

GOLF BALL REPLENISHERS TECHNOLOGY

G. Page West III

Wayne Calloway School of Business and Accountancy

Wake Forest University

Winston Salem, NC 27109-7285

(336) 758-4260

westgp@wfu.edu

GOLF BALL REPLENISHERS TECHNOLOGY

Teaching Case

ACADEMIC ABSTRACT

This startup company case presents the opportunity to explore entrepreneurial finance mechanics from the most basic to more advanced levels, while considering issues of valuation and perceived risk. Data provided in the case enables the instructor to go deeper with more involved analyses, including the development of a financial model, the generation of financial statements, and exploring the discounted cash flow valuation model.

EXECUTIVE SUMMARY

Learning about entrepreneurship and the creation of business plans requires strong working knowledge of basic concepts in entrepreneurial finance. This type of working knowledge can only be developed through hands-on practice.

This case is a short vignette about a startup company in the golf equipment category. The founders of the company identified a unique opportunity to mechanically collect used golf balls from the water hazards on public golf courses, clean and repackage the balls, and sell them through sporting goods retail outlets. The founders have invented equipment that retrieves the balls, and they have applied for patents on the machinery. They have developed preliminary financial projections, but they need startup capital and have questions about how much of the company to sell in their first round of fundraising.

The case enables instructors to explore foundational entrepreneurial finance mechanics through hands on practice with problems faced by the founders as they seek their first round of funding and consider how to grow the company. The teaching note that accompanies the case highlights the discussion possibilities about perceived uncertainty that factor into a number of entrepreneurial finance variables. Stressing the need to resolve perceived uncertainties in the new venture enables students to draw connections between excellence in marketing research and the entrepreneurial finance process.

INTRODUCTION

The founders of Golf Ball Replenishers Technology (GBRT) have discovered what they believe is an untapped market in the U.S. with excellent growth potential. They have developed a system that allows them to recover golf balls from the bottom of ponds and streams on golf courses, clean the balls, and re-sell them through pro shops and sporting goods stores. Many balls are as good as new after cleaning.

Golf Industry

By the year 2000 United States citizens played 586 million rounds of golf on just over 17000 public and private golf courses. Each year about 2 million new golfers began playing the sport, with a slightly smaller number giving it up, resulting in a net growth of 200,000 to 400,000 golfers per year. Once considered a sport for older, affluent men, the game has attracted more women and younger golfers through much of the 1980s and 1990s. Worldwide trends in golf are similar to those in the U.S. There are now over 32000 courses worldwide, with new courses continuing to open up (Exhibit A). Europe accounts for 6100 golf courses, and participation has grown to over 3 million golfers.

In the U.S. golf courses generally fall into one of four categories:

- **Municipal and lower-end public courses (7000 courses).** These represent the backbone of golf in the U.S. Charging \$20 - \$50 per round, these courses tend to attract all levels of golfers, but especially beginners and those with high handicaps. They also attract golfers in large numbers, each course averaging over 40,000 rounds per course per year and having to turn away golfers during periods of peak demand. As a rule, these courses tend to be less well maintained and less challenging than other types of courses.
- **High-end public courses (4000 courses).** Higher-end public course charge between \$50 and \$100 per round, offer more of a challenge than municipal courses, and attract more avid and accomplished golfers. They also experience heavy use during peak playing periods, with each supporting more than 30,000 rounds per year. Many avid golfers play a small set of high-end public courses regularly or semi-regularly.
- **Resort courses (2000 courses).** Resort courses, while open to the public, often give a preference to those staying at the resort. They tend to be of high quality, with daily greens fees in the \$100 to \$200 range. Many of the golfers who play these courses do so only while on holiday or while attending a conference at the resort.
- **Private courses (4000 courses).** Private course represent the aspiration of many golfers. The quality of these courses tends to be very high, and members are charged accordingly. They typical initiation fee might be \$20,000 to \$100,000, and the typical annual membership fee might be \$5,000 to \$10,000 per year. Such a course could have 300 to 500 members and support anywhere from 20,000 to 25,000 rounds per year by members and their guests.

New courses are being built around the U.S. at a rate of 300 to 400 per year. The vast majority are higher-end public, resort, and private courses. By one estimate, the cost to build a typical course ranges from \$8 million to over \$15 million, depending on the type of course (see Exhibit B). Municipal courses can generate revenues of about \$2 million per year but incur expenses of nearly \$1.5 million per year, for a net income of less than \$500,000. Exhibit C provides the economics for a typical municipal course. Exhibit D shows that 50% of golf courses in the United States earn profits at a rate 20% of revenue or less.

Related to the continued strong growth of golf courses and new golfers playing the game, the golf merchandise industry continues to increase at the same time it is becoming significantly more competitive among manufacturers and various providers. In recent years consumers have spent in excess of \$3.5 billion on golf merchandise of all varieties, with nearly \$900 million of that (26%) on golf balls alone. Exhibit E shows the best selling brands of golf balls in 2002. The average price for a 12-pack sleeve of golf balls in 2002 was \$19.13. This merchandise is purchased in a variety of different locations (exhibit F). Competitors in the golf and sporting goods merchandise industry are varied, including divisions within large corporations as well as smaller independent public companies (Exhibit G).

GBRT, Inc.

GBRT was founded by Alex Hamilton and Jean Adnil in North Carolina in the U.S. The two had both taken up recreational golf in the early 1990s. After having participated in a number of recreational sports over the years, they were surprised by the relatively expensive nature of playing golf. The entry price was steep because of the cost of a reasonably good set of golf clubs, as well as lessons to learn how to improve their games. They also discovered that the fees to play a full round – particularly on weekends – had been increasing consistently over the years. Most importantly, they had each become frustrated with the number of balls they lost in a normal round of golf, and the consequent need to re-supply their golf bags with more balls on a continuous basis.

Occasionally they noticed people who informally retrieved lost balls from the edges of water hazards. However, when they talked with groundskeepers and maintenance staff who worked at golf courses, they learned that there was no systematic approach for getting balls out of streams and ponds. Moreover, when golf courses did address the problem of balls in their water hazards from a maintenance standpoint, they viewed the work done as an extraordinary expense to the course. It also interrupted their normal routines for course maintenance.

While walking up the 15th fairway of the championship course at Tanglewood Park in North Carolina – a fairway lined by a long pond all the way down its left side – Hamilton and Adnil realized there might be a commercial opportunity for a ball retrieval business. Research on the "lost ball" problem revealed that an average round of golf on a low end public course results in $\frac{3}{4}$ lost balls in water hazards, in other words for every 4 rounds played there are 3 golf balls lost. For high end public courses, where the average golfer is a bit better and has a lower handicap, an average of $\frac{1}{2}$ ball is lost each round. After conducting further marketing research on the industry and working with an acquaintance who was mechanically inclined, GBRT was born in 2001.

Equipment and Operations

GBRT recognizes that there are other competitors performing a similar service. These competitors usually send individuals into water hazards (wading or scuba diving) to retrieve lost balls manually. A few of the retrieved balls, which are never cleaned or sorted, are given to the golf courses to be used as driving range practice balls; the rest are sold in bulk quantities to discount stores, where they are placed in barrels and sold "as is." However, GBRT invented special ball collection machinery which does not rely upon the laborious process of individuals getting into the water. With a system of hoses and pumps the balls are retrieved mechanically, and the machine uses water from the hazard to clean the balls as they are retrieved. Their equipment thus reduces the collection and cleaning costs and provides a higher quality refurbished ball. Using this technology GBRT believes they will be able to pay fees to golf courses for "recovery rights," and will also be able to sell a refurbished product to retailers who can price them higher than other recovered balls. GBRT has applied for - but has not yet received - a patent on its invention.

Golf courses normally clean out their water hazards twice each year. GBRT estimates that the setup, retrieval, and clean up time for each course takes one week. Not all of the balls retrieved will be usable; they estimate they will discard 20% of balls because of cuts, scrapes, and age. The remaining balls will be sorted according to brand/style, packaged in 12-ball sleeves; GBRT estimates they will offer each sleeve for sale to golf shops at a price of \$15.00.

Preliminary Startup Plan

The costs to start up include continued R&D on the equipment & patent-related expenses, hiring management and sales, designing and procuring packaging material, advance payments to secure contracts with golf courses, and other working capital needed for expansion. To build the first machine by itself is expected to cost approximately \$500,000. Because the equipment will be operated vigorously year-round and in a water-filled environment, its useful life is estimated to be about 5-6 years.

The founders assembled financial projections for the first 5 years of operations. They anticipate starting up in the southeastern U.S., where there is a high density of golf courses and the extensive use of water hazards. The estimate that 75% of their business will come from low end public courses, and 25% will come from high end public courses. This is because preliminary conversations with resort and private course managers showed far less interest in their concept. See Exhibit H for preliminary financial projections and other information. The founders need \$2 million to cover all startup costs, and have put in \$1 million themselves.

Initial Financing Questions

A potential \$1 million investor is interested. The investor wants a significant annual return on her investment, because of the perceived risk in starting up this new venture, and wants to exit after the fifth year.

Question 1

- a) What are the assumptions that critically affect the financing decision here?
- b) What percentage of the firm should be given in order to provide the investor with a 50% compounded annual return on her investment?
- c) Assuming the investor would require a 50% return, what "pre-money" and "post-money" valuation would this deal place on the company?
- d) Prior to any deal the founders issued 500,000 shares to themselves. How many shares should they issue to the investor and at what price?

Question 2

The founders of GBRT anticipate that they will begin to pay dividends to shareholders when the company becomes profitable, at a rate of 25% of profits earned. Assuming GBRT can raise no more money and take on no debt after Year 5, and that it does not restructure its balance sheet, at what rate can the company continue to fund growth through internal cash flow?

New Information

There are new developments that affect the initial investment. First, the founders have learned that the equipment GBRT has designed might be easily adapted for use in other businesses, such as commercial scale cleaning in parts manufacturing operations and commercial dishwashing in large foodservice organizations. Second, the U. S. Patent Office has issued a preliminary finding that the machine design does not infringe on other patents, and has begun a period of public comment on the founders' application. It occurs to the founders that both developments, if they pan out, suggest that there is far less risk in investing in this new business.

Question 3

- a) How does this new information affect the proposed investment scenario presented above?
- b) What percentage of the firm should be given away to secure an investment in the company's stock?
- c) What "pre-money" and "post-money" valuation would this deal place on the company?
- d) Prior to any deal the founders have issued 500,000 shares to themselves. How many shares should they issue to the investor and at what price?

Expansion Plans

None of the new developments mentioned in question 3 panned out as hoped for. But the founders have nevertheless developed a plan that involves a significant expansion of their retrieval operations and sales to golf merchandise outlets to a regional and then national basis. As they expand, they will need to continue building new equipment for their operations. By the fifth year of operations they estimate that they will have 42 machines in operation, which

represents an expenditure of over \$18 million. A summary of this aggressive growth plan appears in Exhibit I.

The founders anticipate that they will be able to secure bank loans for a portion of this investment, but estimate that they will now need to raise a total of \$4.5 million in equity investment for this plan. The original \$1 million investor still wants her 50% compounded annual return.

Question 4

Should the founders raise the entire \$4.5 million at once, or should they raise the first \$1 million and then secure a second round of funding of \$3.5 million at the beginning of Year 3? If they do this in two rounds, they believe that the remaining \$3.5 million would come from a venture capital firm that typically requires a 40% compounded annual return. Compare the effects of these choices on:

- a) the percentage of company given away
- b) post-money valuation of the company
- c) number of shares issued and prices at which they are issued at each stage

Management Stock Options

The founders believe that 5% of the outstanding equity should be reserved for management options, to be awarded for future performance. These options would be separately issued at a later time, probably in year 5.

Question 5

Assuming the founders adopt the 2-stage investment plan, what effect does this have on the ownership of the company and the returns to each investor?

Harvesting the Business

The initial investor who plans to put up \$1 million is interested in investing under the assumption that there will be some sort of "liquidation" event in the foreseeable future. Furthermore, significant financial rewards to the founders will only accrue at that time.

Question 6

How will the investors get their money back? What harvest options are available? What is the most likely scenario, and why?

EXHIBIT A
Worldwide distribution of golf courses

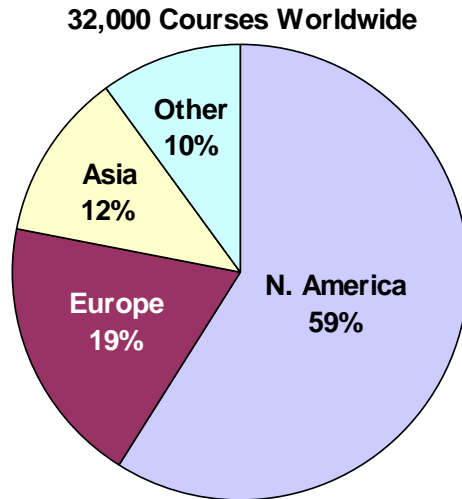


EXHIBIT B
Typical Golf Course development Costs (000's)

Cost Component	Municipal Course	High-End Public Course	Resort Course	Private Course
Land	\$3,000	\$3,000	\$4,000	\$4,000
Design	750	900	1,100	1,400
Course construction	2,000	3,000	4,000	4,000
Clubhouse construction	600	800	1,000	3,500
Maintenance facilities	300	350	350	400
Maintenance equipment	<u>750</u>	<u>950</u>	<u>1,050</u>	<u>1,200</u>
Total	\$7,400	\$9,000	\$11,500	\$14,500

Sources: McElyea & Krekorian, 1996, "How to Pencil Out Your Golf Development," Economics Research Associates, Washington DC. Pasmant, 2004, "West Covina Golf Course Feasibility and Financing," City of West Covina, CA.

EXHIBIT C

Revenues and Expenses for a Municipal Golf Course (000's)

Operating Revenues	
Greens fees	\$1,200
Golf cart rentals	240
Driving range fees	150
Pro shop merchandise (net of costs)	180
Food & beverage (net of costs)	<u>230</u>
Total	\$2,000
Operating Expenses	
Course operations / maintenance	\$ 500
Golf operations	215
Food and beverage operations	275
General & administrative	<u>325</u>
Total	\$1,315
Operating Income	\$ 685
Interest on Indebtedness	<u>333</u>
Net Income	\$ 352

Source: McElyea & Krekorian, 1996, "How to Pencil Out Your Golf Development," Economics Research Associates, Washington DC.

EXHIBIT D

Distribution of U.S. golf courses by profitability

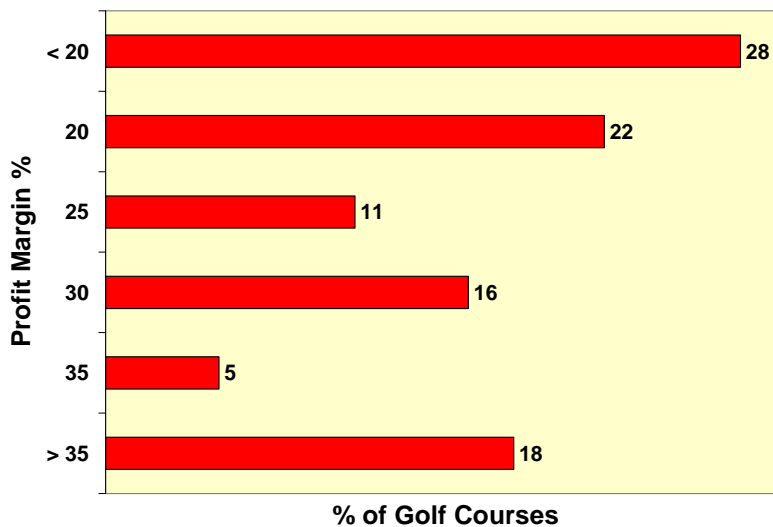


EXHIBIT E
Golf Ball Market Shares, 2002

Brand	Market Share %
Callaway	1.4
Maxfli	10.6
Nike	5.5
Pinnacle	5.2
Spalding Top Flight	21.4
Titleist	40.4
Wilson	5.4
All other brands	10.1

Source: Sport Business Research Network

EXHIBIT F
Sources of Golf Merchandise Sales

	Average Margin %	% of Unit Sales	% of Dollar Sales
Course-based pro shops	50%	16.6	21.8
Golf specialty stores	35%	15.3	16.6
Golf discount stores	25%	35.3	28.0
Mass merchants (Wal-Mart)	20%	4.7	4.1
Sporting good stores	22%	25.2	26.8
Internet	15%	0.7	0.6

Source: Sport Business Research Network

EXHIBIT G
Golf and Sporting Goods Companies Financial Data

Stock Ticker	Company	\$ Revenue (000,000)	\$ Market Capitalization (000,000)	Price:Earnings Ratio	Market:Book Ratio
ADGO	Adam's Golf	68	33	10.2	0.81
AMB	American Brands	736	4,970	18.9	2.69
ALDA	Aldila	75	86	6.3	1.78
ASHW	Ashworth	215	99	31.7	0.86
ELY	Callaway	1,020	971	41.2	1.58
GOLF	Golfsmith	346	122	n/a	1.15
SPOR	Sport Haley	20	13	n/a	0.86
BC	Brunswick	6,010	2,920	9.1	1.41
POOL	Pool Corp.	1,780	1,990	21.9	6.42
OO	Oakley	691	1,180	25.7	2.65
Industry Average		393	156	25.1	

EXHIBIT H
GBRT Preliminary Financial and Operating Data

Proforma Income Statement

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	525,000	1,968,750	2,100,000	2,400,000	3,000,000
Recovery expenses (COGS)	<u>550,000</u>	<u>1,500,000</u>	<u>1,475,000</u>	<u>1,525,000</u>	<u>1,500,000</u>
Gross profit	-25,000	468,750	625,000	875,000	1,500,000
General, selling, & administrative	200,000	250,000	275,000	376,800	466,440
Depreciation	100,000	380,000	404,000	323,200	258,560
Interest @ 8%	0	0	0	0	0
Taxes	<u>0</u>	<u>0</u>	<u>0</u>	<u>70,000</u>	<u>310,000</u>
Net income	-325,000	-161,250	-54,000	105,000	465,000

Proforma Balance Sheet

	Year 5
Assets	
Cash	758,010
Accts receivable	225,000
Inventories	115,760
Property plant & equipment	<u>1,034,240</u>
	2,133,010
Liabilities	
Accts payable	103,260
Debt	0
Stockholders equity	2,000,000
Retained earnings	<u>29,750</u>
	2,133,010

Operating Characteristics

	Year 5
Days of accounts receivables	60
Days of accounts payables	30
Days holding inventory	45

EXHIBIT I

Financial Projections for Aggressive Growth Plan

Proforma Income Statement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Revenue	525,000	1,968,750	4,593,750	10,500,000	26,250,000	39,375,000
Recovery expenses (COGS)	<u>550,000</u>	<u>1,400,000</u>	<u>3,000,000</u>	<u>5,250,000</u>	<u>11,550,000</u>	<u>14,175,000</u>
Gross profit	-25,000	568,750	1,593,750	5,250,000	14,700,000	25,200,000
General, selling, & administrative	200,000	250,000	750,000	2,000,000	5,000,000	8,000,000
Depreciation	100,000	380,000	704,000	1,463,200	3,670,560	5,036,448
Interest @ 8%	0	0	0	0	760,000	1,048,000
Taxes	<u>0</u>	<u>0</u>	<u>55,900</u>	<u>714,720</u>	<u>2,411,776</u>	<u>4,865,421</u>
Net income	-325,000	-61,250	83,850	1,072,080	2,857,664	6,250,131

Proforma Cash Flows

Net income	-325,000	-61,250	83,850	1,072,080	2,857,664	6,250,131
+ Depreciation	100,000	380,000	704,000	1,463,200	3,670,560	5,036,448
- Capital Expenditures	-500,000	-1,500,000	-2,000,000	-4,500,000	-3,000,000	-6,900,000
- Working Capital increase	0	-100,000	-150,000	-150,000	-200,000	-150,000
Free Cash Flow	-725,000	-1,281,250	-1,362,150	-2,114,720	3,328,224	4,236,579

GOLF BALL REPLENISHERS TECHNOLOGY

Teaching Note

Case Summary

This case presents a short vignette about a startup company in the golf equipment category. The founders of the company identified a unique opportunity to mechanically collect used golf balls from the water hazards on public golf courses, clean and repackage the balls, and sell them through sporting goods retail outlets. Currently, golf courses view the cleaning out of water hazards as an expense. Since many golf courses operate on thin margins, the company's plan to pay "recovery fees" to golf courses for the exclusive rights to ball recovery is viewed attractively. The founders have invented equipment that retrieves the balls, and they have applied for patents on the machinery. The founders have developed preliminary financial projections, but they need startup capital and have questions about how much of the company to sell in their first round of fundraising.

Teaching Purposes

- 1) Provide instruction on basic entrepreneurial finance mechanics, including the following:

required future value for investor	self-funded growth rates
ratio-based company valuation	breaking apart investment risk components
company ownership percentages	staged rounds of funding
post- and pre-money valuations	valuation with dilution
computing shares and share prices	stock options effects on ownership
- 2) Discuss the nature of uncertainty in new ventures and its relationship to financial calculations and valuations.
- 3) For more advanced classes, the case data provides the opportunity to create a comprehensive economic model and generate financial statements. The case also allows the instructor to cover more advanced discounted cash flow valuation models, if desired.

Resources for Students

The following articles provide appropriate background for students to address questions in the case:

- Sahlman, W. 2004. The basic venture capital formula. Harvard Business School Publishing, Note 9-804-042.
- Churchill, N. W. & J. W. Mullins. 2001. How fast can your company afford to grow? *Harvard Business Review*, 79 (5), 135-142.
- Revell, J. 2003. Ten questions every investor should ask before buying a stock. *Fortune*, December 22, 58-66.

Pedagogy

The case begins with a very brief and straightforward presentation of the industry and company background. Exhibits highlight key trends in the golf course and golf ball segments, and the case textually provides additional data from market research conducted by the founders which could later be used to build an economic model for the company. The case then presents a series of specific assignment questions which ask students to make financial calculations about planned fundraising.

Discussion of the case questions can be handled within one 75 minute class period. I like to start off asking the class about their ideas regarding the very first question: "What are the assumptions that critically affect the financing decision here?" Without labeling the elements, on the board I jot down the ideas offered by students using the Timmons "fit" categories (Exhibit TN-1). After several ideas come out that begin to fill in each of the categories in this model, then I label the categories. I then discuss how perceived uncertainty for any new venture increases, to the extent that any of the important categories is incomplete or to the extent that any of the relationships between any two categories is not well-matched. When there is greater perceived uncertainty, potential investors will be asking for more to compensate them for their risk. These foundational ideas about perceived uncertainty and risk can be re-visited throughout the discussion which follows on the financial calculations.

I find it helpful to ask for volunteers early on to show some of their work to the class and describe how they went about making their calculations, such as for the ratio-based valuation questions that are implied in question 1. Letting students try out their own ideas for difficult material makes the class in total feel more comfortable, and lets everyone see that others have not done it perfectly. Also, with this first question on company valuation using ratios, there are a few possibilities that can be used, so there is no one "right" answer." Mentioning the possibility of using discounted cash flows as a valuation technique adds to the discussion, suggesting that the rationale for using one method over another – or for using a combination of methods – is as important as how the method is actually applied.

Perceived Uncertainty and Risk

Knight (1921) instructs us that entrepreneurs operate in the realm of "true uncertainty," where at least some aspects of the future are simply unknowable. This is because what is being attempted is brand new, or because there is insufficient data from previous events that allow us to make stochastic forecasts about possible outcomes.

In any new venture there are all sorts of varieties of uncertainty: about the market, about technology, about management and administrative capability, about the response of potential competitors, about operational effectiveness, about whether customers will actually buy the products or services, etc. There is one type of uncertainty that can never be resolved *ex ante*: whether customers will respond favorably when you actually start up and ask them to pay for what your company is offering. But many types of uncertainty can be resolved to some degree –

or to a great degree – through due diligence in research by the founders, often encapsulated in really top notch detailed business planning.

In this view one of the roles of the entrepreneur, then, is to resolve areas of uncertainty. I often use the graphic in Exhibit TN-2 to communicate these ideas. Uncertainty and certainty about a new venture lie along a continuum, and the up-front efforts of founder entrepreneurs to gather information and answer questions helps move the perception of the business toward the certainty side. If significant uncertainty remains because nagging questions remain, the entrepreneur needs to engage in greater due diligence. However, if many of these questions have been carefully answered, then the entrepreneur's attention with prospective investors is managing their perceptions of risk. This can lead to serious discussions – and negotiations – with investors about ways in which their risk is managed – through the kind of return that is reasonable to expect, through the level of ownership in the venture, through board representation, through prior rights to distributions, etc.

Perceived uncertainty manifests itself in several places in the basic questions in this case on entrepreneurial finance:

- Question 1
 - the rate of return sought by the initial investor
 - the implied pre-money valuation of the company
 - the percentage ownership of the company the initial investor needs

- Question 3
 - the rate of return sought by the investor with new information
 - separating out different risk components and seeking separate sources of funding for each

- Question 4
 - the rate of return sought by second round investors in year 3

Case Questions

Exhibit TN-4 provides formulae and calculations for each of the questions posed in the case. Commentary on a selection of the questions is provided below.

Question 1

This requires students to first work out the required future value the investor needs to get the 50% compounded annual return, and then compare this to the estimated future value of the company. For this question there is no cash flow data provided, nor is it possible to calculate cash flows. However Exhibit G in the case provides financial data for a selection of companies competing in the golf and sporting goods categories, which can be used for simple ratio-based estimates of future value in conjunction with financial data provided in Exhibit H.

Three ratios are possible to use: price-to-earnings, market-to-book, or market-to-revenue. For

this analysis we use PE ratios, which tend to be more common and which reflect what investors are ultimately looking for (earnings).

The pre-money valuation is just over \$500,000, reflecting a company that has not started up and has not sold a thing. An interesting discussion can be created around whether this seems high or low, and what average pre-money valuations might be in related industries.

Question 2

My experience is that, despite having read the Churchill and Mullins article, students are often confused by the concept of the operating cash cycle. Instructors would be well advised to display the model from that article (Exhibit TN-3) and walk through it slowly as part of the discussion. The operating cash cycle solution provides a dramatic contrast to the usual annualized growth rate, data for which is also presented in this teaching note.

Question 3

The new information suggests that there is less uncertainty about this business than we had previously believed. The patenting effort looks promising, although it is still a long way from coming to fruition. More importantly, the machinery is found to be non-specialized because it has other alternative uses. Thus, if this business does not work out, the machinery can be employed productively elsewhere. This then presents the opportunity to fund the equipment needs with low-risk capital while tapping into the high risk investor for funds supporting the less certain parts of the new business. In our calculations \$500,000 for machinery can now be provided by a bank, secured by the equipment itself which has value apart from this business. This completely changes the investor scenario, with the result that the founders retain a significantly higher percentage of the company in this initial fundraising effort.

This question raises the issue of the types of risk that are tied up in a new venture. In the discussion the instructor can point out that in any new venture there is

- business risk (is it a sound business model?),
- technology risk (will the machinery work as planned?), and
- management risk (are these the right managers for the venture?)

The only risk that can never be resolved is the business risk, because until the company opens its doors and starts selling one will never really know if customers will buy.

Question 4

It should be obvious in concept that a two-staged funding effort makes more sense than a single stage. Entrepreneurs should seldom sell stock at higher return %'s for investors than they need to. The financial comparison of the single- and two-staged scenarios here drives home the point that the entrepreneurs are far better off raising the bulk of the funding when they need it in year 3. It represents a \$15 million difference in their favor by year 5.

This question can open up a very interesting discussion. How do you price out the first round investor, when the ultimate valuation of the company depends critically on securing a second

round in Year 3 that will enable the company to grow significantly? If the Year 3 investment is not secured, then growth cannot be financed and the Year 5 valuation of the company is as it was in Question 1. There are a couple points the instructor can make after the students struggle with this vexing problem. First, a real options approach might be used to price out the initial investment. Year 3 presents at least two options – invest another \$3.5 million with a big payoff, or invest nothing more. It would require too much time to walk through a sophisticated options pricing model in this class, but students can be made aware that this is one approach they could use. The more realistic scenario, however, is that the founders and the Round 1 investor would negotiate additional terms in the stock purchase agreement. The investor might, for example, receive preferred shares that have a conversion rate for common shares which would preserve their investment return prospects in the case that no new funds are raised later on. Here the preferred shares they receive would convert over to a 65.1% common share ownership if the next round of funding does not materialize. I am fond of telling my students that "life is let's make a deal," and this certainly applies to negotiations between the founders and investors (within reasonable limits).

Question 5

The treatment of management stock options is just like the treatment of another round of investors receiving shares. The earlier round investors must be stepped up through the retention percentage calculation.

Question 6

Another interesting discussion can be generated around the harvest option question. Some students will want the company to raise more money to expand further through a third round of funding, while others will suggest taking the company public through an IPO. These are variations on the theme of raising money ourselves and continuing to run the company. The only difference here, of course, is that an IPO would provide liquidity for previous investors and the founders. Strategically, this may be the most pressing issue regarding financing in year 5.

Occasionally, a student or two will suggest a management-led buyout. This would be worthy of a separate financial analysis to better understand how such an LBO might work.

Selling to another company is also suggested. What kind of company might be interested? What would the strategic reasons be for this type of acquisition? What conditions would the founders want to see in place as part of a deal to sell their company?

Other uses of the case

To actually develop the financial statements for this case, the founders constructed a detailed economic model. Variables that went into the model included data in the case, such as numbers of golf courses, rounds per year, numbers of balls lost per round, number of weeks per course to clean hazards, etc. Often students collect data about some new venture idea, but then use rudimentary efforts (such as national market share percentage) to generate forecasts. This case

provides the opportunity for students to use detailed market research data to model, forecast, and then generate financial statements.

In addition, the aggressive growth plan projections in Exhibit I also include free cash flow projections. These could be useful for discounted cash flow valuations of the business.

EXHIBIT TN-1

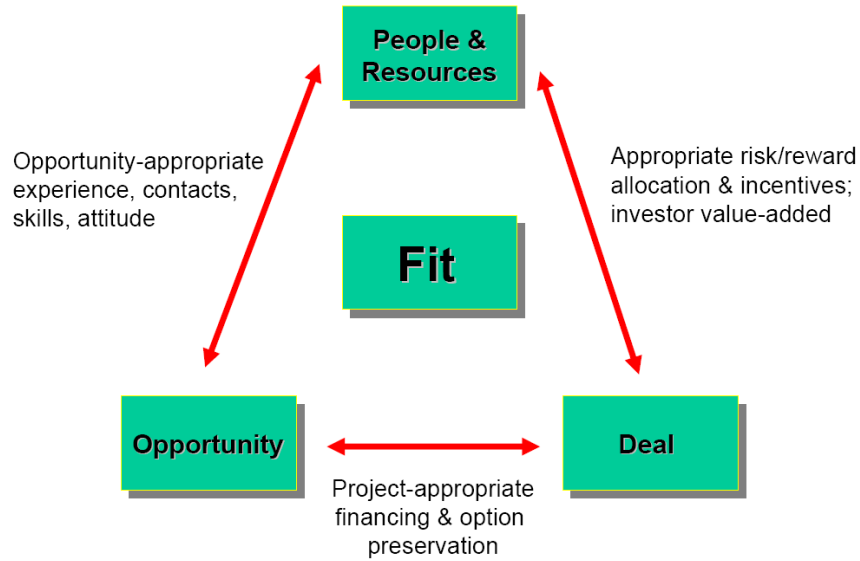


EXHIBIT TN-2

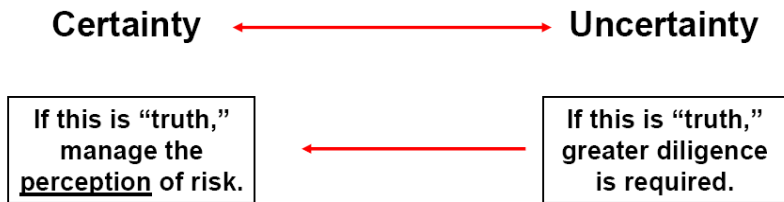


EXHIBIT TN-3

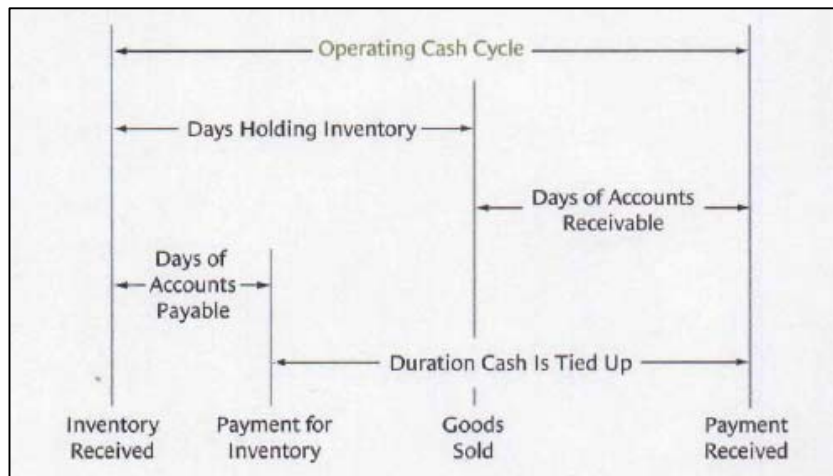


EXHIBIT TN-4

Question 1b: Return on investment

Required future value for investor:

$$(1 + \text{IRR})^{\text{years}} * \text{Initial Investment}$$

IRR options for \$1,000,000 investment

- 50%: $(1 + 0.5)^5 * 1,000,000 = \$ 7,594,000$

Question 1b: Future company value

Method	Year 5	Ratio	Estimated Company Value
Price : Earnings	\$ 465	25.1	\$11,672,000
Market : Book	\$ 2,129	1.863 2.776 (wtd)	\$ 5,909,410
Market : Revenue	\$ 3,000	0.397 3.259 (wtd)	\$ 9,119,470

Question 1b: Computing ownership

Final ownership %

$\frac{\text{Required Future Value}}{\text{Estimated Future Value of Company}}$

IRR options, using PE ratio

- 50% = $7,594,000 / 11,672,000 = 65.1 \%$

Question 1c: Implied valuations

Post money valuation:

Implied value of the company after the deal

$$\frac{\text{Investment Amount}}{\text{Percentage of Ownership Acquired}}$$

$$\frac{\$1,000,000}{0.651} = \$1,536,000$$

Pre money valuation:

Implied value of the company before the deal

$$= \text{Post Money Valuation} - \text{Investment}$$

$$\$1,536,000 - \$1,000,000 = \$536,000$$

Question 1d: Computing shares and price

$$\text{New shares} = \frac{\% \text{ Ownership}}{1 - \% \text{ Ownership}} * \text{Old Shares}$$

$$\text{New shares} = \frac{65.1}{34.9} * 500,000 = 932,665$$

$$\text{Price per share} = \frac{\$ \text{ Investment}}{\text{New shares issued}}$$

$$\text{Price per share} = \frac{1,000,000}{932,665} = \$1.072$$

Question 2: Funding growth internally

Method 1 – based on ROE

$$\text{Growth rate} = \text{Return on Equity} * (1 - \text{Dividend Rate})$$

$$= \frac{\text{Net Income}}{\text{Equity}} * (1 - \text{Dividend Rate})$$

$$= \frac{465,000}{2,128,750} * (1 - 0.25)$$

$$= 16.4 \%$$

Method 2 – Operating Cash Cycle

- Calculate OCC = 105 days
- Calculate cash required for each part of OCC
 - cost of sales $\$0.500 \times (75 / 105) = \0.357
 - operations $\$0.345 \times (53 / 105) = \0.174 } \$0.531
 - cash generated per OCC = \$0.116 *
 - OCC SFG rate = $0.116 / 0.531 = 21.8\% *$
- Number of OCC's per year $365/105 = 3.48$

Annual SFG rate = 76.0 %*

* includes provision for dividends @ 25%

Question 3: Separating out risk components of required investment

- Separate out different risks**
- equipment risk & business risk are different
 - \$500 k equipment secured by bank loan
 - seek reduction in investor return, recognizing uncertainty is reduced
 - Investor puts in \$500 k, seeks 50% return
 - 32.5% ownership of company
 - Post money valuation = \$ 1,550,000
 - Pre money valuation = \$ 1,050,000

Question 4: Staged fundraising

One-stage investment of \$ 4,500,000

- Year 5 valuation = \$72.8 million @ 25.1 PE
- 46.9% ownership of company @ 50% IRR
- 441,620 shares @ \$ 10.19 each
- Post money valuation = \$ 9.6 million
- Pre money valuation = \$ 5.1 million

Two-stage investment

- Round 1: \$1,000,000 = 10.4% ownership
- Round 2: \$3,500,000 = 13.9% ownership
- But Round 1 investor experiences dilution at Round 2

Retention % for Round 1 investor

$$= 1 - (\text{Total of future final \% ownerships})$$

$$= 1 - (13.2 \%) = 86.8 \%$$

Current ownership %

$$= \frac{\text{Final ownership \%}}{\text{Retention \%}} = \frac{10.4 \%}{86.8 \%} = 12.0 \%$$

	1 Stage	2 Stage	
	Investor A	Investor A	Investor B
% own	46.9 %	12.0 %	13.2 %
Shares	441,620	68,182	86,406
Price	\$ 10.19	\$ 14.67	\$ 40.51
Post money	\$ 9.6 mm	\$ 8.3 mm	\$ 26.5 mm
Founder share in Year 5	\$ 38.7 mm	\$ 53.4 mm	

Question 5: Management stock options

Treat 5% option reserve as "investor"

Retention %

- Investor A = $1 - (13.2 + 5.0) = 81.8 \%$
- Investor B = $1 - (5.0) = 95.0 \%$

Ownership %

- Investor A = $10.4/81.8 = 12.7 \%$
- Investor B = $13.2/95.0 = 13.9 \%$

Question 6: Harvest options

- ✓ Third round of funding where some shares are offered to investor
- ✓ Initial public offering
- ✓ Sell to another company - who might be interested ?
- ✓ LBO – leveraged buyout by management