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

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- 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

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- 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

Setting

- 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

Setting

- 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

Setting

- 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 <u>without</u> 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 <u>without</u> 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?

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- 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
- <u>Fiscal year</u>
  - 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

Sun	Mon	Tues	Wed	Thur	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

- Leaves out six days at the end of the year

Are 14-week quarters predictable?

- **last Sunday in December**

December 1995

Sun	Mon	Tues	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

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?

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- 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)

Sample

- 658 firms – 886 14-week firm-quarters
  - 440 firms appear once
  - 208 firms appear twice
  - 10 firms appear thrice

Sample

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- 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

Sample

- Quarter in which firms include 14^{th} week
  - 4^{th} quarter (77%)
  - 1^{st} quarter (15%)
  - 3^{rd} quarter (5%)
  - 2^{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

Tests & Results – Analyst Forecasts

- Q1: Do analysts anticipate and adjust for extra week revenues and earnings?

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

- 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

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- 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

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- 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

Tests & Results – Investor Reaction

- 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

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- 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 RELEASECONTACT: 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.

Further Tests – Firm Disclosure

Example of moderate disclosure

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HASBRO, INC.		
CONSOLIDATED STATEMENTS OF OPERATIONS		
	Quarter Ended	
	--	
	Fourteen	Thirteen
	Weeks Ended	Weeks Ended
(Thousands of Dollars and Shares Except Per Share Data)	2-Apr-06	27-Mar-05
	----------------	--------------------
Net Revenues	$ 468,181	$ 454,944
Cost of Sales	186,092	165,975
	--------------	---------------
Gross Profit	282,089	288,969

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)			
		Fourth Quarter	
		2005	**2004**
NET SALES		**871,717**	545,304
COST OF GOODS SOLD		**709,514**	424,240
Gross Profit on Sales		**162,203**	121,064

Further Tests – Firm Disclosure

- Out of the 810 firms, 462 firms (57%) explicitly mention the 14^{th} 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

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- 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

Conclusion

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- 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