



GROSS PROFITABILITY AND 52-WEEK HIGH PRICE BRÜT KARLILIK VE 52-HAFTANIN YÜKSEK FİYATI

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Abstract

The purpose of the study is to measure the conjoint effect of investment strategy based on gross profitability and 52-week high in Borsa İstanbul for the period 2007-2016. The strategy suggests the investors can profit when they take a long position on stocks with high gross profitability and 52-week high, and short position on stocks with low gross profitability and 52-week high. The portfolio method is used in the analysis. The portfolios sorted on 52-week high provide premium but statistically insignificant whereas gross profitability premium is found positively significant. Besides that, the seasonality of profitability returns is observed, though it is weak. When the strategies are analyzed together, the findings exhibit no superior performance of combined strategy despite of positive premium. It may stem from 52-week high effect that is employed as an alternative measure of momentum. This study exhibits a new evidence in the context of the joint effect of strategies. It's considered that forthcoming researches might focus on the combined performances of the other strategies also by employing alternative measures.

Keywords: 52-Week High Price, Gross Profitability, Novy-Marx, Turkey.

Öz

Bu çalışmanın amacı, 52-haftanın yüksek fiyatı ile brüt karlılık ölçütünün birlikte etkisine dayalı oluşturulan yatırım stratejisinin etkinliğini 2007-2016 döneminde Borsa İstanbul'da ölçmektir. Bu stratejiye göre yatırımcılar, 52-haftanın yüksek fiyatı ile brüt karlılığı yüksek olan hisse senetlerinde uzun pozisyon, düşük olan hisse senetlerinde ise, kısa pozisyon alarak piyasalarda daha yüksek kar elde edebileceklerdir. Analizlerde portföy yaklaşımı kullanılmıştır. 52-haftanın yüksek fiyatına dayalı oluşturulan portföyler pozitif getiri sağlamasına rağmen istatistiki olarak anlamlı değildir. Öte yandan karlılık primi hem pozitif hem de istatistiki olarak anlamlı bulunmuştur. Karlılık priminde zayıf da olsa Ocak ayı etkisi gözlenmiştir. İki yatırım stratejisi birlikte analiz edildiğinde ise, pozitif getiri elde edilmesine karşın anlamlı bulunmamıştır. Bunun sebebinin, 52-haftanın yüksek fiyatının momentum ölçütünün alternatif olarak kullanılmasından kaynaklı olabileceği düşünülmektedir. Bu çalışma, yatırım stratejilerinin birlikte performansını ölçmeye yönelik yeni bir bulgu ortaya koymaktadır. İleriki çalışmaların alternatif ölçütler kullanılarak ve farklı yatırım stratejilerinin birlikte değerlendirilmesine ilişkin yapılabileceği düşünülmektedir.

Anahtar Kelimeler: 52-Haftanın Yüksek Fiyatı, Brüt Karlılık, Novy-Marx, Türkiye.

GENİŞLETİLMİŞ ÖZET

Çalışmanın Amacı

Yatırım kararları şekillendirilirken hisse senedi karakteristiklerinden yararlanılması uzun yıllardır yatırımcılar tarafından kullanılmaktadır. Tek bir stratejiden ziyade arasında zayıf ilişki bulunan karakteristiklerin birlikte kontrol edilmesi ile oluşturulabilecek bir yatırım stratejisinin daha karlı olması muhtemel görünmektedir. Bu amaçla, Bhootra (2018) hisse senedi piyasalarında yaygın olarak araştırılan momentum ve karlılık etkilerinin birlikte kontrolüne dayalı bir yatırım stratejisi önermiştir. Yüksek karlılık ve momentuma sahip hisse senetleri alınarak, düşük karlılık ve momentuma sahip hisse senetlerinin ise sürekli satılması şeklinde oluşturulacak bir yatırım stratejisinin, her iki etkinin ayrı olarak sağlayacağı getiriden daha yüksek olduğunu elde etmiştir. Momentum ve karlılık, Türkiye hisse senedi piyasasındaki yatırımcılar tarafından yaygın olarak kullanılan stratejilerdir. Dolayısıyla çalışmanın amacı, Novy-Marx (2013) tarafından önerilen brüt karlılık ile momentum getirilerini açıklayabildiği George ve Hwang (2004) tarafından ileri sürülen 52-haftanın yüksek fiyatına dayalı olarak oluşturulan yatırım stratejisinin 2007-2016 döneminde Türkiye hisse senedi piyasasında karlılığını incelemektir. Yatırım stratejisinin iyi bir performans göstermesi, bireysel yatırımcılara, portföy yöneticilerine ve piyasa uzmanlarına pratiklik ve yüksek getiri imkanını birlikte sağlayabilecektir.

Araştırma Soruları

Bu çalışmanın birkaç araştırma sorusu bulunmaktadır. "Novy-Marx' ın brüt karlılık ölçütüne göre oluşturulan bir yatırım stratejisi piyasalarda pozitif getiri sağlar mı? George ve Hwang (2004)' ün momentum ölçütü olarak kullandığı 52-haftanın yüksek fiyatına göre oluşturulan bir yatırım stratejisi piyasalarda pozitif getiri sağlar mı? Brüt karlılık ve 52-haftanın yüksek fiyatı birlikte kontrol edilerek oluşturulan bir yatırım stratejisi yatırımcılara daha yüksek getiriler sağlar mı?" sorularının cevapları bu çalışmada aranmaktadır.

Literatür Araştırması

Karlılık ve momentum hisse senedi yatırımlarında izlenen ve yatırım kararları şekillendirilirken göz önünde bulundurulmuş iki faktördür. Her iki stratejinin Türkiye hisse senedi piyasasında karlılığı yapılan çeşitli çalışmalarla ortaya konmuştur (Kalaycı ve Karataş, 2005; Aydemir vd., 2012; Ersoy ve Ünlü, 2013; Kandır ve İnan, 2011). Novy-Marx (2013)' ün brüt karlılık ve George ve Hwang (2004)' ün momentum ölçütlerinin kullanıldığı çalışmalar da literatürde yer almaktadır. Ancak her iki etkinin koşullu ilişkisine dayalı bir stratejinin karlılığının test edilmesi özgün bir yaklaşım olarak değerlendirilebilir.

Yöntem

Hisse senedi karakteristiklerine dayalı yatırım stratejilerinin test edilmesinde, literatürde yaygın olarak kullanılan portföy yöntemi bu çalışmada uygulanmıştır. Brüt karlılık ve 52-haftanın yüksek fiyatı ile piyasa değerine göre kesişim portföyleri oluşturulmuştur. Hisse senetleri sıralanarak öncelikle

birbirinden ayrı olarak her iki stratejinin karlılığı test edilmiştir. Ardından ise brüt karlılık ve 52-haftanın yüksek fiyatına göre oluşturulan portföylerin kesişimleri alınarak her iki etkinin karlılığı birlikte incelenmiştir. Son olarak ise getiriler üzerindeki ocak ayı etkisi kontrol edilmiştir. Ocak ayının getiriler üzerindeki etkisi her dönem için Ocak aylarındaki getiriler analiz dışında bırakılarak test edilmiştir.

Sonuç ve Değerlendirme

Brüt karlılık ile ortalama getiriler arasında anlamlı ve pozitif bir ilişki elde edilmesine karşın 52-haftanın yüksek fiyatı için istatistiki olarak anlamlı sonuçlara ulaşılamamıştır. Dolayısıyla her iki etkinin birlikte kontrolüne dayalı portföyler oluşturulduğunda, anlamlı ve yüksek bir getiri performansı elde edilememiştir. Bunun yanı sıra getiriler üzerindeki ocak ayı etkisine bakıldığında özellikle eşit ağırlıklı portföylerde karlılık için zayıf fakat anlamlı bir etki tespit edilmiştir. 52-haftanın yüksek fiyatı için anlamlı sonuçlara ulaşılamamıştır. Tüm bulgulara bakıldığında, momentum ölçütü olarak kullanılan 52-haftanın yüksek fiyatının momentum getirilerini açıklayabildiğine ilişkin elde edilen önceki sonuçları destekleyici nitelikte olmadığı görülmüştür. Dolayısıyla ileriki çalışmalarda Jegadeesh ve Titman (1993) tarafından önerilen önceki 6 aylık, 11 aylık ya da 12 aylık getirilere dayalı momentum ölçütlerine göre her iki etkinin birlikte yeniden test edilebileceği düşünülmektedir.

1. INTRODUCTION

Factor-based investing is a kind of strategy aiming to identify the common drivers underlying stock returns. One of the leading strategies is investing based on market capitalization of companies. According to Banz (1981), the stocks with low market capitalization earn higher average risk-adjusted returns in comparison with the stocks with higher market capitalization. Although it is unclear why stocks with low market capitalization are much more profitable, but some ideas are put forward about the possible explanation. Some come up with the risk of holding small stocks calling for extra gain to the holders. Some others attribute to the seasonality, statistical biases, trading volumes and investors' behaviors. No longer than market capitalization, investment strategies based on book-to-market value, price-to-earnings ratio, price-to-cash flows, leverage and liquidity are explored, and all those attract a great deal of attention in academic circles. Stattman (1980) and Rosenberg et al. (1985) first evidenced the profitability of book-to-market investment strategy in the US. market. The authors found that high book-to-market (value) stocks earn higher average returns than low book-to-market (growth) stocks. Basu (1977) determined a positive relation between average returns and earnings-to-price ratio. Lakonishok et al. (1994) explored the effect of cash flows-to-price ratio on returns, and their findings pointed out the stocks with higher cash flows-to-price ratio provide higher returns than the stocks with lower cash flows-to-price ratio. Bhandari (1988) investigated the effect of leverage on average returns, and revealed that the stocks with higher leverage earn higher average returns. Amihud and Mendelson (1986) searched the relation between liquidity and stock returns, and the results revealed lower liquidity brings higher returns to the investors (Gharghori et al., 2009). Jegadeesh and Titman (1993) evidenced the profitability of momentum strategy. The authors observed when the stocks yield high returns between 3-12 months, they continue to earn high returns subsequent 3-12 months. Thus, momentum investment strategy occurred by taking a short position on past loser stocks and long position on past winner stocks. Haugen and Baker (1996) explored the outperformance of high profitability stocks. The reason underlying the extra returns is attributed to the future growth potential of profitable companies. If the profitability of company is high, the company promises growth potential for the future, and so that the company's stock yields higher returns.

Recently explored, simultaneously controlled 52-week high and gross profitability strategy is superior to individual strategies. Bhootra (2018) has justified the motivation of the research by referring conditional momentum strategies those have been conducted with size, analyst coverage, book-to-market ratio, credit rating, earnings surprise, market state, dividend payout in literature (Daniel and Titman, 1999; Hong et al. 2000; Cooper et al. 2004; Chordia and Shivakumar, 2006; Avramov et al., 2007; Asem, 2009; Asness et al., 2013). The rationale of the strategy is simple. It measures the effect of company's profitability on momentum returns. However, the joint strategy is offering reduced risk without forgoing the return when the correlation is negative between variables. From Novy-Marx

(2013)'s point of view, the profitability is orthogonal to momentum so that joint strategy carries diversification potential. Bhootra (2018) investigates the profitability of the conjoint strategy in the US market. The analysis period is chosen from 1962 to 2015. Investigating the profitability of the strategy, the fundamental method that is named portfolio approach is used. The zero-cost portfolio of conjoint strategy retains 1.24 percent value-weighted return per month. While the gross profitability portfolio earns 0.32 percent, the 52-week momentum portfolio retains 0.48 percent. As the author describes, the motivation of the strategy is to attain much of profitability on long side, the results reveal the notable superiority of combined strategy.

In light of the evidence, it awakes curiosity about how the conjoint strategy performs in Turkish stock market. To that end, zero-cost portfolios are generated based on gross profitability measure of Novy-Marx (2013) and 52-week price of George and Hwang (2004). The results do not support the superiority of the strategy in Turkish stock market for the period 2007-2016. When we take a closer look the individual performance of the strategies, it is observed that gross profitability provides 1% monthly premium and statistically significant, however 52-week high has no effect on stock returns. The remainder of the paper is organized as follows: In Section 2, the literature review of momentum and profitability is provided. Section 3 describes the data and sampling of the study. Section 4 explains how to construct the portfolios and outlines the methodology of the analysis. Section 5 presents the results of portfolio sorts, and Section 6 comprises of conclusions and recommendations for future research.

2. LITERATURE

As an indicator of profitability, Novy-Marx (2013) suggested the gross profitability, and affirmed its superiority on other profitability measures. It is basically calculated as the difference between the value of revenues and cost of goods sold scaled by book value of total assets. As to authors, gross profitability reflects the pure economic profitability of the company, and further the main driver of extra returns is investors' underreaction to the news about gross profits of the company. Other profitability measures were also employed in literature as well. To cite some, Chen et al. (2011), Ball et al. (2015), Fama and French (2015), Hou et al. (2015) used operating profitability, cash-based operating profitability, income before extraordinary items, net income and so on. All aside, the exact reason of profitability effect is ambiguous. Some researchers as being Wang and Yu (2013) and Lam et al. (2016) alleged the behavioral biases, and others (Li and Zhang, 2010 and Hou et al., 2015) assumed the q-theory with investment frictions is the reason underlying the profitability effect.

The literature mostly presented the positive profitability-return relation. Fama and French (2008) investigated the profitability effect in the US market, and proved that the stocks with high profitability present higher returns. Contrary to the previous finding, Sehgal and Subramaniam (2012) documented the negative relationship. Wang and Yu (2013) reexamined it in the US market, and

reported positive and significant relationship. Akbas et al. (2017) searched the effect of trend in company's profitability and its predictability on subsequent stock returns in the US. market. The gross profitability was chosen as a proxy. The findings revealed the trend in profitability, and its predictive information on future returns. Chen et al. (2018) checked the existence of profitability premium in 33 international markets outside of the US. The authors employed various of profitability measures in analysis, and concluded the profitability effect was significant, and pervasive both developed and emerging markets. Novy-Marx (2013) measure of gross profitability was found significant to 16 out of 33 markets. Berggrun et al. (2020) investigated the profitability premium in Brazil, Chile, Colombia, Mexico, and Peru between 2001 and 2016, and reported the pervasiveness of the effect in Latin America. Wahal (2019) also corroborated the presence of the profitability premium in the US. market. Wahal and Repetto (2020) tested the conjoint performance of Novy-Marx (2013) gross profitability and value in international markets. The study employed the portfolio approach for the period 1990-2020. Authors concluded that the profitability and value outperformed jointly rather than individually.

George and Hwang (2004) explored a new measure of momentum based on weekly closing prices of stocks throughout a year. The alternative measure is called "52-week high price", and the authors documented the superiority of the 52-week high over Jegadeesh and Titman (1993) measure. The strategy posits to take a long position when the current price of stock is close to 52-week high price, and to take a short position when the current price is far from 52-week high price. By doing so, the traders can record profits. As to authors, momentum returns could be better predicted by price levels instead of past returns. The rationale of why the price levels are crucial is explained by anchoring-and-adjustment heuristic. The heuristics cause to fixate the 52-high price as a reference price level by traders. It doesn't matter if the news cause to push the prices up or under the reference level, the traders are unwilling to change their beliefs though the information underpins it. Thus, the returns present continuation, but no overreaction occurs later in price correction as being in past returns' momentum (pp. 2174-2175). In order to show the profitability of 52-week high price, the authors compared three momentum strategies as past return performances, proposed by Jegadeesh and Titman (1993); past industry returns, as explored by Moskowitz and Grinblatt (1999); and 52-week high price, reported by George and Hwang (2004). When controlled together with size and bid-ask bounce, the return was two times higher than other momentum strategies. Furthermore, the gap grew up outside of January. The authors claimed that the 52-week high strategy dominated other two strategies.

Afterwards, new studies have followed up to George and Hwang (2004). Marshall and Cahan (2005) checked the profitability of 52-week high in Australian market between 1990 and 2003. The findings confirmed the profitability of the strategy, and it was furthermore superior to momentum measure of Jegadeesh and Titman (1993) and the industry momentum measure of Moskowitz and Grinblatt (1999). Du (2008) searched the profits of 52-week high in 18 market indices between 1969 and 2004, and the past returns seemed as though more profitable than 52-week high price marginally.

Liu et al. (2011) investigated the existence of 52-week high in 20 major markets. The findings showed the positive returns in 18 markets but significant 10 only out of 20 markets. Burghof and Prothmann (2011) searched the driver of 52-week high returns, and its relation with uncertainty in the U.K market between 1989 and 2008. The findings revealed that 52-week high profits are larger when the information uncertainty is greater, and further anchoring is the possible reason of 52-week high profits. Bornholt and Malin (2011) extended the time period and the sample of Du (2008)'s analysis, and then reexamined the profitability of 52-week high in developed and developing markets. Contrary to previous studies, the results presented the profitability of past returns momentum than 52-week high. Hong et al. (2015) analyzed the profitability of 52-week high strategy in NYSE, AMEX, and NASDAQ between 1963 to 2009, and attained 0.43% premium per month. Hao et al. (2016) documented the profitability of 52-week high strategy in Taiwan stock market, and showed that January months have a negative impact on returns. A multitude of research has been conducted on 52-week high in markets as well (Huddart et al., 2009; Li and Yu, 2012; Bhootra and Hur, 2013; George et al., 2015; Chang, 2019).

January seasonality is counted as one of the reasons behind abnormal returns on market. There is huge body of studies showing the abnormal positive returns on Januaries (e.g., Keim, 1983; Roll, 1983; Griffiths and White, 1993; D'Mello et al., 2003; Haug and Hirschey, 2006). Contrarily to positive returns on Januaries, Jegadeesh and Titman (1993), Grundy and Martin (2001) and George and Hwang (2004) reported negative returns associated with momentum. However, the studies are not limited to momentum, Yao (2012), Zhong et al. (2014), Keloharju et al. (2016), and many others also investigated the seasonality on momentum and profitability returns.

3. DATA

The dataset comprises of accounting data, shares outstanding, and weekly and monthly ending prices of stocks traded in Borsa İstanbul. The companies with discontinuous data are excluded from the sample, and the financials are not included as well. The closing prices are derived from the website of Borsa İstanbul DataStore. The accounting data is from Public Disclosure Platform. The shares outstanding is gathered from Public Disclosure Platform and Borsa İstanbul. This research employs the data from 2007 to 2016 due to lack of availability of shares outstanding.

4. METHODOLOGY

The study adopts the portfolio method to measure the combined performance of strategy based on profitability and momentum. Portfolio method is commonly used in investigating the factor investing strategies (e.g., Jegadeesh and Titman, 1999; Marshall and Cahan, 2005; Novy-Marx, 2013; George and Hwang, 2004). In this method, the portfolios are formed as per the stock characteristic, and then taken the long-short spread. Afterall, it is controlled whether the premium is positive and statistically significant. The positive premium approves the profitability of investment strategy. The analysis in

details could be identified by steps. At the first step, the gross profitability of Novy-Marx measure is calculated for each stock. The calculation is shown as follows:

$$\text{Profitability} = \frac{\text{Gross Profits}}{\text{Total Assets}}$$

Gross profit is computed by subtracting revenues from cost of goods sold, and then this value is divided by total assets. Based on the values of profitability and market equity, the stocks are ranked in each period. Next, they are split into quintiles, and value-weighted and equal-weighted returns are calculated between July of year t to June of year $t+1$. Lastly, zero-cost portfolios are formed by taking the difference of edge portfolios. The portfolio analysis is conducted by keeping the similar approaches of Novy-Marx (2013) and George and Hwang (2004). The same goes for 52-week high. The 52-week high price is calculated for the stocks each year. The formula of the ratio is given below:

$$\text{Ratio} = \frac{\text{Current Price}}{52 - \text{Week High Price}}$$

First of all, the stocks are ranked according to 52-week high and market equity. Second, double sorts on 52-week high and market equity are applied, and then zero-cost portfolios are formed to obtain 52-week high premium. As a final step, the double sorting is employed based on profitability and 52-week high, and zero-cost portfolio return is computed. The market equity is calculated as follows:

$$\text{Market Equity} = \text{Closing Price of Stock} \times \text{Number of Shares Outstanding}$$

Finally, the January seasonality is examined by excluding Januaries from the observations. This seasonality is commonly investigated together with stock's characteristics. By doing so, the effect of Januaries could simply be observed on returns. For that purpose, Januaries are excluded from the observations, and recomputed the returns for the remaining 11 months. This approach enables to make a comparison between non-January returns and returns with Januaries. The comparison of premiums signifies whether January months have an effect on average returns.

5. EMPIRICAL RESULTS

The gross profitability premium is analyzed by dividing the stocks into five portfolios. The first portfolio is named "P1" that represents the stocks with the lowest profitability. On the other hand, "P5" consists of stocks with the highest profitability. Table 1 displays the premiums of quintiles and the zero-cost portfolio, denoted with "P5 – P1".

Table 1. Equal-Weighted and Value-Weighted Returns from Gross Profitability Strategy

Gross Profitability				
	Excess Return	t-stat.	Excess Return	t-stat.
P1	0.011**	2.036	0.012**	2.104
P2	0.011**	1.996	0.009	1.578
P3	0.008***	1.745	0.005	0.994
P4	0.010**	2.092	0.008	1.543
P5	0.020***	3.907	0.016***	3.749
P5-P1	0.010***	2.934	0.004	0.871

Notes: *** represents statistical significance at the 1% level, ** at the 5% level, and * at the 10% level. The table reports the average and value-weighted portfolio returns along with t-statistics between 2007 and 2016 sample period.

The left-hand side of Table 1, Table 2, Table 4 and Table 5 presents the results for equal-weighted returns while the value-weighted returns are reported on the right-hand side of the tables. The first row is the quintile portfolios. In Table 1, the average returns of equal-weighted portfolios are close to each other, and all of them are statistically significant. When P5 portfolios are checked, it is obvious that the returns realize higher for high profitability portfolios. Besides that, portfolio returns are significant at 1% level ($t = 3.907$ and $t = 3.749$). The bottom line presents the zero-cost portfolio returns. The zero-cost portfolio provides monthly 1% premium in equal-weighted returns, and furthermore is significant at 1% level. The value-weighted return is 0.4% but insignificant. The equal-weighted returns seem more persistent than value-weighted returns, and the higher t-statistics corroborate this finding.

Table 2. Equal-Weighted and Value-Weighted Returns from 52-Week High Strategy

52- Week High Price				
	Excess Return	t-stat.	Excess Return	t-stat.
M1	0.011	1.418	0.018**	2.543
M2	0.019**	2.291	0.011	1.302
M3	0.022***	3.008	0.026***	4.174
M4	0.016**	2.512	0.007	0.972
M5	0.015**	2.237	0.013*	1.918

M5-M1	0.004	0.992	-0.005	-0.754
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Notes: *** represents statistical significance at the 1% level, ** at the 5% level, and * at the 10% level. The table reports the average and value-weighted portfolio returns along with t-statistics between 2007 and 2016 sample period.

Table 2 describes the portfolios those are formed on 52-week high momentum. The first portfolio is named “M1” that represents the stocks with the lowest momentum, and the portfolio with the highest momentum is denoted with “M5”. The average of low portfolio brings 1.1% monthly premium but insignificant whereas M5 portfolio generates 1.5% returns and statistically significant. In contrast, the edge returns for value-weighted portfolios are inconsistent because M1 portfolio provides higher return than M5 portfolio. In general, M3 portfolio in equal-weighted returns provides highest premium with 1% significance level, however neither the zero-cost portfolios provide positive premium nor they are significant.

Table 3. Value-Weighted Returns and t-Statistics from the Conjoint Strategy

Gross Profitability and 52-Week High Price						
Panel 1	M1	M2	M3	M4	M5	M5-M1
P1	0.014*	0.032*	0.023**	0.017**	0.012	-0.0020
P2	0.011	0.015**	0.024***	0.015*	0.020**	0.0091
P3	0.006	0.015*	0.021***	0.027***	0.007	0.0007
P4	0.011	0.015*	0.018**	0.003	0.020***	0.0095
P5	0.011	0.016**	0.022***	0.016**	0.015**	0.0046
P5-P1	-0.004	-0.016	-0.001	-0.000	0.003	
t-statistics						
Panel 2	M1	M2	M3	M4	M5	
P1	1.691	1.788	2.315	2.178	1.276	
P2	1.182	2.000	3.289	1.891	2.249	
P3	0.706	1.877	2.667	3.737	0.967	
P4	1.104	1.784	2.165	0.415	3.023	
P5	1.304	2.099	2.638	2.387	2.226	

Notes: *** represents statistical significance at the 1% level, ** at the 5% level, and * at the 10% level. The table reports the average and value-weighted portfolio returns along with t-statistics between 2007 and 2016 sample period.

The returns from the conjoint strategy are reported in Table 3. Panel 1 presents the value-weighted returns, and the Panel 2 is t-statistics. When we take a look to Table 3, P5-P1 returns are standing out with negative values. The negative returns are attained almost in each portfolio since the lowest quintiles provide higher returns than the highest quintiles. Besides that, half of t-statistics are not significant at 1% and 5% level. As a result, the zero-cost portfolio provides only 0.1% premium. This outcome displays the underperformance of the conjoint strategy, and that might be due to the weak performance of 52-week high momentum.

The next step of analysis is to examine the January seasonality on returns. For that purpose, the January months are excluded from the sample, and recomputed the average returns. The differences are compared with previous results.

Table 4. Equal-Weighted and Value-Weighted Returns from Gross Profitability Strategy in Non-January Months

	Gross Profitability			
	Excess Return	t-stat.	Excess Return	t-stat.
P1	0.010*	1.780	0.012*	1.934
P2	0.010*	1.702	0.008	1.414
P3	0.006	1.247	0.003	0.527
P4	0.008*	1.645	0.006	1.247
P5	0.019***	3.505	0.016***	3.698
P5-P1	0.009***	2.731	0.004	0.911

Notes: *** represents statistical significance at the 1% level, ** at the 5% level, and * at the 10% level. The table reports the average and value-weighted portfolio returns along with t-statistics between 2007 and 2016 sample period.

Table 4 shows the non-January returns of gross profitability portfolios. The basic way to understand whether January effect exists on returns, is to compare the values of average returns with previous results. When each portfolio is compared, it is observed that there is a slight difference on returns. Thus, we might say a weak January effect on returns but it still exists.

Table 5. Equal-Weighted and Value-Weighted Returns from 52-Week High Strategy in Non-January Months

52- Week High Price				
	Excess Return	t-stat.	Excess Return	t-stat.
M1	0.012	1.532	0.020***	2.764
M2	0.017*	2.188	0.009	1.175
M3	0.021***	2.898	0.027***	4.023
M4	0.016**	2.495	0.006	0.893
M5	0.015**	2.168	0.014*	1.969
M5-M1	0.003	0.668	-0.006	-0.866

Notes: *** represents statistical significance at the 1% level, ** at the 5% level, and * at the 10% level. The table reports the average and value-weighted portfolio returns along with t-statistics between 2007 and 2016 sample period.

The seasonality is also controlled for the returns calculated based on 52-week high momentum and, reported in Table 5. It is again observed a slight difference between January included and non-January months' returns. Since the previous returns were inconsistent, the results do not seem very meaningful.

6. CONCLUSION

Investing based on stock characteristics has been using in decision-making by traders for many years. Though the decisions are generally shaped by focusing on the individual stock characteristics, there are also tremendous of studies investigating the conditional variables. The gross profitability and 52-week high are commonly investigated in markets, but a research on combined effect of two common characteristics is rather sparse. In order to test the combined performance of 52-week high price and profitability, the research covers the period that employs data from 2007 to 2016.

The standard portfolio approach is adopted for analyzing the characteristics-based investment strategies by keeping the study of Bhootra (2018). Stocks are ranked, and split into five portfolios according to 52-week high. The same goes for gross profitability measure of Novy-Marx (2013). Afterall, both strategies are controlled together by employing double sorting method. Value-weighted and equal-weighted returns are calculated for each strategy. Besides that, January seasonality on returns

is controlled individually. The portfolio sorts those are built in accordance with the gross profitability are found significant, and provide positive equal-weighted returns. On the other hand, the equal-weighted and value-weighted portfolio returns present no significant 52-week high momentum. Therefore, the combined strategy does not outperform than individual strategies. The January seasonality is only observed in profitability premium, albeit weak. Contrary to the findings of Bhootra (2018), the results do not exhibit the profitability of 52-week high strategy, and the intersection portfolios of gross profitability and 52-week high momentum underperform in the analysis period.

In this research, gross profitability of Novy-Marx and 52 week-high are chosen as metrics in order to comply with the original study. Although momentum and profitability are commonly investigated, and evidenced in Turkish stock market, findings about momentum are not in line with previous studies. Future studies may attempt to use other proxies for momentum, such as monthly calculated momentum. All else aside, if findings were confirmative, it would offer a useful tool to the practitioners and investment analysts in designing their investment strategy. Thus, it was worth investigating the conjoint effect of strategies on returns in Turkish stock market.

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