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Discussion of: Disclosure Frequency Induced Earnings-Cash Flow Conflict and the Decision to be Public by Kevin Li and Vicki Tang

Patricia Dechow
ABFER 5th Annual Conference
22-25th May, 2017

Quick Summary of Paper

- **Hypothesis:** Firms with longer cash conversion cycles are less likely to go public when earnings are reported for shorter time intervals (e.g., yearly vs. semi-annually vs. quarterly)

- **Why?:** Because when the reporting interval is short and the cash conversion is long the firm will suffer from a greater *Earnings-Cash Flow Conflict.*

- **What is the Earnings-Cash Flow Conflict?:** <u>Example</u>: A firm plans to raise financing in six months and could select one of the following:

  - ✓ *project 1* produces more earnings than project 2 over the six month interval, but
  - ✓ *project 2*, produces more total cash flows over the full year

- **Which project do financial managers choose?**
  - ✓ **Answer: Project 1**
  - ✓ **Why the myopia?:** manager believes financiers will form a better impression of the company if project 1 is selected

How does the earnings-cash flow conflict relate to the cash conversion cycle and disclosure interval?

- Firms with longer cash conversion cycles are more likely to have projects that pay-offs are not complete within the reporting interval (e.g., a 10-day project is complete by quarter end, but a 180-day project is incomplete).

- Managers will therefore face stronger incentives to be myopic when raising capital in a long conversion cycle firm

- To avoid this problem, fewer long cash conversion cycle firms will go public after reporting intervals are shortened.

- **Setting examined**

- USA 1970's – reporting changed from semi-annual to quarterly

- UK 2007 – semi-annual to quarterly

- Cross listed firms: UK firms listed in the USA when UK had semi-annual reporting but USA had quarterly (2002-2006)

Sample

- Sample: Census of Manufactures published every five years and available most recently in 2007
  - ✓ Data on all firms in the USA (private and public)
  - ✓ Determine the number of firms in each industry
  - ✓ Determine the number of firms on Compustat that are public
  - ✓ Assume total numbers are same for all five years so can calculate the proportion of public firms for 2005, 2006, 2007, 2008, 2009
  - ✓ Calculate Cash Conversion Cycle for public companies
    - Days sales in receivables (DSO) +
    - Days sales in inventory (DSI) +
    - Days sales in payables (DSP) -

Tests

- Key variables:
- Log_ODDS = transformed proportion of firms that are public
- CCC_LONG1Q = cash conversion cycle is longer than a quarter
- INDUSTRY_CCC = length of the industry's cash conversion cycle (proxied by the median length of public firms in industry)
- Regression

- Log_ODDS = … β_4 **CCC_LONG1Q x INDUSTRY_CCC** + controls
- Prediction: β_4 is negative (fewer public firms in long CCC industries)
- **USA sample when switch to quarterly..**

- Log_ODDS = … β_4 **CCC_1Q2Q x INDUSTRY_CCC** + controls
- **CCC_1Q2Q** = cash conversion cycle is longer than a quarter but shorter than 2 quarters
- Prediction β_4 is negative (firms most hard hit by shorter reporting interval)

Results

- Consistent with predictions

- Empirics generally appear to be well done.

- Have some issues such as:
  - ✓ why would firms with cash conversion cycles over 1 quarter but less than 2 quarters be particularly affected (versus firms with long cash conversion cycles in general).
  - ✓ If story is true, why is the main effect positive (industries with longer cash conversion cycles tend to have more firms that are public) my thought is that first order effect is these firms need more capital to run their business
  - ✓ Why is some analysis done controlling for industry.
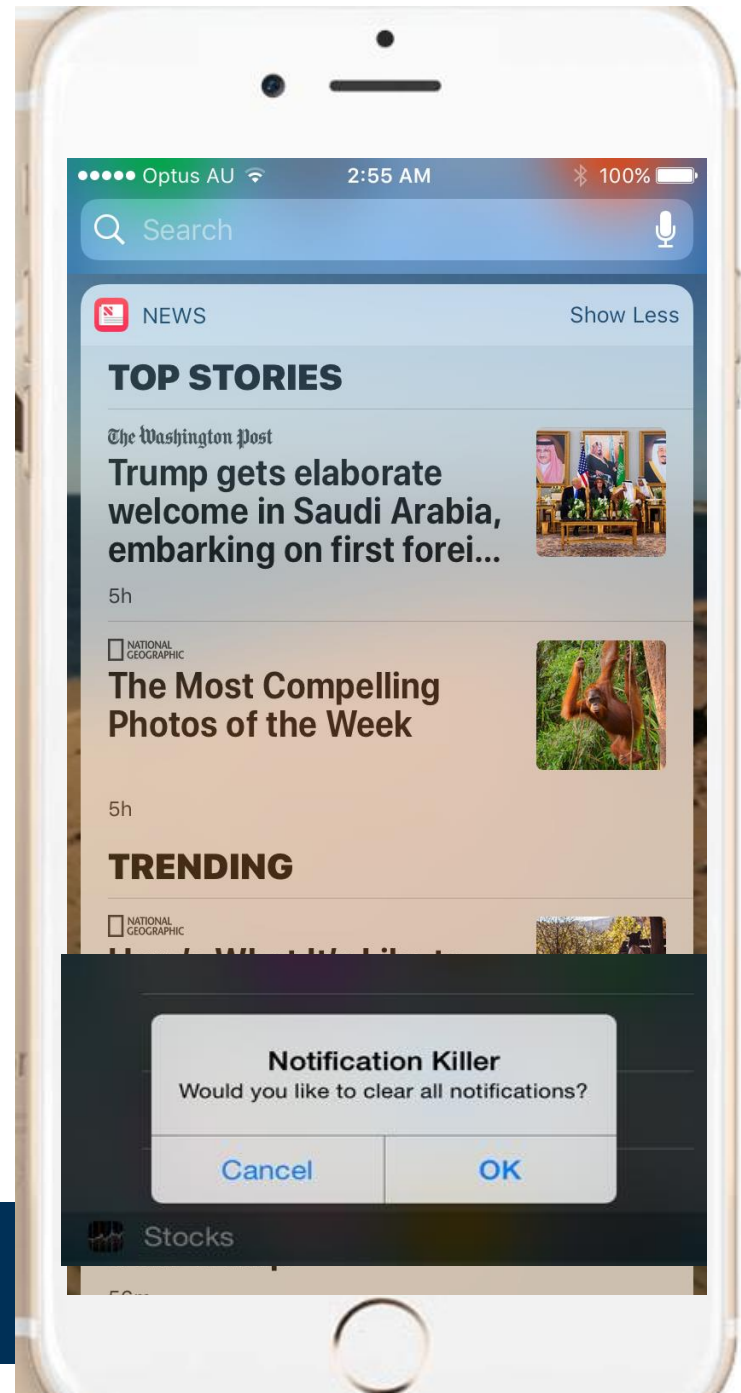
Strengths

How frequently do we want to be updated?

Shorter intervals:
More timely, keeps us up to date

But also distracting and a lot of irrelevant noise

Understanding correct reporting interval is important

Strengths

- Innovative idea
- Nice accounting paper studying a fundamentally important accounting question (reporting interval length)
- Interesting sample – population of firms - private and public firms
- Nice research design – using differences over time, and different countries to identify regime changes, nice analysis of cross-listing firms.

Shaky Foundations

COMMENT 1: THEORETICAL UNDERPINNINGS

Experimental Evidence in Bhojraj and Libby (2005)
48 Financial Managers
Asked which project they would select.

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ARTICLES

Capital Market Pressure, Disclosure Frequency-Induced Earnings/Cash Flow Conflict, and Managerial Myopia (Retracted)

Sanjeev Bhojraj and Robert Libby
Cornell University.

We examine the effects of increased capital market pressure and disclosure frequency-induced earnings/cash flow conflict on myopic behavior. In our experiments, experienced financial managers choose between projects where a conflict exists between near-term earnings and total cash flow. Managers more often choose projects that they believe will maximize short-term earnings (and price) as opposed to total cash flows in response to increased capital market pressure resulting from a pending stock issuance, holding constant agency frictions and other stock market pressures. When faced with increased capital market pressure, changes in disclosure frequency cause managers to behave more or less myopically depending on the impact of the change on the pattern of earnings and the resulting earnings/cash flow conflict. Our study provides insights into managers' beliefs about stock market pressures, mandatory reporting, and the availability of alternative communications channels, and

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Volume 80, Issue 1 (January 2005)

< Previous Next >

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Earnings-Total Cash Flow Conflict

ALTERNATIVE ONE						
		STATEMENT OF EARNINGS				TOTAL EARNINGS (TOTAL CASH FLOWS
	Quarter 1	Quarter 2	Quarter 3	Quarter 4		
Net Sales	6,000	6,000	6,000	6,000		
Less: Cost of goods sold	2,800	2,800	2,800	2,800		
Gross profit	3,200	3,200	3,200	3,200		
Selling and general expenses	2,200	2,200	2,200	2,200		
Income from operations	1,000	1,000	1,000	1,000		4,000
ALTERNATIVE TWO						
		STATEMENT OF EARNINGS				TOTAL EARNINGS (TOTAL CASH FLOWS
	Quarter 1	Quarter 2	Quarter 3	Quarter 4		
Net Sales	6,000	6,000	6,000	6,000		
Less: Cost of goods sold	2,800	2,800	2,800	2,800		
Gross profit	3,200	3,200	3,200	3,200		
Selling and general expenses	2,750	2,600	1,000	2,150		
Income from operations	450	600	2,200	1,050		4,300

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Managers choose Project 1 because earnings are better over the shorter reporting interval (first six months)

Comment 1

- Generally believable that managers will want to look good and choose project 1 before raising capital (e.g., earnings management, window of opportunity, etc.) Other references….

How Frequent Financial Reporting Can Cause Managerial Short-Termism: An Analysis of the Costs and Benefits of Increasing Reporting Frequency

FRANK GIGLER, CHANDRA KANODIA, HARESH SAPRA, RAGHU VENUGOPALAN

ABSTRACT

We develop a cost–benefit tradeoff that provides new insights into the frequency with which firms should be required to report the results of their operations to the capital market. The benefit to increasing the frequency of financial reporting is that it causes market prices to better deter investments in negative net present value projects. The cost of increased frequency is that it increases the probability of inducing managerial short-termism. We analyze the tradeoff between these costs and benefits and develop conditions under which greater reporting frequency is desirable and conditions under which it is not.

COMMENT 2: ROLE OF ACCRUALS

ARCHIVAL SETTING VERSUS EXPERIMENTAL SETTING

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Comment 2

- Is Li and Tang's (2017) setting a good application of the problem?

- Focus of Bhojraj and Libby (2005) is on EARNINGS.

- That is, **earnings provide a distorted picture** of the true value of the project when observed for a **shorter time** interval.

- However, Li and Tang (2017) are arguing **that firm's with LONG CASH CONVERSION CYCLES** face the Earnings-total cash flow problem

- **Question:** Is there evidence that **long cash conversion firms earnings are distorted** in the way suggested in the experiment? (In the experiment both projects were of the same length)

Earnings – Total Cash Flow Conflict and *cash conversion cycle*

- Bhojraj and Libby (2005) : project 2 has more **total earnings** than project 1 but the timing of earnings recognition is **delayed** for project 2.

- **<u>Cash Conversion Cycle</u> – focuses on the *timing of cash flows* <u>not</u> the *timing of earnings*.**

- **Do long cash conversion cycle firms face a *delayed timing of earnings problem*?**
  - ✓ **Role of accrual accounting is to mitigate this problem**
    - • **Percentage of Completion rules**
    - • **Revenue Recognition rules**
    - • **Inventory capitalization rules**

- **Earnings – Total Cash Flow conflict - is <u>not based on timing of earnings differing from the timing of cash flows receipts</u>**

Accounting earnings and cash flows as measures of firm performance
The role of accounting accruals

Patricia M. Dechow

Wharton School, University of Pennsylvania, Philadelphia, PA 19104-6365, USA

Abstract

This paper investigates circumstances under which accruals are predicted to improve earnings' ability to measure firm performance, as reflected in stock returns. The importance of accruals is hypothesized to increase (i) the shorter the performance measurement interval, (ii) the greater the volatility of the firm's working capital requirements and investment and financing activities, and (iii) the longer the firm's operating cycle. Under each of these circumstances, cash flows are predicted to suffer more severely from timing and matching problems that reduce their ability to reflect firm performance. The results of empirical tests are consistent with these predictions.

Key words: Capital markets; Accruals; Operating cycle; Timing and matching problems; Summary measures of performance

JEL classification: C52; G14; M41

Role of Accruals and Cash Conversion Cycle

- Objective of accruals is to **smooth out the lumpiness** of cash flows

- Accruals alter the timing of cash flow recognition so that earnings better reflects underlying economic performance

- Accruals also allow for **timely recognition** of firm performance

Table 6
Descriptive statistics on the operating amd trade cycles (measured in days) and Pearson correlations between the explanatory power of earnings or cash flows and the average length of the industry operating or trade cycle; annual observations 1960–1989

Panel A

	Mean	Std. dev.	Lower quartile	Median	Upper quartile	Number of firms
Operating cycle	146.02	72.99	96.35	138.03	184.62	1,252
Trade cycle	108.11	78.86	60.02	101.07	147.49	1,252

Panel B: Correlation between the absolute change in working capital and the length of the operating or trade cycle at the firm level (1,252 observations) and industry level (58 observations)

	Operating cycle	Trade cycle
Firm level correlations with $abs(\Delta WC)$	0.187	0.163
(probability)	(0.000)	(0.000)
Industry level correlations with $abs(\Delta WC)$	0.405	0.450
(probability)	(0.000)	(0.000)

Panel C: Correlation between the R^2 from 58 industry-specific regressions of stock returns on cash from operations or stock returns on earnings with the average industry operating or trade cycle

	Operating cycle	Trade cycle
R^2 from cash from operations regressions	− 0.483	− 0.418
(probability)	(0.001)	(0.001)
R^2 from earnings regressions	− 0.083	− 0.012
(probability)	(0.538)	(0.926)

Industry operating cycles, trade cycles, and $abs(\Delta WC)$ are calculated by (i) averaging the time-series of firm-specific values, (ii) taking the average of the firm-specific values across two-digit SIC classifications. The R^2s for earnings are obtained by performing separate regressions of returns (adjusted for the CRSP value-weighted market return) on earnings for each of 58 two-digit SIC industry classifications. The R^2s for cash from operations are obtained in a similar manner. Cash from operations and earnings are on a per-share basis and scaled by beginning-of-period price. The $abs(\Delta WC)$ is the absolute value of the change in noncash working capital per share scaled by beginning-of-period price.

$$Operating\ cycle = \left(\frac{(AR_t + AR_{t-1})/2}{Sales/360}\right) + \left(\frac{(Inv_t + Inv_{t-1})/2}{Cost\ of\ goods\ sold/360}\right),$$

$$Trade\ cycle = \left(\frac{(AR_t + AR_{t-1})/2}{Sales/360}\right) + \left(\frac{(Inv_t + Inv_{t-1})/2}{Cost\ of\ goods\ sold/360}\right) - \left(\frac{(AP_t + AP_{t-1})/2}{Purchases/360}\right).$$

Average trade cycle is 108 days

Long trade cycle industries have more accruals (consistent with cash flows having more timing problems).

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Average trade cycle is 108 days

Long trade cycle industries have more accruals (consistent with cash flows having more timing problems).

Perform regressions of: *stock returns on earnings* and *stock return on CFO* across 58 different

Examine correlation between R^2 and Industry Trade Cycle

Correlation is 0.012
Earnings are equally informative for firms with long or short trade cycles

Cash flows' R^2 correlation is -0.418: less informative for long trade cycle

Comment 3

- Results in Dechow (1994) suggest that earnings are equally informative in long and short cash cycle conversion firms.

- Cash flows are **less** informative in long cash cycle conversion firms.

- Li and Tang (2017) need to reconcile this finding to the motivation for their analysis.
  - ✓ If accruals resolve the timeliness problem then there is no need for managers to act myopically to fool investors.

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Useful for Li and Tang (2017) to **validate** that:
 long cash conversion firms have *poorer earnings quality* **for quarterly intervals** than short cash conversion firms (requirement for their story)

COMMENT 4

- Bhojraj and Libby's story is about **EARNINGS** lacking informativeness over short time intervals.

- Dechow (1994) results suggest that **CASH FLOWS** are less informative for firms with long operating cycles.

- BUT
- Li and Tang (2017) do not argue that **IPO investors are focusing** on **cash flows**
- **Debt financiers do care about cash flows –**
- **BUT** paper is focused on **equity holders (decision to be public)**
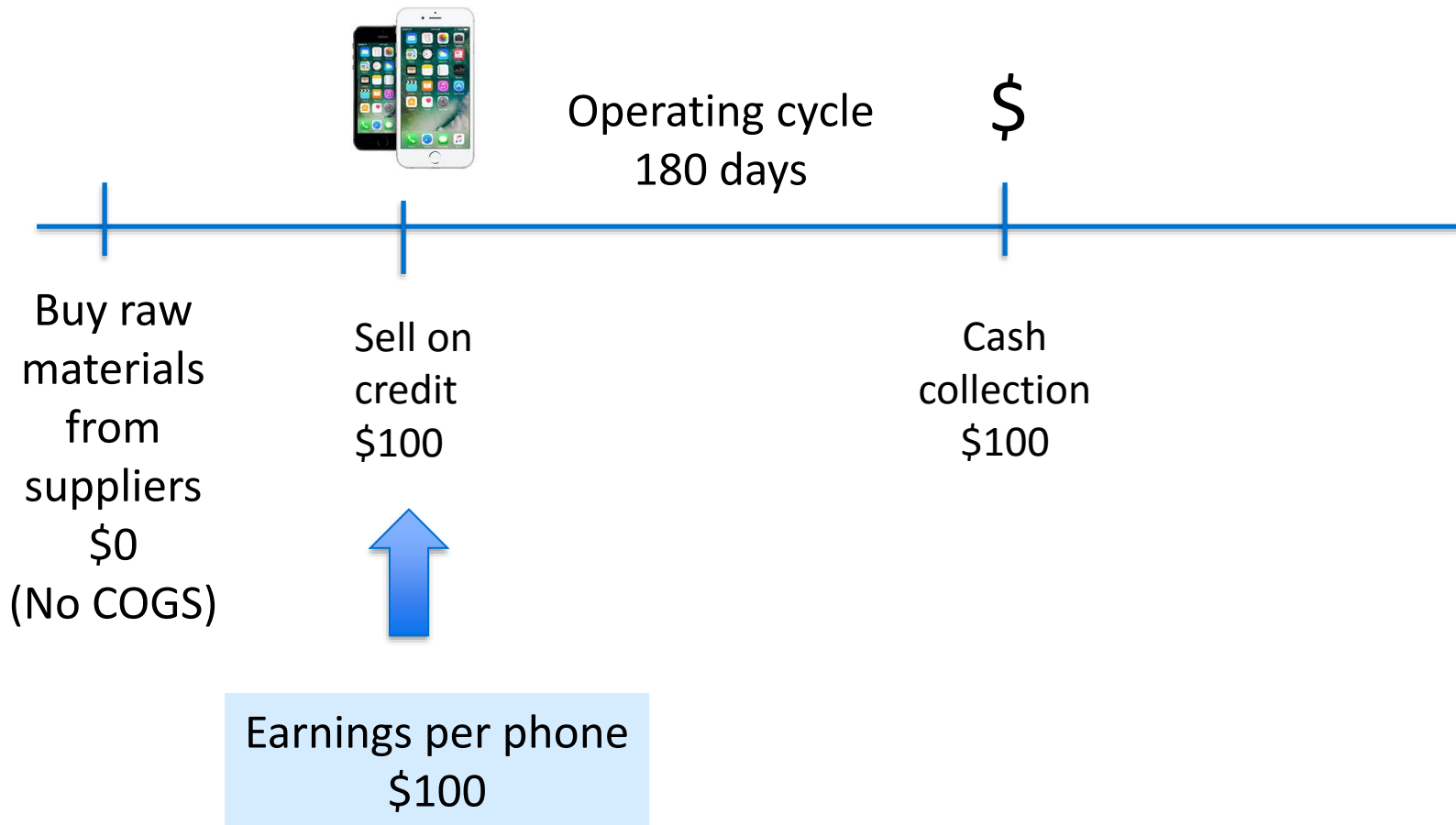- **Suggestion: Need to better reconcile these internal inconsistency issues.**

COMMENT 5: OMITTED VARIABLES

Steady state, growth and volatility
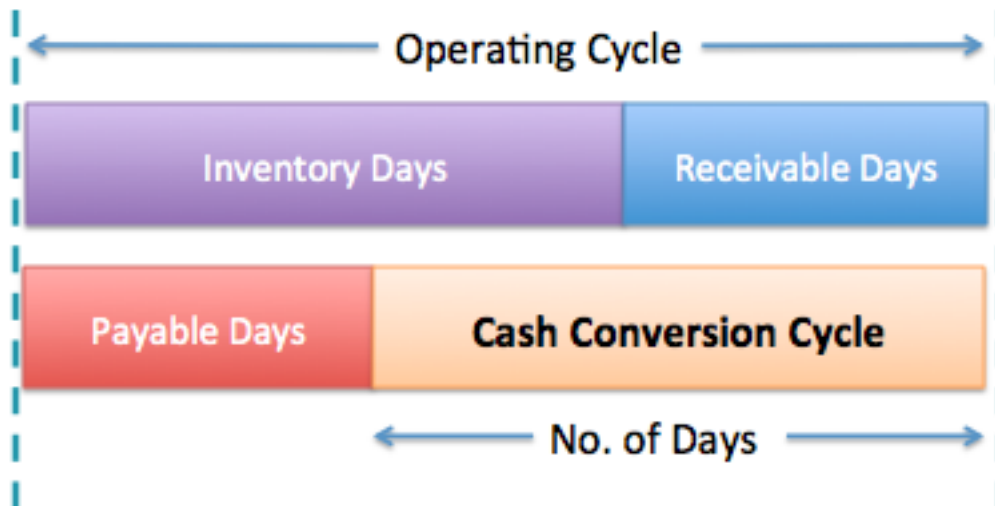
Assume it takes 180 days to receive cash from sale of phone

Operating cycle
180 days

$

Buy raw
materials
from
suppliers
$0
(No COGS)

Sell on
credit
$100

Cash
collection
$100

Earnings per phone
$100

Assume factory can produce one phone a day and it sells one phone per day

180 +

Day 1

Sell on credit $100

Cash collection $100

Produce new phone

Earnings $100

Day 2

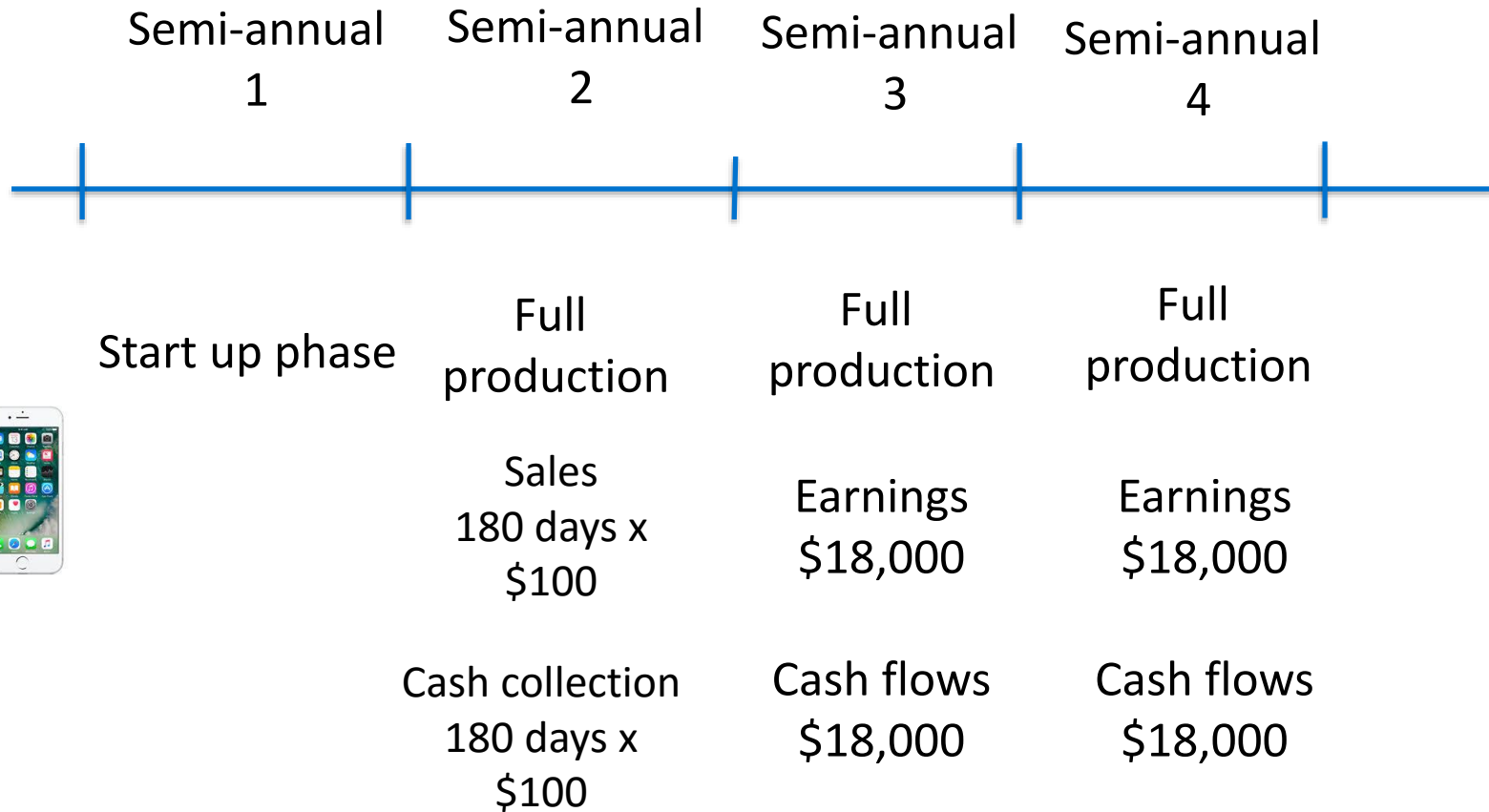Sell on credit $100

Cash collection $100

Produce new phone

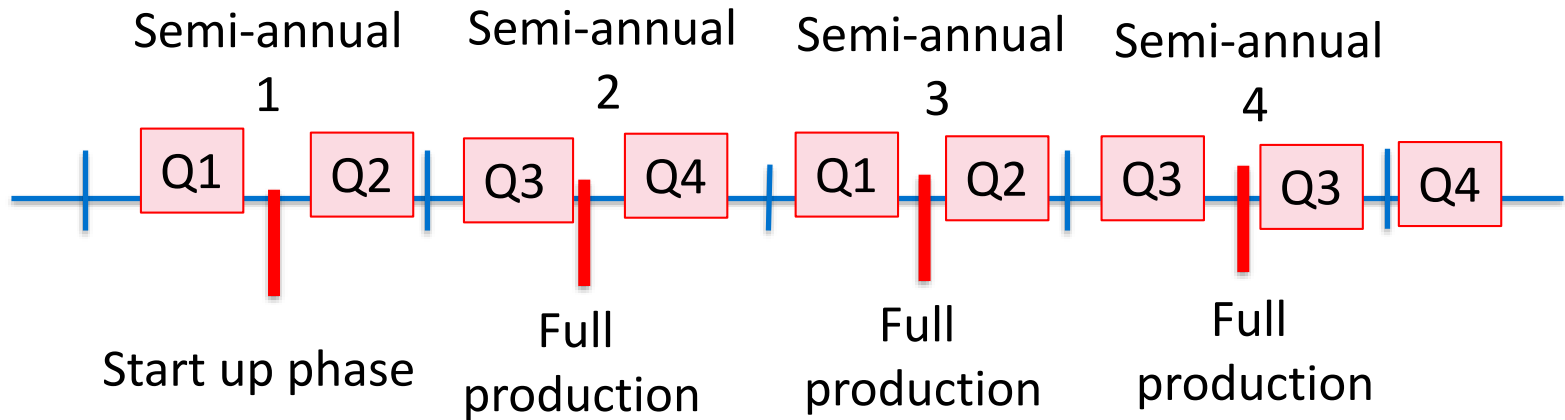Earnings $100

Day 3

Sell on credit $100

Cash collection $100

Produce new phone

Earnings $100

Day 4

Sell on credit $100

Cash collection $100

Produce new phone

Earnings $100

After 180 days, Firm will receive cash on first phone sold, sell a new phone on credit, and a new phone will enter finished goods.

Semi-annual 1

Semi-annual 2

Semi-annual 3

Semi-annual 4

Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q3 Q4

Start up phase

Full production

Full production

Full production

Sales 90 days x $100

Sales 90 days x $100

Cash collection 90 days x $100

Cash collection 90 days x $100

Semi-Annual Earnings $18,000

Semi-Annual Cash flows $18,000

Steady state Quarterly Earnings = $9,000 Quarterly Cash flows = $9,000

Semi-annual 1 | Semi-annual 2 | Semi-annual 3 | Semi-annual 4

Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q3 | Q4

Start up phase

Full production

Full production

Full production

Semi-Annual Earnings $18,000

Semi-Annual Cash flows $18,000

Sales 90 days x $100

Sales 90 days x $100

Cash collection 90 days x $100
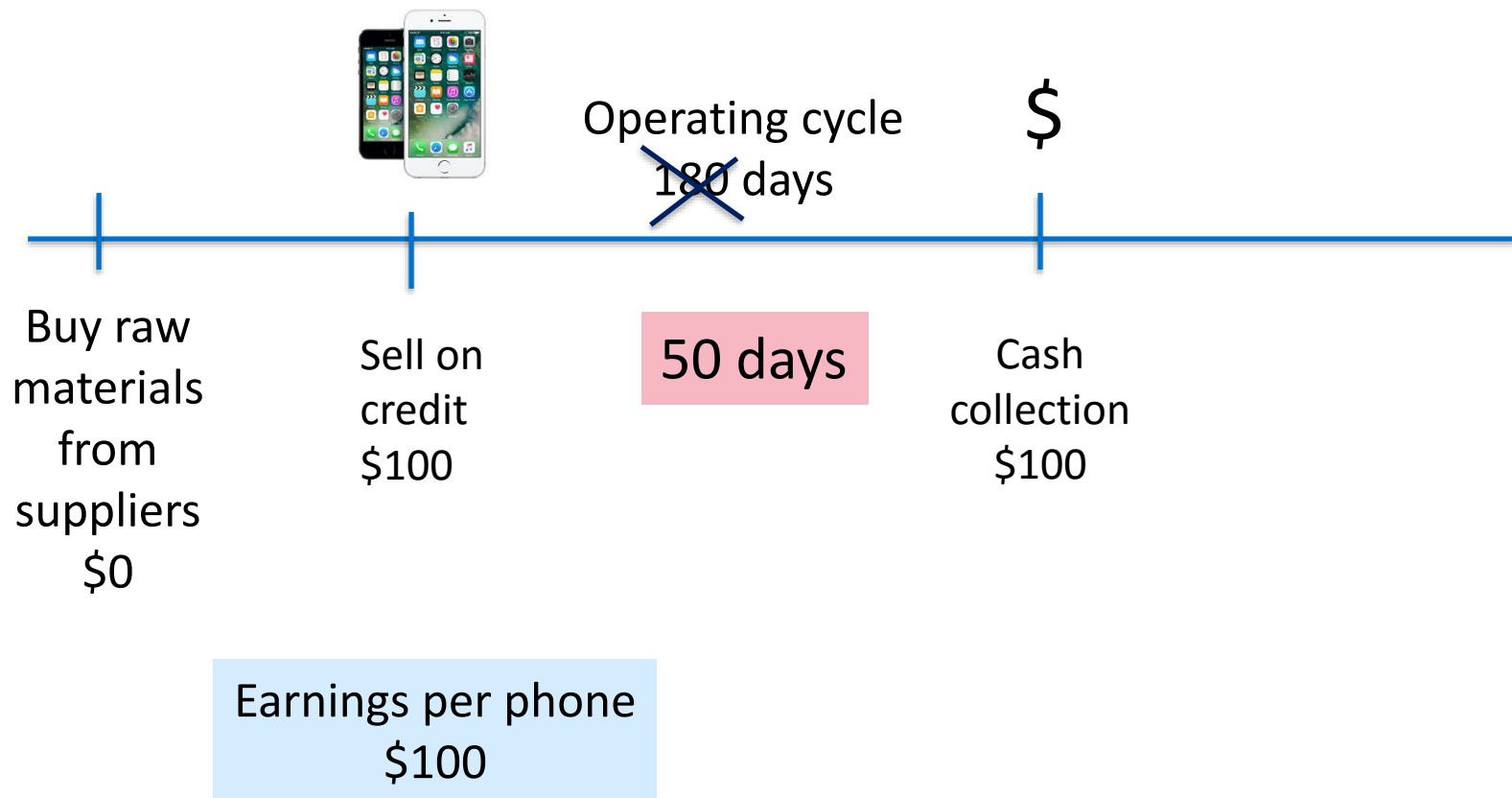
Cash collection 90 days x $100

Steady state Quarterly Earnings = $9,000 Quarterly Cash flows = $9,000

Steady state firm – no difference between cash collection and earnings for different reporting intervals

Steady-state firm – short versus long operating cycle

Takes 50 days to sell and receive cash from sale of phone

Operating cycle
~~180~~ days

$

50 days

Buy raw
materials
from
suppliers
$0

Sell on
credit
$100

Cash
collection
$100

Earnings per phone
$100

Day 1 | Day 2 | Day 3 | Day 4

After **50 days**, Firm will sell a phone, produce a phone, and receive cash from a previously sold phone

Sell on credit $100
Cash collection $100
Produce new phone
Earnings $100

Sell on credit $100
Cash collection $100
Produce new phone
Earnings $100

Sell on credit $100
Cash collection $100
Produce new phone
Earnings $100

Sell on credit $100
Cash collection $100
Produce new phone
Earnings $100

Steady state firm – Length of operating cycle makes no difference

COMMENT 5

- **If a firm is in steady state then**:
- Earnings and cash flows are same whether the interval is one year or one quarter
- Earnings and cash flows are the same whether the firm has a long or short operating cycle

- **Things to consider:**
- Growth and Volatility will impact cash flows to a greater extent than earnings in long cash conversion firms relative to short conversion firms (concept of duration).
- Need to consider role of growth and volatility in the analysis.

COMMENT 5

- Steady state firm length of cash conversion cycle is irrelevant
- Growing of volatile firms is where there is a potential for mismatching
- **Is earnings quality particularly low in short intervals for long cash conversion firms that operate in more volatile businesses or industries?**

Summary

Encourage authors to rebuild paper on solid foundations

1. Build and articulate their story for why the length of cash conversion cycle impacts decision to be public.
2. Link between cash conversion cycle and earnings-total cash conflict is not obvious to me.
3. Validate long operating cycle industries have relatively poorer earnings quality over the shorter quarterly interval
4. Clarify the role of growth and volatility's interaction with cash conversion cycle in the tests
5. Explain the focus of investors/managers: earnings or cash flows?

THANK YOU!