

# ACCT 101, Session 4: Control systems

Dr. Richard M. Crowley

[rcrowley@smu.edu.sg](mailto:rcrowley@smu.edu.sg)

<https://rmc.link/>



# Front matter

# Quiz details

- 60 minutes long, mostly calculation based
- What can be covered:
  - Everything in the Session 1 to 4 slides

## Not on the quiz

- Par value accounting
- Concept names and definitions
  - Matching principle, periodicity, etc.

## Potentially on the final

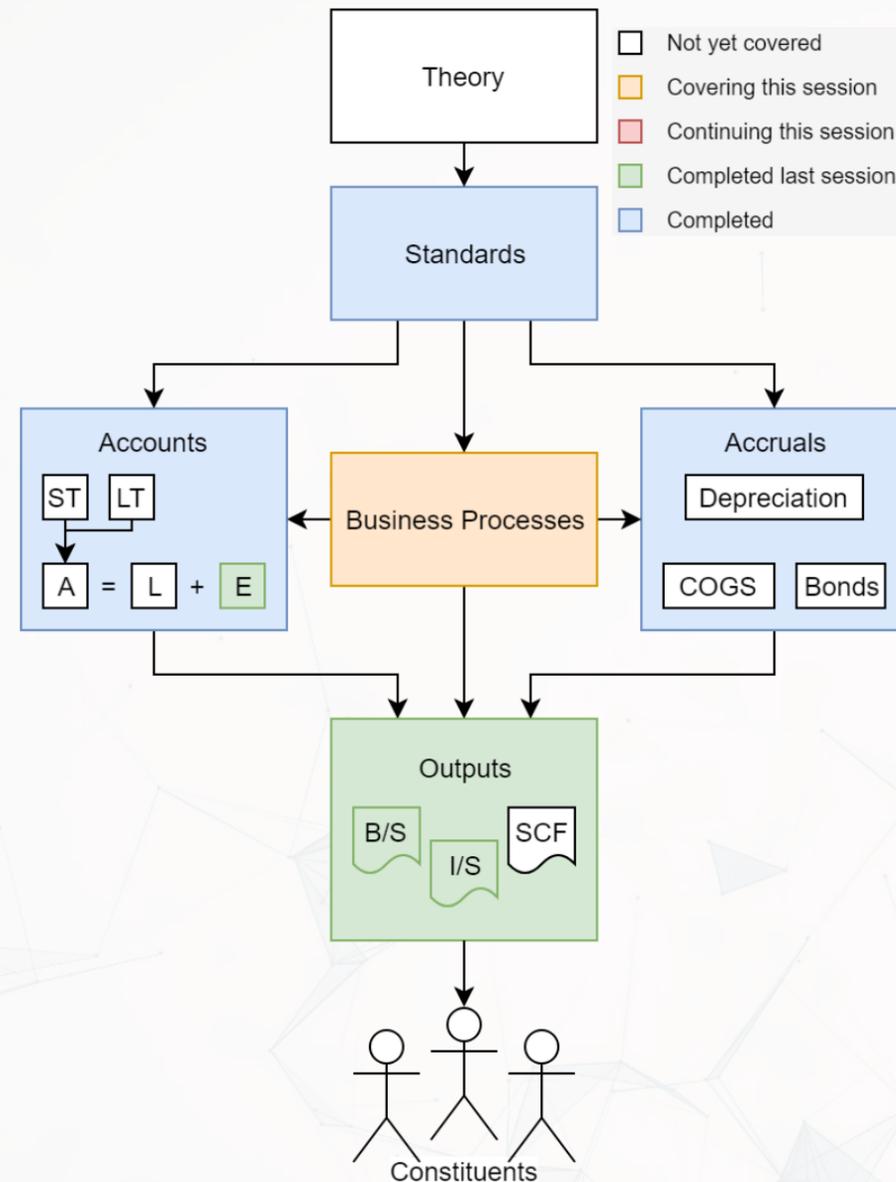
- Par value accounting for equity

The quiz is to make sure you have the fundamentals down

# Quiz resources

- Practices provided on eLearn:
  - A full practice Quiz 1 (paper version)
  - A set of extra Quiz 1 practice questions
  - Select textbook problems (with answers)
- There is an account glossary on eLearn
  - It lists and defines every account we've seen so far

# Learning objectives



## Control Systems (Chapter 4)

1. Understand the drivers of fraud
2. Be able to identify weaknesses in firms' systems and suggest improvements
3. Be able to reconcile book and bank cash

## A/R (Chapter 5)

1. Understand how to write off uncollectible A/R

Fraud



# Misreporting: A simple definition

Errors that affect firms' accounting statements or disclosures which were done seemingly *intentionally* by management or other employees at the firm.



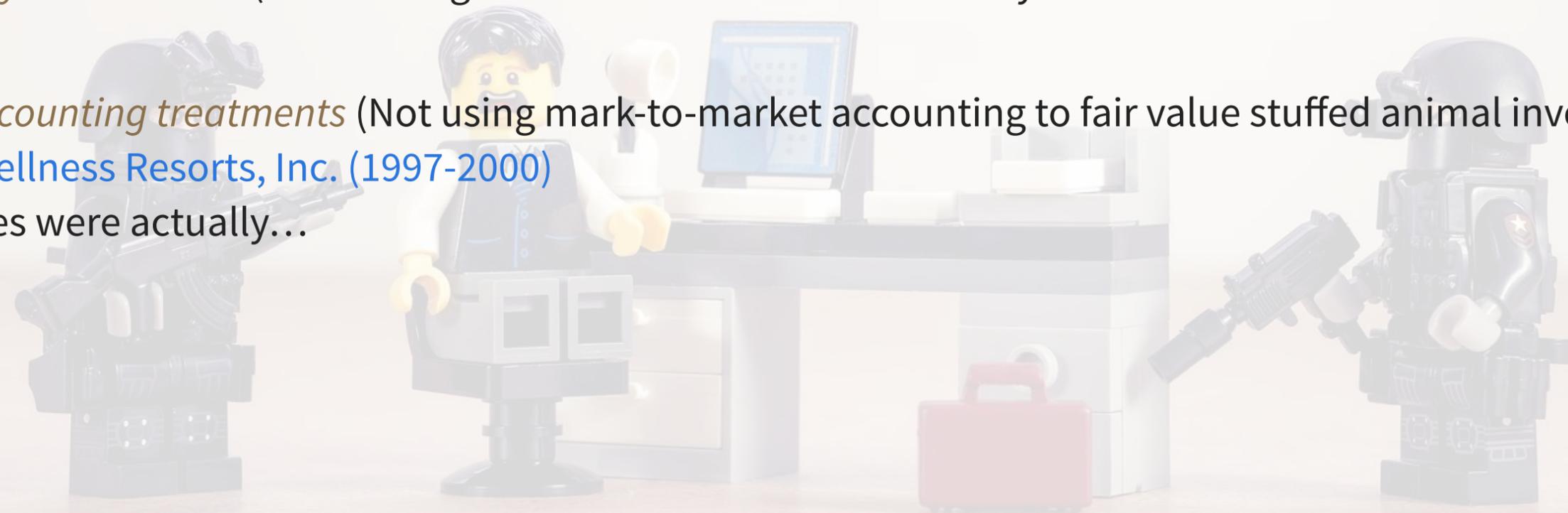
# Traditional accounting fraud

1. A company is underperforming
2. Management cooks up some scheme to increase earnings
  - Wells Fargo (2011-2018?)
    - Fake/duplicate customers and transactions
3. Create accounting statements using the fake information



# Other accounting fraud types

- [Dell \(2002-2007\)](#)
  - *Cookie jar reserve* (secret payments by Intel of up to **76%** of quarterly income)
    1. The company is overperforming
    2. “Save up” excess performance for a rainy day
    3. Recognize revenue/earnings when needed to hit future targets
- [Apple \(2001\)](#)
  - *Options backdating*
- [China North East Petroleum Holdings Limited](#)
  - *Related party transactions* (transferring 59M USD from the firm to family members over 176 transactions)
- [CVS \(2000\)](#)
  - *Improper accounting treatments* (Not using mark-to-market accounting to fair value stuffed animal inventories)
- [Countryland Wellness Resorts, Inc. \(1997-2000\)](#)
  - Gold reserves were actually...

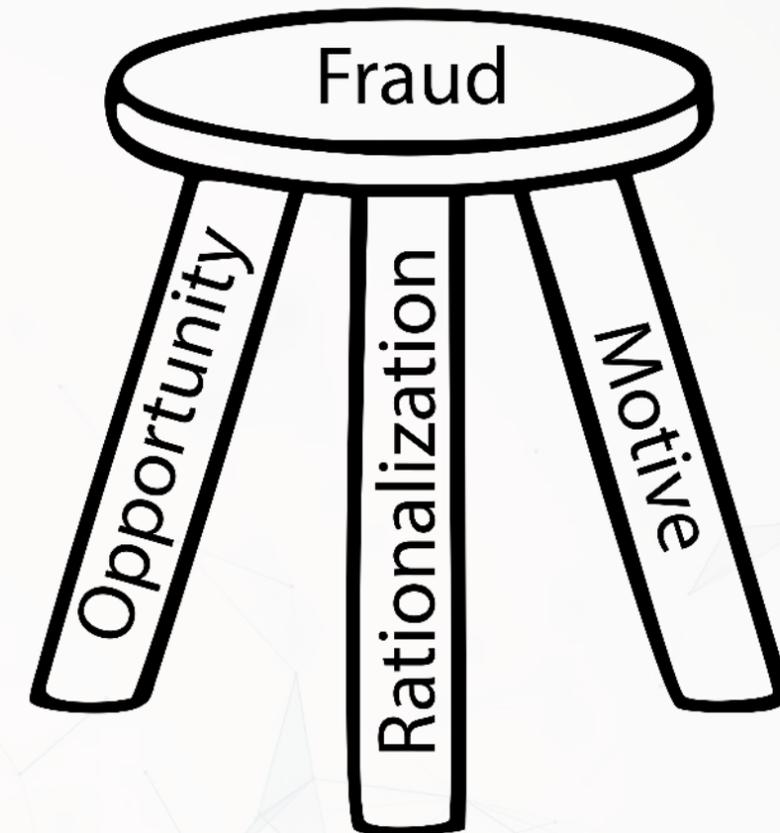


# Fraud in Singapore

- **Keppel O&M**
  - \$55M USD bribery in Brazil for contracts
  - Highly profitable, until fines rolled in
    - Profit of \$351.8M USD
    - Fines of \$422M USD (to US, Brazil, Singapore) [so far]
  - 6 employees implicated
  - 1 Keppel lawyer pleaded guilty in USA for drafting bribery contracts
- **Keppel Club**
  - Employees created 1,280 fake memberships, sold them, and retained all profits
  - \$37.5M from June 1 to August 1, 2014
- **Asia Pacific Breweries (Chia Teck Leng)**
  - Forged documents from 1999 to 2003 to obtain \$117M from 4 banks
    - To fund gambling addiction
  - 42 year jail sentence

# Fraud triangle

- Opportunity
  - Hole in the control system
  - Profitably exploitable
- Rationalization
  - Resentment of corporation
  - Poor culture
  - “Borrowing”
- Motivation
  - Family needs
  - Maintaining lifestyle
  - Maintaining performance



💡 Need all 3 for fraud to happen

# Control systems

# Systems

- Each part of the company is dependent on other parts
- Consider how all parts work together

Simplest case is a linear assembly line

- Pass the product from one stop to the next until it's done
- Except for...
  - Maintenance
  - Input selection
  - Product mix
  - Quality control
  - ...
- Where does information flow?

# Basic goals of control systems

- Prevention
  - Make sure something doesn't go wrong
    - Ex.: Inspect raw materials before assembly
- Detection
  - Check if something went wrong
    - Ex.: Check products randomly after assembly
- Correction
  - Something went wrong, so we need to fix it
    - Ex.: Determine cause of defects & learn from problems

# Basic mechanisms/solutions

- Separation of duties
  - Different parts of a system are handled by different employees
    - Ex.: Inspection not done by assembly line worker
- Monitoring
  - Check if things are normal
    - Ex.: Boss stops by every now and then
- Limited access
  - Employees only have access to what they need
    - Ex.: Line workers can't access inventory records
    - Ex.: Raw material purchasers can't access salary records
- Approvals
  - Require oversight for some actions
    - Ex.: Buying from a new vendor may require boss's signature

# Limitations

- Collusion
  - Multiple people can jointly subvert systems
- Fatigue
  - People are not perfect
- Negligence
  - Not every employee does what they are supposed to

# Champaign Parking Enforcement

## Their Objectives

1. *Validity*: All recorded transactions occurred
2. *Completeness*: All valid transactions have been recorded
3. *Valuation*: Amounts measured properly
4. *Security*: Information system protected from unauthorized access or destruction

## Discussion questions

- What are some risks that threaten these objectives?
  - How frequent is the risk?
  - How serious is the risk?
- How could they be addressed?



# Cash reconciliation

# Cash on companies' books

## Documents:

- Purchase orders
- Invoices for purchases/sales
- Checks
- Payment records
- Petty cash
  - Small amount set aside for **small** purchases



Date	Account	DR	CR
20XY.01.01	Cash	100.00	
	Revenue		100.00
Cash sale			
20XY.01.02	Inventory	250.00	
	Accounts payable (A/P)		250.00
Purchased inventory on account			
20XY.01.03	Wage expense	500.00	
	Wages payable	500.00	
	Cash		1,000.00
Paid wages, of which \$500 was previously recognized (prerecorded)			



Cash	Inventory	Accounts payable	Wages payable	Revenue	Wage expense
1,000	100	600	500		
100	250	250	500	100	500
100	350	850	0	100	500

# Cash in the bank

## Documents:

- Cash deposits, withdrawals
- Checks
- Electronic checks
  - EFT, ACH, GIRO, etc.
- Bank interest and fees
- Nonsufficient funds
  - Customer's check is rejected
  - Check writer didn't have enough cash in the bank

The Bank  
1234 Bank Street  
Singapore, 123456

Statement, January 4, 20XY

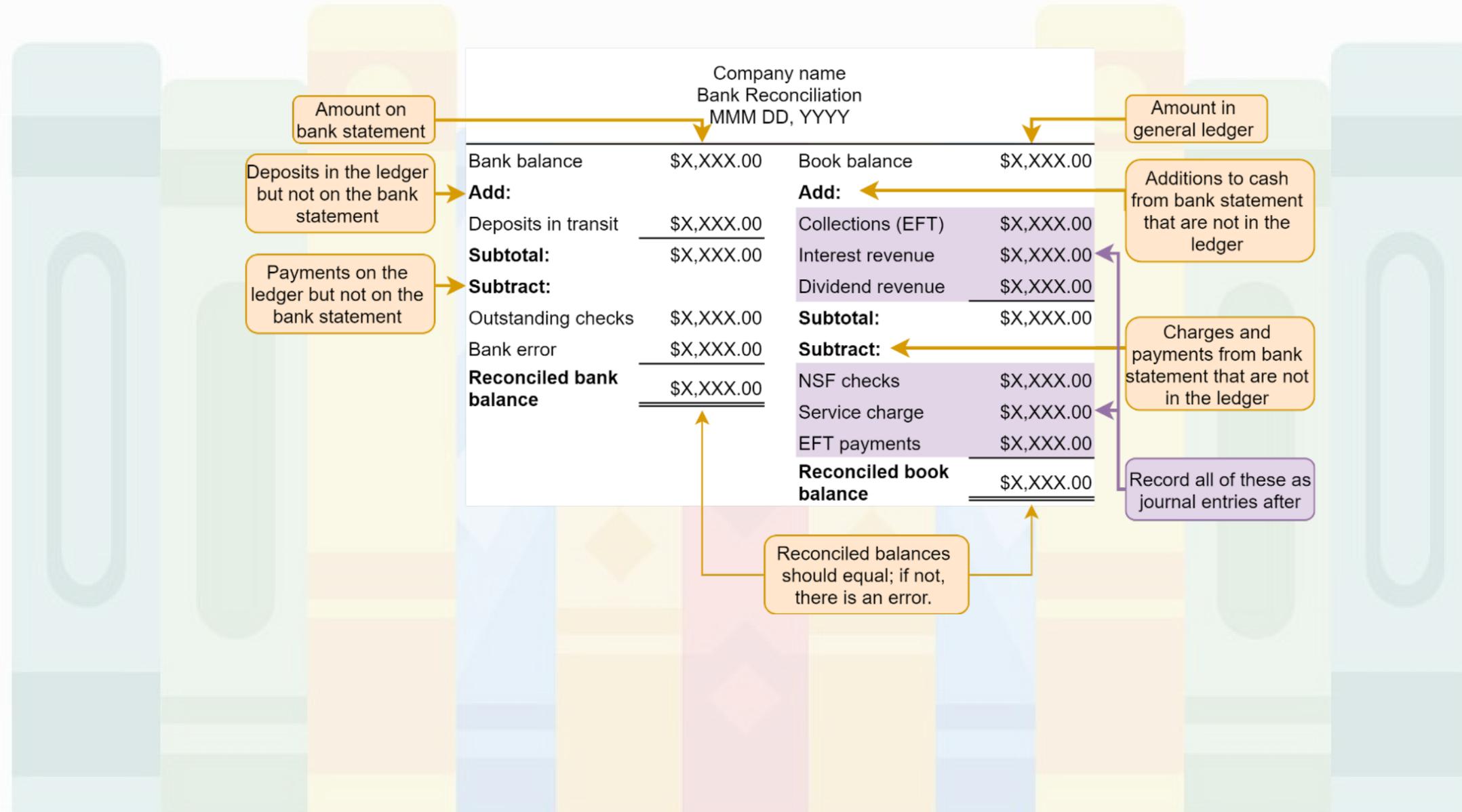
Checking account

Posting	Transaction	Debits	Credits	Balance
Jan 1	Beginning balance			1000.00
Jan 3	Check 3000		1000.00	0.00
Jan 3	EFT: Coffee club	300.00		300.00
Jan 4	Check fees		10.00	290.00
Jan 4	Interest earned (1%)	2.90		292.90

# Inconsistencies between cash records

- The two records come from different sources
  - We can use this to verify the records!...
    - But they likely won't be exactly the same
- Why are the records different?
  - Time lags
    - We receive cash and checks first
      - These may still be *in transit* to the bank
    - Banks receive electronic checks first
    - Banks know about fees and interest first
- Time lags are shorter these days with internet banking

# Reconciliation process



# Journal entries to record

**Cash up:** DR cash, CR...

- Dividends received:
  - *Dividend revenue*
- EFT from customer:
  - *A/R*
- Interest from bank:
  - *Interest revenue*
- Prepayment:
  - *Unearned revenue*

**Cash down:** CR cash, DR...

- Charges from the bank:
  - *Bank service charges*
    - This is an expense account
- Check failed (NSF):
  - Receivable the check was for (*A/R*)
- Charged expenses:
  - The expense

# Reconciliation example

**1**

The Bank  
1234 Bank Street  
Singapore, 123456

Statement, January 4, 20XY

Checking account

Posting	Transaction	Debits	Credits	Balance
Jan 1	Beginning balance			1000.00
Jan 3	Check 3000		1000.00	0.00
Jan 3	EFT: Coffee club	300.00		300.00
Jan 4	Check fees		10.00	290.00
Jan 4	Interest earned (1%)	2.90		292.90

Need to reconcile

Cash

1,000	
100	1,000
100	

Deposit

Check 3000

Need to reconcile

**2**

Company name  
Bank Reconciliation  
January 04, 20XY

Bank balance	292.90	Book balance	100.00
<b>Add:</b>		<b>Add:</b>	
Deposits in transit	100.00	Collections (EFT)	300.00
<b>Subtotal:</b>	392.90	Interest revenue	2.90
<b>Subtract:</b>		<b>Subtotal:</b>	402.90
--		<b>Subtract:</b>	
<b>Reconciled bank balance</b>	<u>392.90</u>	Check fee	10.00
		<b>Reconciled book balance</b>	<u>392.90</u>

**3**

Date	Account	DR	CR
20XY.01.04	Cash	300.00	
	Unearned revenue		300.00
<i>Prepayment of purchase by Coffee club</i>			
20XY.01.04	Cash	2.90	
	Interest revenue		2.90
<i>Interest on bank account, January 4th bank statement</i>			
20XY.01.04	Bank service charges	10.00	
	Cash		10.00
<i>Check fees, January 4th bank statement</i>			

Reconciles!

# Practice bank reconciliation

1. Get the in class activity spreadsheet
  - Session\_4\_Activity\_Cash.xlsx
2. Do the bank reconciliation
  1. Figure out what needs to be reconciled from bank and book
  2. Record these in the reconciliation tab
  3. Make sure cash reconciles (it will in this case)
  4. Record the needed journal entries (3)

TEAMWORK

# A/R tracking

# Why have uncollectible accounts?

- Case: Hanjin shipping
- Read: [rhc.link/101class4](https://rhc.link/101class4)



# Accounting for unexpected events

- Companies can go bankrupt, forget to pay, or breach contracts
- Two approaches:

## Allowance method

- Estimate decrease in asset values beforehand
- *Allowance for uncollectible accounts*
  - Contra asset
- *Bad debt expense*

## Direct write-off method

- Write-off when the loss is guaranteed
- Violates the matching principal

We will use the allowance method (as does IFRS)

# A/R allowance process

1 Determine an allowance schedule. This shows the % per group to assume will not be collected.

Allowance Schedule				
0-30 days	31-60 days	61-90 days	90+ days	Going Concern
A%	B%	C%	D%	E%

2 Categorize the receivables (A/R) by the groups in the allowance schedule.

Accounts					
#1	#2	#3	#4	#5	#6

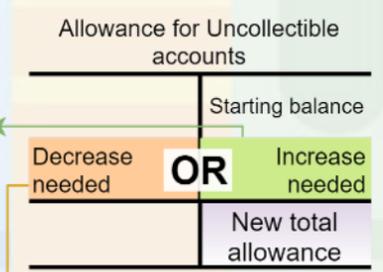
3 Multiply through to get the estimated uncollectible portion per account

$$\begin{aligned}
 &A\% \times \begin{matrix} \#1 \\ \#2 \end{matrix} + B\% \times \#5 + C\% \times \#3 \\
 &+ D\% \times \#6 + E\% \times \#4 = \text{New total allowance}
 \end{aligned}$$

4 Sum all estimates to get the total allowance.

5 Adjust allowance account to have a final balance equal to the new total allowance amount.  
Adjustment = New total allowance - prior remaining balance (from ledger)

Date	Account	DR	CR
MM.DD	Bad debt expense	xx	
	Allowance for uncollectible accounts		xx
<i>Journal entry to adjust allowance if allowance increased</i>			
<b>OR</b>			
Date	Account	DR	CR
MM.DD	Allowance for uncollectible accounts	xx	
	Gain on re-estimation of uncol. acts.		xx
<i>Journal entry to adjust allowance if allowance decreased</i>			



# A/R allowances example

- Suppose we have the following allowance schedule and accounts receivables outstanding at year end

Allowance Schedule				
Days	0-30 days	31-60 days	61-90 days	90+ days
Percent Uncollectible	2%	10%	30%	100%

Accounts receivable			
Customer	Amount	Days outstanding	Notes
PGUS, Inc.	\$1,000	73	Probably going under soon
Slow, Pte. Ltd.	\$5,000	45	
GC Corp	\$2,000	29	Auditor declared going concern
Standard & Co.	\$9,000	10	
Good Co.	\$2,000	2	

- What should our allowance be?

# A/R allowances example

Allowance Schedule				
Days	0-30 days	31-60 days	61-90 days	90+ days
Percent Uncollectible	2%	10%	30%	100%

Accounts receivable			
Customer	Amount	Days outstanding	Notes
PGUS, Inc.	\$1,000	73	Probably going under soon
Slow, Pte. Ltd.	\$5,000	45	
GC Corp	\$2,000	29	Auditor declared going concern
Standard & Co.	\$9,000	10	
Good Co.	\$2,000	2	

Days	Amount	Percent	Allowance
90+	\$0	100%	\$0
61-90	\$1,000	30%	\$300
31-60	\$5,000	10%	\$500
0-30	\$13,000	2%	\$260

Total allowance = \$1,060

Match accounts to the schedule by days outstanding

This is the new allowance amount

# A/R allowances example: Going concern

- What about GC Corp?
  - The auditor issued a going concern opinion
  - High chance of bankruptcy
  - Let's update the allowance schedule for that:

Allowance Schedule					
Days	0-30 days	31-60 days	61-90 days	90+ days	GC
Percent Uncollectible	2%	10%	30%	100%	50%

Accounts receivable			
Customer	Amount	Days outstanding	Notes
PGUS, Inc.	\$1,000	73	Probably going under soon
Slow, Pte. Ltd.	\$5,000	45	
GC Corp	\$2,000	29	Auditor declared going concern
Standard & Co.	\$9,000	10	
Good Co.	\$2,000	2	

# A/R allowances example: Going concern

Allowance Schedule					
Days	0-30 days	31-60 days	61-90 days	90+ days	GC
Percent Uncollectible	2%	10%	30%	100%	50%

Accounts receivable			
Customer	Amount	Days outstanding	Notes
PGUS, Inc.	\$1,000	73	Probably going under soon
Slow, Pte. Ltd.	\$5,000	45	
GC Corp	\$2,000	29	Auditor declared going concern
Standard & Co.	\$9,000	10	
Good Co.	\$2,000	2	

Days	Amount	Percent	Allowance
GC	\$2,000	50%	\$1,000
90+	\$0	100%	\$0
61-90	\$1,000	30%	\$300
31-60	\$5,000	10%	\$500
0-30	\$11,000	2%	\$220

Total allowance = \$2,020

GC Corp matches two groups. Allocate to higher percent uncollectible

This is the new allowance amount

# A/R allowances example: Journal entries

## Example: Recording bad debt expense, no prior balance

Date	Account	DR	CR
20YY.MM.DD	Bad debt expense	2,020	
	Allowance for uncollectible accounts		2,020

*New allowance of 2,020, no prior balance.*

Allow. Uncol. Acts.	
	0
	2,020
	2,020

## Example: Recording bad debt expense, lower prior balance

Date	Account	DR	CR
20YY.MM.DD	Bad debt expense	1,020	
	Allowance for uncollectible accounts		1,020

*New allowance of 2,020, prior balance of 1,000*

Allow. Uncol. Acts.	
	1,000
	1,020
	2,020

Current balance - prior balance  
 $2,020 - 1,000 = 1,020$

## Example: Recording bad debt expense, higher prior balance

Date	Account	DR	CR
20YY.MM.DD	Allowance for uncollectible accounts	980	
	Gain on re-estimation of uncol. accounts		980

*New allowance of 2,020, prior balance of 3,000*

Allow. Uncol. Acts.	
	3,000
980	
	2,020

Current balance - prior balance  
 $2,020 - 3,000 = -980$   
 Negative => DR allowance

# A/R allowances example: Bankruptcy

- *Bankruptcy follows the direct write-off method*
  - We record it when it happens
  - Use up some of the allowance (DR), decrease our A/R (CR)
- If the firm recovers, we reverse this transaction
- Example: PGUS goes bankrupt. During bankruptcy they pay us \$300, and we expect no further payments from them.

## Example: Recording bankruptcy

Date	Account	DR	CR
20YY.MM.DD	Allowance for uncollectible accounts	1,000	
	Accounts receivable		1,000

*Write off PGUS' account due to bankruptcy. PGUS owed us \$1,000*

Allow. Uncol. Acts.	
	2,020
1,000	
	1,020

## Example: Payment from written off account

Date	Account	DR	CR
YYYY.MM.DD	Accounts Receivable	300	
	Allowance for uncollectible accounts		300

*PGUS paid \$300 on previously written-off account. Restored partial allowance amount.*

Date	Account	DR	CR
20YY.MM.DD	Cash	300	
	Accounts Receivable		300

*PGUS paid \$300 on previously written-off account. Recorded payment.*

Allow. Uncol. Acts.	
	2,020
1,000	
	300
	1,320

These changes in A/R cancel out

This restores the amount of the allowance that was paid

# Practice for A/R

1. Get the in class activity spreadsheet
  - Session\_4\_Activity\_AR.xlsx
2. Complete the activity in groups
  1. Use the allowance schedule to determine the amount of uncollectible A/R needed
  2. Use the T-account to determine the adjustment needed
  3. Record the adjustment in the journal

TEAMWORK

**End matter**

# Wrap up

- For next week
  1. Recap the reading for this week
  2. Read the pages for next week
    - Chapter 5 (Part A)
    - Chapter 6 (Inventory)
  3. No homework
  4. Practice on eLearn
    - Practice on bank reconciliation and A/R
    - Automatic feedback provided
- Survey on the class session at [rmc.link/101survey4](https://rmc.link/101survey4)



# Packages used for these slides

- kableExtra

- knitr

- revealjs

