1. Harley Introduction, History & its "Mystique"[25; 80 mins total]

1. Intro

- Show Exh 5 (tatoo) and ask: *how many companies have their name imprinted on their customer's body*?
- *Who rides a motorcycle? What brand? Etc.*
- Some motorcycle history (From the Guggenheim "The Art of the Motorcycle")
  - The motorcycle was "invented" in 1885 - actually before the automobile. Gottlieb Daimler did not call his first experimental two-wheel vehicle a motorcycle; rather, for him it was a Reitwagen - a "riding vehicle."
  - True enough: there is much about motorcycles that reminds one of a horse. The rider sits on a motorcycle like a rider on a horse. Steering a motorcycle is not entirely unlike nudging the horse to the left or right.
  - Here, the human/machine interface finds one of its clearest expressions as rider/motorcycle.
  - Well into the Fifties, the motorcycle served as primary transportation for the broad segments of Europe's population that could not yet afford an automobile. Then, as prosperity flourished, the "fun" aspect of motorcycles became more and more important. Since the Sixties, the relation of the rider to his or her motorcycle has been defined largely by feelings of freedom, mobility and pleasure. The film Easy Rider portrays the carefree lifestyle of an entire generation, made mobile by the motorcycle.
- The point: motorcycles (in this country) are hardly transportation devices, rather they've become luxury hobby toys
  - HD therefore emphasizes freedom, personalization, and the "dream"
  - To appreciate this approach and to get some idea about this a-typical good, look at a video
    - "HD Corporate Overview Video Program" TRT 14:31min

2. *How successful has HD been in the past?*

- Interrupt video after 4min to discuss the Japanese threat and the Honda-Yamaha war in early 1980s
- See Exhibit 4: HD's market share fell in the early 80s from a high of 77% in the seventies to a low of 23% in 1983. *Why?*
  - A nice article to discuss here is Time Based Competition (George Stalk's articles on *Time—The next source of competitive advantage* and *The Dark Side of time*)
  - **The Variety War (Honda vs Yamaha) and its effects on Harley**

The now legendary battle between Honda and Yamaha in the early 1980's caused major problems for Harley. Although the battle was waged primarily between Honda and Yamaha, the large size and global nature of these companies meant that its effects were further reaching.
In the late 1970's, even though Honda was focusing its efforts on the automotive industry, it still held the enviable position of the world's largest motorcycle manufacturer. In 1981, Yamaha dared to challenge Honda's position by opening a huge new factory that would make it the largest manufacturer of motorcycles. In retaliation, Honda entered into all out war. They cut prices, flooded distribution channels and increased advertising expenditure. But its most significant and impressive feat was the rate at which they were designing and manufacturing new products. At the height of the battle, new products were being introduced on a weekly basis. In an 18 month period, Yamaha made 37 changes to a product line that originally included 60 models. By comparison Honda, who also began with 60 models, made 113 changes! These new product introductions devastated Yamaha and allowed Honda to reclaim its rightful crown as "World's largest motorcycle manufacturer". By the end of this war, Yamaha was left with over 12 months inventory in its showrooms. However, Yamaha was not the only company that was affected. This flooding of the market coincided with a worldwide demand for motorcycles which caused Harley volume during this period to drop from 50k units/yr to 28k.

- This shows the three available reactions to a strategic threat:
  - Fight back
  - Retreat ('margin retreat'; see later with option 1)
  - Adopt the attacker's operational system and practices
    - This is exactly what Harley did in a smart way not to go against its "American icon" by renaming most lean ops terminology

3. Intro summary:

- "HD must be defined as an emotion"
  - This all to set the stage: This is a manufacturing company with mystique and an unusual product approach
- *What is this company known for?*
  - HD is the archexample of "customer intimacy" in marketing courses.
  - What are its core competencies?
    - "styling, sound and feel"
- Let's investigate their strategy and what they actually emphasize and how

2. Harley-Davidson's Competitive Strategy + Current Problem [10]

1. *On what basis does HD strive to deliver superior corporate performance?*

- Check our four dimensions of competition:
  - Cost? Definitely not
    - Fact: Harley's are the most expensive bikes on the market
  - Time? Definitely not

- » Fact: Harley's have a waiting list of up-to 2 years
- – Variety/Customization: yes! HD introduced the 'custom' bike
- – Quality: of a particular kind
  - » HD is not known for engineering prowess (such as Mercedes) or service quality
  - » But it has an intangible quality (brand name) stronger than any company on the planet
  - » May want to talk a little about the different dimensions of Q

υ Which functions (mkt, finance, ops) support/enable this strategy most?

- – Marketing:
  - » Hardly any "formal" marketing:
    - Up to the time of the case (1996), HD only had a very insignificant marketing budget or staff. No formal advertising or anything like it
  - » Yet, it has become THE customer intimacy company
    - Talk about Sturgis, Daytona Beach etc.
- – Finance? Hard to say
  - » Like many expensive consumer companies, HD has its own Financial Services subsidiary to enable consumers to buy their expensive goods.
- – Operations/Manufacturing: this is Harley's capability
  - » Probably more in the design and "look & feel" than in the execution
  - » Although HD has been "progressive" in being an early adopter of JIT and Japanese production philosophies
    - But was that their wish?
    - Of were they forced to adopt these? This leads into the Honda-Yamaha variety was

2. *What is HD's market and who are its competitors?*

υ HD's market is "heavyweight" focusing on two segments of four segments:

- – Standard (basic transportation & cost)
- – Performance (aka, sport bikes: handling & speed)
- – Touring (long-distance: fairings, windshields and baggage)
  - » Pioneered by HD
- – Custom (styling & individual owner customization)
  - » HD is best known for creating the custom motorcycle

υ Competitors (Exh 2)

- – Until 1960s: HD had virtual monopoly on US heavyweight market
- – Since then:

- » Honda: the largest motorcycle producer in the world (50% share in units; $3.7B in 1995 vs. $1.3B for HD)
  - Gold Wing, Valkyrie, Shadow, and Magna
- » Yamaha
  - Royal Star, V-Max, Virago
- » Kawasaki
  - Vulcan
- » Suzuki
  - Intruder (1500, 1400, 800), Marauder and Savage
- » BMW: some history:
  - he Guggenheim exhibition takes place in what is truly a year to remember: in 1998, BMW is commemorating 75 years of BMW Motorcycles and 95 years Harley.
  - It was in 1923 when BMW began, with the boxer-engine R 32, producing motor vehicles. (Founded in 1916, the company had up to that time made aircraft engines; After the Treaty of Versailles on June 28, 1919 forbid the German manufacture of aeroplanes and aeroplane engines, this seemed to spell the end for BMW.; in 1928, BMW began making automobiles.)
  - From the perspective of 1998, BMW can look back on a dynamic evolution. As Europe's leading manufacturer, BMW delivered 54,014 motorcycles worldwide in 1997 and set its fifth straight sales record.
  - With more than 6,000 machines sold in the same year, the U.S. is BMW's largest motorcycle market.
  - BMW's newest models, the R 1200 C and K 1200 RS, once again set new milestones in motorcycle development.

3. *What is the difference between Harley and its main competitors?*

- υ Harley is the American icon
  - – This is a strength + brand loyalty that no competitor has
  - – But it’s focused strategy is also risky
- υ Main competitor Honda
  - – Is diversified, has deep pockets, is worldwide present
  - – Can weather recession storms
- υ Both Honda and BMW have the synergies of an amazing engineering staff working on automotive products (cars + motorcycles)
  - – Innovation is to be expected here, not from HD

4. *What is the current problem?*

- υ Constrained production capacity to meet all demand
  - – And *is this a profitable market segment?*

» You bet! It has the highest margins:

» Big bikes command a margin of $3-4K on a direct cost of $9-13K = 25-33% margin!

υ Results

– Positive: minimal inventory + everything's made-to-order

» Every motorcycle that Harley makes has already been sold; In essence, Harley produces make-to-order because each bike has a dealer tag on it + a customer that has ordered it

• No inventory costs related to storage, financing and other expenses

» Inventory costs for spare parts and accessories are also reduced through a new intranet system

• Connects its nearly 1,000 dealers worldwide to a central customer data base

– Waiting lists

» Given that Harley makes much of its capacity decisions based on customer wait time, one expects that it has some strategic bearing on the firm. While it may be damaging to have wait times over one year, having a 6 to 9 month wait may not be a bad thing. It retains the brand exclusivity and adds to the network of riders through its theme of "misery loves company."

• It sets up anticipation like "expecting your baby."

» Later in our financial analysis, one can argue that there exists a "backlog," which may be filled by excess capacity.

• However, one should not overestimate such backlogged demands to 2 years x 105,000 units/yr = 210K units

• Indeed, there are "waiting lists of up to 2 years depending on the model." Clearly, this is only for a few of the most popular lines (some Softail and Fatboys) in some areas of the country (the Chicago-Milwaukee corridor is one of Harley's strongest demand areas).

» BUT: how this impact dealer relationships? Harley must put dealers on allocation, and this gives them (perhaps an unintended) a "control" lever to allocate more bikes to "the good dealers" vs. others (who may price-gauge excessively or not give good customer service.)

– Less understanding of true demand

» Since Harley's sales are largely a function of the economy and not so much of their own doing, they must strike while the iron is hot. Not producing to the cycle may indeed be quite damaging since they will be unable to sell as much in the down times. If you take the oil tanker example, not taking advantages of the big hits would be commensurate with not being in business.

» Less exposed to demand fluctuations (you 'censor' the demand from the upside)

• Harley has been hurt before by the volatility of its market. To that extent, Harley is hedging against producing more.

– Learning curve & economies of scale

- » Not producing to capacity, Harley loses out on the learning curve advantages of producing more effectively at greater volumes.

– **Strategic:** Practically inviting

- » Customers to buy from competition
- » Entry in the niche segment of new competitors
  - Already new American manufacturers are coming…
- » By not producing to demand, there is a desire for more motorcycles than the current market can bear, but is this for motorcycles or just for Harleys?
  - If Harley allows entry and indeed, customers are just looking for Harley's, the entry may actually validate people holding out for Harleys.
  - Substitutes that mimic (which seems to be in vogue) Harleys are rampant and history has shown that Harley customers are largely inelastic to the Japanese copies.
  - Whether this will be the case for Harley with regard to the new American bikes (Polaris, Excelsior-Henderson) is yet to be seen.

υ *How serious is the threat of entry?* (see later)

υ → This case is about the interplay of capacity, increased demand and competition. The objective is to develop a strategy and facility plan to support increased demand for motorcycles

5. *So what do you recommend HD do?*

υ Here I would take a vote among the 5 options:

– 1. Increase prices

– 2. Change mix (delete Sportser)

– 3. Outsource

– 4. Brownfields expansion

– 5. Greenfields expansion

υ *How should we make that decision?*

– The case actually stipulates "four primary success criteria" against which any decision must be evaluated and measured.

– These criteria suggest a two-pronged approach:

- » 1. analysis of *strategic fit* of options: mostly qualitative
- » 2. analysis of cost and risk: a financial evaluation

υ Let's adopt that two-pronged approach

3. Analysis Part I: Evaluate *Strategic Fit* of the Alternative Options [25]

We have two basic options to deal with excess demand: (1) keep output and price higher to equate demand w/ supply or (2) increase output. (See Exhibit 6)

First, let's understand the pro's and con's of the options and then measure them against the four primary success criteria

1. Maintain Capacity: Increase Price

- Pro's
  - Very easy, no investment required
  - Enhances exclusivity
- Con's
  - Alienate customers: Loyal customers disgruntled: how much are they willing to pay (the blue-collar segment is a loyal base…)
  - There already is "price gauging" by dealers
  - **Management problem**: increasing price provides a "cushion" that eliminates drive for improvement within the organization.
  - **Strategic question**: do we want to be a bike for an exclusive small niche or for the people?
    - *Margin Retreat:* C.f. Porsche pursued this raising prices strategy in the past and got hit very hard. In the end its sales dropped so much (from tens of thousands for the 911 to almost only a thousand) that it could no longer pick up fixed costs. Recently, they have widened their appeal ($45K Boxter < $80 Carrera 911)
  - **Risk**: what if the economy slows down?
    - Will the RUBs (rich urban riders) who show off their polished bikes with only a few miles on the odometer at Starbucks on Rush Street remain loyal buyers or is it just a fad?
      - But have you heard of a fad that is 95 years old?
  - Potentially shrink market
  - Does not solve root problem
- What analysis would you make?
  - Estimate price elasticities and cross-elasticities with other brands
- Tool: use economics 101: how does HD sets its output and prices?
  - Demand curve is: $p = a - bq = 17{,}690 - 42\,q$
  - Monopolist: MR = MC so that optimal output $q = (a\text{-MC})/2b$
    - What about MC? Take average direct cost: about $9000
    - Hence, $q^* = 103$K, pretty much what HD does!, but $p^* = 13364$
    - This would imply a 6% price increase to clear the market.
  - This analysis can be used for:
  - 1. estimate increase in optimal capacity when demand increases

- » e.g., say demand increases next year by 15%; then demand curve shifts out with intercept now 17690*1.15=20343
- » Corresponding output is 134K (= +30%) and price is $14,627 (= + 9.5%)

– 2. shows value of brand loyalty and differentiation to HD

- » If not, it would be an oligopolist, as Honda is, and it would share the market with *n* main competitors
- » Then Q_oligopoly = $(a - MC)/(n+1)b$.
  - Say $n = 5$, then Q_oli = Q_mono/3 = 34K so that Q = 5x34 = 170K; much larger than monopoly output.
  - Clearly, this leads to a lower price: $p = a - b$ (5q_oli) = 17,690 – 42 x5x34 = 17,690 – 7140 = $10,550
  - Note: this is exactly where Honda and other competitors are!
- » This shows that we will have to be careful in keeping the differentiation to HD; this will affect the outsourcing (option 3)

2. Maintain Capacity: Change Product Mix and Eliminate Sportser

υ Pro's

– Sportser is lowest margin bike + demand for big bikes is sufficiently large to pick up the additional capacity freed up by Sportser

– Harley is best know for big bikes, not for this 'cheap' harley

– Minimal CapEx for changeover of facilities: $20M

υ Con's

– **Strategic Question**: Sportser serves as the entry level motorcycle.

- » Traditionally Harley-Davidson was one of the first and only manufacturers to produce such large motorcycles, and its management was not worried about losing the company's virtual monopoly. They thought it was only natural for people to "graduate" to a Harley-Davidson once they had learned on a smaller Japanese bike.
- » Do we want to be entirely dependent on competitors to bring new customers first to small bikes? We know that it is way easier to keep a current customer than to steal one from the competition.
- » Removing Sportsers may negatively affect sales of big bikes in the long term

– Little asides:

- » Willie G. Davidson, grandson and main designer, loves the Sportser
- » HD already faces a graying customer base (their average customer age has been increasing by about 1 year each of the last 5-10 years!) [This actually mirrors the overall graying of the population.]

– Yes, you could design a cheap big bike as entry, but that still limits your market segment demographically: not everyone *can* ride a big bike

- Threatens strategic positioning by reducing variety
- Reduces diversification and increases vulnerability to exogenous shocks to one product class

υ What analysis would you make?

3. Increase Capacity: Outsource non-core activities + optimize current facilities

υ Pro's

From day one Harley-Davidson had produced nearly 85% of its parts within Harley-Davidson Motor Company, and given that space was at a premium, having more suppliers would certainly seem to be a natural option.

- Increase cap at 10% annually to a max of 150K bikes per year
- Cheap: $10M/year
- Core competency: They've done this before and have the expertise
- Fast option for cap increase
- Low risk
  - » If economy sours, one can easily 'retreat' and is not stuck with high fixed costs

υ Con's

- "Made in Japan" issue
  - » Due to its strong nationalistic roots, Harley has chosen to outsource very few of its components and as a result produces many of its parts in-house. Even at times when the company's livelihood was threatened, Harley refused offers from both Honda and Yamaha to provide it with their advanced V-twin engines. After all, how could Harley-Davidson motorcycles, one of America's greatest symbols, bear the stamp "made in Japan?" It was bad enough that the Japanese could produce cheaper and faster motorcycles as it was.
  - » do we want parts in our Harley that are also found in the Japanese bikes?
    - Fact: in contrast to automobile drivers, most bikers *know* all technology. You cannot "hide" some outsourced parts.
- Reliability/quality issues surrounding suppliers
  - » Is this really a problem? There exist plenty of capable suppliers, mostly automotive…
  - » However, volume is the problem
    - Yes, there are many suppliers for shocks and chains *if* you want 300,000 / year.
    - HD would ask around 30-40,000/year: too small for automotive, yet too large for industrial supplier
  - » And quality:
    - Paint: HD uses quintuple grade paint. Few paint shops can mirror this (it used almost a clean-room environment). For reference: Lexus and M-Benz use second grade paint.

- Chrome plating: HD uses jewelry quality chrome plating of engine covers → no suppliers to be found that can do it in volume (yes, there are some hand craft shops…)

– But: you make outsiders even more capable

» Now there are already a lot of 'aftermarket' Harley shops + they can actually produce a complete Harley

» HD is currently countering that strategy and started to offer a lot of after market additions in-house

– Additional agency costs

– Only 150K, no allowance for future expansion

4. Increase Capacity: Brownfields expansion of current facilities

υ Pro's

– Increase capacity to double in two years

υ Con's

– Medium to Expensive: $100M spread over next three years

» This may lead to a discussion of whether external financing (debt) is needed or not. HD is very risk-averse and has *no* debt.

» Actually, when looking at the cash flow statement in 1995, Harley generated $171M in cash in one year, all of which went into new capital expenditures. Hence, $33M per year can *easily* be internally financed.

– Environmental liabilities

» Digging next to an old facility is risky: you never know what you may find…

» Possibly the greatest concern was the potential environmental liabilities. York was formerly a U.S Navy facility and the Capitol Drive plant in Milwaukee was an old war plant, and adjoining it was an old railroad plant. The potential environmental liabilities that could be exposed during the expansion of the facilities at either of these locations were difficult to quantify, yet they could have significant financial implications.

– Disruption of current production during manufacturing

– Largest problem: risk

» Do you want to put your eggs into one basket and make your entire operation dependent on 1 facility?

» What if

- Tornado hits the plant
- Economy goes down → you impact entire community
- Strike → labor & bargaining power
- Terrorist attack (after Sep 11, this is much more appreciated…)

5. Increase Capacity: Greenfields expansion

- Pro's:
  - Very important is that a new facility can be built *without* disrupting current production.
  - It means a new start, and, what most students overlook, it has substantial *option value:*
    - » option to be efficient, reorganize
    - » opportunity to gain greater manufacturing efficiencies in new plant design with new equipment
    - » exploit lower labor costs? (Unions + wages were strong in the upper MidWest)
    - » can use more outsourcing (given that you start from scratch)
    - » one can build a large plant, but can gradually increase capacity
    - » has the option for later capacity increase when demand need is clearer
    - » **most importantly**, one can build ***smart capacity****:* build a large facility shell, but add FC over time (disaster scenario) so we can accommodate **new product introductions** over time (**Buell**)
- Con's
  - Expensive: $180M spread over three years
    - » However, same argument as before: can easily be internally financed. No change is Debt/Equity structure needed.
  - Inexperience: current HD management has never build and commissioned new plants
- More Questions:
  - Plant location: where build the new plant?
    - » For risk minimization: location at least 100 miles away
    - » For union: *idem*
    - » For cost: go South
    - » State incentives, airport direct flight connections, standard of living, quality of schools, etc.
  - Plant loading and type: what do you put in it?
    - » flexible or big/small bike only
      - Recall: you don't want to disrupt production of big bikes (highest margin). Leave those where they are (in York) and move Sportster to new facility.
    - » integrated (machining, component and FA) or focused on one function?
      - KC is mostly assembly; has only 6 machining cells and uses more outsourcing.

6. *Summary*: Strategic Fit with four primary criteria:

- Let's now summarize against the three primary criteria
  - The fourth requires analysis Part II

	Price increase	Mix change	Outsource	Brown field	Green field
1. Speed of increasing volume of big bikes	*unaffected*	++	+	*Depends on what remains at*	*Old plant. If only big bikes: ++*
2. Maintain good labor relationships	-	*unaffected*	--	*?*	*+, if far away*
3. Maintain focus on core comp. & customer needs	*- impact lower end*	*unaffected*	-	+	+
Foster design-mfg relationships	*0*	*- reduce capabilities*	-	++	*Depends on location*
4. Cost control					
Risk control					

4. Analysis Part II: Cost and Risk Assessment of Options [15]

1. Approach

- Do an NPV analysis of the five options
- Some operational elements will be highlighted

2. Order of magnitude

- Before starting, it's good to have some idea about what order of magnitude numbers to expect
- Cash Flows (Exh 1 in 1995 Annual Report—as a model of cash flows after action):
  - `Net cash provided by operating activities: $171`
- This comes from two plants mainly, thus we get about $85M per plant.
  - Without discounting, that `is over 10 years $1B.`
  - Say we discount at 10%, the NPV of an annuity would be $85M/*r* = $850M.
  - Thus, expect NPVs to be on the order of $1B.
- Note:

- Include prices
- Operations: build in capacity constraints per model to build up
  - Demand does not equal sales here!
    - The role of capacity as “filter”
    - Output = min(demand, capacity)
  - The complicating effect of product mix on revenue and COGS
- Finance: do expected NPV analysis
  - Include tax shields from depreciation
  - See in section 6 below: one can use this case for a review of NPV analysis

5. Spreadsheet calculations
   - Show spreadsheet Harley NPV.xls

5. What did Harley do?

1. They never considered option 1 (raising prices).
   - Their corporate policy is not to raise prices faster than inflation

2. Option 2 was insufficient and does not meet the four strategic success criteria in the case

3. They went for a new plant in Kansas City
   - υ The NPV analysis confirms that Brown and Greenfields are to be preferred
   - υ Environmental concerns (York is an old Navy yard) for new buildings + other benefits listed above made them to choose a new greenfields plant.

4. In fact, HD went for a combination of option 3, 4 and 5:
   - υ the new Kansas City plant actually only has 6 machining cells,
   - υ and "some other parts fell out somewhere in between Wisconsin and KC", meaning that substantially more parts/machining was outsourced
   - υ engine mfg was expanded in Milwaukee and supplies KC
   - υ taking Sportser out of York increased available capacity for big bikes at York

5. Recent (2003):
   - υ Unbelievably, but market demand has kept increasing at more than 20% per year, even through the recession. This year, Harley will be selling almost 300,000 bikes!
   - υ They have moved Dyna line out of York to Kansas city.
   - υ They have expanded an entire facility at York focused on Softail; the old plant does the other big bike line
   - υ They have started Buell performance bike (about 8-9K units per year) as a "strategic decision": it's not making real money, but does ok. Mostly, it allows them to experiement with global sourcing, new technologies, other ideas (e.g., plastic gas tanks) that would not be possible for Harley brand.

6. Harley's risks exposure + new entry: *What are its major risks and how incorporate them into the decision process?* [10]

1. Demand uncertainty: impacts quantity, mix and thus revenues and costs.
   - υ *What type of product is a motorcycle?*
     - – Luxury, not necessity
     - – → very cyclical and dependent on the economy and consumer confidence
       - » demand can disappear when the economy turns sour
   - υ → Major risk is whether the good times and rising demand trend will continue = HD is especially sensitive to macro economic risks (interest rates etc.)
     - – In exhibit 6: the demand curve is moving outward, but where will it end?

2. *How does Harley incorporate this risk into its decision making policies? How does its history affect the decision process, if at all?* "Disaster Scenario"

- Due to a combination of Harley's conservative management style and historical reasons to be wary of huge swings in market demand, Harley adopted a fairly aggressive stance on being prepared for disaster.
  - Cyclicality of demand had burned the company in the past with demand dropping from 400k units to 150k units in only 18 months.
- In order to be prepared for such a scenario, Harley requires that each investment project can weather a "disaster scenario"
  - "disaster scenario": each investment should be able to survive a 'disaster' of a 30% decrease in demand; i.e., it should have a breakeven point at less than 70% of current demand
  - In actuality, Harley has been able to surpass this limit and operates at over a 50% breakeven percentage.

3. Competition + new Threat + capacity as strategic deterrent

- Until now Harley customers have remained loyal and have not switched to cheaper Japanese knock-off bikes because
  - Brand name
  - Authenticity and American icon
- Now
  - Japanese are getting better
  - Competition brings their own visions of a cruiser and no longer only imitation
  - New American manufacturers are on the horizon
    - » Polaris with the Victory
    - » Excelsior-Henderson
- *What are the barriers to entry?* Very small:
  - Technology is not too hard (there are many little custom shops out there making motorcycles from scratch)
  - Not highly capital intensive
  - Several potential competitors have distribution channels
  - Establishing brand equity is probably the hardest barrier
    - » But even that is not too hard among these motorcyclists who are typically "motor heads" and interested in new technology/models
    - » E.g., Buell is doing fairly well
- *How serious is the threat of new entry?*

- EH: what capabilities does it have?
  - » is completely new startup and has never produced anything. It does not have any dealer network
  - » not that big a threat
- Polaris, on the other hand, has a long experience in designing, manufacturing and marketing/sales/servicing of recreational vehicles
  - » Very serious threat
  - » Although it will remain a second class bike to Harley
  - » *But* HD takes them and their offering of "sports bike handling and performance with traditional cruiser looks" as serious
    - They just released a better and newer engine
- BMW: is moving into the cruisers with its unique view
- Honda's

υ Capacity as strategic deterrent

- *Is Harley's capacity increase a strategic move to deter entry?*
- New plant has option to increase volume/change mix!

4. Production uncertainty

υ yields (rework and scrap)

υ component availability due to single or limited sources of supply

υ delays in the development, introduction and production of new products

υ delays or interruptions in the production of existing products

υ Timing of orders from and shipment of products to major customers

7. General Theory: Investment under Uncertainty *primer* [fill-up]

1. Modeling Investment

υ Definition: Investment is the act of incurring an immediate cost in the expectation of future rewards

υ DCF

- Valuing future cash flows is what corporate finance is all about. We will discuss some of the practicalities of identifying and quantifying the future rewards
- "The most important problem with DCF is correctly identifying cash flow changes." (Primrose & Leonard)

2. Traditional NPV analysis

υ 1. Estimate investment costs

- cost of new equipment (purchase + installment)

υ 2. Estimate operating savings

- labor
- materials/scrap
- energy, inventory…

υ 3. Estimate terminal value

- salvage value of the equipment

υ 4. Get company-established 'hurdle-rate'

υ 5. Compute NPB (and rank project options)

3. Important elements to consider

υ 1. The alternative is not always "status-quo" → **moving baseline**

- traditional NPV assumes that if we don't invest, the current state of affairs will remain in the future: same revenues (market share & price) and same costs (capacity, productivity, …) as today.
- → We should always model option 0 = the baseline and do at least 2 NPV analyses ['don't do anything' and 'invest']

υ 2. There is **uncertainty** over future cash flows. The environment changes:

- demand can change (market taste…)
- supply can change (new technologies, new competitors)
- dependencies among investment projects ("spill-over effects")

υ 3. Not all cash flows have the same uncertainty or "risk" → **risk categories**

- different CF components should be discounted using different discount rates
  - » usually a company will categorize projects into "risk buckets"
    - A = reasonably certain projects: r = risk-free + 2.5%
    - B = next risk class: r = risk-free + 7.5%
    - C = risk-free + 12.5%
    - D = risk-free + 17.5%
- Don't forget to include the one-time ITC (investment tax credit)
- Harley: uncertainty is mainly in the supply and demand, not in capital markets

υ 4. One should consider the option value of delaying the investment ("real option")

- thus, the rule should be: invest if NPV(invest now) > option value of delaying.

υ 5. There are many indirect and other "not-easily quantified" costs and benefits: One should estimate these because "setting them zero is being precisely wrong versus

- indirect: inventory ↓ = freed-up cash; floor space ↓; quality ↑
- intangible:
  - » response time ↓ = strategic mkt advantage
  - » flexibility ↑
  - » learning (strategic)
    - gain experience with new technology
    - test market with new products
  - » competitive
    - be ready to compete down the line

8. Related Issues

1. Leverage & Debt Structure

- Harley has no debt! Not rational, but this is explained historically
  - "Each generation, HD tries to go broke"
  - And when things go sour, banks rapidly become "partners" and we've had some bad experiences with that.
- Yet it increases the cost-of-capital: it's all equity that expects a high return

2. Unions

- Harley had made it a policy to work very closely with its Unions, since it realized that the full participation of hourly employees and their elected representatives was critical to the company's success. Harley now has developed a participative management style in which the management and union enter into a joint process to decide the company's future. Two union leaders taking senior positions within the company evidence the degree to which this relationship has been taken and further shows the power of the unions.
- Anecdote: When the Kansas City Plant was first considered, the intent was to produce a dedicated Sportster plant, which would produce its own engines and then also assemble them. In this way they could benefit from reduced transportation and transaction costs. The Unions, however, were up in arms that they were going to be losing part of their business, so they persuaded Harley to give them a chance to meet the Kansas offer. Both plants - Capital Drive and York - entered bids. Capital Drive won the right to build Sportster engines, and although York did not win the bid, they still managed to reduce their costs significantly as a result of altering operational methods in an attempt to win. In the long run, allowing the Unions a chance to prove themselves did nothing but help labor relations. In retrospect, however, and without the issues surrounding the Unions, Jim McCaslin thought that both engine manufacturing and assembly for the Sportster should have been moved to Kansas City.

3. Dealers

- Another group that was very important to Harley's success was its dealer network. Since Harley devoted very little of its budget to marketing and even less to advertising, the dealer network became its main channel to market. The symbiotic relationship that developed proved critical to Harley's survival during troubled times, whether it was by buying excess inventory to improve Harley's cashflow, or by repairing poor quality bikes which they had received in order to make them fit for sale, the dealers were Harley's most loyal customers, and also their best line of defense over the years.
  - They provided Harley with much needed cashflow.
  - Engage in price gauging.
  - Reluctant to change their selling practices/showrooms in the early 80's.
  - Difficult to work with.
  - Strength of the dealer network means it can rally support from other dealers across the country.
  - Like doing business with a member of the family. Hard to separate business from family matters.

4. Plant Location Study

- I can expand here. Harley used the consulting firm of J.M. Mullis, Inc.