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PORTFOLIO SEGMENTATION FOR LIFE INSURANCE COMPANIES

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Discussion of the organizational and practical implications of segregating the General Account - theory, strategy, problems.

- How should existing assets be allocated by product line?

- What organizational changes are required by segmentation?

- What are the regulatory implications?

- Is segmentation feasible/desirable for small and medium sized companies?

- What changes are required in accounting and cash flow reporting systems?

- System considerations.

MR. JAMES A. ATTWOOD: We are living in times of unstable financial markets and rapid movements in interest rates, which have had, and are having, profound effects on life insurance companies and the profitability of their business. In responding to these conditions, managers of life insurance companies are recognizing the need, more than ever before, to manage their assets in relationship to their liabilities.

I was an actuary, and I was the Chief Investment Officer, at the Equitable Life Assurance Society before my recent move to MONY. As an actuary, I was accustomed to dealing with the liabilities of life insurance companies. As an investment officer, I was concerned with the investment of insurance company assets. As both actuary and investment officer, I could appreciate the importance of understanding both assets and liabilities and the balanced relationship that needs to exist in the management of both sides of the balance sheet. Now, as CEO of MONY, I am, more than ever, conscious of the importance of asset and liability management to the profitability and success of the enterprise.

Managing assets in relationship to liabilities means the development of insurance company products that respond to the investment concerns of customers as well as their traditional concerns for insurance protection and security of income. In the current environment, this generally means greater emphasis on products which, in varying ways and in varying degrees of emphasis, either capitalize on current high interest rates or link results to investment performance, resulting in more flexibility for the customer.

Managing assets in relationship to liabilities also means the design of investment strategies that enable the company to meet the investment needs of its insurance products and the customers buying the products, and to achieve a satisfactory level of profitability from each business. The operative phrase here is "asset and liability matching."

Asset and liability matching is a fundamental all of us learned in Economics 101 or Finance 101. The remarkable fact of asset and liability matching is that it is just emerging as important in life insurance company investment practices. Until recently, life insurance companies were considered to be cash cows. The only real investment challenge of life insurance companies was to get the money invested as fast as it came in -- hopefully for as long as possible to keep the money from cluttering up the place. After all, death and retirement are long term events, and insurance and pension contracts were considered strictly as long term contracts to cover such events.

In recent years, with as much (or more) money going out of life insurance companies as coming in, and with insurance company customers coming to regard their insurance and pension contracts as investments for the near or immediate term, as much as to provide protection for the long term, this has all changed.

For insurance company management, asset and liability matching requires first an understanding of the company's liabilities for each product type -- expected amounts and expected timing of future insurance income and payments, and the extent to which such amounts and timing may vary from expected, particularly under conditions of changing interest rates -- and then a structuring of the company's assets to accommodate an investment strategy most appropriate to meet the payments as they emerge. For the insurance company's general account, it is essential for management to recognize that different investment strategies may be needed for different types of products included in the general account, and that structural changes may be needed in the way the company operates to facilitate the use of different investment strategies for the different products and to channel the investment results accordingly.

Segmentation is one way in which a life insurance company can structure its general account to permit the matching of investment strategies and insurance products. Equitable adopted a plan of segmentation in 1981 while I was Chief Investment Officer there. Segmentation plans, more or less similar to Equitable, have been adopted, or are being considered, by a number of companies.

I should point out here that my present company, MONY, is now in the process of segmenting its general account, and its segmentation plan may or may not follow the lines of Equitable's plan. My remarks this morning, however, will focus primarily on Equitable's segmentation plan.

A detailed description of Equitable's segmentation plan may be found in a paper by Carl Ohman and myself, titled "Segmentation of Insurance Company General Accounts," that is scheduled to appear in the *Transactions of the Society of Actuaries* later this year.

I expect that many of you have already seen this paper, an earlier draft of which was given wide circulation in 1982. Many very helpful comments were received on that draft and included in the final version. Page proofs of the final version were mailed to all members of the Society of Actuaries last fall. In addition, the paper was recently reprinted (with permission of the Society of Actuaries) as a LOMA Financial Planning and Control Report and will be distributed widely among LOMA member companies.

In essence, Equitable's segmentation plan is very simple. We identified in the general account five major classes of products, with different liability characteristics, for which different investment strategies were required. These five business segments of the general account are (1) individual life and health, (2) group life and health, (3) individual annuities and supplementary contracts, (4) group pension guaranteed interest business (including some non-par annuities), and (5) other group pension business (largely participating with pass-through of investment results to customers using Investment Year Method (IYM) procedures).

For the purpose of designing investment strategies for the general account, and for the purpose of allocating investment results to product lines, the assets of these five business segments are managed as if they were separate investment portfolios. New investments are acquired from the cash flow generated by each segment in accordance with an investment strategy tailored to the investment needs of the products in that segment, and all future investment results from these investments, including repayments of principal and capital gains or losses, are credited to that segment.

Investments held in the general account when segmentation became effective were divided among the segments in shares that were consistent with IYM procedures then applicable, with future income, repayments and capital gains or losses from these investments allocated to the segments according to those shares.

A corporate segment was established to accommodate investments deemed appropriate for the general account but which do not meet the specific investment needs of any particular segment; investment results from the corporate segment were to flow back to the business segments in proportion to the historic contributions of the business segments in funding the corporate segment.

That, in a nut-shell, is Equitable's segmentation plan. Again, details of how it operates and why it was designed this way can be found in the Attwood/Ohman paper.

It is important here to emphasize what Equitable's segmentation plan does <u>not</u> do. It does not constitute a <u>segregation</u> of the general account into separate portfolios of assets <u>belonging</u> to the separate business segments. There is only one general account and all assets of the general account are available to support all liabilities of the general account. The segmentation of the assets into separate portfolios has significance only for the design of investment strategies and the allocation of investment results among product lines.

This distinction is an important one, for several reasons. First, it means that a company with a losing line of business in one segment of its general account, cannot simply throw off that line of business with its portfolio of assets --- all assets of the general account must be available to support the liabilities. Second, the insurance industry has held the position since ERISA was enacted that general account assets do not constitute plan assets for pension plans with funds in insurance company general accounts --- because there is no segregation of assets in the general account. We believe that segmentation does not in any way weaken that position.

Segmentation is a new approach to allocating investment income among lines of business. But it is much more than that. What segmentation really amounts to is a new approach to managing the insurance company's general account. Segmentation requires that the management of each of the business segments fully understand the cash flow characteristics and investment needs of the products in the segment and participate directly in developing investment strategies for the segment. Segmentation requires the management of each of the investing areas of the company work directly with each of the separate business segments as though they were distinct investment clients. And, segmentation both enables, and requires, the company's senior management to look at the inter-relationship of its investment and insurance operations in a totally new light.

Equitable's segmentation had been in effect nearly three years when I left the company last year. How well was Equitable's segmentation working after three years? In my opinion, very well.

Viewed as a modification in the method of allocating investment income among product lines, Equitable's segmentation became fully operational within months of its introduction and the results were gratifying. Extensive changes were needed in Equitable's accounting and cash flow management systems, but these were accomplished rather quickly and have operated effectively ever since.

Viewed more broadly as a major modification in structure and management of the general account, Equitable's segmentation has been accomplished as more of an evolutionary process. While the progress has been considerable and the results impressive, segmentation is still evolving at Equitable, or at least was when I left there.

Now, let me comment on some aspects of this evolutionary process -- specifically regarding the:

1. development of segment investment strategies

2. implementation of segment investment strategies

3. allocation of new investments among segments

4. inter-segment borrowing

5. inter-segment swaps of existing investments

6. role of the corporate segment

1. Development of segment investment strategies. Who develops investment strategies for the several business segments -- and how are they developed? This is a good question and one frequently asked by company managers contemplating segmentation. For Equitable, it was a learning experience, and a process that evolved in stages. For some segments, those with obviously interest-sensitive products -- pension interest guarantee contracts and individual annuities -- the kinds of investment strategies needed seemed reasonably clear, and the process for developing investment strategies a natural by-product of the product design and pricing process. For other segments, especially individual life and pension contracts with essentially complete pass-through of investment results,

the process of developing meaningful investment strategies was understandably slower.

2. Implementation of segment investment strategies. How do you persuade investment managers in the company to work with the managers of general account business segments as if they were distinct investment clients and not just part of an indivisible pool? This is never easy. Segmentation does impose restraints on both product managers and investment managers -- both would prefer to operate without such restraints. However, it must be remembered that it is not segmentation itself, but rather the underlying need for asset and liability matching, that imposes such restraints.

   To illustrate how the process evolved,Equitable's original intent was to designate separate investment portfolio managers for the several business segments of the general account, each portfolio manager working with the product manager for the segment in tailoring investments to improve the matching of assets and liabilities in the segment. After some experience with this structure, we concluded that a single investment portfolio management department, working with the product managers of all business segments as separate investment clients, could achieve the objectives more effectively than by assigning distinct individuals as portfolio managers for the separate segments.

3. Allocation of new investments among segments. How does one decide what segment to place a particular investment in, or how to share the investment among segments, to assure fair treatment of all segments? This is no different in principle from problems of allocating investments among the general account and various separate accounts, but it still needs to be addressed. One way to underscore the importance of assuring fair allocation among segments is to require that allocations of major investments be approved by the appropriate committee of the Board of Directors when it approves the investments themselves -- this at least assures that senior investment management carefully review proposed allocation before submitting them for approval.

4. Inter-segment borrowing. For a segment with negative cash flow there are several alternatives - sell existing assets, borrow outside the company, or borrow from other segments. Inter-segment borrowing is certainly appropriate, provided it can be accomplished on terms that are fair to all segments involved. This requires very careful guidelines. Because of the need for workable guidelines, Equitable did not introduce inter-segment borrowing at first, and had not done so when I left last year. I expect it is only a matter of time, however, before guidelines are adopted which will permit inter-segment borrowing.

5. Inter-segment swaps of existing investments. Equitable's segmentation plan, as approved by the New York Insurance Department, did not permit segments to swap investments, or one segment to sell investments to another segment. Once an investment is acquired for a segment, it remains with that segment until it matures or is sold.

   As in the case of inter-segment borrowing, inter-segment swaps or sales are appropriate, provided they can be accomplished at a price that is fair to all segments involved. It is in establishing a fair price for the investment that care must be taken to assure equity among the segments.

It is for this reason that Equitable did not move in the direction of inter-segment swaps at first, and had not done so when I left. It should be noted that inter-segment swaps of investments do make good sense where two different segments each have a mismatch of durations of existing assets and liabilities -- one with assets longer than liabilities (as might well be the case of interest guarantee business) and one with assets shorter than liabilities (as might be the case for fixed dollar guaranteed annuities). A swap of long term bonds or mortgages from the one segment for cash or short term investments from the other could considerably improve the match of assets and liabilities in both segments. This could also be achieved without actually moving assets, by structuring a long term interest guarantee agreement among the segments that is really a variation of inter-segment borrowing.

6. Role of the corporate segment. Then there is the problem of defining the role the corporate segment plays in the over-all management of the general account. Equitable's segmentation plan, as originally adopted, simply provided for the existence of a corporate segment composed of certain existing corporate investments (e.g. home office properties, certain subsidiaries, etc.), leaving details of how this segment would be managed through the acquisition of new corporate investments to be developed later. Those details were still awaiting development, at least when I left Equitable. At issue is what relationship, if any, the corporate segment should have to corporate surplus -- i.e. that portion of the company's surplus or capital not needed to mature existing businesses and hence available to support new ventures, and this might include investments that do not conform directly to the investment needs of existing businesses. Ultimately, the role of the corporate segment must relate to the company's over-all surplus (or capital) management policy, including the management of excess (or venture) capital.

With these introductory thoughts on Equitable's experience with segmentation, I would now like to call on our other panelists for their views on, and experiences with, segmentation. First, Don Sondergeld will look at segmentation from the perspective of the United States stock life insurance company. Then Ken Stewart will give us the perspective of a Canadian company. Finally, Dan McCarthy will look at segmentation from a smaller-company perspective and from a consultant's perspective.

MR. DONALD R. SONDERGELD: The Hartford Insurance Group has been involved with this subject of segmentation for many years. I am Chief Actuary of three of its life companies: Hartford Life, Hartford Life and Accident, and Hartford Variable Annuity. By operating three separate life insurance companies, we have been able to place products with similar investment characteristics in a common company. However, in 1978, we decided that three was not enough. Today, we have three companies and eight general account segments. Let me give you a brief outline of our history on segmentation. It began as a result of our writing Group Annuity business.

Our first Group Annuity contract was written in Hartford Life in 1966. As that company operated in New York, it received approval from New York to use the investment generation (or new money) method of allocation of investment income beginning January 1, 1966. The allocation method was applied prospectively.

Twelve Years later, in May 1978, we had a discussion at a Hartford Life Board of Directors' meeting on two interrelated subjects: our new money rates and our investment policy. At that time, there were two major lines of business residing in Hartford Life: Individual Life and Group Annuity. It was noted that, although the investment policy might be different for the Individual Life line of business and the Group Annuity line, a blended result occurred in the allocation of net investment income to these two lines in the determination of our new money rates.

Although we had considered reinsuring one of those two lines of business into an existing or a new company -- there were a number of disadvantages of doing that. DeRoy Thomas, who was then our President (and is now Chairman of the Board), suggested that we simply apply the new money method within Hartford Life to two separate portfolios -- one for Individual Life and one for Group Annuity. I was asked to see if this would be acceptable to the New York Insurance Department.

After some research, which included an examination of annual statements of other companies, we found a precedent at Travelers Life Insurance Company. Travelers had a Life Department and an Accident Department in existence <u>prior</u> to the initial filing of their new money allocation method with New York. At that time, they had different investment policies and separately identified assets for each department within a single company. When they first filed their new money allocation method with New York, they labeled it: "New Money Method -- Life Department." Segmentation at Travelers occurred before the use of a new money method.

I, therefore, called the New York Insurance Department and told them we would like to amend Hartford Life's new money method so that it would be applied separately to two portfolios. Although I did not mention Travelers' name, I indicated there appeared to be a precedent for a company which operated in New York to do this. New York officials seemed agreeable, but asked that I outline this concept in writing.

My letter of July 11, 1978, to New York stated the following:

> "The Group Annuity line of business has grown rapidly in Hartford Life. Investment results are especially important to this line of business. We believe the investment policy, applicable to Group Annuity line of business, should be different from that applicable to the rest of the Company. An approach to accomplish that objective would be to set up a separate company for Group Annuity business. This has a number of disadvantages, including extra cost to The Hartford and to the state insurance departments.
>
> We would prefer to simply amend our new money method of allocating investment income, such that the method would apply separately to the assets of the Group Annuity Department and the Life Department. Our corporate cash books would separately identify assets applicable to each department as if they were separate companies. Investment income, applicable to each department, would be allocated according to the new money method on file with New York."

The letter went on to briefly describe how the existing portfolio of assets could easily and equitably be split into two separate portfolios.

I don't know what transpired within the New York Insurance Department in the next six months, although I had reminded the Department from time to time that I was awaiting a response to my July letter. However, at the end of January, 1979, the New York Insurance Department phoned me and requested that I file an amendment to our new money allocation method. They specifically asked that the amendment include something like the following statement: "This allocation of assets by line of business is only for purposes of determining an allocation of net investment income, and will not serve to restrict the backing of policyholder obligations for either line of business to only a portion of the Company's total investments."

Our amendment was filed February 5, 1979, and was approved by New York ten days later on February 15, 1979. Hartford Life's assets were split into two portfolios, effective 1/1/79. We produced two portfolios of assets that had similar maturities, quality, and yield rates by generation. We have maintained separate cash books since then.

As indicated in the Attwood-Ohman paper on "Segmentation of Insurance Company General Accounts," to be published in TSA Volume XXXV, Equitable instituted a similar segmentation plan two years later, on 1/1/81.

Jim Attwood gave us a view of segmentation as seen by a U.S. New York domiciled mutual company. I was asked to provide a U.S. stock company perspective. Both Hartford Life and Hartford Variable Annuity operate in New York whereas, Hartford Life and Accident does not. However, I would think there would be negligible differences in attitude on segmentation between U.S. stock and mutual companies.

In my view, a major deficiency in the investment generation method is that it does not distinguish between the maturity distribution (or length) of assets by generation applicable to different lines of business. Similarly, the aggregate method does not take into account the length of assets associated with different lines of business. Segmentation of assets is needed so that the appropriate investment policy can be pursued, whereas, the investment generation method of allocation of investment income may be utilized within a segment for reasons of policyholder equity.

Most geneticists will agree that the egg had to precede the chicken as the first chicken must have been a mutant. Although we have been familiar with both aggregate and new money methods of allocation of investment income for many years --- segmentation of assets is a relatively new topic. Yet it seems to me that a decision to segment a product, or line of business, should come first and be a primary consideration; and whether to use an aggregate, or new money method within the segment is secondary. However, segmentation is much much more than a refinement in a method of allocation of investment income.

I view segmentation as a means of managing an investment policy that considers the expected cash flow of an insurance product or line of business. The investment policy must recognize how the investment risk is distributed between the policyholder and the insurance company. Segmentation is also a monitoring device. Where practical, all products that require different investment policies should be placed in separate segments.

We currently have the following eight segments of the general accounts of our three life companies. Let's look now at the following picture:

Company	General Account Segments	Date of Segmentation
Hartford Life	1. Single Premium Tax Qualified Group Annuities (currently Guaranteed Investment Contract business)	1. 1/1/83
	2. Single Premium nonqualified Individual and Group Annuities (currently "structured settlement" or "claim annuity" business)	2. 1/1/83
	3. Universal Life	3. 1/1/83
	4. Group Annuity	4. 1/1/79
	5. All Other (mostly Individual Life)	5. 1/1/79
Hartford Life and Accident	6. Universal Life	6. 1/1/83
	7. All other (Group Life, Group Health, Individual Health and Individual Life)	7. 1/1/83
Hartford Variable Annuity	8. Public Employee Deferred Compensation and Tax Deferred Annuity business	8. N/A

Hartford Life and Accident does not operate in New York, so we did not need approval for segments labeled 6 and 7. Hartford Life, however does does operatein New York. We, therefore, needed approval from the New York Insurance Department to form additional segments (labeled 1,2, and 3). I wrote that Department in September, 1983,indicating our desire to set up three additional segments as of January 1, 1983. I did have some correspondence with New York to justify there was no unfair discrimination by treating Universal Life as a separate segment. In our correspondence, the New York Insurance Department initially stated that two classes of assets can be placed in distinctive segments if they differ with respect to the optimum investment strategy. At first, New York thought Universal Life and traditional ordinary life did not appear to differ in that respect.

Apparently, I was able to convince New York to the contrary, as I received approval of our segmentation plans from New York two months later, on November 29, 1983. You may be interested in certain statements I made in letters written to New York in October and November of 1983.

1. "In attempting to balance and rebalance our portfolio of assets, based on our liabilities, it is unlikely the maturity distribution of our assets will be the same generation by generation for both Universal Life and our other indivi-

dual Life business. We would, therefore, prefer not to mix Universal Life business with existing and new Individual Life business."

2. "We are now writing a Universal Life policy that we believe should be carefully managed from an investment view. It is our strategy to attempt to match asset cash flows with that of expected liability cash flows. In addition, our management would like to know the earning power of the Universal Life assets so management can decide what rates of interest to credit to Universal Life policyholders."

3. "If our investment policy is only that of matching our assets and liabilities, then we could place single premium and annual premium business in one segment. But, if we also find that we want to credit investment income, either on aggregate or new money basis, to one or both classes of business -- we need to look at each block separately. That is basic. We don't want to credit the average rate to both blocks when the maturity distributions of the assets differ."

4. "It is important that we use segmentation as a management information system which will enable us to tell management whether our assets and liabilities are matched, how much investment income we can afford to equitably credit to certain policyholders, and what the assets are earning relative to our actuarial pricing assumptions."

With the above background in mind, let me address the questions in the program booklet.

1. Allocation of existing assets. If it has been decided to allocate existing assets among new segments, I would suggest that an effort be made to distribute the assets among the segments in an attempt both to match liability cash flows and interest guarantees. If this can't be done, compromises must of necessity be made. Then a program should be instituted to,over time, make the cash flow of the assets match the expected cash flow of the liabilities.

2. Organizational changes. I'm not aware of any organizational changes that we made as a result of segmentation. By operating three life companies, we had been involved in segmentation for many years. Our main regulatory consideration in Hartford Life was New York -- and I've already discussed that at some length. There is a good discussion of the regulatory situation at the end of the Attwood/Ohman paper on segmentation.

3. Size. Segmentation may or may not be feasible for small - or medium sized companies. Nevertheless, I believe segmentation is synonymous with good management, and some modified form of segmentation is necessary for every company -- irrespective of size.

4. Reporting systems. As far as accounting, cash flow, and other system changes needed for segmentation -- they were relatively easy for us. We already had three companies and three sets of cash flow reports. We now have eight general accounts instead of three.

Now, let me discuss the need for consistency among three important items: the actuarial formula and assumptions the actuary uses in pricing (or profit-testing) a product, investment policy, and the management-reporting of earnings. Our segmentation plans help tie these three items together.

We do not have a Corporate Segment, but, perhaps, we should have one. We do, however, have a Corporate line of business for management-reporting purposes. The financial results of this Corporate line are buried in a statutory line of business for statutory reporting.

It might be helpful if I describe our method of operating Hartford Life. I will use 1979 for illustration. Our method hasn't changed, but the description is easier to follow as we only had two segments in 1979. The two segments were a Group Annuity segment and everything else. Group Annuity had assets in its own segment, and All Other assets were contained in the other segment. The assets in the Group Annuity segment equal statutory liabilities for the Group Annuity line of business. We had three major management-reporting lines of business: Group Annuity, Individual Life, and Corporate. Each month, statutory aftertax earnings are transferred out of the Group Annuity segment to the Corporate line of business portion of the All Other segment. If the earnings are negative, cash is transferred from the Corporate portion of the All Other segment to the Group Annuity segment. The new money is applied separately within each segment.

The following picture might be helpful:

Group Annuity Segment	All Other Segment					
			Total Statutory Surplus			
Group Annuity Liabilities	Individual Life Liabilities	+	Individual Life Benchmark Surplus	Group Annuity Benchmark Surplus	+	Corporate (Free) Surplus

As mentioned earlier, the assets in the Group Annuity Segment equal Group Annuity Liabilities. In the All Other segment, we have assets equal to the sum of two major items: a) statutory liabilities for Individual Life, and b) Total Statutory Surplus. This latter item total statutory surplus, consists of three pieces: i) Benchmark Surplus for Group Annuity, ii) Benchmark Surplus for Individual Life, and iii) "Free" or Corporate Surplus. We define Benchmark Surplus as the amount of Statutory Surplus that is needed for each line of business in order to reduce the probability of insolvency to management's comfort level. Free or Corporate Surplus is what is available to invest in new business. The amount invested, when new business is written, is the sum of the statutory drain on surplus and the Benchmark Surplus applicable to that business.

For Statutory reporting of earnings, Group Annuity aftertax earnings include investment income on Group Annuity liabilities. All other investment income is allocated to the Individual Life line of business. However for management reporting for statutory earnings, statutory aftertax earnings for the Group Annuity line of business also include aftertax investment income on Group Annuity Benchmark Surplus. Aftertax earnings for the Individual Life line of business include investment income on its liabilities and on its Benchmark Surplus. The balance represents the earnings of the Corporate line of business which is generally interest on Free Surplus. After various GAAP adjustments are made, we have GAAP earnings by line of business. Realized capital gains and losses, after tax, are part of the statutory and GAAP aftertax earnings.

One of our major profit standards is Return on Capital and Surplus. This is the ratio of GAAP Net Income to GAAP Capital and Surplus. This return is determined each month for each line of business. GAAP Net Income, for each operating line of business, includes aftertax interest on Benchmark Surplus. GAAP Capital and Surplus, for each operating line of business, is the sum of the various GAAP Adjustments and Benchmark Surplus applicable to the operating line of business. The major GAAP adjustments are prepaid acquisition expense, the benefit reserve adjustment, and deferred taxes. The Corporate line of business is the stockholder account and is the balancing item.

As you can see, our Group Annuity product segment is operated as a separate company with zero surplus. This is a major departure from the Equitable's approach where accumulated assets remain in the product segment. However, on a management-reporting basis, our Group Annuity line of business also receives earnings on its Benchmark Surplus.

You will note, from this description, the Corporate line of business represents the stockholder interest. The Corporate line finances the new business drain for each operating line of business and receives renewal earnings as compensation from the operating lines of business. For products containing cash values, or products on which the investment earnings are allocated to policyholders, we believe that assets in the "product segment," as a minimum, should equal the policyholder account value. If there is enough cash available, we plan to have assets in each product segment kept equal to the statutory liabilities. The additional assets needed in the product segment, above the cash value minimum, could be made available in other ways, such as by transferring securities into product segment, or by borrowing.

My final comments will, therefore, be on negative cash flow. If the statutory earnings in a product segment are negative, we move cash from the operating line of business into the product segment. It is not borrowed at an explicit rate of interest as the Corporate line of business represents the stockholder's interest and Corporate surplus is being invested in the product segment. It is expected that such investment will be repaid via future statutory earnings that are subsequently moved from the product segment to the Corporate line of business. The Corporate line of business expects to realize the statutory internal rate of return used in pricing the product. On the other hand, a situation may develop where there are positive earnings, but negative cash flow, within a product segment. Rather than liquidate securities, the product segment may borrow cash at an appropriate interest rate from other segments, or from outside the

company. This could occur if there is an asset-liability mismatch in a product segment.

In summary, segmentation is a necessary management tool needed to manage our business. I believe The Hartford and its policyholder have both benefitted from segmentation of assets. I hope you have benefitted from my comments. Thank you for listening.

MR. KENNETH W. STEWART: Under segmentation, the same principles of sound management and fair dealing between Participating and Non-Participating business should apply, mutatis mutandis, with equal rigour to both stock and mutual companies.

My work as an actuary has been almost entirely with London Life, a stock company with the largest block of Participating insurance in Canada. We are part of Trilon Financial Corporation, a diversified financial services company with assets of $48 billion under management.

While I work for a large stock company, in the spirit of my initial remark, I will attempt to present a more catholic view which includes both stock and mutual companies, and the regulators. Of course, the views you detect should not be attributed to my colleagues or my company.

Canadian Regulatory/Operating Environment

A large majority of companies, accounting for almost all of the business written in Canada, are registered with the Federal Department of Insurance. The Department regulates solvency and other aspects of corporate powers, investments and financial reporting. Provisions governing Canadian, British or foreign companies are virtually identical, so I will refer only to the Canadian and British Insurance Companies Act in my remarks.

Federal legislation is said to virtually enshrine the mean funds allocation of investment income. Many of the investment provisions of the Act pre-date the First World War, and arise from an era in which fully commingled funds were business norm.

Nevertheless the Department has administered the Act to permit a variety of Investment Generation Methods since the late 1960's. The Department does not yet permit segmentation of general accounts, although some companies use such funds for internal management, and others are pressing for formal sanction. The Department's caution stems from the unique character of the Canadian insurance business.

In Canada both stock and mutual companies have the power to write Par and Non-Par business, and most do so. Section 84 of the Act provides that Par policyholders of a stock company are entitled to at least 90% to 97% of the profits of the Par business.

Companies must keep separate accounts for accident and sickness policies, and for policies whose reserves vary with the market value of a specified group of assets. Companies are not required to separate annuity business.

Historically, Life Branch assets have been viewed as a corpus, backing the expectations of Life Branch policyholders as a whole. Section 83 of the Act provides that

"Every company... shall keep separate and distinct accounts of participating and non-participating business."

This section has been interpreted in a limited sense to mean identifying premiums and claims, and allocating investment income, expenses and taxes to complete the "fund accounting", rather than in the fuller sense of the "prudent management" concept, and the custom-tailored investment strategies both implied and enabled by segmentation.

Taken as a whole, the Act gives the Department wide-ranging power to police solvency on behalf of all customers, and equitable treatment in the allocation of investment income, expenses and taxes on behalf of Par customers.

What assurance do we have of fair dealing with Par customers of a stock company under segmentation? Do similar principles apply in a mutual company?

Principles for Investment under Segmentation

Other than undertaking to develop and execute appropriate investment strategies, the principal guarantee of equitable treatment lies in policy guidelines and operating rules designed to prevent material inequity.

As a practical matter, I believe that Par and Non-Par business must be kept in different segments, and that the most important tests of equitable treatment must apply at a "macro" Par versus Non-Par level.

I suggest five principles for investing under segmentation:

1. Par or Non-Par segments with substantially different liability characteristics, liquidity requirements, risk tolerance or income tax considerations may have different investment strategies.

2. Differences in strategy between segments should be justifiable by reference to material differences observed or postulated in these four elements.

3. Par customers should not be excluded from any major source of investment income consistent with their asset/liability management needs.

4. A designation of assets to segments is demonstrably fair if, whenever the strategies of two or more segments call for investing in a homogeneous asset class, the segments share new investments of that class in any time period in proportion to their investible funds in that period.

5. Investments may properly be structured and acquired to match specific asset/liability management needs of a particular segment.

These principles enable strategies and systems for designating assets which are at once flexible, practical, equitable and economical. They also provide a structural base for a rigorous link between strategic and tactical investment planning, and daily operations.

Practical Implications

Investment in public bonds, equities, real estate and private placements should be made by direct reference to the strategy defined for each segment, using my five principles.

Large or unusual assets might be pro-rated between two or more segments, but the vast majority must be earmarked for one segment. Asset sharing must be kept to a minimum, to avoid compromising the virtual independence of strategy by segment. When I speak of "sharing" a homogeneous asset class, I mean random designation of members of that class to segments.

Residential mortgages seem to be the primary area calling for a specific procedure to designate members of a homogeneous class, and simple tests to measure whether this was accomplished without bias. Material inequity can be avoided by allocating most loans based on

1. random assignment, below some size, to prevent any material rate or quality bias (this could apply to both new loans, and renewal of loans in force),

2. using reasonable class definitions,

3. applied over suitably short time periods,

4. with large or unusual loans designated by reference to broader criteria related to suitability and sharing.

All segments should be subject to the same discipline, including the fact that mortgage supply and demand may not match. Random assignment by class effectively distributes the available supply in proportion to demand, based on expected cash to invest, and segment investment plans.

Asset designation could and should be examined on a regular basis to ensure that there is no material bias in average yield or quality indicators, as measured consistently between segments, unless called for by the basic strategy.

From a regulatory viewpoint, such tests would be of most interest at an aggregate Par/Non-Par level. However, an insurer would probably wish to apply them by segment, perhaps with a less exacting materiality standard, as an audit of overall investment practices. The trend in most companies to organize internally into profit centres, or to price and manage by generic product grouping, gives ample reason for applying such tests.

Policing Equitable Treatment

Both general rules and strategy documents, as well as tests of equity, must be available for inspection by the Department of Insurance, and the Valuation Actuary.

Why the Valuation Actuary? Under Canadian law, he guarantees the financial integrity of the company, by certifying its reserves. Now equitable treatment is as central to corporate integrity as other matters already delegated to him, so it would be quite reasonable to add policing of equitable treatment to his functions. Who else is better able to certify that all

stakeholders have been equitably treated, having regard for, in the words of the Act, "(all) the circumstances of the company and the policies in force"?

Segmentation offers a distinct advantage to the supervisory authorities. To develop benefits at all approaching those of segmentation, other allocation methods will require such complex definitions of asset classes as to create, rather than remove, opportunities for conflict of interest.

Contrast this with the stark simplicity of segmentation, and the directness and apparent ease with which high level principles can be examined, and tests of equity applied.

Authorities/Limits/Approval Mechanism

Both Investment Planning guidelines and specific transactions would be initially subject to the same company and statutory limits and authorities (amounts, approved names, percentages, etc.) that existed prior to segmentation.

Of course, as we are more able to articulate our strategies under segmentation, internal and regulatory authorities can be expected to evolve. We may hope that evolution would take a "prudent management" approach, but revisions in the law could set percentage or other limits which vary by segment, particularly if mandatory minimum surplus standards are enacted.

Segmentation will place additional demands on the security for authorizing transactions in the portfolios. Transactions between segments will require particular attention. While they should not be entirely ruled out, we may wish not to do any that cross the Par/Non-Par boundary. All inter-segment transactions should probably be centrally coordinated by Investment Planning.

Rules for equitable treatment should be written out, and be formally approved by the Investment Committee of the Board of Directors, so that they are seen as emanating from the highest authority in the Company, and as governing strategic and tactical planning, and operational management of the investment function.

Organizational Development

How will this work out in practice? Will the usual organization of an investment department by area of investment need to change?

I see several areas in which organizational changes will be required:

- segment-specific portfolio managers in Equities and Public Bonds
- changes to separate corporate level investment functions (such as mortgage acquisition, administration, and some of the MIS reporting) which do not have to be managed at the segment level, from the details of investment strategy by segment, and other functions which do require such attention
- changes to accommodate additional budgeting and cash forecasting responsibilities.

If it is true that "form follows functions", we will sort out our organizations gradually as we come to understand the full implications of operating under segmentation.

Fundamental Issues

Before moving to the outlook for approval in Canada, I would like to touch on three issues that are central to the decision to adopt or approve segmentation:

- should it be mandatory?
- should it be reversible?
- how should it be implemented?

Except where noted, my remarks apply equally to stock and mutual companies.

In my opinion, segmentation should be available to all, but mandatory only for those who need it. I would not wish to foist it upon a company with relatively homogeneous liabilities, and little apparent need for it.

On the other hand, commitment to good management, and the fiduciary aspect of our business, suggest that the public interest is well served by requiring segmentation of diverse stakeholder interests, and materially different liabilities. This is entirely consistent with what our accounting friends tell us about the importance, in a broader sense, of segmented financial reporting based on materiality.

I sense a growing desire by the regulatory authorities on both sides of our common border to examine, in the clean light of day, how faithful we are, and how sensibly we act.

Should segmentation be reversible? Only if it turns out to have been a terrible mistake, and then only under the closest supervision. Were it in my power, I would no more permit a company to retrench from segmentation, than to return to portfolio average dividends from an investment year determination. Nor would I permit a company to allocate expenses by $x per policy, while throwing out a sopisticated activity-based cost distribution system.

Regression from a specific to a far cruder method suggests that the original change was one of convenience rather than conviction. If you segment, I would hold you to it, come Hell or high water.

I believe that segmentation should not be retroactive unless only Non-Par business is involved. Any allocation of investment income implies an ownership of the underlying assets. The past allocation is prima facie evidence of both investment intentions and actual results. George Orwell has illustrated the dander of allowing history to be re-written.

For a company writing both Par and Non-Par business, initial asset assignment should be financially neutral between Par and Non-Par. This means either prospective or retrospective introduction.

I favor a retrospective approach by which we assign existing assets to segments without bias, to replicate income prospect by segment as they stood before the change. Such assignment of assets would give explicit flesh, blood and sinew to the skeletal ownership of assets implied by the prior income allocation method. It provides a better starting point for ongoing management of the segment portfolios.

I am frankly opposed to retroactively shifting assets around to where we wish we had them. I would make this prohibition mandatory for a stock company. It is also advisable for a mutual, to avoid damaging equitable treatment for Par policyholders, either in aggregate or by generation.

Outlook for Approval

I mentioned earlier that the Department of Insurance does not yet sanction segmentation for general use in allocating investment income within the account. The principal concern of the Department is, quite properly, that segmentation must not prejudice Par interests in a mixed company.

The industry, and companies most anxious to adopt segmentation for all reporting purposes, will have to demonstrate that it passes two tests. First, it must materially benefit Par policyholders. Second, it must not prejudice Par interests.

I believe that segmentation passes both the real benefit and the absence of harm tests. While it lies beyond the simple practices which were contemplated when the investment sections of the present Act were drafted, the same may be said of investment generation methods (IGM). Yet, both are consistent with the underlying spirit of federal legislation.

Both IGM and segmentation can be administered within the strict letter of insurance law by understanding that the mean funds requirements of Section 84 apply on commingled funds, and by preserving Section 84 (3)'s limitation on interest credited on paid-up capital.

I appreciate and support the concern of the Department that the interest of Par customers must be preserved. Since I am convinced of the benefits of segmentation for all policyholders, and that it can be soundly and fairly administered, I believe that the concerns of the Department can be addressed and resolved.

In my view, the Department is already satisfied that segmentation is both desirable and inevitable. It is only a matter of time until segmentation is accepted for general application in Canada.

MR. DANIEL J. McCARTHY: I am not sure I know what a consultant's perspective is, but perhaps it means that because we deal with a number of different situations, we have the opportunity to look for patterns, for significant similarities and differences as we see different types of companies grapple with the issues that the panelists have been talking about this morning. And so, in order to have a basis for this conversation, I took a sample. The sample is like a lot of samples we actuaries take in that it violates a number of the basic principles of statistical samples. So we won't draw any statistical conclusions from it.

First of all, it is far too small. The sample consists of seven companies which I drew for this purpose because it illustrated some significant differences.

Second, it certainly isn't random. It is biased by the fact that in each case I know enough about the situation at least to be able to describe it. There are probably some other cases that could be found that would have emerged with totally different patterns had I known about them.

In any event, it will be useful I think, not only as a conversation piece, but to look at the kinds of things companies are doing and see what seems to drive some of the similarities and differences. You will see, I believe, that some of the points made by the prior speakers are borne out by some of these company differences.

First, to describe the sample in a little more detail, five of the companies are mutuals and two are stocks. I would say that on looking at the way they reacted to the issues presented by segmentation and looking at the kinds of things that are done, I am inclined to agree with Don Sondergeld's comment that mutual and stock company differences do not seem to be significant in this regard. And frankly, I would have expected that at the onset.

But what does surprise me a little more is that when I consider the companies by virtue of whether they operate in New York State or not, three do and four do not, I do not observe significant differences in the ways in which segmentation has been opted by the companies varying by whether or not they do business in New York. It is popular to say that the New York regulatory environment has this or that specific effect, but in this case it does not seem to be significant.

In describing my observations about these companies, I am really trying to answer two questions at the outset. First of all, for companies that have done something by way of segmentation, what structurally have they done? And second, what can be said of the effect in those companies on the investment management process? I would separate that into two parts: 1) what has it had to do with setting goals and strategies, in terms of what those goals are and 2) what has it to do with the process by which those goals have been attained.

I grouped the companies into three groupings by the ways in which they have applied segmentation and will use three terms: complete segmentation, partial segmentation, and synthetic segmentation.

By complete segmentation, I mean what the Equitable did, that is to say, in the end, each line of business, business segment, or market area of significant size with significantly different investment characteristics winds up in its own segment. Of the seven companies, only two fall into that category.

By partial segmentation, I mean one or more specific sizeable categories of business is placed in a segment by itself, but what was left still was an amalgam of a number of different categories of business with different characteristics that could have been segmented but were not.

Of the two companies who have complete segmentation,one is a company in the $1 - $2 billion asset range and the other is about double that size. The effects have been rather different. In each case, they satisfy the requirements for complete segmentation. That is, every distinctly different and sizeable type of business is in a different segment. One of the companies also has a corporate segment and the other does not. One instituted segmentation retrospectively in the sense that they went back and, taking into account yield, maturity and quality,took existing assets and put them into a segment. The other did not and went prospectively and continued using their prior method of allocation with regard to assets already held, a choice that was sensible in that case because the second sizeable line of business was relatively new and, at the time segmentation was introduced, had a relatively small amount of assets.

The significant difference between the two companies in this part of the sample bears out something that Jim Attwood mentioned, that it is relatively straightforward and takes only a short period of time to implement segmentation, if by that you mean a new method of allocating assets and investment income. It take a considerably longer period of time to get into place the management techniques and relationships and the whole process of saying we are operating under different rules. One of these two companies has not made that transition yet. The process of segmentation has indeed resulted in an enunciation of separate investment goals for each segment but the process by which they were arrived at, the day-to-day way in which it spins out, and the actual selection of investments and assigning to segments, really dosen't involve a process that was terribly different from that before segmentation began. That is primarily because this company does not have a strong history of line of business or business unit management. The kind of company you are will affect the kind of company you are after segmentation.

In the other instance, on the other hand, there is a significant commitment to management by business segment. Investment goals have been developed and the process is reviewed in a method which involves both line of business managers and investment people. The corporate segment which was introduced in that company has been a source of specific discipline in terms of identifying the amount that would be committed to types of investments that really aren't appropriate to any type of business but which the corporation would like to participate in on an overall basis.

My second category is called partial segmentation; there are three companies in this category and they all range from the $2 - $5 billion size. Partial segmentation meant somewhat different things in the three different companies. In one case, it means a segment for non-par group annuity business, guaranteed investment contracts, and wind-up types of business only. That company is not a Universal Life writer. A second company created a similar segment for non-par group annuity business then subsequently a separate one for Universal Life. The third one created a segment for non-par group annuity business, a second one for Flexible Premium Annuity business, and a third one for Universal Life.

In each case, investment strategy was defined relatively clearly for the separate segment but not for the rest of the company. In each of those instances, these companies were reacting to what Jim said, in that it takes a while to figure out how you are going to manage segmentation as a process. These companies were essentially not willing to put complete

segmentation into place because they could not envision how they would manage it. In each case, they identified one piece of the company for which they thought they could manage it and said let's start here. In the case of two companies, they have begun spinning off other segments prospectively, in one respect like the Hartford, and I suspect that at least two of these three companies will wind up with full segmentation, but they are getting there piece by piece.

From a mechanical point of view, it is more of a nuisance. In one respect, it is nice to do what the Equitable did, but the limitations here were not primarily systems limitations but limitation in management's ability to describe in their own terms what they wanted to do. So a partial step was taken.

The last category is very interesting because it involves companies in different size categories from the ones I have been talking of. I called it synthetic segmentation and the two companies in this category each have approximately half a billion dollars in total assets and are active in several different lines of business. They came to synthetic segmentation by somewhat different routes. They operated in different ways but have in common that a totally separate portfolio for each segment or line of business within the company is not created. Segmentation now can be a very difficult process for the size company I am talking of.

In each case, what resulted was as follows. The company says what kind of investments do we make? We make very short-term investments for liquidity and use of cash. We make medium-term investments primarily to match either liabilities with a known and medium-term duration or liabilities whose duration is unknown but could turn out to be relatively short in certain environments. We make long term investments both because we get better yields and because in some cases, that is what we should be doing. Rather than define segments, we will define pools of assets by type of assets where type means principally asset duration. Then in each case, we will look at our lines of business and decide what mixes they really ought to have of the assets of those different categories and the line of business will share in those asset pools depending on their needs.

That is easier to say than to do because it would require in the ultimate a precise projection at the start of the period of what the cash flow will be from each of those lines of business. If you could figure out the needs of each line of business, you would know exactly what you would need to invest in. These companies, in having this operation, have not been perfect. But in each case, a projection or guesstimation was put into place to update estimates of cash flow from each line of business. The needs of each line of business, defined in terms of percentages of the different pools, were articulated and have represented targets for the investment organization in putting money to work. Both because the choice of investments is not always what you want it to be and because the projections aren't always precise, at the end of the year the degree to which lines of business will miss their target is spread across lines of business in relatively uniform fashion. If the long-term pool winds up having more assets, every line has to take a piece of the excess. The other company took a somewhat different approach because they perceived that one of their lines of business had more precise cash flow matching needs than the others. In that case, they satisfied that requirement first, then shared the pain among the others.

The synthetic approach has the advantage for small companies with several lines of business of not requiring assignment of assets to lines. Somewhat the same result could be achieved by having the assets acquired in those companies broken up into pieces among segments. The companies concluded that if that was going to be the rule rather than exception, there wasn't any point in having segments with asset labels on them. It would be better to have pools and define the shares of each pool.

What can we conclude from all this? I conclude a couple things. First of all, each of these seven cases, and I can think of four or five in particular, represents transitional arrangements of one sort or another. Both the types and process of segmentation is a transitional question. I do not mean that segmentation will go away, the ways in which it will be viewed or managed will change. For example, there are some questions which I think are not being dealt with very thoroughly yet. They are not the first questions you set out to deal with when you come to segmentation, but it is important to take a look at them as time goes along. One of them is the question of splitting pieces of assets by segment in a non-proportional way. Coupon stripping is a popular phrase. There can be assets acquired whose coupons can be useful for one segment and whose principal repayment can be useful for another. The theory and technology are all there, but to coordinate this among segments where you have different processes of arriving at investment strategy and of carrying out investment management is not simple. I see this as a second or third generation issue for segmenting companies rather than a first generation issue.

A second question that I think is important is what I will loosely call default reinsurance. A company goes out to make investments and typically has rules to govern the maximum size investment it will make. Those maximum sizes are typically linked to the overall size of the company, among other things. A company would not want to back down from those maximum sizes in order to accommodate the reasonable default capacity limits of a particular segment, which is, after all, smaller than the company. One way to deal with this is to break the large investment into pieces among segment. However, it may helpful to think of a default reinsurance arrangement among segments which will neutralize or distribute the effects of default. This would be relatively easy if all segments were seeking to invest in investments of comparable quality. The incidence of default would be random and it would be easy to spread its effect in some way. The problem that would result is the same problem the FDIC is having with banks, namely the uniform premium for default insurance. In fact, the banks' practices are not uniform and it is likely that the practices of the segments will not be uniform. This is, again, not a first or second generation issue, but one that companies will want to confront or else the processes that have been set in place through segmentation and the tracking of policyholder returns to investment results in a particular segment will take some bumps and jumps that some companies will not want to go through.

In conclusion, the way segmentation is being applied in practice varies considerably from company to company, but there are some patterns that emerge. Key among those patterns is that some companies are willing to jump in at time zero, tackle the problem, put allocation into place, and let management problems work themselves out. Others have decided not to do that, but would prefer to segment partially, then work on the process incrementally once they have come to understand segmentation in a particular portion of the company. Finally, there are processes being developed

and, in some cases, being put into place for companies who wish to achieve some of the notional benefits of segmentation, such as different asset mix by category or line of business, but feel for a variety of reasons, most notably company size, that segmentation in the strict definitional sense is not appropriate for them.

It will take awhile for all of this to settle down; I doubt if there is one right answer. It is encouraging to see that companies are looking at these questions with their own history in mind and trying to see what is best for them.

MR. JAMES TILLEY: I would be interested in comments from each of the panelists on how companies who have segmented, fully, partially, or otherwise, coped with the problem of supporting the overhead of investment professionals whose area of expertise is currently out of favor with all or most of the segments, for example, private placements. Once segments are given the opportunity to state which classes of investment they want and don't want at a particular point in time, how do you make that square with your distribution of investment expertise, capacity, and cost among public bonds, private bonds, mortgages, stocks, and equity real estate?

MR. ATTWOOD: This is a good practical question. When you are out of phase, it could operate the other way as well. The investment marketplace could be such that the kinds of investments we'd want would eliminate the need for say, life insurance actuaries because all we would be interested in would be selling annuity or pension products. Jim and I know from our own experience that many of the kinds of investments we need, such as real estate developments or long-term mortgage developments, often do not fit in a segmented environment. To cope with that particular problem, real estate and mortgage people have had to become attuned to the newer types of investments.

MR. SONDERGELD: We have not found it to be a problem to date.

MR. STEWART: First of all, I do not agree that private placements are out of favor; they are very much in favor in Canada. Secondly, we view the investment function as principally a corporate function. From a customer service point of view, our major customers are the business segments both in the life branch, the health branch, and the segregated funds. I talk with the business managers, and the marketing people about their pricing dynamics, their risk tolerance, in other words those four items I listed, liquidity requirements, liability character, risk tolerance and tax considerations. I am involved at a strategic planning level in our corporation, so I know its business development plans and our corporate sensitivity. We build investment strategy by business segment based on local characteristics with an overlay for the fact that globally we are an entity. We try to supply and demand in a way that gives equal treatment to all of our customers.

MR. MCCARTHY: The question has emerged in three cases that I am aware of. What the companies have done is a mixture of taking a positive step and treading water. In one case, the company had the ability to originate mortgages that went well beyond their needs in the environment. It became in effect a mortgage originator and wholesaler in order to make use of that capacity and put to work the capability it had built up. The second company had a sizeable real estate capability and did two things - it

became a packager of real estate deals for other investors and established a target of real estate to total assets which everyone recognized as more than reasonable for this company. Management was saying to the lines of business that they were going to take a piece of the investments whether they wanted to or not, but we will solve it over time. In the third situation, the private placement generating capability exceeded the current needs. The approach was to tread water, that is, amounts being generated are given to the lines of business whether or not it fits the strategy because the company was not willing to tear down that capability.

MR. ATTWOOD: I am also impressed with the fact that, even within the basic types of securities and investments that are available, there is such a wide variety today that we no longer talk about private placements as such, because there are so many types of fixed income investments. Our organizations have had to grope and deal with venture capital, limited partnership, equity participations, and public and private markets. What we used to call the private placement department now has to be a much broader security department because of the many vehicles and opportunities that fit the needs of our segments.

MR. STEWART: We had mortgage generation and administration capacity well in excess of our own use requirements. We formed a subsidiary company in order to originate and service product for other institutions, including pension funds. In addition, in the private placement field, which is much less mature as a market in Canada than in the U.S. as to supply and demand and as to the level of sophistication and breadth of expertise, we are increasingly acting as lead or co-lead lender in large transactions which we know at the outset are well beyond our own requirements. We round up other institutions to take the rest of the deal.

MR. JACK HANNAFORD: Mr. Attwood, you said earlier that the accounting procedures at the Equitable were changed quickly but expensively. What was the main cause of the expense? Also, did you or Mr. Sondergeld find staffing implications, such as significant additions to the investment area, accounting area, or financial/actuarial areas?

MR. ATTWOOD: We had never really had a time basis for the allocations. At the end of the year, we made allocations of investment income, capital gains, and so forth. The change is that we are now on a daily time basis. Each transaction, each dividend and payment of interest was credited at the time the transaction took place to the individual accounts. It was not a retrospective process so this had to change all the procedures and accounts. It became increasingly complex - one project was to allocate all existing investments, including mortgages, and required much administrative and accounting work. Although the procedures today are much more complex on a day-to-day basis, they are at least systematized and working well.

MR. ROBERT CLANCY: Please elaborate on the considerations necessary to structure an equitable inter-segment borrowing procedure.

MR. STEWART: It is my recollection that the Equitable has not yet permitted inter-segment borrowing because it was felt that these were matters of considerable sensitivity on the equitable treatment issue and should be deferred until they could be thought out more fully. They set minimum liquidity targets by segment and then acted appropriately when liquidity by segment approached those target minimums.

From our perspective in Canada, you must be very careful in your fund accounting. We are working toward a corporate treasury concept in which we have a pool of cash and short term securities which represent the incidental or marginal liquidity needs of all of our business. We intend to imbed quantifiable liquidity requirements by designated assets within each of the business segments allowing the float or fluctuating requirement to be maintained at a corporate level. The balances by segment within the corporate treasury are quite important because if they are regular and reasonably well behaved, then that is a visible sign of a well managed cash forecast and forward commitment process. If they are not, you have to develop a careful borrowing policy which does not disadvantage any line of business by forcing it to borrow against its own interests.

MR. SONDERGELD: We have not done any inter-segment borrowing yet, but if we did, we would probably borrow at short-term rates.

MR. ATTWOOD: At the Equitable, there was at least one line in a borrowing position. It was borrowing at the same time that some of the other segments had a lot of cash. It seemed difficult to rationalize but isn't any different than a company whose subsidiaries are borrowing when the parent company has cash. At least it is an arm's length transaction. Earlier this year, one large insurance company made some significant sales of assets to better match their liabilities in one area of the company, then repurchased those securities for another part of the company. Some questions could be raised about the costs of these transactions, but in the interests of the time involved, until we can get a better feel for the situation, this is currently the best method we have.

MR. STEWART: The synthetic investments that Dan McCarthy mentioned may be useful in managing cash by segment since in theory you can take an asset apart into canonical decomposition which is well received in several of your business segments. You may be able to do this freely in the U.S., but from a Canadian viewpoint, because of our strong concern with equitable treatment of out participating policyholders, I anticipate that use of synthetic securities would be restricted to within the non-par side of the operations, that is, between non-participating segments. I would be extremely cautious with anything involving both a participating and non-participating segment.

MR. ANDREW BODINE: I have two questions. First, would Mr. Sondergeld share with us some of the considerations by company with respect to what would be the proper amount to hold in segmented accounts: policy liabilities, actual funds after deductions for expenses and additions for premiums and earnings, or some other amount. For my other question: since one major purpose of a segmented account is to indicate the investment earnings rates, would someone on the panel please comment on the need and methods for reflecting realized capital gains or losses in such yields. Regarding need, assume that the amount of realized gains or losses is not insignificant.

MR. SONDERGELD: You clearly must have an amount in the segment related to the reserve or account value, otherwise you would have to calculate the earning power of the money that you do not have in the segment. We feel you must have the reserve in the segment so you can also use the segment to determine the interest rate to credit to the policyholder. What we are still confused about is whether or not we should also require that a

benchmark surplus amount of cash be placed in the segment. One problem that insurance companies have is that they allocate surplus to a new product that may not be enough to back-up the business you placed on the books.

MR. MCCARTHY: Your second question involves a problem which is not unique to segmentation. Companies have struggled with it in developing credited rates for group pension business under investment year methods. It has become more of a problem for another reason. When insurance companies were primarily holders of investments until maturity, capital gains and losses tended to be very small and could be rolled into the interest rates without making a lot of difference. Now that companies are becoming more active traders, the capital gains and losses become more significant. It has evoked interest in recognizing the capital gains and losses of a particular year ratably over a period of time. At any given time, you may have in your credited interest rate a portion of the capital gains and losses from previous years. These systems vary in their sophistication, but because there is more trading and because the capital gains and losses are more significant, I agree that you cannot allow them to pass through to the rate anymore otherwise you would get a fluctuating rate pattern.