of rules which increases transparency, as this system creates common accounting language, therefore international financial reporting standards increases the financial statements to be consistent, transparent, and comparable round the world. The study results confirmed that, companies from the countries adopted international financial reporting standards have gained greater abnormal return volatility and abnrmal return tradings than the non-IFRS adopted countries. Studies such as: Bernard and Thomas (1990); Landsman, Maydew and Thornock (2012); Alford, Jones, Leftwich and Zmijewski (1993); Chan and Seow (1996), also provided informational content of the earning announcemnt.

3. RESEARCH METHODOLOGY

3.1. Data Sample

The study sample data were collected from US stock markets such as **New york Stock Exhange** (NYSE) and **Nasdaq Composite** (IXIC). Quarterly earnings announcement related information were collected from the **Trading Economics** and **Sacks Investment Research Databases**. The study participating companies' financial data were taken from the companies' quarter reports available in the Security and Exchanges Commission's (SEC) data base, while the common stock price related data were downloaded from the yahoo finance website data base.

3.2. Data Analysis Method

The goal of this study is to investigate whether quarterly earning announcements have an impact on the share price. The research also uses the participating company's quarterly income statements to collect quarterly earnings to conduct OLS regression analysis. This study will utilize event study methodology proposed by Brown and Warner (1985) and Fama et al. (1969) to investigate and analyze the abnormal and cumulative abnormal returns due to the event announcements. The total companies participated in this study is 163 companies, that made earning announcements between 2016 to 2019. 50 out of these 163 companies made positive earning announcements, 66 out of the 163 companies made neutral earning announcements, while the remaining 47 companies made negative earning announcements. To conduct an event study methodology, researchers should identify the following two steps: (i) Estimation window, and (ii) Event windows. The research will use short-term period which is a daily data. The earning announcement's estimation and event windows' time line diagrams were presented below:-

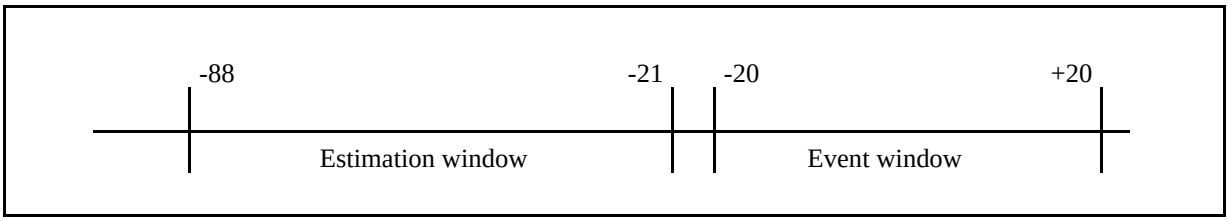

Figure 1. Earning Announcement's Event Study Timeline Diagram

In the data analysis, we will use software programs like *Eviews, Stata and Data Analysis Tool* in Microsoft Spread Sheet.

Daily returns of the each security and the proxy stock market will be calculated using this formula:-

$$\mathbf{R_{i,t}} = \frac{\mathbf{P_t - P_{t-1}}}{\mathbf{P_{t-1}}} \times \mathbf{100} \qquad \textbf{(1)}$$

Where, $\mathbf{R_{i,t}}$ = Returns on security **i** on time **t**

$\mathbf{P_t}$ = Price of the security ***i*** on time ***t***

$\mathbf{P_{t-1}}$ = Price of the security ***i*** at a time t_{-1}

Returns for the event window are computed using the following market model. The market model is a statistical model which relates the return of any given security to the return of the market portfolio. The model's linear specification follows from the assumed joint normality of asset returns. For any security ***i*** the market model is

$$\mathbf{R_{i,t} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}} \quad \textbf{(1)}$$

$$\mathbf{E(\varepsilon_{i,t}) = 0} \qquad \mathbf{Var(\varepsilon_{i,t}) = \sigma^2(\varepsilon_{i,t})}$$

Where, $\mathbf{R_{i,t}}$ and $\mathbf{R_{mt}}$ are the period ***t*** returns on security ***i*** and the market portfolio respectively and $\boldsymbol{\varepsilon_{i,t}}$ is the zero mean disturbance term. $\boldsymbol{\alpha_i}$, $\boldsymbol{\beta_i}$, and $\boldsymbol{\sigma^2 \varepsilon_i}$ are the parameters of the market model.

$$\mathbf{\beta_i = \frac{\sum_{\tau=T_{0+1}}^{T_2}(R_{i,t}-\mu_i)(R_{m,t}-\mu_i)}{\sum_{\tau=T_{0+1}}^{T_1}(R_{m,t}-\mu_m)^2}} \quad \textbf{(2)}$$

$$\mathbf{\alpha_i = \mu_i - \beta_i \mu_m} \quad \textbf{(3)}$$

$$\mathbf{\sigma^2_{\varepsilon_i} = \frac{1}{L_{1-2}} \sum_{\tau=T_{0+1}}^{T_1}(R_{i,t} - \alpha_i - \beta_i R_{m,t})^2} \quad \textbf{(4)}$$

Where, $\boldsymbol{\mu_i}$ and $\boldsymbol{\mu_m}$ are the mean returns of stocks ***i*** and markets portfolio in the estimation window respectively; $\mathbf{L_1} = T_1\text{-}T_0$.

The abnormal return of stock ***i*** at ***t*** in event window is measured by

$$\mathbf{AR_{i,t} = R_{i,t} - \alpha_i - \beta_i R_{m,t}} \quad \textbf{(5)}$$

It is aggregated a long two dimensions through time and across securities. Firstly, it is averaged across all securities N as

$$\mathbf{CAR_{i,t} = \sum_{\tau=T_{0+1}}^{T1} AR_{i,t}} \quad \textbf{(6)}$$

Statistical Significance Test

The abnormal return significance (H_0) can be tested using formulas below:-

The Average Abnormal Return (AAR) is determined by the equation given below:-

$$\mathbf{AAR_i = \frac{1}{N} \sum_{t=1}^{N} AR_{i,t}} \quad \textbf{(7)}$$

Where, $\mathbf{AAR_t}$ = Average Abnormal Returns on month ***t***

$\mathbf{AR_{i,t}}$ = Abnormal Returns on security ***i*** at time ***t***

N = Number of sample announcements

The standard deviation of stock ***i*** is estimated as the following:

$$\mathbf{S(AAR)_{i,t}} = \sqrt{\frac{1}{N}\sum_{t=1}^{n}\left(\mathbf{AR_{i,t}} - \mathbf{AAR_{i,t}}\right)^2} \quad \textbf{(8)}$$

$$\mathbf{t} = \frac{\textbf{Average Abnormal Return}}{\textbf{Standard Deviation}} \quad \textbf{(9)}$$

$$\mathbf{t(AAR)} = \frac{\mathbf{AAR_{i,t}}}{\mathbf{S(AAR)_{i,t}}}$$

Where, $\mathbf{AAR_e}$ is **AAR** of the estimation period for the entire period sample and $\mathbf{S(AAR_e)}$ represents the standard deviation of the **AAR** of the estimation periods.

The cumulative abnormal returns **(CAR)** can be calculated by aggregating the abnormal returns over the time period of the event window and it is computed using this formula:-

$$\mathbf{CAR_{i,t}} = \sum_{t=T_{0+1}}^{T1} \mathbf{AR_{i,t}} \quad \textbf{(10)}$$

The Mean Cumulative Abnormal Returns **(MCAR)** is calculated as follows:

$$\mathbf{MCAR_{i,t}} = \sum_{t=T_{0+1}}^{T_1} \mathbf{CAR_{i,t}} \quad \textbf{(11)}$$

Where, $\mathbf{MCAR_{i,t}}$ = Mean cumulative abnormal returns for the period

$\mathbf{CAR_{i,t}}$ = Cumulative abnormal returns on security ***i*** at time ***t***

The cumulative standard deviation of stock ***i*** is estimated as the following:

$$\mathbf{S_{i,t}} = \sqrt{\frac{1}{N}\sum_{t=1}^{N}\left(\mathbf{CAR_{i,t}} - \mathbf{MCAR_{i,t}}\right)^2} \quad \textbf{(12)}$$

$$\mathbf{t} = \frac{\textbf{Mean Cumalative Abnormal Return}}{\textbf{Standard Deviation}} \quad \textbf{(13)}$$

The study uses t-test to examine whether A$\mathbf{AR_{i,t}}$ and $\mathbf{MCAR_{i,t}}$ are significant statistically for each month of the event window. The t-test assumes that the event date the abnormal returns are independent and identically distributed. The statistical significance of the cumulative abnormal return is computed as follows:-

$$\mathbf{t_{(MCAR)}} = \frac{\frac{1}{N}\sum_{i=1}^{N}\mathbf{CAR_i}}{\sqrt{\sigma^2_{\mathbf{CAR_i}/N}}} \quad \textbf{or} \quad \mathbf{t_{(MCAR)}} = \frac{\mathbf{MCAR_i}}{\mathbf{S(MCAR)_i}} \quad \textbf{(14)}$$

3.3. Regression Analysis

This study will also run a bivariate regression analysis using monthly **stock price** ($y_{i,t}$) as dependent variable, while **quarterly earnings** ($x_{i,t}$) were used as an independent variable.

$$\mathbf{Y_{i,t}\,(Stock\ prices) = \alpha_i + \beta_i\, X_{i,t}\,(Quarterly\ earnings) + e_{i,t}}$$

$\mathbf{Y_{i,t}}$ = Dependent variable (stock prices); $\boldsymbol{\alpha_i}$ = Intercept; $\boldsymbol{\beta_i}$ = Beta coefficients; $\mathbf{X_{i,t}}$ = Independent variable (quarterly earnings); $\mathbf{e_{i,t}}$ = Error term

4. EMPIRICAL ANALYSIS RESULTS

4.1. Descriptive Summary of The Data Sample

The final sample data consists of 163 firms: 52 out of the 163 firms have made a positive earning announcement, 66 out of the 163 firms have made neutral earning announcement, while the remaining 47 firms were made a negative earning announcement. 63.804% of the participating companies are listed in New York Stock Exchange (NYSE), while 36.20% of the companies are listed in Nasdaq Stock Exchange (IXIC).

Table 1. Research Participating Companies Sample Data Summary Table

Earning announcement types	No. of Firms	No. of NYSE	No. of IXIC	Average %
Positive news	50	34	16	30.68%
Neutral news	66	40	26	40.49%
Negative news	47	30	17	28.83%
All Firms	163	104	59	

The findings of this empirical study were obtained using event study methodology. Study sample data consists of three parts: (a) **Good news** (positive earning); occurs when the actualized earning is greater than the estimated earning, (b) **No news** (neutral earning); occurs when the actualized earning is equal to the estimated earning, and (c) **Bad news** (negative earning); occurs when the actualized earning is less than the estimated earning.

4.2. Daily Abnormal Returns and Cumulative Abnormal Returns Along with Their T-values Were Presented in A, B and C Forms in Table 2

Results in **panel A** of Table 2 are based on the **good news** (positive earning) related sample data. As the results in Panel A indicates the Abnormal Returns (AR) on the event date (t_0: 1.057**) was found to be positive and significant statistically at 5% level. While the second day post the event announcement

(t_{+2}: -1.22**) was found to be negative and significant statistically at 5% level. According to panel A**,** 35 out of the 41 of the abnormal returns (AR) became positive, while the remaining 6 were found to be negative. The cumulative abnormal return (CAR) result shows that, the event date (t_0: 7.914**) and the second day post the event date (**t_{+2}**: 6.885**) were found to be significant statistically at 5% level. The cumulative abnormal returns (CAR) of the whole event window were found to be positive. Based on this result, we can reject the null hypothesis (H_{0a}) and accept the alternative hypothesis (H_{1a}) which says, "*Positive earning announcement has an impact on the company share returns*".

On the otherhand, results on **panel B** in Table 2 are based on the **no news** (neutral earning) sample data. As panel B result shows, the whole event window days were not found to be significant statistically. Therefore, we can not reject the null hypothesis (H_{0b}) which says, "*Neutral earning announcement has no impact on the company share returns*". However, almost half of the abnormal returns (AR) of the event window became positive and the other half of the abnormal returns (AR) became negative. If we look the cumulative abnormal returns (CAR) in panel B; we found that, 29 out of the 41 of the event window were found to be positive and the remaining 12 were found to be negative.

Finally, **Panel C** results were taken from the **Bad news** (negative earnings) sample data analysis output in Table 2. As the abnormal results indicate, 27 out of the 41 days surrounding the event date were found to be negative and only 14 out of the 41 days surrounding the event date were found to be positive. The study result showed that, both the event date (t_0: -1.797***) and the first day post the event date (t_{+1}:-1.410***), the abnormal returns were found to be negative and statistically significant at 1% level. Based on this result we can reject the null hypothesis (H_{0c}) and accept the alternative hypothesis (H_{1c}) which says "*Negative earning announcement has an impact on the company share returns*". The cumulative abnormal return (CAR) result shows that, the event date (**t_0**: -4.212***) and the second day post the event date (**t_{+1}**: 5.620***) were found to be significant statistically at 1% level. The cumulative abnormal returns (CAR) of the whole event window were found to be negative.

Table 2. Abnormal and Cumulative Abnormal Returns Along With their T-values

Market Model									
	A. Good News			B. No News			C. Bad News		
Event Days	AR	T-stat	CAR	AR	T-stat	CAR	AR	T-stat	CAR
-20	0.042	0.080	0.042	-0.737	-1.489	-0.737	-0.587	-1.433	-0.587
-19	0.260	0.491	0.303	-0.435	-0.878	-1.172	0.023	0.057	-0.563
-18	0.956	1.805	1.259	0.476	0.962	-0.696	-0.007	-0.016	-0.570
-17	0.738	1.394	1.997	0.154	0.311	-0.542	-0.377	-0.922	-0.947
-16	0.389	0.735	2.386	0.487	0.984	-0.055	0.046	0.112	-0.901
-15	0.126	0.237	2.512	0.052	0.104	-0.003	0.024	0.058	-0.878
-14	0.613	1.158	3.125	0.190	0.383	0.186	-0.236	-0.576	-1.114
-13	0.472	0.892	3.598	-0.206	-0.416	-0.020	-0.343	-0.837	-1.457
-12	0.371	0.701	3.969	-0.019	-0.039	-0.039	-0.033	-0.079	-1.489
-11	-0.210	-0.396	3.759	0.401	0.809	0.362	0.107	0.262	-1.382
-10	-0.088	-0.167	3.671	-0.241	-0.486	0.121	-0.276	-0.675	-1.658
-9	0.517	0.976	4.188	0.220	0.445	0.341	-0.149	-0.364	-1.807
-8	0.100	0.188	4.287	0.058	0.118	0.400	-0.283	-0.692	-2.091
-7	0.462	0.872	4.749	-0.119	-0.240	0.281	-0.160	-0.392	-2.251
-6	0.421	0.795	5.170	0.189	0.381	0.470	-0.093	-0.228	-2.345
-5	0.444	0.838	5.614	0.461	0.931	0.931	-0.188	-0.458	-2.532
-4	0.397	0.749	6.011	-0.215	-0.433	0.716	0.350	0.855	-2.182
-3	0.356	0.673	6.367	-0.260	-0.524	0.456	-0.248	-0.606	-2.430
-2	0.390	0.736	6.757	-0.360	-0.727	0.096	-0.162	-0.396	-2.592
-1	0.100	0.189	6.857	0.102	0.206	0.199	0.178	0.434	-2.415
0	**1.057****	**1.996**	**7.914****	**0.015**	**0.031**	**0.214**	**-1.79*****	**-4.388**	**-4.21*****
+1	0.178	0.336	8.092	0.106	0.214	0.320	**-1.41*****	**-3.444**	**-5.62*****
+2	**-1.22****	**-2.278**	**6.885****	0.547	1.106	0.867	-0.536	-1.309	-6.157
+3	-0.345	-0.651	6.541	-0.028	-0.058	0.839	0.408	0.996	-5.749
+4	0.600	1.134	7.141	-0.110	-0.221	0.729	-0.106	-0.259	-5.856
+5	0.537	1.015	7.679	0.126	0.253	0.855	0.016	0.038	-5.840
+6	0.005	0.010	7.684	0.370	0.748	1.225	0.083	0.203	-5.757
+7	0.496	0.937	8.180	-0.104	-0.210	1.121	0.454	1.110	-5.303
+8	0.313	0.591	8.493	-0.147	-0.297	0.974	-0.197	-0.482	-5.500
+9	0.281	0.530	8.774	0.308	0.621	1.281	-0.065	-0.159	-5.565
+10	0.442	0.834	9.216	0.130	0.263	1.412	0.025	0.062	-5.539
+11	0.002	0.003	9.217	-0.314	-0.634	1.098	-0.281	-0.687	-5.821
+12	-0.004	-0.007	9.214	-0.372	-0.752	0.725	-0.014	-0.034	-5.835
+13	0.526	0.994	9.740	-0.647	-1.307	0.078	0.078	0.191	-5.757
+14	0.070	0.132	9.810	-0.078	-0.157	0.000	-0.213	-0.520	-5.970
+15	0.121	0.228	9.931	-0.365	-0.736	-0.364	0.224	0.547	-5.746
+16	0.012	0.022	9.942	0.477	0.964	0.113	-0.044	-0.106	-5.790
+17	0.529	0.998	10.471	-0.136	-0.275	-0.023	-0.060	-0.147	-5.850
+18	-0.002	-0.003	10.469	-0.022	-0.045	-0.046	-0.105	-0.256	-5.955
+19	0.467	0.881	10.936	0.091	0.183	0.045	0.008	0.019	-5.947
+20	0.015	0.029	10.951	-0.228	-0.460	-0.183	-0.190	-0.464	-6.137

Therefore, the study result indicates that the earning change has a significant impact on the stock returns. For example, it was found that, **good news** (positive earning announcement) influences positively to the stock returns, while **bad news** (negative earning announcement) influences negatively to the stock returns. According to the event study result, the bad news (negative earnings announcement) affect on the abnormal return (AR) is greater than the positive earnings announcement. On the event date (t_0) the abnormal return (AR) of the bad news was -1.79, while the abnormal return (AR) of the good news was 1.059 and this can be interpreted that investors in the U.S stock markets are rational and risk averse. **A risk averse investor** *is an investor who prefers lower returns with known risks rather than higher returns with unknown risks. They always prefer a low-risk investment which guarentees reasonable returns*. Therefore, the study result did support the signaling hypothesis. According to the **signaling hypothesis**, the stock price tends to rise when the realized earnings are greater than the estimated earnings and the stock price tends to deminish when the realized earnings are less than the estimated earnings.

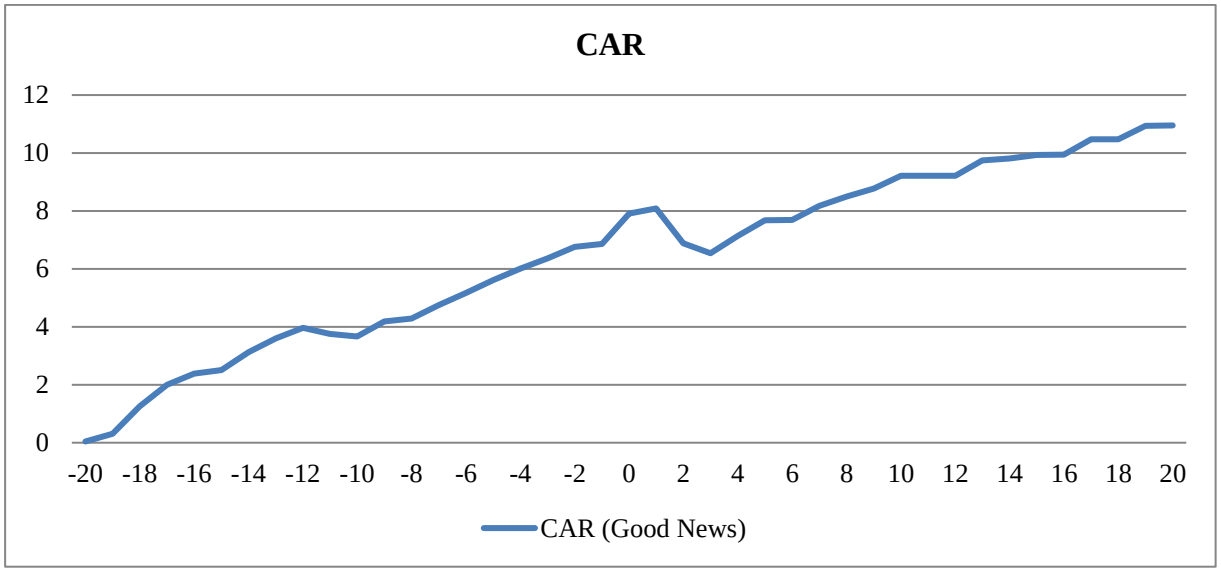

Figure 2. Cumulative Abnormal Returns Based on Good News (Positive Earnings)

Figure 2 presents cumulative abnormal returns (CAR) from the **good news** (positive earnings) sample data and as you can see from the diagram, it has a tendency to increase. Starting from 0.042% in the twentieth day (t_{-20}) of the pre-announcement, the cumulative abnormal returns (CAR) had increased up to the 10.951% in the last day of the window (t_{+20}). We can say that, on average the US market reacts positively to the positive earnings announcements.

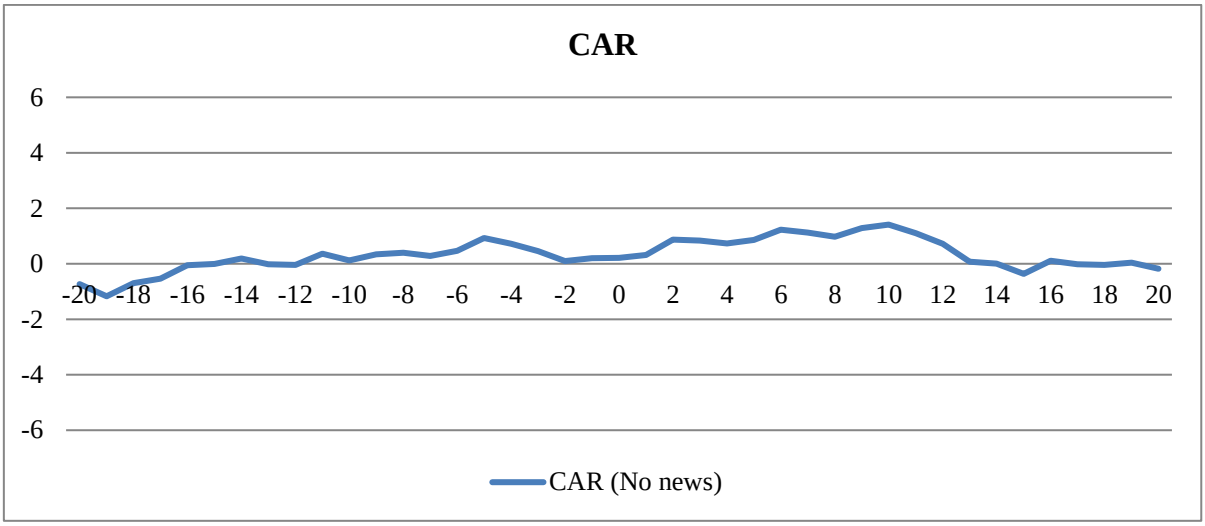

Figure 3. Cumulative Abnormal Returns Based on No news (Neutral Earnings)

Figure 3 presents cumulative abnormal returns (CAR) which is based on **no news** (neutral earnings) related sample data. In comparison with the panel A and panel C cumulative abnormal returns, we can say that, on average **no news** or neutral earnings has no clear upward or downward direction. This can be interpreted that, stockholders of the companies that did not change their earning courses will gain the normal returns during the event window.

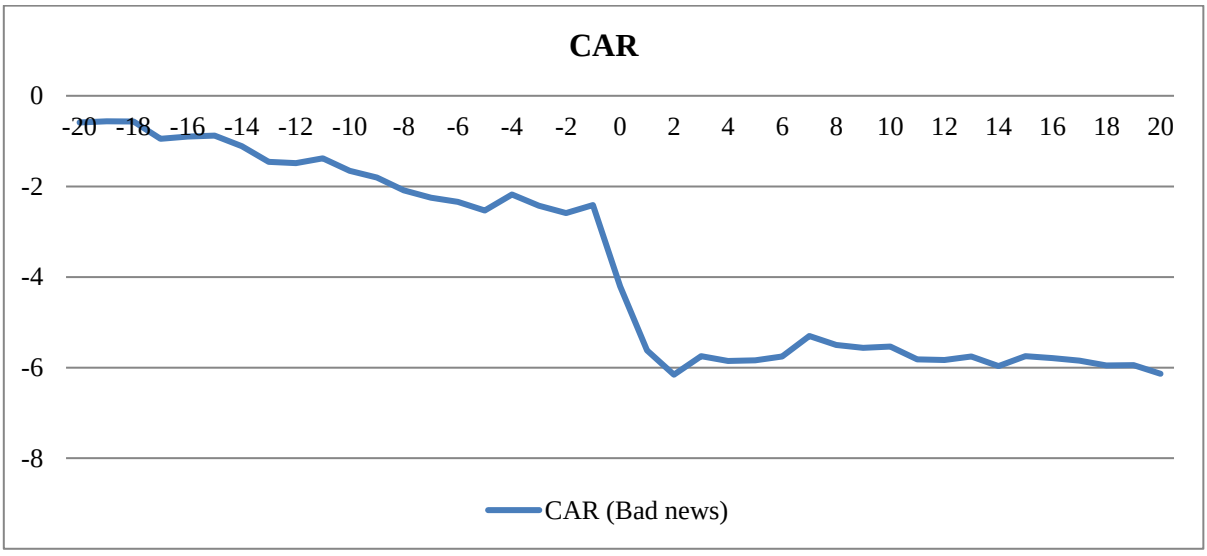

Figure 4. Cumulative Abnormal Returns Based on Bad News (Quarterly Negative Earnings)

Figure 4 demonstrates cumulative abnormal returns from the **bad news** (negative earnings) sample data. According to this figure, investors reacted negatively to the **bad news** (negative earnings announcements) in US markets. As you can see from this figure, the cumulative abnormal returns started decreasing from 0.587% on this day (t_{-20}) and continued decreasing up to the 6.137 % in the last day

(t_{+20}). In short, we can say, pre-announcement cumulative abnormal returns had been decreasing but post-announcement, cumulative abnormal returns became stationary.

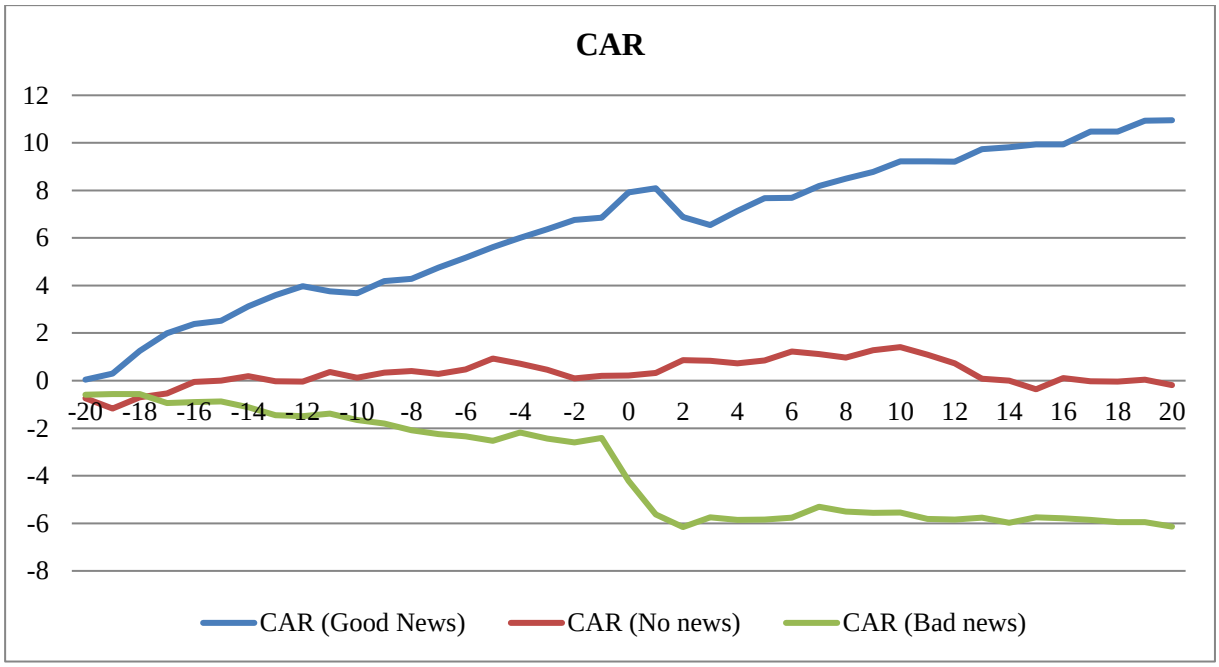

Figure 5. Presents Good news, No news and Bad news Cumulative Abnormal Returns

Figure 5 presents **good news** (positive earnings announcement), **no news** (nötr earnings announcement) and **bad news** (negatif earnings announcement) cumulative abnormal returns (CAR). Based on figure 4 results, the stock market had adjusted the cumulative abnormal returns of the negative earnings announcement post the event date (t_0). But the cumulative abnormal returns from the positive earnings announcement had showed a post-earnings announcement drift (PEAD), contrary to the efficient market hypothesis (EMH) which postulates instantaneous adjustment of price to new information.

CAR (Good news) - represents cumulative abnormal returns (CAR) from the quarterly positive earnings sample data.

CAR (No news) - represents cumulative abnormal returns (CAR) from the quarterly neutral earnings sample data.

CAR (Bad news) - represents cumulative abnormal returns (CAR) from the quarterly negative earnings sample data.

4.3. Testing the Relationship Between Earnings and Share Price

The study had also conducted a further examination which is an OLS regression analysis to investigate the relationship between **quarterly earning** and **share price**.

4.3.1. Diagnostic Tests

We have conducted a number of diagnostic tests such as: serial correlation test, heteroskedasticity test, model specification tests and normality test to verify the robustness of the model. According to the result presented in table 5, the model had passed the diagnostic tests such as serial correlation (the variance inflation factor–mean VIF=1.0); heteroscedasticity tests (p= 0.814>0.10); model specification test (p = 0.204 > 0.10), and finally the normality test was (0.086 > 0.05).

4.3.2. Regression analysis results

The analysis result presented in Table 3 shows that, monthly share prices were used as a dependent variable. While the quarterly earnings were used as an independent variable in the regression.

Model

$$\textbf{Log (share prices)} = \textbf{intercept} + \beta \textbf{Log (Earnings)}_{i,t} + \varepsilon_{i,t}$$

Table 3. Regression Analysis Results

Dependent variable: Share price				
Variables	**Coefficient**	**Std. Error**	**T-Stat**	**P-value**
Intercept	0.332739666	0.206695201	1.609808374	0.114282
Earnings	0.397687354	0.049796446	7.986259714	0.000000
R-squared	0.580981456			
Adj R-squared	0.571872357			
F (1, 46)	63.78034000			
Prob > F	0.00000000			
N of Observations	48			
Multicollinearity, variance inflation factor test, mean VIF= 1.0				
Heteroscedasticity, Breusch-Pagan/Cook-Weisberge test, P = 0.814 > 0.10				
Model specification, RESET test for model specification, P = 0.204 > 0.10				
Normality test, Shapiro-Wilk Normality test for the residuals, P = 0.086 > 0.05				

*Note: ***, **, * denotes statistical significance at the 1%, 5% and 10% levels, respectively.*

Model

$$\textbf{Log (share prices)} = 0.3328 + 0.3977\ \textbf{Earnings} + \varepsilon_{i,t}$$

According to the regression analysis presented in Table 3 indicates, quarterly earnings have a positive impact on the company share price which is significant statistically at 1% level and its coefficient is 0.3977. Therefore, we can reject the null hypothesis (H_0) and accept the alternative hypothesis (H_2)

therefore, quarterly earnings have a very strong relationships with the company stock prices and we can conclude that, for each dollar increase in the earnings will in turn increases to the share price by 39.77%. According to model results, the adjusted r-square coefficient is 0.5719 which means that 57.19% of the variance in the dependent variable (share price) is explained by the independent variable which is the quarterly earnings. The Model's F-statistics and its p-value are 63.780 and 0.0000 respectively.

5. CONCLUSION

The main objective of this study was to test whether quarterly earning announcements have an impact on the stock returns of the companies listed in New York Stock Exchanges and Nasdaq Stock Market. This study focused on three earning announcement cases (positive, neutral, and negative) earning announcements and how each one of these cases affect the share returns of the sampled companies. A sample of 163 companies were selected to conduct this study, 50 out of the 163 companies made **good news** which is a positive earning announcement, 66 out of the 163 companies made **no news** which is neutral earning announcement while the remaining 47 companies made **bad news** which is negative earning announcements. The traditional event study methodology proposed by Brown and Warner (1985) and Fama et al. (1969) were used in the analysis calculation.

The study result confirms that, both the **good news** which is the positive earning announcement and **bad news** which is the negative earning announcement had a strong impact which is significant statistically on the share prices. While **no news** which is the neutral earning announcement did not show any impact which is significant statistically. Therefore, to maximize returns or minimize any loss, company managers must understand earnings announcement types and how the stock market will react to each type of announcement. The **good news** of the earning announcement had impacted positively to the share price, whereby the **bad news** had impacted negatively to the share price. This study confirmes that, the information content from the good news (bad news) event announcement had impacted to the abnormal returns positively (negatively) and significant statistically. There fore; at least with respect to the sampled securities, the capital market exhibited inefficiencies because the abnormal returns on the earnings announcement date (t_0) were found to be significant statistically. The study result is in line with the results reached by Ball and Brawn (1968); Alzahrani and Skerratt (2009); Kross (1982); Schroeder and Kross (1984); Bamber (1986); Mahmoudi and Salari (2016); Sare, Akuoko and Esumanba (2013), and Chari and Ofer (1986). This study had also run a regression analysis in which the relationship between quarterly earnings and stock prices were tested and we found that, there is a positive and statistically significant relationship between earning and stock price.

Further reserach may examine, *negative earning announcement impact minimization and manager roles*. Manager role is very important because taking wise decisions can mitigate the negative earning announcement's impact on the share price.

YAZARIN BEYANI

Bu çalışmada, Araştırma ve Yayın Etiğine uyulmuştur, çıkar çatışması bulunmamaktadır ve finansal destek alınmamıştır.

AUTHOR'S DECLARATION

This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support.

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