JOURNAL OF FINANCE CASE RESEARCH

Volume 18, No. 1 **2018/2019**

ESTIMATION OF AFN USING MONTE CARLO SIMULATION: A CASE STUDY
Mary Funck, Jose Gutierrez and Robert Stretcher

J.C. PENNEY CORPORATION: REINVENTING RETAIL
Rick Long, Jimmy Senteza, Inchul Suh and Toby White

THE CASE OF THE UNIDENTIFIED ENERGY COMPANIES
Matthew Crook, Mark Griffiths and Brian Walkup

INVENTURE FOODS: DEVELOPING THE INVESTMENT THESIS
Kevin Gioia, James Murtagh and Rick Proctor

COUNTERSPOINT: A SMALL CREDIT UNION'S STRUGGLE IN RURAL AMERICA
Jan Ambrose and Elizabeth Cooper

BB&T AND THE LOOMING FINANCIAL CRISIS
Charles Kennedy Jr.

PLANNING FOR RETIREMENT: INSURANCE VERSUS INVESTING
James Brau and Bryan Sudweeks

HEDGING IN AN AUTOMOBILE FINANCING COMPANY
Amy Burnett and P.K. Chatterjee

SCANDINAVIAN FURNITURE CORPORATION: DETERMINING THE OPTIMAL CAPITAL BUDGET
Robert Irons

IMPAIRMENT OF GOODWILL: THE CASE OF DEAN FOODS, INC.
Luisa D. Taylor, Karen Sherrill and Robert Stretcher

EXERCISES, TUTORIALS AND SHORTER CASES

The Journal of the
INSTITUTE OF FINANCE CASE RESEARCH

Volume 18 Number 1 **ISSN 1527-5426**

JOURNAL OF FINANCE CASE RESEARCH

The Official Journal of the
INSTITUTE OF FINANCE CASE RESEARCH

Timothy B. Michael, Editor
University of Houston-Clear Lake

Robert Stretcher, Senior Editor
Sam Houston State University

2018/2019

Journal of Finance Case Research
The Journal of the Institute of Finance Case Research
Huntsville, Texas
Those interested in subscribing to, advertising in, or submitting manuscripts to the Journal, as well as other communication, should contact the editor.

Dr. Timothy B. Michael, Editor
Journal of Finance Case Research
College of Business
University of Houston-Clear Lake
2700 Bay Area Blvd, Box 204
Houston, Texas 77058
(281) 283-3193
michael@uhcl.edu

JOURNAL OF FINANCE CASE RESEARCH

Volume 18, Number 1 **2018/2019**

CONTENTS

ESTIMATION OF AFN USING MONTE CARLO SIMULATION: A CASE STUDY **1**
Mary Funck, Jose Gutierrez and Robert Stretcher

J.C. PENNEY CORPORATION: REINVENTING RETAIL **7**
Rick Long, Jimmy Senteza, Inchul Suh and Toby White

THE CASE OF THE UNIDENTIFIED ENERGY COMPANIES **25**
Matthew Crook, Mark Griffiths and Brian Walkup

INVENTURE FOODS: DEVELOPING THE INVESTMENT THESIS **37**
Kevin Gioia, James Murtagh and Rick Proctor

COUNTERSPOINT: A SMALL CREDIT UNION'S STRUGGLE IN RURAL AMERICA **49**
Jan Ambrose and Elizabeth Cooper

BB&T AND THE LOOMING FINANCIAL CRISIS **63**
Charles Kennedy Jr.

PLANNING FOR RETIREMENT: INSURANCE VERSUS INVESTING **77**
James Brau and Bryan Sudweeks

HEDGING IN AN AUTOMOBILE FINANCING COMPANY **89**
Amy Burnett and P.K. Chatterjee

SCANDINAVIAN FURNITURE CORPORATION: **95**
DETERMINING THE OPTIMAL CAPITAL BUDGET
Robert Irons

IMPAIRMENT OF GOODWILL: THE CASE OF DEAN FOODS, INC. **105**
Luisa D. Taylor, Karen Sherrill and Robert Stretcher

EXERCISES, TUTORIALS AND SHORTER CASES

THE DODD-FRANK ACT AND BANKING INDUSTRY CONSOLIDATION: **115**
A CLASSROOM EXPERIMENT
Katie Sobczyk Player and Sherry Jensen

REINING IN THE RUBLE: A STORY OF OIL, SANCTIONS AND THE BANK OF RUSSIA **123**
Anne Anders, Stephen Cotton and Ivelina Pavlova-Stout

INTRODUCTION TO DECISION TREE ANALYSIS: AN EXCELLENT MODEL **131**
TO ILLUSTRATE UNCERTAINTY IN CAPITAL BUDGETING
Danny Ervin

CONTENTS (continued)

ANALYZING VALUE CREATION AND MODELING INTRINSIC VALUE: THE CASE OF AMAZON, INC. **143**
Rob Weigand

ANALYSIS OF THE 2001 FAILURE OF HIH INSURANCE IN AUSTRALIA IN RELATION TO THE SYSTEMIC RISK AND INSURANCE RESOLUTION **159**
Etti G. Baranoff and Dalit Barranoff

AUTHENTEC: THE CASE FOR VENTURE CAPITAL **185**
Donald Flagg, Speros Margetis and Citlalli Payan

MECHANICAL MACHINERY: STRATEGIC DECISION MAKING AND RISK ANALYSIS **201**
Thomas Zeller and Brian Stanko

UNDOING OF THE DUAL CLASS: THE CASE OF MAGNA INTERNATIONAL INC. **217**
Carolyn MacTavish and James Moore

Letter from the Editor

I am pleased to present the first 2018/2019 issue of the *Journal of Finance Case Research*, the official journal of *The Institute of Finance Case Research* (IFCR). 2018 and 2019 were great years for the Institute and the journal. As always, the greatest credit for keeping the Institute on its feet goes to the senior editor (Bob Stretcher), associate editors and our volunteer group of reviewers.

The IFCR provides an avenue for the writing of cases and their submission for peer review. Cases accepted for publication in the *Journal* have met the quality requirements of a double-blind review process, and they are available for use through *Journal* subscriptions or by contacting the *Institute* for electronic copy access. Teaching notes are available to instructors desiring to use each case by contacting either the *Institute* or the authors.

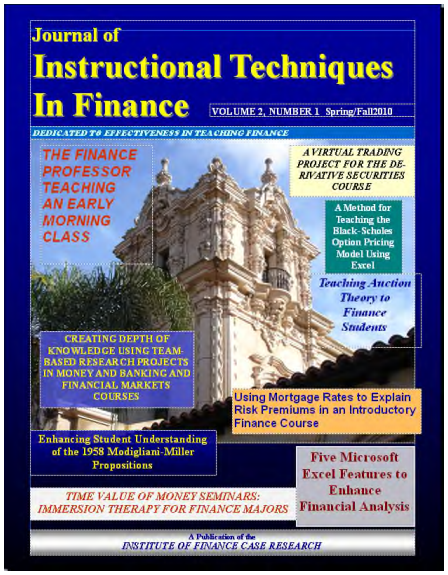
The *Institute* continues to promote the interaction of case writers in conference settings. I invite case writers and case users to participate in the activities of the *Institute*. Our case sessions are held at a variety of finance conferences and provide the opportunity for interaction with others with a similar interest. Our recent conference activities have taken place in Fort Lauderdale, San Antonio, Charleston, Denver, Savannah and other popular destinations. Cases submitted for conference presentation are eligible for the review process for the *Journal*, and we have collaborated with different conferences (such as FEA) on special issues in the past.

Our overall objective is to create an outlet for case writers, and to build a source of quality cases for case users. Cases presented at our affiliated conferences, having had the advantage of being exposed to the scrutiny of experienced case writers, have a better chance of final acceptance for journal publication.

Our acceptance rate is never more than 25%. The *Journal* is listed in *Cabell's Directory of Publishing Opportunities in Economics and Finance*, and it is also on the Australian Business Deans' Journal Quality List.

This issue of the *Journal of Finance Case Research* contains several cases, exercises and tutorials that we hope you will find useful in your courses and consulting work. Please visit our website often for updates and conference information. We encourage all parties interested in the production, promotion, and use of cases in finance to become active participants in the IFCR.

Timothy B. Michael, Editor
Journal of Finance Case Research
www.jfcr.org



Journal of Instructional Techniques in Finance

CALL FOR PAPERS

The *JITF* invites authors to submit manuscripts for publication consideration. The *JITF* is a periodical double-blind refereed journal which began in the Fall of 2008. The *JITF* seeks articles concerning innovative and effective teaching techniques, tools for educators, and especially techniques designed to enhance the student experience in finance courses at the college level. The *JITF* is designed to be useful to finance professors wanting to create better understanding of financial methodologies and analyses among their students. If you have used techniques that have helped you achieve this, please consider formally sharing it through our *JITF* venue.

We recommend formatting submissions according to the required *Guidelines for Authors* on our website. Although submissions in any format are considered for conferences, the presumption is that journal publication is the ultimate objective of a submission. If formatted correctly, one less editorial requirement stands in the way of effective revisions.

A *publication fee* of $57.00 per paper is required upon final acceptance of cases for publication in the *JITF*. If a manuscript is accepted for publication, all listed authors must either be *IFCR* members, or must submit the subscription fee prior to publication. Our operations are supported wholly by membership, subscription, and publication fees. We receive no support from universities or conferences.

We sincerely hope the *JITF* can serve your academic publishing needs. Our contact information:

Dr. Jose Gutierrez, Editor
Journal of Instructional Techniques in Finance
Department of General Business and Finance
Sam Houston State University
Box 2056, Huntsville, TX 77341
(936) 294-1283
jag063@shsu.edu

ESTIMATION OF AFN USING MONTE CARLO SIMULATION: A CASE STUDY

Mary Funck, Jose Gutierrez, and Robert Stretcher
Sam Houston State University

INTRODUCTION

Determining the amount of short-term, external funding required by a company is a common managerial task. Typically, when demonstrating this task in the classroom, inputs such as sales growth, operating cost ratio, payout policy, etc. are assumed as discrete values. The resulting output is a singular dollar figure for AFN or EFN (Additional Funds Needed or External Financing Needed). Accompanying this calculation is the assertion that the amount of short-term funding secured by a company exceed the AFN calculation by a margin of 'comfort.'

In reality, the business application of this exercise requires more rigor. This case study uses a Monte Carlo simulation to present a more realistic application of AFN. The simulation, completed using Crystal Ball (an Excel add-in), utilizes six input variables, all specified in terms of appropriate distributions. The simulation creates probabilities surrounding a range of AFN output values; the resulting output distribution for AFN is useful for visualizing the possible variation for a company's external financing requirements.

Finally, the company's external funding requirement becomes a foundation for discussing alternatives for obtaining external, short-term funding. Specifically, students explore the positive relationship between the funds commitment and the commitment fee, and the interest charges on the tapped portion of a line of credit and revolving credit guarantee.

IMPROVING FORECASTING

Hammer's Custom Metalfab (HCM), Inc. is in its 54th year of operation. The company builds custom products from steel, aluminum and cast iron. Their customers come from a variety of industries, including auto, heavy machinery and equipment manufacturers, and custom steel tank fabrication. In the past year, the firm suffered a crisis involving a severe lack of short-term funding that, while preventable with sufficient planning, resulted in financial distress. Subsequently, the firm recognized the need to improve its forecasting. A financial consultant recommended a planning technique called Additional Funds Needed (AFN), a method for pre-planning the external funding required to support sales growth and prevent the spontaneous revenue shortage that can occur when operating expenses spike upward. Amanda Manning, a mid-level manager at HCM, has been given the task of projecting HCM's AFN for the coming year.

Amanda had received a summary of information from the accounting department. During 2016, HCM earned $3 million in sales revenue. Operating costs (excluding depreciation) represented 90.54% of sales, the company paid $88,000 in interest expense, had a 40% corporate tax rate, and a dividend payout ratio of 48.94%. HCM's 2016 balance sheet shows $10,000 in cash. Receivables, inventory, and fixed assets represent 12.50%, 20.50%, and 33.33% of sales respectively. Short-term payables and accruals total $200,000, short-term bank loans comprise $110,000, and the company has issued $750,000 in long-term debt. Total shareholder equity in 2016 is $940,000, with $130,000 of this from the common stock account.

AFN FORMULA

The AFN formula uses sales growth, asset growth, liability growth, profit margin, and the firm's retention ratio to estimate the amount of external financing needed to support the firm's anticipated expansion. AFN assumes that an increase in sales requires an associated increase in short- and long-term assets, the cost of which is partially offset by an increase in retained earnings.

The AFN formula is as follows:

$$AFN = \frac{A_0^*}{S_0}(S_1 - S_0) - \frac{L_0^*}{S_0}(S_1 - S_0) - (PM)(S_1)(b)$$

Where:

S_0 = Current Sales
S_1 = Forecasted Sales = S_0 x (1 + g)
g = Forecasted growth rate in sales

A^*_0 = Assets (at time 0) which vary directly with Sales
L^*_0 = Liabilities(at time 0) which vary directly with Sales
PM = Profit Margin = Net Income / Sales
b = Retention ratio = Addition to Retained Earnings / Net Income

THE TASKS FOR HCM MANAGERS

Amanda will first need to calculate the AFN estimate – this value will provide the firm with a discrete minimum amount of readily available credit HCM will need to obtain. Management at HCM has compiled the following projections: (1) Sales revenue will increase by 10%, (2) operating costs, receivables, and inventory will represent 89.50%, 11.00%, and 19.00% of sales respectively, (3) total liabilities will decrease to 49.00% of total assets, and (4) the payout ratio will decrease to 47.00%.

The amount of external financing HCM will negotiate with its lenders depends on the manager's perception of the need for a buffer beyond the amount calculated with the AFN equation. The larger the buffer (and subsequently the higher the amount of credit secured), the lower the risk of insufficient funding. Amanda will need to determine the appropriate buffer size and the resulting amount of credit the firm needs to secure.

Amanda, in a meeting with upper management, discussed her plans for determining the firm's short-term funding needs. Participants at the meeting recognized the risk inherent in a single AFN calculation using discrete input values. They suggested that Amanda use an add-on program the company has, *Crystal Ball*, to conduct a simulation using Excel that pulls each input value from a specified distribution of values and produces a distribution of AFN values. The input distributions for the six input variables and specifications for running the simulation are included in Exhibit 1.

As soon as Amanda completes her simulation, HCM managers then need to evaluate whether they should use a line of credit or revolving credit guarantee to meet their external funding needs. With a line of credit, no contractual commitment of funds exists; a revolving credit commitment involves a fee paid to the creditor whether or not the total of funds available are used, but the creditor is committing to the availability of the funds.

The firm's bank charges a .175% fee on the maximum to be borrowed for a commitment period of one year, after which the creditworthiness of the firm is revisited and the annual fee charged again. Thus, the higher the committment for a revolving credit agreement, the higher the fee. The alternative, a simple line of credit, is simply a pre-approval; there is no committment of availability of the funds, and thus no committment fee, but the firm may experience financial stress if funds are not readily available when requested.

Exhibit 1. Input Distributions

Variable	Distribution	Specification
Growth rate (g)	Triangular	Estimated at 10%, but could be as low as 8% and as high as 12%
Operating costs / Sales	Normal	Expected to be normally distributed; mean 89.5%, standard deviation of 5.0%
Receivables / Sales	Normal	Expected to be normally distributed; mean 11.0%, standard deviation of 2.5%
Inventory / Sales	Uniform	Estimated at 19.0%, but could vary between 15.75% and 22.75%
Total Liabilities / Assets	Normal	Expected to be normally distributed; mean 49.05%, standard deviation of 9.5%
Payout Ratio	Custom	Will either be zero (no dividend) or could vary between 41% and 53%

(1,000 iteration simulation)

Exhibit 2. Financial Statements

INCOME STATEMENT (in thousands)	2016
Sales	$3,000.0
Operating Costs (excluding depreciation)	2,716.2
Earnings before interest and taxes (EBIT)	$283.8
Interest expense	88.0
Earnings before taxes (EBT)	$195.8
Taxes	78.3
Net Income (NI)	$117.5
Dividends	$57.5
Addition to retained earnings	$60.0

BALANCE SHEET (in thousands)	2016
Assets	
Cash (grows with sales)	$10.0
Accounts receivables	375.0
Inventories	615.0
Fixed assets (grows with sales)	1,000.0
Total Assets	$2,000.0
Liabilities and Equity	
Payables + accruals (both grow with sales)	$200.0
Short-term bank loans	110.0
Total Current Liabilities	$310.0
Long-term bonds	750.0
Total Liabilities	$1,060.0
Common Stock	130.0
Retained earnings	810.0
Total common equity	$940.0
Total Liabilities and Equity	$2,000.0

J.C. PENNEY CORPORATION: REINVENTING RETAIL

Rick Long, Jimmy Senteza, Inchul Suh & Toby White
Drake University

INTRODUCTION

On Thursday, May 17, 2012, Russell Williamson, a junior equity analyst for Brooks Associates, Inc., a private equity company, was asked to review the performance of retail companies by Rachel Adams, the equity research team leader. Adams was especially interested in J.C. Penney Corporation, Inc. (JCP), which announced 2012 Q1 results the day before, after which JCP's stock price plummeted by 20% during late afternoon trading.

Brooks Associates had recently raised $500 million for a new private equity fund, the Deep Value Fund. The fund's strategy was to invest in undervalued assets. Up to 20% of its assets could be in publicly traded stock. Adams was in charge of the asset allocation plan for the Deep Value Fund and was intrigued by JCP's stock price movement. She knew that JCP was trying to reinvent itself as America's favorite department store and that the company's new CEO, Ron Johnson, had enjoyed a successful career leading the transformation of Apple's stores. Hence, she thought that investors might be overreacting to JCP's negative short-term results and underestimating Johnson's long-term efforts to transform the aging retailer to become "more hip and relevant."

Adams understood how important it was for JCP to reposition and refocus its business strategy. She believed the valuation of JCP was closely tied to the success of the company's remodeling process that was announced in February 2012. The remodeling Johnson planned would redesign JCP stores into a "stores-within-a-store" format. Before finalizing her equity allocation plan, Adams wanted Williamson to perform an independent capital budgeting analysis on JCP's remodeling plans to determine if the project added value to the company. She also wanted Williamson to analyze JCP's historical financial statements and the competitive environment of the department store industry. These three elements would be used to help Adams make her final decision on whether or not to buy JCP stock.

COMPANY BACKGROUND AND INDUSTRY INFORMATION

J. C. Penney Corporation Inc. (JCP) was founded in 1902 by James Cash Penney. The company grew its network of department stores throughout all 50 states and Puerto Rico with the total number of stores reaching 1,102 by the end of 2011 (Exhibit 1). JCP is recognized as one of the nation's largest apparel and home furnishing retailers.

In the years just prior to 2012, JCP's primary strategy was to draw customer traffic through coupons and discounts. In 2011, for example, there were 590 separate sales, an average of nearly two sales per day (Mattioli (2012)). This strategy was largely unsuccessful at increasing the volume of in-store shoppers, and furthermore, it put significant downward pressure on existing

prices. Three-quarters of all JCP products were sold at discounts of at least 50%, even before the application of coupons, and less than 1% of such products were being sold at full price (Berfield & Maheshwari (2012)).

Furthermore, the design of most J.C. Penney stores was quite unspectacular, largely unchanged from 20 years earlier, and mostly indistinguishable from its middle-market competitors. Hence, JCP struggled to increase overall sales. In 2011, JCP sales were $17.3 billion, down from $17.8 billion in 2010; however, this amount was far below the $19.9 billion in sales the company reported in 2006 (Exhibit 2). Consequently, JCP reported overall net losses of $152 million in 2011, compared to net profits of $389 million in 2010. JCP's total assets were also down to $11.4 billion in 2011 from $13.0 billion in 2010 and its cash balance decreased to $1.5 billion in 2011 from $2.6 billion in 2010 (Exhibit 3). The five largest sales categories for JCP were women's apparel (25% of sales), men's apparel and accessories (20%), home products (15%), women's accessories (12%), and children's apparel (12%); other remaining categories included footwear, jewelry, and services (Figure 1).

Retail Industry Background

Companies in the retail department store industry operate physical establishments, selling items including clothing, cosmetics, footwear, and home furnishings, typically from registers within individual departments. Besides specialty department stores (SPD) and full-line department stores (FLDS), there are now also discounters and wholesale clubs. SPDs depend more on apparel, accessories, and cosmetics. Upscale SPDs, that sell high-end American and European fashion designer merchandise, charge a premium for their goods.

On the other hand, FLDS offer reasonably priced products across several merchandise categories. The major products sold at FLDS include apparel (about 55 percent of sales), cosmetics (8 percent), footwear (7 percent) and appliances (7 percent). Apparel includes women's, men's, and children's clothing. Cosmetics include makeup, skin care, hair care, and fragrances. Appliances include refrigerators, stoves, washers, dryers, and dishwashers. These stores may also sell kitchenware, bedding, towels, and sheets. FLDS also provide services such as gift wrapping, delivery, appliance installation, and personal shopping. According to the Valueline data, major U.S.-based full line department stores include JCP, Dillard's, Kohl's, Macy's, Nordstrom's, and Sears.

Discounters sell a vast array of everyday items, such as stationary, sporting goods, toys, hardware, and over-the-counter pharmaceuticals. A number of discounters began offering groceries to gain business as growth opportunities diminished. Wholesale clubs provide an assortment of goods similar to that of discounters, but they sell products from warehouse-like centers in bulk packages, under no-frills, self-service terms. They also charge membership fees, which are a significant portion of their operating profits.

Historically, to increase sales in this industry, a company has to open new stores, a process that entails significant capital expenditures. The firm has to be careful to open stores in such a way that this does not cannibalize its already existing stores. The ability to build or lease new stores depends on a company's cash balance, debt, and available credit. This effort will initially put a drag on profitability, but new sales will result in higher earnings over time. On the other hand, cash-strapped companies may cut back and decide to close underperforming locations. The option to lease property requires less capital than does construction, and permits quicker expansion.

However, a long-term lease may make it difficult to close underperforming stores when cash needs to be conserved.

Whereas new stores increase company sales, the ideal way to establish and interpret sales growth is by using comparable store sales (referred to as comps), which limits any comparisons to be made amongst stores one-year old or older. Rising comps impact profits positively as they occur with marginal changes in fixed costs, but declining comps may require the firm to re-examine its operations to increase margins. A retailer could mitigate the declining sales problem by forecasting the types of merchandise needed by its target demographic. However, it is quite difficult to project the tastes of customers, especially if they change relatively frequently. This problem is exasperated in this age where online merchandizing is drastically changing the retail landscape.

Recent Industry Landscape

Department stores are no longer the 'go-to' destination for mass shopping needs. They have lost market share to specialty retailers, big-box stores, and more recently, web-based merchants such as Amazon.com. Furthermore, department stores still suffer from hit-or-miss fashions, spotty customer service, and sprawling designs, which make it difficult for customers to locate desired goods in an efficient manner.

Until recently, the differentiation between chains was small, as most retailers sold similar apparel produced by the same vendors. As consumers began to shop elsewhere, there was some consolidation within the industry, and when the economic recession of 2008-2009 arrived, many stores had to cut costs, close underperforming stores, and deal with ballooning inventories (Timberlake & Townsend (2011)).

As the U.S. economy continues its recovery, full-line department stores such as J.C. Penney, Macy's, Dillard's and Kohl's have been experiencing a revival of sorts. They have been uncharacteristically luring shoppers with exclusive, trendy items that appeal largely to the younger demographic. The cohort of 18-to-30 year olds spends 50% more on average than other age groups (Timberlake & Townsend (2011)).

J.C. PENNEY'S NEW CEO AND HIS RADICAL VISION

On June 14, 2011, J.C. Penney announced that Ron Johnson, 52, would replace Myron Ullman, 64, as CEO, effective November 1, 2011. Ullman would stay on, though, as executive Chairman of the Board. Johnson was poached from Apple, where he helped create the extremely successful, 'ultracool' culture observed in Apple's retail stores. Prior to Johnson's arrival, JCP's stock performance was trailing behind Dillard's, Macy's, Kohl's, and Nordstrom (Figure 2). However, when the hiring announcement was made, JCP's stock rose from $30.11 per share to $35.37 per share, an increase of $5.26, or 17.5%. William Ackerman of Pershing Square Capital Management (18%) and Steven Roth of Vornado Realty Trust (8%) together bought 26% of JCP stock, and both gained seats on JCP's Board of Directors (Holmes & Lublin (2011)).

Before working at Apple, Johnson was employed by Target, where he brokered a deal with renowned architect Michael Graves to design household items, establishing a reputation for style that set Target apart from its discount-retailer rivals. These types of collaborations enabled Target to have more control over its goods, especially with respect to pricing. When Johnson was leading the launch of Apple stores, analysts applauded his strategies, and compared Apple stores favorably

to Best Buy's in the following manner: "It sells a single brand, has far fewer products, and has only a few hundred stores compared to Best Buy's more than 4,000 (Kane & Sherr (2011))."

With respect to in-store design which was the Johnson's niche area of expertise, he created Apple's 'Genius Bar' tech support area while also developing a top-notch detailed approach to in-store customer service. Apple's hottest products were placed in the front of each store, adjacent to the Genius Bar, with a dedicated section for kids featuring children's software programs. Apple stores featured an open, clutter-free design, using hip-looking natural materials like wood, glass, stone, and stainless steel (Kane & Sherr (2011)).

JCP hired Ron Johnson for his expertise on the creative aspects of retailing, including marketing and merchandising. JCP's Board, led by financiers Ackerman and Roth, hoped that Johnson would change both how people shopped at JCP, and the type of people that would shop at JCP, just as he had done at Target and Apple. More specifically, JCP needed to connect better with both newer, younger customers, and its older, existing customer base.

Johnson's New Strategic Initiative

On January 25, 2012, nearly 3 months after Johnson's CEO tenure commenced, he officially laid out the core elements of his strategic plan for JCP. First, he planned to redesign the sprawling floor plans of JCP stores into a plethora of boutique specialty shops. Second, he wanted to add areas - near existing high-traffic areas - for customers to hang out and be entertained in style. Third, he intended to wean existing customers from discounts and coupons in favor of everyday low, but trustworthy, prices (Berfield & Maheshwari (2012)).

The ultimate goal would be to make shopping at JCP more inviting, while highlighting brand names, and gaining more control over pricing structures. The planned overhaul was quite dramatic and costly, especially considering that JCP had been around for over 100 years and had never before attempted to change so quickly and drastically.

On February 1, 2012, JCP introduced a transformational strategy based on 6 P's of retail – price, promotion, personality, product, presentation and place (Galante (2012)):

- **Price**: The new pricing strategy was called *Fair and Square* and included three types of prices: (1) everyday, (2) month-long, and (3) best or lowest prices.
- **Promotion**: The new brand marketing campaign was focused on showcasing products, highlighting the new pricing strategy, and staging 12 promotional events each year, one particularly themed to each calendar month.
- **Personality**: JCP introduced a new logo to revitalize the brand.
- **Product**: JCP made substantial changes in their merchandise while planning to add more global brands.
- **Presentation:** The manner in which goods are displayed would be enhanced and more varied.
- **Place:** JCP planned to re-organize its department stores into separately curated stores, shops, and boutiques.

Starting in February 2012, JCP lowered the initial (pre-discounted) price for items by about 40%, relative to where they were. In return, the number of sales promotions was reduced sharply. Going forward, JCP planned to limit these promotions to two clearance sales on the 1st and 3rd

Fridays of each month, along with a small number of monthly in-season sales (Mattioli (2012)). JCP planned to spend about $80 million per month on this new program of promotions.

As mentioned earlier, JCP also decided to simplify product pricing into 3 tiers: everyday pricing, monthly specials, and clearance sales. However, the key to this plan was to educate customers about which tier applied to desired goods (Weise (2012)). In other words, bargain hunters must be able to tell whether or not they are actually getting a bargain; they must be able to trust JCP about the real price of goods.

Remodeling Project: Stores-within-a-store

Consistent with the overall strategy of reaching out to younger and hipper customers, JCP made forays to other suppliers to form exclusive in-store, mini-boutique arrangements. Johnson planned to redesign the high-traffic middle areas of stores, previously called the "center core" into what he called a "Town Square." Traditionally, these were the locations where cosmetics, accessories, and other high-margin impulse buys were most likely to take place. The Town Square would feature displays that rotate each month; for example, there might be free hot dogs and ice cream in July, free back-to-school haircuts for kids in August, or free family portraits in December (Mattioli (2012)).

In an interview with Bloomberg's *Businessweek* in August 2012, Ron Johnson elaborated more on his vision for the physical design of JCP stores. "When you walk into a store today, you're overwhelmed by merchandise. There is a narrow aisle. Typically, it's filled with product on tables and you're overwhelmed with the noise of signs and promotions. Especially in the age of the Internet, the idea of going to a very large store and having so much abundance is actually not very appealing…We can create a place where people feel they belong (Brady, 2012)." In short, he wanted JCP to become not only America's favorite department store, but America's favorite store in general.

Thus, Johnson suggested widening the aisles to 14 feet, which was even more spacious than the aisle width at competitor Nordstrom. He would also remove the traditional bulky cashier stations and replace those with checkout devices that employees could operate anywhere within the store using iPads. Also, these employees would be able to wear whatever they wanted (within reason), much like the way employees dressed in Apple stores, rather than drab corporate uniforms. He would increase the use of very methodically placed mannequins. Finally, each store would have an entertainment area catering to a specific demographic group (e.g. kids, women, men, etc.) (Townsend, 2013).

While these ideas were potentially expensive, Johnson said that cost cutting and the elimination of many existing sales promotions had been "engineered to pay for it." For example, JCP would cut the number of coupon packs it sends to stores from 3 per week to 1 per month. On an annual basis, the number of promotions would decline from 590 to fewer than 100 (Mattioli (2012)). Furthermore, the ever-present availability of discounts would eat into profit margins, especially for merchants with high fixed labor and material costs.

One of Johnson's first moves as new CEO of JCP was to broker a deal with Martha Stewart Living Omnimedia (MSLO). On December 7, 2011, JCP paid $38.5 million to acquire a 17% stake in MSLO (Timberlake & Townsend (2012)). This was done to enable JCP to set up mini-stores dedicated to MSLO at its department stores, while improving its overall brand awareness. The 'stores-within-a-store' would open in February 2013, and would sell specialized home and lifestyle goods, all featuring the Martha Stewart brand (Weise (2011)). These mini-stores would be new,

distinct retail spaces within the overall JCP floor plans. The partnership was expected to generate more than $200 million in revenue over 10 years for MSLO (Mattioli & Adams (2011)).

Johnson's ultimate goal was to develop about 100 such branded stores (Berfield & Maheshwari (2012)). These brands were expected to produce higher sales than in-house labels that lacked distinctiveness and pricing power. Ideally, if JCP could lock up rights to sell desirable product lines exclusively, customers would then consider JCP a destination for their shopping experience (See Figure 3 for examples of stores-within-a-store). Some of the most prominent brands which had agreed to participate in the store within a store concept included:

- Sephora makeup and cosmetics
- MNG by Mango
- Call it Spring by Aldo Group
- The Foundry Big & Tall Supply Co.
- Joe Fresh
- Stardoll's Pretty n' Love line
- Liz Claiborne and Monet lines
- Shops promoting Nanette Lepore, Izod, Arizona Jean, or Levi's
- Specially designed items from Jonathan Adler, Vivienne Tam, and Tourneau
- Cafés that would offer coffees and pastries for customers wanting a shopping break

JCP planned to remodel 700 of its 1,100 stores, with each department store ultimately featuring 100 stores-within-a-store upon completion of the remodeling process (Galante (2012)). The remaining 400 JCP stores, primarily located in small towns, were not included in the current remodeling plan. The new stores-within-a-store would feature three main categories; a *store* (approximately 1,400 square feet), a *shop* (750 square feet), and a *boutique* (under 750 square feet). These new stores-within-a-store were designed to be open toward the widened aisle without doors. They would be separated by 5-by-5 feet walls designed to fit most stores. Initial estimates suggested that the cost of remodeling would be approximately $46,000 for each store-within-a-store.

The results from a 30,000-square-foot remodeled prototype store in Dallas, near JCP's headquarters, were very positive. The converted stores' average sales were more than double the sales in the rest of the store. For instance, the Sephora stores within JCP averaged $600 of sales per square foot, which was about 3 times higher than the corresponding figure for the entire JCP stores that contained Sephora in-stores (Berfield (2013), Galante (2012)).

Encouraged by the initial results, JCP planned to roll out the nationwide remodeling project in August 2012. Each of the 700 JCP stores would add two to three stores-within-a-store per month, while the entire project was expected to be completed by the end of 2015. To help take on such an extensive remodeling process, Johnson hired his former colleague, Benjamin Fay, as Executive Vice President of real estate, store design and development on April 26, 2012. Fay had been previously working for Apple as Senior Director of retail real estate, design and development.

THE DECISION

At first glance, Williamson of Brooks Associates agreed that JCP might be in trouble. For the entire fiscal year in 2011, JCP sales were down 2.8% to $17.26 billion (relative to 2010), even though JCP's stock price was up 6.7%, reflecting investors' cautious optimism for the new stores-

within-a-store strategy. On the other hand, one of JCP's main competitors, Macy's, had outperformed JCP by a wide margin; Macy's sales increased by 5.4% in 2011, while their stock price rose by nearly 47% (Mattioli (2012)). (See Exhibit 4 for JCP's competitors' data.)

Moreover, JCP's sales per gross square foot, one of the most important retail industry statistics, were lower than all of its main competitors except for Dillard's. In 2011, JCP's sales per gross square foot were $154, while the corresponding figure for Nordstrom was $431 (Exhibit 5). To make matters worse, during the first quarter of 2012, JCP reported sales of $3.15 billion, a 20% overall decline compared with the first quarter of 2011, with $55 million in losses, excluding restructuring costs and charges for reducing inventory (Weise (2012)). Comparable store sales for the first quarter of 2012 fell by 18.9%, and online sales were down 27.9% (Berfield & Maheshwari (2012)). The company's gross margin was 37.6%, lower than the 40.5% gross margin recorded in the first quarter of 2011.

Subsequently, JCP announced it would discontinue its $0.20/share dividend to free up approximately $175 million per year in cash (Weise (2012)). Furthermore, the number of people coming into JCP stores dropped by 10%, and the number who bought something fell by 5% (Berfield & Maheshwari (2012)). Johnson, however, was optimistic that the remodeling strategy was going to turn the company around and pledged to continue the transformation of JCP into becoming America's favorite store. Investors, on the other hand, were not as forgiving; JCP stock dropped by 20% to $26.75 when the 1Q2012 results were announced on Wednesday, May 16.

Although Williamson understood Adams' reasoning that the stock market might be overreacting to JCP's short-term results, he wondered if there might be other factors at play. Williamson's task from Adams was twofold: He needed to evaluate the decision of JCP to remodel their stores, using a capital budgeting framework, and he needed to examine both JCP's past financial statements and the current competitive environment within the full line department store industry. This information would help Adams make a decision regarding the purchase of JCP stock.

CASE QUESTIONS

The following list of questions covers the majority of issues that Russell Williamson would seek to address in his capital budgeting analysis of J.C. Penney's stores-within-a-store project, especially in relation to the financial performance of its industry peers. These questions will lead to discussions regarding whether or not to invest in J.C. Penney stock. The same list of questions can be addressed by students and faculty who decide to adopt this case. Note that Exhibits 1-5 and Figures 1-3 are needed to help answer these questions.

1) Evaluate J.C. Penney's remodeling strategy. Does the stores-within-a-store project add value to the company?

As a starting point, perform a prospective NPV-based capital budgeting analysis, while justifying your choice for the 'cost of capital' assumption.

2) How competitive is J.C. Penney? Answer by analyzing J.C. Penney's historical financial statements in comparison to data from other retail companies.

Conduct a retrospective financial statement analysis that incorporates both the given balance sheet and income statement information in the supporting tables.

3) What are other issues alluded to in the case that may have a substantial impact on the future viability of J.C. Penney? How will consumers respond to the changes in J.C. Penney's strategy?

a) Assess the potential for success for the company's new pricing strategy.
b) Discuss how J.C. Penney might improve the chance that its remodeling process will be successful.
c) Assess the impact of key competitors on the potential success or failure of J.C. Penney.

4) Should Brooks Associates invest in J.C. Penney stock?

The final recommendation should consider not only the impact from the new remodeling project, but also other qualitative factors such as changes in pricing strategy, responses from competitors, and the changing tastes of consumers.

REFERENCES

Berfield, S. & Maheshwari, S., 2012, May 28, "J.C. Penney vs. The Bargain Hunters," *Bloomberg Businessweek* 4281, p.21-22.

Berfield, S., 2013, April 15, "Can Penney Get Off the Down Escalator?" *Bloomberg Businessweek* 4325, p.19-20.

Brady, D., 2012, August 13, "Ron Johnson CEO: J.C. Penney [Interview], *Bloomberg Businessweek* 4292, p.88-89.

Downing, K., Industry Analysis: Retail Store, *Valueline Research Hub*

Galante, M., 2012, January 26, "The 6 Ways Ron Johnson Plans to Transform J.C. Penney Into 'America's Favorite Store'," *Business Insider.*

Holmes, E., & Lublin, J., 2011, June 15, "Penney Picks Boss from Apple – Tech Giant's Retail Chief Tapped to Remake Venerable Chain," *The Wall Street Journal*, p.A.1.

Kane, Y.I., & Sherr, I., 2011, June 15, "Penney Picks Boss from Apple – Secrets from Genius Bar: Full Loyalty, No Negativity," *The Wall Street Journal*, p.A.1.

Mattioli, D., & Adams, R., 2011, December 8, "Martha's Deal Miffs Macy's – Sale of Stewart Stake to Penney Leads Rival to Review Changes to its Stores' Line," *The Wall Street Journal*, p.B.3.

Mattioli, D., 2012, January 26, "J.C. Penney Chief Thinks Different – With Apple in his Head, New CEO Swears Off Constant Markdowns and Jumble of Private Labels," *The Wall Street Journal*, p.B.1.

Timberlake, C., & Townsend, M., 2012, February 20, "Too Much Martha," *Bloomberg Businessweek* 4267, p.23-24.

Timberlake, C., & Townsend, M., 2011, March 21, "How Department Stores Came Back into Fashion," *Bloomberg Businessweek* 4221, p.32-33.

Townsend, M., 2013, June 24, "A Hunt for J.C. Penney's Missing Cashiers," *Bloomberg Businessweek* 4335, p.25-26.

Weise, K., 2011, December 12, "J.C. Penney: Nesting with Martha Stewart," *Bloomberg Businessweek* 4258, p.36.

Weise, K., 2012, May 21, "J.C. Penney: A Surprise Slump in Sales," *Bloomberg Businessweek* 4280, p.26.

Exhibit 1. J.C. Penney Stores by Location (As of January 28, 2012)

Location	No. of Stores	Location	No. of Stores	Location	No. of Stores
Alabama	22	Maine	6	Oklahoma	19
Alaska	1	Maryland	18	Oregon	14
Arizona	22	Massachusetts	13	Pennsylvania	41
Arkansas	16	Michigan	43	Rhode Island	3
California	81	Minnesota	26	South Carolina	18
Colorado	22	Mississippi	18	South Dakota	8
Connecticut	10	Missouri	26	Tennessee	26
Delaware	3	Montana	9	Texas	94
Florida	60	Nebraska	12	Utah	9
Georgia	30	Nevada	7	Vermont	6
Idaho	9	New Hampshire	9	Virginia	27
Illinois	41	New Jersey	17	Washington	23
Indiana	30	New Mexico	10	West Virginia	9
Iowa	19	New York	43	Wisconsin	23
Kansas	19	North Carolina	35	Wyoming	5
Kentucky	22	North Dakota	8	Puerto Rico	7
Louisiana	16	Ohio	47		
				Total	1,102

Source: Company Reports

Exhibit 2. J.C. Penney – Income Statement ($ millions)

	2006	2007	2008	2009	2010	2011
Sales	**19,903.0**	**19,860.0**	**18,486.0**	**17,556.0**	**17,759.0**	**17,260.0**
Cost of Sales	12,078.0	12,189.0	11,571.0	10,646.0	10,799.0	11,042.0
Gross Profit	7,825.0	7,671.0	6,915.0	6,910.0	6,960.0	6,218.0
SG&A	5,548.0	5,403.0	5,336.0	5,747.0	5,613.0	5,230.0
EBITDA	2,277.0	2,268.0	1,579.0	1,163.0	1,347.0	988.0
Depreciation	389.0	426.0	469.0	495.0	511.0	518.0
EBIT	1,888.0	1,842.0	1,110.0	668.0	836.0	470.0
Interest Expense	270.0	278.0	268.0	263.0	253.0	228.0
Nonoperating Income	174.0	171.0	68.0	(2.0)	30.0	(20.0)
Special Items	0.0	(12.0)	0.0	0.0	(32.0)	(451.0)
Pretax Income	1,792.0	1,723.0	910.0	403.0	581.0	(229.0)
Total Taxes	658.0	618.0	343.0	154.0	203.0	(77.0)
Income Bef Extra Items	1,134.0	1,105.0	567.0	249.0	378.0	(152.0)
Cash Preferred Div	0.0	0.0	0.0	0.0	0.0	0.0
Disc Operations	19.0	6.0	5.0	2.0	11.0	0.0
Extra Items	0.0	0.0	0.0	0.0	0.0	0.0
Net Income	**1,153.0**	**1,111.0**	**572.0**	**251.0**	**389.0**	**(152.0)**

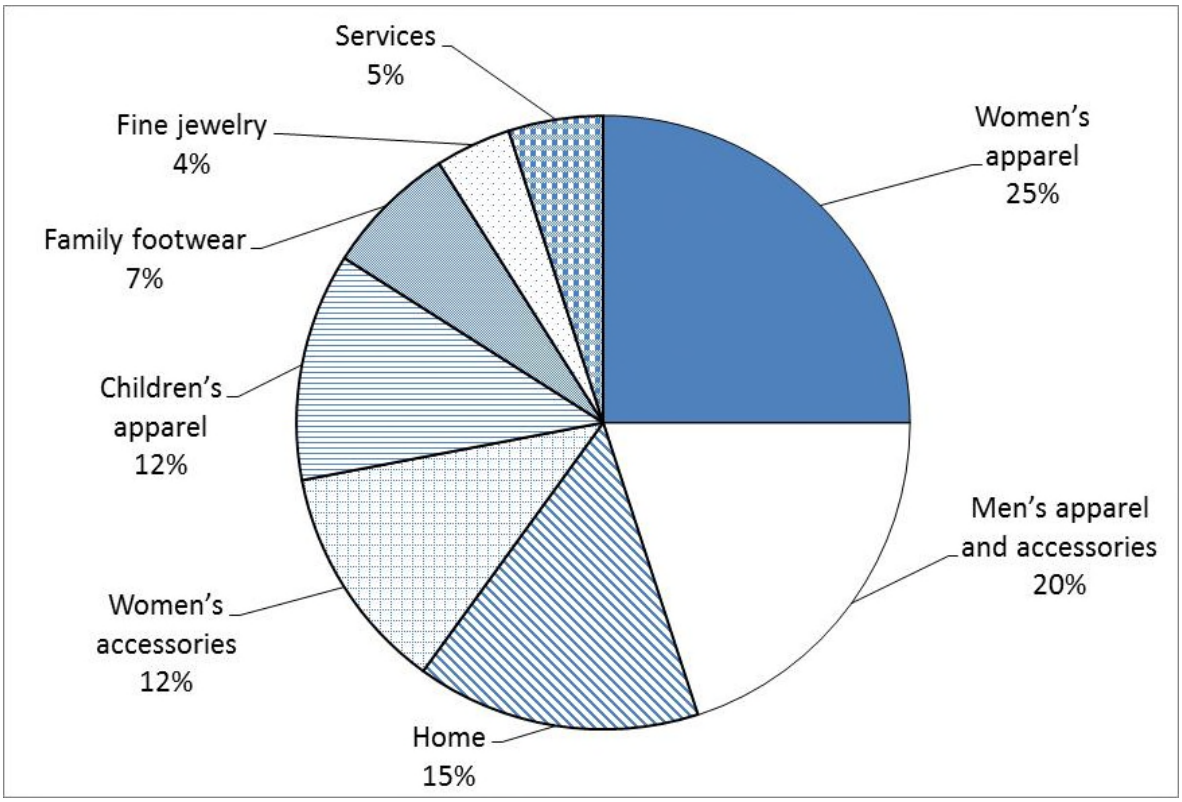
Source: Company Reports

Exhibit 3. J.C. Penney – Balance Sheet ($ millions except for share values)

	2006	2007	2008	2009	2010	2011
Cash & Marketable Sec.	2,747.0	2,471.0	2,352.0	3,011.0	2,622.0	1,507.0
Receivables	205.0	286.0	243.0	258.0	208.0	233.0
Bad Debt Reserve	0.0	0.0	0.0	0.0	0.0	0.0
Inventory	3,400.0	3,641.0	3,259.0	3,024.0	3,213.0	2,916.0
Total Current Assets	6,648.0	6,751.0	6,220.0	6,652.0	6,370.0	5,081.0
PP&E	4,162.0	4,959.0	5,367.0	5,357.0	5,231.0	5,176.0
Intangibles	95.0	107.0	140.0	178.0	233.0	565.0
Deferred Charges	1,256.0	2,064.0	30.0	26.0	788.0	22.0
Equity Investments	16.0	9.0	-	-	-	-
Other Investments	474.0	395.0	229.0	310.0	375.0	500.0
Total Assets	**12,673.0**	**14,309.0**	**12,011.0**	**12,581.0**	**13,042.0**	**11,424.0**
Debt - Current Portion	434.0	203.0	0.0	393.0	0.0	231.0
Notes Payable	0.0	0.0	0.0	0.0	0.0	0.0
Accounts Payable	1,366.0	1,472.0	1,194.0	1,226.0	1,133.0	1,022.0
Taxes Payable	0.0	0.0	0.0	0.0	0.0	0.0
Total Current Liabilities	3,492.0	3,338.0	2,794.0	3,249.0	2,647.0	2,756.0
Total Long Term Debt	3,010.0	3,505.0	3,505.0	2,999.0	3,099.0	2,871.0
Deferred LT Taxes	1,206.0	1,463.0	599.0	817.0	1,192.0	888.0
Total Liabilities	**8,385.0**	**8,997.0**	**7,856.0**	**7,803.0**	**7,582.0**	**7,414.0**
Preferred Stock - Total	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	4,288.0	5,312.0	4,155.0	4,778.0	5,460.0	4,010.0
Total Stockholders' Equity	**4,288.0**	**5,312.0**	**4,155.0**	**4,778.0**	**5,460.0**	**4,010.0**
Shares Outstanding	226.0	222.0	222.0	236.0	236.7	215.9
Stock Price - FY Close	81.2	47.3	16.8	24.8	32.1	41.5
Cash Dividends	165.0	178.0	179.0	187.0	190.0	174.0

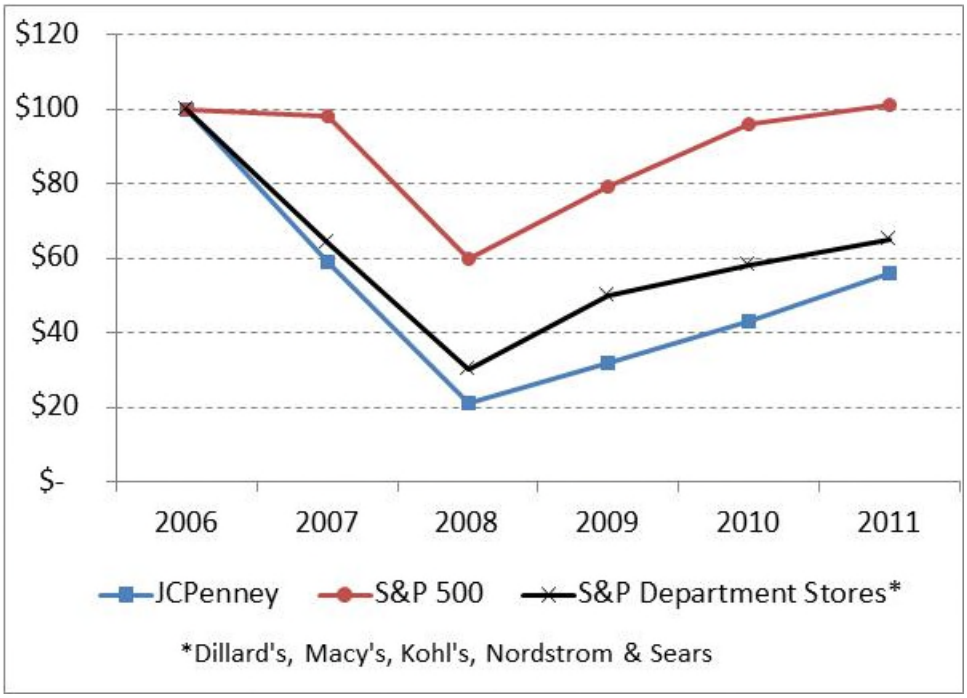
Source: Company Reports

Figure 1. J.C. Penney Sales Breakdown by Category (As of January 28, 2012)



Source: Company Reports

Figure 2. J.C. Penney Stock Performance – Hypopthetical Value of $100 Investment in 2006



Source: Company Reports

Figure 3. J.C. Penney's New Stores-Within-Stores Example

Liz Claiborne

Joe Fresh

Source: J.C. Penney

Exhibit 4. Competitors' Data ($ millions except for share values)

	Dillard's Inc.			Kohl's Corp.		
Income Statement	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**
Sales	**6,194.4**	**6,215.7**	**6,369.5**	**17,178.0**	**18,391.0**	**18,804.0**
Cost of Sales	4,102.9	3,976.1	4,041.6	10,680.0	11,359.0	11,625.0
Gross Profit	2,091.5	2,239.6	2,327.9	6,498.0	7,032.0	7,179.0
SG&A	1,702.5	1,676.8	1,679.0	4,196.0	4,190.0	4,243.0
EBITDA	389.1	562.8	648.9	2,302.0	2,842.0	2,936.0
Depreciation	262.9	261.5	257.7	590.0	750.0	778.0
EBIT	126.2	301.2	391.2	1,712.0	2,092.0	2,158.0
Interest Expense	79.7	76.2	73.9	139.0	319.0	309.0
Nonoperating Income	27.4	31.1	39.4	15.0	15.0	10.0
Special Items	7.4	7.9	44.6	0.0	0.0	0.0
Pretax Income	81.2	264.1	401.4	1,588.0	1,788.0	1,859.0
Total Taxes	12.7	84.4	(62.5)	597.0	668.0	692.0
Net Income	**68.5**	**179.6**	**463.9**	**991.0**	**1,120.0**	**1,167.0**
Balance Sheet	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**
Cash & Marketable Sec.	341.7	343.3	224.3	2,267.0	2,277.0	1,205.0
Receivables	63.4	26.0	28.7	0.0	0.0	0.0
Inventory	1,300.7	1,290.1	1,304.1	2,923.0	3,036.0	3,199.0
Total Current Assets	1,749.5	1,701.9	1,591.7	5,485.0	5,642.0	4,775.0
PP&E	2,780.8	2,595.5	2,440.3	7,018.0	8,692.0	8,905.0
Intangibles	0.0	0.0	0.0	204.0	-	-
Total Assets	**4,606.3**	**4,374.2**	**4,306.1**	**13,160.0**	**14,779.0**	**14,094.0**
Debt - Current Portion	3.5	51.3	79.1	16.0	486.0	94.0
Notes Payable	0.0	0.0	0.0	0.0	0.0	0.0
Accounts Payable	494.4	491.5	452.4	1,188.0	1,138.0	1,233.0
Taxes Payable	62.3	34.8	74.1	184.0	127.0	133.0
Total Current Liabilities	769.0	831.2	870.4	2,390.0	2,781.0	2,590.0
Total Long Term Debt	970.0	908.6	823.9	2,052.0	3,512.0	4,150.0
Deferred LT Taxes	349.7	341.7	314.6	377.0	256.0	386.0
Total Liabilities	**2,302.2**	**2,287.4**	**2,254.1**	**5,307.0**	**6,929.0**	**7,586.0**
Preferred Stock - Total	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	2,304.1	2,086.7	2,052.0	7,853.0	7,850.0	6,508.0
Total Stockholders' Equity	**2,304.1**	**2,086.7**	**2,052.0**	**7,853.0**	**7,850.0**	**6,508.0**
Shares Outstanding	73.8	60.0	49.4	307.0	291.0	247.0
Stock Price - FY Close	16.6	39.7	44.3	50.4	50.8	46.0
Cash Dividends	11.8	10.6	10.0	0.0	0.0	271.0

Exhibit 4. Competitors' Data (continued)

	Macy's Inc.			Nordstrom Inc.		
Income Statement	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**
Sales	**23,489.0**	**25,003.0**	**26,405.0**	**8,627.0**	**9,700.0**	**10,877.0**
Cost of Sales	13,973.0	14,824.0	15,738.0	5,015.0	5,570.0	6,221.0
Gross Profit	9,516.0	10,179.0	10,667.0	3,612.0	4,130.0	4,656.0
SG&A	6,868.0	7,117.0	7,203.0	2,465.0	2,685.0	3,023.0
EBITDA	2,648.0	3,062.0	3,464.0	1,147.0	1,445.0	1,633.0
Depreciation	1,210.0	1,150.0	1,085.0	313.0	327.0	371.0
EBIT	1,438.0	1,912.0	2,379.0	834.0	1,118.0	1,262.0
Interest Expense	567.0	518.0	455.0	148.0	133.0	139.0
Nonoperating Income	(94.0)	(8.0)	(10.0)	10.0	6.0	9.0
Special Items	(270.0)	(66.0)	54.0	0.0	0.0	(13.0)
Pretax Income	507.0	1,320.0	1,968.0	696.0	991.0	1,119.0
Total Taxes	157.0	473.0	712.0	255.0	378.0	436.0
Net Income	**350.0**	**847.0**	**1,256.0**	**441.0**	**613.0**	**683.0**
Balance Sheet	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**
Cash & Marketable Sec.	1,686.0	1,516.0	2,961.0	795.0	1,506.0	2,077.0
Receivables	358.0	392.0	368.0	2,035.0	2,026.0	2,033.0
Inventory	4,615.0	4,758.0	5,117.0	898.0	977.0	1,148.0
Total Current Assets	6,882.0	6,899.0	8,777.0	4,054.0	4,824.0	5,560.0
PP&E	9,507.0	8,813.0	8,420.0	2,242.0	2,318.0	2,469.0
Intangibles	4,421.0	4,380.0	4,341.0	53.0	53.0	175.0
Total Assets	**21,300.0**	**20,631.0**	**22,095.0**	**6,579.0**	**7,462.0**	**8,491.0**
Debt - Current Portion	242.0	454.0	1,103.0	356.0	6.0	506.0
Notes Payable	0.0	0.0	0.0	0.0	0.0	0.0
Accounts Payable	1,796.0	1,980.0	2,262.0	726.0	846.0	917.0
Taxes Payable	68.0	182.0	371.0	0.0	0.0	0.0
Total Current Liabilities	4,454.0	5,065.0	6,263.0	2,014.0	1,879.0	2,575.0
Total Long Term Debt	8,456.0	6,971.0	6,655.0	2,257.0	2,775.0	3,141.0
Deferred LT Taxes	1,068.0	1,245.0	1,141.0	-	-	-
Total Liabilities	**16,599.0**	**15,101.0**	**16,162.0**	**5,007.0**	**5,441.0**	**6,535.0**
Preferred Stock - Total	0.0	0.0	0.0	0.0	0.0	0.0
Common Equity	4,701.0	5,530.0	5,933.0	1,572.0	2,021.0	1,956.0
Total Stockholders' Equity	**4,701.0**	**5,530.0**	**5,933.0**	**1,572.0**	**2,021.0**	**1,956.0**
Shares Outstanding	420.8	423.3	414.2	217.7	218.0	207.6
Stock Price - FY Close	15.9	23.1	33.7	34.5	41.2	49.4
Cash Dividends	84.0	84.0	231.0	139.0	167.0	197.0

Data Source: Company Reports

Exhibit 5. J.C. Penney and Competitors' Store Sales Comparison (Note: Gross selling space - square feet in millions)

	2007	2008	2009	2010	2011
J.C. Penney					
Number of stores-Year end	1,067	1,093	1,108	1,106	1,102
Gross selling space	106.6	109.9	111.7	111.6	111.2
Sales per gross square foot	$ 177	$ 160	$ 149	$ 153	$ 154
Dillard's					
Number of stores-Year end	326	315	309	308	304
Gross selling space	56.3	54.4	53.5	53.3	52.5
Sales per gross square foot	$ 128	$ 124	$ 110	$ 113	$ 118
Kohl's					
Number of stores-Year end	929	1,004	1,058	1,089	1,127
Gross selling space	69.9	75.0	78.4	80.1	82.2
Sales per gross square foot	$ 249	$ 222	$ 217	$ 222	$ 220
Macy's					
Number of stores-Year end	853	847	850	850	842
Gross selling space	155.2	154.3	154.5	154.2	151.9
Sales per gross square foot	$ 170	$ 161	$ 152	$ 162	$ 174
Nordstrom					
Number of stores-Year end	156	169	184	204	225
Gross selling space	20.5	21.9	22.8	23.8	24.7
Sales per gross square foot	$ 435	$ 388	$ 368	$ 397	$ 431

Data Source: Company Reports

THE CASE OF THE UNIDENTIFIED ENERGY COMPANIES

Matthew Crook, University of Tulsa
Mark Griffiths, University of Southern California
Brian Walkup, Rollins College

This case provides detailed financial information for 14 firms in the energy sector across different fields. The student is put in the position of a potential job candidate tasked with identifying the field in which a firm's major operations lie. The student's objective is to use existing knowledge of the energy sector or financial statements to differentiate between the firms by examining the financial statements and common financial ratios for each of the firms.

Jeremy Martin, an attorney at Menteurs, Imbroglioni and Vory was facing his first major challenge as a new junior partner. The law firm was planning on expanding into preparing contracts for and advising clients in the energy sectors. Thus, they were seeking a number of external financial experts capable of consulting on the more intricate details of financial operations. Such a bold move meant the credibility and reputation of the law firm would be on the line and consequently, its ability to bill at market rates would be at risk. As a result, Jeremy had to ensure that any 'expert' identified by the firm really did know a lot about financial operations for an energy firm. The problem was that the energy sector comprises a variety of businesses ranging from mining to transportation to manufacturing and retailing.

Jeremy decided that the best way would be to identify any likely candidates and then have them perform a short test to verify their capabilities. After consulting with established experts in the field, Jeremy determined that qualified candidates ought to understand the essential structural differences between services, manufacturing/processing operations and direct sale to end consumers and businesses. Candidates should demonstrate their understanding of the concepts of value-additivity and market risk as measured by beta. In particular, potential consultants must have a strong grasp of how business cycles affect energy sector firms and must understand the fundamental differences between diversified versus stand-alone operations.

After some deliberation, Jeremy chose a sample of 14 firms in the energy sector (Exhibit 1), each of which had a distinct and specific business model. Jeremy assigned an intern to average the past five years of accounting information and to present the information in the form of a Balance Sheet (Exhibit 2), an Income Statement (Exhibit 3), and Selected Ratios (Exhibit 4) all without any other identifying characteristics.

Candidates for the position would then be asked to match the financial data with the brief description of the following firms. The candidates ought to provide guidance regarding their identification process.

Exhibit 1. Descriptions of the Major Operations of the 14 Energy Fields for Identification

Major Operations	Brief Description
Biofuel & Facilities Manager	Going public recently, this company utilizes emerging technology for the production and sales of advanced biofuels and renewable chemicals. In addition to biodiesel production and distribution, the company distributes feedstock from third parties and provides contractor services and consulting in facility management and operation for other biodiesel production facilities.
Coal Mine	This firm produces coal for the both power plants (thermal) and ferrous metal (metallurgical) manufacturers from twenty-two surface and underground mines located in seventeen U.S. states.
Deepwater Driller	With a small fleet of drill ships, the firm contracts on a day-rate basis with firms in the oil and natural gas industry for ultra-deep-water drilling services in the U.S. Gulf of Mexico, Brazil, and Nigeria. Each of the ships is the underlying collateral for a tranche of long-term debt.
Electrical Utility	This highly regulated firm provides electricity to over 5 million retail customers and wholesale providers across eleven states. The power generation comes from sources including coal-fired, natural gas and hydroelectric plants.
Gas Driller, Gatherer & Transporter	Operating nearly 7,700 producing wells and a large network of gathering and transportation pipelines, the firm develops natural gas and oil assets through exploration and acquisition. Their customers include utilities, mid-stream and industrial users.
Gas Retailer & Convenience Stores	Operating over 1,800 retail convenience store locations in the U.S. and Canada, this firm sells motor fuel both as a primary vendor to retail customers and uses their distribution network to provide fuel to small wholesale customers. To subsidize the low margins from fuel sales, the firm offers convenience merchandise, car wash facilities, video/game rentals, money orders and ATM access. The firm has franchisee agreements with large commercial chains to provide food offerings in their convenience store locations.
Government-owned Nuclear Power Utility	Operating facilities for generating electrical and thermal power, this state-controlled company manufactures nuclear fuel rods for generation facilities. The state owns 81% of shares, a publically traded closed-end fund owns 10% and other shareholders own 9% in shares that are closely held.
LED & RF Component Manufacturer	Using traditional as well as emerging lighting technology, this firm provides industrial lighting solutions for both public and private commercial applications. In addition to designing and manufacturing lighting systems, the firm manufactures the components that are used in the systems including power products, diodes, semiconductor field-effect transistors, and power modules used in computer servers, solar inverters, uninterruptible and industrial power supplies.

Petroleum Refiner	Operating a company-owned full coking medium-sour crude oil refinery and a medium complexity crude oil refinery, this company controls and operates pipelines; crude oil transports; crude oil gathering tank farms; and crude oil storage capacity.
Railroad	Founded in the 1880s, the firm operates a transcontinental railway carrying bulk commodities and merchandise freight. The company owns nearly 15,000 miles of track across Canada and the U.S.
Retail & Commercial Heating Fuel	As a distributor and service provider for of home heating oil and propane for residential and commercial customers in the U.S., the firm is a full-service provider for heating and air conditioning equipment. The fuel services are provided as a delivery-only service in a highly regulated industry with very inelastic customer demand.
Solar Products	This firm is a full-service provider focused on the emerging technology of solar modules for the conversion of sunlight into power. Not only does the firm design and manufacture solar cells, but also provides engineering support with regards to project development, construction, operations and maintenance.
Specialty Chemical & Biofuels	As an international seller and producer of diversified chemical products, biofuels, and bio-based specialty chemicals, this company synthesizes biodiesel and petro-diesel blends. Producing a high volume of products for U.S. use, the firm distributes products directly to end-users through trucks, rail, and barges. The firm also provides products used in the agricultural chemical, coatings, chemical intermediates, and specialty polymers industries.
Waste-to-Energy Provider	Targeting municipalities in North America, the company offers alternatives to traditional landfill waste storage by operating facilities that convert waste to energy. In addition to waste-to-energy services, they recover scrap metal from waste, house unrecoverable conventional waste in company-owned landfills, and operate energy transfer stations and renewable electricity generation facilities.

*Descriptions presented in Exhibit 1 are based on the company descriptions found in Yahoo Finance.

Exhibit 2. Common Size Balance Sheets for 14 Energy Firms

Financial information contained in the table is an aggregate percentage based on five years of filings taken from the U.S. Securities and Exchange Commission (EDGAR).

Panel A – Assets

	1	2	3	4	5	6	7
Current Assets							
Cash & Equivalents	3.13%	15.94%	6.18%	0.54%	7.15%	7.18%	10.47%
Short-term Investments	0.00%	3.35%	0.00%	0.67%	0.00%	0.00%	26.39%
Net Receivables	3.74%	11.18%	8.71%	3.26%	2.66%	5.89%	5.84%
Inventory	0.00%	6.16%	22.77%	0.00%	0.00%	0.00%	6.96%
Other Current Assets	2.71%	8.89%	2.96%	4.26%	2.51%	5.66%	3.03%
Total Current Assets	9.57%	45.53%	40.61%	8.73%	12.31%	18.73%	52.69%
Non-current Assets							
Long-term Investments	0.87%	4.51%	0.00%	0.00%	0.00%	1.71%	0.00%
Property, Plant & Equip	85.54%	26.72%	58.16%	71.33%	82.37%	55.18%	19.63%
Goodwill	1.23%	3.50%	0.00%	0.16%	0.00%	5.08%	18.04%
Intangible Assets	0.00%	0.00%	0.00%	0.00%	0.00%	1.24%	9.27%
Other Assets	2.78%	19.73%	0.64%	17.10%	5.32%	18.06%	0.36%
Deferred Long-term Charges	0.00%	0.00%	0.59%	2.69%	0.00%	0.00%	0.00%
Total Assets	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Panel A (continued)

	8	9	10	11	12	13	14
Current Assets							
Cash & Equivalents	5.11%	0.01%	10.88%	12.30%	11.51%	22.45%	4.07%
Short-term Investments	3.10%	1.15%	0.00%	0.59%	0.00%	16.25%	2.89%
Net Receivables	3.89%	2.23%	7.11%	14.88%	8.09%	8.52%	2.23%
Inventory	3.81%	0.30%	10.33%	10.16%	9.38%	11.78%	5.28%
Other Current Assets	2.14%	4.08%	0.74%	7.95%	3.44%	2.87%	4.42%
Total Current Assets	16.18%	7.08%	29.07%	45.88%	32.43%	61.87%	17.73%
Non-current Assets							
Long-term Investments	2.45%	2.63%	0.00%	0.00%	1.00%	0.00%	5.96%
Property, Plant & Equip	73.71%	88.65%	64.49%	8.30%	48.24%	37.40%	75.62%
Goodwill	2.80%	0.00%	2.23%	31.86%	15.52%	0.00%	0.00%
Intangible Assets	0.00%	0.00%	0.00%	11.15%	1.06%	0.03%	0.69%
Other Assets	4.86%	1.64%	4.21%	2.80%	1.76%	0.72%	0.00%
Deferred Long-term Charges	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Assets	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Panel B – Liabilities and Equity

	1	2	3	4	5	6	7
Current Liabilities							
Accounts Payable	7.47%	3.54%	16.34%	2.20%	0.72%	0.57%	3.94%
Short-term Debt	1.64%	0.83%	0.05%	3.28%	3.00%	2.52%	0.00%
Other Current Liabilities	0.00%	12.56%	4.04%	6.52%	2.82%	8.58%	2.76%
Total Current Liabilities	9.11%	16.93%	20.42%	11.99%	6.54%	11.67%	6.70%
Non-current Liabilities							
Long-term Debt	30.10%	6.13%	29.52%	30.08%	38.24%	34.99%	0.00%
Other Liabilities	25.09%	10.14%	0.14%	30.09%	2.16%	28.75%	1.60%
Deferred Long-term Charges	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Minority Interest	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Negative Goodwill	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Liabilities	64.29%	33.21%	50.08%	72.17%	46.93%	75.41%	8.29%
Shareholders' Equity							
Stock Options & Warrants	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Redeemable Preferred Stock	0.00%	0.00%	0.00%	0.12%	0.00%	0.00%	0.00%
Preferred Stock	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Common stock	13.30%	0.00%	32.37%	6.25%	0.04%	0.34%	0.01%
Additional paid-in capital	0.29%	38.17%	0.00%	11.41%	52.99%	18.44%	66.56%
Retained earnings	36.81%	28.82%	0.00%	10.77%	0.90%	5.40%	24.74%
Treasury stock	0.00%	0.00%	0.00%	0.00%	0.00%	-0.03%	0.00%
Other stockholders' equity	0.00%	0.02%	28.34%	0.00%	0.00%	0.36%	0.00%
AOIC (loss)	-14.70%	-0.21%	0.00%	-0.64%	-0.85%	0.08%	0.41%
Total Shareholders' Equity	35.71%	66.79%	49.92%	27.83%	53.07%	24.59%	91.71%
Total Liabilities & Shareholders' Equity	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Panel B (continued)

	8	9	10	11	12	13	14
Current Liabilities							
Accounts Payable	2.85%	4.25%	11.08%	3.09%	5.91%	4.81%	1.22%
Short-term Debt	1.76%	1.82%	0.92%	0.00%	3.23%	0.00%	1.83%
Other Current Liabilities	3.72%	1.15%	5.13%	31.89%	3.39%	5.37%	3.81%
Total Current Liabilities	8.34%	7.21%	17.13%	34.99%	12.53%	10.18%	6.86%
Non-current Liabilities							
Long-term Debt	43.78%	37.89%	25.03%	18.31%	10.52%	0.00%	19.50%
Other Liabilities	14.31%	16.67%	10.83%	2.60%	9.14%	6.23%	0.92%
Deferred Long-term Charges	0.00%	0.00%	0.00%	2.09%	0.00%	7.93%	0.73%
Minority Interest	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Negative Goodwill	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Liabilities	66.43%	61.77%	52.99%	57.56%	32.19%	24.33%	28.02%
Shareholders' Equity							
Stock Options & Warrants	0.00%	0.00%	0.00%	0.00%	0.59%	0.00%	0.00%
Redeemable Preferred Stock	0.00%	0.00%	0.00%	0.00%	22.10%	0.00%	0.00%
Preferred Stock	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Common stock	0.02%	0.03%	0.02%	46.49%	0.00%	0.00%	24.99%
Additional paid-in capital	32.20%	30.33%	10.06%	0.00%	35.47%	68.32%	0.07%
Retained earnings	1.99%	6.93%	4.31%	0.00%	9.39%	6.64%	16.94%
Treasury stock	-0.69%	-0.10%	0.00%	0.00%	-0.54%	0.00%	0.00%
Other stockholders' equity	0.10%		54.52%	0.00%	1.47%	0.00%	30.00%
AOIC (loss)	-0.03%	1.04%	7.51%	-4.05%	0.00%	0.71%	0.00%
Total Shareholders' Equity	33.57%	38.23%	47.01%	42.44%	67.81%	75.67%	71.98%
Total Liabilities & Shareholders' Equity	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Exhibit 3. Common-Size Income Statements

Financial information contained in the table is an aggregate percentage based on five years of filings taken from the U.S. Securities and Exchange Commission (EDGAR).

	1	2	3	4	5	6	7
Revenue	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Cost of Revenue	39.90%	65.06%	83.44%	27.42%	48.37%	59.33%	60.38%
Gross Profit	60.10%	34.94%	16.56%	72.58%	51.63%	40.67%	39.62%
Operating Expenses							
Research & Development	0.00%	4.12%	0.00%	0.00%	0.00%	0.00%	11.19%
Selling General & Admin	0.00%	11.07%	0.99%	0.00%	10.12%	5.88%	15.81%
Compensation & Benefits	26.86%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Depreciation and Amortization	9.72%	0.00%	1.34%	11.48%	19.93%	12.48%	1.85%
Non recurring expenses	0.08%	4.38%	0.00%	0.00%	-4.37%	0.00%	0.00%
Other expenses	3.42%	3.35%	4.77%	42.38%	0.00%	8.92%	0.26%
Operating Income or Loss	20.02%	12.01%	9.46%	18.72%	24.49%	13.38%	10.52%
Other Income or Loss	0.03%	0.45%	-0.99%	1.58%	-0.25%	-2.14%	0.83%
EBIT	20.05%	12.46%	8.47%	20.30%	24.24%	11.24%	11.34%
Interest Expense	5.04%	0.15%	0.80%	6.54%	17.06%	4.59%	0.00%
Income before tax	15.01%	12.31%	7.67%	13.75%	7.18%	6.65%	11.34%
Tax Expense (Credit)	3.15%	1.50%	0.00%	4.53%	3.27%	2.19%	2.18%
Minority interest earnings	0.00%	0.00%	0.00%	0.20%	0.00%	0.33%	0.00%
Net Income from Continuing Ops	11.86%	10.81%	7.67%	9.42%	3.91%	4.79%	9.16%

Common-Size Income Statements (continued)

	8	9	10	11	12	13	14
Revenue	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Cost of Revenue	80.75%	30.01%	91.33%	66.93%	87.80%	80.63%	22.58%
Gross Profit	19.25%	69.99%	8.67%	33.07%	12.20%	19.37%	77.42%
Operating Expenses							
Research & Development	0.00%	0.00%	0.00%	0.00%	0.00%	1.19%	0.00%
Selling General & Admin	3.67%	13.79%	0.51%	1.27%	4.63%	0.00%	0.00%
Compensation & Benefits	0.00%	2.00%	0.00%	0.00%	0.00%	1.24%	16.40%
Depreciation and Amortization	12.21%	28.81%	0.89%	1.11%	0.00%	0.00%	24.76%
Non recurring expenses	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other expenses	7.20%	7.77%	5.02%	26.63%	0.27%	0.85%	37.66%
Operating Income or Loss	-3.83%	17.62%	2.25%	4.06%	7.40%	16.09%	13.46%
Other Income or Loss	-0.60%	0.00%	0.02%	-0.06%	0.26%	1.31%	14.47%
EBIT	-4.44%	17.62%	2.27%	4.00%	7.66%	17.40%	27.93%
Interest Expense	7.17%	10.07%	0.07%	0.94%	0.61%	0.02%	18.49%
Income before tax	-11.60%	7.55%	2.19%	3.06%	7.05%	17.38%	9.44%
Tax Expense (Credit)	-4.34%	2.82%	0.74%	1.25%	1.39%	5.37%	2.23%
Minority interest earnings	0.00%	0.00%	0.00%	0.00%	-0.04%	0.00%	0.00%
Net Income from Continuing Ops	-7.27%	4.73%	1.46%	1.81%	5.62%	12.02%	7.21%

Exhibit 4. Selected Financial Ratios

The following are common ratios used in financial analysis. All of the ratios are based on data taken from annual reports accessed from the Securities and Exchange Commission (EDGAR). The Market D/E is as of the fourth quarter of 2014.

	1	2	3	4	5	6	7
Inventory Turnover	-	5.55	11.28	-	-	-	3.81
FA Turnover	0.42	1.97	5.29	0.39	0.12	0.62	2.24
TA Turnover	0.36	0.53	3.08	0.28	0.10	0.34	0.44
Debt ratio	31.7%	7.0%	29.6%	33.4%	44.7%	37.5%	0.0%
Market D/E	0.16	0.05	0.23	0.67	3.13	0.76	0
TIE	3.98	83.00	10.61	3.10	1.42	2.45	-
ROE	0.12	0.09	0.47	0.09	0.01	0.07	0.04
ROA	0.04	0.06	0.24	0.03	0.00	0.02	0.04
Operating Margin	20.1%	12.5%	8.5%	20.3%	24.2%	11.2%	11.3%
Current Ratio	1.05	2.69	1.99	0.73	1.94	1.60	7.87
Quick Ratio	0.85	2.15	1.44	0.61	1.36	1.14	6.01
Profit Margin	0.12	0.11	0.08	0.09	0.04	0.05	0.09
BEP	0.07	0.07	0.26	0.06	0.02	0.04	0.05
DSO	38.15	77.55	10.32	42.50	106.03	62.44	48.60
D(Inv)O	-	65.71	32.36	-	-	-	95.81
D(AP)O	-	37.71	23.21	104.36	57.96	10.19	54.23
Cash cycle (days)	-	105.55	19.47	(61.87)	48.07	52.25	90.17
3-year Beta	0.78	3.15	0.56	0.52	1.64	0.38	2.32
P/E	33.46	16.91	7.96	15.90	7.95	39.62	37.06

Selected Financial Ratios (continued)

	8	9	10	11	12	13	14
Inventory Turnover	8.94	20.74	56.61	16.63	15.05	5.98	0.67
FA Turnover	0.57	0.23	9.93	30.42	3.33	2.33	0.21
TA Turnover	0.42	0.21	9.61	2.53	1.61	0.87	0.16
Debt ratio	45.5%	39.7%	38.9%	18.3%	13.8%	0.0%	21.3%
Market D/E	13.66	0.34	0.39	0.38	0.67	0	0.10
TIE	(0.62)	1.75	30.31	4.25	12.53	788.59	1.51
ROE	(0.09)	0.03	0.30	0.11	0.13	0.14	0.02
ROA	(0.03)	0.01	0.14	0.05	0.09	0.10	0.01
Operating Margin	-4.4%	17.6%	2.3%	4.0%	7.7%	17.4%	27.9%
Current Ratio	1.94	0.98	1.70	1.31	2.59	6.08	2.58
Quick Ratio	1.45	0.86	0.99	1.04	1.87	4.63	2.04
Profit Margin	(0.07)	0.05	0.01	0.02	0.06	0.12	0.07
BEP	(0.02)	0.04	0.22	0.10	0.12	0.15	0.04
DSO	33.65	39.64	4.05	21.50	18.37	35.63	52.05
D(Inv)O	40.82	17.60	6.45	21.94	24.25	61.07	545.45
D(AP)O	30.57	251.67	6.91	6.68	15.27	24.94	126.10
Cash cycle (days)	43.90	(194.43)	3.59	36.76	27.35	71.77	471.40
3-year Beta	1.69	1.11	1.60	0.19	2.50	0.36	N/A
P/E	-	23.54	23.08	7.70	7.74	10.41	N/A

INVENTURE FOODS: DEVELOPING THE INVESTMENT THESIS

Kevin Gioia, Fenimore Asset Management
James Murtagh and Rick Proctor, Siena College

Dan Napoli, a junior analyst in a value-focused mutual fund, is asked to develop an investment thesis for an $80M snack foods manufacturer. Inventure Foods has posted strong growth over the past five years but the stock recently experienced a significant drop in response to news that management thought the growth would slow. Napoli must evaluate the impact of a new product launch on the long-term value of the firm.

Daniel Napoli stared intensely into his computer screen taking periodic sips of coffee as he scanned the news headlines during June of 2011. Napoli was coming up on his one-year anniversary at Joyce Capital as a Junior Research Analyst and was gradually being asked to take on more responsibility with respect to investment idea generation.

Over the course of Napoli's first year at Joyce he was instructed to "read as many earnings reports and SEC filings as possible," within the Consumer Staples sector. Prior to Napoli's employment, Joyce had very little coverage within the Consumer Staples sector and had an internal goal to broaden the company's potential opportunities.

Recently the news headlines have been dominated by concerns and fears relating to the financial sustainability of domestic and international fiscal policies utilizing ever increasing amounts of debt. Despite recent improvements in the US economy, investors remain cautious and skeptical with regards to the stability of capital markets. As a result, stocks within defensive sectors, such as consumer staples, have been in high demand, driving up valuations, and creating a more difficult environment for finding attractive investment opportunities.

Taking a deep drink from his coffee mug, Napoli began to read through the recent earnings releases of a smaller snack foods company, Inventure Foods. He had followed the company casually for several quarters and noticed rapid sales and earnings growth with improved profitability over the past five years. Inventure had a market capitalization of $80M and controlled a portfolio of proprietary branded products and licensing agreements with some large respected brands including TGI Fridays[SM], Burger King®, and Jamba Juice®. However, this year the company seemed to be taking a pause. The stock price remained relatively flat during the first half of 2011 and the few available earnings estimates anticipated a lackluster year ahead for the company. (Exhibit 1) Figuring that there were very few bargains available in the space Napoli decided to take a closer look at Inventure to understand what issues were causing company results to decline after a period of growth.

JOYCE CAPITAL

Joyce Capital is a boutique investment firm specializing in long term investments in small and mid-cap equities. The company was founded by an independent entrepreneur, Ben Wellington, who began investing his family's capital during the 1970's. Successful results over time were noticed locally, and eventually nationally, by such publications as Kiplinger's and Money Magazine. What began as a 2-person investment firm grew substantially over the decades to the point where the firm had 40 employees. Joyce had $1.5 billion in assets under management spread throughout two public mutual funds as well as separately managed accounts.

Wellington's investing style could be broadly classified as value investing. Unlike many value investors, Wellington fashioned a style that avoided severely troubled companies who may or may not be selling at a major discount and instead choose to invest within profitable and well-run companies. The time-tested investment process utilized at Joyce focused on trying to invest in stocks which represent companies that are:

- Understandable businesses
- Profitable
- Possess a competitive advantage
- Run by management teams who utilize conservative amounts of leverage

Historically Joyce placed the greatest emphasis on trying to identify the best management teams within an industry. He believed that companies run by strong leaders are able to allocate capital in such a way that maximizes shareholder value over long periods of time. Joyce typically placed as much as 5% of the portfolio for a select number of hand-picked investments in an effort to invest in the analyst's best ideas, and in turn allowed these ideas to make a meaningful impact on the portfolio.

The final and most important criterion to the investment process involved being extremely patient in waiting for a buying opportunity once a business has been identified as possessing all the desired traits. Analysts continually assess a company's intrinsic value through the use of pro forma projections under various positive and negative scenarios. Analysts regularly meet with management, and monitor quarterly results in an effort to be prepared to act swiftly and aggressively for the few opportunities where a quality business would display a favorable gap between its market value and intrinsic value.

INVENTURE FOODS

Inventure Foods was founded in Phoenix, Arizona when the Jay and Don Poore began manufacturing and distributing kettle chips during the 1980's. The Poore brothers slowly grew their business locally and the company began to evolve adding new offerings into the product portfolio. As time progressed the company was able to establish a licensing agreement to manufacture and distribute TGI Friday's^{SM} Tato Skins. The licensing agreement marked the first time in company history where a large nationally recognized brand would be included in the company's product offerings. Realizing the potential for the company, the board of directors enhanced the management team with a focus on attracting innovative leaders with experience working for large established consumer goods companies.

The decision led to the hire of Terry McDaniel, who had enjoyed decades of success at Wise®, but was seeking an opportunity to have greater autonomy in his work. The concept of taking a small company and building brand awareness for existing products as well as developing new and innovative snack products was very appealing to McDaniel and he joined the company in 2005. It was at this the time the company changed names to Inventure Foods; which combined the terms "innovation" and "new ventures." Steve Weinberger, a Nabisco veteran, joined the company as the new CFO. The firm added a number of other highly talented executives from well-respected consumer goods companies including Haagen Dazs, Proctor and Gamble, and Colgate Palmolive. With the revamped management team in place under the leadership of McDaniel, the company enjoyed five years of rapid growth in sales and earnings driven by expanded distribution of existing products, new licensing agreements with other well established brands, and the creation and distribution of new products throughout major retailers including Costco, Kroger, Food Lion, and Target (Exhibit 1 & 2).

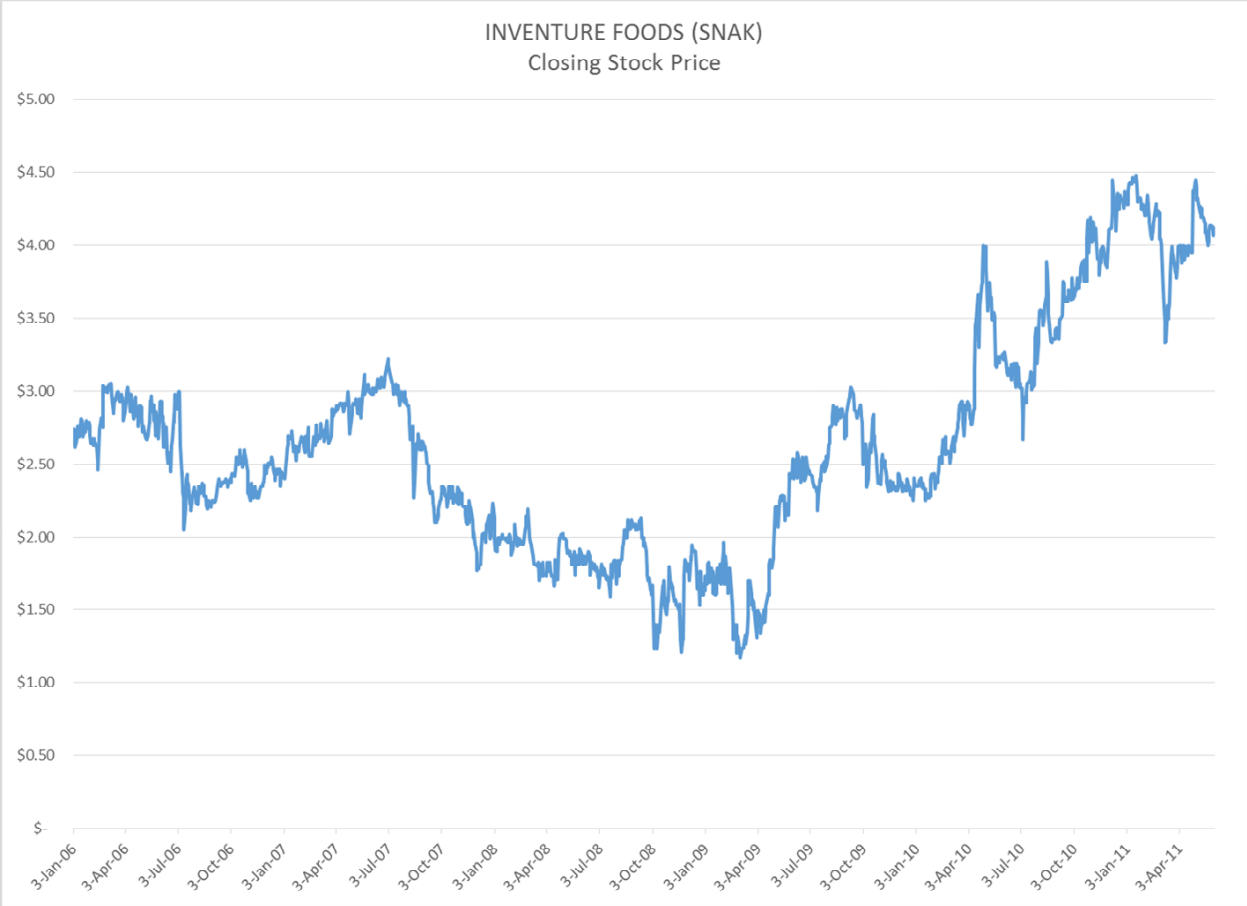
Even after five years of excellent results many opportunities remained for Inventure. The industry was in the midst of a secular trend of consumers demanding products centered on natural and "better-for-you" ingredients. Inventure responded with innovative snack offerings including kettle chips and crackers created from vegetables and legumes. In 2009, the company signed a licensing agreement with Jamba juice to create a brand-new category in the grocery store – at-home smoothie kits (Exhibit 3).

Current State of Inventure

After reviewing Inventure's history Napoli shifted his focus to the company's most recent activity, focusing on earnings conference call transcripts and SEC filings to understand the most recent performance.

From these various sources management explained that years of growth and success coupled with the recent agreement with Jamba juice led the company to a year in which they planned to pause their growth in order to make a number of investments throughout the firm's product portfolio and infrastructure (Exhibit 4). After years of such strong performance the investment community did not receive the news well that earnings would decline and cash flow would be consumed by major capital investments. Another concern involved the growth of the Jamba Juice smoothie line. Management was excited to begin growing a new category within the frozen foods aisle. However, in the short term, the company would have to incur one-time "slotting fees" in order to pay retailers for shelf space. These slotting fees would reduce net revenues while expenses increased implying a year of margin decline. The company noted that the impact of the slotting fees would continue for as long as the product line expanded distribution through 2011. The market seemed unconvinced by management's assurances that these declines in gross margins and increases in capital investments would lead to long term company growth. Questions began to arise questioning why management could not pursue opportunities that would hurt company profitability, as well as increasing levels of doubt with regards to management's ability to manage their operations efficiency. The stock price dropped to $3.33 in mid-March 2011, 26% lower than its 2011 high in mid-January. Although the stock recovered somewhat in the second quarter, it was still down 8% from its 2011 high. The company did not provide guidance, which Napoli believed could serve as a catalyst for an entry point, given the highly uncertain future of Inventure.

Figure 1. Inventure Foods Closing Stock Price



THE SNACK FOODS INDUSTRY

For a number of years, the snack foods category could be defined as stable and mature as well as dominated by major players with the largest being Frito-Lay, a division of Pepsi. Frito-Lay boasts a large and established portfolio of brands as well as the most powerful direct-store delivery system in the country. Napoli realized there was nothing obvious that should change this dynamic.

Recently, however, the snack foods industry has been experiencing growth driven by a number of factors including more frequent snacking as well as a desire by consumers to purchase products categorized as organic or "better-for-you." In an effort to capitalize on this industry trend, smaller companies began entering the industry typically trying to target specialty grocery stores and focusing on niche products.

Table 1. Industry Data ($US, values in millions)

	2006	2007	2008	2009	2010
Frito Lay North America					
Revenue	10,844	11,586	12,507	13,224	13,397
Operating Income	2,615	2,845	2,959	3,258	3,549
Snyders-Lance					
Revenue	730	763	852	918	980
Operating Income	28	39	30	58	12
J&J Snack Foods					
Revenue	515	569	629	653	697
Operating Income	45	49	43	67	77

Joyce Capital with its limited resources and bottom up philosophy did not subscribe to various resources that focused on capturing macro-economic trends. Instead the company tended to study players in various industries to understand the historical trends associated with growth rates and profit margins as well as follow management teams' commentary about industry trends (Tables 1 & 2). Although this was far from perfect, gathering data from these resources fit the process sufficiently at Joyce, where business valuation was viewed as "Just as much art as science."

Table 2. Other Valuation Inputs

Industry Valuation Multiples*	
Price/Earnings	15.7x
Price/Cash Flow	9.2x
EV/EBITDA	9.6x
US GDP Long-term projected growth**	3%
Inventure Stock Price (June 3, 2011)*	$4.12
Inventure Foods Weighted Average Cost of Capital*	6.92%
* Bloomberg ** Ibbotson	

Over lunch with a fellow analyst Napoli discussed that the absence of guidance from Inventure management added to the valuation challenge. He was left to make his own assumptions about the potential future growth of the company, as well as make a judgment whether the recent trends fueling their growth could yield levels of profitability previously enjoyed. Dan expected that Inventure's Snack Products line would continue to grow between 4-6% each year and would maintain its historical margins. The newly established Frozen Products line should grow between 20-40% each year for the next four years during its roll-out. While margins had improved for this line recently, Napoli expected that slotting fees would increase the frozen products cost of goods by 1% of sales above the historical levels. The management team's commitment to improving efficiency should help improve SGA margins over the next four years.

The elevated level of capital expenditures in 2010 and 2011 were expected to return to the longer-term average in 2012 and beyond.

Never quick to be discouraged, Napoli realized he had found an understandable business with a strong management team, but clearly the investment community, including his boss, doubted Inventure's ability to replicate past results. Napoli knew that ultimately his judgment of Inventure's economic worth would be the key to solidifying his investment thesis. Napoli knew this would require:

1. *A historical evaluation of Inventure's financial performance*
2. *A pro forma projection of Inventure's potential future performance*
3. *Using his projections to estimate the Inventure's Intrinsic Value using valuation multiples and discounted cash flow techniques*

Dan started a pot of coffee. He knew it was going to be a long night.

Exhibit 1 Inventure Foods, Inc. Financial Statements						
In Millions USD, except per share items.						
Income Statement						
For the Fiscal Period Ending	**12/31/05**	**12/31/06**	**12/31/07**	**12/31/08**	**12/31/09**	**12/31/10**
Revenues						
Frozen Products	0.0	0.0	20.8	38.4	40.5	48.5
Snack Products	72.0	66.9	67.4	71.4	80.6	85.5
Distributed Products (discontinued 2009)	3.3	2.9	2.8	3.2	0.0	0.0
Total Revenue	**75.3**	**69.8**	**90.9**	**113.1**	**121.0**	**134.0**
Cost of Goods Sold						
Frozen Products	0.0	0.0	16.8	31.0	32.8	36.0
Snack Products	58.4	54.0	56.1	57.0	64.4	68.9
Distributed Products (discontinued 2009)	3.0	2.6	2.4	2.9	0.0	0.0
Total Cost of Goods Sold	**61.4**	**56.6**	**75.3**	**90.9**	**97.2**	**105.0**
Gross Profit Before Tax						
Frozen Products	0.0	0.0	3.9	7.4	7.7	12.5
Snack Products	13.6	12.9	11.3	14.4	16.1	16.5
Distributed Products (discontinued 2009)	0.3	0.3	0.3	0.3	0.0	0.0
Gross Profit	**13.9**	**13.3**	**15.6**	**22.2**	**23.8**	**29.0**
Selling General & Admin Exp.	13.6	11.6	14.1	16.8	16.7	21.0
Operating Income	**0.3**	**1.6**	**1.4**	**5.4**	**7.1**	**8.0**
Net Interest Income (Expense)	**0.0**	**0.3**	**(1.0)**	**(1.3)**	**(0.9)**	**(0.9)**
EBT Excl. Unusual Items	**0.3**	**1.9**	**0.5**	**4.1**	**6.2**	**7.1**
Unusual Items, Net	0.2	0.0	(2.7)	0.0	0.0	(0.6)
EBT Incl. Unusual Items	**0.5**	**1.9**	**(2.2)**	**4.1**	**6.2**	**6.5**
Income Tax Expense	0.2	0.8	(0.7)	1.7	2.4	2.0
Net Income to Company	**0.3**	**1.1**	**(1.5)**	**2.4**	**3.8**	**4.5**
Supplemental Operating Expense Items	**12/31/05**	**12/31/06**	**12/31/07**	**12/31/08**	**12/31/09**	**12/31/10**
Depreciation & Amort.	1.2	1.3	2.1	2.7	3.4	3.9
Capital Expenditures	0.6	1.3	2.5	3.9	2.6	8.0
EBITDA	1.5	2.9	3.5	8.2	10.6	11.9
EBIT	0.3	1.6	1.4	5.4	7.1	8.0
Effective Tax Rate %	44.1%	41.7%	NM	42.1%	39.0%	31.0%
Per Share Items						
Diluted EPS	$0.01	$0.06	($0.08)	$0.13	$0.21	$0.24
Weighted Avg. Diluted Shares Out.	19.9	19.9	19.2	18.7	18.2	18.5
Source: CapitalIQ						

Exhibit 1 Inventure Foods, Inc. Financial Statements						
In Millions USD, except per share items.						
Balance Sheet						
Balance Sheet as of:	**12/31/05**	**12/31/06**	**12/31/07**	**12/31/08**	**12/31/09**	**12/31/10**
ASSETS						
Cash And Equivalents	9.7	8.7	0.5	0.7	1.1	1.0
Accounts Receivable	6.7	6.3	8.6	9.8	10.9	11.7
Inventory	2.8	3.5	11.6	14.0	17.4	21.8
Deferred Tax Assets, Curr.	1.8	1.1	1.2	0.8	0.7	0.6
Other Current Assets	0.4	0.5	0.7	0.6	1.0	1.3
Total Current Assets	**21.4**	**20.0**	**22.6**	**25.9**	**31.1**	**36.4**
Gross Property, Plant & Equipment	18.4	22.0	35.0	38.8	41.4	49.5
Accumulated Depreciation	(8.3)	(9.5)	(11.6)	(14.3)	(17.7)	(21.5)
Net Property, Plant & Equipment	**10.1**	**12.5**	**23.4**	**24.5**	**23.7**	**28.0**
Goodwill	6.0	6.0	11.6	11.6	11.6	11.6
Other Intangibles	4.2	4.2	2.8	2.8	2.8	2.1
Other Long-Term Assets	0.1	0.0	0.3	0.4	0.6	0.7
Total Assets	**41.8**	**42.8**	**60.7**	**65.3**	**69.8**	**78.8**
LIABILITIES						
Accounts Payable	3.3	3.4	6.0	7.6	6.8	7.7
Accrued Exp.	3.5	3.0	4.2	4.4	5.3	6.5
Short-term Borrowings	-	-	7.5	8.2	-	-
Curr. Port. of LT Debt	0.5	0.1	1.2	1.2	1.2	1.7
Other Current Liabilities	0.2	0.1	0.1	-	-	-
Total Current Liabilities	**7.5**	**6.6**	**18.9**	**21.4**	**13.3**	**15.9**
Long-Term Debt	1.7	4.0	12.4	12.1	20.4	21.3
Other Non-Current Liabilities	2.4	2.3	1.6	2.7	3.3	3.9
Total Liabilities	**11.6**	**12.9**	**33.0**	**36.2**	**36.9**	**41.0**
Common Stock	0.2	0.2	0.2	0.2	0.2	0.2
Additional Paid In Capital	28.4	28.9	29.3	25.7	26.0	26.6
Retained Earnings	1.6	2.7	1.2	3.6	7.4	11.8
Treasury Stock	-	(1.8)	(3.0)	-	(0.5)	(0.5)
Comprehensive Inc. and Other	-	-	-	(0.4)	(0.2)	(0.3)
Total Common Equity	**30.2**	**29.9**	**27.7**	**29.1**	**32.9**	**37.8**
Total Liabilities And Equity	**41.8**	**42.8**	**60.7**	**65.3**	**69.8**	**78.8**
Source: CapitalIQ						

Exhibit 2. Inventure Foods Business Strategy

The Company's business strategy is to continue building a diverse portfolio of high quality, competitively priced healthy/all natural food brands (Rader Farms®, Boulder Canyon™ Natural Foods. Jamba™ and indulgent specialty food brands (T.G.I. Friday's®, BURGER KING™, Poore Brothers®) with annualized target revenues between $5 million and $50 million each through expansion of existing brands, licensing, acquisition and development. The goals of our strategy are to:

1. capitalize on healthy/all natural and indulgent specialty food brand opportunities,
2. deliver incremental category growth for retailers,
3. provide product innovation targeted to a defined consumer segment,
4. complement, rather than compete directly against, large national competitors with leading national brands, and
5. build relationships with major retailers in all channels of distribution by providing them higher margins, excellent customer service and constant innovation.

The primary elements of the Company's long-term business strategy are as follows:

Develop, Acquire or License Innovative Healthy/Natural and Indulgent Specialty Food Brands.

A significant element of the Company's business strategy is to develop, acquire or license new innovative Healthy/Natural and Indulgent Specialty food brands that provide strategic fit with our existing business and possess strong national brand equity in order to expand, complement or diversify the Company's existing business.

Broaden Distribution of Existing Brands.

The Company plans to increase distribution and build the market share of its existing branded products through selected trade activity in various existing or new markets and channels. Marketing efforts may include, among other things, trade advertising and promotional programs with distributors and retailers, in-store advertisements, in-store displays and limited consumer advertising, public relations and coupon programs.

Pursue Acquisitions.

The Company continues to evaluate acquisition opportunities in the specialty food area where we can use our competencies in Operations, Sales, Marketing and Distribution in order to drive revenue and profit growth.

Develop New Products for Existing Brands.

The Company plans to continue its innovation activities to identify and develop (i) new line extensions for its brands, such as new flavors or products, and (ii) new food segments in which to expand the brand's presence.

Leverage Infrastructure and Capacity.

The Company's Indiana, Arizona and Washington facilities are currently operating at approximately 40%, 75% and 50% of their respective manufacturing capacities. The Company continues to secure new manufacturing opportunities in private label and co-packing arrangements, as well as expand upon its own branded product lines. In addition, the Company plans to continue capital investment in its plants and drive operating efficiencies.

Improve Profit Margins.

The Company plans to increase gross profit margins through increased long-term revenue growth, improved operating efficiencies, and higher margin new products. It believes that additional improvements to its manufactured products' gross profit margins are possible with the achievement of the business strategies discussed above

Source: 2010 Inventure Foods Inc. Form 10-K

Exhibit 3. Jamba Accelerating Brand Expansion Plans with Announcement of Licensing Agreement with The Inventure Group

Jamba and The Inventure Group Partner to Develop an Innovative, Better-for-You Line of Make-At-Home Frozen Smoothie Kits

Emeryville, CA – August 13, 2009 — Jamba, Inc. (NASDAQ:JMBA) today announced continued progress in their brand expansion plans, as its wholly owned subsidiary, Jamba Juice Company, entered into a license agreement with The Inventure Group (NASDAQ:SNAK) to develop a line of a blend-and-serve, frozen fruit smoothie kits for retail grocery distribution. This license agreement builds upon the existing licensing agreements signed with Nestlé in 2007 and Think Wow Toys and Oregon Ice Cream in 2009, to create health and wellness-oriented, Jamba-branded retail products.

"The make-at-home smoothie is an emerging category and represents perhaps the most literal extension of the Jamba brand to date," said Susan Shields, Vice President, Consumer Products and Licensing, Jamba Juice Company. "We want to serve the healthy habits of our consumers wherever they live and shop, and as we looked to extend the brand into this new area of opportunity, we needed a partner that understood the extraordinary quality that has made Jamba a leading name in smoothies. We're certain that teaming with The Inventure Group will provide our customers with the same great tasting and healthy-fun Jamba smoothie experience at home that they've come to expect in our stores."

The blend-and-serve smoothie kits are expected to launch in the U.S. during the first quarter of 2010 and will include a variety of fresh-frozen, whole fruit pieces, including raspberries and blueberries, from Washington-based Rader Farms, an Inventure Group company. The products will feature Jamba's signature recipes, and they will be the first smoothie kits in the marketplace to include vitamin and mineral boosts.

"We are delighted to partner with Jamba Juice in the development of better-for-you, frozen smoothie kits," said Steve Sklar, Senior Vice President Marketing, The Inventure Group. "Jamba has a powerful brand with broad consumer appeal and this relationship offers us both an opportunity to extend our respective core competencies in the development of a unique product line. We are excited to be a part of this endeavor."

The Inventure Group is a leading supplier of high quality frozen fruit to some of the nation's largest grocery retailers and maker and marketer of branded and private label snack foods as well as frozen fruit under the Rader Farms brand. They have deep expertise in the development of specialty, better-for-you, food and beverage offerings and a proven track record of combining flavor, technology, and innovation together to create unique, delicious tasting, good-for-you products that appeal to the active lifestyle consumer.

"This is a tremendous opportunity for our brand and fits the restaurant branded experience that The Inventure Group has achieved with other category leaders like T.G.I. Friday's® and BURGER KING™," added Terry McDaniel, President and Chief Executive Officer, The Inventure Group. "Brad Rader and the team at Rader Farms put quality ahead of everything they do and this is a great story of two premium, healthy-minded brands coming together to produce what I expect will be a great line of at-home smoothies."

Since announcing their intent to build a licensing growth platform as part of the 2009 BLEND plan, the blueprint for the Company's strategic priorities, Jamba has made significant progress in developing licensing alliances to launch new products. The Company's frozen novelty products, developed through its relationship with Oregon Ice Cream, and the Jamba-branded toy blender,

developed through its relationship with Think Wow Toys, are expected to hit retail shelves in late 2009.

"I am exceptionally pleased at the progress we are making against our goal to grow the Jamba brand through licensing," stated James D. White, President and Chief Executive Officer, Jamba, Inc. "The alliance with The Inventure Group allows us to extend the Jamba brand into additional consumer package goods categories and further maximize our reach to consumers as well as our revenue opportunity." In addition to the already signed agreements with Nestlé, Think Wow Toys, Oregon Ice Cream, and The Inventure Group, the Company is exploring a number of other opportunities to extend the Jamba brand.

Source: Inventure Foods Investor Relations website

Exhibit 4. Key Excerpts Summarizing Inventure Initiatives

"Going forward into 2011, as we announced, we will be launching Jamba nationally with a very large investment, which will impact total company earnings in 2011. We don't expect to grow earnings this year. We will also continue to invest capital into our plants to ensure that we can meet future sales demand and drive both costs and waste down."
-Steve Weinberger Inventure Foods Q4 2010 Earnings Call, 2/24/11

Investing Cash Flows

Net cash used in investing activities was $8.0 million in 2010 compared to $2.6 million in 2009. Capital expenditures of $8.0 million in 2010 primarily relate to the purchase of manufacturing equipment of $6.6 million including the addition of extruder equipment in Bluffton, putting in a new packaging machine and product line at Rader Farms for our Jamba® smoothies and upgrading kettles in our Goodyear facility.

In 2011, we plan to spend $9.0 million in capital expenditures, primarily at our manufacturing facilities. Capital expenditures are funded primarily by net cash flow from operating activities, cash on hand, and available credit from our credit facility.
-Inventure Foods Form 10-K, 2010

First Quarter 2011 Financial Results

Jamba® net revenue for the quarter totaled $2.1 million ($2.5 million gross), which was in line with the Company's expectations, and reflected the start of Jamba's® nationwide rollout and the adding of a fourth flavor, Caribbean Passion®.

Selling, General and Administrative (SG&A) expenses totaled $5.5 million for the quarter, or 15.0% of net revenues - an increase of $0.9 million and 50 basis points compared to the first quarter of the prior year. Continued investment in both Boulder Canyon™ and Jamba®, including increased marketing, sampling, and public relations efforts, drove a majority of this increase and reflects the Company's sustained focus on its Healthy/Natural brand investment.
-Inventure Foods First Quarter, Fiscal Year 2011 Earnings Release

First Quarter 2011 Earnings Call

"...Q2 and Q3 will see the lion's share of the slotting. Frankly, we expect a big slotting number in Q2…."
"...as we ramp up our Jamba national launch, we expect SG&A to grow in Q2 and Q3 versus the first quarter, so that's our expectation...""
"We estimate that we're now selling in over 7,000 doors and our national grocery ACV is at 22.5%."
-Steve Weinberger and Terry McDaniel Inventure Foods Q1 2011 Earnings Call, 2/24/11

COUNTERSPOINT: A SMALL CREDIT UNION'S STRUGGLE IN RURAL AMERICA

Jan Ambrose and Elizabeth Cooper,
LaSalle University

This is the story of Counterspoint Credit Union, located in the fictional town of Counterspoint, Pennsylvania. The case study focuses on the issues that the credit union currently faces and describes the history of credit unions in general. Sarah Thompson, the manager of the credit union, must figure out how to improve conditions for her business. Like many small credit unions, Counterspoint still maintains a mission to provide financial services to underserved populations yet is struggling in the face of competition from banks, large credit unions, other financial institutions, and general economic conditions. Students must evaluate several options for Counterspoint including merger, increasing services and memberships, increasing interest rates on products, and improving overall credit quality, all while balancing the mission of the credit union and the town itself.

INTRODUCTION

Counterspoint Credit Union is located in the borough of Counterspoint, Pennsylvania. The credit union is managed by a local resident of the town, Sarah Thompson. Ms. Thompson has been managing the Counterspoint CU for the past ten years. As Ms. Thompson prepares to open the doors to the one-branch financial institution on an unseasonably warm day in January 2018, she gets a familiar pang of worry about the direction that the business is going. Although CCU maintains a "well capitalized" rating from the NCUA for their net worth ratio (currently at 11%), she can't help but worry about the future of the credit union as net income has been slipping for the past several quarters, most recently landing at a loss for the last two fiscal years.

That the business was not thriving was not a surprise to Ms. Thompson. Indeed, she lived in Counterspoint all her life, only leaving for four years to attend college and major in finance. She always knew she wanted to come back to the small town she grew up in and wanted to use her business skills to help out the community in some way. The credit union was the perfect way to marry her knowledge base with her desire to be a source of growth for the community. She started working at the credit union as a part-time employee the summer after she graduated from college in 2010. Ms. Thompson started as a branch teller employee. Her job was to serve credit union members by receiving or paying out funds while maintaining a high degree of accuracy. As she gained more experience, she was also charged with explaining the products and services that CCU offered to its members. Ms. Thompson quickly became highly skilled in her job and soon moved to a supervisory position within the CU in 2013. In this position, she managed two tellers in addition to performing the duties of branch teller herself. She reported to manager of CCU at the time, Heidi Novak.

Ms. Novak left CCU after twenty years as the manager of the credit union. Ms. Thompson was the logical replacement for the long-time manager. So in 2016 Sarah Thompson became CCU's third manager in its 50-year history. Ms. Thompson managed two full-time branch employees and one part-time office employee. She noticed that the business of the credit union was lower than it had been even when she first started at CCU six years prior; but it wasn't until she read through the credit union's Call Reports that she realized what kind of situation her small business was facing.

BACKGROUND ON COUNTERSPOINT, PA AND COUNTERSPOINT CU

Counterspoint is located in north central Pennsylvania, right along the Allegheny River. The town most recently boasted a population of close to 5,000 as of the 2010 census but estimates of the current population are closer to 4,500. The town, like many small boroughs in rural Pennsylvania, has witnessed a decline in population over the past several decades. In fact, since its peak population of 6,000 in 1970, the borough has seen declines on the magnitude of approximately 6% per decade. Median household income is approximately $35,000 with almost 9% of the borough's citizens living below the poverty level. The age of individuals in the borough is widely distributed with about a quarter of the residents falling into the under age 25, 26-44, 45 – 64, and 65 and older categories, respectively.

Counterspoint Credit Union currently has 850 members. Membership is open to anyone who works, worships, attends school, resides, or volunteers in the Counterspoint borough. Family members of CCU members are also eligible for membership only if they reside in a few neighboring towns. Members of a credit union enjoy access to deposit and loan services similar to that of a commercial bank. CCU currently provides the following types of loans to its members: unsecured credit card loans, new vehicle loans, used vehicle loans, and home equity loans. They do not offer first mortgage loans or student loans.

The credit union has four employees, including Sarah Thompson. Thompson currently manages the CU. A board of directors consisting of seven individuals acts as a supervisory body that oversees that activity of the CCU employees. Directors are unpaid volunteers, which is consistent with the bylaws of a credit union, and are elected by the members of CCU annually. Further, a supervisory committee consisting of three individuals is charged with watching the board of directors. This supervisory committee is also elected and serves in a volunteer, unpaid capacity on behalf of the CCU members.

HISTORY OF CREDIT UNIONS IN THE UNITED STATES

Credit Unions were first established in the U.S. in 1909. They were originally formed in order to provide financial services to groups of individuals sharing a common bond. Some of the early credit unions arose from the need of farmers to have some source of credit beyond the banks in New York and Boston that were not sympathetic to the crop failures and financial woes of the 1920s (Baradaran 2013). The Great Depression further ignited a need beyond typical commercial banks for individuals outside of the wealthy populations. Underserved groups such as farmers and

others in rural populations were organized into credit groups where individuals could deposit excess money and others within the group could receive loans.

Historically, credit unions were in areas or functioned for populations that were underserved by mainstream commercial banks. This allowed low- and moderate-income households to have some control over their money, all with the protection of federal insurance. Credit unions were able to keep interest rates low on loans by requiring a "common bond" among its members; this reduced the credit risk of lending to the poor since members knew each other. This allowed credit unions to lend on the basis of character, as opposed to the banking model of lending on the basis of collateral.

In 1937, Congress amended the Federal Credit Union Act by extending significant tax exemptions to credit unions. This was done because by taxing credit unions in the same way that banks are taxed, as previously was the case, this subjected the credit unions to excessive burdens that would hinder them from providing their much-needed services to the credit needs of the poor and working class. As a result of the tax elimination, the credit union industry grew very quickly. By 1969 there were 24,000 credit unions operating in the United States. However, in the face of changes in regulations and competition from other financial service firms over the years, even the tax-exempt status of the industry was not enough to maintain industry performance.

Within the financial industry, increases in competition and the pressures of deregulation caused a shift in landscape. In particular, credit unions were forced to compete with banks and seek higher profits as they saw their customers move to unregulated financial entities that were able to offer more attractive interest rates and did not require strict membership rules (the "common bond"). Credit unions moved their focus from financial institutions for the poor and working class to an option in banking for the middle class.

To help credit unions compete with banks, the National Credit Union Association in essence dissolved the common bond requirement in the early 1980s. This allowed credit unions to expand in size and compete with other depository institutions. In 1998, Congress passed the Credit Union Membership Access Act that authorized this idea of a "multiple common bond" feature of credit union membership to allow more people to use the services of a credit union as opposed to a traditional bank or savings institution. Credit unions still maintained their tax-exempt status but at the same time were able to increase their membership size and services, basically acting just like banks. Other regulatory acts within the banking industry such as the Gramm-Leach Bliley Act and the 2010 Dodd-Frank Act applied also to the CU industry. These regulations increased the compliance costs for firms across the industry and small CUs have a harder time distributing these costs than their larger counterparts. As a result, consolidation in the industry has taken hold. Just like in the commercial banking industry over the past two decades, there was a dramatic increase in credit union mergers and acquisitions as small credit unions that still catered to the needs of the poor, working class households in rural and urban areas, were bought by larger, ever-expanding credit unions. In fact, in 2016, there were just 5,785 federally insured credit unions; a fraction of the population of CUs from the late 1960s.

Today, credit unions are still exempt from corporate income tax. They do not issue stock so their growth strategy relies on membership activity. On average credit unions are small with an

average asset size of $223 million.[1] The average credit union has 106.9 million members, but this varies widely across the industry), small asset credit unions (those with $10 million in assets or less) were the most common size in the industry (23%) and had, on average, 1100 members. These small-size credit unions, according to According to McKee and Kagan (2016), might be most likely to still operate under the initial mission of credit unions to provide financial services for typically underserved populations. Since the 1990s, the number of credit unions declined more for the small asset size CUs than any other size category; while the growth in the number of credit unions worth more than $1 billion in assets has increased over six hundred percent during the same time period.

Credit unions emphasize retail and consumer lending and therefore have a high concentration of first mortgage loans, new and used vehicle loans, and credit card loans in their loan portfolio making up the majority of their assets. Assets also consist of investment securities, the majority of which is in government Treasury securities and other federal agency securities (66.7% as of 2013 according to Saunders and Cornett 2015). Cash and equivalents make up the remainder of a credit union's assets. On the liability side, funding comes mainly from member deposits (over 85%). This is more than the deposit source as a percentage of assets in commercial banks and savings institutions. Equity is usually lower than the equity held at other depository institutions since CUs are not owned by outside stockholders. Equity is the accumulation of past earnings and these are essentially owned by CU members. Net worth ratio, the ratio of total net worth (capital) to total assets, should be above 7% for the CU to be "well-capitalized" as determined by the NCUA. However, the average capital-to-assets ratio for the industry as of 2016 was well above this threshold at 10.89%.

Income is based on loan interest as well as fees for other services that the credit union provides. Operating costs vary in terms of technology and size. Small credit unions in some cases still rely on unpaid volunteers to staff branches while larger CUs have professional staff. This can lead to high variation in performance.

COUNTERSPOINT CREDIT UNION FINANCIALS

Sarah Thompson recently filed the Call Report data on Counterspoint CU as of December 2017. Although there was slight improvement in net income from the previous year, she still couldn't help but worry about the state of her institution. Although net income has improved from its low of -$2,726 in 2016, it is still negative meaning that Counterspoint is losing money. The last time the credit union had positive net income was in the first quarter of 2015. What also worries Ms. Thompson is the fact that total assets are steadily declining. Most recently, Counterspoint had total assets of just over $3 million, close to a 5% decline in assets from the year before. But net worth ratios are acceptable and in fact the NCUA consistently gave Counterspoint a "well-capitalized" rating for being above the 7% threshold.

The income statement over the past three years shows that while fee income has remained relatively steady, interest income is declining year by year. Granted, interest rates in general have

[1] All financial data on credit union industry based on the December 31, 2016 NCUA industry information.

been quite low, historically speaking, during this time but she would like to see a steady state in interest income if not growth. She notes that expenses overall are not very high – the majority goes to compensation for the employees at Counterspoint. She prides herself on keeping operating costs at a minimum; advertising expense is zero or close to it each year she has been at the credit union, for instance. Even so, efficiently managing costs has not been enough to outweigh the decline in income over time. She knows she has to increase revenues in some way or the business will have a real problem.

Even during the financial crisis Counterspoint was doing better than it was today. In 2009, the credit union had positive net income and higher total assets than it has currently. Sarah Thompson looked through past Call Reports before the financial crisis and saw that Counterspoint was doing quite well at that time. Although the financial crisis did not impact the credit union industry as much as it did other financial institutions (due to credit union's limited or nonexistent investment in risky subprime securitization products, among other reasons), the repercussions of the 2008 crisis were felt in all sectors of the economy to some extent.

Exhibit 1: COUNTERSPOINT CREDIT UNION					
BALANCE SHEET YEAR END 20XX					
	2015		2016		2017
Cash and Equivalents	1,163,047		974,889		619,082
Investment Securities	272,079		147,078		518,078
Loans:					
Credit cards	110,748		106,712		94,020
Unsecured Lines of Credit	384,678		379,940		294,801
New Vehicle	100,539		156,271		198,214
Used Vehicle	839,998		697,963		584,886
Home Equity Lines of Credit	775,183		674,835		684,257
Other	102,756		83,458		75,559
Allowance for Delinquents	-14,523		-16,020		-15,928
Fixed Assets	6,646		2,315		771
NCUA Share Insurance Deposit	34,592		31,911		30,180
Other	9,402		9,802		9,587
TOTAL ASSETS	3,785,145		3,249,154		3,093,507
Dividends/Interest Payable	298		260		185
Accounts Payable	8,683		4,190		9,408
Shares:					
Draft	702,799		622,374		564,077
Savings and Time	2,289,481		2,221,984		2,156,212
Other	409,204		42,341		30,006
Undivided Earnings	251,577		234,902		210,516
Regular Reserves	123,103		123,103		123,103
TOTAL LIABILITIES AND EQUITY	3,785,145		3,249,154		3,093,507

Exhibit 2: COUNTERSPOINT CREDIT UNION					
INCOME STATEMENT 20XX					
	2015		2016		2017
Interest on Loans	36,445		30,987		28,829
Income on Investments	551		502		1,265
Dividend/Interest Expense	-931		-580		-832
Net Interest Income	36,065		30,909		29,262
Fee Income	56,703		55,628		56,313
Other Operating Income	51,648		51,554		51,737
Total Income	144,416		138,091		137,312
Non-Interest Expenses:					
Compensation and Benefits	122,492		122,368		120,692
Office	15,226		14,094		13,129
Promotional	0		30		0
Loan Servicing	3,574		3,104		3,580
Miscellaneous	1,848		1,221		1,462
Total Expenses	143,140		140,817		138,863
Net Income	1,276		-2,726		-1,551

In the past few years the credit union has also been struggling with membership numbers and delinquent accounts. Although they have started offering new products over the years to compete with the larger community bank, OneTrust, that recently moved into the area, Counterspoint lacks some of the diversified products that OneTrust has on its books. A quick search online brought up lots of different loan types at OneTrust: a client of the bank could open all of the loans that Counterspoint offered plus business loans, first mortgages, and student loans, none of which were offered at Counterspoint. But Counterspoint consistently provides loans at more attractive rates than OneTrust although the rate advantage has been tighter in recent years. Since Counterspoint does not have to pay corporate income taxes and relies on membership character in order to assess creditworthiness of their potential borrowers, they have an advantage over banks such as OneTrust that have to pay taxes and rely on more complicated credit scoring systems to ascertain borrower probability of default. These statistical models, although in many cases quite accurate and sophisticated, require different and often more expensive skill-sets on the part of employees at the bank to run and understand.

Exhibit 3: COUNTERSPOINT CREDIT UNION							
LOAN INFORMATION 20XX							
	2015			2016		2017	
	Rate	Number		Rate	Number	Rate	Number
Credit Cards	13.90%	117		13.90%	112	13.90%	120
Unsecured Lines of Credit	8.10%	348		8.81%	134	10.90%	109
New Vehicles	4.01%	14		4.49%	9	4.80%	12
Used Vehicles	5.94%	211		5.35%	94	5.30%	73
Home Equity Lines of Credit	4.55%	20		4.60%	18	4.30%	23
Other	4.48%	53		4.78%	22	4.15%	20

Exhibit 4: AVERAGE BANK RATES			
	2015	2016	2017
Credit Cards	21.90%	20.90%	19.00%
Unsecured Lines of Credit	12.90%	12.50%	13.00%
New Vehicles	6.00%	6.30%	6.90%
Used Vehicles	7.00%	7.30%	7.90%
Home Equity Lines of Credit	4.25%	4.95%	5.45%
Other	6.50%	6.70%	6.90%

While OneTrust might have a more expensive payroll for the same size institution in the small Pennsylvania town, it seems to pick up many customers that might have originally gone to Counterspoint. Counterspoint has seen a steady decline in recent years in the number of new memberships, one of the measures of a credit union's overall performance. The number of current members in 2017 is 852 on the most recent call report; it was 926 in 2015 and 888 in 2016. These numbers do not represent the number of accounts but membership deposits fuel the growth and capabilities of a credit union more so than any other source of funds and when the number of members declines, so does the capital funding. However, the number of potential members of the credit union remains quite large at over 13,000, which represents the populations of individuals over the age of 18 in the Counterspoint borough and surrounding boroughs that could theoretically become members. There seem to be untapped potential customers out there that Counterspoint CU is not reaching.

Exhibit 5: COUNTERSPOINT CREDIT UNION			
MEMBERSHIP INFORMATION			
	2015	2016	2017
Current Members	926	888	852
Potential Members	13,512	13,512	13,512
Members using website	181	210	258

OPTIONS

Sarah Thompson began thinking about her options as the credit union's manager. She has the duty to work on behalf of Counterspoint members and she knows that the board of directors is pressuring her to do something that will potentially turn things around for the small credit union.

Merger

The first thing that she thinks about is the offer from Pinnacle. Pinnacle is a large credit union that is expanding rapidly. The strategy at Pinnacle is to acquire small community oriented credit unions such as Counterspoint and replace them with a Pinnacle branch (or, in the case of some acquisitions, simply shut it down and filter members into a nearby Pinnacle branch). In their most recent call report, Pinnacle reported total assets of $750 million and steady growth in membership and assets over the past several years.

According to the NCUA, there are approximately 200 mergers each year between credit unions since 2003. Most of the mergers involve credit unions with assets less than $50 million. Target firms are more likely to explore acquisition offers when experiencing negative situations such as declining membership, negative earnings, declining net worth or weak regulatory ratings. From the acquirer's point of view a merger can provide significant economic benefits such as helping the credit union to expand or to diversify services and loan products offered. An acquirer such as Pinnacle would be more likely to take over a small credit union such as Counterspoint while the regulatory rating and net worth ratio of Counterspoint remained strong.

There are less tangible benefits to the acquiring party in the case where the target firm is financially troubled. Ms. Thompson knows that it would be in the best interest of Counterspoint and its members to seek out a merger at this stage instead of waiting until a merger was imposed by the NCUA in the case that the credit union's financial condition deteriorated. However, she is not sure that her members and employees will be best served by Pinnacle should a merger take place. It was well known that Pinnacle acquired another small credit union in Northeastern Pennsylvania in 2015 and the larger company ended up letting go of all of the smaller firm's employees. Further, members who were transferred from the small credit union to Pinnacle complained about the lack of personal service at their new institution. Many customers sought the small credit union experience, which seemed to preserve the conceptual rationale of a credit union in the first place. In fact, Figart (2013) states that deregulation stemming back to the 1990s led to

a wave of mergers in the financial industry which had the effect of separating financial institutions, banks and credit unions alike, from their community roots. In place of acquired and closed small community banks in rural and urban impoverished areas, "alternative financial services" often arose such as check cashing businesses, payday lenders and pawnshops. Thompson certainly wants to avoid a future like that in her town.

Increase number of products and services

Another thought that Sarah Thompson has been considering is to diversify the loan portfolio at Counterspoint. She witnessed some of her own CU members going to the bank that offered mortgages and student loans for those loan products, since Counterspoint currently does not offer these types of loans. She is also thinking about offering business loans to small businesses and entrepreneurs in the area. By offering new loan products she could increase the variety of sources of Counterspoint's interest income. This is especially attractive since she sees some deteriorating loan quality in current products such as unsecured credit card loans and vehicle loans (both new and used). If she can add more loan products then she can potentially offset increased delinquencies in one pool with better loan quality in other pools. Perhaps by offering more loan products this strategy will increase membership in the credit union as well.

However, new loan products are not familiar to Sarah Thompson and her staff. In order to offer new types of loans to her members, she and the staff will have to understand the credit risk management tools that are specific to these types of loans. Business loans are much different than a personal unsecured loan for a vehicle or credit card. Further, business loans and mortgages are typically many times larger than a credit card or vehicle loan; so even one delinquent or charged-off business loan on her books could have a disastrous impact on Counterspoint's equity, whereas a charged-off vehicle loan, while having a negative impact on equity, would not severely hurt the credit union's net worth.

Increase membership

Many credit unions have expanded membership whereby the common bond requirement of the original credit unions is being replaced with a more open idea of membership. Currently, Counterspoint is only offering memberships to those individuals living or working within the Counterspoint borough. Although membership is also open to the family of Counterspoint members, the fact is that membership has been declining along with a steady decline in the population of Counterspoint itself. Sarah Thompson thinks that one way to increase membership is to open up the common bond requirement to people outside of Counterspoint and create a less strict membership requirement for new members at the credit union.

She can see many benefits to this as it will certainly increase membership opportunities but she is not sure it would translate into increased memberships unless Counterspoint also does things to support the new membership strategy. Thompson knows that she will have to increase her advertising budget and look into different marketing strategies if she is to reach people outside of her borough. Currently advertising costs are low or non-existent. The credit union does have a website but it has not updated frequently, nor could members utilize the website for financial functions such as balance inquiries and payment services. She thinks about other sources of advertising as well: billboards, newspaper ads, and an increased presence on social media.

Thompson also considers the original purpose of a credit union which is to bring together individuals within a community and with a common bond that are perhaps underserved by traditional financial service organizations. She truly believes in this mission and purpose and it is what motivated her to work in the industry in the first place. By opening up membership to people outside of her "common bond" would she be betraying this mission? How could she offer credit to sometimes poorly collateralized customers without personally knowing about the individual's character and circumstances? Would she be able to transform the qualitative credit risk approach she and her staff currently used for something much more quantitative and less personal?

Increase interest and non-interest income

Sarah Thompson looks at the interest rates on Counterspoint CU's loans in comparison to OneTrust's interest rates. Although they are consistently lower at Counterspoint, the number of loan accounts has been declining in recent years. Customers seem to go elsewhere for loans when a few years ago they would have sought out a loan from Counterspoint. Maybe interest rates are not what matters? Thompson thinks that if she increases the interest rates on the loans that Counterspoint offers this would increase the credit union's interest income, thus giving them a much-needed boost in net income. But she is not sure that her members will accept the increase in interest rate without pushback – in fact, it could have a detrimental impact on income if the credit union loses even more loan accounts as a result.

Thompson lets the idea of increasing interest rates on the loans remain a possibility. Maybe she is losing out on interest income that her financial institution competitors are picking up because she is not being aggressive enough on the rates she charges her members. But a credit union, with its tax-exempt status and its purpose of financial service for underbanked individuals, might reconsider such actions that would ultimately harm their members financially.

The thought of increasing non-interest income is also on the table. Many commercial banks saw an increase in fee income over the past decade in response to the low interest rate environment and the subsequent lack of growth in interest income. Many banks charge fees for checks, overdrafts, delinquencies, and even just to speak with a bank teller. Even though Thompson dislikes the thought of charging her members money for common services that the CU provides, again she wonders whether her small credit union is missing out on easy income by not penalizing members who are delinquent on loan payments or charging them a fee for providing money orders.

Improve delinquency rates and credit screening

Sarah Thompson decides that another option to improve performance at Counterspoint would be to work on loan delinquencies and credit screening prior to loan origination. Currently, Counterspoint sends out a letter to any individual who is 30 days past due on a loan of any type (and subsequent letters are be mailed out every 30 days thereafter as necessary) but the credit union does not charge a late fee or do anything else beyond reminding the customer of the late payment. Thompson notes that historically the credit union has not had many loan delinquencies – a few per year (mostly from credit card and used auto loan borrowers). However, when a member is approximately 90 days past due (or more) on a loan payment, most often that individual defaults on the loan entirely and the balance is charged off.

One idea is to charge members a fee for late payments on their loans – even a missed monthly payment would warrant a small fee. This will enable Counterspoint to increase fee income and at the same time hopefully prevent late payments from occurring or becoming a habit. She thinks it will be a helpful incentive for some members to pay on time and avoid the fee. Of course, credit union members might balk at the idea of fees for delinquent payments. The whole idea of a credit union is to base the banking relationship on trust and knowledge of the members. If members are being charged a fee for even just a payment made a few days late, this might take away from the relationship-driven institution and give customers reason to leave the credit union entirely.

Along these same lines, Thompson thinks that she could start to utilize some of the more sophisticated credit screening models that commercial banks use to measure individual credit risk. Right now, since Thompson knows her members personally (or members vouch for new members in the case of family credit union accounts), her credit screening is basically built in at the membership level. That is, if someone is a member of Counterpoint (they have a checking or savings account with the credit union) they will automatically be approved for a loan. Most of her members have similar financial backgrounds and payment capacity. Therefore, it is not necessary to individually screen and measure each member's credit risk at loan origination. But maybe if Thompson devotes some time and training for herself and her employees to credit risk models commonly employed by commercial banks, she will have a better sense of individuals' credit risk and be able to make loan origination judgments with more certainty about the default risk probability at the outset of the loan. But is she in the business of denying loans to her members? It seems counterintuitive to the mission of a small credit union like hers to deny members loans when they need one. However, she knows that better risk management from the outset should lead to lower default rates in the future.

STORE OPENING

All of these thoughts are in Sarah Thompson's head the day she arrives to work at Counterspoint on that sunny January morning. Her head teller, Charles Lake, walks in the doors a few minutes later and he and Thompson exchange pleasantries with some talk about the nice weather. Any time they do not have to shovel snow from the sidewalk in front of the branch on a winter's morning they consider themselves lucky. The first customer arrives about 20 minutes after Thompson and Lake unlock the doors and put out the "open" sign. Thompson is happy to see it is Melissa Robinson, her parents' neighbor for over 40 years. Melissa brings in some cupcakes for Sarah and Charles – they were left over from her granddaughter's birthday party the night before, Melissa told them – and the two bank employees have no problem eating cupcakes first thing in the morning as they help Melissa with her deposit.

Although Sarah is content and happy with her job and her life in her small town, she also knows she needs to make some decisions about the business. The financial futures of people like Charles Lake and Melissa Robinson are in her hands to some degree and she wants to make sure she really thinks her decision through.

REFERENCES

Baradaran, Mehrsa. "How the poor got cut out of banking." *University of Georgia Law Scholarly Works* 62 (2013): 483-548.

Figart, Deborah. "Institutionalist Policies for Financial Inclusion." *Journal of Economic* Issues 47 (2013): 873-891.

McKee, Gregory and Albert Kagan. "Determinants of recent structural change for small asset U.S. credit unions." *Review of Quantitative and Financial Accounting* 47 (2016): 775-795.

National Credit Union Association website, https://www.ncua.gov.

Saunders, Anthony and Marcia Cornett. *Financial Markets and Institutions, Sixth Edition*. McGraw Hill, 2015.

BB&T AND THE LOOMING FINANCIAL CRISIS

Charles Kennedy, Jr,
Wake Forest University[1]

John Allison, CEO and Chairman of BB&T, always took a beach vacation in August. He loved the North Carolina coast between Wilmington and Morehead City. His long-time Chief Credit Officer, Ken Chalk, often took a beach vacation in August as well, and in 2005, they felt a need to take a walk along the Atlantic surf, where they could share some recent observations and concerns.

Allison "Ken, can you believe these real estate prices along the beach? They've soared tremendously since last year. I bet it's over 20%."

Chalk "John, I noticed the same thing and it only reinforces our recent conclusions concerning the real estate bubble and how a correction is coming."

Allison "Greenspan talks about certain metropolitan areas of the housing market being frothy, but what we see along the North Carolina coast is evidence that an asset bubble is more widespread than that, and this could be serious for the nation's economy. On top of that, there was a recent FDIC report that showed that the fastest growing metropolitan markets, which represented around 20% of the national market by population, constituted nearly half the total value of the country's housing market versus only one-third 5 years ago."[2]

Chalk "I'm particularly concerned about the commercial real estate market, which in itself has the potential to set off a financial firestorm like the one witnessed in the 1980s with the S&L crisis."[3]

Allison "Well Ken, that might be true but you know how I am. I'm more of a macro guy, and I have been concerned for a time now about the Fed's macroeconomic policies and how they have greatly contributed to this mess. The Fed significantly mismanaged interest rates and monetary policy in the period since 2000. Interest rates are too low, with the Fed Funds rate now at 3.5% against an inflation rate that is approaching 4.0%. Due to low real interest rates and optimistic economic projections coming out from private economists and the Fed, many banks are making investments that are not normally made, including significant financing of real estate projects."

Chalk "On top of that, when you throw in the role of Freddie Mac and Fannie Mae into the equation, when the two are aggressively competing for mortgage loans and encouraging risk taking in the marketplace, then the problem of a real estate bubble grew more and more. As semi-governmental agencies, they could easily sell bonds in the market, and the Chinese and other Asian central banks were eager and large buyers."[4]

Allison "Home ownership for every pot may sound nice and may be politically popular, but something goes economically haywire when there's been a tremendous government drive to raise homeownership rates above the natural market rate. Ultimately, home prices area driven by affordability. If you compare the peak of home prices to affordability, nationally real estate prices need to fall 30 percent to become affordable again. In addition, the real price of housing has risen an unprecedented 50% in the last ten years, versus a single digit increase the previous 20 years.

The theory is that homeownership is a good thing. Well, it's a good thing if people aren't buying houses they can't afford, or where they don't have the discipline to repay the debt, or young people, who don't have savings buying houses, or people buying too big a house, etc. Tax policy has supported excess investment in housing for a long time at the expense of our global competitiveness. But what really put us over the dam was the affordable housing focus that turned into subprime. In September 1999, President Clinton announced a goal for Freddie Mac and Fannie Mae to have half of their loan portfolio in affordable housing, now sub-prime. By the end of last year, Clinton's goal was almost reached, with sub-prime loans going from 23% of total mortgages in 2002 to 47% in 2004."

Chalk "You're right, John. And a lot of those sub-prime mortgages took the form of 'pick a payment' mortgages with negative amortization. One could make an argument that such mortgages make sense for a rather affluent executive on a temporary assignment for a year or two, but we made a blanket prohibition on all such loans so that our people would not be tempted once the camel's nose was under the tent."

Allison "Absolutely; BB&T decided not to offer the product for ethical considerations. Real estate is not going to keep appreciating 10%, 15% a year for perpetuity. We're setting up a lot of people to get in serious trouble with this type of product. They're going to owe a lot more money on their house five years from now than their house will be worth, and we did not want to do that."

We believe it is not good business in the long term to do things that are bad for our clients. Even if you can make a profit in the short term, it's not good business to help your clients get in trouble. By the way, a lot of

people chose to get pick-a-payment mortgages from Countrywide when we turned them down."

Chalk "John, what's your guess as to how bad this mess is going to be on our business?"

Allison "Ken, that's the real business problem. Here we are convinced that some serious garbage is going to hit the fan but we are not sure exactly when and how bad it's really going to be. This unpredictability is heightened by the apparent ability of the Fed to extend and expand bubbles, whether that be their intention or not. If we act too harshly and preventively, our profits could become so weak in the short term, BB&T could become a takeover target before the bust occurs. I do know, however, that there has been excessive risk-taking by financial institutions, driven by low Fed rates for too long and by the development of an inverted yield curve. This environment is a destructive combination, but we were told by the Fed that because of the new global economic environment, the inverted yield curve didn't mean we were getting ready to have a recession.[5]

Nevertheless, bank margins are killed by inverted yield curves, so how will financial companies make money? They will take risks, and they will continue to do so because nearly all economic forecasts, including the Fed's, suggest the good times will continue to roll. This development on top of negative real rates is a witch's brew of trouble. Thus, I am in agreement with what the economist, Mark Zandi, said the other day in the *Wall Street Journal*: the non-transparent nature of risk that is wrapped up in the world of mortgage securitization could be the great Achilles heel of the economy. How do you manage your people and your business in this kind of environment?"[6]

Chalk "Do we need to start tightening our credit limits and requirements?"

Allison "Probably, but let's talk more when we return from vacation."

John Allison and BB&T

John Allison had spent his entire career at BB&T, once known as the Branch Banking & Trust Company. He joined BB&T in 1971 and later earned his Executive MBA from Duke University, going to school on weekends. Allison rose rapidly through the ranks and became the bank's Chief Executive Officer in 1989. Ken Chalk, who had been BB&T's Chief Credit Officer before John became CEO, found the transition to the John Allison era relatively easy since Ken reported directly to John both before and after John got the top job. Together they helped BB&T successfully maneuver through 60 financial acquisitions, propelling the bank from $4.7 billion in assets in 1989 to around $150 billion by the end of 2005, making it one of the largest dozen banks in the United States.

Interestingly, BB&T was the only major U.S. bank that did not have a formal economics group or department. Allison believed strongly that key managers should stay abreast of economic events and trends and make executive decisions based on that knowledge. Professional economists and forecasts were useful to monitor, but ultimately, the top managers at BB&T would need to reach their own judgments concerning the economy and how it would impact the bank.

In part, this viewpoint was driven by Allison's assessment of economic models. "I respect mathematical modeling but the belief in mathematical modeling became very irrational. There are lots of problems with mathematical models, even though they can be useful tools. People think of mathematics as being objective but mathematical models are not objective because they cannot consider things that are not mathematical. And the biggest thing that is not mathematical is human behavior. If you can't capture human behavior, you have an interesting indicator, but that's all you've got. Thus the problems with the Federal Reserve are systems design issues. In my experience, there are many very bright people at the Federal Reserve. But there is a system design problem. You cannot integrate what's happening in the global economy. I don't care how good your models are or how smart you are. It's just too complex. At the end of the day, executives will need to integrate quantitative information with qualitative factors when reaching a business-relevant conclusion about the economy."

A key qualitative consideration that framed business decisions at BB&T was centered on values or ethical standards. Under Allison, all new executives were given a copy of Ayn Rand's *Atlas Shrugged*, a novel which extols the virtues of free market capitalism. Certainly BB&T would strictly follow one cardinal rule from Rand's philosophy, the "trader principle," where life should be about trading value for value, where both parties benefit from the transaction. For this reason alone, BB&T avoided the worst pitfalls of the sub-prime mortgage market.

Having a common and strong commitment to certain ethical standards was particularly important to a bank structured and operated like BB&T. John Allison witnessed the trend amongst his key and large competitors towards greater centralization and decided to be different. Under Allison as CEO, BB&T would compete through differentiation and focus by having a decentralized bank that developed specialized business knowledge and service in the middle and smaller business market. The bank's operating structure and strategy also meant that it was imperative that credit limits and standards be clear and unambiguous; there was no wiggle room allowed in the negative amortization market.

Macroeconomic Conditions and Outlook in Late 2005

Allison and Chalk were fully aware that they were much more pessimistic about the economic outlook than the mainstream or average blue-chip economist. Soon after their return from the beach, *The Wall Street Journal* reported that a survey of prominent economists by the National Association of Business Economists revealed a consensus forecast of "solid expansion" into 2006.[7] Nevertheless, Allison and Chalk were suspicious of and prone to heavily discount mainstream forecasts because they were so model driven, thus failing to detect or properly consider structural shifts or vulnerabilities in the marketplace.

As 2005 unfolded, John Allison became more concerned. In October, Ben Bernanke was nominated by President George W. Bush to be Greenspan's successor as the next Fed Chairman. In his Congressional testimony, the key challenges Bernanke reportedly felt was how to continue the success of Greenspan's policies. From Allison's point of view, that was not a comforting thought. In addition, Bernanke was an academic who had made a career publishing papers which

stressed ways to use mathematical models to steer monetary policy. Bernanke had also argued against the central bank trying to prick asset bubbles since they were hard to detect or verify.[8] Then within a few weeks of Bernanke's nomination, Allison saw the first solid signs that the housing market was starting to slump. In November 2005, the Commerce Department reported a sharp reduction in new home construction.[9] At about the same time, the Mortgage Bankers Association reported a significant drop in mortgage applications.[10] Allison then looked at his copy of the 2005 *Economic Report of the President* and found some macroeconomic data that was relevant (Tables B-1, B-2, B-30, B-73, B-76, B-89 and B-107). As Allison got ready for an upcoming board meeting, he noticed a January 8th article in *The New York Times*, titled "The World Isn't Flat, but Its Yield Curve May Be;" it heighted his concerns. Most noteworthy, the article reported academic research that showed that when the United States, Germany, France, Japan and the United Kingdom had inverted yield curves since WWII, a recession followed 62% of the time. Since Allison believed top executives should do their own macroeconomic assessments, the decision of how to approach the Board of Directors with these issues was ultimately his.

NATIONAL INCOME OR EXPENDITURE

TABLE B–1.—*Gross domestic product, 1959–2004*

[Billions of dollars, except as noted; quarterly data at seasonally adjusted annual rates]

Year or quarter	Gross domestic product	Personal consumption expenditures				Gross private domestic investment						
							Fixed investment					Change in private inventories
								Nonresidential			Residential	
		Total	Durable goods	Nondurable goods	Services	Total	Total	Total	Structures	Equipment and software		
1959	506.6	317.6	42.7	148.5	126.5	78.5	74.6	46.5	18.1	28.4	28.1	3.9
1960	526.4	331.7	43.3	152.8	135.6	78.9	75.7	49.4	19.6	29.8	26.3	3.2
1961	544.7	342.1	41.8	156.6	143.8	78.2	75.2	48.8	19.7	29.1	26.4	3.0
1962	585.6	363.3	46.9	162.8	153.6	88.1	82.0	53.1	20.8	32.3	29.0	6.1
1963	617.7	382.7	51.6	168.2	162.9	93.8	88.1	56.0	21.2	34.8	32.1	5.6
1964	663.6	411.4	56.7	178.6	176.1	102.1	97.2	63.0	23.7	39.2	34.3	4.8
1965	719.1	443.8	63.3	191.5	189.0	118.2	109.0	74.8	28.3	46.5	34.2	9.2
1966	787.8	480.9	68.3	208.7	203.8	131.3	117.7	85.4	31.3	54.0	32.3	13.6
1967	832.6	507.8	70.4	217.1	220.3	128.6	118.7	86.4	31.5	54.9	32.4	9.9
1968	910.0	558.0	80.8	235.7	241.6	141.2	132.1	93.4	33.6	59.9	38.7	9.1
1969	984.6	605.2	85.9	253.1	266.1	156.4	147.3	104.7	37.7	67.0	42.6	9.2
1970	1,038.5	648.5	85.0	272.0	291.5	152.4	150.4	109.0	40.3	68.7	41.4	2.0
1971	1,127.1	701.9	96.9	285.5	319.5	178.2	169.9	114.1	42.7	71.5	55.8	8.3
1972	1,238.3	770.6	110.4	308.0	352.2	207.6	198.5	128.8	47.2	81.7	69.7	9.1
1973	1,382.7	852.4	123.5	343.1	385.8	244.5	228.6	153.3	55.0	98.3	75.3	15.9
1974	1,500.0	933.4	122.3	384.5	426.6	249.4	235.4	169.5	61.2	108.2	66.0	14.0
1975	1,638.3	1,034.4	133.5	420.7	480.2	230.2	236.5	173.7	61.4	112.4	62.7	−6.3
1976	1,825.3	1,151.9	158.9	458.3	534.7	292.0	274.8	192.4	65.9	126.4	82.5	17.1
1977	2,030.9	1,278.6	181.2	497.1	600.2	361.3	339.0	228.7	74.6	154.1	110.3	22.3
1978	2,294.7	1,428.5	201.7	550.2	676.6	438.0	412.2	280.6	93.6	187.0	131.6	25.8
1979	2,563.3	1,592.2	214.4	624.5	753.3	492.9	474.9	333.9	117.7	216.2	141.0	18.0
1980	2,789.5	1,757.1	214.2	696.1	846.9	479.3	485.6	362.4	136.2	226.2	123.2	−6.3
1981	3,128.4	1,941.1	231.3	758.9	950.8	572.4	542.6	420.0	167.3	252.7	122.6	29.8
1982	3,255.0	2,077.3	240.2	787.6	1,049.4	517.2	532.1	426.5	177.6	248.9	105.7	−14.9
1983	3,536.7	2,290.6	280.8	831.2	1,178.6	564.3	570.1	417.2	154.3	262.9	152.9	−5.8
1984	3,933.2	2,503.3	326.5	884.6	1,292.2	735.6	670.2	489.6	177.4	312.2	180.6	65.4
1985	4,220.3	2,720.3	363.5	928.7	1,428.1	736.2	714.4	526.2	194.5	331.7	188.2	21.8
1986	4,462.8	2,899.7	403.0	958.4	1,538.3	746.5	739.9	519.8	176.5	343.3	220.1	6.6
1987	4,739.5	3,100.2	421.7	1,015.3	1,663.3	785.0	757.8	524.1	174.2	349.9	233.7	27.1
1988	5,103.8	3,353.6	453.6	1,083.5	1,816.5	821.6	803.1	563.8	182.8	381.0	239.3	18.5
1989	5,484.4	3,598.5	471.8	1,166.7	1,960.0	874.9	847.3	607.7	193.7	414.0	239.5	27.7
1990	5,803.1	3,839.9	474.2	1,249.9	2,115.9	861.0	846.4	622.4	202.9	419.5	224.0	14.5
1991	5,995.9	3,986.1	453.9	1,284.8	2,247.4	802.9	803.3	598.2	183.6	414.6	205.1	−.4
1992	6,337.7	4,235.3	483.6	1,330.5	2,421.2	864.8	848.5	612.1	172.6	439.6	236.3	16.3
1993	6,657.4	4,477.9	526.7	1,379.4	2,571.8	953.4	932.5	666.6	177.2	489.4	266.0	20.8
1994	7,072.2	4,743.3	582.2	1,437.2	2,723.9	1,097.1	1,033.3	731.4	186.8	544.6	301.9	63.8
1995	7,397.7	4,975.8	611.6	1,485.1	2,879.1	1,144.0	1,112.9	810.0	207.3	602.8	302.8	31.1
1996	7,816.9	5,256.8	652.6	1,555.5	3,048.7	1,240.3	1,209.5	875.4	224.6	650.8	334.1	30.8
1997	8,304.3	5,547.4	692.7	1,619.0	3,235.8	1,389.8	1,317.8	968.7	250.3	718.3	349.1	72.0
1998	8,747.0	5,879.5	750.2	1,683.6	3,445.7	1,509.1	1,438.4	1,052.6	275.2	777.3	385.8	70.8
1999	9,268.4	6,282.5	817.6	1,804.8	3,660.0	1,625.7	1,558.8	1,133.9	282.2	851.7	424.9	66.9
2000	9,817.0	6,739.4	863.3	1,947.2	3,928.8	1,735.5	1,679.0	1,232.1	313.2	918.9	446.9	56.5
2001	10,128.0	7,055.0	883.7	2,017.1	4,154.3	1,614.3	1,646.1	1,176.8	322.6	854.2	469.3	−31.7
2002	10,487.0	7,376.1	916.2	2,080.1	4,379.8	1,579.2	1,568.0	1,063.9	271.6	792.4	504.1	11.2
2003	11,004.0	7,760.9	950.7	2,200.1	4,610.1	1,665.8	1,667.0	1,094.7	261.6	833.1	572.3	−1.2
2004 *p*	11,728.0	8,231.1	995.7	2,376.5	4,859.0	1,922.4	1,879.3	1,217.6	277.0	940.7	661.7	43.1
2000: I	9,629.4	6,613.9	876.9	1,894.2	3,842.8	1,672.3	1,642.4	1,193.9	295.2	898.7	448.5	29.9
II	9,822.8	6,688.1	854.2	1,938.3	3,895.6	1,781.7	1,685.4	1,236.5	310.4	926.1	448.8	96.3
III	9,862.1	6,783.9	861.3	1,965.8	3,956.7	1,749.0	1,690.6	1,247.5	321.1	926.5	443.1	58.4
IV	9,953.6	6,871.6	860.9	1,990.5	4,020.3	1,738.9	1,697.5	1,250.3	326.0	924.2	447.2	41.4
2001: I	10,021.5	6,955.8	872.1	2,000.0	4,083.7	1,675.3	1,685.2	1,229.6	323.9	905.7	455.6	−9.9
II	10,128.9	7,017.5	864.7	2,016.6	4,136.2	1,647.7	1,654.7	1,187.1	325.7	861.4	467.6	−7.0
III	10,135.1	7,058.5	865.1	2,024.2	4,169.1	1,613.0	1,644.8	1,167.2	335.8	831.4	477.6	−31.8
IV	10,226.3	7,188.4	932.8	2,027.5	4,228.0	1,521.4	1,599.6	1,123.2	305.2	818.1	476.3	−78.2
2002: I	10,338.2	7,236.9	903.5	2,046.8	4,286.5	1,568.5	1,577.4	1,091.4	290.0	801.4	486.0	−8.9
II	10,445.7	7,339.3	907.5	2,077.7	4,354.0	1,577.0	1,563.0	1,061.2	273.4	787.8	501.8	14.0
III	10,546.5	7,428.0	932.8	2,081.3	4,413.9	1,581.3	1,562.2	1,055.0	262.7	792.3	507.2	19.1
IV	10,617.5	7,500.0	920.8	2,114.6	4,464.7	1,589.9	1,569.5	1,048.1	260.1	788.0	521.4	20.4
2003: I	10,744.6	7,609.8	912.1	2,167.5	4,530.2	1,596.6	1,586.0	1,046.4	253.6	792.8	539.6	10.6
II	10,884.0	7,696.3	946.8	2,163.6	4,585.9	1,611.1	1,626.4	1,072.7	262.3	810.4	553.8	−15.3
III	11,116.7	7,822.5	972.7	2,219.2	4,630.6	1,696.6	1,700.2	1,113.3	262.3	851.1	586.9	−3.7
IV	11,270.9	7,914.9	971.1	2,250.1	4,693.6	1,758.8	1,755.2	1,146.3	268.2	878.1	609.0	3.5
2004: I	11,472.6	8,060.2	976.3	2,316.6	4,767.3	1,819.7	1,783.5	1,158.8	266.0	892.8	624.6	36.2
II	11,657.5	8,153.8	975.5	2,354.6	4,823.8	1,920.7	1,861.7	1,198.5	275.5	923.1	663.2	59.0
III	11,814.9	8,282.5	1,007.0	2,387.2	4,888.2	1,947.0	1,915.4	1,238.5	281.2	957.3	677.0	31.6
IV *p*	11,967.0	8,428.1	1,023.9	2,447.6	4,956.5	2,002.2	1,956.6	1,274.7	285.2	989.6	681.9	45.5

See next page for continuation of table.

TABLE B–2.—*Real gross domestic product, 1959–2004*

[Billions of chained (2000) dollars, except as noted; quarterly data at seasonally adjusted annual rates]

Year or quarter	Gross domestic product	Personal consumption expenditures				Gross private domestic investment						
							Fixed investment					Change in private inventories
								Nonresidential				
		Total	Durable goods	Nondurable goods	Services	Total	Total	Total	Structures	Equipment and software	Residential	
1959	2,441.3	1,554.6				266.7						
1960	2,501.8	1,597.4				266.6						
1961	2,560.0	1,630.3				264.9						
1962	2,715.2	1,711.1				298.4						
1963	2,834.0	1,781.6				318.5						
1964	2,998.6	1,888.4				344.7						
1965	3,191.1	2,007.7				393.1						
1966	3,399.1	2,121.8				427.7						
1967	3,484.6	2,185.0				408.1						
1968	3,652.7	2,310.5				431.9						
1969	3,765.4	2,396.4				457.1						
1970	3,771.9	2,451.9				427.1						
1971	3,898.6	2,545.5				475.7						
1972	4,105.0	2,701.3				532.1						
1973	4,341.5	2,833.8				594.4						
1974	4,319.6	2,812.3				550.6						
1975	4,311.2	2,876.9				453.1						
1976	4,540.9	3,035.5				544.7						
1977	4,750.5	3,164.1				627.0						
1978	5,015.0	3,303.1				702.6						
1979	5,173.4	3,383.4				725.0						
1980	5,161.7	3,374.1				645.3						
1981	5,291.7	3,422.2				704.9						
1982	5,189.3	3,470.3				606.0						
1983	5,423.8	3,668.6				662.5						
1984	5,813.6	3,863.3				857.7						
1985	6,053.7	4,064.0				849.7						
1986	6,263.6	4,228.9				843.9						
1987	6,475.1	4,369.8				870.0						
1988	6,742.7	4,546.9				890.5						
1989	6,981.4	4,675.0				926.2						
1990	7,112.5	4,770.3	453.5	1,484.0	2,851.7	895.1	886.6	595.1	275.2	355.0	298.9	15.4
1991	7,100.5	4,778.4	427.9	1,480.5	2,900.0	822.2	829.1	563.2	244.6	345.9	270.2	−.5
1992	7,336.6	4,934.8	453.0	1,510.1	3,000.8	889.0	878.3	581.3	229.9	371.1	307.6	16.5
1993	7,532.7	5,099.8	488.4	1,550.4	3,085.7	968.3	953.5	631.9	228.3	417.4	332.7	20.6
1994	7,835.5	5,290.7	529.4	1,603.9	3,176.6	1,099.6	1,042.3	689.9	232.3	467.2	364.8	63.6
1995	8,031.7	5,433.5	552.6	1,638.6	3,259.9	1,134.0	1,109.6	762.5	247.1	523.1	353.1	29.9
1996	8,328.9	5,619.4	595.9	1,680.4	3,356.0	1,234.3	1,209.2	833.6	261.1	578.7	381.3	28.7
1997	8,703.5	5,831.8	646.9	1,725.3	3,468.0	1,387.7	1,320.6	934.2	280.1	658.3	388.6	71.2
1998	9,066.9	6,125.8	720.3	1,794.4	3,615.0	1,524.1	1,455.0	1,037.8	294.5	745.6	418.3	72.6
1999	9,470.3	6,438.6	804.6	1,876.6	3,758.0	1,642.6	1,576.3	1,133.3	293.2	840.2	443.6	68.9
2000	9,817.0	6,739.4	863.3	1,947.2	3,928.8	1,735.5	1,679.0	1,232.1	313.2	918.9	446.9	56.5
2001	9,890.7	6,910.4	900.7	1,986.7	4,023.2	1,598.4	1,629.4	1,180.5	306.1	874.2	448.5	−31.7
2002	10,074.8	7,123.4	959.6	2,037.4	4,128.6	1,560.7	1,548.9	1,075.6	251.6	826.5	470.0	11.7
2003	10,381.3	7,355.6	1,030.6	2,112.4	4,220.3	1,628.8	1,627.3	1,110.8	237.4	879.2	511.2	−.8
2004*p*	10,837.2	7,634.7	1,101.3	2,208.3	4,339.0	1,839.1	1,790.4	1,225.6	239.7	996.6	559.6	45.3
2000: I	9,695.6	6,661.3	872.8	1,917.2	3,871.1	1,678.0	1,651.1	1,196.7	299.9	896.7	454.5	26.9
II	9,847.9	6,703.3	851.3	1,944.0	3,908.2	1,788.6	1,689.1	1,238.6	312.5	926.0	450.4	99.3
III	9,836.6	6,768.0	863.8	1,955.0	3,949.3	1,742.6	1,686.4	1,245.2	319.7	925.5	441.2	56.2
IV	9,887.7	6,825.0	865.4	1,972.7	3,986.8	1,732.7	1,689.4	1,247.9	320.6	927.3	441.6	43.5
2001: I	9,875.6	6,853.1	879.5	1,975.2	3,997.9	1,670.3	1,678.2	1,234.4	313.8	920.8	444.0	−7.8
II	9,905.9	6,870.3	878.9	1,974.7	4,016.0	1,637.4	1,640.5	1,190.2	310.6	879.2	450.1	−2.5
III	9,871.1	6,900.5	885.6	1,986.5	4,027.8	1,592.6	1,621.9	1,169.3	315.1	852.9	452.1	−29.9
IV	9,910.0	7,017.6	958.7	2,010.3	4,051.2	1,493.4	1,577.0	1,128.2	284.9	843.8	447.8	−86.7
2002: I	9,993.5	7,049.7	937.8	2,029.3	4,084.1	1,552.5	1,559.6	1,099.8	270.7	830.1	457.8	−7.4
II	10,052.6	7,099.2	947.8	2,033.2	4,119.7	1,553.7	1,545.9	1,072.4	253.9	820.6	470.3	7.9
III	10,117.3	7,149.9	979.3	2,030.2	4,143.8	1,569.2	1,546.6	1,069.5	243.0	829.8	473.6	22.7
IV	10,135.9	7,194.6	973.4	2,056.8	4,166.9	1,567.3	1,543.5	1,060.9	238.9	825.5	478.5	23.8
2003: I	10,184.4	7,242.2	973.2	2,082.0	4,188.7	1,564.0	1,552.7	1,060.5	230.7	834.6	487.3	9.6
II	10,287.4	7,311.4	1,020.0	2,090.1	4,207.7	1,577.6	1,593.4	1,090.6	238.7	856.7	497.9	−17.6
III	10,472.8	7,401.7	1,059.6	2,125.3	4,227.9	1,659.4	1,660.6	1,131.1	237.9	899.7	523.8	−3.5
IV	10,580.7	7,466.8	1,069.7	2,152.0	4,256.7	1,714.1	1,702.7	1,161.0	242.4	925.6	535.9	8.6
2004: I	10,697.5	7,543.0	1,075.5	2,187.3	4,291.7	1,764.5	1,721.4	1,173.0	237.7	943.7	542.5	40.0
II	10,784.7	7,572.4	1,074.7	2,188.0	4,320.0	1,842.9	1,778.3	1,207.9	241.7	975.5	563.6	61.1
III	10,891.0	7,667.8	1,118.3	2,213.2	4,352.4	1,853.9	1,816.1	1,245.3	241.0	1,015.6	565.9	34.5
IV*p*	10,975.7	7,755.4	1,136.6	2,244.7	4,391.8	1,895.1	1,845.7	1,276.3	238.5	1,051.5	566.3	45.8

See next page for continuation of table.

TABLE B–30.—*Disposition of personal income, 1959–2004*

[Billions of dollars, except as noted; quarterly data at seasonally adjusted annual rates]

Year or quarter	Personal income	Less: Personal current taxes	Equals: Disposable personal income	Less: Personal outlays				Equals: Personal saving	Percent of disposable personal income[2]		
				Total	Personal consumption expenditures	Personal interest payments[1]	Personal current transfer payments		Personal outlays		Personal saving
									Total	Personal consumption expenditures	
1959	392.8	42.3	350.5	323.9	317.6	5.5	0.8	26.7	92.4	90.6	7.6
1960	411.5	46.1	365.4	338.8	331.7	6.2	.8	26.7	92.7	90.8	7.3
1961	429.0	47.3	381.8	349.6	342.1	6.5	1.0	32.2	91.6	89.6	8.4
1962	456.7	51.6	405.1	371.3	363.3	7.0	1.1	33.8	91.7	89.7	8.3
1963	479.6	54.6	425.1	391.8	382.7	7.9	1.2	33.3	92.2	90.0	7.8
1964	514.6	52.1	462.5	421.7	411.4	8.9	1.3	40.8	91.2	89.0	8.8
1965	555.7	57.7	498.1	455.1	443.8	9.9	1.4	43.0	91.4	89.1	8.6
1966	603.9	66.4	537.5	493.1	480.9	10.7	1.6	44.4	91.7	89.5	8.3
1967	648.3	73.0	575.3	520.9	507.8	11.1	2.0	54.4	90.5	88.3	9.5
1968	712.0	87.0	625.0	572.2	558.0	12.2	2.0	52.8	91.6	89.3	8.4
1969	778.5	104.5	674.0	621.4	605.2	14.0	2.2	52.5	92.2	89.8	7.8
1970	838.8	103.1	735.7	666.2	648.5	15.2	2.6	69.5	90.6	88.1	9.4
1971	903.5	101.7	801.8	721.2	701.9	16.6	2.8	80.6	89.9	87.5	10.1
1972	992.7	123.6	869.1	791.9	770.6	18.1	3.1	77.2	91.1	88.7	8.9
1973	1,110.7	132.4	978.3	875.6	852.4	19.8	3.4	102.7	89.5	87.1	10.5
1974	1,222.6	151.0	1,071.6	958.0	933.4	21.2	3.4	113.6	89.4	87.1	10.6
1975	1,335.0	147.6	1,187.4	1,061.9	1,034.4	23.7	3.8	125.6	89.4	87.1	10.6
1976	1,474.8	172.3	1,302.5	1,180.2	1,151.9	23.9	4.4	122.3	90.6	88.4	9.4
1977	1,633.2	197.5	1,435.7	1,310.4	1,278.6	27.0	4.8	125.3	91.3	89.1	8.7
1978	1,837.7	229.4	1,608.3	1,465.8	1,428.5	31.9	5.4	142.5	91.1	88.8	8.9
1979	2,062.2	268.7	1,793.5	1,634.4	1,592.2	36.2	5.9	159.1	91.1	88.8	8.9
1980	2,307.9	298.9	2,009.0	1,807.5	1,757.1	43.6	6.8	201.4	90.0	87.5	10.0
1981	2,591.3	345.2	2,246.1	2,001.8	1,941.1	49.3	11.4	244.3	89.1	86.4	10.9
1982	2,775.3	354.1	2,421.2	2,150.4	2,077.3	59.5	13.6	270.8	88.8	85.8	11.2
1983	2,960.7	352.3	2,608.4	2,374.8	2,290.6	69.2	15.0	233.6	91.0	87.8	9.0
1984	3,289.5	377.4	2,912.0	2,597.3	2,503.3	77.0	16.9	314.8	89.2	86.0	10.8
1985	3,526.7	417.4	3,109.3	2,829.3	2,720.3	90.4	18.6	280.0	91.0	87.5	9.0
1986	3,722.4	437.3	3,285.1	3,016.7	2,899.7	96.1	20.9	268.4	91.8	88.3	8.2
1987	3,947.4	489.1	3,458.3	3,216.9	3,100.2	93.6	23.1	241.4	93.0	89.6	7.0
1988	4,253.7	505.0	3,748.7	3,475.8	3,353.6	96.8	25.4	272.9	92.7	89.5	7.3
1989	4,587.8	566.1	4,021.7	3,734.5	3,598.5	108.2	27.8	287.1	92.9	89.5	7.1
1990	4,878.6	592.8	4,285.8	3,986.4	3,839.9	116.1	30.4	299.4	93.0	89.6	7.0
1991	5,051.0	586.7	4,464.3	4,140.1	3,986.1	118.5	35.6	324.2	92.7	89.3	7.3
1992	5,362.0	610.6	4,751.4	4,385.4	4,235.3	111.8	38.3	366.0	92.3	89.1	7.7
1993	5,558.5	646.6	4,911.9	4,627.9	4,477.9	107.3	42.7	284.0	94.2	91.2	5.8
1994	5,842.5	690.7	5,151.8	4,902.4	4,743.3	112.8	46.3	249.5	95.2	92.1	4.8
1995	6,152.3	744.1	5,408.2	5,157.3	4,975.8	132.7	48.9	250.9	95.4	92.0	4.6
1996	6,520.6	832.1	5,688.5	5,460.0	5,256.8	150.3	52.9	228.4	96.0	92.4	4.0
1997	6,915.1	926.3	5,988.8	5,770.5	5,547.4	163.9	59.2	218.3	96.4	92.6	3.6
1998	7,423.0	1,027.0	6,395.9	6,119.1	5,879.5	174.5	65.2	276.8	95.7	91.9	4.3
1999	7,802.4	1,107.5	6,695.0	6,536.4	6,282.5	181.0	73.0	158.6	97.6	93.8	2.4
2000	8,429.7	1,235.7	7,194.0	7,025.6	6,739.4	204.7	81.5	168.5	97.7	93.7	2.3
2001	8,724.1	1,237.3	7,486.8	7,354.5	7,055.0	212.2	87.2	132.3	98.2	94.2	1.8
2002	8,878.9	1,051.2	7,827.7	7,668.5	7,376.1	197.2	95.3	159.2	98.0	94.2	2.0
2003	9,161.8	1,001.9	8,159.9	8,049.3	7,760.9	185.3	103.1	110.6	98.6	95.1	1.4
2004[p]	9,659.1	1,036.4	8,622.8	8,532.8	8,231.1	188.2	113.5	90.0	99.0	95.5	1.0
2000: I	8,266.2	1,207.0	7,059.2	6,888.0	6,613.9	194.1	79.9	171.2	97.6	93.7	2.4
II	8,372.3	1,231.1	7,141.2	6,970.0	6,688.1	201.0	81.0	171.3	97.6	93.7	2.4
III	8,514.4	1,248.0	7,266.4	7,076.3	6,783.9	210.4	82.0	190.1	97.4	93.4	2.6
IV	8,565.8	1,256.6	7,309.3	7,168.1	6,871.6	213.3	83.1	141.2	98.1	94.0	1.9
2001: I	8,688.7	1,296.6	7,392.1	7,253.5	6,955.8	212.4	85.3	138.6	98.1	94.1	1.9
II	8,719.9	1,312.3	7,407.6	7,318.8	7,017.5	214.9	86.5	88.7	98.8	94.7	1.2
III	8,733.1	1,110.3	7,622.8	7,361.2	7,058.5	214.5	88.3	261.6	96.6	92.6	3.4
IV	8,754.8	1,230.0	7,524.8	7,484.4	7,188.4	207.2	88.8	40.5	99.5	95.5	.5
2002: I	8,803.6	1,065.8	7,737.8	7,528.5	7,236.9	199.3	92.3	209.3	97.3	93.5	2.7
II	8,897.1	1,052.1	7,845.0	7,635.0	7,339.3	202.1	93.7	210.0	97.3	93.6	2.7
III	8,895.7	1,046.7	7,849.0	7,722.9	7,428.0	198.6	96.3	126.1	98.4	94.6	1.6
IV	8,919.2	1,040.3	7,878.8	7,787.6	7,500.0	188.8	98.7	91.2	98.8	95.2	1.2
2003: I	9,002.2	1,025.7	7,976.5	7,897.0	7,609.8	187.1	100.0	79.5	99.0	95.4	1.0
II	9,105.7	1,030.7	8,075.0	7,982.9	7,696.3	184.8	101.8	92.1	98.9	95.3	1.1
III	9,209.3	941.7	8,267.6	8,107.8	7,822.5	183.3	102.1	159.8	98.1	94.6	1.9
IV	9,330.0	1,009.4	8,320.5	8,209.4	7,914.9	185.9	108.6	111.1	98.7	95.1	1.3
2004: I	9,445.0	1,006.6	8,438.4	8,351.6	8,060.2	181.1	110.3	86.8	99.0	95.5	1.0
II	9,592.7	1,030.6	8,562.1	8,448.7	8,153.8	182.6	112.2	113.4	98.7	95.2	1.3
III	9,674.3	1,043.7	8,630.7	8,588.1	8,282.5	190.6	115.0	42.6	99.5	96.0	.5
IV[p]	9,924.6	1,064.5	8,860.0	8,742.8	8,428.1	198.4	116.4	117.2	98.7	95.1	1.3

[1] Consists of nonmortgage interest paid by households.
[2] Percents based on data in millions of dollars.
Source: Department of Commerce, Bureau of Economic Analysis.

TABLE B–73.—*Bond yields and interest rates, 1929–2004*

[Percent per annum]

Year and month	U.S. Treasury securities					Corporate bonds (Moody's)		High-grade municipal bonds (Standard & Poor's)	New-home mortgage yields[4]	Prime rate charged by banks[5]	Discount window (Federal Reserve Bank of New York)[5,6]		Federal funds rate[7]
	Bills (new issues)[1]		Constant maturities[2]										
	3-month	6-month	3-year	10-year	30-year	Aaa[3]	Baa				Primary credit	Adjustment credit	
1929	.....	.....	.....	.....	.....	4.73	5.90	4.27	.....	5.50-6.00	.....	5.16	.....
1933	0.515	.....	.....	.....	.....	4.49	7.76	4.71	.....	1.50-4.00	.....	2.56	.....
1939	.023	.....	.....	.....	.....	3.01	4.96	2.76	.....	1.50	.....	1.00	.....
1940	.014	.....	.....	.....	.....	2.84	4.75	2.50	.....	1.50	.....	1.00	.....
1941	.103	.....	.....	.....	.....	2.77	4.33	2.10	.....	1.50	.....	1.00	.....
1942	.326	.....	.....	.....	.....	2.83	4.28	2.36	.....	1.50	.....	[8]1.00	.....
1943	.373	.....	.....	.....	.....	2.73	3.91	2.06	.....	1.50	.....	[8]1.00	.....
1944	.375	.....	.....	.....	.....	2.72	3.61	1.86	.....	1.50	.....	[8]1.00	.....
1945	.375	.....	.....	.....	.....	2.62	3.29	1.67	.....	1.50	.....	[8]1.00	.....
1946	.375	.....	.....	.....	.....	2.53	3.05	1.64	.....	1.50	.....	[8]1.00	.....
1947	.594	.....	.....	.....	.....	2.61	3.24	2.01	.....	1.50-1.75	.....	1.00	.....
1948	1.040	.....	.....	.....	.....	2.82	3.47	2.40	.....	1.75-2.00	.....	1.34	.....
1949	1.102	.....	.....	.....	.....	2.66	3.42	2.21	.....	2.00	.....	1.50	.....
1950	1.218	.....	.....	.....	.....	2.62	3.24	1.98	.....	2.07	.....	1.59	.....
1951	1.552	.....	.....	.....	.....	2.86	3.41	2.00	.....	2.56	.....	1.75	.....
1952	1.766	.....	.....	.....	.....	2.96	3.52	2.19	.....	3.00	.....	1.75	.....
1953	1.931	.....	2.47	2.85	.....	3.20	3.74	2.72	.....	3.17	.....	1.99	.....
1954	.953	.....	1.63	2.40	.....	2.90	3.51	2.37	.....	3.05	.....	1.60	.....
1955	1.753	.....	2.47	2.82	.....	3.06	3.53	2.53	.....	3.16	.....	1.89	1.78
1956	2.658	.....	3.19	3.18	.....	3.36	3.88	2.93	.....	3.77	.....	2.77	2.73
1957	3.267	.....	3.98	3.65	.....	3.89	4.71	3.60	.....	4.20	.....	3.12	3.11
1958	1.839	.....	2.84	3.32	.....	3.79	4.73	3.56	.....	3.83	.....	2.15	1.57
1959	3.405	3.832	4.46	4.33	.....	4.38	5.05	3.95	.....	4.48	.....	3.36	3.30
1960	2.928	3.247	3.98	4.12	.....	4.41	5.19	3.73	.....	4.82	.....	3.53	3.22
1961	2.378	2.605	3.54	3.88	.....	4.35	5.08	3.46	.....	4.50	.....	3.00	1.96
1962	2.778	2.908	3.47	3.95	.....	4.33	5.02	3.18	.....	4.50	.....	3.00	2.68
1963	3.157	3.253	3.67	4.00	.....	4.26	4.86	3.23	5.89	4.50	.....	3.23	3.18
1964	3.549	3.686	4.03	4.19	.....	4.40	4.83	3.22	5.83	4.50	.....	3.55	3.50
1965	3.954	4.055	4.22	4.28	.....	4.49	4.87	3.27	5.81	4.54	.....	4.04	4.07
1966	4.881	5.082	5.23	4.92	.....	5.13	5.67	3.82	6.25	5.63	.....	4.50	5.11
1967	4.321	4.630	5.03	5.07	.....	5.51	6.23	3.98	6.46	5.61	.....	4.19	4.22
1968	5.339	5.470	5.68	5.65	.....	6.18	6.94	4.51	6.97	6.30	.....	5.16	5.66
1969	6.677	6.853	7.02	6.67	.....	7.03	7.81	5.81	7.81	7.96	.....	5.87	8.20
1970	6.458	6.562	7.29	7.35	.....	8.04	9.11	6.51	8.45	7.91	.....	5.95	7.18
1971	4.348	4.511	5.65	6.16	.....	7.39	8.56	5.70	7.74	5.72	.....	4.88	4.66
1972	4.071	4.466	5.72	6.21	.....	7.21	8.16	5.27	7.60	5.25	.....	4.50	4.43
1973	7.041	7.178	6.95	6.84	.....	7.44	8.24	5.18	7.96	8.03	.....	6.44	8.73
1974	7.886	7.926	7.82	7.56	.....	8.57	9.50	6.09	8.92	10.81	.....	7.83	10.50
1975	5.838	6.122	7.49	7.99	.....	8.83	10.61	6.89	9.00	7.86	.....	6.25	5.82
1976	4.989	5.266	6.77	7.61	.....	8.43	9.75	6.49	9.00	6.84	.....	5.50	5.04
1977	5.265	5.510	6.69	7.42	7.75	8.02	8.97	5.56	9.02	6.83	.....	5.46	5.54
1978	7.221	7.572	8.29	8.41	8.49	8.73	9.49	5.90	9.56	9.06	.....	7.46	7.93
1979	10.041	10.017	9.71	9.44	9.28	9.63	10.69	6.39	10.78	12.67	.....	10.28	11.19
1980	11.506	11.374	11.55	11.46	11.27	11.94	13.67	8.51	12.66	15.27	.....	11.77	13.36
1981	14.029	13.776	14.44	13.91	13.45	14.17	16.04	11.23	14.70	18.87	.....	13.42	16.38
1982	10.686	11.084	12.92	13.00	12.76	13.79	16.11	11.57	15.14	14.86	.....	11.02	12.26
1983	8.63	8.75	10.45	11.10	11.18	12.04	13.55	9.47	12.57	10.79	.....	8.50	9.09
1984	9.58	9.80	11.89	12.44	12.41	12.71	14.19	10.15	12.38	12.04	.....	8.80	10.23
1985	7.48	7.66	9.64	10.62	10.79	11.37	12.72	9.18	11.55	9.93	.....	7.69	8.10
1986	5.98	6.03	7.06	7.68	7.78	9.02	10.39	7.38	10.17	8.33	.....	6.33	6.81
1987	5.82	6.05	7.68	8.39	8.59	9.38	10.58	7.73	9.31	8.21	.....	5.66	6.66
1988	6.69	6.92	8.26	8.85	8.96	9.71	10.83	7.76	9.19	9.32	.....	6.20	7.57
1989	8.12	8.04	8.55	8.49	8.45	9.26	10.18	7.24	10.13	10.87	.....	6.93	9.21
1990	7.51	7.47	8.26	8.55	8.61	9.32	10.36	7.25	10.05	10.01	.....	6.98	8.10
1991	5.42	5.49	6.82	7.86	8.14	8.77	9.80	6.89	9.32	8.46	.....	5.45	5.69
1992	3.45	3.57	5.30	7.01	7.67	8.14	8.98	6.41	8.24	6.25	.....	3.25	3.52
1993	3.02	3.14	4.44	5.87	6.59	7.22	7.93	5.63	7.20	6.00	.....	3.00	3.02
1994	4.29	4.66	6.27	7.09	7.37	7.96	8.62	6.19	7.49	7.15	.....	3.60	4.21
1995	5.51	5.59	6.25	6.57	6.88	7.59	8.20	5.95	7.87	8.83	.....	5.21	5.83
1996	5.02	5.09	5.99	6.44	6.71	7.37	8.05	5.75	7.80	8.27	.....	5.02	5.30
1997	5.07	5.18	6.10	6.35	6.61	7.26	7.86	5.55	7.71	8.44	.....	5.00	5.46
1998	4.81	4.85	5.14	5.26	5.58	6.53	7.22	5.12	7.07	8.35	.....	4.92	5.35
1999	4.66	4.76	5.49	5.65	5.87	7.04	7.87	5.43	7.04	8.00	.....	4.62	4.97
2000	5.85	5.92	6.22	6.03	5.94	7.62	8.36	5.77	7.52	9.23	.....	5.73	6.24
2001	3.45	3.39	4.09	5.02	5.49	7.08	7.95	5.19	7.00	6.91	.....	3.40	3.88
2002	1.62	1.69	3.10	4.61	.....	6.49	7.80	5.05	6.43	4.67	.....	1.17	1.67
2003	1.02	1.06	2.10	4.01	.....	5.67	6.77	4.73	5.80	4.12	2.12	.....	1.13
2004	1.38	1.58	2.78	4.27	.....	5.63	6.39	4.63	5.77	4.34	2.34	.....	1.35

[1] Rate on new issues within period; bank-discount basis.

[2] Yields on the more actively traded issues adjusted to constant maturities by the Department of the Treasury. In February 2002, the Department of the Treasury discontinued publication of the 30-year series.

[3] Beginning December 7, 2001, data for corporate Aaa series are industrial bonds only.

[4] Effective rate (in the primary market) on conventional mortgages, reflecting fees and charges as well as contract rate and assuming, on the average, repayment at end of 10 years. Rates beginning January 1973 not strictly comparable with prior rates.

See next page for continuation of table.

TABLE B–76.—*Mortgage debt outstanding by holder, 1949–2004*

[Billions of dollars]

End of year or quarter	Total	Major financial institutions				Other holders	
		Total	Savings institutions[1]	Commercial banks[2]	Life insurance companies	Federal and related agencies[3]	Individuals and others[4]
1949	62.3	42.9	18.3	11.6	12.9	2.0	17.5
1950	72.7	51.7	21.9	13.7	16.1	2.6	18.4
1951	82.1	59.5	25.5	14.7	19.3	3.3	19.3
1952	91.4	67.0	29.8	16.0	21.3	3.9	20.4
1953	101.2	75.1	34.8	17.0	23.3	4.4	21.7
1954	113.7	85.8	41.1	18.7	26.0	4.7	23.2
1955	130.1	99.5	48.9	21.2	29.4	5.3	25.3
1956	144.7	111.4	55.5	22.9	33.0	6.2	27.1
1957	156.7	120.0	61.2	23.6	35.2	7.7	29.1
1958	172.0	131.7	68.9	25.8	37.1	8.0	32.3
1959	190.9	145.6	78.1	28.2	39.2	10.2	35.1
1960	207.5	157.6	86.9	28.9	41.8	11.5	38.4
1961	228.1	172.7	98.0	30.6	44.2	12.2	43.1
1962	251.6	192.6	111.1	34.7	46.9	12.6	46.3
1963	278.7	217.4	127.2	39.6	50.5	11.8	49.5
1964	306.2	241.3	141.9	44.3	55.2	12.2	52.7
1965	333.7	265.0	154.9	50.0	60.0	13.5	55.2
1966	356.9	281.2	161.8	54.8	64.6	17.5	58.2
1967	381.6	299.2	172.3	59.5	67.4	20.9	61.4
1968	411.5	320.3	184.3	66.1	70.0	25.1	66.1
1969	442.3	339.8	196.4	71.4	72.0	31.1	71.4
1970	474.4	356.7	208.3	74.1	74.4	38.3	79.4
1971	525.1	395.2	236.2	83.4	75.5	46.3	83.6
1972	598.1	450.8	273.6	100.2	76.9	54.5	92.8
1973	673.4	506.3	305.0	120.1	81.3	64.7	102.4
1974	734.0	544.1	324.2	133.6	86.2	82.2	107.7
1975	793.5	582.9	355.8	137.9	89.2	101.1	109.6
1976	880.3	649.3	404.6	153.1	91.6	116.7	114.4
1977	1,012.0	747.0	469.4	180.8	96.8	140.5	124.5
1978	1,164.6	849.8	528.0	215.7	106.2	170.6	144.3
1979	1,330.0	939.9	574.6	246.9	118.4	216.0	174.2
1980	1,464.8	998.6	603.1	264.5	131.1	256.8	209.4
1981	1,590.1	1,042.8	618.5	286.5	137.7	289.4	257.9
1982	1,675.5	1,023.4	578.1	303.4	142.0	355.4	296.7
1983	1,869.1	1,109.9	626.6	332.3	151.0	433.3	325.8
1984	2,113.1	1,247.8	709.7	381.4	156.7	490.6	374.7
1985	2,376.8	1,363.5	760.5	431.2	171.8	580.9	432.4
1986	2,663.3	1,476.5	778.0	504.7	193.8	733.7	453.1
1987	3,001.5	1,667.6	860.5	594.8	212.4	857.9	475.9
1988	3,319.6	1,834.3	924.5	676.9	232.9	937.8	547.6
1989	3,591.3	1,935.2	910.3	770.7	254.2	1,067.3	588.8
1990	3,807.6	1,918.8	801.6	849.3	267.9	1,258.9	629.9
1991	3,958.6	1,846.2	705.4	881.3	259.5	1,422.5	690.0
1992	4,070.8	1,770.4	627.9	900.5	242.0	1,558.1	742.2
1993	4,207.0	1,770.1	598.4	947.8	223.9	1,682.8	754.0
1994	4,377.8	1,824.7	596.2	1,012.7	215.8	1,788.0	765.1
1995	4,568.2	1,900.1	596.8	1,090.2	213.1	1,878.7	789.4
1996	4,842.4	1,981.9	628.3	1,145.4	208.2	2,006.1	854.5
1997	5,163.1	2,084.0	631.8	1,245.3	206.8	2,111.4	967.6
1998	5,654.3	2,194.6	644.0	1,337.0	213.6	2,310.9	1,148.8
1999	6,257.7	2,394.3	668.1	1,495.4	230.8	2,613.3	1,250.2
2000	6,820.2	2,619.0	723.0	1,660.1	235.9	2,834.4	1,366.8
2001	7,496.8	2,791.1	758.2	1,789.8	243.0	3,205.0	1,500.7
2002	8,323.3	3,089.8	781.4	2,058.4	250.0	3,592.2	1,641.3
2003	9,326.9	3,387.9	870.9	2,256.0	260.9	4,026.3	1,912.7
2002: I	7,655.2	2,790.9	748.3	1,799.1	243.4	3,337.3	1,527.1
II	7,860.5	2,861.2	742.7	1,873.4	245.1	3,434.7	1,564.5
III	8,071.4	2,981.8	773.7	1,962.2	245.9	3,493.2	1,596.4
IV	8,323.3	3,089.8	781.4	2,058.4	250.0	3,592.2	1,641.3
2003: I	8,539.2	3,166.3	815.9	2,099.3	251.2	3,682.5	1,690.4
II	8,832.4	3,280.8	833.6	2,192.8	254.4	3,779.1	1,772.6
III	9,102.9	3,373.1	852.1	2,263.7	257.3	3,896.0	1,833.8
IV	9,326.9	3,387.9	870.9	2,256.0	260.9	4,026.3	1,912.7
2004: I	9,574.7	3,518.9	927.7	2,329.3	262.0	4,053.6	2,002.2
II	9,822.3	3,666.1	966.5	2,435.9	263.7	4,067.6	2,088.6
III[p]	10,127.8	3,792.3	1,009.3	2,517.4	265.7	4,092.1	2,243.4

[1] Includes savings banks and savings and loan associations. Data reported by Federal Savings and Loan Insurance Corporation-insured institutions include loans in process for 1987 and exclude loans in process beginning 1988.

[2] Includes loans held by nondeposit trust companies, but not by bank trust departments.

[3] Includes Government National Mortgage Association (GNMA), Federal Housing Administration, Veterans Administration, Farmers Home Administration (FmHA), Federal Deposit Insurance Corporation, Resolution Trust Corporation (through 1995), and in earlier years Reconstruction Finance Corporation, Homeowners Loan Corporation, Federal Farm Mortgage Corporation, and Public Housing Administration. Also includes U.S.-sponsored agencies such as Federal National Mortgage Association (FNMA), Federal Land Banks, Federal Home Loan Mortgage Corporation (FHLMC), Federal Agricultural Mortgage Corporation (beginning 1994), Federal Home Loan Banks (beginning 1997), and mortgage pass-through securities issued or guaranteed by GNMA, FHLMC, FNMA or FmHA. Other U.S. agencies (amounts small or current separate data not readily available) included with "individuals and others."

[4] Includes private mortgage pools.

Source: Board of Governors of the Federal Reserve System, based on data from various Government and private organizations.

TABLE B–89.—*Estimated ownership of U.S. Treasury securities, 1993–2004*

[Billions of dollars]

End of month	Total public debt [1]	Federal Reserve and Government accounts [2]	Held by private investors									
			Total privately held	Depository institutions [3]	U.S. savings bonds [4]	Pension funds		Insurance companies	Mutual funds [6]	State and local governments	Foreign and international [7]	Other investors [8]
						Private [5]	State and local governments					
1993: Mar	4,230.6	1,328.6	2,902.0	362.6	163.6	112.3	205.0	208.0	202.0	434.0	585.9	628.8
June	4,352.0	1,400.6	2,951.4	360.9	166.5	111.8	211.4	217.8	207.5	441.2	596.8	637.5
Sept	4,411.5	1,422.2	2,989.3	366.2	169.1	125.3	221.8	229.4	217.6	434.0	619.1	606.8
Dec	4,535.7	1,476.1	3,059.6	373.0	171.9	119.6	217.5	234.5	227.1	447.8	650.3	618.0
1994: Mar	4,575.9	1,476.0	3,099.9	397.4	175.0	119.9	224.3	233.4	212.8	443.4	661.1	632.5
June	4,645.8	1,547.5	3,098.3	383.8	177.1	129.2	220.6	238.0	204.6	425.2	659.9	659.9
Sept	4,692.8	1,562.8	3,130.0	364.0	178.6	136.2	217.4	243.7	201.6	398.2	682.0	708.3
Dec	4,800.2	1,622.6	3,177.6	339.6	179.9	139.9	215.6	240.1	209.4	370.0	667.3	815.8
1995: Mar	4,864.1	1,619.3	3,244.8	353.0	181.4	141.6	225.0	244.2	210.6	350.5	707.0	831.7
June	4,951.4	1,690.1	3,261.3	340.0	182.6	142.5	217.2	245.0	202.5	313.7	762.5	855.4
Sept	4,974.0	1,688.0	3,286.0	330.8	183.5	141.9	211.3	245.2	211.6	304.3	820.4	837.1
Dec	4,988.7	1,681.0	3,307.7	315.4	185.0	142.6	208.2	241.5	225.1	289.8	835.2	864.9
1996: Mar	5,117.8	1,731.1	3,386.7	322.1	185.8	144.2	213.5	239.4	240.9	283.6	908.1	849.0
June	5,161.1	1,806.7	3,354.4	318.7	186.5	144.5	221.1	229.5	230.6	283.3	929.7	810.6
Sept	5,224.8	1,831.6	3,393.2	310.9	186.8	141.1	213.4	226.8	226.8	263.7	993.4	830.2
Dec	5,323.2	1,892.0	3,431.2	296.6	187.0	139.9	212.8	214.1	227.4	257.0	1,102.1	794.3
1997: Mar	5,380.9	1,928.7	3,452.2	317.3	186.5	141.4	211.1	181.8	221.9	248.1	1,157.6	786.5
June	5,376.2	1,998.9	3,377.3	300.1	186.3	141.9	214.9	183.1	216.8	243.3	1,182.7	708.1
Sept	5,413.1	2,011.5	3,401.6	292.8	186.2	142.9	223.5	186.8	221.6	235.2	1,230.5	682.0
Dec	5,502.4	2,087.8	3,414.6	300.3	186.5	144.1	219.0	176.6	232.4	239.3	1,241.6	674.9
1998: Mar	5,542.4	2,104.9	3,437.5	308.3	186.2	136.5	212.1	169.4	234.7	238.1	1,250.5	701.6
June	5,547.9	2,198.6	3,349.3	290.9	186.0	129.6	213.2	160.6	230.7	258.5	1,256.0	623.8
Sept	5,526.2	2,213.0	3,313.2	244.4	186.0	121.1	207.8	151.3	231.8	271.8	1,224.2	674.7
Dec	5,614.2	2,280.2	3,334.0	237.4	186.6	113.2	212.6	141.7	253.5	279.7	1,278.7	630.6
1999: Mar	5,651.6	2,324.1	3,327.5	247.4	186.5	109.5	211.5	137.5	254.0	286.8	1,272.3	622.0
June	5,638.8	2,439.6	3,199.2	240.6	186.5	111.0	213.8	133.6	227.9	298.5	1,258.8	528.5
Sept	5,656.3	2,480.9	3,175.4	241.2	186.2	110.8	204.8	128.0	224.4	298.5	1,281.4	500.1
Dec	5,776.1	2,542.2	3,233.9	248.6	186.4	110.5	198.8	123.4	228.7	303.2	1,268.7	565.6
2000: Mar	5,773.4	2,590.6	3,182.8	237.7	185.3	108.5	196.9	120.0	222.0	301.6	1,106.9	703.7
June	5,685.9	2,698.6	2,987.3	222.2	184.6	110.0	194.5	116.5	204.8	302.2	1,082.0	570.5
Sept	5,674.2	2,737.9	2,936.3	220.5	184.3	110.3	184.7	113.7	207.4	297.4	1,057.9	560.0
Dec	5,662.2	2,781.8	2,880.4	201.5	184.8	109.1	177.9	110.2	220.7	297.2	1,034.2	544.8
2001: Mar	5,773.7	2,880.9	2,892.8	188.0	184.8	106.7	175.8	109.1	220.7	309.4	1,029.9	568.5
June	5,726.8	3,004.2	2,722.6	188.1	185.5	106.9	181.2	108.1	217.5	322.7	1,000.5	412.2
Sept	5,807.5	3,027.8	2,779.7	189.1	186.4	104.7	164.5	106.8	231.2	325.7	1,005.5	465.8
Dec	5,943.4	3,123.9	2,819.5	181.5	190.3	105.8	152.4	105.7	257.5	339.4	1,051.2	435.7
2002: Mar	6,006.0	3,156.8	2,849.2	187.6	191.9	107.9	160.2	114.0	264.3	342.8	1,067.1	413.4
June	6,126.5	3,276.7	2,849.8	204.6	192.7	110.5	150.4	122.0	251.7	343.9	1,135.4	338.5
Sept	6,228.2	3,303.5	2,924.8	210.4	193.3	112.9	145.5	130.4	254.6	344.2	1,200.8	332.6
Dec	6,405.7	3,387.2	3,018.5	222.8	194.9	116.4	144.1	139.7	278.8	351.5	1,246.8	323.4
2003: Mar	6,460.8	3,390.8	3,069.9	153.1	196.9	120.3	140.9	139.5	295.1	348.3	1,286.5	389.5
June	6,670.1	3,505.4	3,164.7	145.4	199.1	121.7	148.1	138.7	301.2	345.0	1,382.8	382.6
Sept	6,783.2	3,515.3	3,268.0	146.9	201.5	120.4	141.6	137.4	286.4	355.6	1,455.5	422.7
Dec	6,998.0	3,620.1	3,377.9	154.0	203.8	107.0	147.4	136.5	279.6	358.8	1,538.1	452.6
2004: Mar	7,131.1	3,628.3	3,502.8	165.0	204.5	110.5	145.2	140.7	281.3	362.9	1,704.8	387.8
June	7,274.3	3,742.8	3,531.5	161.6	204.6	110.9	152.0	144.1	258.0	368.3	1,799.8	332.2
Sept	7,379.1	3,772.0	3,607.0	.....	204.2	.....	.....	.....	.....	.....	1,861.9	.....

[1] Face value.
[2] Federal Reserve holdings exclude Treasury securities held under repurchase agreements.
[3] Includes commercial banks, savings institutions, and credit unions.
[4] Current accrual value.
[5] Includes Treasury securities held by the Federal Employees Retirement System Thrift Savings Plan "G Fund."
[6] Includes money market mutual funds, mutual funds, and closed-end investment companies.
[7] Includes nonmarketable foreign series Treasury securities and Treasury deposit funds. Excludes Treasury securities held under repurchase agreements in custody accounts at the Federal Reserve Bank of New York.
Estimates reflect benchmarks to this series at differing intervals.
[8] Includes individuals, Government-sponsored enterprises, brokers and dealers, bank personal trusts and estates, corporate and noncorporate businesses, and other investors.

Note.—Data shown in this table are as of December 2004.

Source: Department of the Treasury.

TABLE B–107.—*International investment position of the United States at year-end, 1995–2003*

[Billions of dollars]

Type of investment	1995	1996	1997	1998	1999	2000	2001	2002	2003 p
NET INTERNATIONAL INVESTMENT POSITION OF THE UNITED STATES:									
With direct investment at current cost	–458.5	–495.1	–820.7	–900.0	–775.5	–1,388.7	–1,889.7	–2,233.0	–2,430.7
With direct investment at market value	–305.8	–360.0	–822.7	–1,075.4	–1,046.7	–1,588.6	–2,308.2	–2,553.4	–2,651.0
U.S.-OWNED ASSETS ABROAD:									
With direct investment at current cost	3,486.3	4,032.3	4,567.9	5,090.9	5,965.1	6,231.2	6,270.4	6,413.5	7,202.7
With direct investment at market value	3,964.6	4,650.8	5,379.1	6,174.5	7,390.4	7,393.6	6,898.7	6,613.3	7,864.0
U.S. official reserve assets	176.1	160.7	134.8	146.0	136.4	128.4	130.0	158.6	183.6
Gold [1]	101.3	96.7	75.9	75.3	76.0	71.8	72.3	90.8	108.9
Special drawing rights	11.0	10.3	10.0	10.6	10.3	10.5	10.8	12.2	12.6
Reserve position in the International Monetary Fund	14.6	15.4	18.1	24.1	18.0	14.8	17.9	22.0	22.5
Foreign currencies	49.1	38.3	30.8	36.0	32.2	31.2	29.0	33.7	39.5
U.S. Government assets, other than official reserves	85.1	86.1	86.2	86.8	84.2	85.2	85.7	85.3	84.8
U.S. credits and other long-term assets	82.8	84.0	84.1	84.9	81.7	82.6	83.1	82.7	82.0
Repayable in dollars	82.4	83.6	83.8	84.5	81.4	82.3	82.9	82.4	81.7
Other	.4	.4	.4	.3	.3	.3	.3	.3	.3
U.S. foreign currency holdings and U.S. short-term assets	2.3	2.1	2.1	1.9	2.6	2.6	2.5	2.6	2.8
U.S. private assets:									
With direct investment at current cost	3,225.1	3,785.4	4,346.9	4,858.2	5,744.5	6,017.7	6,054.8	6,169.6	6,934.3
With direct investment at market value	3,703.4	4,404.0	5,158.1	5,941.7	7,169.8	7,180.1	6,683.1	6,369.4	7,595.6
Direct investment abroad:									
At current cost	885.5	989.8	1,068.1	1,196.0	1,414.4	1,531.6	1,686.6	1,840.0	2,069.0
At market value	1,363.8	1,608.3	1,879.3	2,279.6	2,839.6	2,694.0	2,314.9	2,039.8	2,730.3
Foreign securities	1,203.9	1,487.5	1,751.2	2,053.0	2,525.3	2,385.4	2,114.7	1,846.9	2,474.4
Bonds	413.3	481.4	543.4	578.0	521.6	532.5	502.1	501.8	502.1
Corporate stocks	790.6	1,006.1	1,207.8	1,475.0	2,003.7	1,852.8	1,612.7	1,345.1	1,972.2
U.S. claims on unaffiliated foreigners reported by U.S. nonbanking concerns	367.6	450.6	545.5	588.3	704.5	836.6	839.3	908.0	614.7
U.S. claims reported by U.S. banks, not included elsewhere	768.1	857.5	982.1	1,020.8	1,100.3	1,264.1	1,414.1	1,574.7	1,776.3
FOREIGN-OWNED ASSETS IN THE UNITED STATES:									
With direct investment at current cost	3,944.7	4,527.4	5,388.6	5,990.9	6,740.6	7,620.0	8,160.1	8,646.6	9,633.4
With direct investment at market value	4,270.4	5,010.9	6,201.9	7,249.9	8,437.1	8,982.2	9,206.9	9,166.7	10,515.0
Foreign official assets in the United States	682.9	820.8	873.7	896.2	951.1	1,030.7	1,082.3	1,212.7	1,474.2
U.S. Government securities	507.5	631.1	648.2	669.8	693.8	756.2	831.5	954.9	1,145.0
U.S. Treasury securities	490.0	606.4	615.1	622.9	617.7	639.8	704.6	796.4	956.7
Other	17.5	24.7	33.1	46.8	76.1	116.4	126.9	158.4	188.4
Other U.S. Government liabilities	23.6	22.6	21.7	18.4	21.1	19.3	17.0	17.1	16.6
U.S. liabilities reported by U.S. banks, not included elsewhere	107.4	113.1	135.4	125.9	138.8	153.4	123.4	144.6	190.6
Other foreign official assets	44.4	54.0	68.4	82.1	97.3	101.8	110.4	96.0	122.0
Other foreign assets:									
With direct investment at current cost	3,261.9	3,706.5	4,514.9	5,094.7	5,789.5	6,589.3	7,077.8	7,433.8	8,159.2
With direct investment at market value	3,587.5	4,190.0	5,328.1	6,353.7	7,486.0	7,951.5	8,124.6	7,954.0	9,040.8
Direct investment in the United States:									
At current cost	680.1	745.6	824.1	920.0	1,101.7	1,421.0	1,513.5	1,505.2	1,554.0
At market value	1,005.7	1,229.1	1,637.4	2,179.0	2,798.2	2,783.2	2,560.3	2,025.3	2,435.5
U.S. Treasury securities	327.0	433.9	538.1	543.3	440.7	381.6	358.5	457.7	542.5
U.S. securities other than U.S. Treasury securities	969.8	1,165.1	1,512.7	1,903.4	2,351.3	2,623.0	2,821.4	2,786.6	3,391.1
Corporate and other bonds	459.1	539.3	618.8	724.6	825.2	1,068.6	1,343.1	1,600.4	1,853.0
Corporate stocks	510.8	625.8	893.9	1,178.8	1,526.1	1,554.4	1,478.3	1,186.2	1,538.1
U.S. currency	169.5	186.8	211.6	228.3	250.7	256.0	279.8	301.3	317.9
U.S. liabilities to unaffiliated foreigners reported by U.S. nonbanking concerns	300.4	346.8	459.4	485.7	578.0	738.9	798.3	864.6	466.5
U.S. liabilities reported by U.S. banks, not included elsewhere	815.0	828.2	968.8	1,014.0	1,067.2	1,168.7	1,306.4	1,518.4	1,887.2

[1] Valued at market price.

Note.—For details regarding these data, see *Survey of Current Business*, July 2004.

Source: Department of Commerce, Bureau of Economic Analysis.

NOTES

[1] This case was written in collaboration with John Allison, retired Chairman and CEO of BB&T, and Ken Chalk, retired Chief Credit Officer at BB&T. The support of current top executives at BB&T should also be acknowledged. Dated July 7, 2015. Revised December 9, 2016.

[2]This Federal Deposit Insurance Corporation report was cited in the *Wall Street Journal*, June 20, 2005, pg. A1.

[3] The savings and loan (S&L) crisis of the 1980s and 1990s lead to the failure of 747 out of 3,234 savings and loan associations in the United States. A savings and loan association was a financial institution that accepted savings deposits and made mortgages, car and other personal loans to individual members. These failures were primarily caused by imprudent real estate loans. The total cost for resolving the 747 failed institutions totaled nearly $100 billion and was a major contributor to the 1990-91 economic recession.

[4] The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) were the two largest mortgage companies in the United States, together holding or guaranteeing nearly $5 trillion in debt by 2006. During the Great Depression, the U.S. government created Fannie Mae in 1938 in order to buy mortgages from lenders, freeing up capital for other borrowers. During the 1960s, Fannie Mae was converted into a publicly traded company owned by private investors. At about the same time, Freddie Mac was created to keep Fannie Mae from functioning as a monopoly and Freddie Mac became publicly traded in 1989. These agencies helped usher in a new generation of American home ownership, paving the way for banks to loan money to low- and middle-income buyers who otherwise might not have qualified for mortgage loans. Many of these loans were sold to Fannie Mae and Freddie Mac which were then resold to credit market investors in the form of mortgage-backed securities. The two companies dominated the mortgage market, largely because of the belief that loans backed by Freddie and Fannie carried an implicit government guarantee. In addition, during the Clinton Administration, these two entities were encouraged by Congress to aggressively increase homeownership to those traditionally unable to afford it.

[5] Mr. Greenspan was quoted as saying: "We will not automatically assume it will mean what it meant in the past . . . The flow of funds has altered in such a dramatic way since the last time we saw that sort of inverted yield curve that I'd be doubtful its historical meaning could be extrapolated to the present." See *The Wall Street Journal*, June 7, 2005, pg. A2. John Allison, in general, did not like central banks, but if you were going to have one, he preferred the European Central Bank model: its interdependence from elected politicians was guaranteed by treaty/constitutional law and its mission was solely targeted to control inflation. The Fed, by comparison, was created by statutory law and had a dual mandate: economic growth with stable prices.

[6] Mr. Zandi of Moody's Economy.com was quoted as saying, "No one really has a grip on who has the risk. If something goes wrong in the mortgage market, a lack of transparency could cause investors to shun good and bad borrowers alike." See the *Wall Street Journal*, June 20, 2005, pg. A1.

[7] See *The Wall Street Journal*, September 27, 2005, pg. A2.

[8] See Daniel Altman, "Bernanke's Models and Their Limits," *The New York Times*, October 30, 2005, pg. 6.

[9] The Commerce Department reported a sharp reduction in new home construction had occurred in October 2005, down 5.6 percent versus a 2.5 percent gain a month earlier. See *The Wall Street Journal*, November 18, 2005, pg. W10.

[10] The Mortgage Bankers Association reported that mortgage applications had declined by 6.8 percent during the first week of December 2005. See *The Wall Street Journal*, December 9, 2005.

PLANNING FOR RETIREMENT: INSURANCE VERSUS INVESTING

James Brau and Bryan Sudweeks,
Brigham Young University

In September of 2016, Clinton Ford was discussing with his friend Tyler Smith, an insurance agent, the importance of life insurance and saving for retirement. They were discussing various ways that Clinton could get the insurance he wanted as well as ways to save money for when he retires in 30 years at his planned retirement age of 65. His wife Emily is recommending they look into contributing to Clinton's company 401k plan along with term life insurance, but Tyler is recommending a Variable Universal Life Insurance contract that combines both insurance and investing. Clinton is unsure what to do. He is trying to weigh the various options and make the best decision he can. He and Emily have a goal to save 15% of their gross income per year and to have as much saved as possible at retirement so they can have the resources to do what they want during their retirement years.

BACKGROUND

Clinton, age 35, is married with four children, ages three months to 10 years. He currently makes $60,000 per year as a marketing manager of a small internet firm that has been in existence for about 10 years. His wife Emily, an accounting graduate, works keeping the family organized and does not work outside the home except during tax season. Each year she brings in about $2,000 doing taxes, but they do not include this in the family budget. They have a home with a $175,000 mortgage remaining, have two cars which are paid off, and are thinking about retirement. They started living on a budget four years ago, and paid off their last credit card one year ago. They have said they will never go into debt again. They have a three month or $15,000 emergency fund in a savings account, and are concerned about both life insurance and investing for the future. They are in the 15% federal tax and 7% state tax bracket and have a goal to save 15% of their pre-tax total income each year for retirement and insurance. Given their current cash flow situation, they think this is doable. They have four children and pay lower taxes due to the Child Tax Credit and other deductions which will be gone when the kids turn 17, but expect tax rates to increase for them in retirement due to expected increases in taxes due to the increasing government debt.

INVESTMENT OPTIONS

Emily has been talking with the Human Resource (HR) consultant at Clinton's work regarding retirement. She determined that Clinton's company has a Qualified Retirement Plan that has both a Roth 401k and traditional 401k option. For information on Qualified Retirement Plan limits which she received from HR, see Exhibit 1.

She also found out that Clinton's company has a company match. Her understanding is that if Clinton will save 5% of his salary in a traditional or Roth 401k, the company will match that contribution with 4% of company match money, subject to a four-year vesting period. This means that for every dollar Clinton contributes, the company will match it with 80 cents, up to a maximum of 4% of his salary. She knows that this match money is his only if he stays with the company for at least four more years, the vesting period for the company match. In addition, if he chooses to utilize the Roth 401k plan, she knows the company match will be in a traditional plan rather than a Roth 401k plan. In addition, she knows that the company can change or eliminate the match at their discretion.

Emily has also studied about Individual Retirement Accounts. After reviewing the material online at the IRS website, she determined that both she and Clinton could contribute to either Roth or traditional IRAs to the phase out limits in Exhibit 2 and Exhibit 3. Her modified adjusted gross income is not beyond the earnings limits in Exhibit 3.

Emily is unsure of whether to use traditional or Roth retirement vehicles. She knows that with the traditional retirement vehicle (401k or IRA), the contribution is tax-deductible, meaning she gets a tax benefit now but must pay taxes on the money she takes out of the account after retirement at ordinary income tax rates. She also knows that if she takes the money out before age 59½, there is a penalty of 10% on the distribution plus the distribution is taxed at ordinary income rates.

Her understanding is that with the Roth retirement vehicles (Roth 401k or Roth IRA) they will have to pay taxes on their contributions now, but when they take the money out after age 59½, they will pay no taxes on the money at all. In addition, if she needs some principal before retirement, she can take out principal (but not earnings) without penalty and without tax. This is because she has already paid taxes on the Roth principal. If she takes out earnings, there is a 10% penalty on earnings and the earnings are taxed at ordinary rates.

She also knows she can do a combination of plans, including both Roth and Traditional plans up to the contribution limits, for example, for 2016, she could put $9,000 into a Roth 401k and $9,000 into a traditional 401k, as long as the total contributed for the year does not exceed the $18,000 total for 2016. Both she and Clinton could also contribute to a traditional IRA, Roth IRA or both in each of their names as long as the combined amount for 2016 does not exceed $5,500 each.

INSURANCE OPTIONS

Clinton currently has a company life insurance policy on himself, provided as a free benefit by the company, which will pay $50,000 on his death. Because of the number of kids at home, he is concerned that this will be insufficient to support his wife and children should he pass away. After discussing the face amount with his wife, they decide that $500,000 would be sufficient should he die to provide for his wife and family, pay off his mortgage, and to put his children through college. They also determined that they would likely only need life insurance for 30 years until the last child graduates from college. After that time, their investments should be sufficient for their retirement needs.

He has looked into a number of options. He has read the comments "buy term and invest the rest" as well as "if you buy term you are throwing your money away" but is unsure what either of these comments mean. After some investigative work on the internet, he came up with Exhibits 4 and 5 which explain Term and Permanent Insurance types, risks and flexibility.

Clinton has been reviewing both the term and permanent options with Tyler. He realizes that he will be purchasing insurance with after-tax dollars. He feels he understands well the term insurance options, particularly with the annual, renewable, and convertible term policies. Tyler brought a paper with eight different quotes for level renewable convertible term life insurance. It is level term for 30 years, automatically renewable should he make the payments, and at his option, it can be converted into a very basic type of permanent insurance. The cost of these policies ranged from $460-480. Clinton assumes it would cost about $470 per year (see Exhibit 6).

He is not quite so sure about the permanent policies. Tyler has emphasized that the permanent insurance is just that, permanent. If Clinton wants it for his entire life, that is the way to go for perhaps a part of his insurance. In his discussions with Tyler, he determined that the major differences between the permanent insurance options relate to how the cash value is invested and the policy flexibility needs of the insurance contract (see Exhibit 5). He also knows that his premium is divided into two portions, the first pays for the mortality and other costs and expenses of his life insurance product, and the second, the cash value, is that portion that is invested in a variety of financial instruments depending on the type of permanent policy.

Tyler has been recommending that Clinton look into a Variable Universal Life insurance product. This policy allows Clinton to choose his investments among variable subaccounts, similar to mutual funds. Clinton knows it is riskier for him to choose the investments, but he is comfortable with this framework. Tyler shared an illustration with a 10% growth rate, but Clinton felt that it was too high. He asked for and received an illustration with an 8% rate (see Exhibit 7). Clinton felt that a 6-8% return was more indicative of the types of returns that current investments would earn going forward. He realizes that these illustrations are just that, illustrations and are not guarantees.

Clinton agreed to look at the Variable Universal Life (VUL) policy because he wanted to assess the difference between the investment value earned in the VUL policy, versus investing in other retirement vehicles of similar risk and return. By having both vehicles where he could control the portfolio asset allocation, he considers he can better analyze the various alternatives. He wants to try to compare, as carefully as possible, the risks and benefits of the investment versus the insurance options.

Clinton has four different death benefit options with the VUL policy (see Exhibit 7. Notes: death benefit options). For this analysis he chose option A, where upon his death, the insurance company will pay his beneficiary the face amount of the policy and not the cash value. He could have chosen different options, each of which would have had a different effect on his VUL illustration and different costs and expenses.

Clinton has looked at the various riders, those additional features that can be added to the insurance contract for a fee. He has found most of them not useful or not worth the cost. The only rider he considers useful would be the “waiver of premium” rider which, should he be disabled, would pay the premium for the life of the policy. The waiver of premium rider is included in the VUL plan and is not included in the Term Insurance quotes, but may be added for $40 per year.

Clinton received the VUL illustration from Tyler for the top preferred rate. He knows that should he sign up for this policy, he will need to have a medical exam. Based on that medical exam, he may or may not receive that preferred rate. There is a risk that he may, if the medical results are not as good as expected, have to pay more for the same insurance based on

the results of that exam. If he does not get the preferred rate, his cost of insurance may increase considerably.

Clinton is aware of the "agency" problem in selling insurance, and that insurance salesmen may make between 40% and 110% of the first-year commissions. Assuming a 60% commission, for term insurance Tyler's commission would only be about $282 ($470*.6) with no additional compensation for succeeding years. However, assuming a 60% commission with permanent insurance, the insurance salesman's commission is $3,498 ($5,830 * .6), over 12 times more. Moreover, the agent may continue to make a commission percentage each year the permanent insurance is in force. Because of this, Clinton wants to make sure that this is really what he needs, and not just something Tyler is selling to make a much larger commission. He and Tyler have been friends since high school, so he is not too concerned about this.

Clinton also is aware of the asymmetry in the insurance contracts. He knows, once he signs the contracts, he is liable for the costs and expenses contracted. However, the insurance company can change contract costs and expenses that Clinton must pay even after the contract has been signed. Finally, Clinton understands that he can use a combination of investing and insurance vehicles in his retirement planning. He is not constrained to either one or the other.

TAXES IN RETIREMENT

Clinton knows that his traditional 401k and IRA distributions will be taxed at retirement as ordinary income, so the more he takes out each year, the more taxes he will pay. For the sake of this analysis, he assumes that he will take the same amount out at retirement each year as his pre-retirement income, which should put him in the same tax bracket. He knows that his Roth IRA and Roth 401k distributions are tax free as they are taxed when invested. He also knows that the US tax system is progressive, and if he has both traditional and Roth retirement vehicles, he can manage his tax rates in retirement to a certain target level.

With permanent policies, they can be structured differently depending on the needs of the client. Generally, with the VUL policy, Clinton has two distribution options. First, he can take out money as a loan from the company using the policy's cash value as collateral. This is a tax-free loan, and he can use the money as he wishes (even prior to age 59½). He has the option to pay the loan back with interest. If he dies before he pays the loan back, the death benefit will be reduced by the amount of the loan plus interest.

Second, he can take a permanent withdrawal. This withdrawal is tax free up to the amount of his basis, which is the total amount of premium contributed. Any withdrawal in excess of his basis would be considered ordinary income for tax purposes. These options can be used in conjunction with one another, i.e., Clinton can take withdrawals up to his basis, and then take a policy loan to avoid tax liability.

Clinton must make a decision soon. He likes the VUL policy because with that he can choose his investments (within limits) and keep his asset allocation constant. He can do the same with his 401k/IRA investments. They are also similar in that he puts in pre-tax dollars and when he takes the investments out at retirement, they are generally tax free. He is unsure what he should do.

CASE QUESTIONS

Note: For the purpose of these case questions, assume all payments are annual and are at the end of the year. Some of these questions assume a discussion in class or homework of key terms prior to the case being assigned.

Retirement Questions

1. Regarding investment vehicles:
    a. What is an investment vehicle? What is the difference between an investment vehicle and a financial asset?
    b. What is the difference between the Roth and traditional retirement vehicles?
    c. In what situations would you prefer the Roth over the traditional 401K/IRA?
    d. In what situations would you prefer the traditional over the Roth 401k/IRA?

2. Regarding the company match:
    a. What is the impact of the company match on Clint and Emily's family savings goal?
    b. What is the immediate return he is earning on his 5% contribution if he takes the company match (assume he meets the vesting requirements)?
    c. There are very few situations where getting the company match is not recommended. What might one of those situations be?

3. Assume Clinton saves all 15%, less the cost of term insurance which includes the disability rider, in the traditional 401k plan each year. How much is he saving this year in terms of:
    a. The cost of insurance?
    b. His retirement contributions?
    c. The company match?
    d. Tax savings from the tax-deductible option?
    e. Total Savings, which is contributions + company match + tax savings? For the purpose of this question, do not worry about future taxes.

4. Assume Clinton invests the full amount, his 15% of pre-tax income each year into the traditional 401k less the cost of a 30-year term policy each year at 8%. Assume his salary and his taxes stay at the current level.
    a. Should he include the company match?
    b. How many years would he include the company match?
    c. How much will he have at retirement (after paying taxes when he withdraws the money after age 59½)? Assume he takes out the same amount as his pre-retirement income so his tax rate is 22%.
    d. How much will he have at retirement after taxes, assuming when he withdraws the money at age 65 he is at the 32% total tax rate)?

5. Assume he invests the same 15% pre-tax amount into the Roth 401k less the cost of a 30-year term policy each year at 8%. Assume his distributions are such that his tax rate stays the same at 15% federal and 7% state.
    a. How much will he have at retirement after taxes?

b. Will he have more or less in the Roth or the traditional 401k at retirement after taxes?
c. Why?
d. If his tax rate increased to 32%, how much would he have at retirement?

6. Assume Clinton invested the stated amounts in the VUL each year and invested the remaining funds in the Roth 401k.
    a. How much would he have at retirement at age 65 assuming the VUL at current charges? (Assume for this problem that all his withdrawals are tax-free).
    b. How much would he have at retirement at age 65 assuming the VUL at maximum charges? (Assume for this problem that all his withdrawals are tax-free).
    c. What is the difference in retirement savings if the company chooses to take out the maximum charges?

7. Clinton and Emily have a goal to save 15% of their gross income each year.
    a. What is the maximum amount that Clinton and Emily can save each year in their Roth or traditional 401k and IRA accounts in 2016 (assume they have no additional income that would put them over the phase out range for a traditional or Roth IRA)?
    b. Is there room to invest additional retirement assets at their current level of income and savings?

Insurance Questions

8. What are the main differences between term and permanent life insurance (particularly the VUL which Clinton is considering) in terms of:
    a. Cost?
    b. Permanence (length of policy)?
    c. Investment risk?
    d. Commissions to the insurance agent?
    e. Flexibility?

9. Please answer the following questions regarding permanent policies below:
    a. What are the main differences between whole and universal life?
    b. What are the main differences between variable universal life and equity indexed universal life?
    c. What is the difference between the current charges and maximum charges and the impact on the retirement amount in the VUL policy?
    d. Does the uncertainty on costs make a difference in the analysis? Is this something that Clinton should be aware of?

10. What is the impact of Clinton's health on the life insurance illustration?
    a. Can this have an impact on the benefits of the policy?
    b. What can Clinton do if he does not get the preferred rate?

11. What would have been the impact on the policy illustrations of choosing a different death benefit option?

Combined Retirement and Insurance Questions

12. Which of the retirement vehicles is closest to the permanent insurance product as to the impact of taxes on the amount available going into the retirement vehicles and the amount available coming out at retirement?

13. What impact do taxes have on the retirement results in the retirement problems 4 and 6 above?

14. Clinton and his family are currently making $60,000 per year. As Clinton's earnings increase, what is the impact of that increased earnings on his family's life insurance needs?

15. If Clinton were to become disabled, what would be the impact be to the:
    a. Term life
    b. Variable Universal Life
    c. Traditional 401k
    d. Roth 401k

16. How could it make sense to have both term and permanent insurance as part of Clinton's insurance and retirement plans?

17. How could it make sense to have both traditional and Roth investment vehicles in Clinton's retirement plans?

Exhibit 1. Qualified Retirement Plan Annual Contribution Limits

For a 401(k), Roth 401(k), 403(b), Roth 403(b), and 457 Plan:**

Year	Contribution Limit	Catch Up Contribution*
2012	17,000	5,500
2013	17,500	5,500
2014	17,500	5,500
2015	18,000	6,000
2016	18,000	6,000

*The catch-up contribution is for those over age 50
** 457 Plan participants also have the option of the final 3 years before retirement to increase their deferrals to the lesser of twice the normal limit ($36,000 in 2016) or the normal limit not applied in previous years.

Exhibit 2. Individual Retirement Account Annual Contribution Limits

For a Traditional and Roth IRA
Traditional / Roth

Year	Contribution Limit	Catch Up Contribution*
2012	5,000	1,000
2013	5,500	1,000
2014	5,500	1,000
2015	5,500	1,000
2016	5,500	1,000

* The catch-up contribution is for those over age 50

Exhibit 3. Contribution Phase Out Ranges

	MAGI Phase Out Range (in 000's)	
Traditional IRA		
Year	**Single Range**	**Married FJ Range**
2012	$58-$68	$92-$112
2013	$59-$69	$95-$115
2014	$60-$70	$96-$116
2015	$61-$71	$98-$118
2016	$61-$71	$98-$118
Roth IRA		
2012	$110-$125	$173-$183
2013	$112-$127	$178-$188
2014	$114-$129	$181-$191
2015	$116-$131	$183-$193
2016	$117-$132	$184-$194

Your Modified Adjusted Gross Income (MAGI) is your adjusted gross income and adding back certain items such as foreign income, foreign-housing deductions, student-loan deductions, IRA-contribution deductions and deductions for higher-education costs.

Exhibit 4. Term Insurance Types, Risks, and Flexibility

Type of Policy	Mortality Risk	Investment Control	Policy Cost/ Additional Fees	Investment Choice	Policy Flexibility Invest.	Premium	Face Amt.
Annual Term	High May not be renewed	None	Lowest Low initial cost	None	None	None	None
Renewable Term	Lower May be renewed for more periods	None	Low Higher initial cost	None	None	None	None
Convertible Term	Lowest If converted, cannot be cancelled	None until converted, then see chart below	Low / higher Lower initial cost, higher when converted	None	None	None	None

Exhibit 5. Permanent Insurance Types, Risks, and Flexibility

Type of Policy	Mortality Risk	Investment Control / Risk	Policy Cost/ Additional Fees	Investment Choice	Policy Flexibility Invest.	Premium	Face Amt.
Whole Life	Low Cannot be cancelled	None Investment risks assumed by insurance company	Lower Lower costs (but higher than term)	None Insurance company long-term bonds and mortgages	None	None	None
Universal Life	Low Cannot be Cancelled but premiums may be raised	Minimal Investment risk assumed by insurance company	Higher Higher costs	Minimal short-term money market investments	None	Max.	Max.
Variable Life	Low Cannot be cancelled but premiums may be raised	Highest Higher investment risk due to sub-account choices	Higher Higher costs	Maximum common stocks, money market, bonds, etc.	Max	None	None
Variable Universal Life	Low cannot be cancelled but premiums may be raised	Highest Higher investment risk due to sub-account choices	Higher Higher costs	Maximum common stocks, money market, bonds, etc.	Max.	Max.	Max.
Equity Indexed Universal Life	Low Cannot be cancelled but premiums may be raised	Higher Minimal investment risk, blended control	Higher Higher costs	Equity products and options	None	Max	Max

Notes to Exhibits 4 and 5

There are five different areas of concern when evaluating life insurance contracts. ***Mortality Risk*** is the risk that the insured dies outside the contract period and is not covered by insurance. ***Investment Control /Risk*** is who controls the investment choice and who takes responsibility for the risk from the outcome of the investments. ***Policy Cost*** is the cost of the policy compared to other policies. ***Investment Choice*** is the types of investment vehicles the non-mortality portion of the premiums may be invested in, i.e., bonds, stock, cash, etc. ***Policy Flexibility*** is the ability to change the types of investments, between bonds, stocks, mutual funds, etc.; monthly premium amounts, the ability to pay less or more depending on your cash flow situation; or the face value amount during the life of the contract, which is the ability to increase or decrease the face amount of the policy.

Exhibit 6. Term Insurance Cost Illustrations

Rate is for a Preferred, Non-tobacco User
Age: 35 Cost per year: 8 Companies Policies were from $460-480 per year
He will need to add $40 per year if he chooses to add the waiver of premium benefit.

Exhibit 7. Custom Variable Universal Life Illustration

For: Clinton Ford, 35-year-old Male
Initial Death Benefit Option A: Specified Amount
Cash Value Accumulation Test
Death Benefit Guarantee: Lifetime

Initial Specified Amount: $500,000
Initial Monthly Premium: $485.83

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		8% Gross (7.79% Net) - Current Charges				8% Gross (7.79% Net) - Maximum Charges			
End of Year	Age (Beginning of Year	Annual Cash Outlay	Death Benefit	Annual Invested Assets	Cash Surrender Value	Annual Cash Outlay	Death Benefit	Annual Invested Assets	Cash Surrender Value
1	35	5,830	500,000	4,758	1,844	5,830	500,000	4,091	1,176
2	36	5,830	500,000	9,451	6,537	5,830	500,000	8,042	5,127
3	37	5,830	500,000	14,478	11,563	5,830	500,000	12,250	9,335
4	38	5,830	500,000	19,862	16,947	5,830	500,000	16,714	13,799
5	39	5,830	500,000	25,626	22,711	5,830	500,000	21,456	18,541
6	40	5,830	500,000	31,800	29,468	5,830	500,000	26,494	24,162
7	41	5,830	500,000	38,414	36,665	5,830	500,000	31,835	30,086
8	42	5,830	500,000	45,506	44,340	5,830	500,000	37,485	36,319
9	43	5,830	500,000	53,111	52,528	5,830	500,000	43,461	42,878
10	44	5,830	500,000	61,264	61,264	5,830	500,000	49,770	49,770
11	45	5,830	500,000	71,330	71,330	5,830	500,000	57,710	57,710
12	46	5,830	500,000	82,142	82,142	5,830	500,000	66,129	66,129
13	47	5,830	500,000	93,758	93,758	5,830	500,000	75,054	75,054
14	48	5,830	500,000	106,232	106,232	5,830	500,000	84,574	84,574
15	49	5,830	500,000	119,625	119,625	5,830	500,000	94,725	94,725
16	50	5,830	500,000	133,966	133,966	5,830	500,000	105,527	105,527
17	51	5,830	500,000	149,421	149,421	5,830	500,000	117,013	117,013
18	52	5,830	500,000	165,977	165,977	5,830	500,000	129,196	129,196
19	53	5,830	500,000	183,757	183,757	5,830	500,000	142,124	142,124
20	54	5,830	510,766	202,865	202,865	5,830	500,000	155,814	155,814
21	55	5,830	545,958	223,698	223,698	5,830	500,000	170,288	170,288
22	56	5,830	582,427	246,055	246,055	5,830	500,000	185,608	185,608
23	57	5,830	620,220	270,034	270,034	5,830	500,000	201,834	201,834
24	58	5,830	659,325	295,748	295,748	5,830	500,000	219,076	219,076
25	59	5,830	699,813	323,298	323,298	5,830	513,790	237,360	237,360
26	60	5,830	741,858	352,862	352,862	5,830	540,451	257,065	257,065
27	61	5,830	785,636	384,550	384,550	5,830	567,601	277,828	277,828

Exhibit 7. Custom Variable Universal Life Illustration (continued)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		8% Gross (7.79% Net) - Current Charges				8% Gross (7.79% Net) - Maximum Charges			
End of Year	Age (Beginning of Year	Annual Cash Outlay	Death Benefit	Annual Invested Assets	Cash Surrender Value	Annual Cash Outlay	Death Benefit	Annual Invested Assets	Cash Surrender Value
28	62	5,830	831,376	418,498	418,498	5,830	595,278	299,651	299,651
29	63	5,830	879,205	454,839	454,839	5,830	623,561	322,587	322,587
30	64	5,830	929,209	493,716	493,716	5,830	652,497	346,691	346,691
31	65	5,830	981,475	535,287	535,287	5,830	682,238	372,085	372,085
36	70	5,830	1,278,077	789,097	789,097	5,830	841,230	519,383	519,383
41	75	5,830	1,648,921	1,137,310	1,137,310	5,830	1,020,114	703,603	703,603
46	80	5,830	2,121,013	1,607,070	1,607,070	5,830	1,223,315	926,894	926,894
51	85	5,830	2,721,471	2,218,280	2,218,280	5,830	1,455,833	1,186,708	1,186,708

Exhibit 7. Notes from the Life Insurance Contract Illustration

Note: The complete illustration with all years is in the Excel exhibits handout.

Difference Between Current and Maximum Charges: There is the risk of an increase in Current Fees and Expenses at the discretion of the Insurance Company. Certain insurance charges are currently assessed at less than their maximum levels. The Insurance Company may increase these current charges in the future up to the guaranteed maximum levels, based on the Company's emerging experience or future expectations, as determined in its sole discretion, with respect to, but not limited to, mortality, expenses, reinsurance costs, taxes, persistency, capital requirements, reserve requirements, and changes in applicable laws. Although some Funds may have expense limitation agreements, the operating expenses of the Portfolios are not guaranteed and may increase or decrease over time. If fees and expenses are increased, you may need to increase the amount and/or frequency of Premium Payments to keep the Policy in force.

Death Benefit Option: Death benefit is defined by the option selected by the applicant. The death benefit under Option A is equal to the Specified Amount. Under Option B, the death benefit is equal to the Specified Amount plus the Policy Value. Under Option C, the death benefit is equal to the Specified Amount plus cumulative premiums paid minus cumulative withdrawals.

Cash Value Accumulation Test: In order to be treated as life insurance under the Internal Revenue Code §7702, a policy must meet one of two tests. One of the tests is the Cash Value Accumulation Test. The test requires that the policy meet a minimum ratio of death benefit to policy value, with the ratios decreasing as the age of the insured advances. The minimum death benefit at all times must equal the net single premium factor stated in the policy multiplied by the policy value.

Cash Surrender Value: This is the value that the customer would receive should he decide to terminate the policy.

Death Benefit: This is the amount that would be paid on death of the insured.

HEDGING IN AN AUTOMOBILE FINANCING COMPANY

Amy Burnett and P. K. Chatterjee,
St. Edward's University

In 2016, interest rates in the U.S. are so low that the only way they can go, if they move at all, is up. Thus, hedging against higher interest rates in the future is more important than ever for financial institutions since their profits depend upon the spread between interest rates charged to borrowers and interest rates paid to savers.

One segment of the financial institutions business, auto lending, has been and still is a major contributor to earnings. At the end of the 2nd quarter of 2016 in the U.S., debt outstanding on motor vehicle loans was approximately $1,072 billion, and accounted for 40 percent of non-revolving, non-mortgage consumer debt and 30 percent of all non-mortgage consumer debt. (Board of Governors of the Federal Reserve System, 2016)

The situation and business problems in this real-life case reflect the complexity of hedging and hedge ratios in the auto-lending business. Although the events occurred in the mid-2000s in a small but interesting niche of the motor vehicle lending business, the underlying challenges associated with reducing the uncertainty of earning the spread between interest rates charged to, in this case, car-buyers and interest rates paid to providers of auto-loan funds remain the same, particularly if the former is fixed and the latter is variable. An additional issue in this case, concerning timing regarding asset-securitization and changes in interest rates, emphasizes the need for thorough analysis when considering various hedging strategies. The case outlines the importance of not only setting appropriate hedging strategies but also calculating hedge ratios correctly.

THE AUTO LENDING MARKET

Traditionally in the early 2000's auto loans, a segment of the motor vehicle lending industry, in the U.S. were originated in two different ways – **direct** loans and **indirect** loans. Direct loans were obtained (contracted for) by the car-buying customer directly from a financial institution. These institutions were usually banks and credit unions. The car-buying customer would walk into a local branch, fill out a loan application with a loan officer, and, if the loan was approved, obtain the loan directly from the financial institution to purchase the car.

The second way auto loans were originated was through auto dealerships. Dealers would conclude a sale with a customer and if the customer needed to finance the car, the dealer would have the customer complete a loan application. The dealer would then send the application to various financial institutions with which it had working relationships. If more than one financial institution approved the loan application, it would then be the dealer's decision as to which institution would make the loan. These loans were termed **indirect** loans because the financial

institution originated the loans indirectly, that is, via the auto dealer. The financial institution making the loan never met with the car-buying customer during the loan origination process.

For indirect loans, the decision by the dealer to choose a particular institution depended upon two main factors: the **loan buy rate** and a timely response by the financial institutions. The first factor, the loan buy rate (the buy rate), was the rate at which a financial institution was willing to make the loan. The buy rate essentially set the financing profit the dealer earned for arranging the loan for the customer. Of course, a lower buy rate proposed by the financial institution would allow the dealer to earn more money. For example, if the dealer wrote a particular loan at 8% and one institution's buy rate for that loan was 7%, the dealer would earn a financing profit based on the difference in finance charges, the spread, between 7% and 8% (+100 basis points). If another institution approved the same loan at a buy rate of 6.50%, then that institution would most likely receive the loan business from the dealer because the dealer would make more money on the higher spread (8% minus 6.50% or +150 basis points).

The second major factor, not as important but worth mentioning for its effect on the lending market, considered when choosing an institution to finance the loan was timeliness of response to the application. Most financial institutions had automated or semi-automated decision-making processes by which the loan application was received electronically, scored and decided upon instantly. The decision was communicated back to the dealer electronically, sometimes within seconds of the receipt of the application. The speed of response could be fairly important in winning deals for financial institutions because a quick approval gave the dealer peace of mind that the deal could be placed with a financial institution.

HERITAGE AUTO FINANCE COMPANY

Heritage Auto Finance Company (HAFC) started life in the indirect auto lending business as part of a savings and loan organization on the West Coast of the U.S. It subsequently was bought by Heritage Bank (HB). As part of the savings and loan organization and initially as part of HB, HAFC enjoyed the use of relatively stable and low-cost savings deposits of banking customers of these institutions to fund its loans.

HAFC competed with other auto finance companies, including captives such as General Motors Acceptance Corporation (GMAC) and Ford Motor Credit Corporation (FMCC), as well as national, regional and local financial institutions, mainly banks and credit unions. In such a competitive market, most institutions were forced to keep the spread between the buy rate and the cost of funds of the financial institution very small.

In the indirect lending business, the spread between the buy rate and the cost of funds was the main, if not total, source of net revenue. It was the stability of the low cost of funds that allowed HAFC to be relatively certain of its spread and, therefore, its profit.

HAFC's fortunes changed dramatically in 2002. HB, its parent financial institution holding company, had bought several additional financing businesses, some of which had failed. Because of these failures and resultant high losses to the bank, regulators intervened and forced the bank holding company to sell not only those businesses, but also the bank branches. Thus, HAFC was left on its own to find new sources of funds to use for auto loans since the stable and low-cost bank deposits of the bank branches were gone.

HAFC sought out and found an alternate source of funds. It negotiated a $300 million line of credit (LOC) on which it paid a variable rate of LIBOR plus 75 basis points (LIBOR + 0.75% = HAFC's new cost of funds). Now HAFC's net income was much less predictable as its revenues

came from fixed-rate auto loans sold at the prevailing competitive buy rates while its source of funds was a not-so-predictable variable rate LOC. As it made new loans, it drew upon this LOC to fund the loans it made.

To keep its borrowing via the LOC below the $300 million limit, HAFC began to securitize its loans when the draw against its LOC reached approximately $250 million. It would then use the resultant funds from the sale of the auto loan asset-backed securities to bring the LOC draw back down to zero. It borrowed from the LOC, made auto loans, securitized its loans, sold those securities, and used the proceeds to pay down the LOC. The securitization of loans, it should be noted, took place approximately a year after the loans were originated. HAFC was, therefore, pricing its loans (setting its buy rates) based on existing interest rate conditions at the time of the loan, not knowing what interest rates would be when it securitized those loans some time later.

The securitization of the assets of HAFC, its auto loans, was quite normal: the company would take a group of its outstanding loans and issue bonds based on the cash flow generated by those loans. Its customers made amortized monthly payments based on the fixed buy rate, that is, each payment was comprised of interest and principal. As a result, the loans as a group generated interest and principal repayment cash flows that were very predictable. The interest part of the cash flow went toward paying the interest on the bonds to the bondholders. The principal repayment part of the cash flow went toward paying down the bond balance, again to the bondholders. Since the bond investors paid upfront for the bonds, HAFC was able, in turn, to pay down the LOC to zero and start building another portfolio of loans against the now freed-up LOC.

HAFC chose to continue to operate after losing the stable and inexpensive deposits as its source of funds because it believed that it offered a niche financial product that had been quite successful in the past and would still be able to generate adequate profits. The average FICO credit score of the loans in the HAFC portfolio was approximately 710, which was indicative of good credit quality customers. These loans were, therefore, by no means subprime in the context of customer credit history. The company did charge higher rates than what it would charge normal prime customers, however, because its niche was to serve customers who wanted to borrow at a high loan-to-value ratio. For example, HAFC might charge 8% for a customer scoring 710 and taking out a 100% loan-to-value loan while at the same time, it would charge 11% for a customer scoring 710 but wanting a 120% loan-to-value loan. It was one of only two or perhaps three institutions in the country with this niche product during this period and amazingly, the credit performance of the high loan-to-value portfolio turned out to be consistently good over the years. This consistent performance enabled HAFC to securitize its loans without difficulty and at relatively low rates.

HAFC originated approximately $25 million of loans per month, so it took the company approximately one year to build its loan portfolio to the $250 million level. Thus, HAFC securitized and sold its loans about once a year. Securitizing loans more often was uneconomical. Anything less than a $200 million securitization was deemed too costly because of the fixed costs associated with securitization: fees to the Securities and Exchange Commission, investment bankers, accountants, lawyers and ratings agencies, as well as document printing costs, etc.

HAFC'S FINANCING PRACTICE

Although HAFC was making money, its board had decided to hire someone to improve the performance of the company. In 2004, HAFC recruited Martin Henry as its new CEO. Martin had extensive experience in running large consumer loan businesses for several regional banks including managing a $4 billion auto financing business. Upon arrival, Martin quickly realized that he had substantial work to do in terms of increasing HAFC's loan originations and reducing its operating expenses. He also recognized that some financial issues needed to be addressed. To assist in the resolution of those financial issues, he recruited a former associate, Bob Specht, to be HAFC's CFO.

Martin and Bob discussed the financial operation of the company and determined that one major issue they had to resolve was properly hedging HAFC against interest rate increases on its LOC. Hedging had been raised as an issue in the past by the company's chairman Chuck Agles. As a result of the chairman's concerns regarding changing interest rates, HAFC had addressed the hedging issue by negotiating a long-term swap with First Street Bank based on a notional amount of $150 million paying a fixed rate of 4% and receiving a variable rate of LIBOR. With this swap in place, HAFC felt comfortable with its business model of borrowing at variable rates while making auto loans at fixed rates. At the time, LIBOR was approximately 3%.

Martin and Bob thought that HAFC's confidence in the efficacy of its swap was somewhat misplaced. The swap had been in place during a period in which interest rates were mostly steady or going down. It made sense to have the swap in place when interest rates were expected to go up; however, the swap had not resulted in financial gains during the time period of declining interest rates. As a matter of fact, the swap was costing the company money. The company was paying 4% and receiving 3% for a net cost of 1% on $150 million. Martin and Bob were also uncomfortable with the concept of the notional amount of the swap, namely, $150 million remaining constant over a protracted period of time.

Martin and Bob were not satisfied with answers to their questions as to why the hedge in place was considered to be adequate. They also realized that the Federal Reserve Board was beginning to raise rates and that the forecast at the time called for a steady increase in rates. As a result, they decided to formulate a new, more effective hedging policy. They did conclude that it was probably appropriate to hedge at that time, since interest rates were expected to rise and that a swap probably was the right instrument to use as a hedge.

Martin also felt that a "pay fixed – receive variable" swap provided them with only one kind of protection, namely, it made HAFC's cost of funds fixed as opposed to leaving them exposed to a variable rate LOC cost. He argued that HAFC needed another kind of protection. Looking at the economics of securitization he concluded that HAFC could live with continuing to securitize the loans if they were originated and securitized under the same interest rate scenario. For example, if the fixed loan rates to customers today were 8% and he securitized those loans today paying the bondholders 5.5%, the spread was adequate for him to generate reasonable profits.

But the problem for the business was that the securitization would not happen at the same time and therefore, not necessarily under the same interest rate scenario. HAFC was going to continue to generate loans over approximately a year before they would be securitized. If, by the time of securitization, interest rates had moved up in the securitization marketplace and he had to pay 6.5% to the bondholders, Martin could no longer generate profits. Martin thought that HAFC's problem could be solved using another hedge that would protect it against rising rates during the time period it was accumulating loans for securitization.

Bob has just hired you as a financial analyst. Both he and Martin would like for you to analyze the current hedging situation. What will you recommend to them regarding an appropriate hedging strategy?

REFERENCES

Board of Governors of the Federal Reserve System. (2016, October 7). *Consumer Credit - G.19*. Retrieved October 15, 2016, from Economic Research and Data: http://www.federalreserve.gov/releases/G19/current/default.htm

SCANDINAVIAN FURNITURE CORPORATION: DETERMINING THE OPTIMAL CAPITAL BUDGET

Robert Irons
Illinois Weslyan University

INTRODUCTION

Scandinavian Furniture Corporation is a U.S.-based manufacturing firm that produces a unique line of furniture for the consumer market. The firm was founded in Chicago in 1948 by Hans Kleinhopf, a Scandinavian immigrant descended from a long line of hand-crafted furniture makers. Over the years Hans' conservative management methods resulted in sustainable growth and consistent profitability, even during economic slowdowns and recessions. By the late 1980s, when his daughter Ilsa and son Bjorn joined the firm, Scandinavian Furniture employed over 360 people in a variety of manufacturing, sales, distribution and clerical positions, and was generating $18 million a year in profits on annual sales of over $160 million. The firm's reputation for producing quality furniture at a reasonable price was well-established among many middle-class and upper middle-class families in the Chicago area, and the company enjoyed higher profit margins than its competitors due to a near-zero advertising budget. Shortly after Ilsa and Bjorn joined the business the Chicago manufacturing facility was expanded, which allowed the company to begin distributing their product line in Milwaukee, Wisconsin and Dyer, Indiana.

Ilsa advanced quickly within the firm and eventually reached the position of chief financial officer, in charge of both accounting and finance, while Bjorn gradually assumed the role of chief operating officer. The family members proved to be an effective management team, and the company's sales and profits continued to increase over time. By 2003 the company had reached the point where increasing demand for their furniture lines in the Milwaukee and Dyer markets required additional investment. Ilsa chose to acquire existing manufacturing facilities in each of these cities and modify them to produce furniture. This proved quite successful, and the business began to grow faster than it had under Hans' leadership.

The firm continued on a successful trajectory until late 2006, when, while recovering from an illness, Hans decided to retire and turn full control of the company over to Ilsa. While his heart was still in the business, he knew his physical health would not allow him to be as involved as he liked, and that his daughter had the knowledge and drive needed to continue to grow the company in the 21st century. Ilsa, now CEO, hired Douglas McTierney as her new CFO. Douglas, in turn, hired Jessica Hall as his financial analyst, so that he could focus on the strategic efforts involved in funding the firm's expansion.

CREATING THE CAPITAL BUDGET FOR 2017

During the Great Recession of 2007-2008, business slowed down for Scandinavian Furniture as it did for most Midwestern manufacturing businesses. Sales growth rates were

negative for 2007 – 2009, but started to pick up again in 2010. By 2016, they had already begun to expand their current facilities in Chicago and Milwaukee, while the Dyer location had already expanded in late 2015 by adding a warehouse next to the plant for inventory purposes. This extended revenue growth led Douglas to seek out capital projects that would help the firm become more efficient. For this purpose, in June of 2016 Douglas called a meeting with the production managers from all three facilities to discuss possible areas for capital investment.

The meeting went better than Douglas had hoped; it turned out that all of the production managers had ideas that were worthy of a closer look. At the meeting, Douglas requested that each manager championing a project write a one-page proposal on the investment, addressing the following issues related to the investment:

- Initial cost of the project, including shipping & setup, and any impact on net working capital;
- Expected economic life of the assets to be acquired, and any residual (market) value remaining at the end of the assets' economic life;
- Estimated increases in sales revenue (or decreases in operating expenses) offered by the project, along with estimates of growth rates for the revenue/expenses;
- Incremental expenses associated with the project, as well as estimated growth rates for the incremental expenses;
- Any impact the project would have on manpower (hiring, training or laying people off);
- The estimated risk of the project, relative to the typical projects the firm has chosen in the past, to determine if the firm's weighted average cost of capital (WACC) would need to be adjusted for risk in determining the discount rate for the project.

The firm's current WACC in mid-2016 was 10.25%, which would be the discount rate for a project of average risk. Douglas felt that a low risk project should be discounted at 9.75%, while an above-average risk project should be discounted at 10.75%, and a high-risk project should be discounted at 11.25%.

Once the proposals came in (see Exhibits 1-4), Douglas assigned his financial analyst, Jessica, the task of determining the relevant cash flows for the projects in order to determine each project's viability (see Exhibits 5 & 6 for the analysis templates). Once the list of viable projects was finalized, Jessica would be required to determine the investment opportunity schedule (IOS) for the projects, as well as the marginal cost of capital schedule (MCC) for the firm. These would then be used to determine the firm's optimal capital budget for 2017.

Douglas also gave Jessica the following data to be used in the analysis:

- The firm's optimal capital structure consists of 35% debt and 65% common equity;
- The firm's current cost of debt (pre-tax) is 9.79%. The firm can raise another $2.5 million in debt at that rate, after which their interest rate will increase to 10.79%;
- The firm's cost of equity for retained earnings is 12.50%, while their cost of new equity is 13.65% (including flotation costs);
- The firm's average tax rate is 38.0%;
- The firm is expected to have $3,650,000 in retained earnings for FY 2016 to help pay for new capital projects;

- Depreciation is to be calculated using MACRS schedules based on the expected economic life of the asset (see Exhibit 7).

Jessica's deliverables for this project were as follows:

1. Use capital budgeting techniques (NPV, IRR, MIRR, payback period and discounted payback period) to determine which (if any) of the proposed projects are viable;
2. Use each project's internal rate of return (IRR) to create the investment opportunity schedule (IOS) for the list of viable projects;
3. Create the marginal cost of capital schedule (MCC) and compare it to the IOS to eliminate any of the projects that fail to return their marginal cost of capital;
4. Sum the cost of the remaining projects to determine the firm's 2017 capital budget;
5. Determine if the 2017 capital budget requires issuing new debt or equity.

Jessica's work would influence which projects the CFO would choose to invest in, and therefore which strategic path the company would follow for several years to come. She understood the importance of the task she was given, and was determined to pay attention to every detail in her analysis.

Exhibit One: Summary of Project #1

Fleet of Trucks for All Locations

Since its start the firm has always relied on others to get their goods to market. Skyrocketing shipping costs are making it necessary to look at the possibility of purchasing a fleet of trucks in order to ship their own products. This project would purchase a fleet and hire a staff to bring the logistics function in-house. Since this is a major strategic decision, it is best to consider it for all locations at the same time, as all one project.

The firm spent $1,350,000 in FY 2015 to ship its finished goods out for delivery, and it expects that amount to increase by an average of 4% per year moving forward (it is on track for a 4% increase in 2016). Purchasing a fleet of trucks would eliminate the need to pay that expense. At current gas prices, it is estimated that fuel costs for all three locations will be $100,000 per year for 2017, with costs expected to rise @ 3.0% per year. Annual maintenance costs for the trucks are estimated at $5,000 each, with that cost increasing @ 3.0% per year.

12 trucks would be needed to cover all three manufacturing plants – the tractors chosen cost $65,000 each and the trailers cost $20,000 each ($85,000 total for each complete truck). The firm would need to hire 12 drivers, one logistics director and one logistics clerk. Annual salary and benefits for 2017 would be as follows (salaries & benefits are expected to increase by 3% annually in the future):

- $80,000 per year for drivers;
- $110,000 per year for the logistics director, and
- $65,000 per year for the logistics clerk.

The trucks have an estimated life of 10 years, at the end of which the trucks are expected to have a market value of $2,500 each.

The project would require an increase in Net Working Capital of $25,000 to cover incidental expenses – this amount would be recovered at the end of the project's 10-year life.

While the firm's weighted-average cost of capital (the discount rate) is known to be 10.25%, this project is seen as being of significantly higher than average risk. For that reason, the discount rate used for this project is 11.25%.

Exhibit 2: Summary of Projects #2, #3 & #4

Automated Lathes for Table Legs at Chicago, Milwaukee and Dyer

Our most popular dining room table (Model HG2010) is manufactured at all three locations. Each location has 9 people dedicated to producing the legs for this model (as well as several others of much smaller quantity). Having this many people involved in the production of these simple parts makes it difficult to produce these pieces profitably. Adding automation to the process will reduce the cost of producing these parts.

Purchasing 3 custom lathes for each location (9 total lathes) would eliminate the need for 6 of those people at each site (each lathe would require an operator). These eliminated positions were paid an average salary and benefits of $45,000 each in 2015, and that amount is expected to increase by 3% each year in the future. An experienced employee can be trained quickly in the lathe's operation without incremental cost. In addition, it is likely that the machines will reduce waste (although this cannot be accurately quantified).

The lathes for Chicago and Milwaukee cost $485,000 each, including installation, while the lathes for the Dyer location would cost $490,000 each installed due to greater shipping costs (the supplier is on the Wisconsin-Illinois border, and would have to drive around Lake Michigan to deliver to Dyer, Indiana). Each lathe requires an increase in Net Working Capital of $25,000 each for parts & supplies that would be returned at the end of the project's life. The lathes have an estimated economic life of 10 years. It is believed that each lathe will have a market value of $4,500 at the end of 10 years.

Since this project is considered to be of average risk for all locations, use the average discount rate of 10.25%.

Exhibit 3: Summary of Project #5

Upgrading Forklifts at Chicago Plant from Propane to Electric

The Chicago location currently has 10 propane-powered forklifts for materials handling. New electric forklifts are expected to reduce fuel & maintenance costs by $5,000 per forklift per year. They have the added benefit of having a lower impact on the environment. The new forklifts would cost $36,500 each, and would require an increase in net working capital of $500 per forklift, which would be recouped at the end of the project. The forklifts are expected to remain in service for 7 years, at which time they would be sold for an estimated market value of $2,000 each. If the new forklifts are purchased, the existing forklifts would be sold at an estimated market value of $1,500 each.

The existing forklifts were purchased for $28,500 each on January 5, 2013, and will have been depreciated for 4 years at the time they will be sold (the existing forklifts were depreciated using MACRS 7-year schedule). Sale of the existing assets will have three impacts on the project's cash flows: the market value of the old assets, the tax savings (expense) on the sale of the old assets, and the loss of the depreciation expense on the old assets. This project is considered to be of average risk, and therefore the discount rate would be the WACC of 10.25%.

This project is being considered as a pilot project for the Milwaukee location, which also currently uses 10 propane-powered forklifts. In time it would be considered for the Dyer location as well.

Exhibit 4: Summary of Projects #6 & #7

Automated Finished Goods Retrieval System for Chicago and Milwaukee

The Chicago and Milwaukee plants have large finished goods storage areas that require 6 people (at each plant) for the filling of finished goods orders (the Dyer operation is not yet large enough to justify this type of investment). This project is an automated finished goods storage & retrieval system that would only require 2 people to operate: one to take finished goods from the production lines & put them into the system, and another to retrieve the finished goods from the system and send them to the shipping area for shrink wrapping & loading onto trucks. The 2 employees needed for each plant require training and responsibilities that would increase their salary & benefits packages from $45,000 per year to $54,000 per year, while the 4 positions eliminated at each plant would save salary & benefits of $45,000 per year per employee (all figures are 2015 estimates – need to be increased by 3.0% per year).

The system costs $1,000,000 plus $50,000 for installation and setup at each facility. No increase in working capital is required for operating the system at either facility. The system has an estimated working life of 15 years, and is expected to have zero residual value at the end of its economic life.

The project is considered to be of average risk and therefore would use the 10.25% WACC as the discount rate.

Exhibit 5: Template for New Asset Project Cash Flow Analysis

Capital Budgeting Cash Flow Analysis Template -- Not For Replacement Projects						
PROJECT TITLE:						
Project Year (0 = current year)	**0**	**1**	**2**	**3**	**4**	**5**
Purchase of Capital Assets						
Depreciable Basis (cost + delivery)						
Increase in Net Working Capital						
Change to Revenue/Expenses						
Increase in Sales Revenue						
Decrease (Increase) in Operating Expenses						
Decrease (Increase) in Other Expenses						
Incremental Depreciation Expense						
Change in Operating Income						
Taxes @ 38%						
Change in Earnings After Taxes						
Add Back Depreciation Expense						
Net Incremental Operating Cash Flows						
Net Residual Value at End of Project						
Return of Net Working Capital						
Total Net Incremental Operating Cash Flows						
Residual Value Calculation						
Market Value of Assets						
Book Value of Assets						
Gain (Loss) on Sale of Assets						
Taxes @ 38%						
Net Residual Value at End of Project						
Capital Budgeting Metrics						
Discount Rate for Project (WACC = 10.25%)						
Net Present Value of Project						
Internal Rate of Return from Project						
Modified Internal Rate of Return from Project						
Payback Period for Project (years)						
Discounted Payback Period for Project (years)						
NOTE: Some assets may require more than five years of cash flows -- extend the number of years as needed.						

Exhibit 6: Template for Replacement Asset Project Cash Flow Analysis

Replacement Project Capital Budgeting Cash Flow Analysis Template						
PROJECT TITLE:						
Project Year (0 = current year)	**0**	**1**	**2**	**3**	**4**	**5**
Purchase of Capital Assets						
Depreciable Basis (cost + delivery)						
Increase in Net Working Capital						
Market Value of Old Assets						
Tax Savings (Expense) for Sale of Old Assets						
Change to Revenue/Expenses						
Increase in Sales Revenue						
Decrease (Increase) in Operating Expenses						
Decrease (Increase) in Other Expenses						
Loss of Depreciation Expense -- Old Assets						
Additional Depreciation Expense -- New Assets						
Change in Operating Income						
Taxes @ 38%						
Change in Earnings After Taxes						
Add Back Depreciation Expense						
Net Incremental Operating Cash Flows						
Net Residual Value at End of Project						
Return of Net Working Capital						
Total Net Incremental Operating Cash Flows						
Residual Value of Old Assets						
Market Value of Assets						
Book Value of Assets						
Gain (Loss) on Sale of Assets						
Taxes @ 38%						
Net Residual Value at End of Project						
Residual Value of New Assets						
Market Value of Assets						
Book Value of Assets						
Gain (Loss) on Sale of Assets						
Taxes @ 38%						
Net Residual Value at End of Project						
Capital Budgeting Metrics						
Discount Rate for Project (WACC = 10.25%)						
Net Present Value of Project						
Internal Rate of Return from Project						
Modified Internal Rate of Return from Project						
Payback Period for Project (years)						
Discounted Payback Period for Project (years)						
NOTE: Some assets may require more than five years of cash flows -- extend the number of years as needed.						

Exhibit 7: MACRS Depreciation Schedules

Year	3-year MACRS	5-year MACRS	7-year MACRS	10-year MACRS	15-year MACRS
1	33.33%	20.00%	14.29%	10.00%	5.00%
2	44.45%	32.00%	24.49%	18.00%	9.50%
3	14.81%	19.20%	17.49%	14.40%	8.55%
4	7.41%	11.52%	12.49%	11.52%	7.70%
5		11.52%	8.93%	9.22%	6.93%
6		5.76%	8.92%	7.37%	6.23%
7			8.93%	6.55%	5.90%
8			4.46%	6.55%	5.90%
9				6.56%	5.91%
10				6.55%	5.90%
11				3.28%	5.91%
12					5.90%
13					5.91%
14					5.90%
15					5.91%
16					2.95%

IMPAIRMENT OF GOODWILL: THE CASE OF DEAN FOODS, INC.

Luisa D. Taylor, Karen Sherrill, and Robert Stretcher
Sam Houston State University

INTRODUCTION

Dean Foods, Inc., not unlike many other large, diverse corporations, has made a number of acquisitions over the years to strengthen their brand name, improve their market share, and grow their profits. Prices paid for these acquisitions are determined by estimating the expected benefit from the combining of the target's assets or expertise with the acquiring company; from an accounting perspective, goodwill is the result of paying an amount greater than fair value for the target company.

The presence of goodwill suggests that the acquiring firm enjoys benefit beyond that represented by the target firm prior to acquisition. This goodwill is therefore considered to be an intangible asset. FASB accounting rules require that goodwill be re-assessed on an annual basis to determine if the goodwill continues to have value. If it is deemed to have lost value, an impairment must be taken.

In 2011, Dean Foods took an impairment charge of over two billion dollars, over one-third of the total value of the firm. This case study examines why the firm deemed the goodwill as retaining value up to 2011, and what prompted the impairment write-off in 2011.

GOODWILL

Goodwill is the amount a company overpays for another company during an acquisition. For example, suppose a target company has a market capitalization of $100 million. If company A acquires company B for $120 million, then company A must record $20 million in goodwill on their balance sheet. Theoretically, an acquisition can result in synergies that make the combination of company A and company B more profitable than the two companies acting as separate entities. The goodwill can be considered representative of the value of these synergies. The majority of acquisitions result in goodwill, since most acquiring companies pay above fair value for target companies. The majority of companies that have done any acquisition activity, therefore, have goodwill on their balance sheets.

Any goodwill on the balance sheet must be associated with the appropriate reporting unit. It cannot be spread across reporting units uniformly. The goodwill must be associated with the reporting unit that obtains the majority of the benefits from the acquisition.

In 2001 the standards for accounting for goodwill changed. Goodwill is now considered a perpetual asset. This means that goodwill could theoretically retain its value forever and need not be amortized on a regular schedule. However, since it is a perpetual asset, it must now be assessed on an annual basis to determine if it still has value.

Every year a company has to assess goodwill and test for impairment employing a two-step process. Step one entails comparing the fair value of a reporting unit with its carrying amount. If the fair value of a reporting unit is less than its book value, then the second step of the process must be performed to measure the amount of the impairment that must be taken.

This makes the determination of the fair value of the reporting unit paramount to the determination of the value of the goodwill. The fair value is defined as the price the company would receive if they were to sell the reporting unit. For a single unit firm this is simple, as the market cap of the firm would be the fair value of the reporting unit. For a multi-divisional firm, however, this can be quite complex.

ESTIMATING FAIR VALUE

There are several different ways that the fair value for a reporting unit of a multi-divisional firm can be calculated. A market cap for the entire firm can be found and the value split amongst the various reporting units based on each of the reporting unit's proportion of total revenue or total income. The firm could analyze the reporting unit with the goodwill using projections and creating a discounted cash flow analysis. This can include estimations of potential significant external factors, such as changes in the overall market, significant changes in the firm's market share, or significant changes in the number, type, or price of the products offered. Changes in a firm's management might also drive an impairment as the new management might foresee a different future direction which could result in the goodwill no longer having value.

DEAN FOODS

This case explores various aspects of Dean Foods, Inc., and what changes in 2011 drove the firm to take an impairment charge of over $2 billion on the goodwill associated with their Fresh Dairy Direct reporting unit.

Dean Foods is a food and beverage company. Their products are processed with approximately 17,000 employees working in roughly 70 plants across the U.S. The company manufactures, markets and distributes a variety of branded and private label products to retailers, distributors, foodservice outlets, educational institutions and governmental entities across the country. Dean Foods has three reporting segments: Fresh Dairy Direct, WhiteWave-Alpro and Morningstar (Mergent, 2015).

The Company's Fresh Dairy Direct segment is the nation's largest processor and direct-to-store distributor of fluid milk, marketed under more than 50 local and regional dairy brands and a wide array of private labels. Fresh Dairy Direct also distributes ice cream, cultured products, creamers, juices, teas, bottled water and other products (Dean Foods website, www.deanfoods.com).

The WhiteWave-Alpro segment produces and sells an array of branded value-added dairy, plantbased food and beverages, coffee creamers, and coffee beverages. WhiteWave U.S. brands include Silk, Horizon Organic, International Delight, and Land O' Lakes. Alpro is the pan-European leader in branded plant-based food and beverage products sold under the Alpro and Provamel brands (Dean Foods Annual Report, 2011, pp. 5-7).

The Morningstar Foods segment produces extended shelf life value-added creams and creamers, beverages, and cultured dairy products, with an emphasis on foodservice customers and private label retail (Dean Foods Annual Report, 2011, pp.).

Since its inception, Dean Foods (previously named Suiza Foods Corporation) embarked on numerous acquisitions, referenced in appendix A. These acquisitions resulted in over $3 billion of goodwill being recorded on their consolidated balance sheet, $2.224 billion of which was in the Fresh Dairy Direct business segment.

THE 2011 IMPAIRMENT

During the third quarter of 2011, Dean Foods performed a preliminary analysis of the goodwill associated with their Fresh Dairy Direct reporting unit. Based on the results of the step one analysis (Dean Foods 10-K, 2011, p. 52), they determined that the fair value of the reporting unit was less than the total book value of the reporting unit. Therefore, they were required to perform step two of the impairment analysis and determine the amount of goodwill to be deemed impaired. The amount of the impairment was calculated by comparing the implied fair value of the goodwill to its book value. Based on the step two analysis, Dean Foods concluded the implied fair value of their Fresh Dairy Direct goodwill was $87 million. Consequently they calculated a substantial impairment of $2.07 billion.

They then assessed each of their reporting units for impairment during the fourth quarter of 2011 in connection with their annual impairment test, which is conducted in the fourth quarter on December 1, and concluded that: 1) there was no goodwill impairment for their WhiteWave, Morningstar or Alpro reporting units and 2) there was no additional goodwill impairment for their Fresh Dairy Direct reporting unit.

Therefore, the key question for this case is: what changed in 2011? There must have been a material change in either internal or an external factors that drove Dean Foods to determine that the fair value of their goodwill was significantly less than the book value. This impairment analysis must be done on an annual basis, so there had to be a significant change between 2010 and 2011 to deem the goodwill as being worth over $2 billion in 2010 but only worth $87 million in the subsequent year. There are internal and external factors that can contribute to such an impairment. Internal factors include sales, profits, stock price, management, or capabilities. External factors include competition, technological change, macro-events, market shrinkage, legislation, or changes in applicable rules.

Exhibit 1. Events Timeline

Date	Event
Sept. 19, 1994	Incorporated in Delaware as Suiza Foods Corp. (Present name adopted on Dec. 24, 2001)
Dec. 16, 1993	Through its Suiza-Puerto Rico subsidiaries, acquired all of the outstanding common and preferred stock of Suiza Dairy, Suiza Fruit and Neva Plastics for approximately $99,400,000.
Apr. 10, 1994	Through its Velda Farms subsidiary, acquired all of the outstanding common stock of Velda Farms, Inc. a wholly owned subsidiary of The Morningstar Group, Inc. for approximately $54,800,000.
Jan. 6, 1996,	Acquired certain of the assets of Skinners' Dairy, Inc. for $2,900,000.
July 19, 1996,	Acquired the common stock of Garrido y Compania, Inc. for approximately $35,000,000.
Sept. 9, 1996	Acquired Swiss Dairy Corporation for approximately $54,000,000.
Dec. 1996	Acquired all of the net assets of Model Dairy, along with certain assets held by affiliates of the seller, for approximately $27,000,000.
July 1997	Acquired Dairy Fresh LP. Acquired Garelick Farms for $160,000. Acquired SportsTherapy Systems, Inc.
Aug. 1997	Acquired Franklin Plastics, Inc., a company engaged in the business of manufacturing and selling plastic containers, for $139,600.
Dec. 1997	Merged with The Moringstar Group Inc. and Country Fresh Inc.
Mar. 1998	Acquired Louis Trauth Dairy, Inc.
On Apr. 30, 1998	Sold its packaged ice operation for approximately $172,700,000 in cash.
May 1998	Sold Reddy Ice. to Packaged Ice Inc. for $172,500,000.
July 1998	Acquired West Lynn Creamery, Inc.
Aug. 1998	Purchased the assets of the fluid dairy division of Cumberland Farms Inc.
1st quarter, 1999	Acquired Ultra Products, L.L.C., New England Dairies and Thompson Beverage Systems, L.P.
June 22, 1999	Acquired Broughton Foods Co. for $16.50 per share.
July 1999	DF and Vestar Capital Partners III, L.P. sold DF's majority interest in its U.S. Plastic packaging operations to Consolidated Container Company LLC, a newly formed company controlled by Vestar Capital Partners III, L.P.
Aug. 16, 1999	Completed the acquisition of all of the outstanding stock of Robinson Dairy, Inc.
Jan. 1, 2000	Entered into a joint venture with Dairy Farmers of America in which DF and Dairy Farmers of America formed a joint venture, Suiza Dairy Group, L.P.
Dec. 2000	Acquired Schenkel's All Star Dairy.
Dec. 21, 2001	Purchased Dairy Farmers of America's 33.8% stake in its Dairy Group for consideration consisting of approximately $145,400,000 in cash.

May 9, 2002	Acquired the remaining 64% equity interest in White Wave, Inc. for a total price of approximately $189,000,000.
May 17, 2002	Bought the assets of Marie's Quality Foods, Marie's Dressings, Inc. and Marie's Associates for approximately $23,000,000.
Jan. 8, 2003	Completed the sale of its Puerto Rico dairy operations, receiving approximately $122,000,000 in cash.
June 9, 2003	DF's Dairy Group division acquired Melody Farms, LLC for approximately $52,700,000.
Oct. 15, 2003	Acquired Kohler Mix Specialties, Inc., the dairy products division of Michael Foods, Inc., for approximately $158,600,000.
Jan. 5, 2004	Acquired the 87% equity interest in Horizon Organic Holding Corporation it did not already own for approximately $216,000,000 in cash, or $24 per share, and the assumption of approximately $40,000,000 in debt.
Jan. 26, 2004	DF's Dairy Group division acquired Ross Swiss Dairies of Los Angeles, CA.
May 31, 2004	DF's Spanish subsidiary, Leche Celta, acquired Tiger Foods for approximately $21,900,000.
Oct. 15, 2004	DF's Dairy Group division acquired Milk Products of Alabama for approximately $24,900,000.
June 27, 2005	Completed the spin-off of its indirect subsidiary, TreeHouse Foods, Inc.
Aug. 22, 2005	Completed the sale of tangible and intangible assets related to the production and distribution of Marie's dips and dressings and Dean's dips to Ventura Foods. The sales price was approximately $194,000,000.
Sept. 14, 2006	Completed the sale of its Leche Celta operations in Spain for net cash proceeds of $96,000,000.
Mar. 13, 2007	Completed the acquisition of Friendship Dairies, Inc., a manufacturer, marketer and distributor of cultured dairy products primarily in the northeastern U.S., for approximately $130,000,000.
June 8, 2007	Completed the sale of its tofu business, including a facility in Boulder, CO, for cash proceeds of approximately $1,500,000.
Jan. 2008	Entered into and formed a 50/50 strategic joint venture with Hero Group.
Apr. 1, 2009	Acquired On Apr. 1, 2009, Co. ed the Consumer Products Division of Foremost Farms USA.
July 2, 2009	Acquired the Alpro division of Vandemoortele N.V. for approximately $440,300,000.
Oct. 14, 2009	Acquired Santee Dairies from Stater Bros. Markets, a subsidiary of Stater Bros. Holdings Inc.
Aug. 4, 2010	Completed the sale of the business operations of its Rachel's Dairy companies, which provide organic branded dairy-based chilled yogurt, milk and related dairy products primarily in the U.K.
Feb. 1, 2011	Completed the sale of its Mountain High yogurt operations for $85,000,000.
Apr. 1, 2011	Completed the sale of its private label yogurt operations for cash proceeds of approximately $93,000,000.

Sept. 8, 2011	Divested its fluid milk operations in Waukesha, WI.
July 3, 2012	Approximate 25% non-controlling interest, on a fully diluted basis, in Consolidated Container Company (CCC), was sold in connection with Vestar Capital Partnersâ€™ (an unaffiliated entity) sale of the business operations of CCC. As a result of the sale, Co. received cash proceeds of $58,000,000.
Jan. 3, 2013	Sold its Morningstar Foods division to Saputo Inc. for $1,450,000,000.
May 23, 2013	Completed the WhiteWave Foods Company spin-off through a tax-free distribution to its stockholders of an aggregate of 47,686,000 shares of WhiteWave Class A common stock and 67,914,000 shares of WhiteWave Class B common stock as a pro rata dividend on the shares of Co.'s common stock outstanding at the close of business on the record date of May 17, 2013. Each share of Co.'s common stock received 0.25544448 shares of WhiteWave Class A common stock and 0.36380189 shares of WhiteWave Class B common stock in the distribution.

History obtained from MergentOnline:
http://www.mergentonline.com.ezproxy.shsu.edu/companydetail.php?pagetype=history&compnumber=87981&year=1993#container

SUGGESTED READINGS AND RESOURCES

Dean Foods, Inc. (2011). Annual Report.

Financial Accounting Standards Board (FASB). (2001). Statement of Financial Accounting Standards No. 142. Goodwill and Other Intangible Assets.

Financial Accounting Standards Board (FASB). (2007). Business Combinations. Financial Accounting Series. Statement of Financial Accounting Standards No. 141.

Financial Accounting Standards Board (FASB). (2011). Accounting Standards Update. No. 2011-08. Intangibles -- Goodwill and Other (Topic 350).

Financial Accounting Standards Board (FASB). (2010). Accounting Standards Update. No. 2010-28. Intangibles -- Goodwill and Other (Topic 350). When to Perform Step 2 of the Goodwill Impairment Test for Reporting Units with Zero or Negative Carrying Amounts.

Mergent. (2015). Dean Foods: Ratios & History. Retrieved from Mergent Online database.

Spiceland, D. Sepe, J. & Nelson, M. (2012). Intermediate Accounting. London: McGraw Hill Higher Education. Property, Plant, and Equipment and Intangible Assets: Acquisition and Disposition.

EXERCISES, TUTORIALS AND SHORTER CASES

THE DODD-FRANK ACT AND BANKING INDUSTRY CONSOLIDATION: A CLASSROOM EXPERIMENT

Katie Sobczyk Player, Furman University
Sherry Jensen, Florida Institute of Technology

INTRODUCTION

The Dodd-Frank Act is a massive piece of legislation that drastically changes the way the financial industry in the United States operates and is regulated. The 2,319 page Dodd–Frank Wall Street Reform and Consumer Protection Act was enacted in 2010 in response to the Credit Crisis of 2008. Though it was passed in 2010 and partially implemented in 2012, all of the changes were not complete as of year-end 2014. The aim of the legislation as stated by Congress is: "To promote the financial stability of the United States by improving accountability and transparency in the financial system, to end "too big to fail," to protect the American taxpayer by ending bailouts, to protect consumers from abusive financial services practices, and for other purposes."

DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT

What did the legislators' law claim to accomplish through this act? On June 25, 2010, President Obama summarized the main objectives of the Dodd-Frank Act to an audience on the south lawn of the Whitehouse (Remarks by the President, 2010).

1. Consolidation of regulatory agencies, and creation of a new oversight council to evaluate systemic risk

The Dodd-Frank Act states that it will reduce the number of regulatory agencies to which banks report, but at the same time, adds an additional agency to evaluate systemic risk. Systemic risk can be thought of as the risk one bank poses to the entire U.S. financial system. One example of how this change impacts the "real world" involves commercial banking. Bankers who grant credit (loans) to businesses must now be able to report to the government agency and prove that they did not engage in undue risk. Any loan is now subject to oversight.

2. Comprehensive regulation of financial markets, including increased transparency of derivatives

The Act creates requirements for central clearing of OTC ("over the counter") derivatives and post-trade reporting. Historically, most derivative trades occurred on the OTC market. This market is characterized by both large and small or "niche" investors, hedgers and speculators.

OTC markets differ from standard exchanges in that there are no pre-set specifications (i.e. the contract size is NOT pre-determined, the interest rate is NOT pre-determined). A foreign exchange future purchased on a standard exchange requires the purchase to be in standard units of $100,000, $200,000, $300,000, etc. If the purchaser requires only $25,000 in a currency future, the purchaser either forgoes the purchase or is forced to buy the standard $100,000 contract. The contract size is not pre-specified on the OTC; as long as the purchaser can find a willing party to "take the other side" then the two parties write their own contract. This OTC market allows for great flexibility and the participation of even small investors.

3. Consumer protection reforms including a new consumer protection agency and uniform standards for "plain vanilla" products like mortgages, credit cards and car loans

"Plain vanilla" products refer to consumer products typically offered by banks. The prominent product targeted here is mortgages. Many congressmen state that individuals buying mortgages before the Credit Crisis of 2008 did not know "what they were getting themselves into." This portion of the Dodd-Frank Act is known as the Consumer Finance Protection Agency. In practice, this legislation results in a checklist that banks must complete before a mortgage is granted. One portion of this checklist includes a three-day delay between when a customer initiates the mortgage process and when the customer can actually sign the documents for the credit underwriting to begin. All in, the Consumer Finance Protection Agency increases the number of documents signed at closing by 50-100%. If a home purchaser had to read through 100 pages pre-Dodd-Frank, the purchaser must now read and sign 150-200 pages at closing.

4. Allowance for the Federal Reserve to receive authorization from the Treasury to lend money to any company or agency in "unusual or exigent circumstances"

Here, the language regarding the Federal Reserve is quite ambiguous. Before Dodd-Frank, the Fed could only lend money to Banks (and technically only depository institutions, NOT investment banks) as a "lender of last resort" – meaning the Fed swooped in when no other bank would lend to the troubled bank. Historically, the Fed has rarely acted in this capacity because banks avoided borrowing from the Fed, as doing so would signal to shareholders that the bank's problems were severe. After Dodd-Frank, the Fed has virtually no restrictions – it can lend any company money as long as it says the company is in "unusual circumstances."

5. Improved regulation of credit rating agencies

Dodd Frank strengthens the Security and Exchange Commission's enforcement mechanisms to regulate Nationally Recognized Statistical Rating Organizations (NRSROs) as previously established by the Credit Rating Agency Reform Act of 2006. The SEC is now required to implement new rules concerning: "annual reports on internal controls, conflicts of interest with respect to sales and marketing practices, 'look-backs' when credit analysts leave the NRSRO, fines and penalties, disclosure of performance statistics, application and disclosure of credit rating methodologies, form disclosure of data and assumptions underlying credit, ratings, disclosure about third party due diligence, analyst training and testing, consistent application of rating symbols and definitions, and specific and additional disclosure for ratings related to ABS products" (SEC 2014).

6. Use of the Volker Rule to prohibit banks from making certain kinds of "speculative trades (investments) that do not benefit their customers"

The final regulations of the Volker Rule became effective April 1, 2014; however, the conformance period extends to July 21, 2015. The regulations "prohibit banks from engaging in short-term proprietary trading of certain securities, derivatives commodity futures, and options on these instruments for their own accounts; impose limits on banks' investments in, and other relationships with, hedge funds and private equity funds; and provide exemptions for certain activities, including market making-related activities, underwriting, risk-mitigating hedging, trading in government obligations, insurance company activities, and organizing and offering hedge funds and private equity funds" (Office of the Comptroller of the Currency 2014). Community banks that do not take part in these activities are not required to create a compliance program. Additionally, banks with total consolidated assets of $10 billion or less fall under a simplified compliance program.

IMPACT ON THE BANKING INDUSTRY

In response to a question from Jamie Dimon, chief executive of JPMorgan Chase, who asked if banking regulation was hurting the economy, Ben Bernanke, then Chairman of the Federal Reserve System Board, stated: "Has anybody done a comprehensive analysis of the impact on credit? I can't pretend that anybody really has. You know, it's just too complicated. We don't really have the quantitative tools to do that" (DealBook 2011).

However, Dodd-Frank has clearly imposed costs on the economy and the banking system. The U.S. House of Representatives' Financial Services Committee reports that:

> "The crushing compliance burden is felt most acutely by smaller, community-based financial institutions, which have neither the personnel nor the financial resources to absorb the costs of the regulatory onslaught unleashed by Dodd-Frank…The Dodd-Frank Act will require small community and mid-sized regional banks to spend thousands of man-hours on regulatory compliance, leaving them less time for focusing on the needs of their customers…It is beyond dispute that the burden of these hundreds of new mandates will fall disproportionately on small institutions, which do not have the luxury that mega-banks have of hiring hundreds of employees to analyze (and ensure compliance with) the blizzard of red tape emanating from Washington, DC. It is equally undeniable that the costs of compliance will reduce the ability of smaller institutions to meet the credit needs of their communities. In recent testimony before the Senate Banking Committee, Jennifer Kelly, senior deputy comptroller for midsize and community bank supervision for the Office of the Comptroller of the Currency (OCC), stated that 'regardless of how well community banks adapt to Dodd-Frank Act reforms in the long term, in the near-to-medium term these new requirement will raise costs and possibly reduce revenue for community institutions.'"

Given that the Dodd–Frank Wall Street Reform and Consumer Protection Act will disproportionately impact the cost structure of small to medium banks, the size and number of banks within the United States banking system is likely to be impacted by this legislation.

REFERENCES

Committee on Financial Services, U.S. House of Representatives. (n.d). One Year Later: The Consequences of the Dodd-Frank Act. Retrieved from http://financialservices.house.gov/uploadedfiles/financialservices-doddfrank-report.pdf

Description: Final Regulations, Subject: Volcker Rule. (2014). OCC Bulletin 2014-9. Retrieved from http://www.occ.gov/news-issuances/bulletins/2014/bulletin-2014-9.html

Dodd-Frank Wall Street Reform Act and Consumer Protection Act of 2010, H.R. 4173, 111 Cong. (2009-2010).

Remarks by the President on Wall Street Reform. (2010, June 25). Retrieved from https://obamawhitehouse.archives.gov/the-press-office/remarks-president-wall-street-reform-1

U.S. Securities and Exchange Commission. (2014). Credit Rating Agencies. Retrieved from http://www.sec.gov/spotlight/dodd-frank/creditratingagencies.shtml

What Dimon Told Bernanke. (2011, June 8). Retrieved from http://dealbook.nytimes.com/2011/06/08/what-dimon-told-bernanke/?_r=0

APPENDIX

Instructions and Information for In-Class Experiment

In this classroom experiment, focus is on the costs of implementing the Dodd-Frank legislation. Because the regulation applies to all banks equally, each bank must set-up its own "Dodd-Frank Compliance Division," which is essentially a very large fixed cost. This fixed cost will affect different banks (specifically, different by size) in different ways.

Background:

Bank size is typically measured by "asset size" with the top 10 commercial banks in the United States having upwards of $1 trillion in assets. The "super-regional" banks have assets between $20 billion and $500 billion, while "community banks" have assets less than $500 million. The cost structure of the banking industry changes considerably under the Dodd-Frank Act. Banks within the same "size bracket" are impacted uniformly; however, across asset-size brackets, the costs will decrease as a percentage of assets (or revenue) with larger and larger banks.

All banks will undergo some fixed cost that is a function of a base amount and the bank's asset-size. This fixed cost will be higher the more departments a bank operates (research, foreign exchange, fixed-income, residential mortgages, car loans, etc.). For instance, it would be possible to avoid the fixed cost associated with residential mortgages if the bank does not offer residential mortgages – the same for foreign exchange. That being said, the bank also forgoes any profits from that arm of operations if they shut it down. Furthermore, the bank may sacrifice some reputation credit and competitiveness in the market place as the bank is no longer a "one stop" shop like it used to be (e.g. a customer can have all of their financial products from one lending institution: car loan, mortgage, checking and savings accounts, life insurance and more).

Directions: Each team will be allotted a bank and some corresponding details – its asset size and the cost and revenue structures before and after the Dodd-Frank Act is instituted.

Students summarize their overall strategy within their teams before the first round, and then are able to discuss mergers and strategy with other teams once the first round begins. In periods 1-2, banks have two options:

1. Maintain the status quo, **or**

2. Buy or merge with another bank, in which case the total new assets would be the sum of the two merging entities but nothing additional.

The costs of completing the merger negate any growth in the two banks' assets in the initial "merging" period.

In the case of a merger, the two merging groups must negotiate the terms. Groups continue to receive an individual payout based on their asset share for the competition. E.g. If a "Medium" and "Small" bank decide to merge, the "Small" bank may have to "pay" the "Medium" bank

$1million in assets or a “split of the growth rate” for future periods (for a 1% growth rate, Bank A gets 0.75 and Bank B gets 0.25). This would be subtracted from the “Small” bank’s individual total asset tally for the class competition and added to the “Medium” group’s total.

Each bank may only participate in **2 mergers** per period. This is fairly standard for the industry. Given the time and resources it takes to complete a merger, two per period (year) is the maximum a bank can sustain.

Team Goals:

> *Large Bank – grow assets as much as possible; graded on strategy, implementation and negotiations.*
>
> *Medium and Small Banks – minimize asset losses as much as possible; competition amongst small and medium banks, graded on strategy as well.*

For each bank – even in the event of a merger, keep track of the bank's original assets separately for the duration of the game (i.e. the payoffs will continue based on the original assets when a merger is completed as depicted in each asset-size category below). For instance, if a "Small" bank merges with a "Big" bank in period 1, the "Small" bank will have negative growth each period of -3% even though the “Big" bank receives a +0.50% payoff from having merged with the "Small" bank. This is the case unless the "Small" bank negotiates some of that 0.50% away from the "Big" bank at the time of the merger (or if the "Big" bank pays the "Small" bank in assets).

"Big" Bank Payoffs

(A) If the bank does not merge, its payoffs are the following:

Periods 1-2: Assets grow by 1%

Period 3: Dodd-Frank Implemented - Assets grow by 0%

Period 4-5: Assets grow by 5% IF the majority of smaller banks do NOT consolidate
Or,
2% if the majority of smaller banks DO consolidate; where consolidate is defined as being involved in at least one merger with another small bank in any of the first 4 periods.

(B) If a large bank does merge with any of the smaller banks, its payoffs are the following:

1. In the period of the merger and in period 3, assets grow by 0%
2. In each period following the merger (except period 3), assets grow by the growth rate that would have occurred without a merger +0.5% per bank acquired.

Note: A "Big" bank can only acquire two smaller banks per period.

Use the following chart to keep track of the Bank's assets

	Period 1	**Period 2**	**Period 3**	**Period 4**	**Period 5**
Initial Assets	$100 million				
Decide to merge? (y/n)					
+(-) asset growth in %					
Total Assets end of period					
Total Number of Remaining Banks in Class (after merger decisions are made)					

Note: The total assets at the end of the period will be the "initial assets" in the next period. (Example: Total Assets at end of period for **Period 1** of $1000 would show up as $1000 in the Initial Assets row for **Period 2**).

"Medium" and "Small" Bank Payoffs

Only two mergers per period are permitted.
(A) If the bank does not merge, its payoffs are the following:

Periods 1-2: Assets grow by 5%

Period 3: Dodd-Frank Implemented - Assets decrease by 10%

Period 4-5: Assets decrease by 5%

(B) If a "Small" or "Medium" bank does merge with another "Small" or "Medium" bank, its payoffs are the following:

Periods 1-2: Assets grow by [5% - 1% in the period of the merger - 1%*number of mergers completed]

Period 3: Assets change by [-10% + 1% if new merger + 1%*number of mergers completed)]

Period 4-5: Assets change by [-5% + 1% if new merger + 1%*number of mergers completed)]

(C) At any point, if a "Small" or "Medium" bank sells to a "Big" bank, the bank's assets are reduced by 1% that period and reaches a constant growth rate of -3% for each subsequent period.

At any point, if the total assets of a conglomerate bank reach $100 million+, the bank is classified as a "Big Bank" and will follow the projections from that point forward for a "Big" bank.

Use the following chart to keep track of the Bank's assets

	Period 1	**Period 2**	**Period 3**	**Period 4**	**Period 5**
Initial Assets	$5M (Small) $35M (Medium)				
Decide to merge? (y/n)					
+(-) asset growth in %					
Total Assets end of period					
Total Number of Remaining Banks in Class (after merger decisions are made)					

Note: The total assets at the end of the period will be the "initial assets" in the next period. (Example: Total Assets at end of period for **Period 1** of $1000 would show up as $1000 in the Initial Assets row for **Period 2**).

REINING IN THE RUBLE: A STORY OF OIL, SANCTIONS AND THE BANK OF RUSSIA

Anne Anders, Stephen Cotton and Ivelina Pavlova-Stout
University of Houston-Clear Lake

In 2014, the slow but steady post-2008 economic growth experienced by Russia was eroded by a combination of international sanctions and a more than 60% drop in oil prices. In November of 2014, the Bank of Russia announced an end to the ruble dual-currency band and a move towards a free float. As the ruble began to depreciate towards the end of 2014 as a result of decreased oil revenues and financial sanctions that prevented rolling over of ruble-denominated debt and thus open market purchases of dollars, the Central Bank of Russia attempted to support the currency with one of the largest key interest rate changes in history – a 6.5 percentage point increase from 10.5% to 17% just after midnight on December 16, 2014. Despite this, the ruble continued to slide. However, in early 2015, a refocus on economic growth led to decreases in interest rates to 11% in July 2015.

Recent History of the Ruble Exchange Rate Regime

The Bank of Russia has a long history of currency interventions and commitment to limit the effects of currency speculators betting against the ruble. Between 1999 and 2010, the Russian central bank maintained a managed floating exchange rate regime tied to a currency basket. From 2005 to 2010 a dual currency basket, containing the US dollar and euro with respective weights of 55% and 45%, with an operational band was used. To prevent threats to Russia's financial stability the central bank would intervene when necessary. The 2008 global financial crisis was accompanied by a sharp decrease in oil prices, which put pressure on Russia's current account balance and currency value. Oil revenues recovered in the 2009-2012 period, the Bank of Russia increased the flexibility of the exchange rate regime and in 2010 the dual-currency basket was abandoned. The floating operational band was gradually widened and the volume of interventions decreased over time.

The continuing globalization of the Russian economy and the ruble's moderate volatility relative to other emerging markets in 2012 and 2013 prompted the Bank of Russia to continue on the path of fully floating the ruble. On November 10, 2014 the central bank effectively adopted a free-floating exchange rate by abandoning the use of currency interventions each time the exchange rate crossed the borders of a defined operational band. The Bank announced that interventions would only be used in the case of threats to financial stability, as supporting the value of the ruble could come at the cost of billions of US Dollars per day.

As of May 2016, the Bank of Russia maintains a floating exchange rate regime. No exchange rate targets or corridors are fixed for the value of the currency and the bank insists that no direct interventions will be carried out. The only purchases and sales of foreign currencies are executed

with the goal of maintaining foreign currency reserves. The central bank states that the floating exchange rate is an integral component of the inflation targeting regime and will aid the economy in adapting to external conditions such as falling oil prices by weakening the currency and stimulating exports.

Carry Trades and Political Risks

The carry trade is a strategy where one borrows funds in a low-yielding currency (funding currency) and simultaneously invests the borrowed proceeds in a higher yielding currency (target currency). Prior to 2008 a common carry trade strategy entailed borrowing Japanese yen and investing in developed-market currencies such as the British pound or Australian or New Zealand dollars. Declining interest rates in the United Kingdom, United States, and the European Union after the 2008 global financial crisis prompted investors and speculators to search for higher yields in emerging market currencies such as the ruble. The relatively moderate currency volatility of the Russian ruble between 2010 - 2013 in combination with relatively high interest rates (Figures 2 and 3) presented an opportunity for currency speculators looking for higher returns in emerging markets. From 2010 until the end of 2014 the Russian ruble fluctuated around 30 rubles per US Dollar as shown in Figure 2.

Investing in emerging markets currency has potential higher returns at the cost of greater risk. The conflict between Russia and Ukraine and the economic consequences of the sanctions after the annexation of Crimea in March 2014 posed threats to carry trade profitability as the Russian ruble experienced larger swings. To prevent a significant depreciation of the ruble after troops entered Crimea, the Central Bank of Russia raised key rates by 1.5%. Foreign-currency denominated bond issuance dropped significantly as the risk premium of holding debt of Russian companies increased. Western sanctions over the Crimea annexations were estimated to cost Russia over $26 billion in 2014 and over $80 billion in 2015. The impact of the annexation also resulted in an increase in political and economic isolation. In addition, the ruble started experiencing significant downward pressure due to falling commodity prices.

The Economy

After a chaotic decade of economic and political changes following the fall of the Soviet Union, the Russian economy experienced significant economic growth from 1998 to 2008, averaging 7 % annually and a decrease in unemployment to approximately 6%.[1] Rich in natural resources, the country is one of the world's leading producers and exporters of oil, natural gas, metal, wood and chemicals, and therefore benefits when commodity prices, such as oil, are high. Even though, Russia was hit particularly hard by the financial crisis of 2008/2009 and its economy severely suffered, the country was able to recover and once again experience positive growth rates until a repeated drop in oil prices slowed down the economy in 2014. Although Russia has taken steps toward improving its economy's diversity through changes to incentives for innovation and free trade its high dependence on revenue from exports of natural resources leaves the country vulnerable to fluctuations in commodity prices.

[1] World Bank – Country at a Glance Russian Federation – October 2016. Retrieved from: http://www.worldbank.org/en/country/russia

Falling Oil Prices and Key Interest Rates Changes

Russia's economy, as one of the world's largest producer of crude oil and second largest producer of natural gas, is heavily dependent on revenues from the export of petroleum and natural gas products. When oil prices are high, as they were in 2013 averaging $100 per barrel, the Russian economy tends to do well. During that time hydrocarbon sales generated 68% of export revenues and over 50% of the Russian federal budget.[2] However, declining oil prices will have a detrimental impact on the economy. An estimate by Deutsche Bank suggests that Russia requires 2015 oil prices in excess of $100/bbl for a balanced budget (Figure 4).[3] In late 2014, a combination of increased unconventional oil production from the United States, fears of decreasing Chinese demand for petroleum, and a choice by OPEC to maintain its market share of petroleum rather than reduce output, led to the largest decline in oil prices since the 2008-2009 financial crisis (Figure 5). Prices fell below $50/bbl in early 2015, recovering to $60 in the early summer months, before deteriorating confidence in China led to prices falling below $40/bbl in late August. Well into 2016 average prices stayed below $50/bbl.

Russia, which relies on imports for many basic consumer goods, is vulnerable to inflation if the ruble loses value. According to the Russian Federal State Statistics Service, inflation between 2010 and 2013 averaged 6.78%, climbing to 7.80% in 2014, and 12.9% in 2015 – the same as during the oil price crash during the 2008-2009 financial crisis, during which Russian inflation averaged 12.9%. Food prices were the fastest to climb: 20.8% in 2015 alone. Meanwhile, western sanctions and falling oil prices reduced demand for Russian production, leading to a contraction of the Russian economy by 4.2% between June 2014 and June 2015. Falling output and rising inflation presented the Central Bank of Russia with the classic monetary policy dilemma of whether to protect the ruble and fight inflation, or stimulate economic growth. Raising interest rates protects the currency and brings down inflation, while lowering interest rates stimulates businesses to borrow and invest. Oil sales are denominated in dollars, declining oil prices greatly reduce the amount of foreign currency reserves available to the Central Bank of Russia – and in fact, in the 12 month period from July 2014 to July 2015, Russian foreign exchange reserves fell by more than 25%: from $422.7 billion to $312.7 billion.

Initially, the Central Bank of Russia responded by defending the ruble, increasing interest rates from 10.5% to 17% just after midnight on December 16, 2014. Despite earlier pledges to maintain a free float, the central bank began intervening in foreign currency markets, buying U.S. dollars and Euros for its reserves. However, as oil prices seemingly bottomed out and began to rise in early 2015, the Central Bank allowed its benchmark interest rate to fall to 15% on January 30, 2015, then 14% on March 13, 12.5% on April 30, 11.5% on June 15, and finally 11% on July 31 following a halt of foreign exchange purchases on July 29. This rate was held steady until June 2016, when it was decreased to 10.5%. In the summer of 2015 oil prices once again started to decline, to a new post-financial crisis low of $39/bbl, which lead to an increase in inflation in

[2] Energy Information Administration – Russia: International Energy Data and Analysis – July 28, 2015. Retrieved from: http://www.eia.gov/beta/international/analysis_includes/countries_long/Russia/russia.pdf

[3] Deutsche Bank Research - EM oil producers: breakeven pain thresholds. – October 16, 2014. Retrieved from: http://etf.deutscheawm.com/DEU/DEU/Download/Research-Global/2dd759fe-b80a-4f07-a51c-dd02f4d384e5/EM-oil-producers-breakeven-pain.pdf

Russia as well as further depreciation of the ruble. As of August 2016 it takes 65 rubles to buy a US Dollar, a loss of more than 50% against the dollar in a two-year period, and oil prices have stayed low. This has revived the prospects of a deeper recession, which will force the Central Bank to make hard choices in the near future.

Case Questions

1. What are some of the advantages/disadvantages of a managed floating exchange rate regime? Why did the Central Bank of Russia abolish the dual-currency band (corridor) in November of 2014?

2. Discuss the effects of the Russian ruble volatility and interest rate changes on carry trade profitability.

3. What factors contributed to the decision to raise the key interest rate from 10.5 to 17 percent in December 2014 and then again to cut it to 11% in July 2015? How does monetary policy affect inflation and the economy?

4. What should the Bank of Russia do if oil stays below $50 per barrel in the next two years?

5. In recent years the Russian economy has seen an increase in the number of small businesses and domestic production. What is an incentive the government can establish to support long term economic development? (HINT: “There are only two things certain in life”-Benjamin Franklin.)

REFERENCES

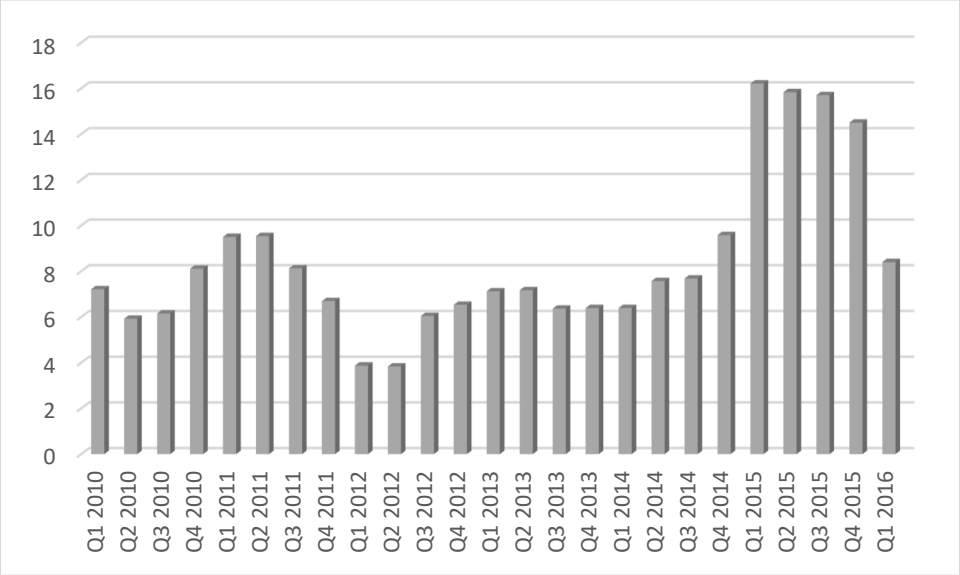
Central Bank of the Russian Federation. (2013). The history of the Bank of Russia's exchange rate policy. *BIS Papers* No 73.

Galouchko, K. (2015). Red Flags over Russian ruble one year after Crimea seized. *Bloomberg*. http://bloom.bg/1AxEtlB

Kottasova, I. (2015). Sanctions will cost Russia more than $100 billion. *CNN Money*. http://money.cnn.com/2015/04/21/news/economy/russia-ukraine-sanctions-price/

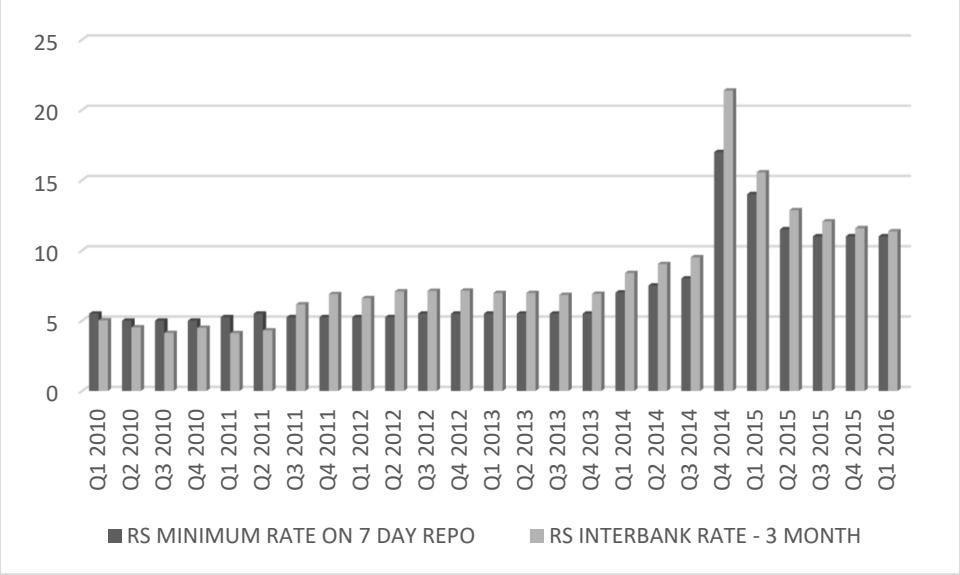
Kuznetsov, V., & Galouchko, K. (2015). World’s Best Carry Trade Finds Unlikely Home as Ruble Rebounds *Bloomberg*. http://bloom.bg/1EHTdfs

Figure 1. Consumer Price Index



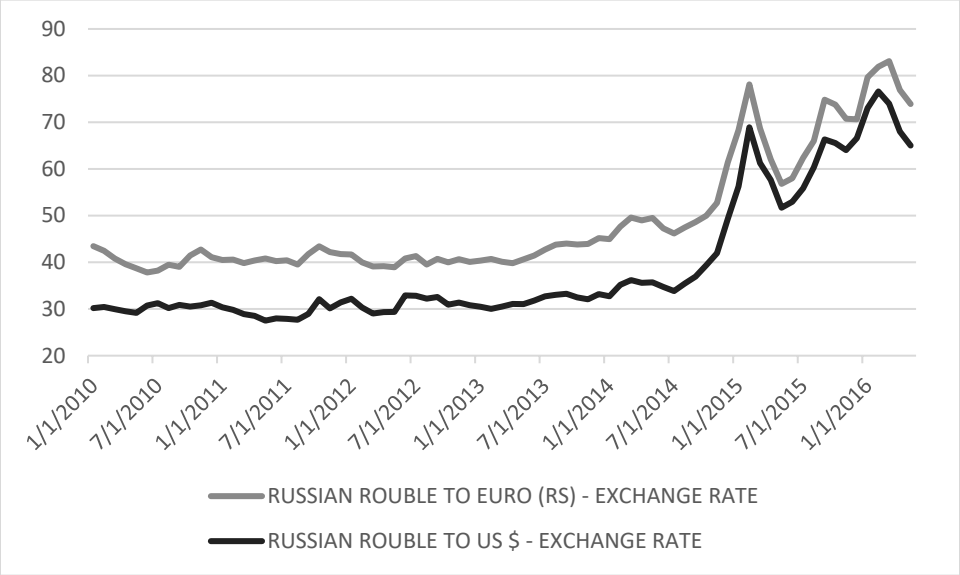
Source: Datastream

Figure 2. Interest Rates



Source: Datastream

Figure 3. Exchange Rates



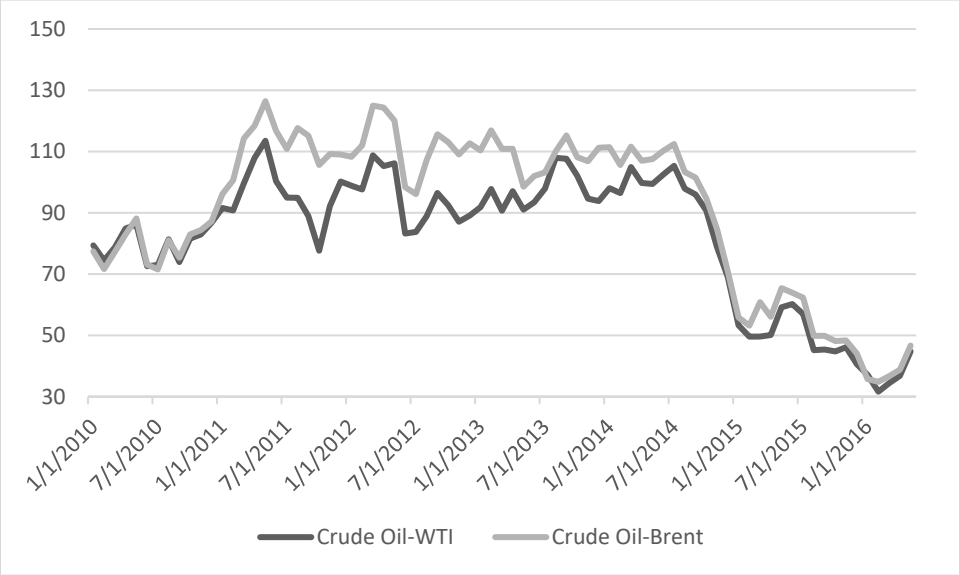
Source: Datastream

Figure 4. Budget Breakeven Prices (Brent, USD bbl)

	2006	2007	2008	2009	2010	2011	2012	2013	2014f	2015f
Bahrain	32.5	43.1	43.8	70.3	68.4	78.8	73.3	83.6	89.0	94.0
Kuwait	26.4	32.6	42.1	47.0	45.7	47.4	53.6	68.3	75.5	78.4
Qatar	43.4	41.8	49.1	27.2	61.7	80.1	65.5	60.5	71.3	76.8
S. Arabia	38.7	52.7	47.0	72.6	70.6	84.5	80.9	93.1	99.2	104.4
UAE	18.3	24.5	43.7	105.7	86.3	94.6	77.3	82.7	80.2	80.8
Nigeria	56.3	75.1	79.9	125.3	105.3	128.5	112.3	141.7	126.2	122.7
Russia	21.4	28.1	59.7	109.5	116.7	102.8	112.0	113.9	100.1	105.2
Venezuela	81.7	76.9	134.2	140.7	194.4	145.7	151.5	149.9	162.0	117.5
Brent	65.4	72.7	97.7	61.9	79.6	111.0	111.7	108.9	106.5	103.3

Source: Deutsche Bank estimates

Figure 5. Oil Prices



Source: Datastream

INTRODUCTION TO DECISION TREE ANALYSIS: AN EXCELLENT MODEL TO ILLUSTRATE UNCERTAINTY IN CAPITAL BUDGETING

Danny Ervin
Salisbury University

Currently, discounted cash flow capital budgeting models like net present value and internal rate of return are virtually ubiquitous in corporations. These models provide a partial information set to financial managers which is required to make decisions on capital asset acquisitions. These models do not provide information about managerial flexibility. This flexibility can provide value to the firm and must be considered in the evaluation process. Much has been written espousing the advantages and disadvantages of real option models and many corporations use this approach when valuing managerial flexibility or options. Real option models become computationally complex quickly exceeding an undergraduate's ability to understand the mathematics. An alternative is decision tree analysis. This approach is accessible to undergraduate students and illustrates the importance of managerial flexibility. This note provides an example of a decision tree analysis.

INTRODUCTION

Most corporations use a discounted cash flow method to determine the makeup of the capital budget. Net present value and Internal Rate of Return are leading models although each have shortcomings; one is that neither model considers managerial flexibility. New information can arrive at any time during a projects life and project managers can and will adjust project operations as markets change. The ability for mangers to respond to new information can be an important source of value for many projects. NPV and IRR provide insight into many project characteristics; however, they do not provide any insight into the value of managerial flexibility.

One current approach to include flexibility is the use of real option models. Many have predicted that real option analysis would be the most popular model in capital budgeting analysis. Copland and Antikarov (2001) write "In ten years real options will replace NPV as the central paradigm for investment decisions." This forecast like so many has not been realized at this time. NPV is still the model of choice for most large corporations.

Why are discounted cash flow (DCF) techniques still the dominant approach in capital budgeting? These models provide an estimate of the value added to the firm, a key decision criteria. In addition, DCF models allow the incorporation of risk through adjustments to the risk-adjusted discount rate and the cash flows, the numerator in the equations. Real options models have a significant disadvantage, the mathematics used in this method can quickly overwhelm most undergraduate finance majors. The assumptions underlying real option models can be difficult for undergraduates to understand and/or implement. In general, the finance students in a beginning level finance course are exposed to entry level equity valuation models and are unlikely to

understand the required inputs to an extent that they can perform the required calculations. Experienced analysts encounter difficulty when attempting to use real option analysis. For example, the tracking portfolio can be difficult to identify. Real option models can become advanced level stochastic calculus problems. Again, revealing the high level of mathematics required of undergraduate students. Also, the purpose of the exercise, valuing flexibility, may be overlooked as students focus on the mathematics of real option valuation.

Again, a disadvantage of traditional capital budgeting models is the inability to incorporate flexibility or options in the basic models. The decision tree approach to capital budgeting includes a systematic method to value flexibility. This is an appropriate method for undergraduate finance students to learn how to model flexibility. It is likely more understandable than real option models. Students learn basic valuation techniques in most corporate finance courses including internal rate of return and net present value models. It is well recognized that these models are static and do not accurately capture the dynamics inherent in the ever changing domestic and global economies. A decision tree analysis is an excellent method to systematically examine the many different options project managers encounter as a venture unfolds. A decision tree uses NPV calculations to illustrate and compute the value of flexibility for a project.

AN APPLICATION FOR THE CORPORATE FINANCE COURSE

There are many decisions required to be successful in any business and most decisions have a degree of irreversibility. For example, once the owner of a limousine company purchases a certain style limousine it requires additional capital to modify the asset. Such an asset can be sold; however, the firm frequently will not recover its full price. This irreversibility must be considered by managers. Although managers cannot change assets once they are purchased, they can alter project characteristics based on changing market conditions. The project scale is an example of a decision managers must consider. This note explores this characteristic along with others using the following example.

Classic Limo is considering a new location for their limousine service. Four Oaks is a medium-size city with a vibrant nightlife and little in terms of competition for Classic Limo. It supports several taxi companies, but no limo services have lasted more than one year. Various reasons seem to undermine the attempts but inadequate marketing campaigns appear to be a major reason for the previous failures. Classic Limo has a focused marketing strategy that has worked in similar cities and gives the management confidence IN their ability to provide a needed service for Four Oaks.

The major risk for this project is the economy. The manager has forecast the demand conditions for the next two years. There is a 50 percent probability the economy will be robust next year. If the economy is robust in the first year, there is a 75 percent chance of a robust economy in the second year. If the economy is poor in year one, there is a 75 percent chance the economy will be poor in the second year. This information is contained in Table 1.

Table 1. Probabilities of Occurrence in Future States

Time	**1**		**2**
Robust Economy	0.50	Robust Economy	0.75
		Poor Economy	0.25
Poor Economy	0.50	Robust Economy	0.25
		Poor Economy	0.75

This project requires a $90,000 investment at the beginning to purchase the needed assets (a limousine). If the economy is robust in year one, the cash flow in year one will be $65,000. If the economy is poor the cash flow is $35,000. If the economy is robust in year one and two, the expected cash flow is $110,000. If the economy is robust in year one and poor in year two, the expected cash flow is $50,000.

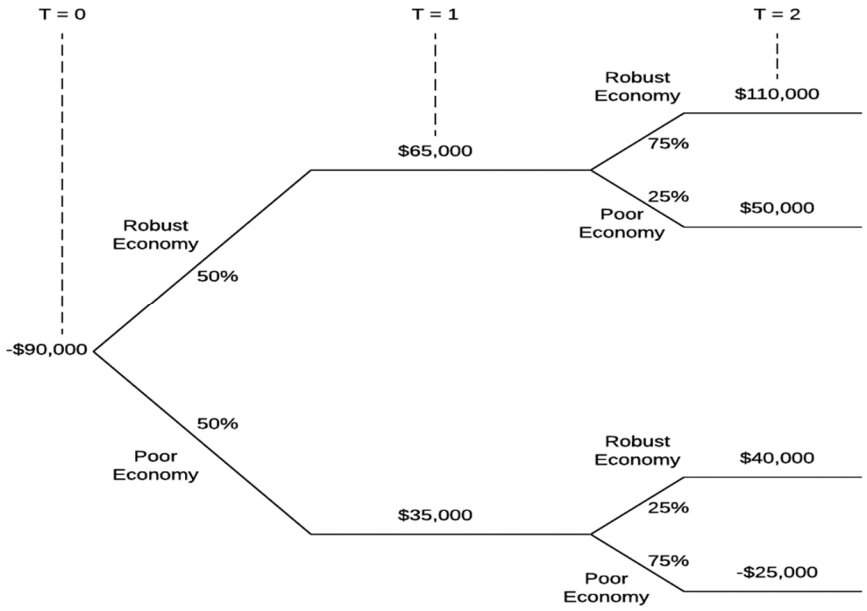
If the economy is poor in year one and it is robust in year two, the cash flow is $40,000. If the economy is poor in year one and poor in year two, the cash flow is -$25,000. All cash flows are in real dollars. Table 2 illustrates this cash flow information. The real discount rate is 5 percent.

Table 2. Project Cash Flows

Time	**0**		**1**		**2**
				Robust	$110,000
		Robust	$65,000		
				Poor	$50,000
	-$90,000				
				Robust	$40,000
		Poor	$35,000		
				Poor	-$25,000

Figure 1 provides the decision tree.

Figure 1



In this approach the analyst discounts the expected cash flows using time value of money equations, a financial calculator, or Microsoft Excel. The following equation is used to calculate the net present value of the project without any options. This approach, in general, is very intuitive.

$$\boldsymbol{NPV}$$
$$= -90 + \frac{(0.50)(65) + (0.50)(35)}{(1.05)}$$
$$+ \frac{(0.50)[(0.75)(110) + (0.25)(50)] + (0.50)[0.25(40) + (0.75)(-25)]}{(1.05)^2}$$

NPV = -$3,265

After the students understand the overall goal of this exercise, the decision tree approach is easier to apply as a more thorough calculation of the NPV. This approach uses joint probabilities to calculate the project NPV. Figure 2 contains the decision tree along with the joint probability calculation. The joint probability is the product of the probabilities that are observed for a particular ending branch of the decision tree. For example, the probability of a robust economy in the first year is 50 percent and the probability of a robust economy in the second year after a robust economy is 75 percent. The joint probability for this path is 50 percent multiplied by 75 percent or 37.5 percent [(0.50)(0.75) = 0.375]. The next step is to calculate the present value for this branch.

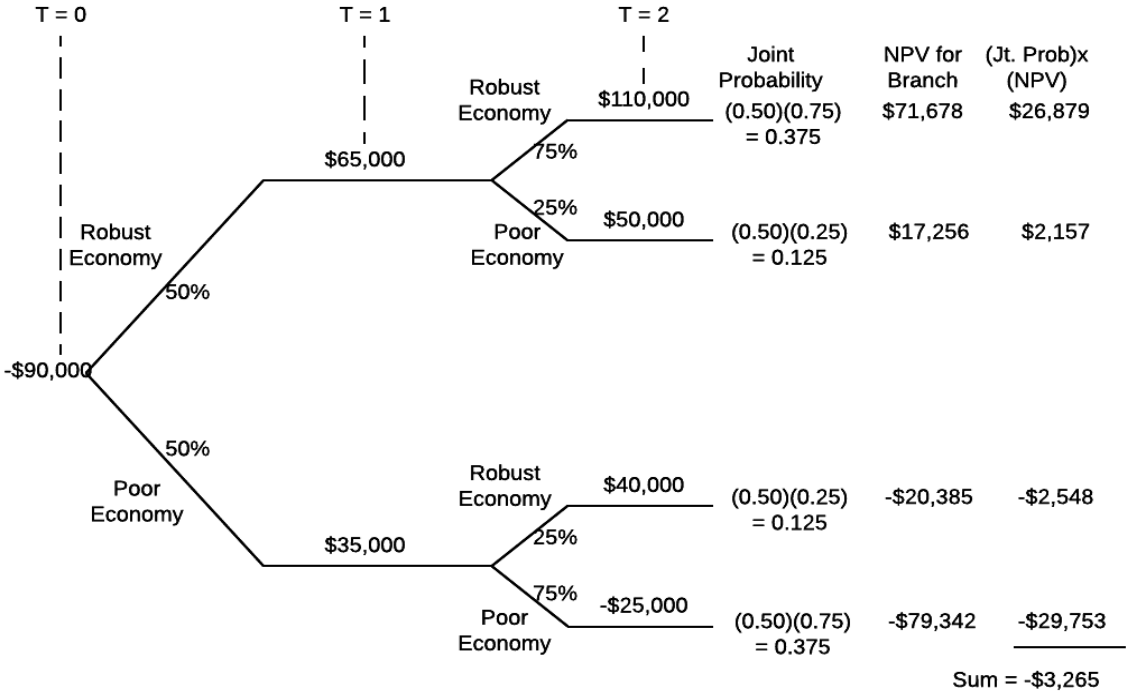
$$PV_{Branch\ Cash\ Flows} = -90 + \frac{65}{(1.05)} + \frac{100}{(1.05)^2} = 71.678$$

The joint probability is multiplied by the PV for that branch. For this branch it is:

Branch NPV = (0.375)(71.678) = 26.879

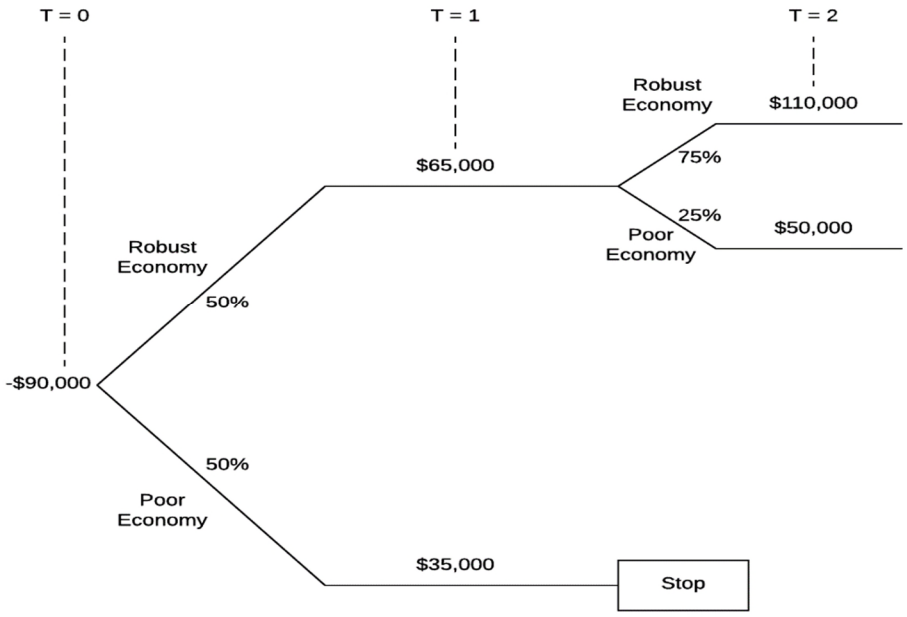
This process is repeated for each branch. The project NPV is the sum of all of the branch NPVs. Figure 2 completes this method for the project. The student will check the results from both methods to assure the NPVs are equal. This method, based upon multiple classroom experiences, is usually preferred by students. Moreover, it is easily adapted to financial calculators and Excel.

Figure 2



The NPV is negative and normally would end the analysis. Again, however, this ignores managerial flexibility. In this project, Classic Limo can abandon the project at any time. The financial manager should examine the effect on the project NPV. What is the effect on the NPV if the project is abandoned after year one when the economy is poor? Figure 3 provides the decision tree for this abandonment option.

Figure 3



The NPV equation with the option to abandon is:

$$NPV = -90 + \frac{(0.50)(65) + (0.50)(35)}{(1.05)} + \frac{(0.50)[(0.75)(110) + (0.25)(50)] + (0.50)[0.25(0) + (0.75)(0)]}{(1.05)^2}$$

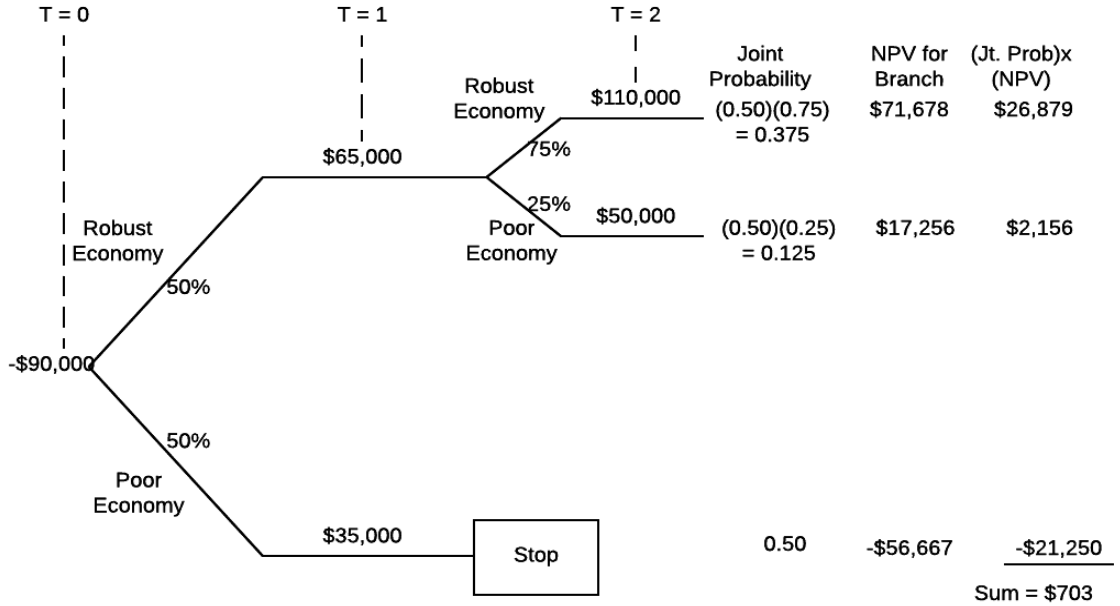
NPV = $703

Considering the option changes the NPV to positive and now the project should be accepted. The value of the option is the difference of the project with the option included and the project without the option:

Option Value = 703 – (-3,265) = 3,968

Figure 4 contains the decision tree with the abandonment option and uses the joint probability method to calculate the NPV of the project.

Figure 4

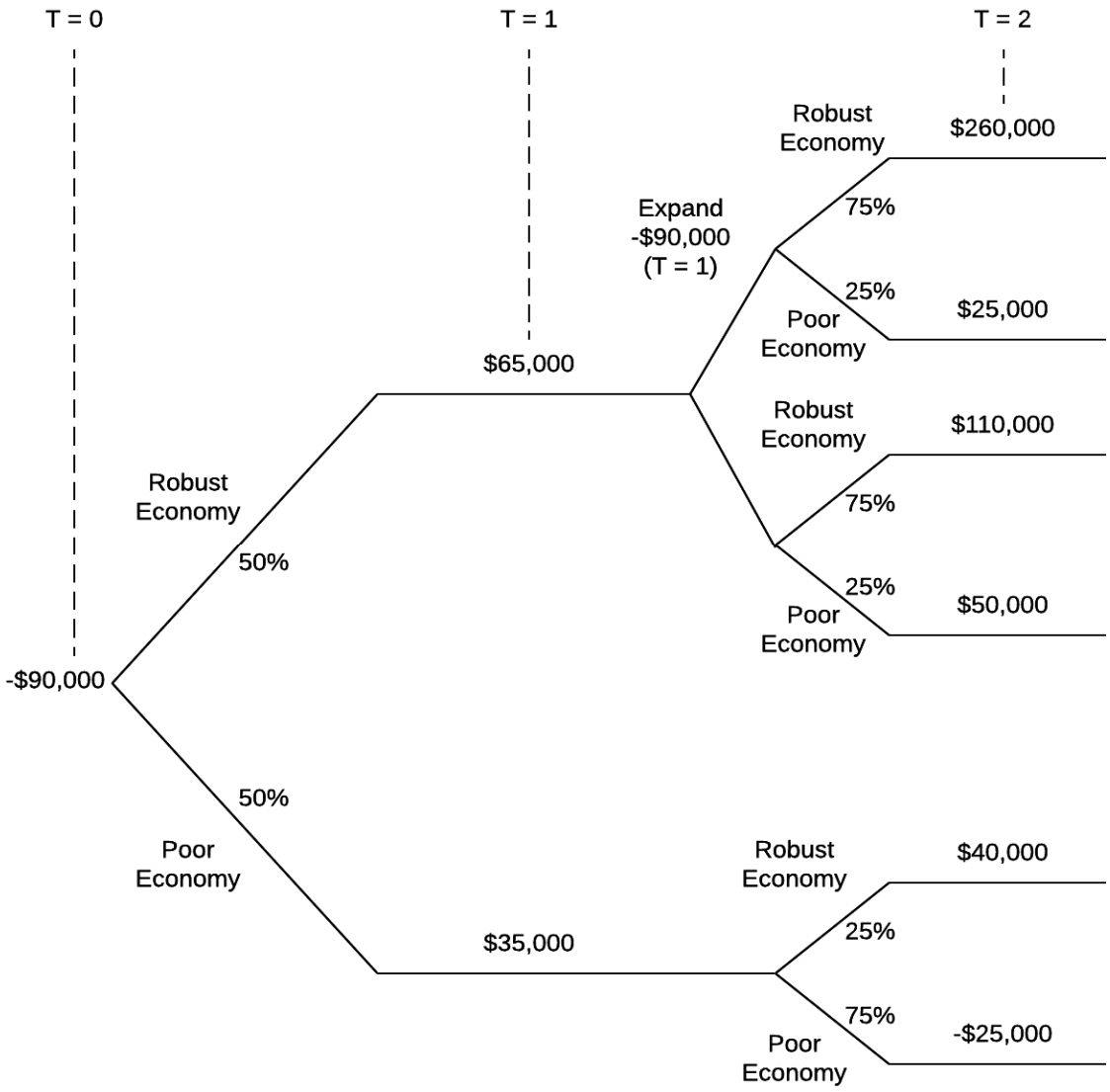


Next, this note examines an expansion option. Classic Limo can increase its operations in Four Oaks if the economic conditions justify an expansion. Figure 5 provides the expansion option when the economy is robust in year one.[1] The expansion option is a mutually exclusive decision, Classic Limo cannot both expand and not expand. The NPV for both branches are calculated and then the maximum is chosen. The lower NPV is not used in calculating the project NPV. Including the expansion option increases the value of the project. The NPV is positive and Classic Limo should proceed with the Four Oaks project.

Figure 6 calculates the NPV of the Four Oaks project with the expansion option using the joint probability approach. This approach clearly demonstrates the difference between the outcomes for the expansion choice.

[1] This analysis ignores the abandonment option.

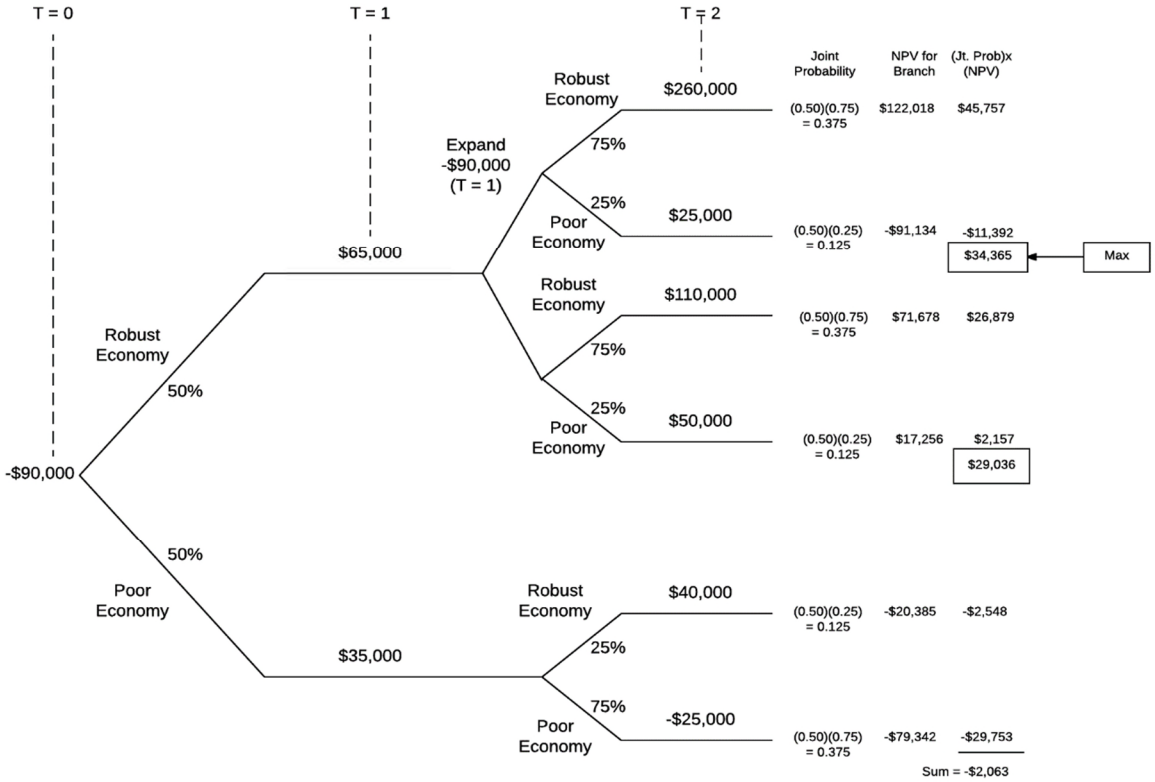
Figure 5



$$NPV = -90 + \frac{(0.50)(65 + -90) + (0.50)(35)}{(1.05)} + \frac{(0.50)[(0.75)(200) + (0.25)(25)] + (0.50)[0.25(55) + (0.75)(-15)]}{(1.05)^2}$$

NPV = $3,764

Figure 6



From Figure 6, the NPV for the option to expand is:

NPV_{Expand} = \$42,355 + (-\$11,392) = \$30,964

And the NPV for the option to not expand is:

$NPV_{Not\ Expand}$ =\$25,179 + \$1,590 = \$26,769

The expansion option adds value to the project. The value of the option to expand is:

Value of Option to Expand = 3,764 - (-431) = 4,195

The manager of the Four Oaks project would expand if the economy is robust in the first year.

These two examples provide evidence that flexibility can be quantified, in a manner that does not overwhelm the undergraduate student and the true value of the project can be determined. The examples are computationally simple and accessible to undergraduate business majors.

An important issue to incorporate into the discussion is that of the risk-adjusted discount rate used in these calculations. This is probably best done at this juncture without calculation, based upon the difficulty of adding too many "moving parts" to an already weighty set of calculations for the students. The riskiness of the cash flow changes as flexibility is introduced into the analysis. This becomes a complex issue to consider and a different topic beyond that of decision tree analysis.

Capital projects have many different types of options embedded in their development. The ability to delay or expand are typical options considered when analyzing a project. Also, operational flexibility can be built into a process. For example, production methods can be changed. If production flexibility is built into the project, the manager can change inputs when prices change. In addition to the foregoing example is that of a dual-fuel power plant. The owner owns an option to convert one form of energy (chemical to electricity). The ability to switch to a low cost fuel can maximize the asset's value, especially if this occurs when electricity is priced at a premium. Production flexibility includes the ability to make different products using the same equipment as demand for products change.

There is also a weakness in the decision tree method for valuing flexibility as presented in this note. As managerial options are introduced and the riskiness of the cash flow streams decreases. The risk-adjusted discount rate should be reduced to reflect the decrease in risk. One approach a manager may use is to develop rates based on predetermined risk "buckets." A project or even a branch of the decision tree may become very low risk and the appropriate discount rate could be the WACC minus some percentage to compensate for the change is risk. Although this approach is not scientific, an analyst with experience will have a good feel for the appropriate discount rate level. Regardless, making the students aware of the manner in which risk-levels change and thus require further understanding and analysis is useful.

CONCLUSION

This research provides an example of valuing flexibility in capital projects without using real options that is readily accessible to undergraduate business students. The students gain an appreciation for the value of managerial flexibility and learn to appreciate the importance of risk in modern day business. Decision trees offer more practical insight into the critical process of capital budgeting for undergraduate students. This approach avoids the difficulties inherent with real option models.

REFERENCES

Copland, T. and Antikarov, V. *Real Options*, (New York, 2001) TEXERE.

Halloran, J. and Lanser, H. "Teaching Real Options in the Financial Management Course: A Pedagogical Note," *Journal of Financial Education* (Winter, 2004), 64 – 80.

ANALYZING VALUE CREATION AND MODELING INTRINSIC VALUE: THE CASE OF AMAZON, INC.

Rob Weigand
Washburn University

INTRODUCTION

It was a late February morning in 2013 and stock analyst Charles Worthington, CFA, returned to his office after a meeting with his portfolio manager, Alexandra Stone. The two had spent the last hour discussing the stock allocations of their company's Technology-21 Fund and the Fund's recent performance. The Fund is a concentrated portfolio limited to holding no more than 21 stocks thought to be well-positioned to outperform the information technology sector in the 21st century. Charles had been the lead analyst for the Fund since its inception in 2010. The Fund outperformed the technology sector each year from 2010-2012, due mainly to overweighting large-capitalization technology stocks such as Google, Apple and Amazon.

During the 2012 year-end portfolio review and rebalancing, Charles made two recommendations that resulted in the Fund significantly underperforming its benchmark for the first six trading weeks of 2013. First, following the Fund's disciplined fundamental process, Charles recommended further increasing the Fund's concentration in Apple at a price of $505, following a $200 decline in price after reaching its all-time high in September 2012. Despite Charles' strong conviction that Apple's intrinsic value was closer to $550 per share, the stock had lost another 15% since the beginning of 2013 (see Figure 1). Charles' second recommendation was to sell the Fund's position in Amazon. The sell thesis cited Amazon's declining profit margins, severely elevated relative valuation, and a second straight year of negative free cash flow generation. Charles felt vindicated when Amazon announced their 2012 financial results in January 2013, which included Amazon's first year of negative net income since 2002. Charles' concerns were reflected in comments by several other analysts, including Colin Gillis of BGC Partners, who was quoted by the Associated Press on January 29, 2013, the day after Amazon's fourth quarter earnings were announced: "It boggles the mind. A lot of people scratch their head at the valuation given to Amazon and the support the stock has" (Ortutay, 2013).

Without the inclusion of some unusual one-time items, Amazon's profits would have declined to 2006 levels, when the company's total revenue was only one-sixth as large as it was in 2012. But, defying its declining financial performance, Amazon's stock had doggedly gained another 10% since the start of the year (see Figure 1), and Charles' recommendations were drawing increasing scrutiny.

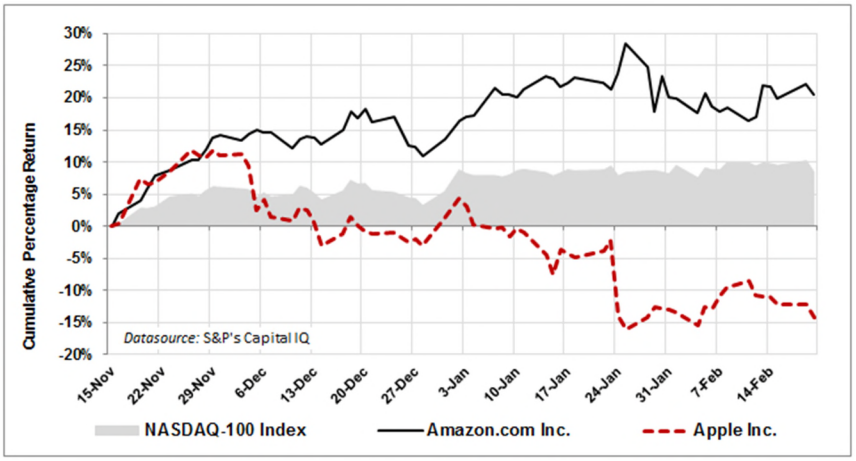


Figure 1: Amazon Outperforms Apple by 35% from Nov-2012 to Feb-2013

Bianca Jackson has been Charles' research assistant since the Fund's inception. Charles has been Bianca's main career mentor since she graduated college, providing guidance in the practice of fundamental analysis and in passing the first two parts of the Chartered Financial Analyst exam. This morning Bianca has been carefully observing Charles' demeanor since he returned from his morning meeting, and it's been obvious that her usually cheerful boss has something weighing on his mind.

Moments later, Charles asks Bianca to step into his office. "Can you re-run our fundamental and valuation analysis on Amazon for me?" he asks (the Technology-21 Fund's analysis process is provided in Table 1). "Use the full process," and then Charles adds, "and lighten up on the modeling assumptions just a bit. I need to take another look at what that stock is really worth." Charles looks out the window and falls silent for a moment, but Bianca can tell that he's not finished. He turns around in his chair and continues: "We'll present this to Alexandra tomorrow. Someone from another team is going to present a competing analysis, so we'll want to get this one right." Bianca indicates that she will start immediately, and she returns to her desk.

Bianca takes a moment and thinks carefully about Charles' instructions — especially his request to go a little easier than usual on the modeling assumptions. As her mentor, Charles has taught her that it's best to "stress" a company a little when modeling its future to build in a "margin of safety." Some of the typical stressors include being conservative with future growth rates, not expanding profit margins too aggressively, and not assuming that recent gains in balance sheet efficiency will continue forever. Today it sounded as if Charles wanted her to bend the rules a little and model Amazon using assumptions that were a bit more optimistic than the analysts in her department usually used. Holding all of Charles' instructions in mind, Bianca began reviewing Amazon's financial statements (financial statement highlights from 2007-2012 provided in Table 2).

Table 1: The Technology-21 Fund's Fundamental Analysis Process		
Step 1: Review the level and trend of a variety of historical performance metrics		
Metric	**Calculation**	**Rationale and Interpretation**
1a) Revenue growth	$g = \left[\frac{\text{Rev}_t}{\text{Rev}_{t-n}} \right]^{1/n} - 1$	Vigorous revenue growth is one of the main drivers of a company's profitability and value creation.
1b) Earnings before interest and tax (EBIT) and net operating profit after tax (NOPAT)	EBIT = sales – cost of goods sold – total operating expenses. NOPAT = after-tax EBIT, or EBIT × $(1 - t_c)$, where t_c is the company's effective tax rate.	Sometimes referred to as "operating profit," EBIT is the numerator of a company's operating profit margin. NOPAT equals EBIT after taxes; it is a key input in calculating the actual free cash flow a company generates in a fiscal year. NOPAT is also an important input into value creation metrics such as free cash flow, return on invested capital, and economic value-added.
1c) Operating profit margin (OPM), net profit margin (NPM), and free cash flow profit margin (FCFM)	$\text{OM} = \frac{\text{EBIT}}{\text{Total Revenue}}$ $\text{NPM} = \frac{\text{Net Income}}{\text{Total Revenue}}$ $\text{FCFM} = \frac{\text{Free Cash Flow}}{\text{Total Revenue}}$	Profit margins express metrics associated with profitability (EBIT and net income) and value creation (free cash flow) as a percentage of the company's total revenue. The more EBIT, net income or free cash flow a company generates per dollar of revenue, the more profitable it is.
1d) Total invested capital	Total invested capital = NOWC + net PPE. Total invested capital consists of 2 components. The first is net operating working capital (NOWC), calculated as cash + receivables + inventory – (payables + accruals). The second component is long-term operating capital, calculated as net property, plant and equipment (net PPE).	Total invested capital is the finance way of measuring the all the capital contributed to operations from the company's balance sheet. It is a more accurate measure than total assets (or total liabilities and equity), because total invested capital excludes payables and accruals, which are a source of free financing to the company (as long as they are paid on time, without penalties or finance charges). Total invested capital therefore equals the dollar amount of capital on which the company must earn a competitive return.
1e) Free cash flow (FCF)	FCF = NOPAT – the year-over-year change in total invested capital.	Free cash flow equals the company's NOPAT over and above the change in total invested capital. This is the cash flow available to invest in new assets, pay dividends, repurchase

		stock, or buy other companies. Finance theory states that the value of an asset equals the present value of its expected future free cash flows. Note that FCF will be less than NOPAT in most years, as companies grow their balance sheet by investing in new assets (net PPE rises) and/or holding more short-term assets (cash, inventories and receivables). In years when NOPAT is positive and total invested capital declines, however, FCF will be larger than NOPAT.
1f) Return on equity (ROE) and return on invested capital (ROIC)	$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholder Equity}}$ $\text{ROIC} = \frac{\text{NOPAT}}{\text{Total Capital}}$	ROE and ROIC (as well as ROA, return on assets) are profitability ratios. These ratios are formed by scaling a measure of profit by a balance sheet resource that supports the generation of profits. As the company earns more net income (or NOPAT) per dollar of shareholder equity (or total invested capital), these ratios increase, demonstrating the ability to generate profits more efficiently.
1g) Price to earnings (P/E) and price to sales (P/S).	$\frac{\text{P}}{\text{E}} = \frac{\text{Stock Price per Share}}{\text{Earnings per Share}}$ $\frac{\text{P}}{\text{S}} = \frac{\text{Stock Price per Share}}{\text{Revenue per Share}}$	The P/E and P/S ratios (along with others such as price to book and price to free cash flow) are relative valuation ratios. They express the market price of the stock as a multiple of a key fundamental that makes the company valuable, such as earnings, revenues and free cash flow. These ratios tell us how cheap or expensive the stock price is vs. fundamentals. The "normal" range for the P/E ratio is usually considered to be between 12 and 18, with 12 or below representing a "value" stock and 18 or above representing a "growth" stock (although these ratios vary considerably by industry). Higher relative valuation is justified when a company is expected to maintain a large spread of ROIC over the weighted average cost of capital

		(WACC) and/or is expected to grow revenues at an above-average rate in the future.
Step 2: Comment on the analyst's income statement forecasting assumptions		
Metric	**Rationale and Interpretation**	
2a) Future revenue growth	Based on the trend in past growth and the analyst's outlook for the company's prospects, assign expected future growth rates for forecast years 1-5. Note that year 5 represents the company's long-term, perpetual growth rate. The year 5 rate must be less than the company's weighted average cost of capital (WACC).	
2b) Operating profit margin	Operating margin assumptions directly influence future EBIT, and thus NOPAT, free cash flow, EVA and intrinsic value. Along with revenue growth, operating margin assumptions have a powerful impact on estimates of a company's intrinsic value.	
2c) Common shares growth	Observe the past trend and model the future rate of the company's share repurchase (negative growth) or share issuance (positive growth). Share repurchase reduces the number of future shares of stock, thus increasing future intrinsic value; the opposite is true for share issuance.	
2d) Dividend growth	Observe the past trend and model the future rate at which the company will increase dividends (if the company currently pays dividends).	
Step 3: Comment on the analyst's balance sheet forecasting assumptions		
Metric	**Rationale and Interpretation**	
3a) Cash and equivalents	Observe the past trend and estimate the company's future ratio of cash and equivalents to sales.	
3b) Receivables	Observe the past trend and estimate the company's future ratio of receivables to sales.	
3c) Inventory	Observe the past trend and estimate the company's future ratio of inventory to sales.	
3d) Accruals	Observe the past trend and estimate the company's future ratio of accruals to sales.	
3e) Payables	Observe the past trend and estimate the company's future ratio of payables to sales.	
3f) Net PPE	Observe the past trend and estimate the company's future ratio of net PPE to sales. Your assumptions should take the company's industry into account: asset-intensive businesses, such as manufacturing or mining, will have much higher PPE/sales ratios than intellectual capital companies such as Microsoft or Google.	
cash & equivalents + receivables + inventory − (accruals + payables) + net PPE = total invested capital	Because FCF = NOPAT – change in total invested capital, increasing any of the pro forma asset/sales ratios (or decreasing pro forma accruals/sales or payables/sales) **increases** pro forma total invested capital, and thus **decreases** pro forma free cash flow generation. (And decreasing asset/sales ratios, or increasing any liability/sales ratio, will increase pro forma free cash flow).	

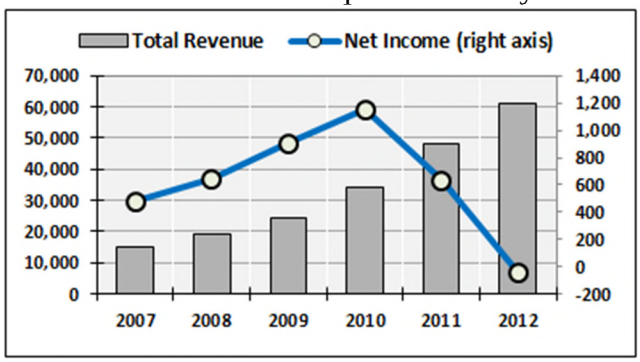
Step 4: Comment on the level and trend of the key pro forma metrics	
Metric	**Rationale and Interpretation**
4a) Operating margin	See item 1c)
4b) EBIT	See item 1b)
4c) NOPAT	See item 1b)
4d) Total invested capital	See item 1d)
4e) Free cash flow	See item 1e)
4f) Price to earnings and price to sales ratios	See item 1g)
Step 5: Comment on the weighted average cost of capital (WACC) assumptions	
Metric	**Rationale and Interpretation**
5a) Weighted average cost of capital (WACC).	A company's cost of capital, or WACC, represents the minimum average return it can earn (measured as ROIC) on all its invested capital to maintain its value. If the company's ROIC is greater than its WACC, it is a value creator, but if the company's ROIC is less than its WACC, it is a value destroyer.
5b) Cost of debt	The company's cost of debt is equal to the weighted average yield to maturity (or expected return) of its debt obligations (loans, bonds outstanding, etc.). The company's cost of debt is closely related to its credit rating (highly rated firms can borrow at lower interest rates, while firms with low credit ratings must pay higher interest rates).
5c) Cost of equity	A company's cost of equity is the analyst's estimate of the market's required return on its stock. Finance theory states that we should observe a positive relation between risk and expected returns, thus riskier companies (more volatile revenues, earnings and cash flows0 should have higher costs of equity, and vice versa for safer companies. A company's cost of equity will be measured via the Capital Asset Pricing Model (CAPM), which states that the expected return on stock can be estimated as the risk-free rate of interest plus a risk premium that is larger for risky companies and smaller for safer companies. The risk premium adjustment factor is known as the stock's beta, which =1 for companies of average risk, and increases (decreases) for riskier (safer) companies.
5d) Risk-free rate	Yield to maturity on the 10-year Treasury note. Use of a longer-term interest rate is justified because stock's have a long duration (technically infinity).
5e) Market risk premium	The analyst's estimate of the amount by which stock returns will exceed the risk-free rate over the long run.
5f) Beta	Beta is an index that measures stock return volatility relative to the overall stock market return, and the correlation of stock returns with the market return. A beta of 1.0 indicates average volatility, while values above (below) 1.0 indicate higher (lower) volatility. Stocks whose returns are more strongly (weakly) correlated with the market return have higher (lower) betas.

Step 6: Calculate intrinsic value and compare with the company's current stock price	
Process Steps	**Rationale and Interpretation**
6-1. Calculate the present value of the company's expected future free cash flow.	Finance theory states that the value of an asset equals the present value of its expected future free cash flows. Because FCF belongs to all providers of capital, the WACC is the appropriate discount rate. The present value of a company's free cash flow equals the value of its operations. The calculation consists of two parts, the present value of near-term (faster-growing) free cash flows, and the present value of long-term (slower-growing) perpetual free cash flows (sometimes called the horizon value component).
6-2. Identify the value of non-operating assets (cash and short-term investments).	Cash and short-term investments are financial assets, which also add to the value of the firm.
6-3. Calculate total intrinsic firm value.	Calculated as the sum of the present value of expected future cash flows (6-1) and non-operating assets (6-2).
6-4. Calculate the intrinsic value of the firm's equity.	Subtract the value of short- and long-term debt from intrinsic firm value (6-3).
6-5. Calculate the per share intrinsic value of the firm's equity.	Divide the intrinsic value of the firm's equity by the pro forma number of shares.
6-6. Compare per share intrinsic value with actual per share stock price.	If intrinsic value (IV) > the current stock price, the stock is modeling up as undervalued, and if IV < the current stock price, the stock is modeling up as overvalued. It is important to remember that conclusions regarding over- and undervaluation are dependent on the analyst's modeling assumptions. More optimistic assumptions (faster growth, expanding operating margin, lowering the components of total invested capital, lower future beta, etc.) increase intrinsic value, and vice versa for more pessimistic assumptions.
6-7. Comment on how the analyst's choice of modeling assumptions affected the estimate of per share intrinsic value and the company's apparent under- or overvaluation.	The final step is to identify how the income statement, balance sheet and WACC assumptions employed by the analyst affected the pro forma metrics, and thus the company's estimated intrinsic value. Wherever possible, make note of how more optimistic assumptions led to higher estimated intrinsic value, and where more pessimistic assumptions led to lower estimated intrinsic value.

CASE QUESTIONS FOR THE TECHNOLOGY-21 FUND'S FUNDAMENTAL PROCESS

Step 1. Review the level and trend of a variety of historical performance metrics. Write a brief interpretative note regarding the level of each metric and its historical trend.

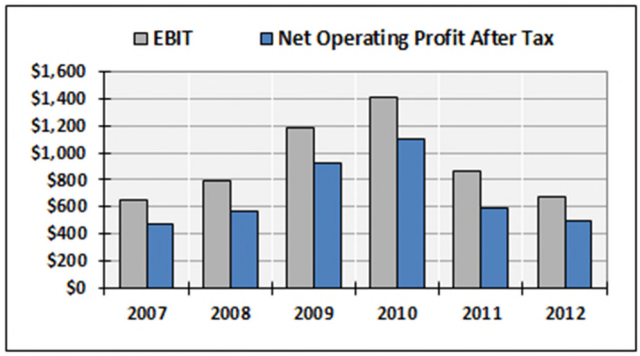
a) Growth in revenue and net income over the past 3- and 5-year horizons



Datasource: S&P's Capital IQ

Figure 2: Amazon's Total Revenue and Net Income, 2007-2012

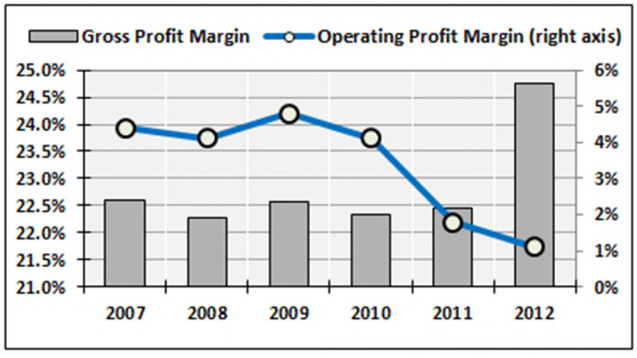
b) EBIT and NOPAT



Datasource: S&P's Capital IQ

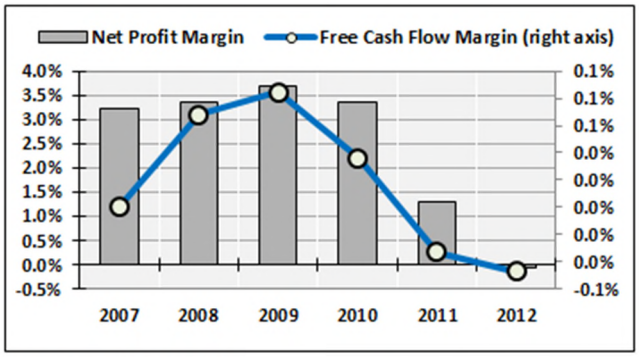
Figure 3: Amazon's EBIT and NOPAT, 2007-2012

c) Operating, net and free cash flow margin



Datasource: S&P's Capital IQ

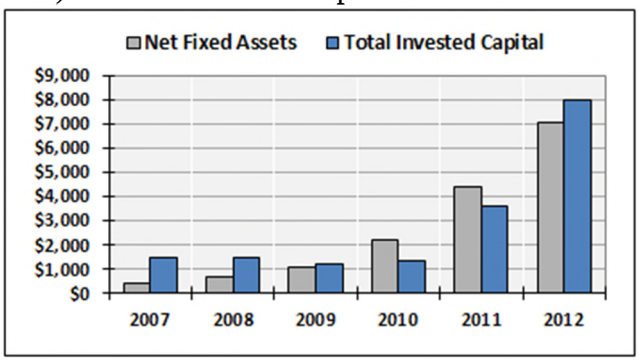
Figure 4: Amazon's Gross and Operating Profit Margin, 2007, 2012



Datasource: S&P's Capital IQ

Figure 5: Amazon's Net and Free Cash Flow Margin, 2007-2012

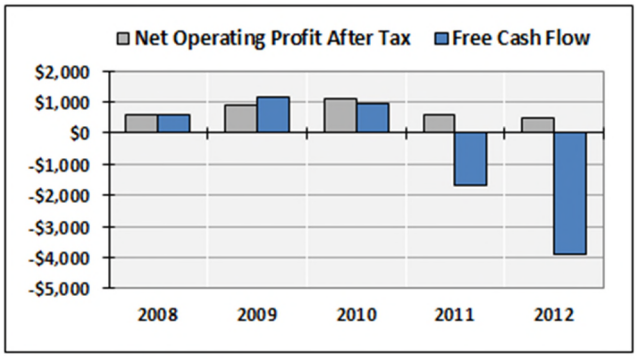
d) Net fixed assets (PPE) and total invested capital



Datasource: S&P's Capital IQ

Figure 6: Amazon's Net Fixed Assets and Total Invested Capital, 2007-2012

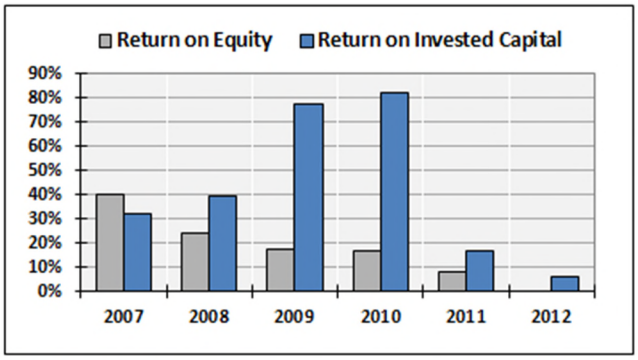
e) Free cash flow



Datasource: S&P's Capital IQ

Figure 7: Amazon's NOPAT and Free Cash Flow, 2008-2012

f) ROE and ROIC



Datasource: S&P's Capital IQ

Figure 8: Amazon's Return on Equity and Return on Invested Capital

g) Price to earnings and price to sales ratios

Datasource: S&P's Capital IQ

Figure 9: Amazon's Price/Earnings and Price/Sales Ratios, 2007-2012
(2012 P/E not applicable due to negative annual net income)

Step 2. Comment on the analyst's income statement forecasting assumptions. Make brief notes justifying the choice of each assumption. Pay particular attention to the income statement forecasting assumptions for:

a) Future revenue growth
b) Operating margin (which directly affects EBIT, and thus NOPAT and free cash flow)
c) Common shares growth
d) Dividend growth

Historical Growth and Margins

	2008	2009	2010	2011	2012	Average
1. Revenue Growth	29.2%	27.9%	39.6%	40.6%	27.1%	**32.7%**
2. Gross Margin	22.3%	22.6%	22.3%	22.4%	24.8%	**22.9%**
3. Operating Margin	4.1%	4.8%	4.1%	1.8%	1.1%	**3.2%**
4. Net Margin	3.4%	3.7%	3.4%	1.3%	-0.1%	**2.3%**
5. Common Shares Growth	2.4%	2.4%	3.2%	1.3%	0.0%	**1.9%**
6. Dividend Growth	0.0%	0.0%	0.0%	0.0%	0.0%	**0.0%**

Datasource: S&P's Capital IQ

Figure 10: Amazon's Historical Income Statement Drivers, 2008-2012

Forecasted Growth and Margins

	Average	2013E	2014E	2015E	2016E	2017E
1. Revenue Growth	32.7%	24.4%	23.0%	21.4%	12.0%	3.5%
2. Gross Margin	22.9%					
3. Operating Margin	3.2%	2.0%	3.0%	4.0%	4.0%	4.0%
4. Net Margin	2.3%	1.0%	2.0%	3.0%	3.0%	3.0%
5. Common Shares Growth	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%
6. Dividend Growth	0.0%					

Datasource: S&P's Capital IQ

Figure 11: Bianca Jackson's Income Statement Forecasting Assumptions

Step 3. Comment on the analyst's balance sheet forecasting assumptions. Make brief notes justifying the choice of each assumption. Pay particular attention to the balance sheet forecasting assumptions for the components of total capital:

a) Cash and equivalents
b) Receivables
c) Inventory
d) Accruals
e) Payables
f) Net property, plant and equipment (PPE)

Historical Percent of Sales

	2008	2009	2010	2011	2012	Average
1. Cash and Equivalents	14.4%	14.1%	11.0%	11.0%	13.2%	12.7%
2. Total Receivables	4.3%	4.0%	4.6%	5.3%	5.5%	4.8%
3. Inventory	7.3%	8.9%	9.4%	10.4%	9.9%	9.2%
4. Total Current Assets	32.1%	40.0%	40.2%	36.4%	34.9%	36.7%
5. Net PPE	3.6%	4.5%	6.4%	9.2%	11.6%	7.0%
6. Total Assets	43.4%	56.4%	55.0%	52.6%	53.3%	52.1%
7. Payables and Accruals	22.0%	26.5%	27.5%	28.4%	27.1%	26.3%
8. Total Current Liabilities	24.8%	30.0%	30.3%	31.0%	31.1%	29.4%
9. Total Debt	2.1%	0.4%	0.5%	0.5%	5.0%	1.7%
10. Total Equity	13.9%	21.4%	20.1%	16.1%	13.4%	17.0%

Datasource: S&P's Capital IQ

Figure 12: Amazon's Balance Sheet Drivers, 2008-2012

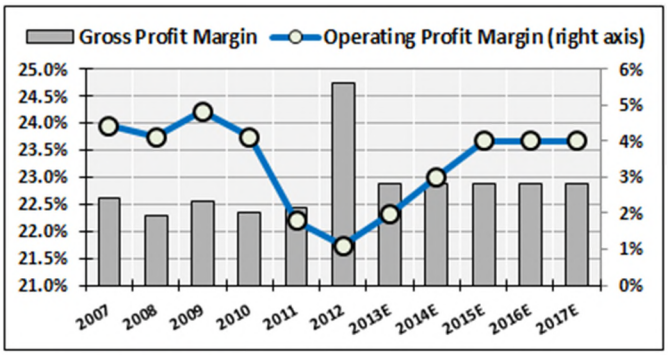
		Forecasted Percent of Sales				
	Average	2013E	2014E	2015E	2016E	2017E
1. Cash and Equivalents	12.7%					
2. Total Receivables	4.8%					
3. Inventory	9.2%					
4. Total Current Assets	36.7%					
5. Net PPE	7.0%	10.0%	9.0%	8.0%	7.0%	6.0%
6. Total Assets	52.1%					
7. Payables and Accruals	26.3%					
8. Total Current Liabilities	29.4%					
9. Total Debt	1.7%					
10. Total Equity	17.0%					

Datasource: S&P's Capital IQ

Figure 13: Bianca Jackson's Balance Sheet Forecasting Assumptions

Question 4. Step 4. Write brief comments regarding the level and trend of the following forecasted metrics. Where applicable, note how the forecasting assumptions from Step 2 are affecting the pro forma metrics.

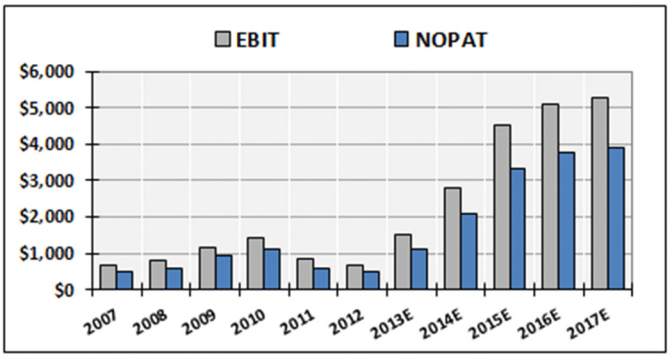
a) Operating margin



Datasource: S&P's Capital IQ

Figure 14: Amazon's Historical and Forecasted Gross and Operating Profit Margin

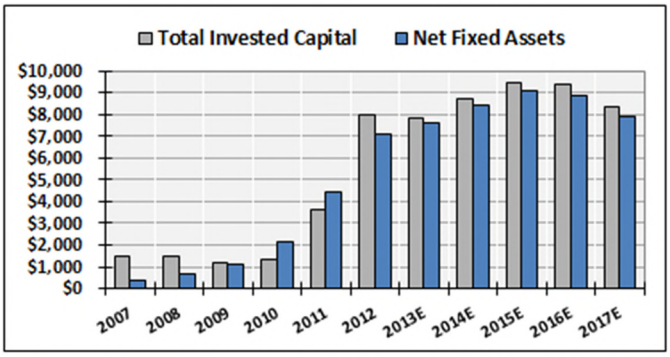
b) EBIT
c) NOPAT



Datasource: S&P's Capital IQ

Figure 15: Amazon's Historical and Forecasted EBIT and NOPAT

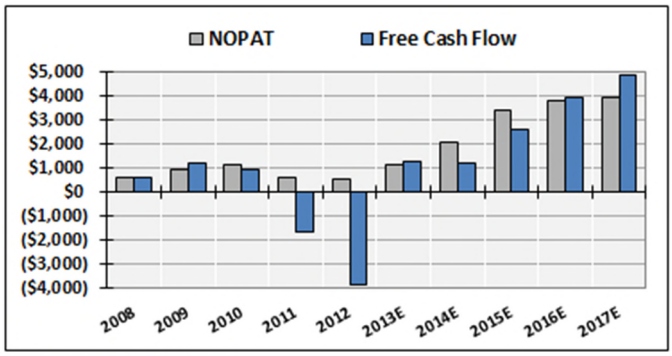
d) Total capital



Datasource: S&P's Capital IQ

Figure 16: Amazon's Historical and Forecasted Total Invested Capital and Net Fixed Assets

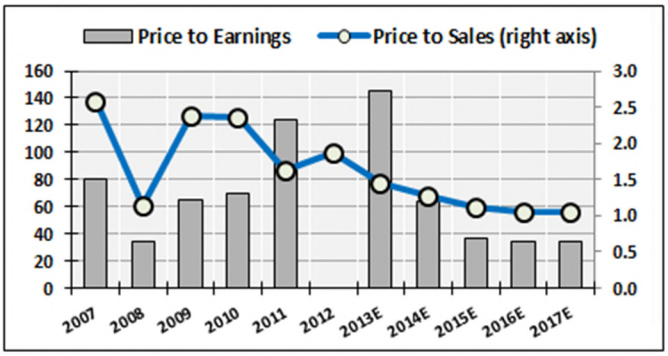
e) Free cash flow



Datasource: S&P's Capital IQ

Figure 17: Amazon's Historical and Forecasted NOPAT and Free Cash Flow

f) Price to earnings and price to sales ratios



Datasource: S&P's Capital IQ

Figure 18: Amazon's Historical and Forecasted Price/Earnings and Price/Sales Ratios

Step 5. Comment on the weighted average cost of capital (WACC) assumptions for Amazon in Figure 19. Pay particular attention to:

5a) the weighted average cost of capital and the following inputs (5b-5f)
5b) cost of debt
5c) cost of equity
5d) risk-free rate

5e) market risk premium
5f) beta

Cost of Capital	2012	Weight	% Cost	Wgt Cost
Equity Capitalization	120,497	97.5%	7.7%	7.6%
B.V. Total Debt	3,084	2.5%	3.0%	0.1%
B.V. Preferred Stock	0	0.0%	0.0%	0.0%
Value of All Capital	123,581	100.0%		
Effective Tax Rate	26.2%	Long-Term Growth Rate:		
Risk-Free Rate	2.01%		3.5%	
5-Yr Beta	0.88	or use Alternative Beta:		
Market Risk Premium	7.0%		0.82	
CAPM Cost of Equity	7.7%			
		Weighted Average Cost of Capital:		7.6%

Datasource: S&P's Capital IQ

Figure 19: Amazon's Weighted Average Cost of Capital Inputs and Calculations

Step 6. The components of AMZN's pro forma free cash flow are shown in Figure 20. Use these modeling inputs to estimate the fair value of the stock as of year-end 2012 using a discounted free cash flow model. The year-by-year calculations for Amazon's intrinsic value are shown in Figure 21, with the steps numbered 1-7. Use the 7.6% cost of capital provided in Figure 19 and the pro forma annual free cash flows provided in Figure 20. Write brief comments indicating whether Amazon appears under-, over- or fairly-valued. Be sure to note how the forecasting assumptions chosen by Bianca Jackson (Step 2) are affecting Amazon's estimated intrinsic value. Write brief comments indicating whether Amazon appears undervalued, overvalued, or fairly-valued.

Capital, NOPAT & FCF	2012	2013E	2014E	2015E	2016E	2017E
Net Oper. Working Capital	924	268	330	401	449	465
Net Fixed Assets	7,060	7,600	8,413	9,079	8,897	7,893
Total Invested Capital	7,984	7,868	8,743	9,480	9,346	8,358
Effective Tax Rate	26.2%	(Tax rate from last historical year used in forecasts)				
NOPAT	499	1,122	2,070	3,351	3,753	3,884
Free Cash Flow	-3,882	1,238	1,195	2,614	3,886	4,872
NOPAT Per Share	1.10	2.48	4.57	7.40	8.28	8.57
FCF/Share	-8.57	2.73	2.64	5.77	8.58	10.76
Return on Capital	6.2%	14.3%	23.7%	35.3%	40.2%	46.5%

Datasource: S&P's Capital IQ

Figure 20: Inputs and Background Calculations for Estimating Amazon's Intrinsic Value

Intrinsic Value of FCFs Valuation Model

	Value Creation	2012	2013E	2014E	2015E	2016E	2017E
1.	PV of Future FCFs	95,613	101,650	108,190	113,808	118,581	122,731
2.	Value of Non-Oper. Assets	8,084	9,687	11,916	14,466	16,201	16,768
3.	Total Intrinsic Firm Value	103,697	111,338	120,105	128,273	134,782	139,500
4.	Intrinsic Value of Equity	100,613	110,016	118,480	126,300	132,572	137,212
5.	**Per Share Intrinsic Value**	**$222.10**	**$242.86**	**$261.54**	**$278.81**	**$292.65**	**$302.90**
6.	**Year-End Stock Price**	**$250.87**					
	Over (Under) Valuation/Sh	$28.77					
	% Over (Under) Valued	11.5%					

Datasource: S&P's Capital IQ

Figure 21: Amazon's Estimated Intrinsic Value from a Discounted Free Cash Flow Model

Table 2: Amazon, Inc.'s Financial Statement Highlights

Amazon, Inc. Income Statement Highlights

	2007	2008	2009	2010	2011	2012
Total Revenue	**14,835**	**19,166**	**24,509**	**34,204**	**48,077**	**61,093**
Cost of Goods Sold	11,482	14,896	18,978	26,561	37,288	45,971
Gross Profit	**3,353**	**4,270**	**5,531**	**7,643**	**10,789**	**15,122**
SG&A Expense	1,871	2,419	3,060	4,397	6,864	9,723
R&D Expense	818	1,033	1,240	1,734	2,909	4,564
Dep. & Amort.	0	0	0	0	0	0
Other Oper. Exp.	14,180	18,377	23,329	32,798	47,215	60,417
Operating Income	655	789	1,180	1,406	862	676
Interest Expense	(77)	(71)	(34)	(39)	(65)	(92)
Non-Oper. Exp.	(7)	36	19	85	60	(245)
EBT ex-Unusuals	**661**	**837**	**1,202**	**1,503**	**918**	**379**
Total Unusual Exp.	(1)	55	(47)	1	4	10
Earnings Before Tax	660	892	1,155	1,504	922	389
Income Tax Expense	184	247	253	352	291	428
Net Income	476	645	902	1,152	631	(39)
Diluted EPS	1.12	1.49	2.04	2.53	1.37	(0.09)
Total Diluted Shares	424	432	442	456	461	453
Dividends Per Share	0.00	0.00	0.00	0.00	0.00	0.00
Effective Tax Rate	27.9%	27.7%	21.9%	21.9%	31.6%	110.0%
Earnings Per Share	1.15	1.52	2.08	2.58	1.39	(0.09)
Total Common Shares	413	423	433	447	453	453
EBITDA	785	933	1,386	1,790	1,709	2,508
EBIT	655	789	1,180	1,406	862	676
EBITDAR	926	1,091	1,557	2,015	2,071	3,049
Free Cash Flow/Share	2.86	3.22	6.74	5.63	4.62	0.87
Year-end Stock Price	$80.18	$78.74	$146.43	$185.89	$189.98	$264.27

Amazon, Inc. Balance Sheet Highlights

ASSETS	2007	2008	2009	2010	2011	2012
Cash and Equivalents	2,539	2,769	3,444	3,777	5,269	8,084
ST Investments	573	958	2,922	4,985	4,307	3,364
Total Cash & ST Invest.	3,112	3,727	6,366	8,762	9,576	11,448
Total Receivables	705	827	988	1,587	2,571	3,364
Inventory	1,200	1,399	2,171	3,202	4,992	6,031
Prepaid Expenses	0	0	0	0	0	0
Total Current Assets	5,164	6,157	9,797	13,747	17,490	21,296
Gross PPE	738	1,078	1,517	2,769	5,786	9,582
Accumulated Depr.	(334)	(396)	(418)	(587)	(1,369)	(2,522)
Net PPE	404	682	1,099	2,182	4,417	7,060
LT Investments	0	0	0	0	0	0
Goodwill	222	438	1,234	1,349	1,955	2,552
Total Assets	6,485	8,314	13,813	18,797	25,278	32,555
LIABILITIES AND EQUITY						
Accounts Payable	2,795	3,594	5,605	8,051	11,145	13,318
Accrued Expenses	581	632	901	1,357	2,501	3,237
Short-Term Debt	0	0	0	0	0	0
Total Current Liab.	3,714	4,746	7,364	10,372	14,896	19,002
Long-Term Debt	1,282	409	109	184	255	3,084
Pension Benefits	0	0	0	0	0	0
Total Liabilities	5,288	5,642	8,556	11,933	17,521	24,363
Preferred Equity	0	0	0	0	0	0
Com. Stock & APIC	3,067	4,125	5,741	6,330	6,995	8,352
Retained Earnings	(1,375)	(730)	172	1,324	1,955	1,916
Treasury Stock	(500)	(600)	(600)	(600)	(877)	(1,837)
Total Common Equity	1,197	2,672	5,257	6,864	7,757	8,192
Total Equity	1,197	2,672	5,257	6,864	7,757	8,192
Total Liab. and Equity	6,485	8,314	13,813	18,797	25,278	32,555

Datasource: S&P's Capital IQ

REFERENCES

Ortutay, Barbara. "Amazon Q4 2012: "Profits Are Down, But Investors Don't Seem To Mind." *Associated Press Newswire*, January 29, 2013.

McKinsey & Co. (Tim Koeller, Marc Goedhart, and David Wessels), 2010. *Valuation: Measuring and Managing the Value of Companies* (5th ed.), John Wiley & Sons.

Weigand, Robert (2014). *Applied Equity Analysis and Portfolio Management: Tools to Analyze and Manage Your Portfolio* (1st ed.), John Wiley & Sons.

ANALYSIS OF THE 2001 FAILURE OF HIH INSURANCE IN AUSTRALIA IN RELATION TO SYSTEMIC RISK AND INSURANCE RESOLUTION

Etti G. Baranoff, Virginia Commonwealth University
Dalit Baranoff, *Risk and Consequences* and Johns Hopkins University

This study examines the 2001 collapse of Australia's HIH Insurance Group[1] through the perspective of systemic risk. We focus on the insurance model, insurance market mechanisms, and insurance resolution, analyzing the events surrounding the HIH collapse to determine if it can be considered a systemic risk event. We provide a summary of the events that led to the failure and the outcomes, extracting insights for possible best practices for avoiding future collapse and for resolution practices in insurance. Also, we provide an analysis of the possible systemic risk implication of this failure.

INTRODUCTION AND OVERVIEW

It took 30 years to build HIH and three years to destroy it. So notes Ben Oliver in his 2011 article "10 Years after HIH." Summarizing the debacle, he wrote:

> *HIH was the largest commercial insurer in Australia and the dominant player in the public liability market. Its collapse left a vacuum of cover that the rest of the industry scrambled to fill. But the industry couldn't—and didn't—automatically pick up all the HIH business, as much of which had been drastically underpriced.*
>
> *A rapidly hardening market and the September 11 2001 attacks on the World Trade Center in New York, coupled with insurers' reluctance to pick up unknown or difficult risks, led to what the newspaper headlines referred to as 'the death of fun'—more properly known as the public liability crisis. In the 12 to 18 months following the HIH crash, premiums in some lines skyrocketed by as much as 200%. Alan Mason was Chief Executive of the Insurance Council of Australia (ICA) at that time. He says the fallout as a result of HIH's sudden exit from the public liability market was a 'shock to the system.' … the insurers insisted premiums had to rise following years of underpricing by HIH and the rising cost of liability payouts.* (Oliver, 2011)

This quote provides a vivid glimpse into the effect of the March 2001 failure of HIH. The collapse is considered a watershed event for Australia's financial sector. All indicators of the insurer's growing troubles were there, but the supervisors did not act upon the signals early enough to avoid this "sudden and surprising collapse." Oliver's account shows that HIH grew very fast, with underpriced insurance products and miscalculated reserves, particularly in Builder Warranty Insurance (BWI) and public liability coverage. There were no risk management and governance processes in place when it failed.

Substitutions of coverage in the liability lines and BWI were extremely expensive, especially because other insurers were unwilling to provide similarly cheap coverage. The failure occurred during a hardening of the insurance markets, characterized by higher insurance rates. The BWI is a unique mandatory coverage designed for defects in the building industry in Australia. A 2010 legislative report from the state of Victoria described the product as follows:

Builders warranty insurance compensates homeowners who find themselves with incomplete or defective homes or renovations. It effectively operates as a form of third-party insurance. Builders take out the insurance policy, but it protects homeowners. Since it was introduced in the 1970s, it has become a standard consumer safeguard in the home building industry around Australia. (State of Victoria, 2010).

BWI coverage plays an important role in maintaining Australia's high homeownership rate of close to 70%. HIH insurance provided 50% of the coverage at the time of the failure, creating a vacuum which other insurers were unwilling to fill. In several cases territorial governments had to step in. By 2010 territorial governments provided the only BWI coverage in four Australian territories. (State of Victoria, 2010).

In the aftermath of the HIH collapse, the government and the insurance industry cooperated and created the HIH Claims Support Scheme. In April 2013, after distributing some $731 million in settlements, the support scheme was formally deregistered. A 2015 Australian Treasury study also reported, "Final recoveries during the liquidation process vary from 11 cents in the dollar to 100 cents. The largest creditor, the Federal Government, has received payments from the HIH estate of about $318 million, or 44 cents in the dollar." (Damiani, 2015). Policyholders recovered between 90-100% of their claims through the HIH Claims support scheme.

While the HIH failure created ripple effects in the BWI markets, the building sector and the public liability, the insurer's demise expedited the reform of Australia's regulatory safety net for all types of financial institutions. The Australian Government's 2014 report *The Department of the Treasury's Submission to the Financial System Inquiry* (Australian Government, 2014) describes improvements to the financial regulation in Australia as well as the expedited tort reform. Exhibit 1 provides the main findings of this study:

Exhibit 1:
Main Findings of *Department of the Treasury's Submission to the Financial System Inquiry* (2014)

- **HIH Failure did not have a negative impact on economic and financial indicators in Australia: The GDP and unemployment continued to improve. Most policyholders were paid with the government and industry's funds:**
  - As indicated by the accounts of the *HIH Royal Commission Report* (2003), the failure of HIH caused stresses mainly in the public liability and construction industry. With governmental and industry financial help (in the absence of guarantee funds), the GDP for these sectors as well as for the economy overall continued to improve.
- **There were no other financial institutions insolvencies.**
  - The general insurance industry was strong. It operated in hard insurance markets with higher pricing and underwriting standards due to past underwriting losses. The general insurers in Australia were not intertwined or linked to the mispricing behavior of HIH and remained solid.

- **The payment of the HIH policyholders' claims in Australia went smoothly with the help of the healthy insurance industry. The industry partnered with the Australian government for expedient claims payments. Policyholders' claims in the US and other jurisdictions were paid by the existing resolution systems such as the Guarantee Funds in the US.**
  - Australia did not have a formal insurance claims resolution process such as guaranty funds in 2001. The government as the steward of the insurance safety net regarded itself responsible for the policyholders.
  - With (1) no guarantee funds, and (2) no appropriate supervisions, the Australian government created a claims payment scheme that was funded by both the government and levies on the insurance industry. Large amounts were returned to the government from the liquidation of the HIH estate
- **Replacement coverage was available for the right risk assessments and pricing.**
  - The healthy industry operated in an environment of hard markets (higher insurance rates and stringent underwriting standards). Coverage was given to the policyholders for the true prices, not the cut-prices of the failed insurer and not low prices of soft markets. That demonstrated the strength and commitment to solvency by the industry.

Our analysis of the HIH collapse identifies both internal causes and external (macro) elements surrounding the failure, summarized in Exhibit 2 (below).

Exhibit 2: External and Internal Factors surrounding the HIH collapse

External (1990s-2000s)		Internal
Australian financial regulation was restructured to integrate all financial regulation under one system - the Australian Prudential Regulatory Authority (APRA). *The transition created an interruption in insurance regulation and ineffective regulation of the HIH Insurance as well as market structures and pricing.*	=>	*HIH operated in the property/casualty insurance markets with no internal controls. The mismanagement included:* • *Under-pricing* • *Under-reserving* • *Corporate structure activities with no managerial controls* • *Inappropriate reinsurance arrangements* • *Uncontrolled growth* • *Unsustainable behavior of the management and lavish spending* • *The final blow was the "Alliance Joint Venture" transaction which stripped HIH of its cash and led to the massive illiquidity crisis*
HIH was allowed to capture large market share in the mandatory coverage for builders, the Builders Warranty Insurance (BWI) and in liability coverage *Other General Insurers were not interested in these markets due to large underwriting losses*	=>	*HIH was the largest provider of BWI with no internal price or market share limits*
Tort laws in Australia were permissive	=>	*HIH was one of the largest providers of public liability insurance with no internal controls for prices and market share*

Underwriting losses and lower investment income in the late 1990s propelled the general insurance industry into hard markets (in the underwriting cycles). Causes for the hard markets were: • *Large hailstorm losses in the late 1990s* • *Declines in stock markets* • *11 September 2001*	=>	*While the industry was contracting in coverage and prices, HIH increased market share with low prices. HIH operated on a different level playing field from the healthy insurers. Some of the actions of the executive team led to jail time (The executives admitted wrongdoings).*

In this study we utilize a definition of systemic risk established by the International Monetary Fund (IMF), Financial Stability Board (FSB) and Bank for International Settlements (BIS) in *Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations* (IMF, FSB and BIS, 2009). This paper first defines systemic risk generally, then follows with detailed categories for the systemic risk assessment. Broadly defined, **a systemic event is "the disruption to the flow of financial services that is (i) caused by an impairment of all or parts of the financial system; and (ii) has the potential to have serious negative consequences for the real economy…"** The more detailed categories are: (1) size, (2) lack of substitutions, and (3) interconnectedness.[2]

Using the definition of a systemically important institution, we show in this report that while being large, HIH failure and mismanagement did not lead to other failures in the financial system in Australia. This is reflected in Exhibit 1. We show no interconnectedness with other financial institutions and availability of substitutions for coverage.

For those less familiar with the insurance market mechanism, this case study can be regarded as illuminating the differences between systemic risk and hard insurance markets with availability and affordability contractions. While hard markets signal a resilient industry that guards its health with adequate prices and strong underwriting standards, systemic risk reflects a ripple effect of failures without a built-in mechanism that fosters stabilization. As indicated in Exhibit 2, in 2001 the insurance industry in Australia was in a period of hard markets with increased insurance rates coupled with tighter underwriting standards. The true risk-based and prudent rates for the coverage were those of the healthy insurers. Healthy insurers would not provide substitute coverage at the inappropriately low rates HIH had offered to gain market share. Therefore, no lack of substitution existed to indicate systemic risk.

Furthermore, as shown in Exhibit 2, HIH insurance operated in the property/casualty insurance market. In 2011, the International Association of Insurance Supervisors (IAIS) determined the P/C market was not systemically risky. (IAIS, 2011).

The HIH failure was just a failure of one insurer with no lingering damages to the economy or other financial institutions (part of the success is the immediate help by the government and the insurance industry). The claims were paid in an orderly fashion. The resolution process included major assistance by the insurance industry with taxpayers' money and levies on the industry. The Australian government followed through its commitment to safeguard its citizens and acted in partnership with the insurance industry to indemnify the claimants. Within a short time, all

claimants were paid and the government thanked the insurance industry for the substantial goodwill and assistance. The use of taxpayers' money was part of the stewardship of the government that empowered the insurance regulators with the duty to provide a safety net.

BACKGROUND FOR THE FAILURE OF HIH

The HIH failure generated a vast amount of research regarding the case, much of which describing the causes for the failure and subsequent corrective measures adopted by the Australian legislative process. The most prominent, comprehensive and eloquent account of the HIH failure and its ramifications is provided in the introductory section of the 2003 *Report of the HIH Royal Commission* which provides a full picture of the situation at the time of the failure.

Size of the Australian Insurance Market

The *HIH Royal Commission Report* (2003) provides an overview of the size and market concentration of the general insurance market in Australia in 2000. Twenty insurers held 88 per cent of the market, while the top five insurers held 44 per cent. In total, the market included 161 private insurers that employed 55,000 people. The Insurance Council of Australia (ICA) estimated that on average, the industry issued about 38 million policies annually. The Australian insurance industry represented about 2 per cent of the global market and ranked 11th. For comparison, Australia, a country of 22.5 million people, represented less than half of 1 per cent of the world's population in 2001 while its GDP of USD 1.448 trillion represented 2.1 per cent of the global GDP.

HIH: A Brief History

HIH originated in the late 1960s as MW Payne Liability Agencies Pty Ltd, primarily underwriting workers compensation policies in Victoria as an agency for two Lloyds of London syndicates. In 1971, it was acquired by CE Heath plc, a U.K.-based firm, and became CE Heath Underwriting Agencies Pty Ltd. In 1989, the Australian business had become CE Heath International Holdings Ltd. Table 1 (below) provides the main historical changes that occurred after June 1992. (*HIH Royal Commission,* 2003)

Table 1: Brief Recent History of HIH

Date	Event
June 4 1992	British insurance broker CE Heath floats off 45 per cent of its underperforming subsidiary CE Heath International Holdings Ltd (HIH) on the stock exchange. HIH in 1991 had net assets of AUD 39.7 million.
April 1995	HIH acquires CIC Insurance.
June 6 1996	HIH acquires Utilities Insurance.
January 8 1997	HIH becomes Australia's largest underwriter of bancassurance business after acquiring Colonial Mutual General Insurance.
September 1998	HIH blacklists stockbroking analysts who disputed its assessment of the company.
January 1999	HIH wins an AUD 300-million takeover bid for FAI Insurance.
3 March 1999	HIH posts a 39 per cent fall in 1998 net profit to AUD 37.6 million, blaming damage claims.
19 November 1999	HIH admits it paid more than it expected for FAI.
March 2000	HIH returns to profitability in the first half of 1999/2000.
June 2000	Analysts are concerned about HIH after the Australian Prudential Regulatory Authority (APRA) proposes to increase capital adequacy requirements for insurers.
13 September 2000	HIH sells part of its domestic personal lines business to German insurance giant Allianz for nearly AUD 500 million.
14 September 2000	HIH shares tumble to an all-time low after a lower-than-expected profit result and criticism of the Allianz deal.
12 October 2000	HIH chief executive Ray Williams announces his retirement.
15 December 2000	HIH shareholders call for the resignation of former FAI chief Rodney Adler from the HIH board.
26 February 2001	Rodney Adler resigns from HIH board.
14 March 2001	NRMA Insurance buys HIH's workers' compensation portfolio.
15 March 2001	HIH Insurance goes into provisional liquidation with losses of AUD 800 million[3].
16 March 2001	APRA says HIH's woes stem largely from a reassessment of claims liabilities.
11 April 2001	Provisional liquidator warns it could take up to 10 years before some creditors are paid.
16 May 2001	Australian Securities and Investments Commission launches its biggest ever investigation, seizing HIH documents.
18 May 2001	Former HIH chief Ray Williams hands in his passport and says he has nothing to hide.
21 May 2001	The federal government announces a royal commission into what is Australia's biggest corporate collapse.

Source: As reproduced by Kehl (2001), compiled by Rob Lundi

HIH's Fast Growth

One warning sign about HIH was its unusually rapid growth, as shown in Tables 2–4 (below). HIH more than doubled its market share from 1994 to 1999. However, while HIH grew to be Australia's second-largest insurer, it was not the main player in the general insurance markets. After its failure, enough large and small players were available to provide similar

products for higher prices. Tables 2-4 provide a glimpse into the firm's rapid growth, especially since 1994.

Table 2:
HIH Insurance: Reported Contributions to Total Assets, 1994-2000 (AUD million)

	Year to December				18 months to June 1999 (change in accounting dates)	Year to June 2000
Geographic Area	1994	1995	1996	1997		
Australia	1,016.5	2,340.8	2,647.7	2,861.4	6,034.8	6,008.3
United Kingdom	62.8	111.3	132.4	377.9	625.0	949.0
United States	17.7	39.1	106.3	502.6	733.9	762.5
New Zealand	68.3	125.1	135.0	153.7	205.6	310.3
Asia	35.7	49.0	95.0	78.0	92.2	246.8
Argentina	..	..	10.5	13.1	33.9	50.2
Total	1,201.0	2,665.3	3,126.9	3,986.7	7,725.4	8,327.1

Source: HIH Royal Commission (2003, vol. I, p. 52).

Table 3: HIH Insurance: Reported Contributions To Consolidated Revenue, 1994-2000 (AUD Million)

	Year to December				18 months to June 1999 (change in accounting dates)	Year to June 2000
Geographic Area	1994	1995	1996	1997		
Australia	633.9	1,015.8	1,501.3	1,676.3	3,197.3	2,441.1
United Kingdom	30.1	90.4	113.5	266.2	664.2	1,016.9
United States	79.8	83.7	114.4	244.9	736.4	488.8
New Zealand	25.9	51.7	68.1	88.0	187.7	286.0
Asia	12.3	27.3	46.8	59.9	150.3	197.8
Argentina	..	..	4.2	7.8	42.0	45.7
Total	782.0	1,268.9	1,848.3	2,343.1	4,977.9	4,476.3

Source: HIH Royal Commission (2003, vol. I, p. 53).

Tables 2 and 3 show the growth of HIH geographically and the nearly eightfold growth of assets from 1994 to 2000. The growth was achieved through acquisitions, as was the practice among many Australian insurers during that period of soft competitive markets. The biggest deal was with Winterthur Swiss Insurance Company, which became majority holder (51 per cent) in

CE Health in 1995. In May 1996, CE Heath changed its name to HIH Winterthur International Holdings Limited.

In 1997, HIH Winterthur repurchased a workers' compensation subsidiary in California formerly owned by CE Heath International Holdings Ltd, renaming it HIH America. More acquisitions commenced globally, leading to meteoric growth in assets and revenues. In October 1998, Winterthur Swiss Insurance Company, (which held a 51 per cent ownership of HIH Winterthur), announced its proposal to sell its shares through a public offering. HIH Winterthur changed its name to HIH Insurance Ltd. In September 1998, while still part of Winterthur, HIH launched a takeover bid for the large Australian insurer FAI in order to gain a larger share of the general insurance market. The takeover took effect in 1999 and FAI became a wholly owned subsidiary of HIH.

Prelude to the Collapse: Decline in Profits and Regulatory Scrutiny Begins

The earliest serious regulatory scrutiny of HIH took place in Britain. Repeated failure to control underwriters' activities led the U.K. Department of Trade and Industry in 1997 to step in and require a detailed risk profile of the HIH (UK) branch operations. An internal HIH (UK) report identified problems in the level of reserves, with flaws in accounting procedures. Similar problems emerged in HIH acquisitions in the United States by U.S. regulators. The company was bleeding in some markets, while keeping its most profitable businesses in Australia, as shown in Table 3.

In 1999 and 2000, HIH operations in the U.K., U.S. and Asia were losing money. Profits declined dramatically from their heights in 1995 and 1997 as shown in Table 4.

Table 4:
HIH Insurance: Reported Contributions To Operating Profit Before Income Tax (AUD million)

	Year to December				18 months to June 1999 (change in accounting dates)	Year to June 2000
Geographic Area	1994	1995	1996	1997		
Australia	11.5	57.6	77.3	67.9	78.4	152.5
United Kingdom	1.5	7.5	7.2	7.2	(21.7)	(48.7)
United States	7.9	(2.6)	(5.9)	9.4	(20.5)	(45.4)
New Zealand	(0.7)	9.0	8.8	9.5	17.4	7.2
Asia	(1.4)	1.6	4.8	(2.4)	(5.4)	(11.9)
Argentina	..	..	(1.1)	(1.1)	3.8	2.2
Total	18.8	73.1	91.1	90.5	52.0	55.9

Source: HIH Royal Commission (2003, vol. I, p. 59).

Reinsurance or "the use and abuse of financial reinsurance"

During this period, HIH took steps to improve the appearance of its balance sheet using alternative reinsurance arrangements, often called "financial reinsurance" or "finite reinsurance". These structures are similar to deposit arrangements and do not include sufficient insurance risk transfer. Financial reinsurance is considered acceptable and can be an effective instrument of capital management when it is used properly. At HIH, it was abused, creating an illusion of sound managements. Their main objective was to improve the appearance of the balance sheet. The *HIH Royal Commission Report* includes the descriptions under the title "An HIH reinsurance case study." In the report they describe the financial reinsurance arrangements as follows:

The substance of the arrangements was that companies within the HIH group would pay $200 million and five annual instalments of $11 million each into a fund. HIH could make claims up to a maximum of $550 million, but the reinsurer did not have to pay out until September 2009 at the earliest. HIH was responsible for the costs and expenses of the fund's investment and for managing the investments within guidelines agreed with the reinsurer. But payment of claims under the binders was to come from the fund, not from the reinsurer. HIH was obliged to top up the fund to ensure that it was sufficient to meet the claims. (HIH Royal Commission, 2003)

Another problematic reinsurance arrangement involved the HIH's U.K. branch. Reinsurance bought from a European reinsurer was simultaneously issued on the same terms by a subsidiary of the HIH group.

The backdrop to the reinsurance problems was that the reinsurance market hardened before the HIH collapse and that two local reinsurers that failed. The KPMG 2000 *General Insurance Industry Survey* includes a description of trends in the reinsurance markets noting that the:

- *Late 1999/2000 saw a dramatic change in the face of the Australian reinsurers writing international business….*
- *The local reinsurers' results were not immune to nature's fury, and the Sydney Hailstorm in April 1999 was the largest recorded event in the Australian insurance*.
- The underwriting losses were accompanied by investment losses hurting reinsurers which in turn began to increase prices.

Unsustainable Solutions—the Final Blow

The final step that triggered the illiquidity disaster at HIH was a joint venture with Allianz Australia, announced on 13 September 2000. A part of HIH's business that had positive cash flow (primarily its personal lines and compulsory third-party insurance products) was transferred to a joint venture in which Allianz had a 51 per cent interest for a payment of AUD 200 million, in an effort to boost HIH's financial standing. However, the agreement included cash injections to a trust fund in amounts larger than the cash intakes. With no further cash inflows from the business that was moved to the joint venture, HIH found itself stranded and was declared insolvent by the Australian financial regulators, APRA. (HIH Royal Commission, 2003)

An account of the final days of HIH is found in the "Critical Assessment and Summary" contained in the HIH Royal Commission (2003), report:

The life and times of HIH in its last three-and-half months provides some interesting insights into the group's governance… During November, December and January work continued on cash flow projections. Some of the projections showed there would be a cash deficit by the end of March 2001.

In order to alleviate the cash flow problems a decision was taken to delay payments to or on behalf of HIH policyholders. … [The Australian Prudential Regulation Authority] APRA became involved when a policyholder complained about the delay. ... Because the company could not tell the market what the loss would be, HIH shares were suspended from trading. The cash flow problems showed no sign of abating. Indeed, they were escalating. ...

The lack of control and direction and the failure to appreciate the basic responsibilities of those concerned with the governance of the corporation are epitomised by the unseemly 'dash for cash' that occurred in the days leading up to 15 March 2001. In the dying days of the corporation, millions of dollars flowed to a favoured few, some of whom—directors, senior managers, advisers, and so on—were in privileged positions. (HIH Royal Commission, 2003)

Additional problems Leading to the Demise of HIH

No governance accountability

HIH's managers ignored due diligence, attention to details and accountability for performance, and did not provide credible information for decision-making. There were no long-term plans or strategies before the board for critical analysis with clear policies and guidelines. The CEO faced no clear limits in areas such as investments, corporate donations, gifts and expenditure. The board did not question senior management and ignored conflicts of interest. Senior management omitted important information and thus misled the board.

The *HIH Royal Commission Report* (2003) noted:

[t]he last years of HIH were marked by poor leadership and inept management. Indeed, an attitude of apparent indifference to, or deliberate disregard of, the company's underlying problems pervades the affairs of the group.

Those responsible for the stewardship of HIH ignored the warning signs at their own, the group's and the public's peril.

Conflicts of Interest

HIH had board members who had retired from the HIH's accounting firm, and financial reports were inadequate. Without data, managers could not conduct reliable and adequate business. Bad news was sometimes hidden from the board. Some transactions such as reinsurance misrepresented the real position of the company. Ultimately, after the failure, the mismanagement at HIH resulted in criminal charges against six executives, who served prison sentences.

Lack of Regulatory Supervision

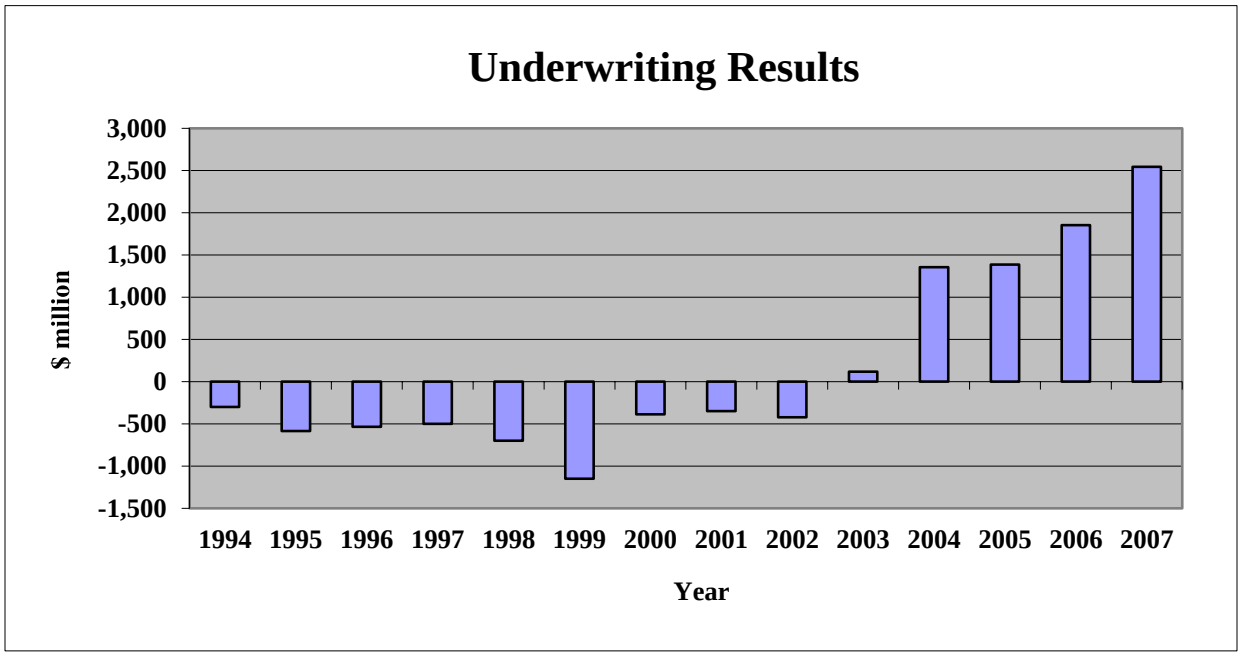
Mispricing of products and reserving problems were left unsupervised, as the Australian financial regulatory body underwent restructuring.

Insurance Market Conditions in Australia in 2001

HIH's behavior in cutting prices and increasing market share was especially striking for its contrast with that of most of the insurance industry's conduct in Australia in 2001. The general insurance sector was in the midst of a hardening period of the underwriting cycle. Following a underwriting losses in the mid-to-late 1990s, the number of mergers dwindled and commercial line insurance rates began to rise. In early 2000 premiums increased 20-30%. (KPMG: 1996-2003) (Greig, 2009) (HIH Royal Commission, 2003)

Figures 1 and 2 show the underwriting results before, during and after the HIH failure. HIH is excluded from the data. From the 1990s to early 2000, the underwriting results were negative and, in that environment of higher insurance prices, HIH provided inadequate low rates to gain market share. The figures include underwriting performance data of the four largest insurers (Allianz, IAG, QBE and SunCorp) over the 14 years. The improved results beginning in 2003 have been assisted significantly by: (1) the premium rates increases of the hard markets that began in the late 1990s, (2) the positive effects of tort reform, (3) the buoyant investment market prior to the great financial crisis that began in 2007, and (4) the relatively benign weather in Australia until June 2007.

Figure 1:
Underwriting Results of the Top Players in the General Australian Insurance Markets (Top four: Allianz, IAG, QBE and SunCorp by gross written premiums)

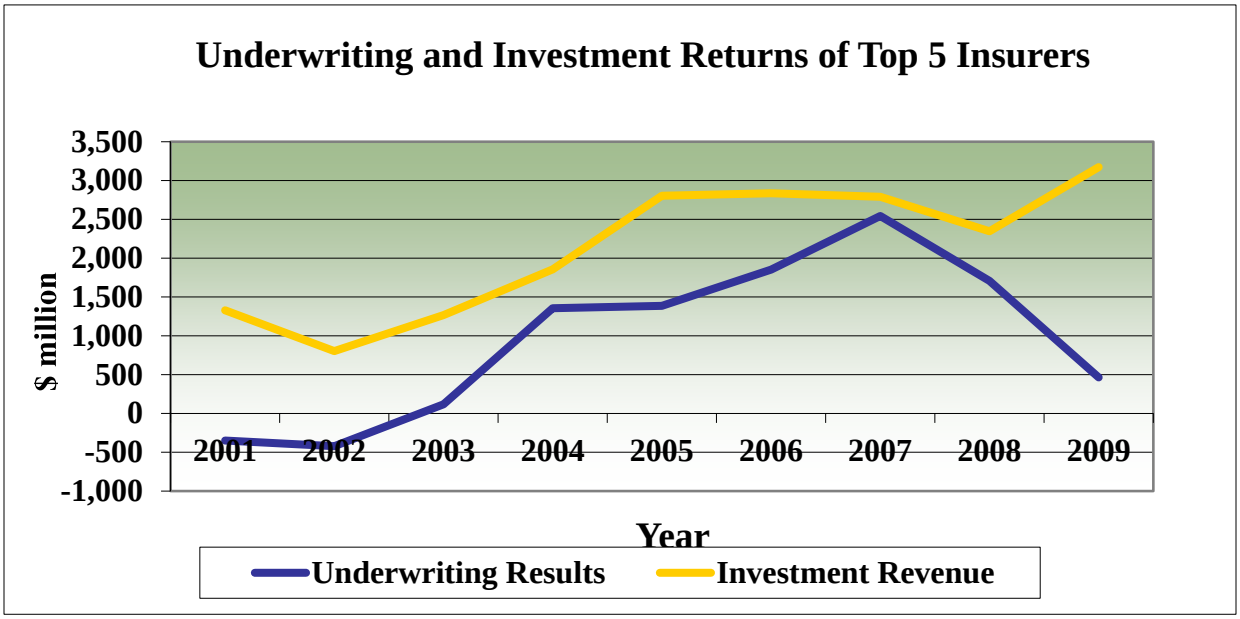


Source: Brian Greig (2009) *General Insurance Industry Survey 2009*, KPMG Australia and data provided by report author.

Note: The period to 2002 excludes HIH losses of some AUD 5bn—a loss that may now be seen as relatively insignificant in the context of the overall losses attributable to the global financial crisis.

The relationship of the underwriting results to investment income is shown in Figure 2. In general, insurers can afford to have underwriting losses as long as their investment income counters the losses. When the investment income can no longer complement the losses, insurance rates begin to increase and underwriting standards become tighter.

Figure 2:
Underwriting and Investments Results of the Top Players in the General Australian Insurance Markets



Source: Brian Greig (2009) *General Insurance Industry Survey 2009,* KPMG Australia and data provided by report author.

As noted, several factors contributed to the increasingly difficult market environment and rising rates in 2001. One was insured-friendly tort laws. According to the Royal Commission Report, HIH was involved in large awards in the liability coverage with under reserving. Other insurers left the liability line markets to control costs while HIH continued to increase its market share. Another was a failure of two local reinsurance firms in 1999 following a historic hailstorm in Sydney in April 1999, the largest single insurance event in the nation's history. The KPMG 2000 *General Insurance Industry Survey* noted that, in 1999, the landscape of the insurance markets changed in Australia to hard markets.

HIH Markets' Concentration in Builders Warranty Insurance (BWI) and Public Liability

HIH had a large market share of about 50 per cent in the BWI Market. BWI, mandatory insurance for builders, is another area where HIH stood out as an outlier willing to increase market share. The construction sector accounted for over 5 per cent of Australian GDP in 2001, while home ownership was over 70 per cent in Australia. HIH was not alone in partnering with state and territorial governments to offer BWI coverage, but few private general insurers did. Following is a list of private partners that provided BWI coverage in the various territories:

- **Victoria, South Australia, Tasmania and Australian Capital Territory:** HIH, Royal Sun and Allianz/Dexta;
- **New South Wales**: HIH, Royal Sun and Allianz/Dexta, Key Insurance and Reward;
- **Queensland**: Building Service Authority; and
- **Northern Territory**: the Territory Insurance Office, acting as agent for the Northern Territory government.

When HIH collapsed, the building sector experienced difficulties. The *HIH Royal Commission Report* (2003) notes, "HIH was one of Australia's biggest home-building market insurers. Its collapse left the building industry in turmoil. … The cost to the building and construction industry alone has forced state governments to spend millions of dollars of public money to prevent further damage to the industry." The use of public funds is underscored.

Another problematic concentration of coverage by HIH was public liability insurance. Many insurers did not participate in this market due to large liability claims in Australia. When HIH exited the public liability insurance market, it left a vacuum. The Royal Commission Report describes a sense of disturbance regarding high profile events, such as the annual St. Patrick's Day parade which was almost cancelled due to the lack of available public liability coverage. The industry resolved that issue at the time and provided coverage.

ECONOMIC IMPACT, PAYMENT TO CLAIMANTS AND REPLACEMENT OF COVERAGE (SUBSTITUTIONS)

Since the Australian government in collaboration with the insurance industry acted immediately to mitigate damages in the building sector as well as in the public liability arena, there should not have been implications to the Australian economy. This is supported by the GDP data shown in Table 5. The table provides selected data from the Australian Bureau of Statistics, "Australian National Accounts." The data are adjusted to September 2011 as a benchmark. The selected industries in Table 5 are: (1) those sectors related to the building industry since HIH had a large market share in the BWI coverage, (2) the public services industry, and (3) the financial sector that includes banks and insurance.

Economic Impact

The data shown in Table 5 reflects only a small reduction in the March 2001 quarter for the financial services sector and the public administration services sector. There was no reduction in the Australian GDP overall. Also, unemployment in Australia declined from 7.5 per cent in 1999, to 6.4 per cent in 2000, to 6.3 per cent in 2002 and 6.0 per cent in 2003. (CIA, 2017)

Table 5:

Australian Economic Indicators

Selected Sectors

Gross value added, QUARTERLY–By industry at basic prices–Chain volume measures

							% in relations to GDP in September 1999				
	Seasonally Adjusted (A$ million)						% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
Period	GDP	Construction	Rental, hiring and real estate services	Ownership of dwellings	Financial and insurance services	Public administration and safety	Construction	Rental, hiring and real estate services	Ownership of dwellings	Financial and insurance services	Public administration and safety
1998–1999											
September	224,999	13,172	6,950	15,620	19,051	11,395	5.85%	3.09%	6.94%	8.47%	5.06%
December	228,401	13,693	7,080	15,849	19,572	11,662	6.09%	3.15%	7.04%	8.70%	5.18%
March	229,755	13,559	7,149	16,031	20,173	12,308	6.03%	3.18%	7.12%	8.97%	5.47%
June	231,089	13,640	7,334	16,192	20,468	12,451	6.06%	3.26%	7.20%	9.10%	5.53%
1999–2000							0.00%	0.00%	0.00%	0.00%	0.00%
September	232,988	13,985	7,405	16,347	20,584	12,190	6.22%	3.29%	7.27%	9.15%	5.42%
December	236,811	14,107	7,534	16,515	21,109	12,386	6.27%	3.35%	7.34%	9.38%	5.50%
March	239,325	14,530	7,393	16,682	21,299	12,249	6.46%	3.29%	7.41%	9.47%	5.44%
June	241,245	14,943	7,385	16,881	21,404	11,974	6.64%	3.28%	7.50%	9.51%	5.32%
2000–2001											
September	241,193	12,999	7,434	17,032	21,109	12,076	5.78%	3.30%	7.57%	9.38%	5.37%
December	240,233	11,678	7,319	17,161	21,287	12,374	5.19%	3.25%	7.63%	9.46%	5.50%
March	243,345	12,014	7,217	17,301	21,809	12,924	5.34%	3.21%	7.69%	9.69%	5.74%
June	245,286	12,611	7,213	17,469	21,566	12,524	5.60%	3.21%	7.76%	9.58%	5.57%
2001–2002											
September	248,174	12,866	7,140	17,652	21,528	12,984	5.72%	3.17%	7.85%	9.57%	5.77%
December	250,586	13,231	7,615	17,828	21,961	12,787	5.88%	3.38%	7.92%	9.76%	5.68%
March	252,830	13,950	7,557	18,011	22,656	13,356	6.20%	3.36%	8.00%	10.07%	5.94%
June	256,336	15,207	7,586	18,203	22,888	12,824	6.76%	3.37%	8.09%	10.17%	5.70%
2002–2003											
September	258,029	15,257	8,011	18,402	22,903	12,459	6.78%	3.56%	8.18%	10.18%	5.54%
December	259,845	16,544	8,304	18,589	22,577	12,969	7.35%	3.69%	8.26%	10.03%	5.76%
March	259,974	15,974	8,481	18,780	22,158	13,224	7.10%	3.77%	8.35%	9.85%	5.88%
June	263,060	16,418	7,988	18,976	23,433	12,870	7.30%	3.55%	8.43%	10.41%	5.72%

Source: **Australian National Accounts: National Income, Expenditure and Product,** (cat. no. 5206.0)

http://www.abs.gov.au/ausstats/abs@.nsf/Products/BCB02DD82E977C73CA2578FC00156537?opendocument

Table 7 Table 1.3

Claims Payments

Table 6 provides a summary of the immediate solutions for the funding of HIH claims provided by the federal, state, and territorial governments in Australia in partnership with the insurance industry. These funds were for policyholders' protection.

Table 6: HIH Insurance Collapse and Government Assistance Packages

State	Rescue package funded by:	HIH collapse exposure	Builders' warranties	Workers' compensation	Professional indemnity	CTP insurance
New South Wales	Insurance protection tax	$600m	Covered by government	No HIH exposure	Doctors covered by United Medical Protection (surplus will cover claims), solicitors by Lawcover (may need a levy)	Covered by government
Victoria	Building industry levy and government	$70m to $80m	Paid by a $32 increase on the cost of building permits for every $100,000 in construction	Covered by government	Solicitors with top-up cover are exposed, barristers face big rises in insurance premiums	Covered by government
Queensland	$5 levy a year for compulsory third party	$400m	No HIH exposure	No HIH exposure	Information could not be obtained	Covered by levy
Western Australia	5% levy on workers' compensation premiums	More than $93m	Covered by other insurers	Covered by levy	Solicitors with top-up cover over $1.5m, real estate agents are exposed	No HIH exposure
South Australia	No rescue package	No figure given	No cover	No HIH exposure	Solicitors with SA law society indemnity insurance, those with top-up cover exposed	No HIH exposure
Tasmania	Levy on workers' compensation premiums	More than $50m	Members of the Master Builders Association can get indemnity with AON insurance	Covered by levy	Solicitors exposed through their basic professional indemnity insurance for a period of about 3 years	No HIH exposure
Australian Capital Territory	3% levy on workers' compensation premiums	$30m	No cover, alternative insurers must be found	Covered by levy	For doctors and lawyers covered by NSW Lawcover, same as NSW	No HIH exposure
Northern Territory	Government has provided $3m for workers compensation (to last 3 months)	$40m	Not applicable (no government-based building indemnity scheme)	Covered by government	Solicitors with compulsory indemnity with NT Law Society to pay an excess of $800, accountants exposed	No HIH exposure
	Taxpayers	Covered by government	90% covered by government	No cover	No cover	No cover

Source: David Kehl (2001) based on "HIH Regulator Steps Down", *The Australian*, 24 May 2001, p.2; and "$30m rescue Plan for ACT HIH Victims", *The Canberra Times*, 9 June 2001, p. 6.

Records from meetings in March 2001 show that ICA liaised with the federal government regarding how to fund HIH-insured claims, particularly in the personal lines and statutory classes. In May 2001, ICA agreed to establish, resource and manage an HIH Claims Support Limited (HSCL) Scheme. ICA managed and processed the HIH claims that fell within the federal government's eligibility criteria.

HSCL processed over 12,000 applications and paid out close to AUD 245 million in claims by June 2003. In a press release that was issued, Helen Coonan, Minister for Revenue and Assistant Treasurer, stated, "I would like to take this opportunity to thank the Insurance Council of Australia and the insurance industry, … for their cooperation in setting up and managing the Scheme. Without this partnership, the Scheme could not have been so successful" (Damiani, 2015)

According to a June 29, 2015 article in Australia's *InsuranceNews* the scheme "was formally deregistered in April 2013, having made settlements of about $731 million." A 2015 Australian Treasury study further reported "recoveries during the liquidation process vary from 11 cents in the dollar to 100 cents. The largest creditor, the Federal Government, has received payments from the HIH estate of about $318 million, or 44 cents in the dollar." (Damiani, 2015). Policyholders recovered between 90-100% of their claims through the HIH Claims support scheme.

At the time, in 2001, Australia—unlike the United States—did not have a formal guarantee funds system to pay claims of insolvent insurers (NCIGF, 2017). The guarantee fund in Australia only commenced in 2008. (Australian Government, 2012) The *Department of the Treasury's Submission to the Financial System Inquiry* (Australian Government, 2014) evaluation concluded:

Financial Claims Scheme

294. The Financial Claims Scheme (FCS) is now an established feature the financial system and can be triggered when an insurer has failed and is about to be placed into liquidation. The FCS has been triggered for a small insurance company, Australian Family Assurance Limited (AustFam) in 2009. It supports financial stability by ensuring confidence and reducing the impact of failures through quick access to funds. It could, however, distort the flow of funds in the system by diverting funds away from nonprotected products.

295. At present, the FCS is funded after the scheme has been triggered and as such, those who benefit from the FCS do not pay for the benefit they derive. As with the FCS for bank deposits the introduction of a price on the insurance FCS would remedy this problem. However, in forming a view on this issue the Financial System Inquiry will need to take address the complexities in formulating an appropriate levy for the insurance sector and take account of the relatively high level of taxation on insurance products.

In other markets such as the U.S., existing resolution systems paid the claims in full (California Department of Insurance, 2010). The industry effectively communicated to the Australian public that it had responded quickly to the HIH problem, including honouring HIH undertakings. The industry worked closely with the provisional liquidator to resolve outstanding

coverage issues relating to travel insurance, particularly for those customers who had already begun their journey.

Substitutions

There were a number of businesses that needed resolution. For example, BWI, for which HIH provided coverage in New South Wales, Victoria and Western Australia; professional indemnity; directors and officers; public and products liability; compulsory third party ("CTP"); marine; salary continuance; jewellers block; sporting (liability and accident); and facilities business. Hundreds of products were involved; for some, HIH was the only provider. Substitutions were available for the right risk assessment and pricing

Despite being the second largest insurer, HIH did not have a monopoly and, upon its failure, there were ample large and small players able to offer identical products providing coverage. With the help of the Australian general insurance industry, many solutions for substitution of coverage were adopted in 2001. The Insurance Council of Australia Limited (ICA), whose membership makes up 94 per cent of the AUD 30+ billion industry, worked with states and territorial governments to ensure coverage was available as shown in Table 7. (Francis, pers. comm.) HIH insureds who could not afford to pay the higher rates or were unqualified for coverage due to their risk assessment could have continued their business regardless of coverage as long as it was not mandatorily required by the government as was the BWI. Businesses could move to alternative mechanisms by self-insuring, creating group self-insurance or developing captives (Baranoff, 2009). These are valid alternative market mechanisms during hard markets when various enterprises opt to leave the insurance markets. Alternative mechanisms usually grow when the regular insurance cycle is hardening.

For mandatory coverage in Australia such as the BWI, some builders suffered since the new coverage from other insurers (noted above) was priced higher as appropriate. The builders needed the coverage to remain in business, but the new higher rates resulted in hardships as noted in the *HIH Royal Commission Report*. As such, it was up to the territorial governments to provide a safety-net that would ensure appropriate pricing and risk taking by the insurers in such markets.

In the Aftermath: the Role of the Industry in the Substitutions

After the HIH collapse, the insurance industry provided replacement of coverage. It was a time of opportunity for the general insurance industry as described by Wilkins (2011). ICA worked closely with all general insurers' participants, APRA and the Australian Securities and Investment Commission (ASIC) to facilitate the transfer of HIH business to other industry participants. In addition, ICA worked closely with governments (federal, state, and territorial) to maintain public confidence in the general insurance industry by developing a strategy to highlight the overall strength of the industry and manage the reputational risk.

Table 7, which shows the source of substitutions following the collapse of HIH, reveals the diversification of HIH into most property/casualty lines of insurance and the fact that there were replacements to those products.

Table 7: Available Substitute Coverage Following the HIH Failure in 2001

HIH policyholders found coverage from the following insurance carriers:
Personal and Domestic Insurance: Allianz Australia Insurance Limited (Allianz) provided the coverage for private motor, compulsory third party ("CTP"), private pleasure craft, home building and home contents insurance policies,
Workers' Compensation Insurance: Each state and territory had its own schemes. In those with HIH involvements, NRMA Insurance Limited (NRMA) took over the book of business of HIH and businesses did not need to look for new coverage.
Small Business, Rural and Commercial Insurance: Allianz carried the coverage of small business packages, rural packages and most small commercial insurances (such as commercial motor, fleet motor less than 150 vehicles, property with asset values less than AUD 20 million, public and products liability policies with turnover less than AUD 5 million and marine).
Travel Insurance was honoured by QBE Insurance (Australia) Ltd (QBE) for no extra premium from consumers. (It is interesting to note that the Australian Securities and Investments Commission (ASIC) advised consumers who had purchased such coverage to talk to the agencies that sold the coverage to verify status).
Builders Warranty Insurance: HIH offered BWI in New South Wales, Victoria, South Australia, Western Australia and the Australian Capital Territory; Royal & Sun Alliance Australia Ltd offered limited, short-term policies to builders previously covered by HIH with different rates as appropriate; and Dexta Corporation also offered to provide coverage under Dexta's underwriting requirements.

In addition, ICA managed the establishment of a pool to cover "hard-to-place" risks previously underwritten by HIH. Almost all risks were covered, minimising any reputational damage to the industry. The insurance industry also collectively provided liability coverage for high-profile events.[4]

In the Aftermath: the Role of the Australian Regulatory Bodies

A process of regulatory reform that had begun before the HIH collapse was expedited afterward. Some of the reforms resulted from the recommendations of the HIH Royal Commission and others, from in-depth studies such as the Palmer Report (Palmer, 2002). Many of the changes are depicted in the April 2014 Australian Treasury report (Australian Government, 2014).

After the collapse of HIH, the Australian Prudential Regulation Authority (APRA) expedited its reorganisation to integrate all financial regulation under one authority.[5] APRA had been established on 1 July 1998 as an integrated financial regulation body to oversee banks, credit unions, building societies, general insurance and reinsurance companies, life insurance, friendly societies and most members of the superannuation industry. The offices previously responsible for these regulatory activities moved from various locations around the country to Sydney, a process that created a gap in insurance regulation per discussions with former APRA employees and from indications in the HIH Royal Commission and Palmer reports. During that period of regulatory restructuring, HIH's unsustainable activities and gains in market share were left untouched.

The subsequent reorganisation of financial regulation in Australia included all financial sectors, including banks. Federal, state and territorial governments participated in several joint ministerial meetings between 2002 and early 2004 and agreed to a series of reforms to address the perceived problems of affordability and availability of public liability and professional indemnity insurance. The Australian government asked the Australian Competition and Consumer Commission (ACCC) to monitor costs and premiums in the public liability and professional indemnity classes of insurance on a six-monthly basis over two years. These reports (Australian Competition and Consumer Commission, 2003; 2004; 2005a; 2005b) provide an overview of these markets. The KPMG annual surveys of the insurance industry also show improvements to these markets. (KPMG, 1996-2003)

The government also initiated a far-reaching program of tort reform. Finally, in 2008, the Australian government also established a Financial Claims Scheme, a guaranty fund to insure policyholders against insolvent insurers.

CONCLUSION

At first glance, the collapse of HIH does not seem to qualify as a systemic risk event. Based on the definition of systemic risk, it did not meet the requirements for size, interconnectedness, substitutability and non-traditional insurance products. International regulators, however, determined that due to the Australian government's financial assistance, it should be regarded as a domestic systemic risk event. They base this conclusion on a belief that a BWI market failure could have severely impaired Australia's real estate market. Furthermore, a shortage of liability insurance could have hindered economic activities and led to the canceling of popular civic events. (Bank of England, 2011) (IAIS, 2011)

While property/casualty insurance markets are not traditionally considered susceptible to systemic risk, Australia's p/c market lacked a key element of the insurance financial stability model—a guarantee fund, which did not exists at the time of the HIH collapse in 2001. Government assistance was needed to fill this gap. In such cases, where the insurance financial stability model is incomplete, it seems that systemic risk is possible in the general insurance industry.

In this report, we focused on the HIH insurance insolvency in Australia to glean insights for the best resolution practices for insurance failures and regulatory reforms that can positively impact the consequences of insurance failures going forward. The rapid failure of the mismanaged HIH insurance was followed by quick response and immediate cooperation between the insurance industry and the Australian government. It is apparent that the speed of the response contributed to the stabilization of the markets and avoided disruption to economic activities as indicated by overall Australian GDP and the GDP of specific sectors such as real estate and public liability.

We began the study with a brief review of the causes of the failure. As described, HIH had grown rapidly, both geographically and in terms of assets and revenues while it was grossly mismanaged, without care for sound pricing, underwriting, reserving, and with no proper data for accurate accounting practices.

At the time, the Australian financial regulatory authorities were in transition and there appeared to be a gap in the supervision of HIH.

Without a formal resolution process in Australia in 2001, the Australian government, with the help of the insurance industry, created an immediate temporary claims payment scheme and found coverage for former HIH policyholders. The *HIH Royal Commission Report* describes a

sense of disturbance in the real estate sector and for public events. Public funds with levies on the insurers paid the policyholders claims.

The HIH insolvency case can provide insights into resolution of failed insurers. Some are as follows:

- Insurers, like any other business are economic entities that can become insolvent and exit the markets. It is important to ensure no disruption to economic activities and mechanism to pay claims.
- Insurance resolution can be long term, especially for longer-tail lines of insurance such as worker's compensation and liability. Claims paying schemes can help.
- When a P/C insurer fails, hard markets can exacerbate the difficulty of finding replacement coverage—especially if the insolvent insurer underpriced its coverage to gain market share (and as such increasing its risk of insolvency). Market supervision should take the underwriting cycles ramifications into account.
- There are triggers that can tell when potential trouble emerges in insurers. Those early warning signals include rapid growth, excessive and lavish expenses and price (premium) cutting. Formalized early warning systems can catch troubles early.
- Mandatory lines of insurance are of different needs in terms of market structure. Such coverage requires more overall monitoring to avoid dramatic events in case of insurer failure.
- Regulators should react on early warning signals and involve experts to help when there are "indications" that something may be going wrong.
- Transitioning of regulatory structures/agents can lead to a high risk of interrupted supervision. Preferably, the regulators need a road-map designed to ensure continued supervisory and keep an ear for early warnings such as those surrounded the HIH behaviour in the market.
- Since the global regulators prefer to not use tax-payers money in case of insolvency in insurance, there needs to be a formal resolution mechanism, for the orderly resolution of a failed insurer such as the HIH. Insurers' resolutions can be managed openly and transparently under most situations and processes. For example, the guarantee funds in the U.S.
- APRA has clearly learned from the experience and improved its supervisory practices successfully. The ability to sustain stable financial markets in Australia during the financial crisis that began in 2008 is attributed to these changes by APRA. (McBean, 2010).

A summary of the report is shown in Table 8.

Table 8: Overall Findings for HIH insurance Insolvency Case

	Products characteristics and HIH market behavior	**Main causes of insolvency**	**Regulation and industry actions**
HIH Insurance—insolvency in March 2001	Operated in all lines of P/C insurance. Competed heavily in builders warranty insurance (BWI) and public liability (large market share). Underpriced in all lines of insurance. Sold products with no adequate underwriting standards. Reserves were too low. Rapid growth of market share.	Exercised no due diligence in any parts of the operations: under reserving; accounting irregularities; inappropriate reinsurance (finite reinsurance arrangements); No internal and external oversight regarding management decisions. Conflicts of interest, hiding data, Excessive spending. Gained market share without adequate underwriting assessment. Internal governance structure and guidelines were faulty (six executives served jail time).	Australian Prudential Regulatory Authority (APRA) was in transition, creating a gap in insurance supervision. No safety net for mandatory coverage such as BWI No guaranty fund in 2001 in Australia (currently, it is in existence). Industry created one-time claims payment scheme in cooperation with the Australian government. The claims payment scheme was considered successful with governmental funds and levies on insurers. Policyholders were protected. “The scheme was formally deregistered in April 2013, having made settlements of about $7 31 million. The largest creditor, the Federal Government, has received payments from the HIH estate of about $318 million, or 44 cents in the dollar.” Replacement coverage was expensive relative to the “cut-rate” of HIH and because of risk based pricing in “hard markets” (underwriting cycle). The insurance industry worked to mitigate reputational risks. There were no other insurer or financial institution failures. The quick actions taken subsequent to the failure helped in keeping the Australian economic growth with no disruption.

NOTES

1. The term HIH refers to the total scope of consolidation of the HIH Group and does not mean specific legal entities, unless otherwise stated.

2.The IAIS added the "timing" element that was used in the seminal report of The Geneva Association *Systemic Risk in Insurance* (2010). This element is discussed in the 2011 IAIS report with application to the HIH in Appendix D "Insurer Wind-ups: Equitable Life and HIH." It is not repeated here.

3. The Claims Support Scheme started on June 7 2001, three months after HIH was placed into provisional liquidation, initially as a subsidiary of the Insurance Council of Australia, then in 2004 as a company directly controlled by Treasury. It was most active in its early years. By mid-2004 half of the 10,953 eligible claims had been finalized By mid-2008 most claims the scheme would receive had been finalized. The scheme was formally deregistered in April 2013, having made settlements of about $731 million. The largest creditor, the Federal Government, has received payments from the HIH estate of about $318 million, or 44 cents in the dollar.

4. We do not have data for those who could not replace the coverage. Our assumption is that they self-insured.

5. The *HIH Royal Commission Report* (2003) explains that "in 1998, in response to the report of the Financial System Inquiry—the Wallis report—the Commonwealth established the Australian Prudential Regulation Authority to be the sole body responsible for the prudential regulation of entities providing deposit-taking, general insurance, life insurance and superannuation services in Australia. APRA began operations on 1 July 1998 and took over the prudential supervisory roles previously handled by the Reserve Bank of Australia and the ISC. In late 1998, APRA's head office was established in Sydney…" A review carried out by the ISC in 1995 (and carried forward by APRA and the Commonwealth government) led to the passage in September 2001 of the General Insurance Reform Act, which brought marked changes to the prudential regulatory regime applying to general insurers. The new regime came into effect in July 2002. The consolidation of the various regulatory bodies in Australia resulted from the mergers and acquisitions in the financial sectors into large conglomerates. The objective was to establish stronger regulation of the consolidated entities.

REFERENCES

Australian Bureau of Statistics (2011) *Australian National Accounts: National Income, Expenditure and Product.* http://www.abs.gov.au/ausstats/abs@.nsf/mf/5206.0

Australian Bureau of Statistics (2010) A Statistical Overview of the Construction Industry. *Australian Economic Indicators.* *http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1350.0Feature+Article1Oct+2010*

Australian Bureau of Statistics (2002) The Construction Industry's Linkages with the Economy. *Year Book Australia, 2002.* *http://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/1301.0Feature%20Article20 2002*

Australian Competition and Consumer Commission (2005a) *Public Liability and Professional Indemnity Insurance: Fifth Monitoring Report.* https://www.accc.gov.au/publications/public-liability-professional-indemnity-insurance-reports/public-liability-and-professional-indemnity-insurance-fifth-monitoring-report

Australian Competition and Consumer Commission (2005b) *Public Liability and Professional Indemnity Insurance: Fourth Monitoring Report.* https://www.accc.gov.au/publications/public-liability-professional-indemnity-insurance-reports/public-liability-and-professional-indemnity-insurance-fourth-monitoring-report

Australian Competition and Consumer Commission (2004) *Public Liability and Professional Indemnity Insurance: Third Monitoring Report.* *https://www.accc.gov.au/publications/public-liability-professional-indemnity-insurance-reports/public-liability-and-professional-indemnity-insurance-third-monitoring-report*

Australian Competition and Consumer Commission (2003) *Public Liability and Professional Indemnity Insurance: First Monitoring Report.* *https://www.accc.gov.au/publications/public-liability-professional-indemnity-insurance-reports/public-liability-and-professional-indemnity-insurance-first-monitoring-report*

Australian Government (2014) *The Department of the Treasury's Submission to the Financial System Inquiry. https://treasury.gov.au/publication/the-department-of-treasurys-submission-to-the-financial-system-inquiry/*

Australian Government (2012). *Guarantee Scheme for Large Deposits and Wholesale Funding.* http://www.guaranteescheme.gov.au/ (archived Feb. 20, 2017).

Bank of England and Financial Services Authority (2011) *The Bank of England, Prudential Regulation Authority: Our Approach to Insurance Supervision.*

Baranoff, E., Haefeli, D., Liedtke, P.M. and Schmaltz, C. (2012). Insurers as Systemically Important Financial Institutions (SIFIs)? Exploration and Methodology. *Journal of Insurance Regulation* 31(1), 59-90.

Baranoff, E. (2011) Editorial: Systemic Risk vs. the 10-Year Old HIH Insurance Failure in Australia, *Insurance and Finance Newsletter No. 8* Geneva: The Geneva Association.

Baranoff, E., Brockett, P.L. and Kahane Y. (2009) *Risk Management for Enterprises and Individuals*, Nyack, NY: Flat World Knowledge. *http://www.flatworldknowledge.com/printed-book/1635*

California Department of Insurance (2010) *Annual Report*, California Department of Insurance, https://www.insurance.ca.gov/0400-news/0200-studies-reports/0700-commissioner-report/upload/2010CDIAnnualReport.pdf

Central Intelligence Agency (2017) *CIA World Factbook*. https://www.cia.gov/library/publications/the-world-factbook/

Damiani C., Bourne N. and Foo, M. (2015) The HIH Claims Support Scheme *[Australian Treasury] Economic Roundup* 2015 (1). https://treasury.gov.au/publication/economic-roundup-issue-1-2015/economic-roundup-issue-1/the-hih-claims-support-scheme/

Francis, B. (2011) Summary of ICA meetings held in and post 2001, after the HIH collapse, (Personal communication with author, July 2011.)

Greig, B. (2009) *General Insurance Industry Survey 2009*. KPMG Australia.

HIH Royal Commission (2003) *Report of the HIH Royal Commission*. Canberra: Capital Printing.

HIH Insurance (2013) *http://hih.com.au/*

IAIS (2011) *Insurance and Financial Stability*, Basel: International Association of Insurance Supervisors. *http://forinsurer.com/files/file00400.pdf*

International Monetary Fund (2011) *Australia's Population and GDP*. ,*http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/WEOApr2011all.xls*

International Monetary Fund, Bank for International Settlements, and Financial Stability Board (hereafter IMF, BIS, and FSB) (2009) *Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations.* https://www.imf.org/external/np/g20/pdf/100109a.pdf

Insurancenews.com.au (2015) Report resurrects 'ghosts of HIH' (June 29). http://www.insurancenews.com.au/local/report-resurrects-ghosts-of-hih

Jobst, A. (2014) Measuring Systemic Risk-Adjusted Liquidity (SRL)—A Model Approach. *Journal of Banking & Finance* 45, 270-287.

Kehl, D. (2001) HIH Insurance Group Collapse. *(Parliament of Australia) E-brief http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Publications_Archive/archive/hihinsurance*

McBean, T. (2010) HIH collapse saved us from worst of GFC. goldcoast.com.au. September, 22.

Myers, P.S. and Baranoff E.G. (1997) *Non-Traditional Insurance Programs: The New Generation* (instructional video). Academy of Insurance Education, Washington D.C.

National Conference of Insurance Guaranty Funds (2017) *Property and Casualty Guarantee Funds*. http://ncigf.org/.

Oliver, B. (2011) 10 Years After HIH. *InsuranceNEWS*, February/March.

Palmer, J. (2002) *Review of the Role Played by the Australian Prudential Regulation Authority and the Insurance and Superannuation Commission in the Collapse of the HIH Group of Companies* ("Palmer Report"). July 15, 2002. www.apra.gov.au/mediareleases/documents/the-palmer-report.pdf

State of Victoria (Australia) Legislative Council Standing Committee On Finance And Public Administration (2010) *Inquiry Into Builders Warranty Insurance, Final Report.* October 2010. http://www.parliament.vic.gov.au/images/stories/documents/council/SCFPA/BWI/Final_version.pdf

Wilkins, M. (2011) HIH Systemic Risk or Opportunity? *Insurance and Finance Newsletter No. 8,* Geneva: The Geneva Association.

AUTHENTEC: THE CASE FOR VENTURE CAPITAL

Donald Flagg, Speros Margetis and Citlalli Payan
The University of Tampa

Harris Corporation invested significant resources into developing fingerprint sensor technology but decided to focus its resources on other technologies under development. Failure to continue funding research on the fingerprint sensors would have resulted in a loss of all the research conducted. Scott Moody, Vice President at Harris Corporation, came up with the idea of spinning out the technology into a private company called AuthenTec with him as the CEO. As the CEO of AuthenTec, Scott immediately sought venture funding to continue research and develop a market for fingerprint sensors. Scott presented at the annual Florida Venture Forum Conference, which led to his first round of venture funding. Steve Lux of Stonehenge Capital was involved with the Florida Venture Forum and was instrumental to helping AuthenTec receive the initial round of venture capital. AuthenTec received five rounds of venture capital funding leading up to initial public offering in 2007. In 2012 Apple purchased AuthenTec and placed its fingerprint sensors in Apple devices. Stonehenge Capital participated in every round of venture capital funding for AuthenTec and was poised to earn a substantial rate of return off of this investment. This case provides insights into the decision making process to fund a private company. Characteristics of the company, quality of the management team, investment requirements, milestones, valuations, and expected returns are integrated into the analysis providing a thorough examination of venture capital funding over various rounds through to a successful liquidity event.

CASE A: THE INITIAL INVESTMENT

Harris Corporation

Harris Corporation (Harris) a semiconductor company based out of Melbourne, Florida provides technology to state and federal governments. One of the technologies under development for Harris was biometric devices used to identify individuals to gain access to hardware. Harris conducted research to determine which type of biometric technology had the highest probability of mainstream appeal. They determined this technology would be a fingerprint sensor and Harris conducted research to test it. Harris' goal was to make the fingerprint sensor something that could be incorporated in laptops and cell phones providing an increased level of security of sensitive information on these devices.

In 1998 Harris faced a downturn in the semiconductor industry. The nature of the semiconductor business is very cyclical, and the cash flows of Harris were beginning to slow down. Harris previously made a large investment in the research and development of fingerprint sensor technology but found itself without sufficient cash flow to fund its continuation. Unfortunately for Harris, it would take a lot of money to develop the business and they simply

did not have the additional cash flow to continue. The problem for Harris is their large investment into the biometric fingerprint technology would be lost if they decided not to proceed.

Harris is comprised of three divisions: an electronic systems division, a semiconductor division, and a communications division. Scott Moody, vice president of the semiconductor division, brought up the idea of taking the fingerprint sensor technology and spinning it out of the company since it required immediate funding to proceed. After eight months of continued talks with Harris, Scott Moody finally received the go ahead to spin out the fingerprint sensor technology into a company called AuthenTec. Scott Moody became the CEO of AuthenTec which was given the technology and assigned a valuation of $4.5 million by Harris. AuthenTec needed to raise equity capital so that it could develop a market for the biometric fingerprint sensor technology and continue research and development of the product. AuthenTec reached out to the venture capital community to raise the equity capital needed.

Florida Venture Forum

The Florida Venture Forum was founded in 1984 to accelerate the successful development of the entrepreneurial community in the state of Florida. Along with educational seminars for entrepreneurial companies, the Florida Venture Forum hosts an annual Florida Venture Capital Conference. The purpose of the Annual Conference is to showcase later stage high growth private companies before a national audience of venture capitalists, private equity investors and investment bankers. The presenting companies are given twelve minutes to present their company and have booths set up where interested investors can ask questions and get additional information about the firm. This provides a great opportunity for companies seeking equity financing to present information to numerous sources in one setting. The Florida Venture Forum Conference has proven to be very beneficial to private firms, who have risen over two billion dollars of equity financing. AuthenTec approached the Florida Venture Forum about presenting at their annual conference.

AuthenTec sent a business plan to the selection committee of the Florida Venture Forum Conference. To be selected as a presenting company for the conference the companies should have talented management teams, proprietary technology, high growth potential, and should be currently seeking later stage funding. After submitting their application, AuthenTec was reviewed by a selection committee comprised of venture capitalists and private equity investors. One of the members of the selection committee, Steve Lux, was particularly interested in AuthenTec and thought that the company was suitable for venture funding. AuthenTec was invited to present at the Florida Venture Forum after approval from the selection committee.

Stonehenge Capital

Steve Lux directs the Florida operations of Stonehenge Capital Corporation (Stonehenge) where he is responsible for originating and underwriting of investment opportunities. Steve Lux was the Chairman of the Florida Venture Forum and chaired the Selection Committee for the annual conference. His active involvement helped him develop a strong deal flow network by closely working with board members, chairing the selection committee, and name recognition through participating in various Florida Venture Forum panel discussions held across the state.

Stonehenge was spun out of Bank One Corporation following the merger with First Chicago NBD in 1998. Stonehenge's investment strategy has been diversification of risk across industry verticals and by the stage of companies' development. Around 70% of the investments have been technology based companies with revenues around $3 to $10 million. Stonehenge usually does not provide seed capital but typically participates in the first institutional round of funding. Stonehenge's investment strategy is predicated heavily upon the product or service developed, whether it is commercially or widely accepted in the marketplace, and customers who support and endorse the product or service. Their investment is typically used for sales and marketing of a product or to purchase revenue-generating assets. To date Stonehenge Capital has invested in sixteen portfolio companies of which they have successfully exited (including AuthenTec), while only four investments were unsuccessful.

Stonehenge believed AuthenTec met its investment criteria and took a lead role in facilitating the completion of the first round of financing. Several characteristics of AuthenTec differentiated them from other technology companies seeking funding. Having the management team came along with the technology from Harris was a big advantage for AuthenTec. One concern for investors when the management team comes from a publicly traded firm is whether they have the entrepreneurial drive to grow the company. Scott Moody has that entrepreneurial drive and was able to convince Stonehenge Capital that he was capable and committed to making AuthenTec the leader in fingerprint sensors.

Other characteristics of the AuthenTec made the investment look attractive to Stonehenge. The large addressable market for fingerprint sensors meant that AuthenTec would be able to scale up revenues as the technology and market developed. AuthenTec also has a very focused strategy of only developing the fingerprint sensor allowing them to be very efficient with capital. All of the capital investments into AuthenTec would be used to develop and market the sensor, which provided the highest probability and long-term growth. AuthenTec focused on meeting chip development milestones and the time line expected by investors.

Stonehenge provided value added services in addition to the money they invested in AuthenTec. Stonehenge assisted in all stages of the negotiations as well as helping to attract other venture capitalists to participate in the first round of financing. Steve Lux also helped negotiate the extension of short-term loan to AuthenTec from Harris so that proceeds from issue could be used to grow the company instead paying off debt. Stonehenge participated in all board meetings via their observation rights, helped with the recruitment of several key sales and marketing personnel, provided industry information regarding competitors through their network and acted as a sounding board for management on subsequent rounds of financing.

Series A Financing

AuthenTec successfully completed the due diligence process of the investors and began to negotiate the term sheet. Part of the term sheet negotiations involved valuating AuthenTec prior to funding (pre-money valuation). As mentioned above, Stonehenge agreed to provide funds to AuthenTec following the conference. Stonehenge did so and then helped negotiate the Series A round of venture capital funding. A valuation for AuthenTec of $7,700,000 was calculated by Stonehenge based upon the value of similar deals at similar stages to AuthenTec. Several recent completed venture capital investments had priced similar companies at similar stages to AuthenTec between $7 and $12 million. This provided a base line valuation for AuthenTec. For the Series A round, the valuation tool used was the venture capital method,

which was based on similar firms conducting initial public offerings and backing out the valuation based on multiples adjusted for dilution. One firm considered comparable to AuthenTec was Sonicwall Inc. On November 11, 1999 Sonicwall conducted an initial public offering at $14 per share for four million shares and had 23,675,385 shares outstanding giving it a total valuation $331,455,390. The investors estimated that AuthenTec had approximately a thirty to forty percent chance of successfully reaching an initial public offering within six years with a total valuation between $280 million and $310 million. Series A financing typically expects a fifty percent retention due to additional rounds of financing need to reach a successful liquidity event.

With this valuation in mind, all parties agreed to a final set of terms with $13.5 million of venture capital in the Series A round of financing on November 24, 1999. Stonehenge Capital participated in the Series A round by investing $1,000,000 with the remaining capital raised from a consortium of venture capitalists. During the first round of financing, the venture capitalist providing the most capital dropped out three weeks prior to closing, jeopardizing the whole deal. Fortunately, Stonehenge had pitched the deal to another venture capitalist serving as a back-up funder of the deal. Stonehenge quickly provided all the new information to this venture capitalist and was able acquire funding within three weeks to close the deal. In addition to identifying an investor in the first round of financing, Stonehenge participated in the negotiation of the terms and conditions of the first round. Some key negotiations made by Stonehenge were to establish the pre-money valuation, the amount of capital to be raised, and the extension of the maturity date of a term loan provided by Harris freeing up AuthenTec's cash flow to further develop and perfect the fingerprint technology.

Discussion Questions

Analyze Stonehenge's decision to invest in AuthenTec. Provide the pros and cons along with their impact on the investment decision. Do you agree with Stonehenge's decision? Why or why not?

It is typically hard to put a value on a firm before it has solid revenue and income. How do you value something with no or limited revenue much less earnings? How would you have valued AuthenTec in 1999? See the financial statements in Exhibit 1 for guidance. Compare your valuation to the valuation given to AuthenTec at its infancy.

CASE B: THE DOWN ROUND

Series B and C Financing

The technology was improving and the market for the product was being developed. During this time, technology firms were growing and receiving significant attention from private equity investors, and the IPO market was extremely attractive to new tech firms. This sent valuations of many tech firms to all-time highs. In the series B round AuthenTec raised $20 million on March 15, 2001 in which Stonehenge participated $500,000. AuthenTec had growth in revenue and positive gross income but still had negative earnings. Similar companies had price to revenue multiples between twenty and thirty. Valuations estimated using the venture capital method were updated with estimates for the probability of a successful liquidity event within four years to be between fifty to sixty percent and an expected retention of sixty percent

for Series B round financing. Investors assigned a pre-money valuation of $51,700,000 in the Series B financing. The increase in valuation of AuthenTec from Series A to Series B made it easy for investors to justify their continued investment in AuthenTec.

Following the Series B round the dot-com bubble burst and the valuations of technology companies plummeted. Market conditions prior to the Series C round of funding made investing in AuthenTec difficult because it was being raised at the end of the dot-com era. This was a down round of financing as the pre-money valuation of AuthenTec fell to $20 million. AuthenTec was still reaching the technical milestones desired by investors and used their money efficiently but technology companies were considered overvalued in general. Valuation metrics were moving from sales multiples to earnings multiples. The IPO market also slowed down substantially at this time, delaying the timing of a successful exit. The amount of time estimated to reach a successful liquidity event was extended to be within four years and the probability of reaching the event was lowered to be between thirty to forty percent. Investors believed AuthenTec merited additional funding and was still a viable company with considerable growth opportunities in a large addressable market. All of the original investors participated in the Series C round and no anti-dilution provisions were exercised. There was even a new investor, Sierra Ventures out of Silicon Valley, participating in the Series C round. Sierra Ventures worked with the management team providing extensive consultant services and making key introductions. AuthenTec raised $15 million in the series C round on February 24, 2003 in which Stonehenge participated $575,000.

AuthenTec

Scott Moody, the CEO AuthenTec, strongly believed his company must stay true to their vision of focusing all of their funding on further developing the chip used in the finger print sensors. AuthenTec patented TruePrint® which was a better technology than their competitors' products as it is more reliable than the other competing technologies. The competing companies at the time were VPEK, Validity and Atrua but their technologies were not as accurate as AuthenTec's technology. The management team at AuthenTec was more seasoned than the management teams of their competitors. Accuracy in biometric performance is extremely important as false positives or false negatives will limit the use of the product. AuthenTec wants their sensors to work on every finger every time from the newly born to the almost dead. The company's TruePrint® system reads the live layers below the skin's surface. This technology allowed AuthenTec to grow sales rapidly over the next several years. They shipped out two million units in 2004, three million units in 2005, seven million units in 2006, and thirteen million units in 2007. The overall market for biometric finger print sensors was estimated to be 1.5 billion units per year. AuthenTec focused their strategy on developing the chip, which they believe is a competitive advantage for the firm.

An important factor to the success of AuthenTec is having the right players in place. AuthenTec described their employees as "players" and they treat working at AuthenTec like a team sport. The team mentality is not conducive to typical corporate politics and makes the environment at AuthenTec an enjoyable place to be a "player". Scott Moody believes he has a moral obligation to the "players" he invites to join his team. He believes that the "players" should be able to play for the team for a long time and not worry about being cut from the team. The vision for AuthenTec is to make the Power of Touch ® available to everyone, everywhere. Every "player" at AuthenTec has been carefully selected to be a part of the team and share the

same vision. The ability to attract and retain a strong team of professionals has been instrumental to the success AuthenTec has been able to achieve.

Other team members are important to the success of AuthenTec as well. One key player on the management team is Dale Setlak who is the co-founder, Vice President, and Chief Technology Officer of AuthenTec. Dale came over from Harris when AuthenTec was spun out. Dale has been the primary source of many of the concepts underlying the company's patents. AuthenTec has over 71 patents in place and is very aggressive in filing patents as a competitive advantage and a means to defend their position. Scott Moody has been very cautious about which investors he wanted to work with to grow AuthenTec. He believes it is important that the management team and investors share the same vision for the future and are committed to staying true to that vision. AuthenTec believes they have the right people on their board and that they selected the right investors to help them achieve their goals.

Discussion Questions

Series C financing was a "down round" in which the value of company was lower than the previous round. Do you agree with the decision to invest in Round C financing? Why or why not?

In 2001, AuthenTec was valued at $51,700,000 in 2001 and $80,000,000 in 2004. Discuss these valuations in comparison to the financial statements in Exhibit 2. Do you agree with the valuations given to AuthenTec? Why or why not?

CASE C: LIQUIDITY EVENT

Series D and E Financing

AuthenTec continued to meet or exceed investors' milestones and was growing revenue. The rapid growth in sales of the chip demonstrated that the technology met the markets demand and AuthenTec was positioned to capture significant market share in a very large market. The down round of financing proved to be due to market conditions and not a result of underperformance on the behalf of AuthenTec. On June 15, 2004 AuthenTec raised a series D round of $15 million. The probability of a successful exit within three years was estimated to be between sixty and seventy percent. The pre-money valuation was $80 million with Stonehenge participating $312,803 in this round. The Series E was a bridge loan of convertible debt (bridge to IPO), which converted to common shares at a pre-money value of $150 million or $1.50 per share. This final round of venture funding raised $7.5 million on February 28, 2007 and Stonehenge Capital participated $321,232 in the Series E round. All of the investors were positioned to make a substantial return on their investment in AuthenTec and looked forward to harvesting a return on their investment at a liquidity event, which in this case was the IPO.

Initial Public Offering

Given the company success in raising money, rapidly increasing sales, and its desire to secure future funding the decision was made to take AuthenTec public. AuthenTec had its IPO on June 27, 2007 and is listed on NASDAQ under AUTH. AuthenTec filed for its IPO on March

16, 2007 and had an IPO date of June 26, 2007 at which it sold 7.5 million shares at the top of its price range at $11. The total amount raised at the IPO was $82.5 million. Only ten percent of the shares sold at the IPO could be sold by existing shareholders with the majority of existing shareholder shares sold by Harris who wanted to exit their investment as quickly as possible. Stonehenge sold 63,350 of their 794,942 shares in the IPO at with net total proceeds of $648,070.50. The remaining shares held by Stonehenge were subject to a lock up period. The lock-up period for the IPO does not allow large investors or company insiders to sell shares before the expiration of the lock-up period usually 180 days. Stonehenge and other insiders lock up period expired on December 23, 2007. Exhibit 3 shows the actual shares sold and proceeds from the sale of shares for Stonehenge. Stonehenge received the following cash transfers from the sale of their shares following the lock up period: $1,475,000 on April 1, 2008; $2,400,000 on May 6, 2008; $1,750,000 on May 29, 2008; $3,100,000 on June 17, 2008 and $632,203.69 on June 25, 2008. The June 25 payment includes $4,562.01 of interest earned on the stock sale account. Exhibit 4 provides the income statement through 2007 for AuthenTec.

Apple Purchases AuthenTec

In early 2011, AuthenTec approached several leading consumer electronic companies seeking to attract them into using their fingerprinting technology. Apple was the only company interested in developing the technology and was eagerly interested in acquiring the AuthenTec. The combination of security systems and mobile devices was certainly a concept that prompted Apple's interest as AuthenTec's authentication features as they could be integrated into Apple's iPads, iPhones and potentially as security measures for other features, like non-mobile computer systems or cloud-based networks or services (Strauss, 2012).

On July 26, 2012, AuthenTec, Inc., entered into an Agreement and Plan of Merger with Apple Inc. Apple agreed to acquire AuthenTec for $356 million in cash, paying AuthenTec's shareholders $8 per share. According to the filing, Apple accepted to pay $20 million for the right to buy non-exclusive licenses and certain other rights with respect to hardware technology, software technology and patents. The company was given 270 days to decide whether to license certain technology and patents on a non-exclusive basis for an aggregate sum of up to $115 million (AuthenTec Inc., 2012).

AuthenTec's acquisition was expected to bolster the security of Apple products. AuthenTec announced on May 8, 2012 that it had introduced its first smart sensor specifically tailored for secure NFC mobile commerce. The product was a new 192 pixel by 8 pixel fingerprint sensor that included hybrid fingerprint matching, AES, RSA and SHA encryption blocks, and One Time Password (OTP) generation. Apple had Passbook as a new application rolling out with iOS 6 that served as a digital wallet (storing tickets, coupons and loyalty cards) for iDevice owners and offered digital payments. Fingerprint technology could then be integrated to verify payments, ensuring that if the device was stolen, an authorized user would not be able to pay for items without biometric input first. The above component may not be what Apple and AuthenTec were working on, but the technology was there to make it happen. A 1.3mm sensor could be incorporated into an Apple device as a Home button (Brian, 2013).

Apple representatives noted their desire to expedite the deal to follow their product plans and engineering efforts. The exact nature of the work was not disclosed but the agreement filed with regulators hinted at the development of a 2D fingerprint sensor for Apple that is suitable for use in an Apple product (Gupta & Sinead, 2012). Apple wanted to finalize the deal rapidly,

which also suggested the desire to incorporate AuthenTec's new technology in its upcoming products (Brian, 2013).

AuthenTec became one of the very few public companies that Apple has ever acquired. The world's most valuable technology company rarely does acquisitions and tends to buy mostly startups when looking for cutting-edge technology (Gupta & Sinead, 2012). The acquisition was Apple's second biggest, after the $400 million purchase of Anobit Technologies in 2011 (Rusli, 2012). As for the deal costs, Apple paid approximately five times AuthenTec's revenues, considering $70 million reported in 2011, by taking cash from their $117 billion reserves. Although Apple was not the first company to implement a fingerprint sensor in a smartphone, the overall quality of the Touch ID system gave the company an edge over competitors' fingerprint sensors. Today's Apple's impressive fingerprint sensor technology is largely the result AuthenTec's acquisition (Arnold, 2015)

Discussion Questions

Analyze the return earned by Stonehenge on their Investment in AuthenTec. Is the rate of return adequate compensation for Stonehenge for the risk of investing in AuthenTec? Why or why not?

Different from a typical financial intermediary venture capitalists are thought to provide more than money to their portfolio firms. How did Stonehenge accomplish this value-added type service?

Exhibit 1. Income Statement - AuthenTec

	Estimated**
	1999
NET SALES OR REVENUES	100
Cost of Goods Sold	77
Depreciation And Amortization	
Depreciation	
Amortization of Intangibles	
Amortization of Deferred Charges	
GROSS INCOME	**23**
Selling, General & Admin Expenses	4,023
Research and Development Expense	2,742
OPERATING INCOME	**-6,743**
Extraordinary Credit - Pretax	0
Extraordinary Charge - Pretax	0
Non-Operating Interest Income	57
Other Income/Expenses - Net	0
Interest Expense On Debt	-326
PRETAX INCOME	**-7,012**
Income Taxes	
Income Tax Credits	
NET INCOME BEFORE EXTRA ITEMS	**-7,012**
Change in Accounting Principle	
Earnings per Common Share	-39.61

*Numbers in thousands

**Estimations based upon revenue numbers provided from AuthenTec

Exhibit 2. Income Statement - AuthenTec

				Estimated**		
	2004	2003	2002	2001	2000	1999
NET SALES OR REVENUES	13,835	16,879	3,404	2,000	2,400	100
Cost of Goods Sold	7,424	10,818	2,176	1,700	1,848	77
Depreciation And Amortization						
Depreciation						
Amortization of Intangibles						
Amortization of Deferred Charges						
GROSS INCOME	**6,411**	**6,061**	**1,228**	**300**	**552**	**23**
Selling, General & Admin Expenses	5,256	6,343	5,224	5,392	4,906	4,023
Research and Development Expense	6,002	4,600	3,345	3,680	3,386	2,742
OPERATING INCOME	**-4,847**	**-4,882**	**-7,341**	**-8,772**	**-7,740**	**-6,743**
Extraordinary Credit - Pretax	0	0	0	0	0	0
Extraordinary Charge - Pretax	0	0	0	0	0	0
Non-Operating Interest Income	214	79	88	70	63	57
Other Income/Expenses - Net	0	0	0	0	0	0
Interest Expense On Debt	-11	-212	-247	-296	-326	-326
PRETAX INCOME	**-4,644**	**-5,015**	**-7,500**	**-8,998**	**-8,003**	**-7,012**
Income Taxes	0	0	0			
Income Tax Credits	0	0	0			
NET INCOME BEFORE EXTRA ITEMS	**-4,644**	**-5,015**	**-7,500**	**-8,998**	**-8,003**	**-7,012**
Change in Accounting Principle						
Earnings per Common Share	-6.16	-20.17	-42.47	-50.83	-45.21	-39.61

*Numbers in thousands

**Estimations based upon revenue numbers provided from AuthenTec

Exhibit 3. The Actual Selling of AuthenTec Stock by Stonehenge Capital

Date Sold	No. of shares	Net Price	Proceeds
2/20/2008	5,000	$11.952	$59,758.34
2/21/2008	3,000	$12.000	$36,001.00
2/22/2008	7,000	$11.466	$80,260.61
2/25/2008	5,000	$11.383	$56,913.37
2/26/2008	5,000	$11.378	$56,889.37
2/27/2008	3,000	$11.352	$34,055.52
2/28/2008	4,000	$10.996	$43,985.51
2/29/2008	103,000	$10.960	$1,128,863.58
Total February 2008	**135,000**	**$11.087**	**$1,496,727.30**
4/2/2008	7,000	$11.111	$77,775.36
4/3/2008	5,000	$11.022	$55,108.69
4/4/2008	5,000	$10.969	$54,845.69
4/7/2008	3,000	$11.037	$33,111.91
4/8/2008	1,000	$10.966	$10,965.93
4/16/2008	15,000	$11.083	$166,246.06
4/17/2008	5,000	$11.035	$55,175.69
4/18/2008	25,000	$11.146	$278,646.93
4/21/2008	5,000	$11.271	$56,353.68
4/22/2008	17,000	$11.828	$201,082.77
4/23/2008	5,000	$11.905	$59,525.66
4/24/2008	2,000	$11.843	$23,685.86
4/28/2008	5,000	$12.009	$60,045.66
4/29/2008	85,500	$13.412	$1,146,707.02
4/30/2008	5,000	$ 13.525	$67,626.62
Total April 2008	**190,500**	**$12.320**	**$2,346,903.53**

Exhibit 3 continued. The Actual Selling of AuthenTec Stock by Stonehenge Capital

Date Sold	No. of shares	Net Price	Proceeds
5/1/2008	10,000	$13.775	$137,753.22
5/2/2008	2,500	$13.708	$34,270.80
5/6/2008	10,200	$13.447	$137,154.63
5/7/2008	7,000	$13.527	$94,685.86
5/9/2008	4,000	$13.035	$52,141.70
5/12/2008	8,000	$13.504	$108,035.39
5/13/2008	5,000	$13.399	$66,992.62
5/14/2008	25,000	$13.956	$348,909.04
5/15/2008	10,000	$13.831	$138,305.22
5/16/2008	10,000	$13.715	$137,153.23
5/19/2008	26,000	$13.563	$352,650.22
5/21/2008	8,600	$13.343	$114,751.17
5/22/2008	5,000	$13.359	$66,795.62
5/27/2008	15,000	$13.594	$203,904.85
5/28/2008	25,000	$13.806	$345,141.56
5/29/2008	8,200	$13.709	$112,417.37
Total May 2008	**179,500**	**$13.655**	**$2,451,062.50**
6/2/2008	1,000	$13.706	13,705.92
6/4/2008	1,040	$13.456	13,994.32
6/5/2008	112,800	$13.925	1,570,715.92
6/6/2008	61,100	$13.767	841,191.64
6/9/2008	200	$13.690	2,737.98
6/16/2008	10,000	$12.154	121,540.31
6/17/2008	20,000	$12.226	244,524.63
6/18/2008	20,452	$12.201	249,537.63
Total June 2008	**226,592**	**$13.495**	**3,057,948.35**

Exhibit 4. Income Statement - AuthenTec

							Estimated***		
	2007	2006	2005	2004	2003	2002	2001	2000	1999
NET SALES OR REVENUES	52,344	33,174	19,243	13,835	16,879	3,404	2,000	2,400	100
Cost of Goods Sold	26,728	19,264	11,314	7,424	10,818	2,176	1,700	1,848	77
Depreciation And Amortization	826								
Depreciation	826								
Amortization of Intangibles	--								
Amortization of Deferred Charges	--								
GROSS INCOME	**24,790**	**13,910**	**7,929**	**6,411**	**6,061**	**1,228**	**300**	**552**	**23**
Selling, General & Admin Expenses	27,738	12,151	6,716	5,256	6,343	5,224	5,392	4,906	4,023
Research and Development Expense	12,876	9,631	7,355	6,002	4,600	3,345	3,680	3,386	2,742
OPERATING INCOME	**-2,948**	**-7,872**	**-6,142**	**-4,847**	**-4,882**	**-7,341**	**-8,772**	**-7,740**	**-6,743**
Extraordinary Credit - Pretax	0	0	0	0	0	0	0	0	0
Extraordinary Charge - Pretax	0	0	0	0	0	0	0	0	0
Non-Operating Interest Income	1,798	285	449	214	79	88	70	63	57
Other Income/Expenses - Net	-9,637	-2195	-933	0	0	0	0	0	0
Interest Expense On Debt	110	0	0	-11	-212	-247	-296	-326	-326
PRETAX INCOME	**-10,897**	**-9,782**	**-6,626**	**-4,644**	**-5,015**	**-7,500**	**-8,998**	**-8,003**	**-7,012**
Income Taxes	0	0	0	0	0	0			
Income Tax Credits	0	0	0	0	0	0			
NET INCOME BEFORE EXTRA ITEMS	**-10,897**	**-9,782**	**-6,626**	**-4,644**	**-5,015**	**-7,500**	**-8,998**	**-8,003**	**-7,012**
Change in Accounting Principle			-4,469						
Earning per Common Share	-0.8	-3.8	-9.15	-6.16	-20.17	-42.47	-50.83	-45.21	-39.61

*Numbers in thousands

**6/29/07 trading as public firm

***Estimations based upon revenue numbers provided from AuthenTec

REFERENCES

Arnold, N. (2015, January 31). Did Apple Derail Google's Fingerprint Sensor Plans? *CheatSheet*, Retrieved 2016, from http://www.cheatsheet.com/technology/did-apple-derail-googles-fingerprint-sensor-plans.html/?a=viewall

AuthenTec, Inc. (2012, 26 July). *Form 8-K*. Retrieved from SEC EDGAR website https://www.sec.gov/Archives/edgar/data/1138830/000119312512318086/d384083d8k.htm

Brian, M. (2013). Why Apple really bought AuthenTec: It wanted "new technology" for upcoming products, and quickly. *The Next Web*, Retrieved 2016, from http://thenextweb.com/apple/2012/08/16/the-real-reason-apple-acquired-authentec-because-needed-new-technology-quickly-products/#gref

Fama, Eugene, and Kenneth French, 1993, "Common risk factors in the returns on stocks and bonds", *Journal of Financial Economics* 33(1), 3-56.

Fama, Eugene, and Kenneth French, 1995, "Size and Book-to-Market Factors in Earnings and Returns", *The Journal of Finance* 50(1), 131-155.

Fama, Eugene, and Kenneth French, 1997, "Industry costs of equity", *Journal of Financial Economics* 43(2), 153-193.

Gupta, N., and Sinead, C. (2012, July 27). Apple buys mobile security firm AuthenTec for $356 million. *Reuters*, Retrieved 2016, from http://www.reuters.com/article/us-authentec-acquisition-apple-idUSBRE86Q0KD20120727

MacMillan, I.C., Kulow, D.M., and Khoylian, R.H, 1988. Venture capitalists' involvement in their investments: Extent and performance. *Journal of Business Venturing,* 4, 27-47.

Megginson, W. L. and K. Weiss, 1991, "Venture Capitalists Certification in Initial Public Offerings," *Journal of Finance* 46, 879-903.

Metrick, A. and Yasuda, A., 2007, *Venture Capital and the Finance of Innovation*, John Wiley & Sons.

Pastor, Lubos and Robert Stambaugh, 2003, "Liquidity risk and Expected Stock Returns", *Journal of Political Economy* 111(3), 642-685.

Rusli, E.M. (2012, July 27). Apple to Acquire AuthenTec for $356 Million. *The New York Times,* Retrieved 2016, from http://dealbook.nytimes.com/2012/07/27/apple-to-acquire-authentec-for-356-million/?_r=0

Strauss, K. (2012, July 27). Apple Acquires AuthenTec: A Fingerprint as a Key? *Forbes*, Retrieved 2016, from http://www.forbes.com/sites/karstenstrauss/2012/07/27/apple-acquires-authentec-a-fingerprint-as-a-key/#335d136d575f

MECHANICAL MACHINERY: STRATEGIC DECISION MAKING AND RISK ANALYSIS

Thomas Zeller & Brian Stanko
Loyola University, Chicago

INTRODUCTION

Jim Cook, the Director of Strategic Planning for Mechanical Machinery, Inc. (hereafter MM) opened an interesting e-mail this morning. The message from Mr. Walter Henry, Board Chair and MM's majority owner, reads:

Jim,

I trust you and the family are well. The Henry family is looking forward to learning more about MM's strategic focus and risk moving forward at our upcoming planning meeting. During that meeting, we ask that you please address a concern that surfaced at the last family council meeting.

The concern lies with the company's strategic focus. Every year the sales and profit "growth" words pop up. Certainly, growth seems to be a solid strategic focus in creating company value. However, sometimes management focuses on growing sales with existing products, while other times, management concentrates on growth with new products. So why is growth the elixir of the executive team? Is growth in sales the only way to create company value? Can we not improve performance and thus increase company value by reducing costs? The family is concerned about the risk of one focus over another.

Thank you in advance for considering our concerns.

Walter Henry, Jr.
MM Board Chair and Majority Owner

As Jim Cook's valued assistant, you are tasked with the analysis and making a strategic focus recommendation to the family. To accomplish this task you will integrate finance, accounting, and risk management tools and techniques. The following section describes MM's business model and competitive forces. Having insight on both plays an important role supporting your strategic focus recommendation to Mr. Henry and the family.

Before moving into further case details we recommend working through Student Handout 1 and 2, below. The handouts provide the necessary technical training to integrate finance, accounting, and risk management tools and techniques. Student Handout 1 explains the value creation model used in this case. Student Handout 2 explains risk management and how the Excel spreadsheet supporting the case controls input to make risk management explicit.

MECHANICAL MACHINERY YESTERDAY AND TODAY

MM's roots trace back to the Vietnam War era. Walter Henry Sr. served in the Vietnam conflict as a tank and light weaponry mechanic. He was responsible for keeping military equipment operational 24/7. Fixing and or replacing tank transmission and related weaponry gearing mechanisms consumed much of his day. Weaponry gearing precision is very important to mission critical operations. Common failures consisted of broken, misaligned, and out of round gearing mechanisms. Poor manufacturing quality compounded the problems.

Walter's experience in Vietnam opened his eyes to a business opportunity. The experience encouraged Walter Sr. to pursue a mechanical engineering degree, with a focus on gearing mechanisms. He did so upon completing his military responsibilities. Walter opened MM shortly after graduation in 1970.

Walter Sr. and subsequent executive teams built MM into a respectable and diversified company. Initially, MM sold simple high quality transmission gearing solutions to automotive industry manufacturers. Over time, Walter learned how to solve complex gearing challenges beyond automotive needs with quality design and manufacturing processes. Advanced engineering today drives MM's gearing solutions.

Gearing solutions consists of a combination of gears designed to articulate precision movement for propulsion, cutting and or combining material. For exam, surgical robotics, surgical hand pieces, and dental equipment manufacturers depend upon MM's high quality gearing solutions. As do the manufacturers of wheel chair lifts, dialysis pumps, and respiratory ventilators. Airline and defense contractors use MM's alternate material gearing solutions in drones, weaponry, and fuel-efficient aircraft. The automotive industry remains a solid customer. In addition, MM's gearing solutions operate the sensing devices for self-driving automobiles.

MM follows a very tight vertical integration business model. The integration makes it harder for competitors to imitate gearing solutions. MM's workforce conducts research, designs, manufactures, distributes, and sells high quality, technically advanced, gearing solutions. The executive team recognizes that industry specific knowledge and business relationships create a very strong intangible competitive advantage. These attributes are essential to MM's current and future value.

Mechanical Machinery Value Chain

The executive team builds MM's competitive advantage around a carefully integrated value chain. MM's integration begins with the research and design process. The research and design team consists of 15 highly skilled, well-compensated, engineers and scientists. The team's combined tacit gearing knowledge creates a very important intangible competitive advantage. MM's competitive advantage rests with its reputation of being the most advanced gearing solution provider. Customers and competitors recognize the research and design team as thought leaders in gearing solutions. The research and design team focuses their energies in two areas.

First, the team tracks customers' emerging needs. The team offers advanced solutions to current and potential customers by being integrated with customers' research and development processes. The integration provides insight to existing product enhancements and new solutions. Team experience shows that the cost and associate risk to extend an existing gearing solution is relatively low. The opposite is true with new gearing solutions. Risks can be high because of uncertainly in raw materials and unique design applications of a new gearing solution.

Second, the team tracks raw material options and enhanced manufacturing methods in an effort to reduce manufacturing costs, enhance gearing solution quality or both. Cost control in particular is critical to maintaining and improving financial performance. The reason is that competitive market forces place constant pressure on pricing. MM finds it very difficult to increase price once a product enters the market. The research and design team works with the manufacturing engineers to implement lean manufacturing and Kaizen techniques. Their efforts show a record of improved quality, reduced environmental hazards, and lower product costs (direct materials, direct labor and manufacturing overhead) with existing products.

Beyond the research and design process, the value chain takes separate paths with existing and new products. The executive team must give each path careful consideration in setting a strategic focus. Opportunities and risk for creating company value are different for each path.

The executive team focuses on maintaining profit margins with existing products. The path to improve margins on existing gearing solutions is to remove cost from the system. Existing product manufacturing consists of a mix of lines and sophisticated processes within each line. MM builds established gearing solutions on an automated production line. Management has years of experience managing a complex web of materials, labor, overhead and automation processes. Raw materials move into work-in-process on a conveyor belt system. Numerically controlled machines and three-dimensional printing machines press the materials into specified gearing dimensions. Robots assemble the gears into exact gearing solutions followed by cooling, paint and quality inspection processes. Manufacturing engineers work with the research and design team to reduce cost and improve quality at every step. The application of Kaizen techniques and statistical process controls has proven to be very successful in reducing cost and improving quality.

The value chain path consumes greater resources with new products. Several costs increase when MM introduces a new product. The research and design team dedicates substantial energy in an effort to understand regulatory requirements and customer needs (for example, the healthcare industry instrumentation regulatory guidelines are very demanding). Purchasing must first develop a reliable raw material supplier network for new innovative parts. Inventory management of technically advanced electronic parts imposes costly heating, cooling, and packaging requirements along with environmental concerns. Production of a new gearing solution is labor intensive. Skilled manufacturing engineers must develop new processes to build a new gearing solution. Some changes are as simple as updating the software in the numerically controlled machines. Other changes require new three-dimensional printing machinery and/or new assembly processes. Although management is committed to cost containment, quality is the primary focus. Management applies Kaizen techniques and statistical process controls tol reduce production cost over time. Both are necessary as competitors emulate MM and offer similar gearing solutions at a reduced cost within a few years of a new product launch.

MM strategically manages sales and distribution costs. The sales team routinely calls upon existing customers. Maintaining a close business relationship with customers keeps the competition at a disadvantage. The research and design team members often accompany the sales team on customer appointments. The teams discuss current and emerging customer needs. The sales team assures customers that MM "IS" their long-term solution provider for all gearing solutions.

MM finds that selling new gearing solutions, whether nationally or internationally, is a slow process. The customer, new or existing, must be very comfortable with MM's ability to change as technology changes as it relates to the respective gearing product. Management's experience shows new product sales activities consume an extensive amount of time and cost.

Distribution of existing products is a routine process. Shipping routines are well established. MM trains the customer how to install a gearing solution on the initial order. Technicians remain on call to manage follow-up customer concerns.

Distribution of new products, on the other hand, requires greater effort and cost. MM must carefully plan how and when to deliver the solution to customers. Serving international customers creates additional logistical concerns, such as temperature control during shipping and damage control while in shipping containers. Moreover, MM must deliver the solution to the customer's specifications and within its delivery schedule.

FINANCIAL AND RELATED DATA WITH STRATEGIC OPTIONS

Exhibit 1 shows MM's selective financial information for the projected current year-end. Exhibits 2–4 show the financial forecast for the respective three strategic options under consideration by the executive team. The finance function uses current year-end projections as a baseline to build the financial forecast for each strategic option moving forward. Exhibits 2–4 provide the necessary data for you to prepare the respective forecast in the Excel template provided with the case.

Exhibit 1 shows the forecast amounts for the current year. MM's industry and the general economy are slowly growing out of a recessionary cycle. In response, the executive team pursued a very modest growth plan, 1 percent, with existing products, to new and existing customers.

Exhibits 2 – 4 provide additional descriptive data beyond the financial forecast estimates. Jim uses the additional data to estimate the risk of each estimate. The worst and best-case scenarios reflect management's uncertainty with the respective estimates. Exhibit 2 recaps the financial forecast and other variables for a reduced cost strategic focus. (Categories are highlighted in bold). Jim assumes sales will remain relatively steady under the current competitive conditions. Management first looks to improve gross profit. Decreasing product cost in the direct material and labor categories increases gross profit and the gross profit margin ratio. Manufacturing overhead is substantially a fixed cost for MM, and assumed not to change. The management team knows that small changes in cost of goods sold can have a significant impact on operating income and thus NOPLAT. Decreasing selling and general expenses (period costs) also contributes to an increase in NOPLAT. Management plans to keep total assets at the current values, approximately. The management team also plans to increase Current liabilities, with the net effect of decreasing invested capital. These changes increase ROIC. The management team is very confident that it can achieve the product and period cost reductions, yet recognizes there is risk in this strategic focus. As a result, Jim estimates a range of potential outcomes, captured in the worst and best categories recapped in Exhibit 2. Jim assumes WACC and growth rate do not change with this strategic focus because MM's has shown financial stability and success overtime.

Exhibit 3 recaps the financial forecast and other variables for an increase in sales of existing products strategic focus. The focus targets existing and new customers. Management plans to hold the variable direct material and labor costs at approximately the current levels. Management does not expect manufacturing overhead to change because this cost is substantially fixed. The gross profit and the gross profit margin ratio increase because management does not expect fixed costs to change, measurably. Selling and general costs will increase with a growth plan to existing and new customers. Management hopes to keep total assets constant but may have to replace selective assets. Management also plans to manage current liabilities carefully. Suppliers are increasingly putting more pressure to pay sooner, within days of raw material deliveries. Jim assumes WACC

does not change from the current period with this strategic focus because MM's leadership has shown success overtime. Jim estimates that this strategic option puts MM on a 2.5 percent growth rate, approximately.

Exhibit 4 recaps the financial forecast and other variables for an increase in Sales of new products to existing and new customer strategic focus. The worst and best-case scenarios reflect management's uncertainty with the respective estimates. MM hopes to capture the first mover advantage and capture premium pricing on the new gearing solutions. Selling costs increase with this strategy. The management team will try to keep general costs within reasonable limits. The management team expects to add new Assets with this strategic focus. In addition, management expects an increase in accounts payables with this strategic focus. Jim estimates that WACC will increase to 5.75 percent with the risk associated with the new gearing solutions offered to customers. Why? Given the high profile applications in healthcare and advanced robotics, new gearing solutions subjects MM to the risk of product failures in the field. Although MM has an excellent reputation, new gearing solutions are not without failure. Jim estimates that this strategic option puts MM on a 3.25 percent growth rate, approximately.

QUESTIONS

1. Compute for the projected current year-end: NOPLAT, Invested capital, ROIC, Spread and the approximate company value using the DCF model. Use the data provided in Exhibit 1 as well as the Excel template provided with this case to complete the requirement. Note that Excel tabs align with each exhibit. Interpret the spread and DCF model approximate company value. The results serve as a base line for further analysis. (Note: The template as created is set for manual calculation. That means the user must recalculate for the filled out simulation and respective computation to update the output.)

2. Complete for each strategic focus option the blue cells identified in the Excel template for tabs labeled Exhibits 2 to 4, using the data provided in the case Exhibits 2 to 4. Identify and explain the key driver(s) of company value (NOPLAT, ROIC, WACC and/or growth) with each strategic option. The average amounts reported in cells H34 to H41 are key, as are the current year amounts reported in cells B34 to B41. (Hint: Student Handout 1 is a guide for responding to this question.)

3. Evaluate the range in company value for each strategic option. The Excel template tab titled *Range Data* recaps the necessary date. What does the respective range tell you? What information about risk is missing? (Hint: The respective ranges captured in cells D41 and F41 for each strategic option, tabs marked Exhibits 2 – 4, provide the data points. Step A in Student Handout 2 provides the necessary guidance to answer this question.)

4. Interpret the DCF Monte Carlo simulation output for each strategic option at one standard deviation from the mean. Exhibits 2–4 provide the necessary charts. Use the Monte Carlo simulation output that accompanies each option to justify a strategic recommendation to the Henry family. Select one option and prepare a response in a one-page memo format. Attach the necessary distribution chart to support your decision.

Exhibit 1: Selective financial and other variables for projected current year-end

Current Year Ending		
	$	
Sales	250,000	100%
Cost of goods		
Direct material	(70,000)	28%
Direct labor	(20,000)	8%
Manufacturing overhead	(70,000)	28%
Gross profit	90,000	36%
Operating expenses		
Selling	(20,000)	8%
General (includes research, design and distribution)	(15,000)	6%
Administrative	(15,000)	6%
	$	
Operating profit	40,000	16%
Tax rate	30.00%	
	$	
NOPLAT	Compute	
Average balance sheet values		
	$	
Total assets	500,000	
	$	
Current liabilities - noninterest bearing	50,000	
WACC	5.00%	
Growth	1.00%	

Exhibit 2: Financial forecast and other variables for a reduced cost strategic focus

	B Current period	C Cells that need input	E Cells that need input
7	$ 250,000	-1%	1%
	A brief discussion follows each variable describing management's plans/concerns and the estimated risk (percentage range estimate) surrounding the respective variable. **Sales:** Expected to stay the same, yet there is likely to be a small variability.		
9	(70,000)	0%	-2%
	Direct materials: Purchasing to work with suppliers to remove cost from the acquisition process, such as changes in shipping arrangements and packaging. MM's teams work to reduce direct material waste in production. History suggests some variability in direct material cost due to international social, political and economic issues.		
10	(20,000)	1%	-2%
	Direct labor: Tacit knowledge and quality are critical to MM's success. Although the strategic focus is to reduce cost, management does not want to jeopardize MMs' reputation with labor relations. The effort is to reduce cost with efficiency programs and at the same time reward the workforce for dedication and success. The goal is to build in greater efficiency savings than the increase compensation.		
15	(20,000)	1%	-2%
	Selling: Sales team must continue to have direct customer contact. This is essential for maintaining strong customer relationships, eye to future gearing solutions, and the competitive frontier. Management plans to leverage technology through an interactive website to better serve the customer and reduce cost.		
16	(15,000)	-1%	-3%
	General: Two years ago, MM installed a new ERP system. Experience shows that management can continue to leverage the system's capabilities to reduce administrative cost in this category, for example, transaction processing, order processing, and improving labor efficiencies.		
23	Compute	Compute on column values	Compute on column values
	NOPLAT: Required to compute NOPLAT		
26	500,000	.1% To accommodate Excel, enter .001.	-.1% To accommodate Excel, enter -.001.
	Total assets: The plan is to follow a replacement of assets, with little change in total asset value.		
27	50,000	.5% To accommodate Excel, enter .005.	1.5%
	Current liabilities – non-interest bearing: There are newer international suppliers that MM purchases material and supplies that have recently moved to accept electronic payments. Management plans to work with its bank to hold payments for as long as possible and still take advantage of the suppliers' discounts.		

Exhibit 3: Financial forecast and other variables for "an increase in sales of existing products" strategic focus

	B Current period	C Cells that need input	E Cells that need input
7	$ 250,000	2%	4%.
	Sales: Likely to increase with this strategic focus, but the exact amount of increase is difficult to forecast. Selling price per solution to remain the same.		
9	(70,000)	2%	4%
	Direct materials: Variable cost within the relevant range. MM's teams work to hold steady cost per unit. Cost increase in direct relationship to increasing sales.		
10	(20,000)	2.5%	4.5%
	Direct labor: Variable cost within the relevant range. MM's teams work to hold steady the cost per unit. Cost increase in direct relationship to increasing sales, and employ raise expectations. The workforce is committed to MM's success and efforts to expand sales with the existing gearing solutions.		
15	(20,000)	15%	11%
	Selling: Sales team must aggressively continue to have direct customer contact. This is essential for growing sales to new and existing customers. Management recognizes increasing sales requires additional resources.		
16	(15,000)	-1%	-3%
	General: Two years ago, MM installed a new ERP system. Experience shows that management can continue to leverage the system capabilities. Even with an effort to grow sales of existing products, management plans to reduce administrative cost in areas, for example, transaction processing, order processing, and improving labor efficiencies.		
23	Compute	Compute on column values	Compute on column values
	NOPLAT: Required to compute NOPLAT		
26	500,000	2.5%	2%
	Total assets: The plan is to follow a replacement of assets, with asset additions necessary meet customer needs, such as space for serve representatives and related IT infrastructure. Efforts also dedicated to hold accounts receivable and inventory increases to a minimum with increasing sales, yet some increase is expected.		
27	50,000	.5% To accommodate Excel, enter .005.	1.5%
	Current liabilities – non interest bearing: There are newer international suppliers that MM purchases material and supplies that have recently moved to accept electronic payments. Management plans to work with its bank to hold payments for as long as possible and still take advantage of supplier discounts.		

Exhibit 4: Financial forecast and other variables for "an increase in sales of new products to existing and new customers" strategic focus

	B Current period	C Cells that need input	E Cells that need formulas
7	$ 250,000	5%	8%
	Sales: Likely to increase with this strategic focus, but the exact amount of increase is difficult to forecast.		
9	(70,000)	5%	8%
	Direct materials: Variable cost per unit on the new gearing solution projected to stay the same. The increase in direct material cost is off set by the premium pricing for new gearing solutions.		
10	(20,000)	3%	5%
	Direct labor: Variable cost per unit on the new gearing solution projected to stay the same. Management expects labor cost on a percent basis to decline, even with pay raises, because of the premium pricing for new gearing solutions. The workforce is committed to MM's success and anxiously awaits the opportunity to develop and implement new gearing solutions.		
15	(20,000)	20%	15%
	Selling: Sales team must aggressively sell new gearing solutions. Management recognizes increasing sales of new products requires substantially more resources to the selling process.		
16	(15,000)	1%	-1%
	General: Two years ago, MM installed a new ERP system. Experience shows that management can continue to leverage the system capabilities. However, when growth is driven by new gearing solutions, the workforce does not have the time to focus on internal system improvements. Managements expects little change in this cost category.		
23	Compute	Compute on column values	Compute on column values
	NOPLAT: Required to compute NOPLAT		
26	500,000	3%	2%
	Total assets: Management will need to put into place new equipment for manufacturing the new gearing solutions. Accounts receivable and inventory will increase with the increase in sales.		
27	50,000	.5% To accommodate Excel, enter .005.	1.5%
	Current liabilities – non-interest bearing: There are newer international suppliers that MM purchases material and supplies that have recently moved to accept electronic payments. Management plans to work with its bank to hold payments for as long as possible and still take advantage of supplier discounts.		

Student Handout 1 – Discounted Cash Flow (DCF) Model

The DCF model builds from the theoretical cash flow perpetuity model. Copeland and Weston (1988, Appendix A) show the perpetuity model derivation. Work by Koller, Goedhart and Wessels (hereafter KGW) (2010, 39 – 43) serves as an excellent resource showing how the DCF model identifies the key drivers of company value and how the interaction among the drivers increases or decreases company value.

KGW (2010, 41) begin with a definition of company value using widely accepted terminology. The perpetuity model is:

$$Company\ Value\ (DCF\ model)\ = \frac{FCF_{(t=1)}}{WACC - g}$$

All definitions taken from KGW (2010, 39 – 43):

- *FCF*: Free cash flow represents the cash flow generated by the core operations of the business after deducting investments in new capital.
- *WACC*: Weighted average cost of capital is the rate of return that investors expect to earn from investing in the company and therefore the appropriate discount rate for the free cash flow.
- *g*: Growth rate at which the company's net operating profit less adjusted taxes (NOPLAT) and FCF grow each year. The model assumes FCFs are growing at a constant rate (KGW 2010, 41).
- *NOPLAT*: Net operating profit less adjusted taxes represents the profits generated from the company's core operations after subtracting the income taxes related to the core operations.
- The model assumes WACC is greater than g.

Unfortunately, the cash flow perpetuity model is not very practical. KGW (2010) argue that a pure cash flow model does not work in practice. Management can easily manage cash flows by simply timing its payments.

In response KGW (2010, 41) provide a practical solution. They show how to apply the cash flow perpetuity theory with financial statement and related variables in a model they label Key Value Driver Formula. KGW (2010, 42) argue that variables drawn from financial statements compiled under Generally Accepted Accounting Principles (GAAP) places theory in the hands of practice. The measures, although not perfect, build from an established reporting system, GAAP. The Key Value Driver Formula is:

$$Company\ Value\ (DCF\ model)\ = \frac{NOPLAT_{(t=1)}(1 - \frac{g}{ROIC})}{WACC - g}$$

Where: (from Koller, et al (2010, 39 – 43))

- *ROIC*: Return on invested capital measures NOPLAT/Invested Capital.
- *Invested Capital*: represents the cumulative amount the business has invested in its core operations, primarily property, plant, and equipment and working capital. A practical way to think about invested capital is to take total assets and subtract non-interest bearing debt, such as accounts payable.

The Key Value Driver Formula model serves as a forward-looking tool according to Cao, Jiang and Koller (2006), Mass (2005), Lloyd and Davis (2007), and Hill and Zeller (2008). The authors show how to use the four variables to evaluate the key drives of company value and project a strategic direction. Essentially, there are several attributes that management must consider when estimating company value and strategic focus. The advantage of the Key Value Driver Formula model, built from established theory distills the analytics to four variables, NOPLAT, ROIC, WACC and g, according the KGW. (2010, 39, 42).

Beyond an estimate of projected company value, an executive team can use the Key Value Driver Formula to show a company must earn the right to grow. Only when there is sufficient "spread" defined as the difference between ROIC less WACC should a company pursue a growth strategy. If the spread is small, growth adds little value. In fact, the model shows growth destroys wealth when ROIC is less than WACC.

Complete the following steps to gain practical insight about how the key drivers and their interaction affect company value. Open the MM Excel template file, worksheet tab labeled: Student Handout 1 check values. Complete with cell referencing the template by inputting the respective formulas in the blue cells. Writing the formulas and apply input will develop insight necessary to answer case questions.

	B	C
1	**Data section**	
2	NOPLAT	$100
3	Invested capital	$1,000
4	ROIC: calculated from above	Compute with cell referencing
5	WACC	8%
6	g: Growth	3%
7	Spread = ROIC – WACC	Compute with cell referencing
8	DCF model: approximate company value	Excel formula provided, computes automatically.

Check values:

	B	C	
1	**Data section**		
2	NOPLAT	$	100
3	Invested capital	$	1,000
4	ROIC		10.0%
5	WACC		8.0%
6	g: Growth		3.0%
7	Spread = ROIC – WACC		2.0%
8	DCF model: approximate company value	**$**	**1,400**

Once the file is working, change one or more input variables, C3. C4, C6 and/or C7 and observe the change in company value, C9. Observe, in particular, that as spread increases company value increases. What happens to a company value when growth increases, yet the spread is low? Your output should show little change in value when growth is high, yet spread is low. You apply the insight gained from working with the Key Value Driver Formula when answering case questions.

Student Handout 2 – Monte Carlo Simulation Basics

Monte Carlo (MC) simulation is a mathematical tool. The tool builds output for data analytics called upon by all business professionals. Professionals in business and beyond use MC simulation to estimate risk in business decisions. Technology puts MC simulation at the disposal of any business professional. A user can program a Monte Carlo simulation into Excel alone, as done so in this case, or software that runs MC simulation is readily available from for-profit entities as an add-in to Excel. The commercial add-in runs with very little upfront study for anyone that is familiar with Excel and provides extensive statistical output for advanced analytics. The providers of MC simulation software offer free trials for approximately 15 to 30 days.

Work through the following steps to become familiar with MC simulation:

- *Step A*: Learn about MC simulation:
  - Go to: http://www.oracle.com/us/products/applications/crystalball/Crystal-Ball-product/overview/index.html.
  - Open the resources tab and download the white paper titled: Risk Analysis Overview PDF. Read the Risk Analysis Overview and pay particular attention to:
    - What is Monte Carlo Simulation?
    - The section titled: What is Certainty?

- Step B (MM Excel template): open the tab labeled "Student Handout 2 MC demo".
  - Set the screen to show columns A – O. Key is to see the blue input cells and the chart title Monte Carlo Distribution. The chart will generate after you input all the necessary input as specified below. The cells identified with #VALUE! fill-in as you input data.
  - Remember to select F9 to recalculate as you move through the template.
  - Complete the cells as specified below (Identified as blue cells in Excel.). Recognize that estimates at a point in time will actually fall into a range of possible outcomes, depending on what actually takes place during a respective period. Examples provided in the Excel template for cells C7, E7, C9 and E9.

	B	C Cells that need input	E Cells that need input
7	$ 100,000	- 5%, filled-in	5%. filled-in
9	(30,000)	10%, filled-in	-10%, filled-in
10	(20,000)	10%	-10%
15	(10,000)	5%	-10%
16	(5,000)	5%	-10%
26	250,000	5%	-5%
27	30,000	-5% Note opposite sign. A lower current liability results in an increase in invested capital.	5% Note opposite sign. A higher current liability results in a decrease in invested capital.

- Complete the remaining blue cell computations in rows 35 to 41, as practiced in the first student handout. Check figures: B41 = $1,2402,000.
- Observe in rows 49 to 5049 that the file is programmed to run MC simulation. Every time you input data, the system runs the simulation.
- Observe the chart immediately to the right. The chart shows the range of outputs for company value. The key learning point is to recognize that the range in a particular estimate, in C7 to F27, drives the overall range in company value.
    - For example, increase and decrease the percentages used in C9 and E9. Observe that when a range in an estimate increases, the chart range opens, representing greater risk as the possible range in estimates increase. Also, observe that when an estimate range decreases, the chart range tightens, representing lower risk as the possible range in estimates decrease. Essentially, the chart makes explicit the concept of risk management.
    - Explore the above concept by making extreme, plus minus 40 percent changes in estimates.
- Note the similarity in design of Student Handout 2 MC demo to Exhibits 2 – 4 and the tabs for each exhibit in the Excel template.
- To measure risk, evaluate the company value estimates at one standard deviation from the mean for each strategic option. In practice, the outcome will most likely fall within one standard deviation of the mean. The wider the range of values at one standard deviation from the mean, the greater the risk associated with that option.
- Interpretation: *There is a 68% chance a respective strategic focus will generate a company value that falls between $xxx and $xxx as read from the chart.*
- Case question 4 requires you to evaluate the risk of each strategic focus.

REFERENCES

Cao, B., Jiang, B., & Koller, T. (2006, Spring). Balancing ROIC and Growth to Build Value. *McKinsey Quarterly*, 12-17.

Copeland, T. E., & Weston, J. F. (1988). *Financial Theory and Corporate Policy, 3rd ed.* MA: Addison Wesley.

Hill, J. W., & Zeller, T. L. (2008). The New Value Imperative for Privately Hed Companies: The Why, What, and How of Value Management Strategy. *Business Horizons, 51*(6), 541-533.

Koller, T., Goedhart, M., & Wessels, D. (2010). *Valuation: Measuring and Managing the Value of Companies.* (5th, Ed.) Hoboken, New Jersey: John Wiley & Sons, INC.

Lloyd, J., & Davis, L. (2007). Building Long-Term Value: Objective Financial Anslysis Focuses Clients on Business Revenue Growth. *Journal of Accountancy, 204*(5), 56-58, 61-62.

Mass, N. J. (2005). The Relative Value of Growth. *Harvard Business Review, 83*(4), 102-112.

Slee, R. (2007). *Midas Managers: How Every Business They Touch Turns to Gold.* Chicago: Burn the Books Press.

UNDOING THE DUAL CLASS: THE CASE OF MAGNA INTERNATIONAL INC.

Carolyn MacTavish & James Moore
Wilfrid Laurier University

On Friday July 16, 2010 Maria Delulu met with her boss Marcia Williams to discuss Maria's most recent assignment, analyzing the Magna International Inc. proposal. Maria and Marcia worked for the Capital Group of Companies. The Capital Group of Companies, through its private client investment services and mutual funds, was a major shareholder in Magna International Inc. The Capital Group had to decide whether to support Magna's share reorganization proposal that would result in the Stronach family giving up control of Magna in return for an unprecedented $863 million in stock and cash. Prior to her meeting with Marcia, Maria assembled the available information and began her analysis.

COMPANY OVERVIEW

Magna International Inc. (Magna) is a diversified global automotive supplier. Magna designs, develops, and manufactures technologically advanced automotive systems, assemblies, modules and components; and engineers and assembles complete vehicles, primarily for sale to original equipment manufacturers of cars and light trucks. Magna's operating groups include Magna Steyr, Magna Powertrain, Magna Exteriors and Interiors, Magna Seating, Magna Closures, Magna Mirrors, Magna Electronics, and Cosma International. Magna manufactures auto parts that are primarily supplied to General Motors, Ford Motor Company, and Chrysler LLC. In addition to the Big 3 U.S. automakers, Magna's major customers include Volkswagen, BMW, and Toyota. In Europe, Magna Steyr holds contracts for the assembly of the Peugeot RCZ, Aston Martin Rapide, and Mini Countryman. Magna has more than 96,000 employees in 256 manufacturing operations and 82 product development, engineering and sales centres in 26 countries. Magna is North America's largest auto parts manufacturers and one of Canada's largest companies. The company has its headquarters in Aurora, Ontario (Magna International, Inc., 2011).

Frank Stronach and the History of Magna

Frank Stronach is a Canadian business icon. In 1946, at the age of 14, Frank moved to Canada from his native Austria. Frank, of Jewish heritage, had dodged detention and survived the horrors of World War II. He arrived in Canada with little more than the clothes on his back. He set out to learn the tool and die trade. In 1957, he founded Multimatic and began work producing auto parts in his garage; first-year sales were $13,000 Canadian. By 1968, Multimatic had annual sales of $2.6 million in US dollars, and things were just getting underway. Always keeping a tight grip on the controls, Frank merged Multimatic with Magna Electronics in 1969, which was

renamed Magna International in 1973. Riding the growth in the automotive sector, Magna focused on the parts side of the automotive industry, supplying, rather than competing with, growing North American car manufacturers like GM, Ford, and Chrysler. Magna's strategy proved successful, and by 1980 Magna had annual sales approaching $120 million.

Determined to preserve his views and control in a period of rapid growth and change, Frank needed a powerful mission statement. In 1984 Frank caused a stir by implementing the Magna Corporate Constitution. This Corporate Constitution promised 10% of profits to employees, 6% to managers, 20% to shareholders, and 9% to R&D and social programs, with the rest used to pay taxes or reinvest in the business. The constitution proved a success, and Magna set a course for expansion. Within 5 years of adopting the Corporate Constitution, Magna had annual sales of $1.2 billion, up 10 times from 1980.

Magna acquired 80% of New Venture Gear, once a joint-venture between General Motors and Chrysler, in September 2004, and combined it into Magna Powertrain; Magna assumed full ownership in 2007. Magna purchased CTS Fahrzeug-Dachsysteme, the world's leading supplier of convertible roofs, from Porsche in November 2005.

In 2007, Magna considered branching out from being a strict auto parts manufacturer to become a full automobile manufacturer. To that end, Magna engaged in a number of unsuccessful acquisition attempts over the next several years. In 2007, Magna engaged in negotiations to purchase the Chrysler division of DaimlerChrysler. However, the bid was unsuccessful, and the Chrysler division was acquired by Cerberus Capital Management. In early 2008, Magna bid to purchase Aston Martin Lagonda Limited from the Ford Motor Company. Again, the bid was unsuccessful and Aston Martin Lagona Limited was sold to a British consortium led by Dave Richard of Prodrive. In 2009, Magna bid to acquire the European division of General Motors (GM) Opel/Vauxhall from the German government that was supporting the reorganization of Opel/Vauxhall. GM later ceased negotiations after determining that Opel was crucial to its future. These attempted acquisitions were not viewed well by many market analysts who questioned the wisdom of getting into the auto manufacturing business in competition with its own auto manufacturing customers. Since 2009, Magna has not attempted to purchase any auto manufacturers and has focused on its core business of auto parts manufacturing.

Magna's financial performance peaked in 2007 and has declined since. Exhibit 1 provides a summary of recent financial performance.

Share Structure

Magna has a dual class share structure that consists of Class A Shares and Class B shares: "The public shareholders of Magna first approved the dual class share structure in 1978 as part of shareholder approved capital reorganization" (Magna International Inc., 2010b, p. 6). Class A shares carry one vote per share and Class B shares carry 300 votes per share. The Stronach Trust currently has legal and effective control of Magna through its indirect ownership of all of the issued and outstanding Class B Shares (Magna International Inc., 2010b). The current Class A shareholders of Magna are listed in Exhibit 2.

Magna had the outstanding shares and stock prices on May 5, 2010, the day before the share reorganization proposal was announced, that appear in Table 1.

Table 1. Magna's Outstanding Shares and Stock Prices[1]

	Outstanding	Price	Votes
Class A (1 vote)	112,072,348	62.53US$	112,072,348 (34%)
Class B (300 votes)	726,829	Not traded	218,048,700 (66%)
Total			330,121,048 (100%)

THE MAGNA PROPOSAL

On May 6, 2010 Magna released a proposal to its Class A non-voting shareholders that would see the Stronach Trust exchange its class B voting shares for Class A shares, $300 million in cash, and a controlling interest in Magna's vehicle electrification division. Exhibit 3 contains extracts from the proposal.

Shareholder Reaction and Magna's Response

After the issuance of the proposal by Magna, shareholder reaction was mixed. On June 2, 2010 the Canada Pension Plan Investment Board (CPPIB) released a statement opposing the proposal. Exhibit 4 contains extracts from the CPPIB statement. On June 3, 2010 the Ontario Teachers' Pension Plan (OTPP) released a statement opposing the proposal. Exhibit 5 contains extracts from the OTPP statement. On June 14, 2010 Magna responded by releasing extracts from a report by RiskMetrics, an independent proxy advisor. Exhibit 6 offers extracts from Magna's press release that announced the support of RiskMetrics.

Regulator Response

On June 15, 2010, the Ontario Securities Commission (OSC) announced that it would convene a hearing on June 23, 2010 to determine whether it was in the public interest to prevent Magna's proposed transaction from proceeding. The hearing was conducted on June 23 and 24. On June 25, 2010 the OSC ordered Magna to provide additional disclosures to Class A shareholders. Primarily, the OSC ordered Magna to provide the CIBC Valuation report on the transaction and the PWC valuation report on the vehicle electrification division. Exhibit 7 contains the executive summary of the CIBC Valuation report. The PWC valuation report on the vehicle electrification division indicated a value of between $65 and $85 million dollars.

Market Response

The stock price reaction to the proposal was swift and positive. On May 5, 2010, the day before the proposal was released, Magna's Class A closing share price was Cdn $64.39. On May 6, 2010 Magna's Class A closing share price was $73.24, a one day increase of 13.74%. Exhibit 8 contains a chronology of the major events around the proposal and the closing Class A stock price.

THE MEETING

Maria and Marcia met to discuss the Magna Proposal.

Marcia: Maria, I need you to prepare a report that analyzes the Magna proposal. Your report will be distributed to our clients and fund managers and should contain a recommendation on whether or not to support the proposal.

Maria: The proposal is complex and involves three intertwined issues: the elimination of the dual class share structure, the spinoff of the vehicle electrification division, and the end of the consulting fees.

Marcia: Agreed, but we must decide whether to support the whole proposal since it does not seem possible to break up the proposal or to vote on parts of it. Stronach has been clear that it is the entire proposal as is or no deal. I think we can rely on the PWC valuation report, so please focus your analysis on the overall deal.

Maria: Clearly the dual class share structure is a problem. It results in a situation where Frank Stronach can do whatever he wants and nobody can stop him. Stronach once proclaimed at a company management meeting, "I am King". As King, he has given himself hugely generous consulting contracts and invested Magna funds in dubious investments like racetracks. Horses are one of his many hobbies.

Marcia: On the other hand, he has been at the helm of Magna as it has grown from a small company working out of a garage to one of the world's largest auto parts manufacturers. He probably deserves something for his efforts, but the question is, whether the price he is demanding is too high? The Canada Pension Plan Investment Board and the Ontario Teachers' Pension Plan are very influential players in Canadian stock markets because of their huge size and because of the quality of their professional management. They seem to feel the premium Stronach is charging is too much. The Ontario Teachers' Pension Plan has gone so far as to suggest there should be no premium. That suggestion does not seem realistic because I am not sure why Stronach would want to give up control without some compensation.

Maria: I think I will start by trying to figure out how much Magna should be worth if the dual class share structure is eliminated. Then I will compare it to the current value, figure out how much is gained by eliminating the dual class share structure, and see how much Stronach is getting from the expected gain.

Marcia: That sounds like a good approach.

Exhibit 1. Magna's Recent Financial Performance[2]

FINANCIAL SUMMARY
(U.S. dollars in millions, except per share figures)
(unaudited)

Years ended December 31,	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**
Total sales	17,367	23,704	26,067	24,180	22,811	20,653	15,345
Depreciation	737	873	872	790	711	598	506
Net (loss) income from continuing operations	(493)	71	663	528	639	676	567
Net (loss) income	(493)	71	663	528	639	676	500
Diluted (loss) earnings per Share from continuing operations	(4.41)	0.62	5.86	4.78	5.90	6.95	5.89
Diluted (loss) earnings per Share	(4.41)	0.62	5.86	4.78	5.90	6.95	5.19
Average number of shares outstanding	111.8	112.8	111.4	108.6	106.7	96.7	95.9
Cash dividends paid per share	0.18	1.26	1.15	1.52	1.52	1.48	1.36
Cash flow from operations	527	1,054	1,593	1,596	1,698	1,381	1,184
Capital expenditures	629	739	741	793	848	859	801
Working capital	2,004	2,258	3,112	2,277	2,215	2,183	1,937
Fixed assets, net	3,811	3,701	4,307	4,114	4,124	3,967	3,313
Total assets	12,303	13,189	15,343	13,154	12,321	11,615	9,871
Long-term debt	115	143	337	605	700	984	766
Shareholders' equity	7,360	7,363	8,642	7,157	6,565	5,335	4,533
Long-term debt to equity ratio	0.02:1	0.02:1	0.04:1	0.08:1	0.11:1	0.18:1	0.17:1

Exhibit 2. Magna's Current Class A Shareholders[3]

Institution	Position (000)	% S/O	Style
McLean Budden Ltd.	7 ,575	6.7%	Core Growth
Tradewinds Global Investors, LLC	6 ,095	5.4%	Core Value
Capital Research Global Investors	4 ,510	4.0%	Core Value
Pzena Investment Management, LLC	4 ,270	3.8%	Core Value
Hamblin Watsa Investment Counsel Ltd.	3 ,465	3.1%	GARP
BlackRock Asset Management Canada Limited	3 ,390	3.0%	Index
RBC Asset Management, Inc.	2 ,932	2.6%	Core Value
Capital World Investors	2 ,575	2.3%	Core Value
Phillips, Hager & North Investment Management Ltd.	2 ,495	2.2%	GARP
Goodman & Company, Investment Counsel	2 ,475	2.2%	GARP
CIBC Global Asset Management Inc.	1 ,960	1.7%	Core Value
Letko, Brosseau & Associates Inc.	1 ,913	1.7%	Deep Value
Harris Investment Management, Inc.	1 ,805	1.6%	Core Value
TD Asset Management Inc.	1 ,775	1.6%	Index
Connor, Clark & Lunn Investment Mgmt., Ltd.	1 ,750	1.6%	Core Value
Tetrem Capital Management Ltd.	1 ,690	1.5%	Core Value
GWL Investment Management Ltd.	1 ,555	1.4%	Core Growth
Brandes Investment Partners, LP	1 ,440	1.3%	Core Value
BlackRock Institutional Trust Company, N.A.	1 ,340	1.2%	Index
TD Securities, Inc.	1 ,245	1.1%	Broker-Dealer
Top 20 Shareholders	56,255	49.9%	
Other Institutional Investors	29,464	26.1%	
Total Institutional Investors	85,719	76.0%	
Retail Investors	19,220	17.0%	
Insiders, Class B Shares, DPSP, Subsidiaries	7,825	6.9%	
Total Shares Outstanding	112,764	100.0%	

Exhibit 3. The Magna Proposal[4]

In the fall of 2009, executive management and the Corporate Governance and Compensation Committee of the Board commenced a review of potential structures and incentives relating to Magna's vehicle electrification and product diversification strategies, including potential management co-investment rights.

In March 2010, these discussions led to a broader discussion between Mr. Stronach; Vincent J. Galifi, Executive Vice-President and Chief Financial Officer; and Jeffrey O. Palmer, Executive Vice-President and Chief Legal Officer, about succession planning and related issues. Knowing that investors and analysts had, for many years, expressed concerns regarding Magna's dual class share structure, Messrs. Galifi and Palmer asked Mr. Stronach whether he regarded the Class B Shares as an inter-generational asset or whether he would possibly consider a transaction which would eliminate the dual class share structure as part of an overall reorganization to address succession concerns and related issues. Mr. Stronach indicated that, while he was content with the status quo, he would be willing to consider such a transaction provided it was supported by the holders of the Class A Subordinate Voting Shares and did not jeopardize Magna's entrepreneurial culture or the key operating principles embodied in its Corporate Constitution.

In light of Mr. Stronach's response, executive management began to develop a conceptual proposal for a possible transaction which could be value enhancing for Magna and its shareholders and acceptable to the Stronach Trust. In developing the conceptual proposal, executive management took into account various factors, including the following:

- despite Magna's strong operating and financial performance, the Class A Subordinate Voting Shares have traded at enterprise value to EBITDA multiples that are significantly below Magna's industry peers (see table below);

Historical Enterprise Value / 1-Year Forward EBITDA

								Average	
	2001	2002	2003	2004	2005	2006	2007	'01-'07	31-Mar-10
Johnson Controls Inc.	5.5x	5.9x	5.8x	6.7x	6.8x	8.8x	9.9x	7.1x	10.5x
Lear Corporation	4.8x	5.2x	5.0x	5.2x	5.5x	4.8x	5.1x	5.1x	5.4x
BorgWarner Inc.	5.6x	5.7x	5.3x	5.9x	5.9x	6.2x	7.9x	6.1x	9.0x
American Axle & Manufacturing Holdings.	4.9x	5.1x	4.3x	4.5x	5.0x	5.0x	4.9x	4.8x	5.3x
TRW Automotive Holdings Corp.*	N/A	N/A	N/A	4.6x	4.5x	4.6x	5.2x	4.8x	4.3x
U.S. Comparables Average	5.2x	5.5x	5.1x	5.4x	5.5x	5.9x	6.6x	5.6x	6.9x
Magna	3.7x	3.9x	4.5x	4.4x	4.1x	4.1x	4.4x	4.2x	4.6x
Magna Discount to U.S. Comparables	(1.5)x	(1.6)x	(0.7)x	(1.0)x	(1.4)x	(1.8)x	(2.2)x	(1.4)x	(2.3)x

Source: Magna, Bloomberg Financial Markets and Capital IQ.
Class A Subordinate Voting Share prices as per Bloomberg Financial Markets; capitalization as per Magna's financial statements; consensus
estimates as per Capital IQ.
Data for the years 2008 and 2009 were not considered meaningful given the significant deterioration of the global economy as a whole, and the automotive sector in particular, during those periods.
*TRW Automotive Holdings Corp. completed its initial public offering on February 2, 2004.

- the potential positive impact on the trading price of the Class A Subordinate Voting Shares of a transaction which results in the elimination of the dual class share structure;
- the expectation of increased marketability and improved liquidity of Magna's equity securities following the elimination of the dual class share structure;
- higher trading values and enhanced marketability would correspondingly enhance Magna's ability to raise equity capital at a lower cost of capital and make equity a more attractive currency for future potential acquisitions or investments;
- the opportunity for an orderly transition that ensures the preservation and promotion of Magna's core values and operating philosophies notwithstanding the elimination of the dual class share structure;
- the desirability of having Mr. Stronach continue to provide his insight and leadership to Magna through an appropriate transition period;
- the certainty regarding the future of Magna's consulting arrangements with Mr. Stronach and his affiliated entities resulting from a fixed expiry date and fixed annual fees payable under the Consulting Agreements;
- the concern expressed by some holders of Class A Subordinate Voting Shares as to the alignment of interests of all Shareholders;
- the implied value of the Stronach Trust's control block in the Russian Machines Transaction, which was negotiated at arm's length;
- the implied value of the Stronach Trust's control block reflected in the arm's length privatization proposals previously discussed with potential investors and intermediaries;
- Mr. Stronach's desire for the Stronach Trust to have a continuing equity interest in Magna; and
- Mr. Stronach's desire to have a direct and controlling interest in Magna's vehicle electrification business (and historical co-participation precedents within the Magna Group consistent with that objective).

On April 5, 2010, Donald J. Walker, Co-Chief Executive Officer, and Messrs. Galifi and Palmer met with Mr. Stronach to discuss a conceptual proposal involving three principal elements: (i) Magna purchasing for cancellation all the Class B Shares for consideration comprised of 9,000,000 Class A Subordinate Voting Shares and $300 million in cash; (ii) amendments to the Consulting Agreements to provide for a five year non-renewable term and fixed annual aggregate fees; and (iii) a partnership between the Stronach Trust and Magna in respect of the vehicle electrification business.

These members of executive management indicated that, if Mr. Stronach was willing to consider such a conceptual proposal, they would advise the Magna Board so that a special committee of independent directors could be established to oversee a process of reviewing the conceptual proposal. Mr. Stronach advised these executives that he thought the conceptual proposal could possibly lead to an acceptable transaction, but emphasized that he was content with the status quo and that he wished to retain control of Magna's new operating group, the vehicle electrification initiative, because, in his view, it needed a "focused and strong hand" to guide it through its early and formative stages. He also indicated that he would not object to executive management working with the Magna Board to develop a more detailed proposal, but expressed his overriding concern for preserving the culture and key operating principles on which Magna had been built, particularly the Corporate Constitution, and further advised that any proposal would

have to be supported by a majority of the minority holders of Class A Subordinate Voting Shares even if such a vote was not legally required.

In order to explore whether such a conceptual proposal might be achievable, at executive management's request, a meeting of the Magna Board was called and held on April 8, 2010 at which the directors were informed of the conceptual proposal.

Special Committee Consideration and Review of the Proposal

At the April 8, 2010 meeting, the Magna Board established the Special Committee, comprised of Michael D. Harris (Chair), Louis E. Lataif and Donald Resnick. The mandate of the Special Committee was to review and consider the Proposal developed by executive management for submission initially to the Stronach Trust and, if acceptable to the Stronach Trust, to report to the Magna Board as to whether the Proposal should be submitted to the holders of Class A Subordinate Voting Shares for their consideration. All independent directors were invited to participate in the Special Committee process and were notified of all scheduled meetings.

Determinations of the Special Committee

At a meeting of the Special Committee held on May 5, 2010, the Special Committee delivered its report to the Magna Board in which it concluded that the Magna Board should:

- submit the Arrangement Resolution to a vote of the Shareholders at the Meeting and, in furtherance thereof, authorize Magna to enter into the Transaction Agreement; and
- make no recommendation to Shareholders as to how they should vote in respect of the Arrangement Resolution but advised Shareholders they should take into account the considerations described below under "Factors Considered by the Special Committee", among others, in determining how to vote in respect of the Arrangement Resolution.

Factors Considered by the Special Committee

The Special Committee did not make any recommendation with respect to the Proposal, including as to the fairness of the Arrangement to Magna, its Shareholders or other stakeholders or as to how Shareholders should vote their Class A Subordinate Voting Shares with respect to the Arrangement Resolution. The Special Committee did not make any such recommendation for a number of reasons, including those set out below:

- while the Proposal, if implemented, would result in the elimination of Magna's dual class share structure, certain of the benefits that may arise as a result were not capable of being quantified in advance, including the potential increase in the trading value of the Class A Subordinate Voting Shares if the Proposal is implemented;
- advice from CIBC that, if Magna's potential purchase for cancellation of all of the outstanding Class B Shares in consideration for a combination of 9,000,000 newly-issued Class A Subordinate Voting Shares and $300 million in cash were implemented, the dilution to the holders of Class A Subordinate Voting Shares (disregarding the impact of any potential change in the trading multiple for the Class A Subordinate Voting Shares as a result of the change in the capital structure) would be significantly greater than was the case for other historical transactions in which dual class share structures were collapsed. The historical transactions reviewed by CIBC were similar in some respects, but not

identical, to the proposed repurchase of the Class B Shares; pursuant to the terms of its engagement with the Special Committee, CIBC did not provide a fairness opinion, adequacy opinion or formal valuation; and
- the unique circumstances of Magna and its relationship with its founder, Mr. Stronach, and the value placed on that relationship, including Mr. Stronach's influence on the culture and key operating principles on which Magna was founded, including the Corporate Constitution, and the significant growth and development of Magna since the implementation of Magna's dual class share structure.

Principal Effects of the Arrangement

- Magna will, directly or indirectly, acquire and cancel all of the issued and outstanding 726,829 Class B Shares beneficially owned indirectly by the Stronach Trust for consideration comprised of US $300 million in cash and 9,000,000 Class A Subordinate Voting Shares (common shares) issued from treasury;
- the Class B Shares will be removed from the authorized capital of Magna;
- the Class A Subordinate Voting Shares will be renamed as "common shares";
- Magna will have a single class of outstanding voting equity securities called "common shares";
- each common share will carry one vote per share;
- the Stronach Trust will beneficially own, indirectly, approximately 7.44% of the issued and outstanding common shares of Magna;
- each holder of common shares will have a voting interest that is proportionate to the holder's equity ownership interest;
- the Stronach Trust will indirectly invest $80 million in cash for a 26.67% interest in the E-Car
- Partnership, a partnership in which Magna will have indirectly invested $220 million in assets and cash for a 73.33% interest; and
- the Stronach Trust will, indirectly, have effective control over the E-Car Partnership through the right to appoint three of the five members of the management committee of general partners.

Notwithstanding the powers of the management committee to supervise the business of the E-Car Partnership, Magna will, indirectly, have effective veto rights in respect of certain fundamental changes and specified business decisions.

If the Arrangement is approved and implemented, the Amended Consulting Agreements will be entered into between Magna and certain of its subsidiaries and Mr. Stronach and certain of his affiliated entities.

The Amended Consulting Agreements result in the Stronach Trust's current consulting rate of 3% of pre-tax profits to be reduced by 0.25% per year starting in 2011 and then eliminated in 2015.[5]

Exhibit 4. Canada Pension Plan Investment Board (CPPIB) Statement[6]

The CPP Investment Board is a professional investment management organization that invests the funds not needed by the Canada Pension Plan to pay current benefits on behalf of 17 million Canadian contributors and beneficiaries. In order to build a diversified portfolio of CPP assets, the CPP Investment Board invests in public equities, private equities, real estate, inflation-linked bonds, infrastructure and fixed income instruments. Headquartered in Toronto, with offices in London and Hong Kong, the CPP Investment Board is governed and managed independently of the Canada Pension Plan and at arm's length from governments. At March 31, 2010, the CPP Fund totaled C$127.6 billion.

The CPP Investment Board holds 1.09 million or almost one per cent of Magna's A shares, ranking it among the company's top 15 shareholders.

On June 3, 2010, the CPP Investment Board (CPPIB) announced that it will vote against the proposed transaction agreement between Magna International Inc. (Magna) and the Stronach Trust entered into on May 6, 2010….The CPPIB issued the following statement:

> "CPPIB is opposed to dual class share structures involving different voting rights and therefore would generally support transactions involving conversion of such share structures into a single class with equal voting shares. However, we believe that the premium being paid in this transaction is totally unreasonable," said David Denison, President & CEO, CPP Investment Board. "This proposal is, in our view, unfair and unreasonable to the holders of subordinate voting shares."
>
> "CPPIB is particularly concerned that the Special Committee of Magna's Board of Directors did not make any recommendation with respect to the proposal, including as to the fairness of the arrangement to Magna, its shareholders or other stakeholders, and that CIBC, which was retained by the Special Committee, did not provide a fairness opinion. We urge the Board to develop a proposal to eliminate their dual class share structure in an equitable way."

Exhibit 5. The Ontario Teachers' Pension Fund Statement[7]

The Ontario Teachers' Pension Plan (Teachers') is the largest single-profession pension plan in Canada, with $117.1 billion in net assets at December 31, 2011. As an independent organization, it invests the pension fund's assets and administers the pensions of 300,000 active and retired teachers in Ontario.[8]

Magna International's proposal to eliminate the company's dual-class share structure is fundamentally unfair to the company's subordinate voting shareholders. It also raises a number of larger governance questions as to whether the board of directors has fulfilled its duty, as well as the purpose of and benefits to shareholders of dual-class share structures. The Ontario Teachers' Pension Plan intends to vote against the proposed transaction for the reasons set out below.

There are three parts to Magna's proposed transaction:

1. elimination of the dual-class share structure whereby the Stronach Trust will receive a US$300 million cash payment and 9 million Class A (single voting) shares, with a total financial value of US$863 million in exchange for 726,829 Class B (multiple voting) shares
2. elimination of Mr. Stronach's consulting contract by the end of 2014
3. establishment of a private joint venture, controlled by Mr. Stronach, for Magna's E-Car business

The Magna board is asking the Class A Shareholders to decide for themselves whether the proposed transaction is fair and reasonable. The Magna board will then be asking the Ontario Superior Court of Justice to determine that the Arrangement is fair and reasonable, something the Special Committee considered a "key procedural safeguard". Yet the board itself is unwilling to make that determination despite being in the best position to do so in terms of having access to management, independent valuation work and other material non-public information of the Company.

Teachers' has long supported the principle of one share, one vote. We have advocated against dual-class share structures for many years; however, we believe Magna's proposal is an unprecedented and excessive transfer of wealth from shareholders to the Stronach Trust, and we question the appropriateness of the significant payment to the Stronach Trust.

As a proponent of good governance and a major participant in capital markets, Teachers' will not support dual-class share collapses at any company that would transfer significant company and shareholder wealth to the controlling shareholder to eliminate multiple-voting shares. We believe premiums at the level proposed by Magna are excessive and unwarranted and are concerned that this transaction would set a bad precedent for future dual share collapses.

The questions we asked ourselves about the proposed transaction and our analysis follows.

Is it appropriate for the company to pay this premium to eliminate its multiple-voting shares?

It is rare for controlling shareholders to receive a premium over the value of the subordinate shares when companies eliminate multiple voting shares. In most relevant cases we could find (i.e., outside of takeover bid or acquisition situations), the multiple voting shares were exchanged for common shares on a one-for-one basis when the voting structure was collapsed.

Other Canadian dual class eliminations since 2000

				Consideration paid to controlling shareholder(s)						
Announce date	Company	Ownership Interest˚	Conv. Ratio †	Sub. voting shares received	Option grant	$/share	Cash	Total value/share	Implied premium vs. sub. voting	Change in ownership interest as % of total shares o/s
				(000's)	(000's)		(mm)			
6-May-10	Magna International	0.6%	12.38	9,000		US$62.53	US$300M	US$1,187.03	1798.3%	6.8%
19-Sep-06	Atrium Biotechnologies	48.3%	1.00	14,000		C$16.25	C$0	C$16.25	0.0%	0.0%
26-Feb-04	MDC Partners	20.3%	1.00	448		C$18.87	C$0	C$18.87	0.0%	0.0%
3-Feb-04	Gildan Activewear Inc.	17.3%	1.00	6,094		C$40.00	C$0	C$40.00	0.0%	0.0%
11-Dec-03	Sherritt International	1.6%	1.00	0	1,400	C$6.10	C$0	C$10.13	66.1%	1.1%
17-Oct-03	Sino-Forest Corp.	24.2%	1.00	6,000		C$3.07	C$0	C$3.07	0.0%	0.0%
27-May-03	Home Capital Group	18.0%	1.00	983		C$18.01	C$0	C$18.01	0.0%	0.0%
7-May-03	Sceptre Investment Counsel	10.4%	1.00	9		C$4.70	C$0	C$4.70	0.0%	0.0%
26-Apr-01	Assante Corporation	41.6%	1.00	14,563		C$4.70	C$0	C$4.70	0.0%	0.0%

Source: Company filings, press releases, Bloomberg and OTPP

˚ Represents shares as a percentage of total shares outstanding.

† The ratio of subordinate (common) shares received in exchange for each multiple-voting share.

What these examples appear to acknowledge is that the voting rights and economic rights, in the case of multiple-voting shares, are separate. Mr. Stronach and other proponents of dual-class share structures argue that multiple-voting shares are in the best interests of the company and all of its shareholders because they allow the vote holder (usually the company's founder and business leader) to make long-term strategic decisions aimed at creating extraordinary value for all shareowners. According to that argument, a dual-class share structure is simply a corporate governance framework, the benefits of which are meant to accrue to all shareholders. (Indeed, in the meeting circular, the company describes the Stronach family as having been the "custodian" of Magna's corporate culture through its control of the Class B shares.) It seems logical then, that any economic value to be derived from the structure belongs to the corporation and all of its shareholders.

Dual-class share structures are usually collapsed when a company's strategy has become established and has had time to play out, or as part of a succession planning process where the visionary founder no longer plans to be as involved with the day-to-day business. It stands to reason that there ought to be no payment to the holder of the multiple-voting shares simply because the time has come for the company's voting rights to be normalized. This transaction is not a takeover; it is simply a governance change. If the holder of the multiple-voting shares is truly the "custodian" of the company's best interests, it would surely put these interests ahead of its own.

In the precedent dual-class share elimination transactions we reviewed, the multiple-voting shareholders were rewarded the same way as all other shareholders – namely, through an increase in the value of common shares into which their multiple voting shares were converted (on a one-for-one basis).

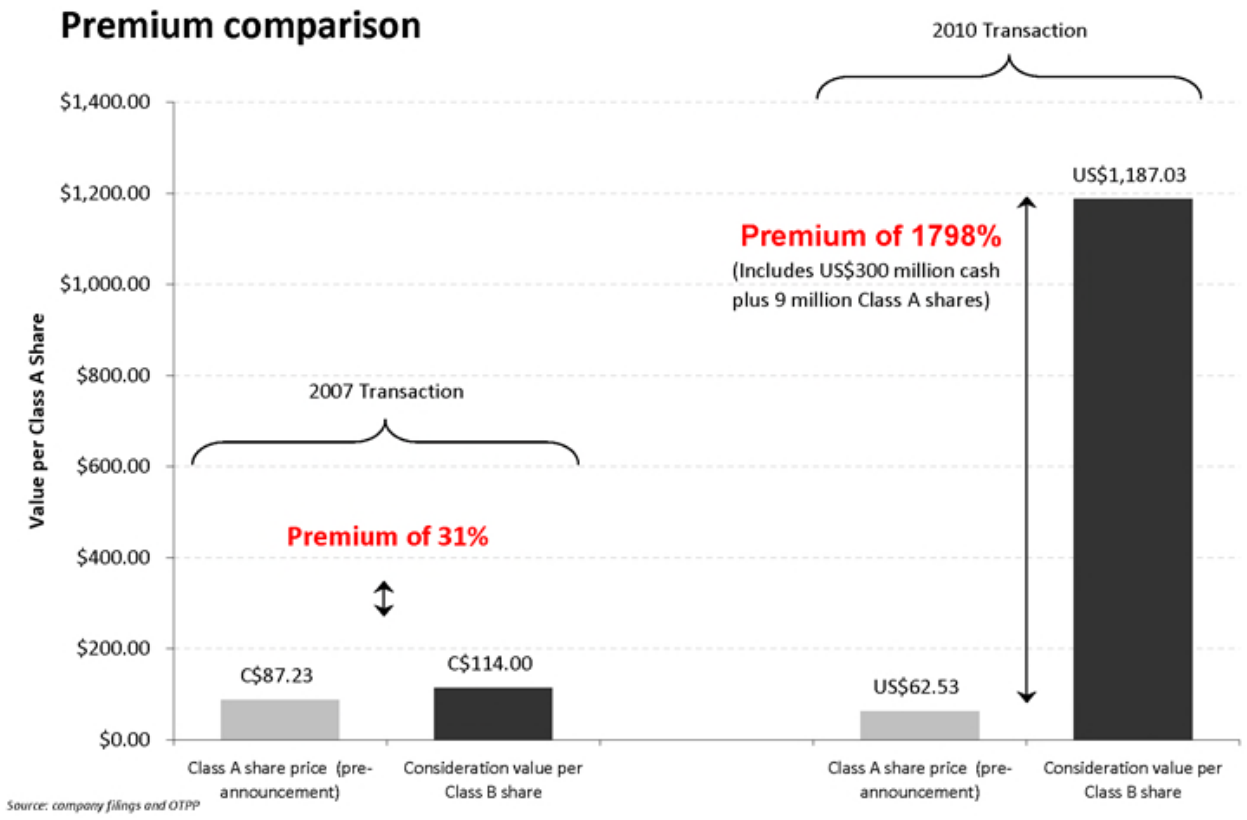
It is noteworthy that in most of these examples, the controlling shareholders' multiple-voting shares represented a significant economic interest in the company (as distinct from the number of votes controlled). This is not the case at Magna. Mr. Stronach's Class B shares currently represent just 0.6% of the Class A and Class B shares combined.

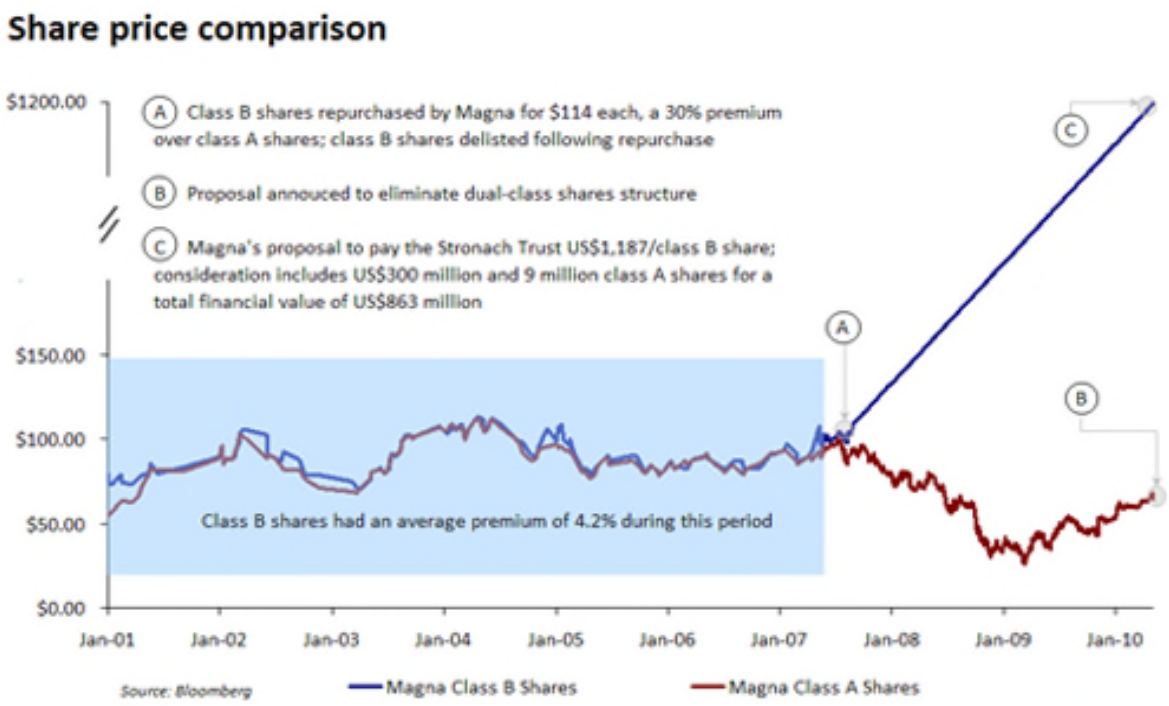
The proposed US$863 million total payment for the Stronach family's 726,829 Class B shares amounts to US$1,187 per share. The proposal, as announced, represents a premium of approximately 1,800% over the pre-announcement trading price for the Class A shares on May 6, 2010. Our research found no precedent for anything close to such a premium.

Are the Class B shares worth US$863 million?

Magna's Class B shares have not traded publicly since 2007. One proxy for their value could be the price the company paid in 2007 to repurchase all Class B shares from holders other than Mr. Stronach in a complex deal involving Russian billionaire Oleg Deripaska.

In that transaction, the Class B shares were valued at $114 each, representing a 30% premium over the trading value of the Class A shares at the time. (Teachers' was a vocal critic of the 2007 transaction as one that was too rich and unfair to the Class A shareholders.) A 30% premium over the pre-announcement trading price of the Class A shares on May 6, 2010, (approximately $64) would be roughly $83 per Class B share, or $63 million in total, far below the proposed payment of US$863 million.





A better proxy may be the historical relative market prices of the Magna Class A and B shares from 2001 until 2007 (when the Class B shares ceased trading publicly). It is interesting to note that the average price premium from 2001 to 2007 of the Class Bs over the Class As was just 4.2%. This can be taken as a clear signal from the market that the value of the Class B shares during that period was effectively the same as the Class A shares. We ask ourselves, what has changed since 2007 to justify such a massive premium?

With these comparisons in mind, it is difficult to understand the basis for the US$863 million payment Magna proposes for Mr. Stronach. We found nothing in the management information circular in the way of a detailed rationale for the proposed payment. We consider this to be especially important given the current value of Magna's Class A shares (which the Class B shares used to track closely) and the precedent transactions where no premium was paid to holders of multiple voting shares when dual class share structures were eliminated.

Have the Magna directors fulfilled their duties?

Directors are required to make decisions in the best interests of the Corporation. The directors of Magna appear not to have made a decision whether the arrangement is in the best interests of the Corporation. Instead they have passed the buck to the Class A Shareholders and the Court. The Ontario Securities Commission and the Autorité des marchés financiers have stated that, in related party transactions, directors should disclose their reasonable belief as to the desirability or fairness of the proposed transaction and make useful recommendations regarding the transaction. The Magna Special Committee and the Board have not done this. Yet they expect the Class A shareholders to make a decision as to whether this transaction is in their best interests.

Shouldn't the proposal have included a fairness opinion?

Whether or not technically required, a fairness opinion detailing the basis for this transaction would have helped shareholders make an informed voting decision, particularly given that:

1. Mr. Stronach and the Stronach Trust are related parties to Magna;
2. the proposed level of compensation to collapse a company's share structure is unprecedented; and
3. the Special Committee did not make any recommendation with respect to the Proposal, including as to the fairness of the Arrangement to Magna, its Shareholders or other stakeholders or as to how Shareholders should vote their Class A Subordinate Voting Shares (page12, information circular).

Magna will be asking the Ontario Superior Court of Justice to determine that the Arrangement is fair and reasonable, something the Special Committee considered a "key procedural safeguard". Without a fairness opinion or a determination from the Special Committee, how the Court can make that determination? Yet the fact that a Court will make that determination is one of the considerations that shareholders are advised to take into account in determining how to vote.

The fact that CIBC, the independent financial advisor to the Special Committee, had in the terms of its engagement that it would not provide a fairness opinion is, in our view, highly unusual and very telling. This is especially so given its advice to the Special Committee that the US$863 million purchase price for the Class B shares would result in significantly more dilution to the Class A shareholders than under other historical transactions.

Shareholders should also have received a fairness opinion on the value of the assets to be contributed by Magna to the proposed E-Car joint venture. No fairness opinion was sought or obtained by the Special Committee according to the information circular. The circular does refer to the valuation work conducted by PwC for the Special Committee, which we believe should have been reproduced to allow shareholders to review and understand the basis for the value of Magna's asset contribution to the joint venture.

Of particular concern is the fact that fairness opinions often rely, in part, on precedent transactions. Given our view that this transaction is unprecedented, highly excessive, and unfair to Class A shareholders we are concerned that, if approved, it will serve as a future precedent supporting fairness opinions for other companies wishing to eliminate multiple-voting shares with a significant payment to the controlling shareholder.

Why would the consulting agreements continue through 2014?

Mr. Stronach currently receives 3% of Magna's pre-tax profits in consulting fees, an amount that would be reduced in stages to 2% by 2014 and eliminated at the end of that year, according to the proposal.

Historically, this contract has paid Mr. Stronach compensation upwards of $30 million annually, although he was paid nothing in 2009 when there were no company profits. Co-CEOs Don Walker and Siegfried Wolf noted that the proposed transaction "has the potential to unlock significant shareholder value for Magna shareholders." However, continuing to compensate family members and executives from the company's pre-tax profit significantly reduces returns for

shareholders and raises questions about the company's ability to maximize shareholder value in its dealings with related parties.

As the consulting agreements would otherwise expire at the end of 2010, we looked to the information circular to explain the rationale for the continuation of the consulting agreements through 2014.That rationale seemed to be only that the Amended Consulting Agreements provide "certainty" regarding the future consulting arrangements with Mr. Stronach and a "transitional period" during which Magna will continue to benefit from Mr. Stronach's advice.

We note that the amendments to the consulting agreements provide certainty to Mr. Stronach in so far as, upon a change of control, he will be paid either an accelerated lump-sum amount (based on a discount rate which is not specified in the circular), or the continuation of fees until 2014, in either case based on the company's "estimated profits" for each year through 2014. We ask ourselves why these amendments were considered necessary, especially given the size of the proposed consideration to be paid to the Stronach family to repurchase the Class B shares.

How well have shareholders' interests been served by this proposal?

Beyond the terms of the proposal and the questions they raise, the larger issue is whether this transaction is in the best interests of Magna shareholders.

The company noted in its press release that the elimination of the dual-class share structure aims to reduce the stock's trading discount to the level of its industry peers by creating a fairer structure for shareholders. While the share price has lifted in the short term, the future impact and long-term implications of this transaction remain unclear, partly due to the many unanswered questions this proposal raises. Mr Stronach is quoted as saying that the proposed changes could actually give him more influence at Magna than he has right now. If this is true, we question what is really changing at Magna as a result of this proposal.

For these many reasons, and after reviewing the information circular, we believe the transaction is excessive, unprecedented and unfair to shareholders. While Teachers' is supportive of eliminating dual-class share structures, we intend to vote against the proposed transaction. We encourage the company to develop a proposal that is fair to all shareholders.

Exhibit 6. Extracts from Magna Press Release Announcing RiskMetrics Support[9]

June 14, 2010, Aurora, Ontario, Canada……Magna International Inc. (TSX: MG.A, NYSE: MGA) today announced that RiskMetrics Group, an independent proxy advisor, has recommended to its institutional clients that they vote in favour of a proposed transaction that would eliminate Magna's dual class share structure. The Magna shareholder vote is scheduled to take place at a special meeting on June 28, 2010.

In its report, RiskMetrics wrote:

"In our view, the potential benefits of the one-share-one-vote structure would include, among others, the following:

- the elimination of all or part of the seemingly long existing trading discount of the Class A shares and the unlocking of shareholder value as the market has already implied;
- enhanced accountability of directors as they will be elected or removed by public shareholders instead of the current controlling shareholder;
- greater access to capital as investors previously unwilling or unable to invest in Magna will become interested, resulting in lower cost of capital; and
- removal of the controlling impediment to potential takeover interest.

While we acknowledge legitimate corporate governance concerns regarding the Magna transaction, we believe the potential downside risk of missing this unexpected opportunity to get rid of the multiple voting shares even at such a high price, and the potential benefits aforementioned would outweigh the corporate governance concerns and thus be acceptable to shareholders concerned with future long-term growth and value...

Whether the expansion of trading multiple may be sustainable over the long run remains to be seen, however we believe that voting down the Magna proposal would probably eliminate any multiple expansion to date and reduce shareholder value significantly."

Vincent J. Galifi, Executive Vice President and Chief Financial Officer of Magna, said: "We welcome RiskMetrics' recommendation and encourage all of our shareholders to read the proxy circular in its entirety and vote their shares at the special meeting."

Exhibit 7. CIBC Valuation Report Executive Summary[10]

Introduction:

- CIBC World Markets Inc. ("CIBC") is pleased to meet with the special committee ("Special Committee") of the Board of Directors (the "Board") of Magna International Inc. ("Magna" or the "Company") to discuss the Project Raven Proposal (the "Proposal")
- We have undertaken a review of precedent dual-class share reorganizations
  - Assessment of post-reorganization dilution to subordinate voting shareholders
  - Examination of post-announcement market reaction including share price performance and research analyst commentary
- We developed and completed a benchmarking analysis of Magna against its peer group
  - Review of historical operating performance and key financial metrics
  - Identified key comparables which we have focused on in our analysis
- We have analyzed the Company's historical trading valuation versus its peers to assess the magnitude of Magna's valuation discount over time
- In addition, we have examined equity research to determine key valuation parameters and assess the Company's relative valuation versus the peer group
  - Reviewed current research to assess analysts' methodology used in setting target prices
  - Reviewed historical Magna equity research dating back to 1998 to evaluate market sentiment on relative valuation and key factors influencing the Company's trading value
- We have reviewed Magna's shareholder base and compared it to the shareholder bases of its peers
- We have conducted a review of the Proposal and its pro forma impact on shareholders
  - Includes sensitivity analysis of the proposed terms and pro forma trading multiple, as well as qualitative considerations
- We have not prepared a fairness opinion, adequacy opinion or formal valuation concerning the Proposal

Summary Observations

Precedent Reorganizations:

- Precedent dual class share reorganizations have been well received by the market – positive share price reactions generally
- There have been 15 precedent share class reorganizations which we have reviewed
  - Dilution to the subordinate voting shareholders ranged from 0 to 3.04% with an average of 0.89%
  - 8 of the last 10 share class reorganizations have occurred at no premium
- Research analysts viewed reorganizations positively with many expecting companies to reduce or potentially eliminate pre-reorganization trading discounts
- The proposed terms of the Proposal would result in a much higher level of dilution (11.4%) to the subordinate voting shareholders than in any of the precedents (0-3%)

Benchmarking Analysis:

- Magna is one of the largest tier one auto suppliers in the world

- Magna's financial performance has been strong over the years
  - Revenue growth in line with best in class peers (JCI, BorgWarner)
  - Growth in profitability (EBITDA, net income) below sector leaders but above TRW, Lear and American Axle
  - Magna has experienced margin pressures and profit margins and ROCE are forecast to be below the peer group for 2010E based on analyst consensus
- Magna's exposure to the Big Three has declined over time and now represents less than 50% of total revenue, although exposure is still above BorgWarner, JCI, TRW and Lear
- Magna continues to operate with a significant cash balance while peers have greater leverage

Historical Valuation and Market Valuation Parameters:

- The majority of research analysts rely on EV/EBITDA multiples in deriving price targets
- Magna has historically traded at a discount to its peers based on EV/EBITDA
  - On a forward basis, Magna traded at a 1.4x discount to its key U.S. peer group1 between 2001 and 20072 and a 0.2x discount to Linamar over the same period
  - Currently trading at a 1.9x discount to its key U.S. peers and a 0.9x discount to Linamar on a forward basis
- The analyst community has historically discounted Magna's valuation for a number of reasons, including: corporate governance and multi-voting share structure concerns, inefficient capital structure, investments in non-automotive operations, Big Three concentration and concerns regarding compensation levels / the consulting arrangement with the Chairman

Additional Considerations:

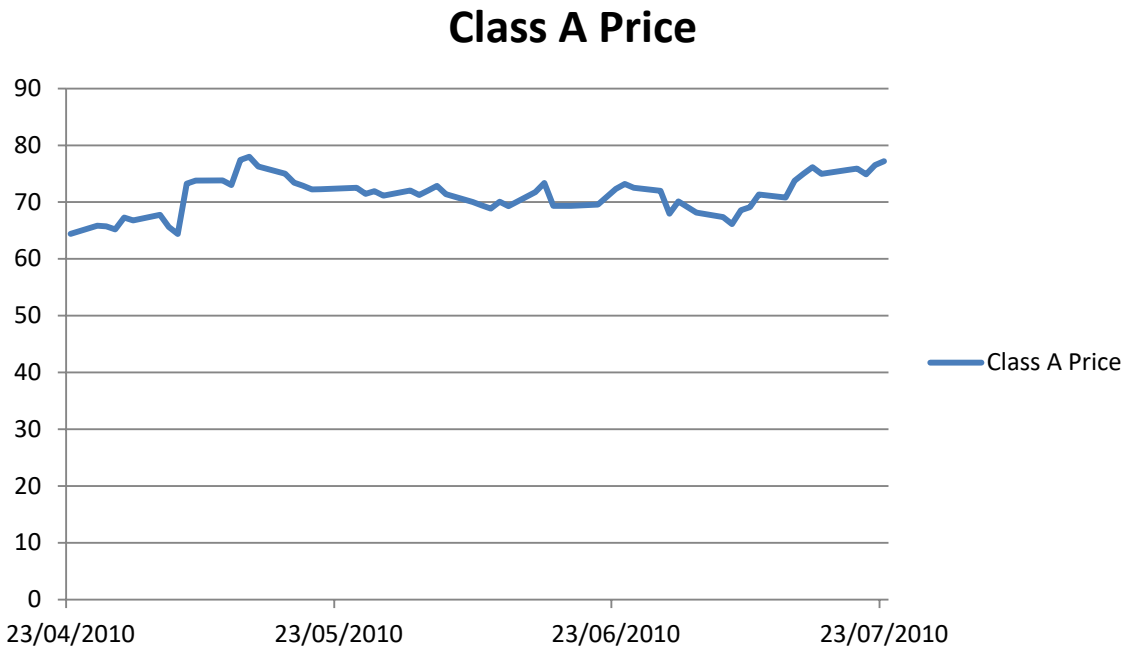
- Based on where Magna is currently trading relative to its peer group, there is potential for multiple expansion to occur following completion of a reorganization, however, the quantum, timing and duration of any improved trading performance is difficult to predict
- Given the level of shareholder dilution with respect to the Proposal relative to the precedents, there is potential for significant negative reaction from shareholders
  - Although the Transaction Agreement places completion of the Proposal in the hands of the holders of the Class A Shares, given the size of the payment to Stronach Trust the terms of the Proposal will be controversial

Exhibit 8. Chronology of Events and Magna's Class A Share Price Graph

Chronology of Events

Date	Event	Class A Closing Share Price TSX Cdn$	Class A Closing Price NYSE US$
May 5, 2010		64.27	62.53
May 6, 2010	Magna announces proposal to eliminate dual class share structure	73.24	
June 2, 2010	Canada Pension Plan Investment Board announces opposition to proposal	72.04	
June 3, 2010	Ontario Teachers' Pension Plan announces opposition to proposal	72.86	
June 15, 2010	Ontario Securities Commission (OSC) announces hearing on June 23, 2010 to consider if proposal is in the public interest	73.36	
June 23/24, 2010	OSC Hearings on Proposal	73.19	
June 25, 2010	OSC orders Magna to release additional information on the proposal	72.51	
July 9, 2010	Magna files revised proposal that includes information ordered to be disclosed by the OSC	71.33	
July 23, 2010	Shareholder vote		

Share Price Graph



ENDNOTES

1. Source: Magna International Inc., 2010b, p. 21 and p. 36.
2. Source: Magna International Inc., 2010a, p. 79.
3. Source: Canadian Imperial Bank of Commerce, 2010, p. 26.
4. Source: Magna International Inc., 2010b, pp. 7-9; 11-12; 14.
5. The final paragraph of Exhibit 3 is written by the authors of this case; it summarizes information found on p. 31 of the Management Information Circular (Magna International Inc., 2010b).
6. Source: Canada Pension Plan Investment Board.
7. Source: Ontario Teachers' Pension Plan, 2010.
8. The information in this paragraph derives not from the press release, but instead from the following source: http://www.otpp.com/wps/wcm/connect/otpp_en/Home/Corporate+Info/About+Us/
9. Source: Magna International Inc., 2010c.
10. Source: Canadian Imperial Bank of Commerce.

REFERENCES

Canada Pension Plan Investment Board. (2010, June 3). CPP Investment Board Opposes Proposed Magna International Transaction. Retrieved from http://www.cppib.com/content/cppib/en/public-media/news-releases/2010/cpp-investment-boardopposesproposedmagnainternationaltransaction.html

Canadian Imperial Bank of Commerce. (2010). *Project Raven, Final Report, May 5, 2010: Presentation to Special Committee of Magna International Inc. (Confidential draft)*. Retrieved from http://www.sec.gov/Archives/edgar/data/749098/000119312510141258/dex993.htm

Magna International Inc. (2011). *2010 Annual Report*. Retrieved from http://www.sedar.com

Magna International Inc. (2010a). *2009 Annual Report*. Retrieved from http://www.sedar.com

Magna International Inc. (2010b, May 31). Notice of Special Meeting of Holders of Class A Subordinate Voting Shares and Class B Shares of Magna International Inc. to be held on June 28, 2010. Management Information Circular/Proxy Statement. Retrieved from http://www.sedar.com

Magna International Inc. (2010c, June 14). Press Release: RiskMetrics Recommends Magna Shareholders Vote for Proposed Transaction. Retrieved from http://www.magna.com/media/press-releases-news/releases-news/2010/06/14/press-release---riskmetrics-recommends-magna-shareholders-vote-for-proposed-transaction

Ontario Teachers' Pension Plan. (2010, June 3). Governance Comment: Teachers' Says 'no' to Magna-Style Dual Share Collapse. Retrieved from http://www.otpp.com/news/article/-/article/24413

Ontario Teachers Pension Plan, About Us. Retrieved from http://www.otpp.com/wps/wcm/connect/otpp_en/Home/Corporate+Info/About+Us/