Budgeting

Budgets and Organizational Architecture

- A budget is management's forecast of revenues, expenses, or profits in a future time period.
- Budgets are plans not aspirations.
- Deviations, even income-increasing ones, are not innocuous.

Budgets and Organizational Architecture

- Knowledge: Budgets communicate key planning assumptions such as product prices, units sales, and input prices.
- Partition Decision Rights: Budget sets guidelines on resources available for each segment.
- Performance Evaluation: Responsibility center's actual performance is compared to budget.

Variances:

- In statistics: A measure of the differences between the observations and the predictions.
- In managerial accounting: The difference between the budgeted and actual amounts.
- Related, but distinct. Managerial accounting variances are more closely related to 'errors' in statistics, this makes sense as they are errors in prediction.

Variances:

- Variances are termed 'favorable' and 'unfavorable' based on their impact on income.
- Keep in mind that budgets are plans, so any variance is evidence that things did not go according to plan.

Variances:

- Favorable (F) variance: actual revenue $>$ budgeted revenue actual expense $<$ budgeted expense

- Unfavorable (U) variance: actual revenue $<$ budgeted revenue actual expense $>$ budgeted expense

Examples

Example: Country Club

- Responsibility Centers: 1 profit center and 2 cost centers
- Measurement: Monthly reports compare actual revenues and expenses to budget.
- Budget process separates decision rights.
  - Initiation and implementation by professional managers.
  - Ratification and monitoring by Board of Directors and members.

Example: Private University

Responsibility centers in 4 colleges: 2 cost centers, 2 profit centers.

- Knowledge:
  - Number of students drives revenue forecasts.
  - Faculty market drives faculty salary expense.

Example: Private University

- Decision rights:
  - Lower levels prepare initial budgets.
  - Higher levels review and ratify budget.
  - *This process passes knowledge up the organization.*

Example: Private University

- Agency problems:
  - Empire building: request "too large" a budget.
  - Externalities: Cost centers are more likely to add unprofitable programs than profit centers.

Example: Large Corporation

- Responsibility centers:
  - 2 cost (manufacturing and marketing)
  - 1 revenue (sales)

Example: Large Corporation

- Knowledge:
  - Vertical transfers (lower to higher levels)
  - Horizontal transfers (marketing to manufacturing)
  - Identify potential bottlenecks in production

  - Identify financing needs

Example: Large Corporation

- Contracting:
  - Budgets are internal contracts between operating segments
  - Divisional managers negotiate budgets
  - Executive managers negotiate disputes and review budgets for consistency with corporate strategy

Trade-offs

Trade-off: Communication vs. Evaluation

- Budgets are used for both decision management and decision control.
- Optimal decision making requires managers fully reveal private knowledge about production and market conditions during budget negotiations.

Trade-off: Communication vs. Evaluation

- When budgets are also used for performance evaluation, managers have an incentive to make biased budget forecasts so that their actual performance will look good relative to budget.

Budget Ratcheting

- Ratchet effect: Basing next year's standard of performance on this year's actual performance.
- Disadvantages:
  - Performance targets usually adjusted upward
  - Employees reduce output to avoid being held to higher standards in the future

Budget Ratcheting

- Possible Solution:
  - Eliminate budget targets
  - Estimate next year's sales
  - More frequent job rotation

Budget Ratcheting

- Summary: While the ratchet effect creates dysfunctional behavior, the alternatives might produce even greater problems.

Trade-off: Bottom-up vs. Top-down

- Top-down budgets:

  - Knowledge: Top management can make accurate aggregate forecasts
  - Decision rights: Begin with aggregate forecasts for firm, and then disaggregate down to lower levels
  - Decision control more important than decision management

Trade-off: Bottom-up vs. Top-down

- Bottom-up budgets (participative budgeting):
  - Knowledge: Lower levels have more knowledge than top
  - Decision rights: Person being held responsible for meeting the target makes the initial budget forecast
  - Decision management more important than decision control

Trade-off: Resolving Disagreements

- Top executive officers of firms have final decision rights over the entire budget process.
- Top executives resolve disputes among lower levels.
- After adoption, the budget is an informal set of contracts among the various units of the firm.

Modern budgeting

Modern Approaches to Budgeting

- Building the budget in two distinct steps
  - Step 1: Construct budgets in operational terms (Lowest levels of the organization)
  - Step 2: Developing a financial plan based on the operational plans from Step 1.

Modern Approaches to Budgeting

- Constructing budgets for financial planning (decision management), but not using budgets as performance targets (decision control)
- Units are judged by comparing their actual performance with the actual performance of defined "peer units".

Modern Approaches to Budgeting

- Actual rewards can include consideration of both financial and non-financial performance measures.
- Data come directly from the design and function of the production process.

What do you think of the Following Assertions?

- No simple "one-size-fits-all" panacea exists for resolving the conflict between decision management versus decision control when it comes to budgeting.

- Nor is such a solution ever likely to be found.

Horizon

Short-run vs. Long-run

- Firms that use only short-term (annual) budgets do not create adequate incentives for long-term maintenance and responding to new opportunities.
- Strategic planning requires long-term budgets (2, 5, or 10 years).
- Financial lending institutions often require cash flow projections for the length of any proposed borrowing.
- Many firms require managers to prepare both short-term and long-term budgets as part of the periodic budget review.

Budget Types/Terms/Policies

Modern firms use a mix of all of these types.

Line-Item Budgets

- Line-item budgets authorize managers to spend only up to the specified amount on each line item.
- Advantages:
  - Tight control reduces opportunities for managers to take actions inconsistent with firm goals

Line-Item Budgets

- Disadvantages:
  - Inflexible in responding to unanticipated needs
  - Little incentive for cost savings

Rolling Budgets

- A rolling budget is set each month over some time-period
- For example: Each month Cisco revises their budget for the next 18-months.

Rolling Budgets

- Advantages:
  - Keeps budget more current in a changing environment
  - Managers may react in a more timely manner by better integrating planning and execution.

Rolling Budgets

- Disadvantages:
  - Costs of software and management time

  - Key Solution: Use a single standardized web page for data entry and automatic roll up to the company-wide budget.

Budget Lapsing

Budget lapsing is a requirement that funds allocated for a particular year cannot be carried over to the following year.

Budget Lapsing

- Advantages:
  - Tighter control than budgets that do not lapse
  - Prevents risk-averse managers from accumulating funds

Budget Lapsing

- Disadvantages:
  - Encourages wasteful spending near end of fiscal year

Incremental vs. Zero-Based Budgets

- **Incremental budgeting:**
  - Begin with current year's core budget and make incremental changes
  - Review focuses on incremental changes and may ignore inefficiencies in core budget
- **Zero-based budgeting (ZBB):**
  - Mandates each line item in total must be justified each year
  - Motivates managers to eliminate inefficient expenses
  - Useful when firm is changing strategic direction
  - Becomes less useful when same justifications are used each year

Static Budgets

- Do not vary with volume, such as costs that should be fixed
- Volume changes may create budget variances
- Since managers are not insulated from volume changes, they have incentives to mitigate impact of adverse volume changes

Flexible Budgets

- Do adjust for changes in volume, such as semivariable costs that include a fixed and variable component
- Evaluate performance after adjusting for volume effects
- Manager is not held responsible for volume changes

Note:

The static and flexible budgets will be used in the next lecture to decompose variances!

Example: Sandy Cove Bank

Sandy Cove Bank

- Sandy Cove is a new small commercial bank in Sandy Cove, Michigan.
- The bank limits interest rate risk by matching the maturity of its assets to the maturity of its liabilities.
- By maintaining a spread between interest rates charged and interest rates paid, the bank plans to earn a small income.

Sandy Cove Bank

- Management establishes a flexible budget based on interest rates for each department.
- The Boat and Car Loan Department offers five-year loans.
- It matches certificates of deposit (CDs) against car and boat loans.

Sandy Cove Bank

- Given all the uncertainty about interest rates, management believes that five-year savings interest rates could vary between 2 percent and 16 percent for the coming year. (*Note: 'Given' in this sentence embeds a critical management accounting activity: forecasting.*)
- The savings rate is the rate paid on CD savings accounts.
- The loan rate is the rate charged on auto and boat loans.

Sandy Cove Bank

- Expected new demand for fixed-rate, five-vear loans and the new supply of fixed-rate, five-year savings accounts at various interest rates.

Loan Rate	Loan Demand	Savings Rate	Savings Supply
6%	$12,100,000	2	$ 4,700,000%
7%	10,000,000	3	5,420,000
8%	8,070,000	4	8,630,000
9%	6,030,000	5	9,830,000
10%	4,420,000	6	11,800,000

- There are no loans from previous years. Note that the department maintains a 4 percent spread between loan and savings rates to cover processing, loan default, and overhead.

Sandy Cove Bank

- The amount of new loans granted is always the lesser of the loan demand and loan supply.
- For simplicity, this bank may lend 100 percent of deposits.
- In practice, this rate is set by policy makers and regulators not the bank itself.

Sandy Cove Bank

- Although rates are set nationally, the bank may pay or charge slightly different rates to limit demand or boost supply as needed in its local market.
- The Boat and Car Loan Department incurs processing, loan default, and overhead expenses related to these accounts.

Sandy Cove Bank

- The first two expenses vary, depending on the dollar amount of the accounts.
- The annual processing expense is budgeted to be 1.5 percent of the loan accounts.
- Default expense is budgeted at 1 percent of the amount loaned per year.

Sandy Cove Bank

- Again, loans and savings would ideally be the same.
- Overhead expenses are estimated to be $30,000 for the year, regardless of the amount loaned.

SCB Question 1

1. Calculate the processing, loan default, and overhead expenses for each possible interest rate.

Loan Rate	Loan Demand	Savings Rate	Savings Supply	New Loans
6%	$12.1 M	2%	$ 4.7 M	$ 4.7 M
7%	10	3%	5.42	5.42
8%	8.07	4%	8.63	8.07
9%	6.03	5%	9.83	6.03
10%	4.42	6%	11.8	4.42

SCB Solution 1

Loan Rate	Loan Demand	Savings Rate	Savings Supply	New Loans	Processing Expenses
6%	$12.1 M	2%	$ 4.7 M	$ 4.7 M	$70,500
7%	10	3%	5.42	5.42	81,300
8%	8.07	4%	8.63	8.07	121,050
9%	6.03	5%	9.83	6.03	90,450
10%	4.42	6%	11.8	4.42	66,300

- Processing is 1.5% of loan accounts

SCB Solution 1

Loan Rate	Loan Demand	Savings Rate	Savings Supply	New Loans	Processing Expenses	Default Exp
6%	$12.1 M	2%	$ 4.7 M	$ 4.7 M	$70,500	$47,000
7%	10	3%	5.42	5.42	81,300	54,200
8%	8.07	4%	8.63	8.07	121,050	80,700
9%	6.03	5%	9.83	6.03	90,450	60,300
10%	4.42	6%	11.8	4.42	66,300	44,200

- Default expense is budgeted at 1 percent of the amount loaned per year.

SCB Solution 1

Loan Rate	Loan Demand	Savings Rate	Savings Supply	New Loans	Processing Expenses	Default Exp	Overhead Expenses
6%	$12.1 M	2%	$ 4.7 M	$ 4.7 M	$70,500	$47,000	$30,000
7%	10	3%	5.42	5.42	81,300	54,200	30,000
8%	8.07	4%	8.63	8.07	121,050	80,700	30,000
9%	6.03	5%	9.83	6.03	90,450	60,300	30,000
10%	4.42	6%	11.8	4.42	66,300	44,200	30,000

- These are the budgeted expenses, this is the foundation of financing plans to make sure that these resources are in place when they are needed.
- In this case it is the deposits that need to be in place for the lending to happen.

SCB Question 2

2. Create an annual budgeted income statement for five-year loans and deposits for the Boat and Car Loan Department given a savings interest rate of 4 percent. Remember to match supply and demand.

Interest income	\$8,070,000 × 8%=	\$645,600
Interest expense	\$8,070,000 × 4%=	322,800
Net interest income		\$322,800
Fixed overhead		30,000
Processing expense		121,050
Default expense		80,700
Net income		\$ 91,050

SCB Question 3

3. Table 2 shows the actual income statement for the Boat and Car Loan Department. Included are the actual loans and savings for the same period. Calculate the variances and provide a possible explanation.

	Budget	Actual
Interest income	\$645,600	\$ 645,766
Interest expense	322,800	314,360
Net interest income	\$322,800	\$ 331,406
Fixed overhead	30,000	30,200
Processing expense	121,050	130,522
Default expense	80,700	77,800
Net income	\$ 91,050	\$ 92,884
Loans	8,070,000	\$8,062,000
Deposits	8,070,000	\$8,123,000

SCB Solution 3

	Budget	Actual	Fav. (Unfav.) Variance
Interest income	\$645,600	\$ 645,766	\$ 166
Interest expense	322,800	314,360	8,440
Net interest income	\$322,800	\$ 331,406	\$ 8,606
Fixed overhead	30,000	30,200	(200)
Processing expense	121,050	130,522	(9,472)
Default expense	80,700	77,800	2,900
Net income	\$ 91,050	\$ 92,884	1,834
Loans	8,070,000	\$8,062,000	\$ (8,000)
Deposits	8,070,000	\$8,123,000	\$(53,000)

SCB Solution 3

- Even though loans were lower and deposits were higher than expected, interest income was higher and interest expense was lower than expected.
- The answer can be obtained by calculating the average interest rates earned and paid.

SCB Solution 3

- On $8,062,000 worth of loans, Sandy Cove earned $645,766 interest, or 8.01 percent (0.01 percent more than expected).
- Similarly, it paid only 3.87 percent (0.13 percent less) on deposits.

SCB Solution 3

- Therefore, the net interest income variance of $8,606 is a combination of two effects: the variance in the actual loans and deposits (quantity) and the variance in the interest rates (price).
- The combined effects are a favorable interest income variance, a favorable interest expense variance, and an overall favorable net interest income variance.

SCB Solution 3

- At a savings interest rate of 4 percent, there is an excess supply of deposits over demand for loans.
- The Boat and Car Loan Department lowered the interest rate on deposits to stem additional deposits.

SCB Solution 3

- The increase in the interest rate on loans can be attributed only to an increase in the demand for loans, which resulted in the department charging a slightly higher average interest rate.
- The higher processing expense could be related to the higher number of accounts processed and improvements in the default rate.
- That is, the favorable default expense could be attributed to an improved screening process-related to spending more on processing.

Appendix: Master Budget Example

Study Figure 6-3.

- Logical relationships
  - Sales budget drives production and purchasing
  - Production drives materials and labor budget
  - Production and sales drive inventory and cost of goods sold
- Master budget statements

  - Budgeted income statement
  - Budgeted balance sheet
  - Budgeted cash flows

Budgets and Economic Darwinism

- Budgets may result in suboptimal performance because:
  - Too much emphasis on financial rather than nonfinancial measures
  - Short-term rather long-term results
  - Maximizing incentive bonuses for manager rather than firm value
  - Too much time analyzing budget variances
- Despite all these problems, budgets persist in firms.
- The economic Darwinism principle implies budgeting must be yielding benefits at least as large as their costs.