Financial planning

• **Making financial decisions**
  How will things change if I take this action?

• **Financial Planning – An Annual View**
  Aligning budgets with decisions
  Using budgets to make decisions

• **Financial Planning – A Multi Year View**

June 10, 2016

Kirt C. Butler
Department of Finance
Broad College of Business

R. Sam Larson
Assistant Dean
Operations and Finance
College of Education
• **Financial planning** provides a framework for evaluating the opportunities, costs & risks of our financial decisions.
Act local

Think global

Annual budgets

Multi-year planning
MSU’s new funding paradigm

An increasing reliance on tuition revenue
MSU’s new funding paradigm

• Funds from the State are in short supply
  - This situation is likely to continue
  - We need to be *entrepreneurial* while still being responsible shepherds of MSU’s scarce resources

• The goal of this session is to help you support your units in making informed, strategic decisions
The blunders are all there on the board, waiting to be made.

Savielly Tartakower
The domain of finance

• Investment decisions
  - What assets should we build?

• Financing decisions
  - How do we pay for these investments?

• Management decisions
  - Strategic decision making for existing and potential future programs

“All decisions are political.”
Mark Haas
Financial decision criteria

- **Net present value (NPV)**
  - additional value created by a project net of cost ($s)

- **Internal rate of return (IRR)**
  - the project’s expected return (%)

- **Breakeven**
  - the point at which revenue equals cost, such that there is no net loss or gain

- **Payback**
  - length of time required to recoup initial cost

Shortcomings: (1) ignores cash flows after the payback period, (2) ignores the timing & riskiness of cash flows
## Financial decision criteria

Percentage of CFOs using a particular technique for evaluating investment projects

<table>
<thead>
<tr>
<th>Technique</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net present value (NPV)</td>
<td>75%</td>
</tr>
<tr>
<td>Internal rate of return (IRR)</td>
<td>76%</td>
</tr>
<tr>
<td>Payback</td>
<td>57%</td>
</tr>
</tbody>
</table>


**Breakeven**: the point at which revenue equals cost

…not included in the survey
Industry best practice: NPV

An example: Valuing an office building

Step 1: Forecast the cash flows

Cost of building = $C_0 = 370,000$
Expected sale price in Year 1 = $C_1 = 420,000$

-$370,000$

$420,000$

Today

One year from today
Industry best practice: NPV

Step 2: Estimate the opportunity cost of capital

If equally risky investments in the capital markets offer a return of 5%, then

\[ \text{Cost of capital } (r) = 5\% \]

The cost of capital also is called the hurdle rate

\[ \begin{align*} \text{$420,000$} & \quad \text{One year from today} \\ \text{-$370,000$} & \quad \text{Today} \end{align*} \]
Industry best practice: NPV

Step 3: Discount expected future cash flows

The building is worth $400,000 today when valued at the 5% cost of capital.

\[
PV = \frac{C_1}{(1+r)} = \frac{420,000}{1.05} = 400,000
\]

Today: $400,000

One year from today: $420,000

-$370,000
Industry best practice: NPV

Step 4: Find the project’s net present value

It costs $370,000 to buy a building that has a value of $400,000, so the net value of this investment is

\[ \text{NPV} = \$400,000 - \$370,000 = \$30,000 \]

The building is worth $30,000 more than it costs

\[ \$400,000 \]

\[ -$370,000 \]

Today

\[ \$30,000 \text{ in added value or net present value (NPV)} \]
Industry best practice: IRR

*Alternatively*

Expected return = $420,000 / $370,000 ≈ 13.5%

This is a good project because the 13.5% expected return (or IRR, or internal rate of return) exceeds the 5% required return (or cost of capital)

The 13.5% expected return is greater than the 5% required return

- $420,000

$370,000

Today

One year from today
Financial decision criteria

Although these decision criteria seem complex, the basic idea is to estimate what might change if we accept a proposed course of action

In financial terms, we want to estimate changes in expected future cash flows arising from a decision
Time for an assist
A Critical Review of Annual Budgets

What is a critical view?

Asking questions about rationale and legitimacy

- Why is our budget structured this way?
- What decisions are impacting our budget?
- How is our budget impacting our decisions?
- What do faculty/staff understand about their budgets?

- What would our budget look like if we started from scratch?
When was the last time you spent more than an hour having a critical conversation about your budget? What did you talk about?
What is one of the *most significant* changes in your organization in the past several years?

- How did the budget impact this change? And how did this change impact the budget?
- Who was involved in discussions about the impact this change had on the budget and vice versa?
- Were there any *surprises*?
When I think about my budget from a critical perspective, I often focus on

**Transparency**

**Accountability**
Transparency

Begins with a deep understanding of the budget.

And a willingness to help others understand it.

And preparing for the consequences!
Sometimes our desire for simplicity hides important details.

<table>
<thead>
<tr>
<th>Sub Account</th>
<th>Sub Account Name</th>
<th>Project Code</th>
<th>Project Code Name</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPLE</td>
<td>Student Recruitment &amp; Retention Program</td>
<td>Project1</td>
<td>Summer Camp</td>
<td>152,114</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project2</td>
<td>HS Tutors</td>
<td>170,886</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project3</td>
<td>1st Year Scholars</td>
<td>136,355</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project4</td>
<td>Sibs Weekend</td>
<td>45,300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project5</td>
<td>Fall Family Orientation</td>
<td>11,450</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project6</td>
<td>Evaluation &amp; Assessment</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td>Project-SAL</td>
<td></td>
<td>Faculty A</td>
<td>156,262</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Specialist B</td>
<td>73,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AP-C</td>
<td>49,380</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CT-D</td>
<td>36,751</td>
</tr>
<tr>
<td></td>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td><strong>846,498</strong></td>
</tr>
</tbody>
</table>
Greater transparency can lead to different understandings and decisions.

<table>
<thead>
<tr>
<th>Project Code Name</th>
<th>Total</th>
<th>GF Budget</th>
<th>GF-Non Recurring</th>
<th>Carryforward</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Camp</td>
<td>152,114</td>
<td>50,114</td>
<td>86,000</td>
<td></td>
<td>16,000</td>
<td>16K from Project Foundation</td>
</tr>
<tr>
<td>HS Tutors</td>
<td>170,886</td>
<td>148,386</td>
<td></td>
<td></td>
<td></td>
<td>60K from Endowment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40K from RN123456 or other</td>
</tr>
<tr>
<td>1st Year Scholars</td>
<td>136,355</td>
<td>36,355</td>
<td></td>
<td></td>
<td>100,000</td>
<td>25K for scholarships in FY16 from RN123456</td>
</tr>
<tr>
<td>Sibs Weekend</td>
<td>45,300</td>
<td>20,300</td>
<td></td>
<td></td>
<td>25,000</td>
<td></td>
</tr>
<tr>
<td>Fall Family Orientation</td>
<td>11,450</td>
<td>11,450</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation &amp; Assessment</td>
<td>15,000</td>
<td>15,000</td>
<td></td>
<td></td>
<td></td>
<td>Office Operations</td>
</tr>
<tr>
<td>Faculty A</td>
<td>156,262</td>
<td>140,636</td>
<td></td>
<td></td>
<td>15,626</td>
<td>10% on Grant</td>
</tr>
<tr>
<td>Specialist B</td>
<td>73,000</td>
<td>20,000</td>
<td></td>
<td></td>
<td>53,000</td>
<td></td>
</tr>
<tr>
<td>AP-C</td>
<td>49,380</td>
<td>39,504</td>
<td></td>
<td></td>
<td>9,876</td>
<td>20% on Grant</td>
</tr>
<tr>
<td>CT-D</td>
<td>36,751</td>
<td>36,751</td>
<td></td>
<td></td>
<td></td>
<td>CT and FTE yet TBD</td>
</tr>
<tr>
<td></td>
<td>846,498</td>
<td>518,496</td>
<td>108,500</td>
<td>53,000</td>
<td>166,502</td>
<td></td>
</tr>
</tbody>
</table>
Accountability

What does accountability mean to you when we discuss it in relationship to budgets?
Accountability

Spending within limits.

Considering multiple stakeholders
- Students
- Parents
- Taxpayers
- Community/Social Good
Accountability

Aligning budgets with outcomes or benchmarks

Every budget decision has an opportunity cost

Ex. Student Recruitment & Retention Program
Our budget has an annual cycle...
But we can plan for multiple years...

This past FY, how did you respond to the Provost’s 1% PERF reduction? And who was involved in this decision?

What kind of decisions would you use if you thought about PERF over a 3-year period? And who would you involve in this decision?
• We can think and plan over multiple years
• This begins by being critical of our annual budgets and extending our time horizons
• And we have tools to help us do this...
Time for a Break!
• Financial planning provides a framework for evaluating the opportunities, costs & risks of our financial decisions.
Financial planning

Only incremental cash flows are relevant

**Incremental cash flow = (Alternative – Base)**

Include anything – and everything – that changes

- First identify a **base case** as a starting point
  This usually is the ‘do nothing’ alternative; for example, no changes to existing programs

- Then, consider **alternatives relative to the base case**
  The incremental cash flows associated with the alternatives are estimated relative to the base case
Financial planning

Only **incremental cash flows** are relevant

Incremental cash flow = (Alternative – Base)

- **Include all side effects**
  Introducing a new online global EMBA program would cannibalize our existing EMBA (WMBA) program

- **Include any horizon value** – This can be important if a project is your entry into a growth market

- **Exclude sunk costs** (they are not incremental) in making decisions about future resource allocations

- **Include overhead expenses** (only) if they truly are incremental to the project
To get anywhere, or even to live a long time, a man has to guess, and guess right, over and over again, without enough data for a logical answer.

Robert Heinlein, Time Enough for Love
Grad programs in the College of Business

MS programs
- Business Analytics
- Accounting
- Finance
- Management, Strategy, and Leadership online delivery
- Marketing online delivery
- Supply Chain Management blended delivery
- The School of Hospitality Business

MBA programs
- Full-time Broad MBA
- Part-time Executive MBA
- Global Executive MBA
A possible Global EMBA program

Mission
To leverage College assets in a way that delivers world-class management education to a cohort of executives operating in the global economy

Themes
A Global Orientation | Applied Learning | Teamwork | Leadership

Delivery
• Blended delivery model (online plus face-to-face)
• The program begins with a boot camp in East Lansing
• Two 1-week international residencies (e.g., China, Brazil, Turkey)
• Online coursework between the residencies
• The program would conclude with a case competition in East Lansing judged by corporate partners
The competition

*Business Week: EMBA (Dec 2012)*

**EMBA rankings**

<table>
<thead>
<tr>
<th>Rank</th>
<th>University</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>University of Chicago</td>
<td>$150,000</td>
</tr>
<tr>
<td>#6</td>
<td>University of Michigan</td>
<td>$131,000</td>
</tr>
<tr>
<td>#14</td>
<td>Ohio State University</td>
<td>$78,500</td>
</tr>
<tr>
<td>#17</td>
<td>University of Maryland</td>
<td>$98,500</td>
</tr>
<tr>
<td>#35</td>
<td>Michigan State University</td>
<td>$53,675</td>
</tr>
</tbody>
</table>

**Other peer schools**

- University of Pittsburgh: $65,000
- University of Illinois: $94,000
- Pennsylvania State University: $93,000
- Purdue University: $78,000
### The competition

**Financial Times: Global EMBA (Dec 2012)**

<table>
<thead>
<tr>
<th>Global EMBA rankings</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Kellogg / HKUST</td>
<td>$465,774</td>
</tr>
<tr>
<td>#2 Columbia / LBS</td>
<td>$265,596</td>
</tr>
<tr>
<td>#32 University of Michigan</td>
<td>$216,099</td>
</tr>
<tr>
<td>#45 University of Maryland</td>
<td>$176,914</td>
</tr>
<tr>
<td>#70 Ohio State University</td>
<td>$177,478</td>
</tr>
</tbody>
</table>

**Other peer schools**

<table>
<thead>
<tr>
<th></th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>#49 University of Pittsburgh</td>
<td>$168,087</td>
</tr>
<tr>
<td>nr University of Illinois</td>
<td>$139,507</td>
</tr>
<tr>
<td>- Pennsylvania State University</td>
<td>-</td>
</tr>
<tr>
<td>- Purdue University</td>
<td>-</td>
</tr>
</tbody>
</table>

---

Michigan State University
## Program delivery

### Variable costs

<table>
<thead>
<tr>
<th>Event</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Lansing boot camp</td>
<td>Food &amp; lodging</td>
</tr>
<tr>
<td>International residency #1</td>
<td>Food &amp; lodging</td>
</tr>
<tr>
<td>International residency #2</td>
<td>Food &amp; lodging</td>
</tr>
<tr>
<td>East Lansing case competition</td>
<td>Food &amp; lodging</td>
</tr>
<tr>
<td>Reception for admitted students</td>
<td>Food</td>
</tr>
<tr>
<td>Books &amp; course materials</td>
<td>Program costs</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

The residencies would include some variable costs (lodging and food) and some fixed costs (conference rooms, breakout rooms, local transportation, etc.)
Program delivery

Fixed costs

Marketing  Large start-up, then lower steady-state
Faculty overload  Our biggest annual expense
Course development
Classrooms during the residencies
Transportation during the residencies
Home office staff and tech support
Other general & administrative expense
  Student orientation
  Graduation ceremony
  Application tracking service
  Career management services
  Professional conferences
Financial planning

Spreadsheet modeling

- Models are useful because they help you to understand the forces that drive a business decision
- If done properly, they allow you to construct best/worst case scenarios or assess the sensitivity of a proposed project to your assumptions and to business conditions

Helpful conventions

- Create an input section of values that drives the analysis and can be changed for further analysis
- Use formulas so that the analysis is flexible
- Include an output section to summarize your results
Let’s move to a spreadsheet
### A possible Global EMBA program

<table>
<thead>
<tr>
<th></th>
<th>Global EMBA</th>
<th>Global MBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition rate (breakeven)</td>
<td>$91,048</td>
<td>$55,813</td>
</tr>
<tr>
<td>Number of credits</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>MSU tuition per credit</td>
<td>$2,023</td>
<td>$1,240</td>
</tr>
<tr>
<td>Number of cohorts</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Students per cohort</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>MSU revenue</td>
<td>$2,731,450</td>
<td>$3,348,767</td>
</tr>
<tr>
<td>College's retention of revenue</td>
<td>75%</td>
<td>75%</td>
</tr>
<tr>
<td>College's revenue</td>
<td>$2,048,588</td>
<td>$2,511,575</td>
</tr>
<tr>
<td>Total variable costs</td>
<td>$312,788</td>
<td>$625,575</td>
</tr>
<tr>
<td>Total fixed costs</td>
<td>$1,735,800</td>
<td>$1,886,000</td>
</tr>
<tr>
<td>Operating profit</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Operating margin</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
When I look back on all these worries
I remember the story of the old man who said
on his deathbed that he had had a lot of
trouble in his life,
most of which never happened.

Winston Churchill
Sensitivity analysis

How sensitive is operating profit to the tuition rate?

<table>
<thead>
<tr>
<th>Global EMBA</th>
<th>Global MBA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuition</strong></td>
<td><strong>Cash flow</strong></td>
</tr>
<tr>
<td>$60,000</td>
<td>-$633,388</td>
</tr>
<tr>
<td>$65,000</td>
<td>-$520,888</td>
</tr>
<tr>
<td>$70,000</td>
<td>-$408,388</td>
</tr>
<tr>
<td>$75,000</td>
<td>-$295,888</td>
</tr>
<tr>
<td>$80,000</td>
<td>-$183,388</td>
</tr>
<tr>
<td>$85,000</td>
<td>-$70,888</td>
</tr>
<tr>
<td>$90,000</td>
<td>$41,613</td>
</tr>
<tr>
<td>$95,000</td>
<td>$154,113</td>
</tr>
<tr>
<td>$100,000</td>
<td>$266,613</td>
</tr>
<tr>
<td>$105,000</td>
<td>$379,113</td>
</tr>
<tr>
<td>$110,000</td>
<td>$491,613</td>
</tr>
</tbody>
</table>
Profit (loss)

Global EMBA

Tuition

Breakeven
Profit (loss)

Global MBA

Breakeven

Tuition

$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0
-$200,000
-$400,000
-$600,000

$50,000
$60,000
$70,000
$80,000
A possible Global EMBA program

Possible cannibalization of our existing EMBA

Some candidates might switch their application from our existing EMBA to our Global EMBA program, resulting in a loss of revenue to the EMBA program.

Would we then fill the lost EMBA seat with the next-most qualified candidate?

Some loss of quality or quantity in our existing EMBA program is probably inevitable.

Like the proposed Global EMBA program, there are very few variable costs in our existing EMBA program.
A possible Global EMBA program

Possible cannibalization of our existing EMBA

Assumptions

Estimated opportunity cost per student $50,000
(There are very few variable costs in the EMBA program)

Estimated number of students lost 5 students/cohoot

Total losses in operating profit from cannibalization
  Global EMBA program (1 cohort) -$250,000
  Global MBA program (2 cohorts) -$500,000
## Sensitivity analysis

How sensitive is the program to the tuition rate?

<table>
<thead>
<tr>
<th>Global EMBA</th>
<th>Cannibalized</th>
<th>Global MBA</th>
<th>Cannibalized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>Cash flow</td>
<td>Cash flow</td>
<td>Tuition</td>
</tr>
<tr>
<td>$60,000</td>
<td>-$633,388</td>
<td>-$883,388</td>
<td>$50,000</td>
</tr>
<tr>
<td>$65,000</td>
<td>-$520,888</td>
<td>-$770,888</td>
<td>$55,000</td>
</tr>
<tr>
<td>$70,000</td>
<td>-$408,388</td>
<td>-$658,388</td>
<td>$60,000</td>
</tr>
<tr>
<td>$75,000</td>
<td>-$295,888</td>
<td>-$545,888</td>
<td>$65,000</td>
</tr>
<tr>
<td>$80,000</td>
<td>-$183,388</td>
<td>-$433,388</td>
<td>$70,000</td>
</tr>
<tr>
<td>$85,000</td>
<td>-$70,888</td>
<td>-$320,888</td>
<td>$75,000</td>
</tr>
<tr>
<td>$90,000</td>
<td>$41,613</td>
<td>-$208,388</td>
<td>$80,000</td>
</tr>
<tr>
<td>$95,000</td>
<td>$154,113</td>
<td>-$95,887</td>
<td></td>
</tr>
<tr>
<td>$100,000</td>
<td>$266,613</td>
<td>$16,613</td>
<td></td>
</tr>
<tr>
<td>$105,000</td>
<td>$379,113</td>
<td>$129,113</td>
<td></td>
</tr>
<tr>
<td>$110,000</td>
<td>$491,613</td>
<td>$241,613</td>
<td></td>
</tr>
</tbody>
</table>
Industry best practice: NPV

An example: Valuing an online graduate program

Initial cost of the program = $1 million?
Expected annual return?

- $1 million
  Today Year 1 Year 2 Year 3
A possible Global EMBA program

Other considerations

▪ Is the proposed program structure optimal?
▪ How do we finance this investment?
▪ Do we really want to play in this space?
▪ Do we have better uses for our time? Money? Faculty resources?!
▪ Can we leverage what we have learned in this endeavor elsewhere in our other programs?
Financial planning

This example will differ from your initiatives but it illustrates the approach of trying to estimate **WHAT WILL CHANGE?**

- Building financial models will help you make **more informed decisions**
- Models also will help you to understand the **value drivers** of your proposed investment
- Models can help you perform **what-if analyses** to help you structure your initiatives in the best possible way
Annual budgets \rightarrow \text{Multiyear planning} \rightarrow Annual budgets
Discussion...