14-week Quarters

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“Surely in the ‘in the real world’ analysts use much more sophisticated models than we could ever imagine”

CIBC report on Intel, 2005,

“1Q05 was better than expected….Most of the disparity is explained by the extra week in 1Q05.., which was not fully modeled in our estimates.”
Motivation

- Prior evidence suggests investor and analyst inefficiency with respect to financial information.
  
  **Example (investors)**
  - Post Earnings Announcement Drift (Bernard & Thomas 1989)
  - Accruals (Sloan 1996)

  **Example (analysts)**
  - Serial correlation in forecast errors (Mendenhall 1991)
  - Accruals (Bradshaw, et al. 2001)
Motivation

Causes of apparent inefficiency

- Lack of ability
  - Can’t understand relative persistence of cash flows vs. accruals
- Psychological biases
  - E.g., Anchoring and adjustment

Underlying assumption is the investors/analysts have sufficient incentives to process information.
Motivation

- We are interested in the extent to which effort might play a role
- We identify a context where we can get to the effort issue:
  - Task is relatively easy
  - Correlated omitted variables problem is unlikely
Most firms have 12 month year - 3 month quarters

Number of days in quarter range from 89 to 92 days

Comparability problems especially in industries where day of the week matters, e.g., weekends more revenues (retailers, restaurants)

e.g., 12 Sundays from Jan-Mar 2007, but 13 Sundays from Jan-Mar 2008
One way to overcome this is by defining every quarter as 13 weeks (13 Sundays, Mondays, etc.)

More comparable - recommended by the National Retail Federation

So four 13 week quarters - 52-week, 364-day years

But year is 365 or 366 days - so leaves out one (or two days) every year

This accumulates - need to catch up with an extra week every fifth or sixth year

That year contains 53 weeks - one quarter contains 14 weeks
14-week quarters

- Extra week → more revenues
- Extra week → more earnings

(Home Depot 2008, revenues from extra week $1.1 billion, earnings $67 million)

Simple impact of extra week

- Revenue of $1 Billion per week in 13 week quarter ($13 Billion).
- Expected revenue (random walk) in 14 week quarter is $14 Billion.
Research Questions

Do analysts anticipate and adjust forecasts for the extra week’s revenues and earnings?

- Or are their revenue and earnings forecast errors positive in 14-week quarters?

- Using previous example
  - Let’s say firm has $13b revenues in 13-week quarter
  - If analysts follow a simple seasonal random walk model without adjusting for extra week:
    - Revenues will exceed forecast by $1 billion
Research Questions

- Do investors discount (not price) the extra week’s earnings and revenues?
  - Or are there abnormal returns to investing in firms during their 14-week quarters?

- Using previous example
  - Let’s say firm has $13b revenues in 13-week quarter
  - If investors follow a simple seasonal random walk model without adjusting for extra week:
    - They will react positively to the “excess” revenue of $1 billion if they are unaware of the extra week
Are 14-week quarters predictable?

- How predictable are 53-week years and 14-week quarters?
- No problem at all with the year

- Take AMD example:
- AMD from 10-K for year ended Dec 25, 1994
- Summary of Significant Accounting Policies
- Fiscal year
  - Advanced Micro Devices' fiscal year ends on the last Sunday in December, which resulted in a 52-week year ended December 25, 1994. This compares with a 52-week fiscal year for 1993 and 1992, which ended on December 26 and 27, respectively.
Are 14-week quarters predictable?

- last Sunday in December

December 1994

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- Leaves out six days at the end of the year
Are 14-week quarters predictable?

- last Sunday in December

December 1995

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Are 14-week quarters predictable?

- So 53-week year is very predictable.
- All you need to do is read the fiscal year definition and know how to use a calendar.
- Are 14-week quarters predictable?
- Can apply the fiscal year definition to quarters.
  - In AMD example, apply “last Sunday” to every quarter in 1995.
Are 14-week *quarters* predictable?

- 77% of the observations in our sample have the extra week in the fourth fiscal quarter
  - If the extra week is not in the first three quarters, can infer it has to be in the fourth

- All we need is that investors and analysts know there’s an extra week at the beginning of the quarter

- So, “predictability” is not an issue (or excuse)
658 firms – 886 14-week firm-quarters

- 440 firms appear once
- 208 firms appear twice
- 10 firms appear thrice
Sample properties

- 32% of observations from SIC codes 50-59
- Quite a few suppliers to the retail industry
  - Food Products, Apparel
- Many big firms from other industries as well
  - Apple Computer
  - Intel
  - Johnson & Johnson
  - Merrill Lynch
  - Cisco Systems
  - Georgia Pacific
Quarter in which firms include 14\textsuperscript{th} week

- 4\textsuperscript{th} quarter (77%)
- 1\textsuperscript{st} quarter (15%)
- 3\textsuperscript{rd} quarter (5%)
- 2\textsuperscript{nd} quarter (3%)
Tests - Design

- Sample only includes firms that follow 52/53 week year (658 firms)

- All tests are comparisons between regular (13-week) quarters and 14-week quarters

- In all multivariate tests:
  - Control for fiscal quarter, year and industry effects
  - Cluster standard errors at firm level
  - Rank Regressions
Q1: Do analysts anticipate and adjust for extra week revenues and earnings?

\[ FE_{i,q} = \alpha_0 + \alpha_1 FE_{i,q-1} + \alpha_2 14WK_{i,q} + \alpha_3 FQ4 * FE_{i,q-1} + \sum_{k=1}^{3} \beta_k FQ_k + e_{i,q} \]

- Earnings forecast error reliably positive in 14-week quarters (t=2.41)
- Revenue forecast error reliably positive in 14-week quarters (t=11.39)
- Analysts seem to not (at least completely) adjust for extra week
  - Seem to follow (naïve) seasonal random walk (13-week) expectations for 14-week quarters
Further Tests – Analyst Forecasts

- Same fiscal quarter for next year is again a 13-week quarter

- If analysts use seasonal random walk expectations the error will now go the other way
  - Using a naive 14-week expectation will overestimate revenues and earnings

- $q+4$ earnings and revenue forecast errors ($q = 14$-week quarter) will be negative (i.e., analysts “forget” there was an extra week in the base quarter)
Further Tests – Analyst Forecasts

- Similar tests as before, except the dummy turns “on” for fourth quarter following 14-week

\[ FE_{i,q} = \alpha_0 + \alpha_1 FE_{i,q-1} + \alpha_2 14WK_{\_QM4_{i,q}} + \alpha_3 FQ4 * FE_{i,q-1} + \sum_{k=1}^{k=3} \beta_k FQ_k + e_{i,q} \]

- \( \alpha_2 < 0 \), but not significant for earnings forecast regression

- \( \alpha_2 < 0 \) and significant (t=5.40) for revenue forecast regression

- Some evidence that analysts’ short-term memory not good either
Further Tests – Analyst Forecasts

- What if analysts are aware of extra week (26% of our sample)?
- Absolute forecast errors
  - Median revenue and earnings forecast errors are significantly lower for analysts who mention the 14-weeks
- Signed forecast errors
  - Those who don’t mention 14-weeks significantly underestimate revenues
  - No significant difference for earnings
If investors are not aware of extra week, they will treat the (on average) “good news” much like in other quarters.

But the “good news” is predictable (can be exploited).

Buy and hold stocks in firms’ 14-week quarters.

In any month, minimum 3 stocks, max 138, mean 30.

Size-adjusted returns of 2.9% (t=2.8), 11.6% annualized.

Similar results with multivariate tests.
Further Tests – Firm Disclosure

- Examine disclosure of firms at announcement

- Disclosing the extra week at the announcement will attenuate investor (mis)reaction

- Are investors misled by firms that do not explicitly disclose the extra week?
Further Tests – Firm Disclosure

- Read press releases and newswire articles related to the earnings announcement.

- For the 810 observations for which we find news articles, disclosure varies widely.

- Goes from clearly disclosing impact to can’t tell the firm had an extra week.
Further Tests – Firm Disclosure

EXAMPLE OF GOOD DISCLOSURE

- Exhibit 99
- FOR IMMEDIATE RELEASE
  CONTACT: Kathryn C. Koessel  Investor Relations  612-661-3830
- PepsiAmericas Reports 21.5 Percent Net Income Growth for the Full Year of 2003
- Combined International Operations Achieve Profitability
- Minneapolis, MN, February 4, 2004 – PepsiAmericas, Inc. (NYSE: PAS) today reported fourth quarter 2003 net income of $37 million, or diluted earnings per share (EPS) of $0.26, and full year 2003 net income of $157.6 million, or EPS of $1.09. Results for the fourth quarter and full year of 2003 benefited from an additional week of operating performance (see note on 53rd week), which contributed $3.1 million to net income.
<table>
<thead>
<tr>
<th>HASBRO, INC.</th>
<th>CONSOLIDATED STATEMENTS OF OPERATIONS</th>
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<tr>
<td></td>
<td>Quarter Ended</td>
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<tr>
<td></td>
<td>Fourteen</td>
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<td>Thirteen</td>
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<tr>
<td>(Thousands of Dollars and Shares Except Per Share Data)</td>
<td>2-Apr-06</td>
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<tr>
<td>Net Revenues</td>
<td>$ 468,181</td>
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<tr>
<td>Cost of Sales</td>
<td>186,092</td>
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<tr>
<td>Gross Profit</td>
<td>282,089</td>
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Further Tests – Firm Disclosure
Example of “Can’t tell the firm had an extra week”

BRIGGS & STRATTON CORPORATION AND SUBSIDIARIES

Consolidated Statements of Earnings for the Fiscal Periods Ended June

(In Thousands, except per share data)
(Unaudited)

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<tr>
<td></td>
<td>2005</td>
<td>2004</td>
<td></td>
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<td>NET SALES</td>
<td>871,717</td>
<td>545,304</td>
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<tr>
<td>COST OF GOODS SOLD</td>
<td>709,514</td>
<td>424,240</td>
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<tr>
<td>Gross Profit on Sales</td>
<td>162,203</td>
<td>121,064</td>
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Out of the 810 firms, 462 firms (57%) explicitly mention the 14th week somewhere in the press release.

The other 368 do not use the word “week” anywhere in the press release.

We examine returns around earnings announcement for disclosers and non-disclosers.
Further Tests – Firm Disclosure

- The extra week’s earnings (1/13 of SRW) seem to be “priced” for the non-disclosers at the earnings announcement.
- Announcement period returns not positive for disclosers at the announcement.
- Some evidence that investors are more likely to (mis)price non-disclosers’ extra (predictable) earnings.
Discussion

- 14-week quarters happen only once in 5-6 years

- Investors and analysts seem not to pay too much attention
  - Only 26% of analyst reports in sample mention the extra week
  - Investors seem overjoyed by the additional revenues and earnings

- Seems to be no formal “rule” related to inclusion and disclosure of the extra week
  - Disclosure varies substantially across firms
14-week quarters present unique situation where SRW is known to be mis-specified and required adjustment is simple
- Yet, investors and analysts seem to follow SRW even here

Don’t need much ability, just awareness
Analyst “effort” more in question
Positive returns to buying and holding stock in 14-week quarters
Some evidence that disclosure mitigates effect of otherwise overlooked extra week