Data and Method

Theoretical Background

Presented by: Huan Cai
Aliudeen Hammed
Roberto Capurro
Michael L. Cooper

Market States & Momentum
Test Profits across States

- Definitions:
  - Momentum Portfolio:
    - Long in past winner, short in past loser
    - Short in past loser, long in past winner
  - Summary:
    - Market gains, market capitalization
  - Long-run reversal following short-run momentum peaks as market eventually corrects mispricings

Main Results (Table 1)

<table>
<thead>
<tr>
<th>Panel</th>
<th>Average Monthly Profit Following 36-month Base Period</th>
<th>Market Style</th>
<th>HoldingPeriod (%)</th>
<th>Reversal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.45</td>
<td>Down Market</td>
<td>30</td>
<td>1.71</td>
</tr>
<tr>
<td>2</td>
<td>1.45</td>
<td>Up Market</td>
<td>30</td>
<td>1.71</td>
</tr>
<tr>
<td>3</td>
<td>1.45</td>
<td>Down Market</td>
<td>60</td>
<td>1.71</td>
</tr>
<tr>
<td>4</td>
<td>1.45</td>
<td>Up Market</td>
<td>60</td>
<td>1.71</td>
</tr>
<tr>
<td>5</td>
<td>1.45</td>
<td>Down Market</td>
<td>90</td>
<td>1.71</td>
</tr>
<tr>
<td>6</td>
<td>1.45</td>
<td>Up Market</td>
<td>90</td>
<td>1.71</td>
</tr>
</tbody>
</table>

Results from Raw and CAPM

- Result 1:
  - Overreaction Theory: short-run momentum stocks are not forecasted as high when looking at CAPM
  - Raw momentum larger than CAPM
- Result 2:
  - Overreaction Theory: long-run momentum stocks do not forecast CAPM
  - Raw momentum larger than CAPM
Results for Testing CS Theories

- Returns on Momentum Portfolio ≥ 0
- Volatility due to VEs in Macroeconomic Factors

According to CS Theories
- Higher long-term realized returns
- Lower short-term realized returns
- Macroeconomic factors have macro effects
- Some long-term empirical results
- Macroeconomic Model (CS, 2002)

Robust Tests

- The PP alpha displays less evidence of long-term reversal
  - Following good PP months and DOWN months
  - Short-term momentum is robust to PP effects

Results from PP Model
Conclusion

- Long-run reversal without initial momentum in
  overextension theories predicted
- Momentum profiles are reversed in the long-run,
  diminishing past momentum
- High levels of lagged market returns, the profits
  of lagged market returns, the profits

Other Considerations

- Macro variables display no reliable information
- Lagged market returns provide useful information
- Time series predictors
- Long-run versus short-run
- Regression momentum on lagged market
- Market return as a continuous variable
- Correlation is positive

Summary: more observations on DOWN states
- Length: greater return differences in market states
- Trade-off of time horizons

Why CS Model not work
Motivation

Structure of the Paper

Presented by Junyoung Lee
2007
Ronnie youth
Steven L. Herson

Returns
Cross-Section of Stock
Seasonality in the
Main findings

- Seed[s] that are winners in given month outperform stocks that are winners in the previous or following month.
- This pattern is observed in persistent seasonal effect in stock returns.
- Value and volatility exhibit similar seasonal patterns, but they do not explain the seasonality in returns.
- The pattern is independent of size, industry, earning announcements, dividends, and fiscal year.

A periodic Pattern in Stock Returns

**Methodology**
- Calculate returns on P/B strategies over the years 1965-2002 from CRSP monthly return files of NYSE/AMEX-listed firms.
- Some of P/B strategies depend on up to 20 yrs of lagged returns.
- Because CRSP includes thousands of firms, sample of firms would not be a problem despite such long lags.

\[ R_i(t) = \alpha_i + \beta_i R_m(t) + \epsilon_i \]

where \( R_i(t) \) is the return on stock \( i \) in month \( t \), \( R_m(t) \) is the return on market, \( \beta_i \) is the beta of stock \( i \), and \( \epsilon_i \) is the return due to stock-specific factors.

**Data**
- Data consists of 20 yrs of monthly returns on NYSE/AMEX-listed firms.

A periodic pattern in stock returns

For bases of (1/12) and (1/15), test multiple regression methodologies and 10% F tests to observe if the 95% level of significance holds. Although all models remain statistically significant, topics need to be more thoroughly covered.

Figure 1: Example Return Distributions and Tests

For a period of 1/12 (months), 1/15, and 1/25, the return distribution is tested for significance. The 95% level of significance is observed, although all models remain statistically significant. However, more thorough coverage is needed.

Monthly returns on a stock are tested for normality. Higher significance is observed as more thorough coverage is needed.
- Table 2 shows the results of the necessary steps for each category of annual and non-annual transactions. Consideration for the inclusion in Table 2 is based on the criteria mentioned.

**Annual Winner-Loser Strategies**

<table>
<thead>
<tr>
<th>Year</th>
<th>Category</th>
<th>Transaction Type</th>
<th>Number of Transactions</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>Annual</td>
<td>Stocks</td>
<td>120</td>
<td>75%</td>
</tr>
<tr>
<td>2020</td>
<td>Annual</td>
<td>Bonds</td>
<td>50</td>
<td>80%</td>
</tr>
<tr>
<td>2021</td>
<td>Annual</td>
<td>Commodities</td>
<td>75</td>
<td>70%</td>
</tr>
<tr>
<td>2022</td>
<td>Non-Annual</td>
<td>Stocks</td>
<td>150</td>
<td>65%</td>
</tr>
<tr>
<td>2023</td>
<td>Non-Annual</td>
<td>Bonds</td>
<td>30</td>
<td>90%</td>
</tr>
<tr>
<td>2024</td>
<td>Non-Annual</td>
<td>Commodities</td>
<td>80</td>
<td>60%</td>
</tr>
</tbody>
</table>

- The overall patterns and magnitudes are quite similar.
- The strategies are shown in Table 2, with corresponding notes provided in Table 3.
- The theoretical explanation follows this model.
Exceed the Stock Returns
Volume, Volatility, and

Exceed the Stock Returns
Volume, Volatility, and

Exceed the Stock Returns
Volume, Volatility, and
- Look at Figure 3. Volume and share stock returns relationship with historical returns. Please note different time lags show the cross-sectional aspects of the data across different months. The line curves represent the returns of stock prices. The dotted line represents the return on the lagged series of expected stock returns and volume. Run cross-sectional multiple regressions of lagged returns on lagged returns and volume. Expected stock returns and volume volatility.
Volume, volatility, and
Expected Stock Returns

- Volatility is an alternative measure of trading activity and informational events that may be related to the cross-section of future returns.
- Define the abnormal volatility for each stock as the logarithm of the ratio of current std. dev. and its past-six-month average.
- Calculate volatility for each stock from July 1962 and forward.
- Use a volume in the zero-centered regression and multiple regression with volatility as the dependent variable.

- This indicates that controlling for past volume does not substantially change the effect of past returns on the cross-section of future returns.
- Therefore, they conclude that volume displays periodicity in volume does not explain the pattern of returns on volume-based strategies.

The seasonal pattern of multiple regression responses of returns on volume estimates the pattern of simple regression responses.

- This indicates that controlling for past volume does not substantially change the effect of past returns on the cross-section of future returns.
- Therefore, they conclude that volume displays periodicity in volume does not explain the pattern of returns on volume-based strategies.
Volume, volatility, and Expected Stock Returns

- The positive spike in volatility at annual intervals of exactly 12, 24, 36, 48, and 60 months.
- The cross-sectional volatility has the same predictable periodic pattern as return and volume.
- There again can volatility explain the pattern of winner-loser returns? The multiple regression again resembles the simple regression response function.
- Thus, volatility also displays annual periodicity, but does not explain the pattern of returns on winner-loser strategies.

Size and Industry

- Searches for other variables that may be linked to the periodic pattern of expected returns.
- First consider the performance of annual winner-loser strategies within size and industry categories.
- Table 5 shows the winner-loser profits for different strategies within size subsamples.
- The profitability and pattern of winner-loser profits is not limited to a particular size subsamples.
Look at the figure 5.

1. Look at the figure.
2. The mean deviation of a stock is the return in excess of
   the mean return of its industry group.
3. The industry component of stock return is the return
   component due to industry effect and not firm-specific.
4. Decompose returns into industry and firm-specific.
   These are the stocks in the industry group and
   firms. Describe stocks and industry groups and
   how industry affects the returns of stocks. Return
   Size and Industry

<table>
<thead>
<tr>
<th>Size</th>
<th>Industry</th>
<th>Year</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>Small</td>
<td>2000</td>
<td>0.05</td>
</tr>
<tr>
<td>Small</td>
<td>Small</td>
<td>2001</td>
<td>0.06</td>
</tr>
<tr>
<td>Large</td>
<td>Large</td>
<td>2000</td>
<td>0.04</td>
</tr>
<tr>
<td>Large</td>
<td>Large</td>
<td>2001</td>
<td>0.03</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>2000</td>
<td>0.045</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>2001</td>
<td>0.035</td>
</tr>
</tbody>
</table>
Seasonal Patterns and Turn-of-Year

- Given the evidence of the turn-of-year and related anomalies, the turn-of-year is a natural candidate for producing seasonal patterns in expected returns.
- Compute cross-sectional regression of stock monthly returns from the 15th of each month to the 15th of each subsequent month.
- Run cross-sectional regression of stock monthly returns on various lags of the turn-of-year returns and measure their average response.
- Figure 6 shows the result.

Earnings, Dividends, and Fiscal Year

- Earnings announcements are seasonal, with predictable returns associated with dissemination of earnings.
- Table A Panel A displays the monthly holding period for earnings-announcement months and non-announcement months.
- Seasonal return strategies may be exploited to exploit predictable returns associated with earnings announcements.
Earnings, Dividends, and Fiscal Year

- Dividends are another quarterly event for months.
- Similarly separate the sample into ex-dividends and other months.
- Table B Panel B shows the results.
- The results are not particularly different between subsamples.
Conclusion

Fiscal Year
Earnings, Dividends, and

- The fiscal year is important to stakeholders.
- Fiscal year affects investor behavior.
- The fiscal year impacts corporate strategy.
- However, it is not always consistent across companies.
- The fiscal year should align with the calendar year for consistency.

Investigate the fiscal year's impact on the financial statements.