



# AMERICAN ACADEMY *of* ACTUARIES

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## **Proposal of the American Academy of Actuaries' Life-Risk Based Capital's Codification Subgroup on Changes to the C-1 Treatment of Schedule A Real Estate**

**Presented to the National Association of Insurance Commissioners' Life Risk-Based  
Capital Working Group  
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# Proposal to Change the C-1 Treatment of Real Estate

## Summary

This report presents a tentative proposal under examination by the American Academy of Actuaries Life Risk Based Capital Task Force to change the C-1 treatment of real estate including real estate joint ventures. The Task Force recommends that the proposal be exposed for comments.

Under the proposal the factor for real estate and real estate joint ventures would be changed from the current system of using constant factors (10% for investment real estate, 15% for foreclosures, and 15% for joint venture real estate) to a system under which the factor to be applied to an insurer's real estate and real estate joint venture portfolio would vary depending on the cash-on-book return of the portfolio. The proposal applies to both real estate in life insurance companies and real estate in the investment subsidiaries of life insurance companies. The cash-on-book return would be defined as net income (gross income less expenses and interest incurred on encumbrances, but before depreciation, e.g. Schedule A, column 13 - column 14) divided by the average book value. The average will incorporate the book values from each quarter-end if the data is available, rather than just the average of two year-end figures. This will reduce the distortion that could be caused if there were a significant amount of real estate sales and/or purchases near the beginning or the end of the year.

Specifically, if the cash-on-book return is 6% or less, the factor will be 20%. Currently the maximum factor is 15%. If the return is 9.65% or higher, the factor will be 3%. For returns between 6% and 9.65%, the factor will be calculated by linearly interpolating between 20% and 3%. The formula is designed to give approximately the same average C-1 factor over the course of one real estate cycle as the current formula does. The factor is designed to be applied against the total book value of the portfolio; the formula doesn't apply different factors property by property.

Such a system offers a better estimate of the risks of a real estate portfolio because:

- Seasoned properties would typically receive lower RBC factors. This is appropriate since these properties generally have very low statement values relative to their current market values, meaning that there is little risk that these properties would be sold for less than these values. The lower RBC factors result from high cash on book returns, which happen due to the low statement values.
- Developmental properties (e.g., undeveloped land) would typically receive higher RBC factors. This is appropriate since these properties are more risky than most properties. The lower RBC factors result from low cash on book returns, which happens due to the fact that these properties produce little if any income.
- The cash-on-book return reflects current conditions in the real estate market more rapidly than do book values.

Although the Academy is currently examining the tax implications of various RBC factors, the proposal and analysis given below have **not** been adjusted to reflect any modification of the tax treatment. (The tax treatment for RBC C-1 Real Estate factors has always been to assume full deductibility of losses .)

## **Background**

As part of the soon-to-be-implemented codification of statutory accounting, investment real estate and real estate acquired through foreclosure will no longer be separately identified in the Annual Statement. Thus in order to maintain the current RBC formula for real estate it will be necessary to request information from company records. As an alternative, the Academy Task Force considered the proposal presented herein which indirectly differentiates between investment and foreclosed real estate by way of the significantly different cash on book returns produced by the two categories of real estate. While the impetus for this proposal was changes in statutory accounting due to codification, as the proposal was researched an additional strong impetus was to capture the risk of real estate in a more refined fashion.

In order to research the proposal, the Task Force requested and received 20 years worth of Schedule A data from 14 life insurance companies. The data included the book value of real estate, gross income (after interest on encumbrances), and expenses. The 14 companies include the largest holders of wholly owned real estate, and accounted for 60% of the entire industry's real estate holdings based on 1999 book values. The first attachment gives a list of the 14 participating companies.

The 20-year time period from 1980 to 1999 roughly corresponds to one real estate cycle as shown in Graph #1 which displays the cash-on-book returns for all 14 companies combined over the 20-year period. Note that the returns start out high (9.70% in 1980), decline steadily until 1991 (when the return hits 6.64%), and then increase steadily through 1999. By 1999, the return was essentially equal to the level it had reached back in 1980. The Frank Russell Total Return Index displayed in Graph #2 also suggests that the 20-year period does essentially represent one complete real estate cycle.

Cash-on-book return is not a perfect measure. While it generally does a good job of distinguishing between risky, developmental properties and older, leased-up buildings, it does not do as good a job distinguishing between good and poor quality buildings, since a high quality building will generally have a lower cash-on-book return than a low quality building. Still, the cash-on-book return seems to do a fairly good job overall (as demonstrated in the next section).

## **Cash-on-book Versus Future Returns**

The main prerequisite for an RBC formula is that it appropriately anticipates the insurer's exposure to periods of substandard future performance. In order to verify that the cash-on-book return possesses this attribute, the Task Force examined the historical data that it received from the 14 participating companies to determine whether the cash-on-book return accurately predicted the future performance of a company's real estate portfolio, where "future performance" is defined as a weighted average of the company's statutory return *including* realized capital gains (as measured in Exhibit 3 of the Annual Statement), but before

depreciation, over the next 3 years. The 3-year time horizon was chosen as a compromise. Using a 1-year period would produce fairly volatile results, making it difficult to reach definite conclusions. Using longer periods (5 or more years) would result in too few data points, since we only had 20 years worth of data.

Graph #3 shows a scatter diagram of the current year's cash-on-book return plotted against the future return. The graph only includes 13 of the 14 participating companies. One company was excluded because its portfolio was very small and as a result, its numbers tended to be quite extreme. Graph #3 shows a positive correlation between the current year's cash-on-book return and future performance. The correlation appears to be strongest from about 6% through 11%, where a majority (approximately 60%) of the observed data lies. The correlation looks fairly weak when the return is below 6%. Nevertheless, every occurrence of a negative future return happened when the cash on book return was less than 6%.

While the correlation looks weakest for returns greater than 11%, these account for just 19% of the actual observations. Of the observations in this category, the Task Force was only concerned about situations where the high current cash-on-book return was followed by relatively poor future performance, meaning that the proposed formula was not producing an adequate RBC factor. Of the 217 observations, there were only 7 instances in which a current return of 11% or greater was followed by a future return of 7% or less. In other words, only a very small amount (3.2%) of the actual observations fell into this troublesome category.

### **Calibrating the Formula**

The Task Force decided to calibrate the new formula so that it would give approximately the same average C-1 factor over the last 20 years as the current formula did. The Task Force used a trial-and-error method to adjust the factors to get to the tentative proposal. The numbers the Task Force experimented with were the "extreme" points: The maximum cash-on-book return subject to the largest (20%) C-1 factor was held constant at 6%. The minimum return which qualified for the smallest C-1 factor (3%) was then adjusted to equate the average proposed and historical C-1 factors. The specific numbers underlying the calculation are given in the last page of the attachments.

Note that the average returns are a strict arithmetic average and not a weighted average. This is the same as assuming the total book value of real estate is equal in every year. While this was clearly not the case (the book value, excluding encumbrances, varied from \$6.5 billion in 1980 to a maximum of \$26.5 billion in 1993), the Task Force felt it was best to use the assumption of a constant real estate portfolio. This way, the analysis was not influenced by the timing and volume of new purchases and sales of the 14 participating companies.

The final step was to graph and analyze the results of the proposed formula. Graph #4 shows the proposed C-1 factor plotted against future returns. For this graph, the data from all companies was combined for each year, and hence it displays only 17 observations. Based on this graph, there is a *very* strong (and negative) correlation between the proposed C-1 factor and future returns.

Graph #5 shows the same data as Graph #4 except it plots the future return and proposed C-1 factors for each company and each year. Once again, there is a definite correlation between the proposed C-1 factor and future returns, although the correlation is much weaker than that based strictly on total data. Since the proposed factor is capped and floored at 20% and 3% respectively, Graph #5 contains vertical columns of points (observations) which occur at both the 3% and 20% levels. The final graph, #6, compares the proposed and current factors in total for all participating companies, for each year dating back to 1980.

### **Real Estate Joint Ventures**

The proposal would also apply the new C-1 treatment of real estate to real estate joint ventures. This will eliminate the possibility of “gaming” the formula by moving properties between Schedule A and Schedule BA. Since the net income needed to calculate the new C-1 factors is not available in the Annual Statement for joint venture properties, it is not possible to quantify the effect of this change in the treatment of real estate joint ventures. Going forward this data would be inserted into the RBC worksheets directly from company records.

### **Real Estate in Investment Subsidiaries**

The proposal would also extend the new C-1 treatment to apply to real estate in investment subsidiaries that receive look through RBC treatment. This data will also need to be inserted into RBC worksheets directly from company records.

### **Leveraged Properties**

Under the proposal leveraged properties would be handled similar to the way they are under the current formula. The calculated C-1 factor applies to the unleveraged piece of any real estate holding. The factor which applies to the encumbrance is equal to the calculated C-1 factor minus 2.25%, the factor for mortgages in good standing.

### **Implementation Issues**

If this proposal is approved, the Annual Statement source of data used to calculate cash on book returns should be reviewed. In some cases it may be better to obtain this data from different places than were used to collect the historical data.

The book value in the denominator of the cash on book return calculation will be an average of book values for each quarter if the data is available, rather than just the average of two year-end figures. This will reduce the distortion that could be caused if there were a significant amount of real estate sales and/or purchases near the beginning or the end of the year. If the RBC factors still appear too volatile, we will also consider the use of averages over more than one year.

Lastly, there may be practical issues associated with getting the appropriate data for joint venture real estate since companies may have more than real estate within their JV. If it is too difficult to get the data we may not be able to change the RBC treatment for joint venture real estate.

### **Further Considerations**

A concern has been raised that at the high and low points of the real estate cycle the RBC factors are, respectively, at their lowest and highest points. This may seem illogical given that at the high and low points things are going to get, respectively, worse and better. A suggestion we are considering is to use two years of quarterly data rather than one. This might also reduce volatility as noted under "Implementation Issues" above.

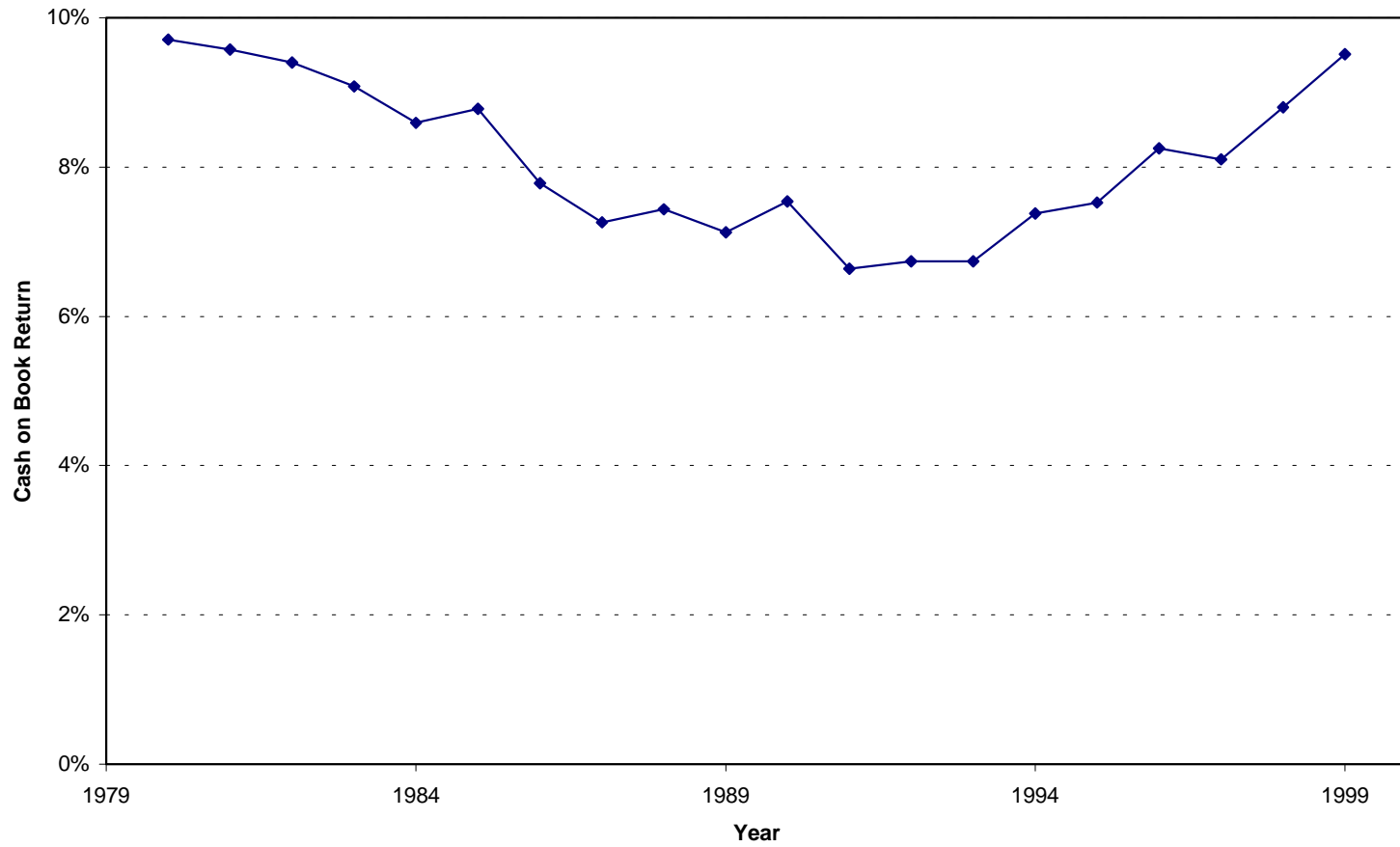
To respond to these concerns we also need to consider whether it is possible in a formula to know where we are in the cycle. Moreover, if we do too much averaging, the end result might not be that different than a flat 11% (i.e. the average factor over the twenty years studied if the tentative proposal had been in place) proposal. The Academy's Life RBC Task Force will continue to research this issue.

The 14 Participating Companies:

1. Connecticut General
2. COVA Financial Services
3. Equitable Life
4. Lincoln National
5. Mass Mutual
6. Metropolitan Life
7. Mutual of Omaha
8. New York Life
9. Northwestern Mutual
10. Principal Financial
11. Prudential
12. TIAA
13. Travelers
14. United of Omaha

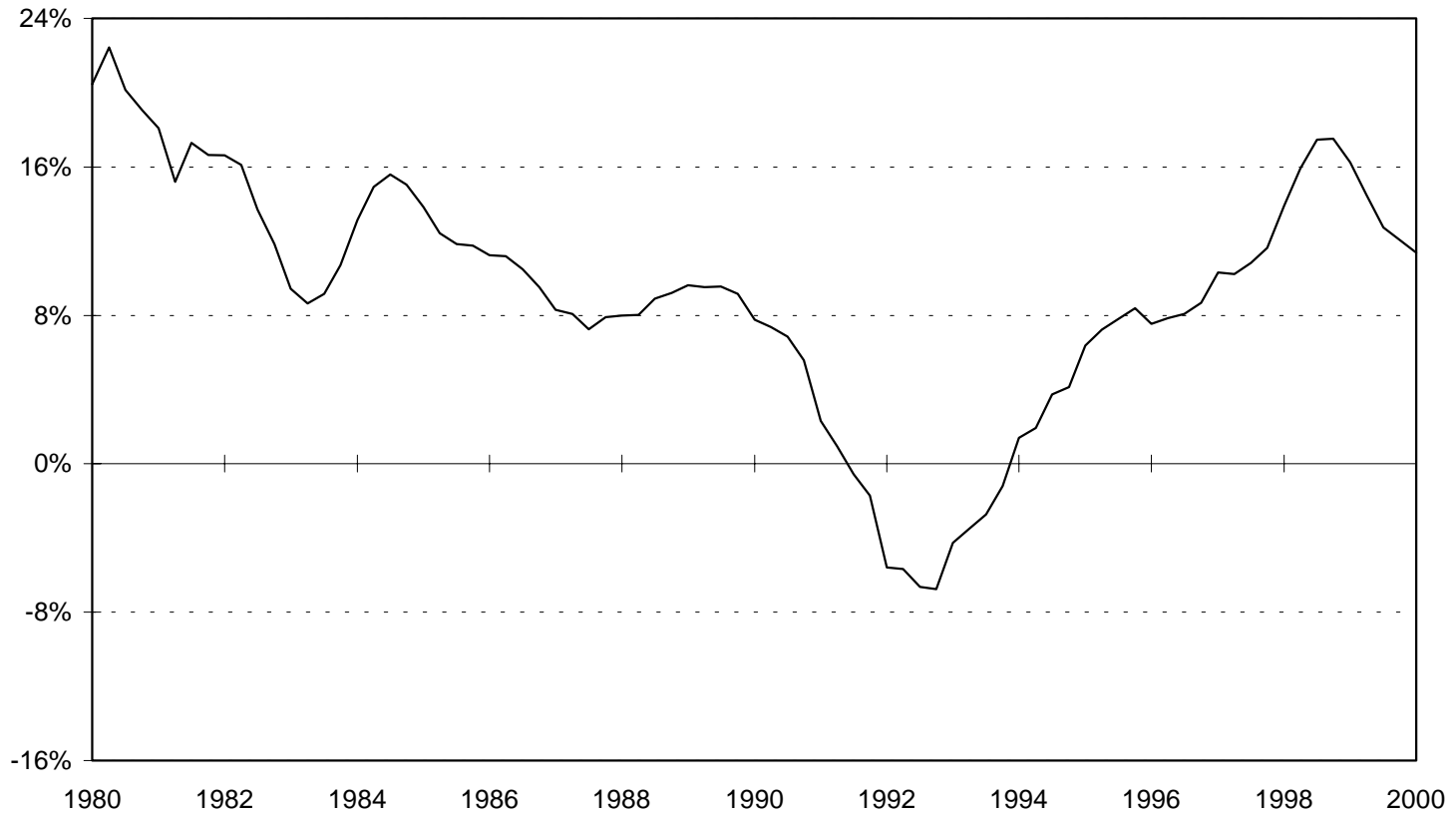
# Graph #1

## Cash on Book Returns by Year for All Companies Combined



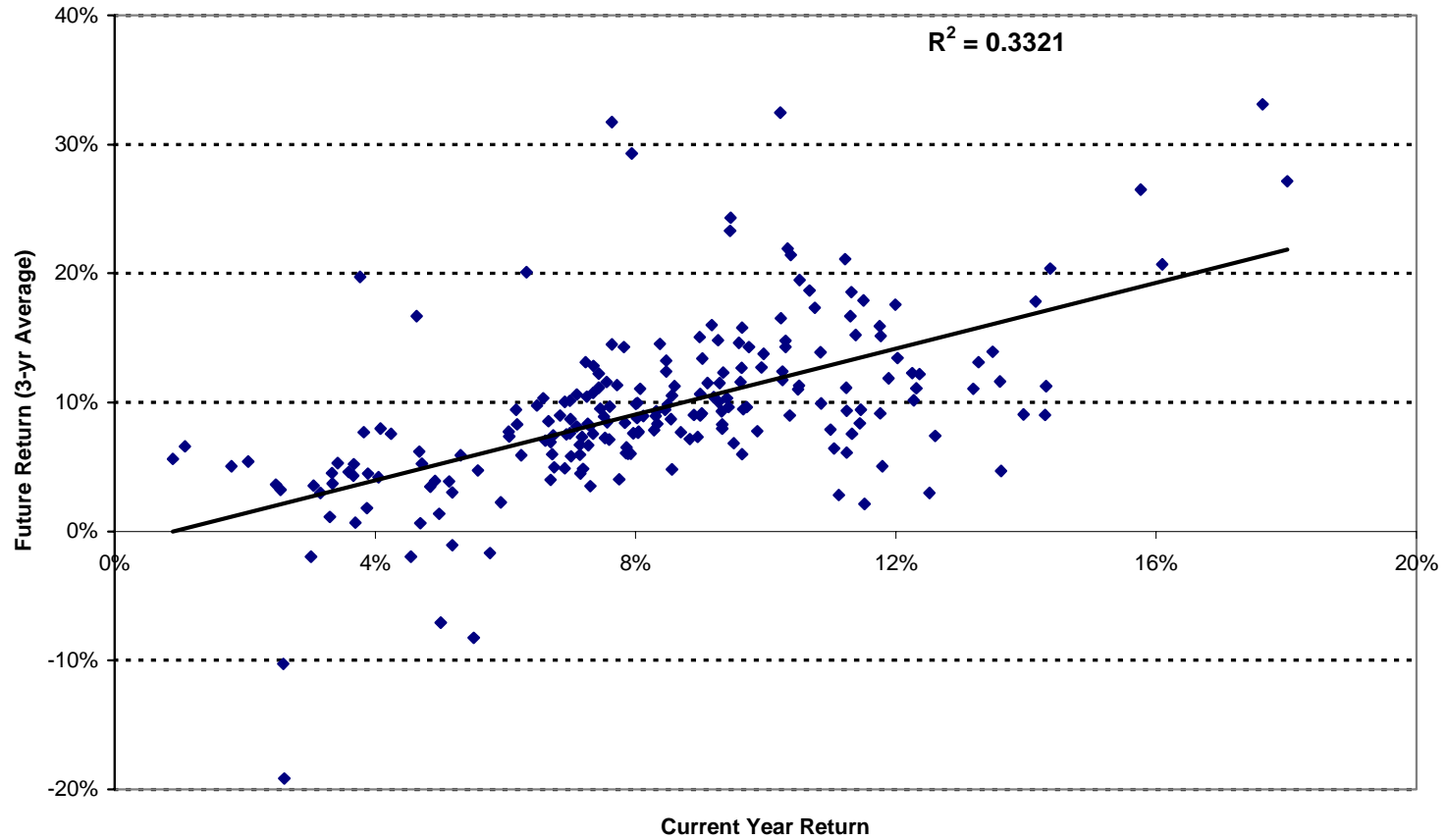
## Graph #2

### NCREIF Property Index Rolling 4-Quarter Total Returns



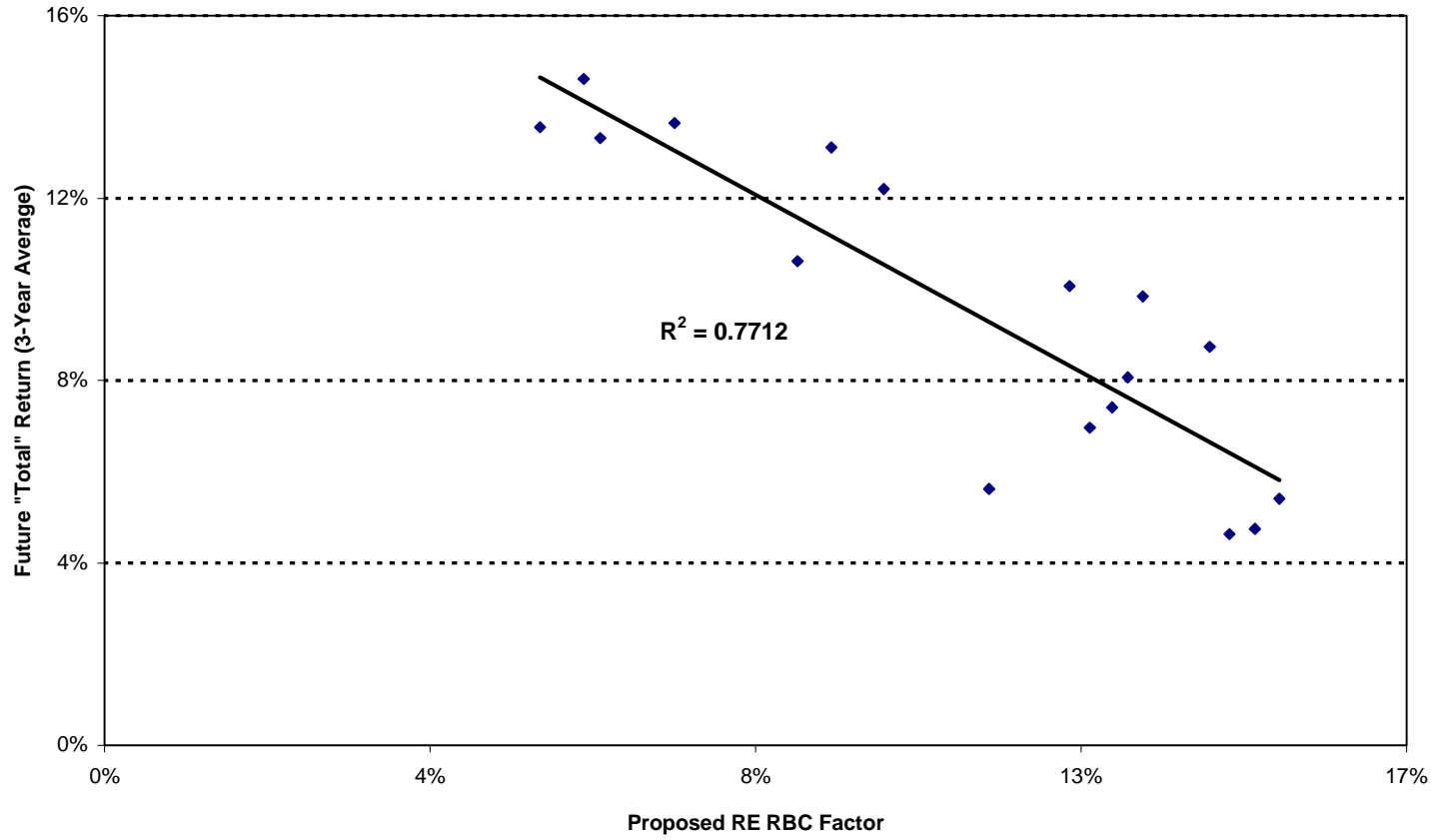
### Graph #3

## Current Year Cash-on-Book Returns Vs. Future Returns: 13 Companies



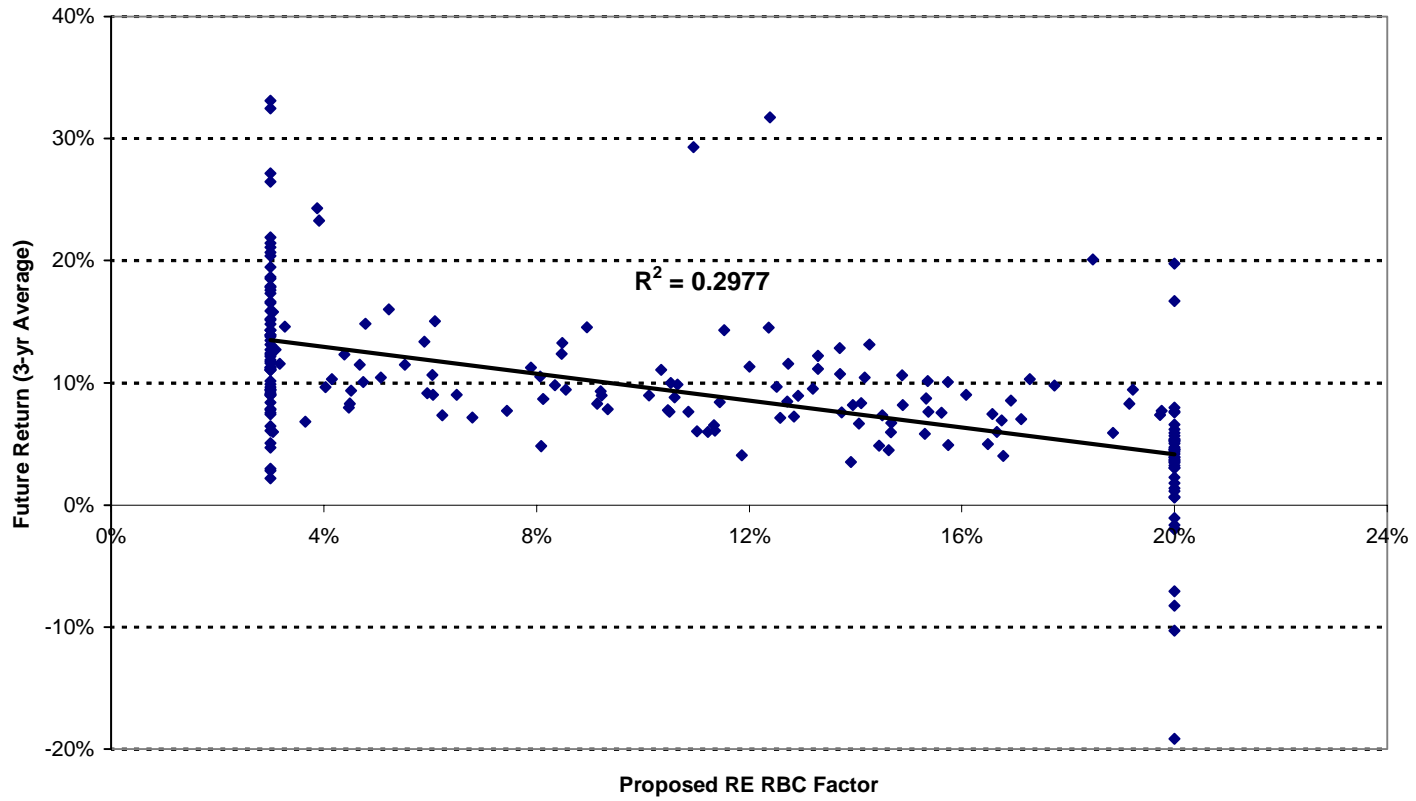
### Graph #4

## Proposed RE RBC Factors Vs. Future Returns: 13 Companies



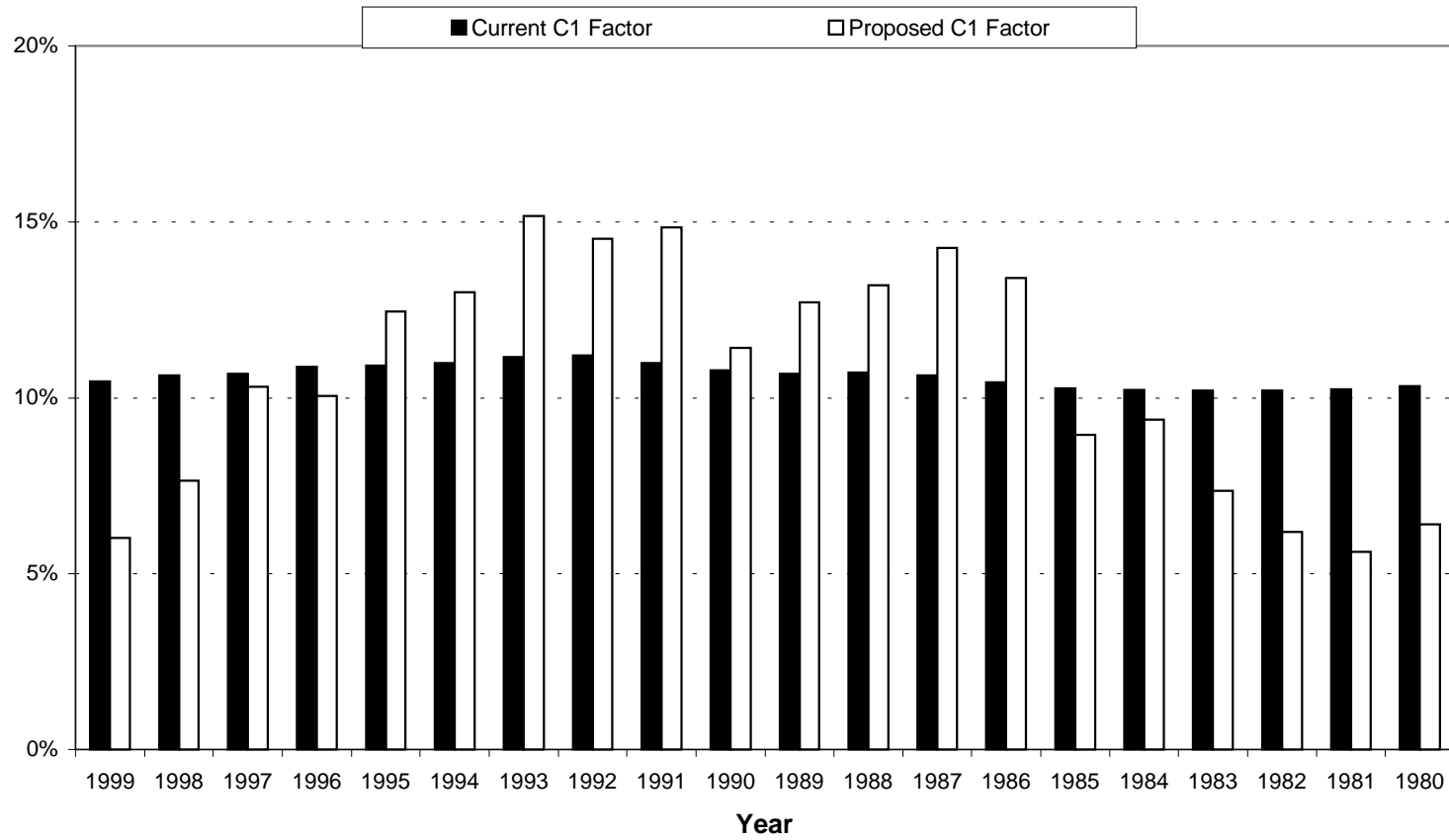
### Graph #5

## Proposed RE RBC Factors Vs. Future Returns: 13 Companies



**Graph #6**

**Proposed C1 Factor Vs. Current C1 Factor:  
13 Companies**



## Impact of Proposed Changed in RBC Treatment of Schedule A Real Estate

**Proposal:**

3% RBC Level:	9.65%
20% RBC Level:	6.00%
Max. RBC Percent:	20.00%
Min. RBC Percent:	3.00%

<u>Year</u>	<u>Return / Average BV</u>	<u>Current C1 Component</u>	<u>Current C1 Factor</u>	<u>Proposed C1 Factor</u>	<u>Proposed C1 Component</u>	<u>Difference</u>
1999	9.51%	1,634,386,798	10.46%	6.02%	935,199,027	-699,187,772
1998	8.80%	1,797,709,592	10.63%	7.65%	1,288,590,474	-509,119,118
1997	8.11%	2,227,266,760	10.69%	10.31%	2,147,683,558	-79,583,202
1996	8.25%	2,544,489,192	10.88%	10.06%	2,351,011,229	-193,477,963
1995	7.53%	2,776,213,375	10.91%	12.45%	3,174,457,721	398,244,346
1994	7.38%	2,881,839,414	11.00%	13.00%	3,411,926,704	530,087,290
1993	6.73%	3,068,365,079	11.16%	15.16%	4,177,741,445	1,109,376,367
1992	6.73%	2,748,578,482	11.21%	14.52%	3,567,706,743	819,128,261
1991	6.64%	2,391,055,430	10.99%	14.84%	3,237,904,144	846,848,715
1990	7.54%	2,059,956,267	10.78%	11.42%	2,183,140,199	123,183,931
1989	7.13%	1,839,541,060	10.69%	12.72%	2,193,443,108	353,902,049
1988	7.43%	1,774,742,942	10.72%	13.20%	2,191,594,751	416,851,809
1987	7.26%	1,684,881,299	10.64%	14.26%	2,268,328,939	583,447,640
1986	7.78%	1,526,285,258	10.44%	13.39%	1,965,487,873	439,202,614
1985	8.78%	1,368,357,199	10.26%	8.94%	1,189,622,962	-178,734,237
1984	8.59%	1,168,260,188	10.21%	9.38%	1,070,553,232	-97,706,956
1983	9.08%	994,565,365	10.20%	7.36%	712,082,300	-282,483,065
1982	9.40%	949,169,519	10.21%	6.18%	567,113,875	-382,055,644
1981	9.57%	866,225,981	10.24%	5.62%	465,232,305	-400,993,676
1980	9.70%	738,410,314	10.32%	6.39%	450,263,233	-288,147,080
1979						
		Average:	10.63%	10.64%		