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## Welcome

The Graduate Finance Association is a collection of Carnegie Mellon University Master in Business Administration and Master of Science in Computational Finance students committed to developing their knowledge of finance, accounting and strategy. This is our second publication of this journal. Already it is serving its purpose of establishing open lines of communication and bridging the gap that develops between academia and application.

Should you wish to learn more about our organization, please visit us at our online address detailed at the end of this publication. Contact Widya Darmawan at [wdarmawa@andrew.cmu.edu](mailto:wdarmawa@andrew.cmu.edu) should you wish to contribute content. If, instead, you have questions or comments about a specific article, please feel free to contact the author directly.

Best regards,  
The GFA Leadership

## Capital Gains Taxes and Portfolio Rebalancing

By

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*The following is a summary of a recently published paper in the TIAA-CREF Research Dialogue Issue no. 75 (March 2003).*

“The investor’s optimal exposure to equity tends to increase with age, particularly at late ages.”

The major friction that investors face in rebalancing their portfolio is capital gains taxes, which are triggered by the sale of assets. In the article, the authors look at the trade-off between the tax costs and diversification benefits of trading over the investor’s lifetime. Their study reveals that the investor’s incentive to re-diversify the portfolio declines with the size of the capital gain and the investor’s age.

An important feature of the authors’ solution is that the investor’s optimal exposure to equity tends to increase with age, particularly at late ages. This is a result of the structure of capital gains taxation and more specifically the reset of the investor’s tax basis at death. This reset at death increases the attractiveness of retaining highly appreciated positions, especially when the investor’s life expectancy is relatively short. With a short horizon, the cost of not being fully rebalanced is small, while the tax benefit of deferral is high.

Analogously, the investor will find it attractive to add relatively more equity to his portfolio as he ages (and his life expectancy falls) because of the option to realize losses, while retaining appreciated positions until the reset at death.

These findings diverge from the conventional advice on asset allocation that an investor should reduce his equity exposure as he ages.

It is not apparent that models of risk bearing without taxes and other frictions should lead to strong age effects about portfolio composition during the retirement years. While the investor’s age and the strength of his bequest motive will significantly influence the investor’s consumption decision, the effect of age on the allocation decision will not be pronounced as long as the investor’s risk aversion stays constant over time. If the investor becomes more risk averse as he ages, then the relative demand for the risky assets would decline with the investor’s age. Yet, many investors with substantial wealth view themselves as managing their funds at the margin for the benefit of their heirs, emphasizing both that the risk aversion would not increase as they age as well as the importance of managing the capital gains tax liability efficiently.

Even if the investor does not have a strong bequest motive, the investor can still find it attractive to borrow to help finance consumption in his latter years in order to defer some of the capital gains liability until it is eliminated at death (repaying the indebtedness through his estate).

The objective of the investor’s optimization problem is to maximize his discounted expected utility of lifetime consumption, including the utility of his bequest at death.

The authors identify three factors that restrict the application of their findings. First, an increase in the capital gains tax rate from the base case 20% to 36% reduces the capital gain that the investor is willing to realize. In addition, in the breakeven and loss region the investor’s holding of equity is more sensitive to the investor’s age when the capital gains tax rate is higher.

Second, an increase in the volatility of the stock from the base case 20% to 30% dramatically reduces the optimal holdings for all investors despite the increase in the value of the tax-timing option.

Finally, the authors did not incorporate labor (non-financial) income in their analysis. Instead, the authors introduce the investor's labor income as proportional to his wealth. An important aspect of non-financial income is that by enhancing the investor's income stream in his working years there is a greater flow of new savings. This greater flow of new savings helps limit the extent to which the investor becomes locked in and allows the investor to rebalance his portfolio without payment of capital gains taxes by altering the portfolio allocation of new investments. In practice, the incremental savings over time creates the ability to adjust the structure of one's portfolio.

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## The Hidden Costs of Bermuda Tax Inversions

By Michael McCaffery

“While on the surface one would instinctively expect a Bermuda inversion to be an excellent strategic move, an analysis of one reinsurance company, PXRE, reveals that there is “no such thing as a free lunch.”

The quest to minimize taxes, whether personal or corporate, dates back to the founding of our country, whereby a major incentive behind the colonists revolt was to avoid having further “taxation without representation.” Ironically, our very heritage is disregarded by current US lawmakers and other political activists who vehemently oppose any corporation that actively seeks tax havens or any other means to lower their overall tax obligation. Clearly, the recent tragedy of September 11, 2001 has raised the feeling of “patriotism” among many, making it more fashionable to cast a negative light on companies who utilize tax havens. However, this practice has been available and used for many years.

The tax avoidance technique that has gained the most attention over the recent year involves re-incorporating a United States corporation to Bermuda, referred to as an “inversion”, thereby indemnifying the corporation from US tax obligations on any income derived outside the United States. It is a rather simple process to re-incorporate, primarily involving paperwork and some minor fees. This prompts the obvious question: if it is so simple to do and provides the ability to dramatically reduce overall tax obligation, why doesn't every US corporation do this? The key to understanding how to answer this question is to realize that simply moving to Bermuda does not inherently eliminate all tax obligations. While Bermuda does not impose corporate taxes or capital gains taxes, simply having a Bermuda address will not entirely eliminate these obligations.

The purpose of this article is to analyze a reinsurance company, PXRE, who made the inversion from a US-based corporation to a Bermuda-based corporation in 1999. The specific focus is to quantify the actual benefits and costs from the inversion in an attempt to understand why every US corporation does not head southeast to Bermuda. The results were unexpected to say the least. In the three years since PXRE performed the inversion, PXRE actually saw gains to their US tax bill and actually paid substantially more to reincorporate than they received in benefits. Thus, the article reveals the implicit tax expenses of reincorporating to Bermuda. While on the surface one would instinctively expect a Bermuda inversion to be an excellent strategic move, an analysis of PXRE reveals that there is “no such thing as a free lunch.”

“Under current regulation (Subpart F Income), income of a foreign corporation that is more than 50% owned by US shareholders (Controlled Foreign Corporation) is taxed when it is earned, not when it is repatriated.”

“For the purposes of tax avoidance, the most common type of foreign re-incorporation is known as an inversion.”

## **International Tax System**

Before launching into a detailed explanation of the tax structure of a Bermuda-based organization, it is essential to first understand some key points regarding the current US international tax system.

### **Subpart F Income**

When a US corporation has subsidiaries in other countries around the world, the US parent corporation is not responsible for reporting the foreign subsidiary income for tax purposes until this income has been paid directly to the parent, or repatriated. Once this foreign earned income from the foreign subsidiary has been passed to the US parent corporation, the US parent is responsible for paying US taxes on this income. This presents the obvious tax strategy of having the foreign subsidiary avoid ever passing income to the US parent; thus, avoiding the US taxation on this income. In order to prevent such tactics, the US tax laws define this type of foreign subsidiary income as Subpart F Income. Subpart F Income specifically enforces that “foreign base company income” is taxed when it is earned, not when it is repatriated.

### **Controlled Foreign Corporations (CFC)**

The Subpart F Income rules are specific to Controlled Foreign Corporations (CFC), the common classification for foreign subsidiaries of US corporations. A CFC is explicitly defined as a foreign corporation that is more than 50% owned by US shareholders. As long as a US corporations’ foreign subsidiaries are deemed CFCs, then all income earned from those subsidiaries is considered Subpart F Income.

It is important to note that CFC rules are specific to US shareholders of foreign subsidiaries, not the other way around. Most foreign countries do not have CFC rules, thereby offering a competitive advantage to companies based outside of the US.

Thus, the critical benefit for US companies looking to reincorporate in Bermuda is that after the inversion is complete, all foreign subsidiaries are no longer classified as CFCs under US tax law. As a result, the new Bermuda company has no US tax obligation on any foreign earned income.

## **Overview of Foreign Re-Incorporation**

For the purposes of tax avoidance, the most common type of foreign re-incorporation is known as an inversion, in which a US multinational parent company re-incorporates in a country with more favorable tax jurisdiction. A visual representation of the change in structure is shown in Figures 1 and 2 below.

Figure 1 – Typical US Multinational Corporation before Inversion

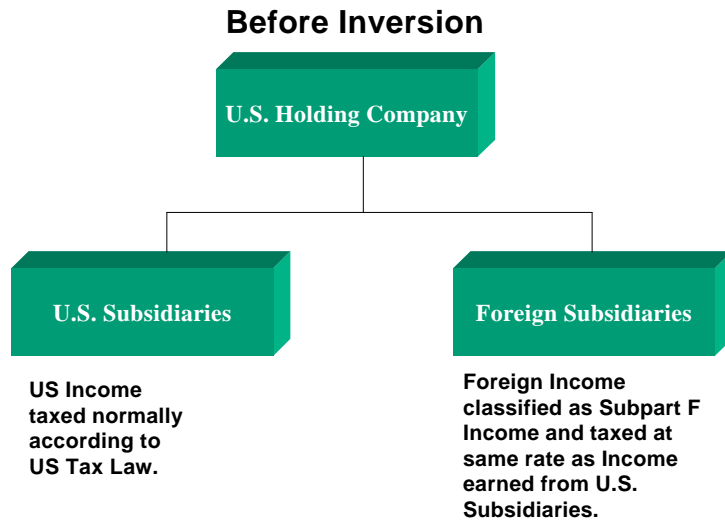
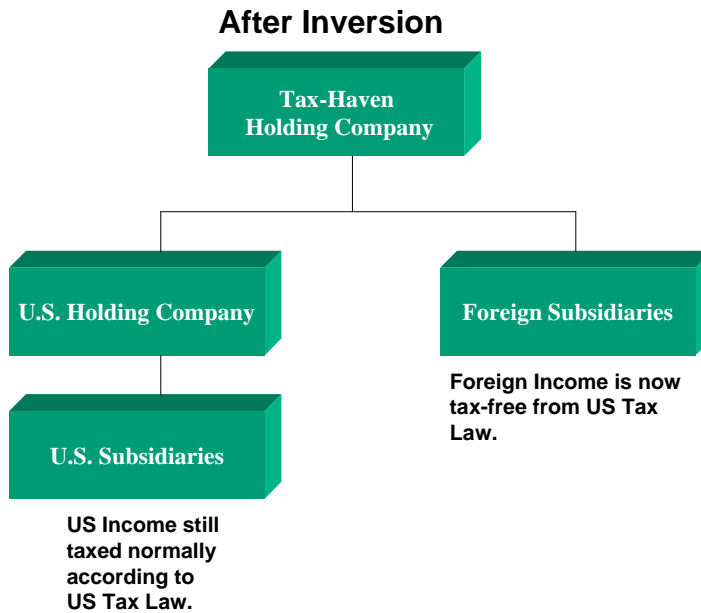


Figure 2 – Typical US Multinational Corporation after Inversion



“Inversion only makes sense as a tax strategy if a significant portion of overall corporate income is derived from outside the US.”

The critical point to observe is that the tax benefit of re-incorporating to Bermuda, or any other low-tax jurisdiction, lies only in the elimination of tax on foreign income, Subpart F Income. All other US earned income is still taxed in the same manner it was before the inversion. Clearly, inversion only makes sense as a tax strategy if a significant portion of overall corporate income is derived from outside the US.

The most common method for inversion, in when the existing US shareholders transfer their stock to the new Bermuda-based entity and receive shares in the new corporation.

“Section 367 specifically prevents a Bermuda re-incorporation from being tax-exempt only if the shareholders of the transferred US corporation receive less than 50% of the shares of the new foreign corporation”

In the early 90s when a cosmetic company named Helen of Troy did a Bermuda inversion, it was actually able to do so tax-free under tax code Sections 351 and 368(a)(1)(B). As a result, the US immediately issued new regulations under Section 367, known as “anti-inversion regulations”, designed to prevent a further exodus of corporations to Bermuda. Section 367 specifically prevents a Bermuda re-incorporation from being tax-exempt only if the shareholders of the transferred US corporation receive less than 50% of the shares of the new foreign corporation. Thus, for US companies merely setting up a Bermuda-based holding company, Section 367 prevents the corporation from being exempt from US tax obligations on US source income.

Another “anti-inversion” tactic introduced by Section 367 is the requirement that US shareholders must immediately recognize any capital gains, but not losses, on their stock at the time it is transferred for shares of the newly inverted organization. Thus, US shareholders are forced to pay immediate capital gains taxes and are denied the ability to deduct any losses based on the inversion. For large institutional investors of a company’s stock, this hefty tax bill is likely to cause them to think twice before automatically approving any attempts to move to Bermuda.

### **PXRE Analysis**

PXRE performed the Bermuda inversion on October 5, 1999. Prior to the inversion, PXRE had been incorporated in Delaware, with PXRE Delaware as the overall parent company. After the Bermuda inversion, PXRE Bermuda became the parent company with PXRE Delaware becoming the US Holding Company (refer to Figure 2).

As previously mentioned, the benefits of a Bermuda inversion are most pronounced for companies with substantial foreign source income, since US source income is taxed the same regardless of whether the company is based in the US or elsewhere. As such, the expectation is that PXRE derived a significant portion of their profits and investment income outside of the US. However, PXRE had almost the opposite trend in geographic breakdown of reinsurance premium revenue and income from what would be expected, given that Bermuda tax breaks only apply to international income, not US income. The expectation would be that PXRE is dramatically increasing its international business, thereby gaining a competitive advantage from no longer being forced to classify this international as Subpart F income. In reality, PXRE has actually seen a major drop in international premium revenue from over 82% in 1998 down to only 56% in 2001. During the same period, US premium revenue has increased from a mere 17% in 1998 to over 43% in 2001.

A similar paradox is seen through analyzing the investment portfolio of PXRE. As a reinsurance company, which must have adequate capital reserves to pay off future claims, PXRE relies heavily on investment income. Similar to income earned through underwriting insurance policies, investment income derived from US-based sources is subject to US taxes, regardless of where the company is incorporated. Thus, PXRE only gains tax breaks on foreign investment income within its portfolio. Since PXRE re-incorporated to Bermuda, the expectation would be that they derive the majority of their investment income from foreign investments. However, the bulk of their investment portfolio is comprised of US-based investment products, with only a small percentage in foreign-based securities. Thus, the inversion will have little benefit to PXRE on their investment income since it primarily comes from US sources.

The benefits from PXRE’s Bermuda inversion become even harder to ascertain when we take an in-depth look at the actual impact of the inversion on the overall firm tax liability. This is shown below in Figure 3.

Figure 3– Breakdown of Tax Liability

<b>Breakdown of Tax Liability</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>Current Taxes:</b>			
US Federal	(12.8)	(3.9)	0.04
Foreign	2.3	0.1	1.1
	<u>(10.5)</u>	<u>(3.8)</u>	<u>1.1</u>
<b>Deferred Taxes:</b>			
US	(2.3)	(8.3)	(5.9)
Foreign	-	-	-
	<u>(2.3)</u>	<u>(8.3)</u>	<u>(5.9)</u>
Income Tax Provision (Benefit) before extraordinary loss and change in accounting principle	(12.8)	(12.0)	(4.7)
Benefit from extraordinary loss	-	-	-
Benefit from change in accounting principle	(0.4)	-	0.2
<b>Income Tax Provision (Benefit)</b>	<b>(13.1)</b>	<b>(12.0)</b>	<b>(4.5)</b>
<b>Actual Taxes Paid</b>	1.9	0.6	3.1
<b>Breakdown of Income Tax Provision</b>			
Statutory US Tax Obligation	(19.0)	(8.0)	(8.0)
Theoretical Effective Tax Rate	35.0%	35.0%	35.0%
Tax Exempt Interest	(1.8)	(1.3)	(0.8)
Amortization of Intangibles	(0.8)	(0.7)	(0.3)
Reciprocal Shares	1.8	(1.7)	1.8
Foreign Tax Credit Expiration	0.9	(0.1)	1.3
Bermuda Loss	4.0	0.1	1.1
Foreign Income - Barbados	(0.4)	-	-
Barbados Tax	2.3	-	-
Other, net	(0.3)	(0.5)	0.5
<b>Income Tax Provision (Benefit)</b>	<b>(13.1)</b>	<b>(12.0)</b>	<b>(4.5)</b>
Income Tax Provision WITHOUT Inversion	<u>(21.8)</u>	<u>(10.4)</u>	<u>(8.7)</u>
<b>Impact of Inversion on Tax Provision</b>	<b>8.7</b>	<b>(1.6)</b>	<b>4.1</b>

The top half of Figure 3 provides a comprehensive breakdown of the source and composition of PXRE's yearly income tax provision. The bottom half offers the startling impact of the Bermuda inversion on the overall tax liability. Since the inversion did not occur until October 1998, there are no inversion related adjustments needed to the calculated income tax provision. The expectation would be that the income tax provision for years 1999 through 2001 would have been reduced due to the favorable tax treatment of Bermuda corporations. However, surprisingly we notice that the Bermuda inversion actually increased PXRE's income tax provision in 1999 and 2001.

While PXRE did not explicitly explain each of the inversion related adjustments to their yearly income tax provision, information was provided outlining the specific expenses incurred as part of the inversion process. These are itemized below in Figure 4.

Figure 4 – Explicit Expenses from Inversion

<b>Explicit Expenses from Inversion</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
Initial Capital (private placement & additional share offering)	35.0	-	-
One-time charge related to the cancellation of PXRE Delaware Shares	1.8	-	-
One-time charge for payment of dividend by RXRE Delaware in connection with redomestication	2.3	-	-
Annual Operational Expenses for Bermuda & Barbados	1.5	1.5	1.5
Realized Tax Expense (Gain) from the Inversion	8.7	(1.6)	4.1
Reimbursements to CEO for personal tax liability related to inversion	0.2	-	-
Total Bermuda Housing Expenses for CEO and CFO	0.2	0.2	-
<b>Total Expenses (Benefits) related to Inversion</b>	<u>49.7</u>	<u>0.1</u>	<u>5.6</u>

Figure 4 attempts to serve as a summary table of both expenses and benefits derived from PXRE's first three years of operations after inversion to a Bermuda-based corporation. Ironically, the table is rather one-sided, revealing substantial expenses with only one minor tax benefit. In total, the Bermuda inversion has cost PXRE over 55 million dollars over the past three years.

It becomes clear that the primary reason why PXRE gained virtually no benefit from their inversion is due to their significant business within the US. Therein lies the critical element: the primary benefit of a Bermuda inversion is to no longer pay taxes on foreign-based income. However, PXRE continues to rely heavily on its US holding company and US source investments, thereby negating any positive tax haven offered by Bermuda inversion.

There are also two additional restrictions and tariffs imposed by the US to neutralize the benefits for PXRE offered by a Bermuda inversion:

- **Unable to leverage the "US - Bermuda Treaty"**  
Under the "US - Bermuda Treaty", a Bermuda-based insurance company, such as PXRE Bermuda, is responsible for U.S. income tax on insurance income if the company is either associated with a specific US business is conducted through a permanent establishment in the US. This may appear to explicitly outline why PXRE would go to Bermuda, to be an independent company not engaged with any other specific US company, nor located in the US; therefore, able to avoid US taxation. However, since PXRE Bermuda is merely a holding company, not engaged directly in insurance, they are unable to reap the benefits of this treaty.
- **Excise Taxes**  
The US imposes an excise tax on insurance and reinsurance premiums paid to foreign insurers based on risks located in the United States. Thus, when PXRE underwrites an insurance policy to a foreign company, but outlines exposures within the US, PXRE must pay the US a tax for that policy. The Bermuda inversion does nothing to alleviate this tax. This rate of tax is 1% of gross premiums.

### **Conclusion**

A common misconception about Bermuda-based corporations is that they will eliminate all tax responsibilities. However, as shown through the PXRE case study, nothing could be further from reality. Regardless of whether a company is based in Bermuda or elsewhere, any income earned in the US is subject to US taxes. The Bermuda inversion does offer some distinct benefits, if and only if the company derives the bulk of its income from non-US foreign operations and subsidiaries.

This all may soon become a moot point, as recent proposed legislation, referred to as The Reversing Expatriation of Profits Offshore Act (REPO), will treat all inverted corporations as domestic corporations. Given the heightened sense of patriotism within most politicians and the significant press this issue has been receiving this past year, this bill has a good chance of passing.

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Michael McCaffery spent his summer working in Equity Research at Lehman Brothers in New York. Michael will return to Lehman Brothers full-time in August 2003.

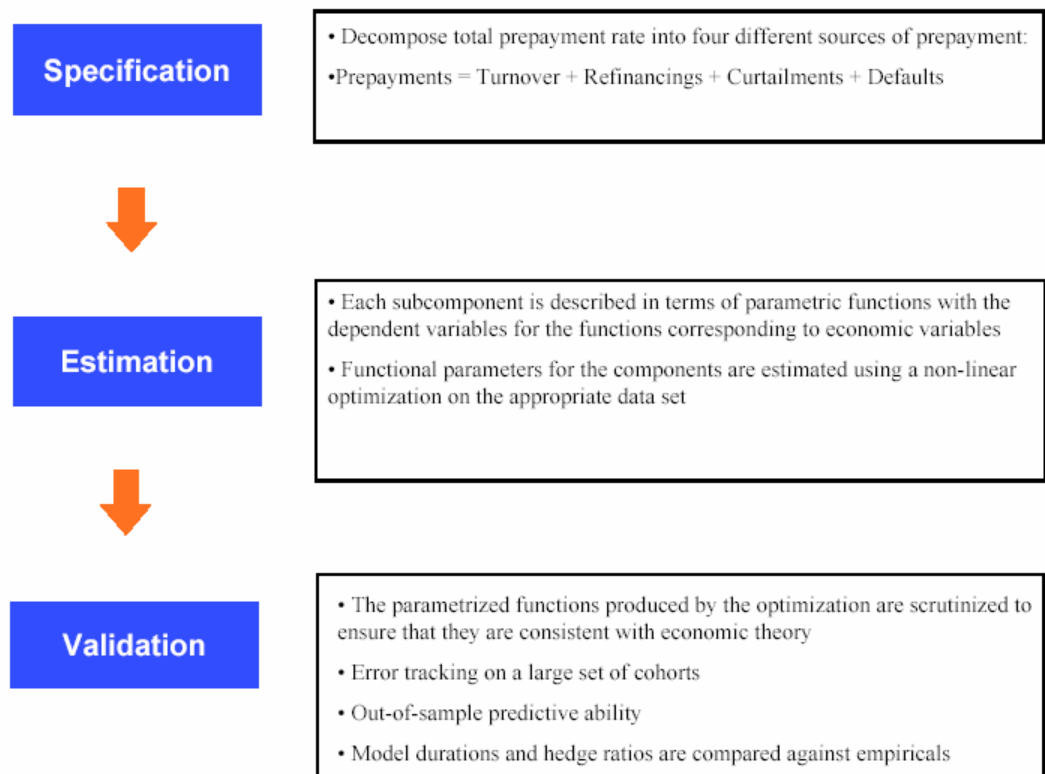
“A common misconception about Bermuda-based corporations is that they will eliminate all tax responsibilities.”

# Prepayment Model on Wall Street

By Sharad Chaudary,  
Bank of America Securities

Mortgage financing represent a large portion of the US economy fixed income market with total originations or \$2.5 trillion in 2002 (source: Mortgage Bankers Association of America). The US fixed income market is approximately \$20.1 trillion, of which \$4.7 trillion are mortgages securities. An important aspect of mortgage valuations is understanding prepayment risk, since the homeowner's right to prepay their mortgage leaves the MBS investor short a call option. Prepayments typically represent a risk for MBS investors because they are most likely to occur when they are the least desired, thus limiting the upside for investors.

A prepayment model converts a set of macroeconomic, collateral-specific and borrower demographic data into probabilities of prepayment for a given pool of mortgages. The probabilities of prepayment are in turn used to estimate the expected cash flows of the assets. Prepayment modeling process can be broken down into three stages (see chart 1 below).



“There are four sources of prepayment risks: home sales (turnover), refinancing activities, defaults, and curtailments and full payoffs.”

In the model specification stage, four sources (types) of prepayments are identified. These are home sales (turnover), refinancing activities, defaults, and curtailments and full payoffs (see table 1).

Table 1: Prepayment Model Specification

Sources of Prepayment	Description
Home Sales (Turnover)	The sale of a home will generally lead to the prepayment of a mortgage. Exceptions arise if the home has a Federal Housing Administration or Veterans Administration (FHA/VA) loan and the new buyer decides to “assume” the obligation of the existing loan, or if the home does not carry a mortgage.
Refinancing activities	The second major cause of prepayments occurs when homeowners refinance out of an existing mortgage loan into a new one. This is generally undertaken to take advantage of lower rates, but can also occur because the mortgagor wants to access increased equity in the house, or, in the case of borrowers with initially poor credit, wants to take advantage of an improvement in credit. Refinancing tends to be the most volatile component of speeds and constitute the bulk of prepayments when speeds are very high.
Defaults	These are prepayments caused by the foreclosure and subsequent liquidation of a mortgage. Defaults are a relatively minor component of aggregate prepayments in most cases, but can be significant for certain types of loans. Borrowers default only when market value of the house is below the value of the mortgage (negative equity). Fannie and Freddie guarantees prepayment of principal when mortgager defaults.
Curtailments and Full Payoffs	Some mortgagors are in the habit of sending more than the scheduled payment each month, as a form of forced savings and to build up equity in their homes faster. These extra payments are referred to as curtailments, and show up as partial prepayments of principal. Full payoffs refer to mortgagors paying off their mortgage completely, usually when it is very seasoned and the remaining loan balance is small. Full payoffs can also occur because of the destruction of the home from natural disasters such as hurricanes and earthquakes.

The second (and most critical) stage is model estimation. At this point, each subcomponent is described in terms of parametric functions with the dependent variables for the functions corresponding to economic variables. Functional parameters for the components are then estimated using a non-linear optimization on the appropriate data set.

Table 2: Explanatory Variables in Prepayment Model

Sources of Prepayment	Variables	Description
Home Sales (Turnover)	Housing market and economic conditions	Cumulative changes in house value since origination provides incentives/ disincentives to move.
	Time of the season	Higher turnover rates in the summer months.
	Age of mortgage	Age of mortgage is often used as (albeit not a good) proxy of time-in-residence. Turnover rates increase as time-in-residence increase.
	Exogenous circumstances	Job or family composition changes.
	Transaction costs	Search costs, broker costs.
	Customer-specific circumstances and utility functions	Utility-maximizing consumers choose housing consumption, local public goods, and other consumptions subject to a budget constraint.
Refinancing activities	Housing dissatisfaction	Borrower’s demand for housing exceeds the quality of the services being provided by the current unit leads to decision to move.
	Household characteristics	Age of the head of the household, income, race.
	Equity growth	Cumulative changes in house value since origination provides incentives/ disincentives to refinance.
Defaults	Burn-out factors	Mortgagors have different propensities to refinance and can be classified into “Slow”, “Medium”, and “Fast.” As the pool undergoes refinancing activities, faster refinancers will leave the pool, leaving the “Slow” group to form an increasingly large proportion of the remaining population.
	Seasonal factors	Refinancing rates exhibit a modest seasonal pattern with the seasonal high occurring in March and the low in January.
Curtailments	Borrower will default if and only if market value of the mortgage is greater than or equal to the value of the home plus the costs of defaulting	Default costs include costs of moving, cost of a damaged credit record, and the expected cost of deficiency judgments.
	Age of mortgage	The SDA model shows that default rates start out low since lenders will not underwrite borrowers who they suspect will default immediately (borrowers usually have positive equity at origination); Default rates ramp up gradually the first two or three years after origination because it is over this period that borrowers are most vulnerable to losing all their equity if home values decline; Default rates start tapering off five years or more after origination since increases in home prices and an in increasing loan amortization effect decrease the likelihood of negative equity.
	Transaction and hassle costs of refinancing	Refinancing penalty may increase curtailment rates significantly. If a borrower cannot refinance because of the costs involved, curtailment represents the optimal strategy.
Individual risk appetite	Individual risk appetite	Some households may simply want to reduce the amount of their indebtedness by paying off as much of their mortgage debt as they can.
	Age of Mortgage	Curtailments are an exponential function of age of mortgage and become significant as Weighted Average Maturity of the mortgage reached 200 months.

A great deal of effort and resources have been expended into building proprietary models that can reasonably capture the complex interrelationships between economic factors and consumer prepayment behavior. A few economic variables can simultaneously influence several functions. For example, the level of interest rates affects both turnover rates and refinancing activity, thus resulting in the need to estimate both these prepayment causes jointly. Meanwhile, certain functions are hard to measure because they are driven by demographic and consumer behavior variables which often not available in most prepayment data sets. Table 2 lists common key variables used in prepayment models.

Finally, in the validation stage, the functions produced by the optimization are scrutinized to ensure that they are consistent with economic theory. Activities in the validation stage include:

- Performing error tracking on a large set of cohorts
- Estimating the model's predictive ability by applying models to out-of-sample data
- Comparing model durations and hedge ratios against empirical data

At the end of the day, prepayment models, like any other financial models, are approximations which will not be able to fully account for structural shifts that seem to occur in the mortgage marketplace every 3 to 4 years. Therefore, it is critical that model users: (1) understand the circumstances under which the model does not work and (2) set up capital reserves for model errors.

**Quote:**

Financial Valuation has much in common with antiques or art valuation: knowledge, experience, and street sense are as important as any formula.

Quantitative approaches to valuations require analysts to:

- Embrace programming
- Learn how to make quick and quality approximations, learn multitasking
- Be able to explain model results qualitatively
- Understand weaknesses in the assumptions underlying models, in particular, remember that human behavior can change.

- Emanuel Derman

**Recommended Reading:**

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**Credits:**

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"It is critical that model users:  
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up capital reserves for model  
errors."

### **Steve Tung '03**

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#### **What is your background?**

My academic training is in biochemistry. I originally planned to go to medical school, but as a hospital volunteer, realized that I was more interested in business than medicine. While in college, I was accidentally recruited for a door-to-door sales job. I did well with that and decided to combine my training and sales experience. After graduating, I pursued a career in medical equipment sales with Abbott Laboratories.

#### **Why did you take an MBA and why Carnegie Mellon?**

In the course of selling equipment, I became interested in the financial aspect of selling. Besides selling to clinicians, I also needed to show administrators that our products made financial sense. My interest in finance grew out of that experience. I came to Carnegie Mellon because of the strong finance reputation. Also, the school challenges students to realize their maximum potential. So far, I have not been disappointed.

#### **Tell us about your internship.**

I worked at JPMorgan Chase in fixed income sales & trading. The summer was an incredible experience; the speed was tremendous. It was like zero-to-sixty in two hours. Since I did not have a finance background, I had to work twice as hard just to stay afloat. Most important, I learned about what I liked and disliked about certain careers in finance. I also had a terrific social experience and made many contacts in New York.

#### **What are your professional goals and what career will you pursue?**

I am pursuing a career in private wealth management, also known as private banking or private client services. Basically, PWM is managing wealthy people's money and introducing the firm to new clients.

#### **What are some of your other pastimes?**

I am big on keeping up with current events and religiously read several publications. So I spend a lot of time at the bookstore and library. I also enjoy playing hockey and running.

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### **Michael Oliver '04**

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#### **What did you do before coming to Carnegie Mellon?**

After receiving my BS in Economics, I spent one year at a management consultant, Runzheimer International. I performed detailed modeling and data analysis to determine appropriate cost of living differentials for firms relocating executives internationally. These past two years, I worked as a Financial Analyst for The Todd Organization, an executive benefits consultant. My job responsibilities included modeling the financial statement impact of nonqualified benefit plans, analyzing plan financing alternatives (corporate owned life insurance vs. mutual funds), and determining the business impact of proposed tax law changes.

#### **Why did you return to school for an MBA?**

Simply, I want to work as a portfolio manager and I needed to get on course. Although, I greatly value my past work experiences, they weren't going to propel me down my desired career path. Coming to Carnegie Mellon for my MBA fulfilled the exact opportunity I was looking for. I can concentrate my studies in Finance and Accounting while broadening my overall business ability.

### **What are some of your long-term goals?**

Professionally, I want to institute an investment management strategy combining the knowledge gained from my MBA and the CFA program. I plan to enact this strategy either in a mutual fund or private wealth management. Personally, my greatest ambition involves building a log cabin on a lake in Wisconsin's northwoods.

### **Finally, what are some things you enjoy outside of class?**

I'm a sports fanatic with golf being my primary passion. Being from Wisconsin, I closely follow all Badger athletics! In addition, I really enjoy camping and musky fishing in northern Wisconsin.

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## **Patrick K. Rutherford '04**

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### **What did you do prior to coming to Carnegie Mellon University?**

Upon graduating from The University of Georgia, I joined Lend Lease Real Estate Investments, an Atlanta, GA based global real estate investment company with \$51B in assets under management. Within Lend Lease, I mainly worked within multifamily investment management. My experience was valuable, as I was given a great deal of responsibility given that there were only two of us. From managing external valuations to participating in acquisitions, I owe a great deal to this opportunity and the boss who mentored me along the way, Raymond Barrows.

Realizing that I loved the financial aspects of my job and not the real estate, I left Lend Lease for a job within Acuity Lighting Group, a \$1.5B manufacturing subsidiary of Acuity Brands. Within Acuity, I was responsible for the budgeting, financial accounting, and valuation of the process improvements associated with their implementation of Six Sigma and other company-wide repositioning initiatives. My transition to Acuity was a homerun; I enjoyed the tangible and capital intensive nature of a manufacturing company.

### **Why an MBA? Why Carnegie Mellon?**

While at Lend Lease, I interacted with some dynamic people. While inquiring of their background, each would offer credit to the knowledge, experience, and opportunity gained as a result of going to b-school. Upon affirming my career path at Acuity, all I had to do was get into a great program.

Choosing Carnegie Mellon was the result of a culmination of variables. While working at Acuity, I began to appreciate the idea of making decisions using data. As a result, when I began to look at schools, I desired some sort of quantitative focus. This coupled with CMU's awesome history in corporate finance, made it a natural choice for a guy who wanted to continue his career within the finance department.

### **What's next after Carnegie Mellon?**

I like the complexities of finance within a manufacturing organization. From raw materials to a finished good in the hands of the end user, one can not find more involvedness. Beyond Acuity, I am looking for a company that has size and more of an international presence. Location is not really an issue. My family followed my father seven times as he was relocated while working for Citizens & Southern Bank. I guess you could say I learned the importance of mobility.

**If you could eat dinner with anyone [living or passed], who would it be?**

Winston Churchill! As a gift, a mentor of mine gave me one of his biographies, The Last Lion Alone Volume II by William Manchester. Out of respect, I attempted to read the hefty book, putting it down after only a few pages. A year ago, I again picked it up, realizing he and I were going to have dinner soon. After a few chapters, I was enamored. His foresight, brashness, wisdom, and patriotism were all one-of-a-kind. Since finishing the book, I have read Churchill, by Roy Jenkins, and am about to start Volume I of The Last Lion Alone. Only making the meal more entertaining would be the lavish food and drinks that would surely be served. Like any great man, he could also eat and drink!

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**Would you tell us a bit about what you did before your graduate studies?**

Prior to attending CMU GSIA I spent three years working at the Board of Governors of the Federal Reserve Bank in Washington D.C. In the Division of Monetary Affairs, we were tasked with multiple objectives, including research on financial market behavior and sensitivities, financial market relationships with the economy, financial market policy and process optimization, and various long-term macroeconomic studies.

As a research analyst from 1993-96, I worked on and supported a variety of these research projects. As the U.S. economy had recently emerged from recession, and growth prospects were positive, we went through the first monetary policy tightening era since 1988-89, providing good opportunity for current implementation analysis.

**How did business school prepare you for the challenges you face at your job?**

I chose business school as a bridge from the academic and macro bias of the Federal Reserve to the practical and micro bias of the corporate world. GSIA was my first exposure to private business fundamentals from financial accounting to capital structure. The program uses fundamentals to enable students to make educated and analytical business decisions. Developing an analytical framework for decisions has proved invaluable in my post-graduate career in financial risk management.

**Could you speak a bit about your career path after graduating from CMU GSIA?**

After GSIA, I joined The Walt Disney Company Corporate Treasury team. For two years I worked primarily in Financial Risk Management and Investments – with a focus on Interest Rate Risk Management. Our objective is to limit the impact of interest rate changes on earnings and cash flows and to lower overall borrowing costs. To achieve these objectives we use interest rate derivatives to hedge exposure related to the Company’s debt portfolio.

For the last three years I have managed foreign exchange risk for the Company, where our objectives are similar. Our objective in managing foreign currency exposure is to reduce earnings and cash flow volatility due to exchange rate fluctuations in order to allow operating units to focus on core business issues and challenges. Accordingly, we use foreign exchange market contracts to manage this risk.

Most recently, I am excited to be working on the Hong Kong Disneyland theme park joint venture project, which is expected to open in 2005/2006. As we are currently in the development stage, Treasury functions include maintaining lender bank relationships, loan agreement compliance, FX and interest rate risk management, and cash management.

**An Interview with  
Gregory Belzer ‘98**  
Director, Corporate Treasury  
The Walt Disney Company  
and  
Treasurer, Hong Kong Disneyland

### **What are the biggest challenges you face in the corporate risk management field?**

There are two that come to mind. The first is cross-functional awareness. The pool of risk management vehicles available to the market is seemingly unlimited. A corporate risk manager may find the desired economic trade for a particular portfolio. However, the economic benefits of any trading decision must also factor in the accounting, tax, administrative and legal implications of the transaction. As an example, the recent adoption of an accounting standard for derivatives and hedging activity (FASB Statement 133) has made hedging activities more transparent to the investor community, but has also put practical restrictions on some corporate hedging practices. Today's corporate risk manager is often expected to be educated on such complex accounting standards.

The second is internal education. An important thing to remember about most corporate risk management programs is that they are intended to stabilize earnings and cash flow. The changes in values of the hedge vehicles are intended to offset the changes in values of the underlying exposures. As such, any hedge program will have hedge gains at times, and hedge losses at others. These results are often not indicative of performance, but are the natural effects of an effective hedge program. Ensuring the Company's internal community fully understands the objective of the hedge program is important to its long-term success.

Interviewed by Brian Savoie  
savoie@andrew.cmu.edu

- On St. Patty's Day the GFA hosted an Alumni social at the Penn Brewery. A good time was had by all as we were guided through the financial history of the firm by the founder, Tom Pastorius.
- Carnegie Mellon hosted the Financial Engineer Case Competition in NYC on April 9th and 10th. Attending schools included Columbia University, Massachusetts Institute of Technology, University of California - Berkeley, University of Pennsylvania, University of Chicago and Carnegie Mellon. Berkley took the first place prize, but the CMU team made a good showing and is priming for next year. Lehman Brothers and Appaloosa Management Partners sponsored the event.
- Our competition schedule will start up again in the fall with our Accounting and Investment case competitions. Parties interested in sponsoring our events can contact Sireesha Vempati at [svempati@andrew.cmu.edu](mailto:svempati@andrew.cmu.edu).

For additional information, please visit us at [www.gsia.cmu.edu/afs/andrew/gsia/finclub/](http://www.gsia.cmu.edu/afs/andrew/gsia/finclub/)

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