

## Review Session

# Overview

- ▶ Comprehensive
- ▶ 3 hours
- ▶ The exam is closed book and notes.

## Section 2 - What we've covered since the midterm

# Economics of agency

- ▶ The following issues will be covered:
  - ▶ Separation of ownership and control
  - ▶ The nature of the principal agent problem.
  - ▶ Risk aversion and incentives

# Economics of agency

- ▶ These will be questions about the concepts from:
  - ▶ Incentives and Compensation and
  - ▶ Examples

## Section 2 Part 2: Transfer Pricing

- ▶ Vik-Giger
- ▶ Why do we need transfer prices?
  - ▶ Overconsumption of common resources.
  - ▶ Transmit information and incentives within a decentralized firm.

# Cost Allocation

- ▶ The key concept here is that cost allocations (including transfer prices) function as 'Pigouvian' taxes
  - ▶ Taxes reduce the taxed activity
  - ▶ Negative taxes are subsidies, and increase the subsidised activity

## Cost Allocation

- ▶ **Step-down method:** I will not ask you about the step-down method. Beyond asking you what is wrong with it.
- ▶ **Reciprocal Method:** I won't ask you to calculate the allocations, but I may ask you about how to set it up and interpret it.
  - ▶ If given a table of costs, you should be able to set up the equations and describe how to solve them.



# Absorption Costing

- ▶ Navisky, Aspen, Kothari problems (don't worry, I won't ask all of them)

## Navisky notes

- ▶ Application of fixed overhead
- ▶ You can think of the formula for fixed manufacturing overhead applied to cost of goods sold as:

$$FMO = OHR \times Q_{sold}$$

- ▶ OHR is the overhead rate:  $OHR = TOH / Q_{made}$
- ▶ OH is the total overhead, 2.7 million in this case
- ▶  $Q_{made}$  is the number of units produced, and  $Q_{sold}$  is the number of units sold.

## Navisky notes

- ▶ The cost per unit of inventory is the sum of the overhead applied to the inventory and the variable manufacturing costs
- ▶  $VC/unit = 380$
- ▶ The fixed overhead applied to each unit of inventory is just the overhead rate:  
 $OHR = TOH/Q_{made}$

## Navisky: Think about the structure of the incentives

- ▶ What roles in determining incentives could the size of the factory play?
- ▶ What roles in determining incentives is the bonus cap playing?
- ▶ What role is the bonus itself playing?
- ▶ What role is the accounting method playing?
- ▶ How do these things interact and what would happen if they were relaxed?

# Activity Based Costing

Conceptual understanding of how activity based costing improves on simple absorption costing.

1. More granular information leads to more accurate cost allocations.
2. More accurate allocations provide better information via transfer prices.
3. More accurate allocations connect incentives (a la Pigou) to the actual costs that the firm incurs.

## Budgets/Standard Costs/Variances

There will be a section of multiple choice question based on these.

- ▶ A few students asked for the who test to be MC, I'm not allowed to do that. I'm sorry. Also, writing MC questions is so absolutely apocalyptically stultifyingly soul crushingly boring that I can't possibly write any more of these than I have.

# Variance

$$\text{Total Variance} = \text{Actual Cost} - \text{Standard Cost}$$

## Disaggregation of direct cost variances

Direct cost (labor and materials) can be disaggregated into Price and Quantity variances using the flexible budget.



## Disaggregation of direct cost variances

	Actual DM Cost	Flexible Budget	Standard DM Cost
Total Variance			
$(Q_a \times P_a) - (P_s \times Q_s)$	$P_a \times Q_a$	$P_s \times Q_a$	$P_s \times Q_s$

Total Variance	Price Variance	Quantity Variance
$(Q_a \times P_a) - (P_s \times Q_s)$	$P_a \times Q_a - P_s \times Q_a$	$P_s \times Q_a - P_s \times Q_s$
$[Q_a(P_a - P_s)] + [P_s(Q_a - Q_s)]$	$Q_a(P_a - P_s)$	$P_s(Q_a - Q_s)$

## Disaggregation of overhead cost variances

**Total Overhead Variance = Actual Overhead Costs - Overhead Absorbed**

$$AOH - (OHR \times SV) = AOH - (OHR \times SV)$$

$$\$2,300,000 - \$2,291,600 = \$8,400$$

**Interpretation:**

- ▶ Overhead is 'Underabsorbed', if actual > absorbed
- ▶ Overhead is 'Overabsorbed', if actual < absorbed

## Disaggregation Overhead Variance

**Total Overhead Variance = Actual Overhead - Overhead Absorbed**

- ▶ Overhead spending variance = Actual overhead - Flexible budget at actual volume
- ▶  $OSV = AOH - FB@AV$
- ▶ Overhead efficiency variance = Flexible budget at actual volume - Flexible budget at standard volume
- ▶  $OEV = FB@AV - FB@SV$
- ▶ Overhead volume variance = Flexible budget at standard volume - Overhead Absorbed
- ▶  $OVV = FB@SV - OA$

## Disaggregation Overhead Variance

TOV	=	AOH		-		OA
OSV	=	AOH	-	FB@AV		
OEV	=		FB@AV	-	FB@SV	
OVV	=			FB@SV	-	OA

## More detailed definitions:

TOV	=	AOH	-	$OHR \times SV$
OSV	=	AOH -	FOH+(VOH×AV)	
OEV	=		FOH+(VOH×AV) -	FOH+(VOH×SV)
OVV	=			FOH+(VOH×SV) - $OHR \times SV$

## Disaggregation Overhead Variance

- ▶ Overhead spending variance:  $OSV = AOH - FB@AV$ 
  - ▶ This is the variance due to change in the cost of the overhead itself.
- ▶ Overhead efficiency variance:  $OEV = FB@AV - FB@SV$ 
  - ▶ This is the variance due to differences in how efficiently we used the overhead.
- ▶ Overhead volume variance:  $OVV = FB@SV - OA$ 
  - ▶ This is the variance due to the effect of volume on the overhead allocation.