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REVENUE SURPRISE AND EQUITY RETURNS IN BORSA İSTANBUL

BORSA İSTANBUL'DA CİRO SÜRPRİZİ VE HİSSE SENEDİ GETİRİLERİ ARASINDAKİ İLİŞKİ

A. Doruk GÜNAYDIN⁽¹⁾

Abstract: This paper examines the importance of revenue surprise in the cross-section of stock returns in Borsa Istanbul. Portfolio-level analyses and multivariate cross-sectional regressions document a statistically and economically significant positive relation between revenue surprise and expected returns. Average excess and abnormal return spreads between equities in the highest and lowest revenue surprise deciles are more than 1% per month. The findings of the paper are robust when well-known firm-specific attributes including earnings surprise are controlled for.

Keywords: Revenue Surprise, Equity Returns, Emerging Markets, Borsa Istanbul

Öz: Bu çalışma, Borsa İstanbul'da işlem gören pay senetleri getirileri ile ciro sürprizleri arasındaki ilişkiyi incelemektedir. Portföy düzeyindeki analizler ve çok değişkenli kesitsel regresyon analizi, ciro sürprizi ile pay senedi getirileri arasında pozitif ve anlamlı bir ilişki olduğunu belgelemektedir. Portföy analizi, yüksek ciro sürprizi portföyündeki pay senetlerinin, düşük ciro sürprizi portföyündeki pay senetlerine oranla aylık %1'den daha fazla getiri sağladığını göstermektedir. Sonuçlar; kar sürprizi dahil hisse senetlerine ait diğer değişkenlere göre kontrol edildiğinde de güçlü kalmaktadır.

Anahtar Kelimeler: *Ciro Sürprizi, Pay Senedi Getirileri, Gelişen Piyasalar, Borsa İstanbul*

JEL: *G10; G11; G12.*

1. Introduction

Prior literature has examined the relation between earnings surprise and equity returns extensively. This strand of finance research documents a significant positive link between earnings surprise and equity returns. Ball and Brown (1968) made the first attempts to understand this relation. They document that earnings which is measured by net income, predict future equity returns. Sloan (1996) and DeFond and Park (2001) analyze the relation between total accruals and equity returns and find a negative relation between them. More recently, Jegadeesh and Livnat (2006) investigate the market's reaction to the information revealed by revenue. A significant link between revenue surprise and future returns is found in U.S. equities after controlling for earnings surprises. Ozkan and Kayali (2015) investigate the relation between stock returns and cash flow from operations in Borsa Istanbul. Using net income, gross profits, accruals and operating profitability as a proxy for the earnings, Azimli and Mandaci (2017) study the link between earnings and stock returns in Turkey. Although the link between earnings surprise and expected stock

⁽¹⁾ Sabancı Üniversitesi, Yönetim Bilimleri Fakültesi, Finans Bölümü;
dorukgunaydin@sabanciuniv.edu; ORCID: 0000-0001-5235-6664

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returns is well-documented both in U.S. and Turkey, relatively little is known about the relationship between revenue surprise and future stock returns. This study aims to fill this gap by examining this relation between revenue surprise in Borsa Istanbul.

The revenue surprise measure is taken as changes in revenue per share from its value four quarters ago scaled by the standard deviation of this difference in quarterly earnings per share over the last eight quarters. First, I construct decile portfolios based on their revenue surprise and investigate whether equities in the highest revenue surprise decile portfolio earn significant returns than equities in the lowest revenue surprise decile portfolio. In addition to univariate portfolio sorts, I implement bivariate portfolio analysis and multivariate cross-sectional regressions to analyze if well-known firm-specific attributes can explain this relation between revenue surprise and expected equity returns.

The results can be outlined as follows. The univariate equal- and value-weighted portfolio analysis that group equities into deciles based on revenue surprise reveals that revenue surprise is positively associated with expected equity returns in Borsa Istanbul. Furthermore, the portfolio analysis provides evidence that equities in the highest revenue surprise decile portfolio earn 15.24% higher annual future return than equities in the lowest revenue surprise decile portfolio. The results show that these return differences are robust after prevalent asset pricing factors are controlled for. To eliminate some biases associated with univariate sorts, I implement bivariate portfolio analysis. The results reveal that even after numerous stock-specific variables are controlled for in the analyses, the link between revenue surprise and expected returns remains significant. To further eliminate the biases associated with univariate sorts, I also estimate univariate and multivariate regressions of future equity return on revenue surprise after controlling for various stock-specific attributes that are documented to predict future stock returns. I find that revenue surprise cannot be explained by other firm-specific attributes, and the relation between revenue surprise and expected stock returns remains significant.

The remainder of the article is structured as follows. Section 2 explains the data. Section 3 details the variables and empirical methodology. Section 4 reports the results from portfolio and regression analyses. Section 5 is the conclusion.

2. Data

I obtain the equity return data from Datastream. The total return index is downloaded on a daily basis for each stock, and it is adjusted for distribution events. I use this return index to calculate daily stock returns. I calculate monthly returns by compounding daily returns. I use returns denominated in U.S. dollars to minimize the inflation rate risk on the Turkish Lira, which fluctuates immensely during the sample. The sample period is between January 2002 and December 2018.

Prior literature on international financial economics (see Bekaert, Harvey and Lundblad (2007), Karolyi, Lee and van Dijk (2012) and Lee (2011)) that obtains equity return from Datastream report data errors. These studies suggest methods to screen the data and minimize such errors in Datastream. Following these suggestions, I only retain common equities in the sample by excluding preferred stocks, depository receipts and real estate

investment trusts from the sample. In order to eliminate survivorship bias, I preserve all delisted equities in the sample. I also eliminate the non-trading days from the sample. Non-trading days are classified as days if more than 90% of equities have zero returns on those days, as in Lee (2011). To perform this filtering, daily returns are computed using the Turkish Lira denominated daily return indices for each stock since returns denominated in US dollars fluctuate daily as exchange rates alter daily. After these screens, 101,734 firm-months have left in the sample.

3. Variables and Methodology

3.1 Variables

This study aims to examine the link between future returns and revenue surprise of Jegadeesh and Livnat (2006), which calculates the stock-specific revenue surprise. Revenue surprise (RS) is measured as revenue per share in quarter q minus revenue per share in quarter $q-4$, divided by the standard deviation of the quarterly difference in revenue per share over the last eight quarters. To estimate revenue surprise, I restrict that at least six quarterly revenue observations must exist for each stock in the past eight quarters.

In bivariate and multivariate analysis to be carried out starting from Section 4.4, I use various stock-specific attributes as control variables. First, I focus on several attributes that are frequently used as control variables both in international and U.S. studies. Market beta ($Beta$) is estimated as the slope coefficient of the regression of the daily excess stock return on daily excess market return during the previous 250 days. As the market portfolio, I use the Datastream country index which is constructed for Turkey. I require that at least 200 valid return observations must exist over the last year for each equity to estimate beta. The one-month U.S T-bill rate is taken as the risk-free asset, which is taken from the Federal Reserve database. Excess equity and market returns are computed using the risk-free rate.

Fama and French (1992) show that firm size and the ratio of the book value of equity to the market value of equity are able to predict future stock returns. To ensure that these effects do not drive the results, I calculate $Size$ as the logarithm of the market value of equity and book-to-market ratio (BM) as the book value of equity scaled by the market value of equity. The momentum (MOM) return effect is measured as the cumulated stock return during the past 11 months following Jegadeesh and Titman (1993). I skip one month before I construct portfolios since equity returns in the U.S. display return momentum in a 6-12-month horizon; nonetheless, they show short term reversal (STR) as documented by Jegadeesh (1990). Hence, I include the one-month lagged return in the firm-specific variables. I also control for stock liquidity by calculating a monthly illiquidity proxy ($Illiq$) as the absolute dollar return scaled by the daily dollar trading volume in each month. Harvey and Siddique (2000) argue that co-skewness has a negative relationship with stock returns, and I use Co-skewness ($Coskew$) as an additional control variable to understand the impact of asymmetric return distribution on future equity returns. Co-skewness is taken as the regression coefficient of squared market excess return from a regression of equity's excess return on the market's excess return and the squared market's excess return

during the past 250 days with a restriction that at least 200 valid daily return observations must exist over the previous 250 days.

Prior literature showed a significant positive link between downside beta and future stock returns. To eliminate the possibility that the link between downside beta and future stock returns affect the relation between revenue surprise and future returns, I follow Bawa and Lindenberg (1977) and Ang et al. (2006) to estimate downside beta ($BetaD$) as the regression coefficient of market excess return from a regression of equity's excess return on the market's excess return with the condition that the market's excess return is less than the average market excess return over the previous year. To estimate downside beta, I again restrict that at least 200 valid daily return observations must exist during the prior year.

Ang, Hodrick, Xing and Zhang (2006) report a significantly negative relation between idiosyncratic volatility and expected equity returns. To control for this effect, idiosyncratic volatility ($IVOL$) is calculated as the standard deviation of the residuals from a regression of excess equity return on the excess market return for each month. This regression is estimated using daily return data for each month. Bali, Cakici and Whitelaw (2011) show that investors have a higher preference for lottery-like equities. They use extreme positive return observations to measure for lottery demand and document a significant negative relation between lottery demand and future stock returns in the U.S. Alkan and Guner (2018) also find evidence for this negative relation in Turkey. Lottery demand (MAX) is proxied as the maximum daily stock return in each month. To calculate idiosyncratic volatility and lottery demand variables, I also restrict that at least 15 daily valid return observations must exist each month.

Prior literature examines the relation between earnings surprise and its effect on stock prices. Following Foster, Olsen and Shevlin (1984), standardized unexpected earnings (SUE) is measured as earnings per share in quarter q minus earnings per share in quarter $q-4$, divided by the standard deviation of the quarterly difference in earnings per share over the last eight quarters. To estimate earnings surprise, I again restrict that at least six quarterly earnings observations must exist for each stock in the past eight quarters.

3.1 Methodology

The primary goal of this study is to examine whether revenue surprise can predict the cross-section of expected equity returns in Borsa Istanbul. To investigate this relation, I conduct univariate portfolio analysis to examine the relation between revenue surprise and expected stock returns. Specifically, stocks are first sorted into deciles based on revenue surprise. Next, the one-month-ahead future returns are analyzed for portfolios that include equities with the highest revenue surprise and the lowest revenue surprise. The decile portfolios are constructed each month from January 2002 to December 2018. Both equal- and value-weighted one-month-ahead average returns are computed for each decile. Return spread between the extreme decile portfolios is examined to check whether this difference is statistically significant. I also test whether this return spread between extreme

deciles can be unraveled by Carhart's (1997) four factors of market, value, size and momentum. Following Fama and French (2017), I generate these four factors specifically for Turkey. Empirically, I run regressions using the monthly return differences between extreme revenue surprise deciles as the predicted variable and the self-constructed asset pricing factors as the explanatory variables and observe whether the intercept terms are statistically significant. Furthermore, to examine further into the impact of other firm-specific attributes on the relation between revenue surprise and expected return, I run sequential ten-by-ten bivariate portfolio sorts based on first one control variable and then on revenue surprise at a time. Specifically, I group all equities into decile portfolios based on increasing sort of one control variable. Then, within each first-step control variable decile, I again sort equities into additional decile portfolios based on revenue surprise. As a consequence, I have 100 conditionally double-sorted portfolios. If revenue surprise influences stock return independently than other control variables, then future return spread between the extreme revenue surprise decile portfolios within each control variable decile should be statistically significant.

One drawback of the univariate portfolio sorts is that grouping equities into portfolios based on revenue surprise grants the researcher to control for only one firm-specific return predictor at each time. Moreover, comparing the return differences between extreme deciles ignores the return patterns in the intermediate portfolios. Therefore, I augment univariate portfolio analyses with Fama and MacBeth (1973) cross-sectional regressions. Specifically, for each month, the following monthly cross-sectional regression is estimated, where the one-month-ahead stock return is the predicted variable, and revenue surprise and various firm-specific variables are the explanatory variables as:

$$R_{i,t+1} = \alpha_{i,t} + \beta_{i,t} \cdot RS_{i,t} + \theta_{i,t} \cdot CONTROLS_{i,t} + \varepsilon_{i,t+1} \quad (1)$$

where $R_{i,t+1}$ is the one-month-ahead excess return for stock i , $RS_{i,t}$ is the revenue surprise for stock i in month t , and $CONTROLS_{i,t}$ is the collection of firm-specific attributes that are documented to predict future equity returns. If revenue surprise predicts the future stock returns, then I expect $\beta_{i,t}$ to be statistically significant in the regression analyses. As a result, I obtain a time-series of slope coefficient on the above-discussed firm-specific control variables. These monthly slope coefficients are averaged, and statistical significance tests are implemented using Newey-West (1987) correction with six lags. Asparouhova, Bessembinder, and Kalcheva (2010) propose a methodological correction to eliminate the bias caused by microstructure noise in stock prices. This problem is expected to be more prevalent in emerging countries like Turkey due to less liquidity. Thus, I follow their suggestion and augment the OLS estimations by running the same cross-sectional regressions utilizing weighted-least squares (WLS) methodology where each control variable is weighted by prior gross return on the equity.

4. Empirical Results

4.1 Summary Statistics

Summary statistics and correlations for each variable utilized in this study are presented in Table 1. Panel A reports the time-series means of the monthly cross-sectional statistics for each variable. The average monthly return is 1.6% with a standard deviation of 1.49%. The median monthly return is -0.5% with a large kurtosis statistic. The mean (median) revenue surprise in the sample is 13.6% (28.4%) with a maximum of 288%. The average standard market beta is less than one. I find that the average (median) size for the sample company is 4.162 (4.019). One should be aware that the mean is larger compared to median due to high positive skewness and leptokurtosis associated with this variable. The momentum return shows a leptokurtic distribution with an average and median of 19.9% and 7%. I find that the average firm shows negative co-skewness. Note that average downside beta is higher than average market beta implying that equity returns are more susceptible to downward market fluctuations. The average monthly idiosyncratic volatility is 2.3% with a median of 1.9%. The average firm has a maximum daily return of 6.9% with a maximum of 41.5%. The average earnings surprise in the sample is 11.3%.

Panel B presents the correlation matrix for all variables that are used in this study. Revenue surprise is not highly correlated with any other control variable. The market beta and downside beta have a correlation of 0.74. Larger firms tend to have higher betas, liquidity and co-skewness whereas they have lower book-to-market ratios, idiosyncratic volatilities and maximum daily returns. Downside beta exhibits a moderate negative correlation with co-skewness. Revenue surprise does not have a higher correlation with any of the control variables including *SUE*. Lastly, monthly equity returns are not correlated with any of the control variables except *MAX* and *IVOL*.

4.2. Univariate portfolio analysis

To study the relationship between revenue surprise and future equity returns, I conduct univariate portfolio analysis, where deciles are formed each month by grouping equities into deciles according to their revenue surprise and observe the future returns of the highest revenue surprise portfolios and the lowest revenue surprise portfolios. Put differently, after stocks are grouped into deciles, decile 10 holds equities with the highest revenue surprise and decile 1 holds equities with the lowest revenue surprise. Next, I compute the one-month-ahead equal- and value-weighted return for each decile portfolio to examine whether the arbitrage portfolio that buys equities with the higher revenue surprise and sells equities with the lower revenue surprise earns significant return. I also test whether the local four-factor asset pricing model is able to elucidate the return spread of this arbitrage portfolio.

Table 2 presents the univariate portfolio results. Equal-weighted portfolio returns are reported in Panel A, whereas Panel B presents value-weighted portfolio returns. Panel A of Table 2 exhibits that equities in the lowest revenue surprise portfolio generate a monthly excess return of 0.79%; however, this is not statistically significant. The excess returns rise almost monotonically, starting with portfolio 2. Stocks in the highest revenue surprise

portfolio earn an excess return of 2.06%. The monthly return spread between the extreme revenue surprise decile portfolios is 1.27% and statistically significant. This result shows that equities with higher revenue surprise earn higher future returns than those with lower revenue surprise. Next, I test whether the Carhart's (1997) local factors can explain the return difference between the extreme revenue surprise deciles. Portfolio 1 has an abnormal monthly return of -0.44%, whereas portfolio 10 has an abnormal monthly return of 0.94%. The abnormal monthly return spread between the extreme portfolios is 1.37% and it is statistically and economically significant with a t-statistic of 4.59. These results show that commonly used factors do not explain the abnormal return difference between the extreme decile portfolios.

To eliminate the possibility that some of the previous results may be due to small and illiquid stocks, I replicate the earlier univariate portfolio analysis using value-weighted returns. These results are presented in Panel B. The excess monthly return spread between the extreme revenue surprise deciles is 2% with a t-statistic of 2.83. The corresponding abnormal return is 2.02% and is statistically significant with a t-statistic of 2.91. The underperformance of equities with the lowest revenue surprise and overperformance of equities with the highest revenue surprise are robust in value-weighted portfolios as well.

The predictive power of revenue surprise is also tested in the long-term by calculating the cumulative return of each decile portfolio up to twelve months after portfolios are formed. Table A of Table 3 reports results for equal-weighted longer-term portfolio returns, and Panel B of Table 3 reports results for value-weighted longer-term portfolio returns. Panel A indicates that two months after the portfolios are formed, the portfolio that includes equities with the highest (lowest) revenue surprise has a cumulative equal-weighted return of 2.26% (0.53%). The spread is equal to 1.73% and significant with a t-statistic of 4.59. Three months after the portfolio formation, the zero-cost strategy has a cumulative return of 1.5% with a t-statistic of 4.47. The predictive power of revenue surprise becomes insignificant ten months after the portfolio formation. These results indicate that the persistent relation between revenue surprise and expected returns remains significant for nine months after the portfolio formation. Next, I repeat the previous longer-term analysis for value-weighted returns to eliminate the possibility that small stocks may drive earlier longer-term results. These results are presented in Panel B, and I find similar findings. Two months after portfolios are formed, the portfolio that includes equities with the highest (lowest) revenue surprise has a cumulative value-weighted return of 1.88% (0.10%). The spread is equal to 1.78% and it is statistically and economically significant with a t-statistic of 3.1. Three months after portfolio formation, the same strategy has a cumulative return of 1.46% with a t-statistic of 3.33. Analogous to the result in Panel A, the predictive power of revenue surprise on future returns persists into the future and becomes insignificant after the fifth month.

4.3. Average portfolio characteristics

In this section, I examine which control variables can interpret the significant positive relationship between revenue surprise and expected equity returns. To do this, each month, I group stocks into decile portfolios based on their revenue surprise metrics and compute

the time-series means of cross-sectional averages for firm-specific attributes for each portfolio. Table 4 presents these results.

First, by construction, the revenue surprise variable increases from the first portfolio to the last portfolio. The average revenue surprise for portfolio 1 is -2.3243 whereas the mean revenue surprise for portfolio 10 is 2.2462. I find that the portfolio 1 (portfolio 10) has an average beta of 0.80 (0.81). Companies with higher revenue surprise are generally bigger whereas the relation between revenue surprise and book-to-market equity ratio is flat. Equities with higher revenue surprise have larger momentum returns. Lowest (highest) revenue surprise decile has a mean momentum return of 15% (26%), whereas the lowest (highest) revenue surprise decile has an average one-month lagged return of 1% (2%). For both momentum and one-month lagged return, the differences between the extreme decile portfolios are statistically significant. Equities with higher revenue surprise generally have less negative co-skewness, have significantly lower idiosyncratic volatilities, and show weaker lottery demand characteristics. Liquidity and downside beta do not appear to be linked to revenue surprise. As one would expect, the average earnings surprise measure for stocks in portfolio 10 is significantly larger than that of equities in portfolio 1.

4.4. Bivariate portfolio analysis

The significant positive relationship presented in Table 2 between revenue surprise and future stock returns is found possible since a control variable that is correlated with revenue surprise affects expected equity returns. To investigate this possibility, I use two-stage 10x10 dependent sorts based on a set of control variables and revenue surprise. Specifically, each month I group equities into decile portfolios based on an increasing order of one control variable. Then, I group equities into additional decile portfolios based on an increasing ordering of revenue surprise metrics in each control variable decile. This double sorting gives 100 portfolios. Portfolio 1 includes all equities with the lowest revenue surprise in each control variable decile, whereas portfolio 10 includes all equities with the highest revenue surprise in each control variable decile. Panel A of Table 5 presents results for the equal-weighted excess and abnormal returns from the bivariate portfolio analysis. For all control variables, I find that the excess returns show an increasing pattern moving from decile 1 to decile 10. For example, when I use the beta as the first sorting variable, decile 1 has an excess return of 0.95%, whereas decile 10 has an excess return of 2.15%. The excess return spread between extreme deciles is 1.2%, with a t-statistic of 3.87. The corresponding alpha spread between the extreme revenue surprise deciles is 1.33% with a t-statistic of 4.38. I find similar results when I use other control variables. The excess return difference between the extreme revenue surprise portfolios changes between 0.63% with a t-statistic of 2.26 (for earnings surprise) and 1.5% with a t-statistic of 4.06 (for illiquidity). The corresponding abnormal return spread between the extreme revenue surprise portfolios change between 0.74% with a t-statistic of 2.74 (for earnings surprise) and 1.64% with a t-statistic of 4.64 (for illiquidity). Panel B of Table 5 tabulates results for the value-weighted excess and abnormal returns from the bivariate portfolio analysis. The excess return spread between the revenue surprise portfolios changes between 0.82% with a t-statistic of 2.19 (for earnings surprise) and 1.50% with a t-statistic of 3.83 (for short term reversal). The risk-adjusted return spread between the

extreme revenue surprise deciles changes between 0.9% with a t-statistic of 2.37 (for earnings surprise) and 1.64% with a t-statistic of 3.96 (for short term reversal). These findings indicate that the strong positive link between revenue surprise and expected returns remains significant even after other variables are controlled for in bivariate portfolio analyses.

4.5. Regression Analysis

The monthly firm-level cross-sectional regressions are estimated, where the one-month-ahead excess stock return is taken as the dependent variables and lagged revenue surprise and various control variables are taken as independent variables. These monthly regressions are first estimated each month using both ordinary least squares (OLS). Next, these regressions are re-estimated using weighted least squares (WLS) methodology. In the latter approach, each variable is weighted by the gross return on each equity. Panel A of Table 6 presents the results from the OLS estimations, and Panel B of Table 6 presents results from the WLS estimations.

The first column of Panel A reveals that revenue surprise has a significant positive slope coefficient of 0.0034 with a t-statistic of 5.62. The economic magnitude of this finding is akin to the univariate portfolio results documented in Table 2. As documented in Table 2, the return difference between portfolio 10 and 1 is $4.5705 = (2.2462 - (-2.3243))$ and multiplying this difference by the mean slope coefficient of 0.0034 gives a monthly return premium of 1.55%.

I expand the univariate regression by appending an extra control variable one at a time. These results are presented from columns 2 to 11 of Panel A. I find that revenue surprise has slope coefficients in the range of 0.0030 and 0.0035 in the regression specifications which are all positive and statistically significant. The t-statistics vary between 4.60 and 5.78. Even if all variables are controlled for in the regression specification (column 12), the slope coefficient of revenue surprise is significantly positive with a value of 0.0019 and a significant t-statistic of 3.09. These findings prove that revenue surprise has unique and valuable information which is orthogonal to other firm-specific attributes and it remains to be a powerful predictor of future stock returns.

In Panel B of Table 6 for the WLS regressions, similar findings are documented. In the univariate specification, revenue surprise has a significantly positive slope of 0.0033 with a t-statistic of 4.05. The positive link between revenue surprise and future stock returns continue to be significant when other control variables are added in the regression specification. I document that revenue surprise has slope coefficients in the range of 0.002 and 0.0036 and they are all positive and statically significant. The t-statistics vary between 2.69 to 5.06. These results exhibit that the positive association between revenue surprise and expected equity returns remains to be strong after other variables are controlled for in the regression specification.

Several points merit discussing about the control variables. First, one can observe a positive link between the book-to-market ratio and future equity returns. In the last column, the book-to-market ratio has a slope coefficient of 0.0089 and it is statically

significant. Second, market beta, firm size, momentum return, short-term reversal effect, illiquidity, co-skewness and downside beta are not associated with the cross-section of equity returns when I control for other variables in the regression specification. Third, similar to U.S. studies, I document a significantly negative relationship between idiosyncratic volatility and future equity returns. Fourth, the strong and positive link between earnings surprise and future equity returns is evident when other variables are controlled for in the regression specification. The slope coefficient of SUE is 0.0038 and it is statically significant. These findings also hold for the WLS estimates.

5. Conclusion

There exists a vast literature that investigates the relation between accruals and the cross-section of equity returns. This line of research finds a significant positive link between revenue surprise and future stock returns in the U.S. setting. Using Turkish data, Ozkan and Kayali (2015) examine the relation between cash flow from operations and equity returns. Using a different variable, Azimli and Mandaci (2017) document a significant link between earnings and future stock returns. Although the predictive power of cash flow and earnings is examined in Turkish markets, the relation between revenue surprise and future stock returns is still incomplete in this market. This paper examines the relation between revenue surprise and the cross-section of expected equity returns in Borsa Istanbul. I provide evidence that revenue surprise indeed predicts expected stock returns. Specifically, the univariate portfolio-level analyses using both equal- and value-weighted portfolio returns reveal a significant positive relation between revenue surprise and future stock returns. I show that stocks in the highest revenue surprise decile have higher future returns than stocks in the lowest revenue surprise decile. In other words, the hedge portfolio that has buys stocks with the highest revenue surprise and sells stocks with the lowest revenue surprise earns significant returns. This strategy delivers a risk-adjusted return of 1.37-2.02% per month depending on the weighting scheme. I also show that this strong relation between revenue surprise and equity returns remains significant for nine months after the portfolio formation for equal-weighted returns and for four months after the portfolio formation for value-weighted returns. Additionally, the bivariate portfolio analyses reveal that this strong relation cannot be explained by other firm-specific attributes. Univariate and multivariate regression analyses using both OLS and WLS methodology strengthen this finding. I also document that this robust relation between revenue surprise and future stock return cannot be explained by earnings surprise. These findings indicate that revenue surprise is a strong predictor of equity returns in Borsa Istanbul.

6. References

- Alkan, U., & Guner, B. (2018). Preferences for lottery stocks at Borsa Istanbul. *Journal of International Financial Markets, Institutions and Money*, 55, 211-223.
- Amihud, Y. (2002). Illiquidity and stock returns: cross-section and time-series effects. *Journal of Financial Markets*, 5(1), 31-56.
- Ang, A., Chen, J., & Xing, Y. (2006). Downside risk. *The Review of Financial Studies*, 19(4), 1191-1239.
- Ang, A., Hodrick, R. J., Xing, Y., & Zhang, X. (2006). The cross-section of volatility and expected returns. *The Journal of Finance*, 61(1), 259-299.
- Asparouhova, E., Bessembinder, H., & Kalcheva, I. (2013). Noisy prices and inference regarding returns. *The Journal of Finance*, 68(2), 665-714.
- Azimli, A., & Mandaci, P. E. (2017). Examining the relationship between the stock returns and earnings measures—evidence from Borsa Istanbul. In *New Challenges in Banking and Finance* (pp. 65-76). Cham: Springer.
- Bali, T. G., Cakici, N., & Whitelaw, R. F. (2011). Maxing out: Stocks as lotteries and the cross-section of expected returns. *Journal of Financial Economics*, 99(2), 427-446.
- Ball, R., & Brown, P. (1968). An empirical evaluation of accounting income numbers. *Journal of Accounting Research*, 6(2), 159-178.
- Bawa, V. S., & Lindenberg, E. B. (1977). Capital market equilibrium in a mean-lower partial moment framework. *Journal of Financial Economics*, 5(2), 189-200.
- Bekaert, G., Harvey, C. R., & Lundblad, C. (2007). Liquidity and expected returns: Lessons from emerging markets. *The Review of Financial Studies*, 20(6), 1783-1831.
- Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, 52(1), 57-82.
- DeFond, M. L., & Park, C. W. (2001). The reversal of abnormal accruals and the market valuation of earnings surprises. *The Accounting Review*, 76(3), 375-404.
- Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance*, 47(2), 427-465.
- Fama, E. F., & French, K. R. (2017). International tests of a five-factor asset pricing model. *Journal of Financial Economics*, 123(3), 441-463.
- Fama, E. F., & MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy*, 81(3), 607-636.
- Foster, G., Olsen, C., & Shevlin, T. (1984). Earnings releases, anomalies, and the behavior of security returns. *Accounting Review*, 59, 574-603.
- Harvey, C. R., & Siddique, A. (2000). Conditional skewness in asset pricing tests. *The Journal of Finance*, 55(3), 1263-1295.
- Jegadeesh, N. (1990). Evidence of predictable behavior of security returns. *The Journal of Finance*, 45(3), 881-898.
- Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of Finance*, 48(1), 65-91.
- Jegadeesh, N., & Livnat, J. (2006). Revenue surprises and stock returns. *Journal of Accounting and Economics*, 41(1-2), 147-171.
- Karolyi, G. A., Lee, K. H., & Van Dijk, M. A. (2012). Understanding commonality in liquidity around the world. *Journal of Financial Economics*, 105(1), 82-112.

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- Lee, K. H. (2011). The world price of liquidity risk. *Journal of Financial Economics*, 99(1), 136-161.
- Newey, W. K., & West, K. D. (1987). A Simple, Positive Semi-Definite, Heteroskedasticity and Autocorrelation. *Econometrica*, 55(3), 703-708.
- Ozkan, N., & Kayali, M. M. (2015). The accrual anomaly: Evidence from Borsa Istanbul. *Borsa Istanbul Review*, 15(2), 115-125.
- Sloan, R. G. (1996). Do stock prices fully reflect information in accruals and cash flows about future earnings?. *The Accounting Review*, 71(3), 289-315.