

Finance for Entrepreneurs

Session 2: The Future

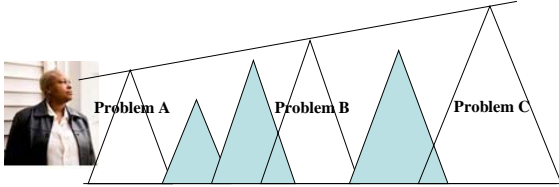
Models/Budgets/Forecasts
Other Concepts (time permitting)

George Wanted To Say...

- When you're out of cash, you're out of business

Models/Budgets/Forecasts

Venturing into the Unknown



Definition

- Model – Mathematical representation of key financial and operational relationships; sets of equations used to analyze how a business will react to different economic situations or events and in estimating the consequences of financial decisions
- Budget/Plan – What you want to happen
- Forecast – What you think will happen

Financial Model

	Med
Revenue	\$ 100,000
Variable COGS (40%)	\$ 40,000
Semi-Variable COGS	\$ 10,000
Fixed COGS	\$ 10,000
Gross Margin	\$ 40,000
Variable Operating Exp.	\$ 12,000
Fixed Operating Exp.	\$ 20,000
Operating Income	\$ 8,000
Income Taxes & Other	\$ 2,100
Net income	\$ 5,900

Important Concepts Modeling

- Representation of a “Plan”
 - Focus on what’s important
- Drivers/Variables
 - Revenue, cost and cash flow
 - Fixed vs. variable costs
- Relationships between variables
- Assumptions & sensitivity



It all Starts With A Plan

- Many ideas start with the product...now it's time to think about the “plan”
- The business model...
 - How is demand for your product driven?
 - How will it be priced and what will it cost?
 - How and where will the product be sold?
 - How will it be acquired, delivered & serviced?
 - How will you be structured



Revenue

- Simply: Price times Quantity ($P \times Q$)
- Quantities: What you’re selling
- Prices: How Much you’re selling it for
- Mix: how many of different products do you sell ($P_1 \times Q_1 + P_2 \times Q_2 + \dots$)



X



Price: What Do Customers Want?

- Own vs. Rent (SAAS)
- Lump Sum vs. Payments vs. whatever
 - Delayed payment schedules
 - On-time payment discounts
- Who and how do they make the buying decision?

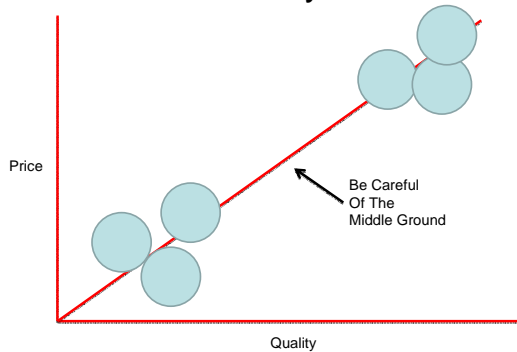


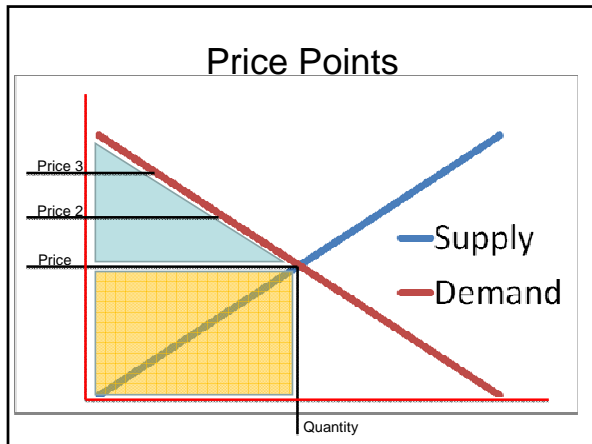
Price Decision = Art > Science

1. Pricing based on substitutes & competition
 2. Can you have multiple price points?
 3. Can you take advantage of (in)elasticity of demand?
 4. Determining price based on cost-plus?
- Remember to consider follow-on sales or service, support or maintenance




Price Quality Matrix






Elasticity Of Demand

- If you lower price, will it increase or decrease revenue?
- What happens if you raise price?
 - Say revenue is: $\$10 \times 1,000 = \$10,000$
 - You decide to lower price to get more sales
 - Elastic = $\$9 \times 1,150 = \$10,350$
 - Inelastic = $\$9 \times 1,100 = \$9,900$



Taking Advantage

- If your product is sticky or there are high switching costs: You can offer a discount (or free) to new customers and have high on-going prices
- Or simply charge over time to overcome high upfront costs and decision making processes
 - SAAS



Cost-Plus Pricing: Services

Salary rate	1.00	1.00	
Benefit & Tax	0.20	0.35	20%-35%
	1.20	1.35	
Overhead	0.96	1.35	80%-100%
	2.16	2.70	
Profit	0.54	0.68	20%
Bill Rate	2.70	3.38	

Overhead: Overhead costs / expected hours

A Quick Example

- Annual salary=\$50,000
 - ~3X = \$150,000
 - Expect ~1,500 hours
 - (standard year is 2080 less vacations, holidays, sick, admin)
 - **\$100/hour**
 - (\$150,000 / 1,500 hrs)
- Benefits and taxes**

 - Med/FICA = \$3,825
 - FUTA/SUI/WC = \$1,019
 - Medical = \$5,025
 - Total = \$9,869

• **19.7%**

 - (\$9,869/\$50,000)

Cost-Plus Pricing Retail/Manufacturing

- Merchandising – Standard Retail Markup
 - *Note: is it margin or is it markup?*
 - Not “standard” at all-3% for some food staples to 300% for diamond rings
- Manufacturing
 - Cost of component parts (think recipe)
 - Direct labor to convert into finished good
 - Overhead on a per-unit basis
 - Profit required

Example: Markup Or Margin

	A	B	C
Revenue	\$100	\$100	\$100
<u>COGS</u>	<u>50</u>	<u>33</u>	<u>25</u>
Gross Margin	\$50	\$67	\$75
Markup%	100%	200%	300%
Margin%	50%	67%	75%

Markup% = Rev / COGS | Margin% = GM / Revenue

Quantity – Be Explicit

- Manufacturing/Retail/Wholesale: Products
 - Each, Doz., Case, Barrel, Gal., Gross, Pallet
- Service: Hours (time is money)
 - Deliverables, Training, Education Credits :)
- Software/Publishing: Users
 - Seats, Licenses, Subscribers
- Complex or variable products (complex or value pricing):
 - Sales, “Packages”, Buildings, Ferries

Quantity Choices

- Usually the Product combined with your Plan will limit your quantity choices



Vs.



The Main Decision

- Can you define an “each” to enhance your pricing?
- How can you make product or service alterations?
 - To justify a price change
 - To create multiple price points
 - To change price-quality image

Revenue = P X Q

	Low	Med	High
Revenue	\$ 75,000	\$ 100,000	\$ 125,000
Variable COGS (40%)	\$ 30,000	\$ 40,000	\$ 50,000
Semi-Variable COGS	\$ 8,000	\$ 10,000	\$ 12,000
Fixed COGS	\$ 10,000	\$ 10,000	\$ 10,000
Gross Margin	\$ 27,000	\$ 40,000	\$ 53,000
Variable Operating Exp.	\$ 9,000	\$ 12,000	\$ 15,000
Fixed Operating Exp.	\$ 20,000	\$ 20,000	\$ 20,000
Operating Income	\$ (2,000)	\$ 8,000	\$ 18,000
Income Taxes & Other	\$ 100	\$ 2,100	\$ 4,600
Net income	\$ (2,100)	\$ 5,900	\$ 13,400
Working Capital change	\$ 870	\$ 0	\$ (869)
Depreciation	\$ 1,000	\$ 1,000	\$ 1,000
Operating Cash Flow	\$ (230)	\$ 6,900	\$ 13,531

Break!

After the break...

- The rest of the model
- Other Topics
 - (if we have time)



Remember Variable Costs?

- Now you know an “each”...are some of your costs by the “each” (i.e. variable)?
- Other costs with a strong relationship between cost and revenue
 - Purchased parts
 - Royalties
 - Shipping and handling
- Is there any delay in cost?



How About Semi-Variable?

- Costs that increase with sales, but not as quickly or have a fixed component or floor
- Bandwidth or Hosting
- Customer Support
- Warranty

Model Cost of Goods Sold

- Cost of producing finished goods (including obtaining and storing materials) or services that are sold to customers
- Any other Variable, Semi-Variable or Fixed costs associated with producing and delivering your product or service
 - Manufacturing & warehousing are easy
 - What about software or services?
 - “Operations” or “production” or “fulfillment”

$$\text{COGS} = \text{VC} \times \text{Q} + \text{FC}$$

	Low	Med	High
Revenue	\$ 75,000	\$ 100,000	\$ 125,000
Variable COGS (40%)	\$ 30,000	\$ 40,000	\$ 50,000
Semi-Variable COGS	\$ 8,000	\$ 10,000	\$ 12,000
Fixed COGS	\$ 10,000	\$ 10,000	\$ 10,000
Gross Margin	\$ 27,000	\$ 40,000	\$ 53,000
Variable Operating Exp.	\$ 9,000	\$ 12,000	\$ 15,000
Fixed Operating Exp.	\$ 20,000	\$ 20,000	\$ 20,000
Operating Income	\$ (2,000)	\$ 8,000	\$ 18,000
Income Taxes & Other	\$ 100	\$ 2,100	\$ 4,600
Net income	\$ (2,100)	\$ 5,900	\$ 13,400
Working Capital change	\$ 870	\$ 0	\$ (869)
Depreciation	\$ 1,000	\$ 1,000	\$ 1,000
Operating Cash Flow	\$ (230)	\$ 6,900	\$ 13,531

Variable Operating Costs

- Sales – Commissions, Travel?
- Marketing – Advertising?
- Research & Development – hmmm...?
- General & Administrative – B&O Tax



Do sales drive these expenses or do these expenses drive sales?

Fixed Operating Costs

- | | | | |
|--|--|---|--|
| <ul style="list-style-type: none"> • Sales • Marketing • Research • Development • G&A | <ul style="list-style-type: none"> • Rent • Salaries • Benefits • Insurance • Legal • etc... | } | <p>Think Of This As
Price
X
Quantity
Too</p> |
|--|--|---|--|

Salaries = Headcount Plan X Salaries by Position

Income Taxes

- Typically a large expense, and only somewhat controllable
- Generally, the rule of thumb is ~1/3 of pre-tax income (but talk to your accountant about what makes sense)

Operating Expense = VC + FC

	Low	Med	High
Revenue	\$ 75,000	\$ 100,000	\$ 125,000
Variable COGS (40%)	\$ 30,000	\$ 40,000	\$ 50,000
Semi-Variable COGS	\$ 8,000	\$ 10,000	\$ 12,000
Fixed COGS	\$ 10,000	\$ 10,000	\$ 10,000
Gross Margin	\$ 27,000	\$ 40,000	\$ 53,000
Variable Operating Exp.	\$ 9,000	\$ 12,000	\$ 15,000
Fixed Operating Exp.	\$ 20,000	\$ 20,000	\$ 20,000
Operating Income	\$ (2,000)	\$ 8,000	\$ 18,000
Income Taxes & Other	\$ 100	\$ 2,100	\$ 4,600
Net income	\$ (2,100)	\$ 5,900	\$ 13,400
Working Capital change	\$ 870	\$ 0	\$ (869)
Depreciation	\$ 1,000	\$ 1,000	\$ 1,000
Operating Cash Flow	\$ (230)	\$ 6,900	\$ 13,531

Working Capital

- *The amount locked up in Receivables, Inventory less Accounts Payable*
- How quickly will your customers pay you?
 - 3 days: 1/100 of sales are locked up in AR
 - 1 month: 1/12 of sales are locked up in AR
 - 45 days: 1/8 of sales are locked up in AR
- How long can you take to pay vendors?
- How quickly can you turn over inventory?
 - Lock as little cash up in inventory as possible

Model Working Capital Needs

- If you have 30 day terms with customers, simply delay revenue one month for cash flow

	January	February	March	April
Revenue	5,000	5,500	6,000	6,500
<i>Receivables</i>				
This mo unpaid	(5,000)	(5,500)	(6,000)	(6,500)
Last mo paid	-	5,000	5,500	6,000
Cash Inflows	-	5,000	5,500	6,000

Do this with costs too!

Fixed Assets

- How many/much do you need to run your business (servers, furniture, etc)?
- How long will these assets be useful?
- *Cost/Time = Depreciation*
- *Depreciation is a deduction for profit but not a cash expense*
- How will you finance the purchase?

Cash Flow Adjustments

	Low	Med	High
Revenue	\$ 75,000	\$ 100,000	\$ 125,000
Variable COGS (40%)	\$ 30,000	\$ 40,000	\$ 50,000
Semi-Variable COGS	\$ 8,000	\$ 10,000	\$ 12,000
Fixed COGS	\$ 10,000	\$ 10,000	\$ 10,000
Gross Margin	\$ 27,000	\$ 40,000	\$ 53,000
Variable Operating Exp.	\$ 9,000	\$ 12,000	\$ 15,000
Fixed Operating Exp.	\$ 20,000	\$ 20,000	\$ 20,000
Operating Income	\$ (2,000)	\$ 8,000	\$ 18,000
Income Taxes & Other	\$ 100	\$ 2,100	\$ 4,600
Net income	\$ (2,100)	\$ 5,900	\$ 13,400
Working Capital change	\$ 870	\$ 0	\$ (869)
Depreciation	\$ 1,000	\$ 1,000	\$ 1,000
Operating Cash Flow	\$ (230)	\$ 6,900	\$ 13,531

Checklist For The Model

- Revenues/Sales ($P \times Q$)
- Cost Of Goods Sold ($VC \times Q + FC$)
- Operating Expenses ($VC + FC$)
- Working capital needs
- Capital expenditures
- Financing activities



Don't forget semi-variable costs

Modeling Tips

- Break out your cash flow by month until you safely achieve break-even
- Growth and size matters
- Talk to your customer, suppliers, advertisers, bankers...
- Understand your model
- Run, run, run the numbers



Sensitivity

- Classic 3 scenarios
 - Pessimistic (low)
 - Most Likely (med)
 - Optimistic (high)
- Unorthodox scenarios (but very relevant)
 - Weather (Blizzard, Light Snow, Rain)
 - Cost of fuel ($< \$50/\text{bbl}$, $\$50-\$100/\text{bbl}$, $> \$100/\text{bbl}$)

The question is: What drives the difference?

Basis for a dashboard

- Once you have a model you can decide what you want to do and make a budget
- Important drivers can be focused on in a dashboard



Other Concepts

Breakeven
Bootstrapping
More on Variable vs. Fixed

Breakeven

Some Numbers Are Essential

- The model should address the break-even issues:
 - At what level of sales does the business begin to make a profit? *Breakeven*
 - When does cash flow turn positive? *Cash Flow Breakeven*

Breakeven Is In Between

	Low	Med	High
Revenue	\$ 75,000	\$ 100,000	\$ 125,000
Variable COGS (40%)	\$ 30,000	\$ 40,000	\$ 50,000
Semi-Variable COGS	\$ 8,000	\$ 10,000	\$ 12,000
Fixed COGS	\$ 10,000	\$ 10,000	\$ 10,000
Gross Margin	\$ 27,000	\$ 40,000	\$ 53,000
Variable Operating Exp.	\$ 9,000	\$ 12,000	\$ 15,000
Fixed Operating Exp.	\$ 20,000	\$ 20,000	\$ 20,000
Operating Income	\$ (2,000)	\$ 8,000	\$ 18,000
Income Taxes & Other	\$ 100	\$ 2,100	\$ 4,600
Net income	\$ (2,100)	\$ 5,900	\$ 13,400
Working Capital change	\$ 870	\$ 0	\$ (869)
Depreciation	\$ 1,000	\$ 1,000	\$ 1,000
Operating Cash Flow	\$ (230)	\$ 6,900	\$ 13,531

Model/Budget/Forecast

Breakeven	Cash Flow	Income
Revenue	\$ 75,528	\$ 81,459
Variable COGS (40%)	\$ 30,211	\$ 32,584
Semi-Variable COGS	\$ 8,000	\$ 9,000
Fixed COGS	\$ 10,000	\$ 10,000
Gross Margin	\$ 27,317	\$ 29,875
Variable Operating Exp.	\$ 9,063	\$ 9,775
Fixed Operating Exp.	\$ 20,000	\$ 20,000
Operating Income	\$ (1,747)	\$ 100
Income Taxes & Other	\$ 100	\$ 100
Net income	\$ (1,847)	\$ 0
Working Capital change	\$ 847	\$ 698
Depreciation	\$ 1,000	\$ 1,000
Operating Cash Flow	\$ 0	\$ 1,698

Bootstrapping

Bootstrapping is...

- The process of creating a business from scratch without any investment

The Old Way to start a business

Why is Bootstrapping Important?

- Start-up Investment is difficult to obtain
 - Easier to get for established businesses
- It keeps you *very* close to your customers
- It forces you to work closely with your vendors
- You minimize financial risk
- You keep more, or all, of your company
- It keeps you focused on what is important
- Your company will be much more resilient and resourceful in the long run

Be Innovative

- What are some creative ways that you can use to reduce the investment necessary for your business?
- And be a cheapskate

Key Bootstrapping Techniques

- Prepaid deposits from customers
 - Use customer's money to make/buy goods
- Vendor Credit Terms
 - Most start-ups pay C.O.D.
 - You could even negotiate extended terms
- Make ALL costs variable
- Strategic Alliance with another firm

How It Helps

- If you plan your business as a bootstrap, it will usually be a much better investment
- You may find you need less money to start
 - Or at least do it on a credit card
- You minimize most operating and financial risks in the business

More on Variable vs. Fixed

Variable vs. Fixed

- Lets Compare Variable vs. Fixed Expenses...first, say revenues are...

Scenario	Sales Revs
Optimistic	\$1.8M
Most Likely	1.2M
Pessimistic	0.6M

Variable

- If all expenses were variable

Scenario	Sales Revenue	Variable Expenses @ 90%	Profit @ 10%
Optimistic	\$1,800,000	\$1,620,000	\$180,000
Most Likely	1,200,000	1,080,000	120,000
Pessimistic	600,000	540,000	60,000

Fixed

- If all expenses are fixed:

Scenario	Sales Revenue	Fixed Expenses	Profit
Optimistic	\$1,800,000	\$1,080,000	\$720,000
Most Likely	1,200,000	1,080,000	120,000
Pessimistic	600,000	1,080,000	(480,000)

Variable vs. Fixed

- Size matters and so does scalability

Scenario	Sales Revenue	All-Variable Expenses Case	All-Fixed Expenses Case	Profit Difference
Optimistic	\$1,800,000	\$180,000	\$720,000	\$540,000
Most Likely	1,200,000	120,000	120,000	0
Pessimistic	600,000	60,000	(480,000)	(540,000)
