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Investment Strategies for an Insurance Company's Capital Account

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Panelists: RUI DE FIGUEIREDO[†]
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DAVID N. INGRAM

Summary: What strategies do life insurance companies use for their capital account (surplus) assets?

MR. DAVID N. INGRAM: I'm the moderator and will be one of the presenters. I'm a consulting actuary with Milliman USA.

The other speakers are Steve Hall, who is a director and head of insurance sales for Citigroup Alternative Investments. Steve started his insurance career at ING in Atlanta, where he managed the mortgage-backed and corporate assets for life and property and casualty (P&C) portfolios. In 1996, he joined Goldman Sachs in New York, where he acted as strategic investment advisor to insurance chief investment officers. He spent two years developing insurance sales coverage for Goldman Sachs asset management before moving over to Citigroup. He has a bachelor's degree in chemical engineering from Georgia Tech and an M.B.A. in finance from Emory University.

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Note: The chart(s) referred to in the text can be found at the end of the manuscript.

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Our third speaker is Rui de Figueiredo. Rui is a consultant for Citigroup Alternative Investments and heads its investment research efforts. In addition, he is an associate professor at the Haas School of Business at the University of California at Berkeley.

We are going to do our presentation in an inverse pyramid style, where I'm going to start with a broad discussion of topics related to strategies for investing surplus. Steve's going to narrow it down a little bit, and then Rui is going to bring it to a point with some specific discussions of investment strategies.

I'll give a quick thumbnail history of this topic. I think of it as a long-term shift in thinking from a surplus to a capital approach. Historically, and I'm talking very historically (back in prehistory, the '50s), those insurance companies that thought of this were using some kind of an investment year method (IYM) approach where the surplus of the company belonged to the part of the business that created the surplus. It was a retained earnings approach.

In the late '50s and in '60, the Anderson Book Profit Model was promulgated, which separated surplus out completely. Eventually that model was augmented to include the idea of surplus allocation to products. At that point in time, you had a model where you thought of your surplus as being in pieces that were allocated to different product lines. When many companies first adopted segmentation, they took that augmented book profit model and applied it to their segments. What that led to was giving the surplus to product management.

Product management has priorities that you're all familiar with. The first three priorities are sales, sales and sales. Profits come next, and then sales and profits and profits and sales. Long term for them is one year, but most of the time is spent thinking about the next month or the next quarter. When product management people were handed the surplus of the company to invest, they made all different kinds of decisions. A number of product lines would take it and say, "I don't even want to think about this. This is outside the scope of what you're asking me to do. I'm not an investment manager, so put it in the portfolio with everything else, and invest it the same way I'm investing my liability funds." The assumption was that that didn't change the risk profile at all. I don't think anybody analyzed that assumption because I'm pretty sure it's not true.

The second approach that some businesses took was they wanted to take their surplus and try to minimize the risks there, so they invested it conservatively. I've seen businesses that were particularly volatile in their earnings who would say, "I don't want any more volatility from my surplus investment, so let's put it in something safe. I'll go into some high-quality, short-term stuff."

Then every once in a while you get a cowboy in charge of a business who says, "Let me go for the fences. I will take my piece of surplus and invest it as aggressively as

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I can under the chance that it will improve my product line earnings." That may not be the best thing for the company being pulled in all different directions. My suggestion would be that surplus should be invested to broadly complement the company's product risk profile. It should enhance the company's products profitability strategies, as well, and it should generally be thought of as a tool in optimizing the company's risk return profile.

Next I'm going to walk you through some examples of what four or five companies are doing in their investment strategy. My examples are going to be broad brush here; I'm just trying to give you an idea of what kinds of different structures exist and then how they wind up working their way down into investment strategy for surplus.

One other general suggestion I have before getting into the case studies is that the investment strategy should follow the same kind of rules. The first is that you follow in setting any investment strategies. You look at the client's risk return agenda and in doing that think of the client for the surplus investment strategy as being the total company. Then you want to include all of the client's similar assets in that analysis, so you include all surplus. You want to consider all product risks and returns in looking at the client's risk profile. If any of you have done the CFA exams or any other work on investment strategy, it is the same thought process.

Company A is the one I had in mind when I was giving those bad examples originally. The target surplus there is held in each of the business units. One unit invested in intermediate term and intermediate-quality fixed-income investments. The second unit invested in equities, and the third unit invested in the short-term, high-quality fixed income. Add those all together, and you get goulash.

There was a significant amount of surplus over and above the target surplus of the company, which it called free surplus held in the corporate segment. When it started the segmentation program, it had a lot of what I'll call legacy illiquid assets—partnerships, real estate and the home office building. In total those illiquid assets exceeded the amount of the balance in that free surplus account. It just set a long-term strategy to reduce those holdings. In the meantime it allocated a proxy fixed-income investment return rate to a loan that it created back to the businesses because it had a balance of assets that was more than 100 percent of its actual balance sheet. Those assets generally had zero current period return or even negative returns, and so the income statement of the company looked like four or five nicely profitable businesses and a sinkhole on the right hand side that was the corporate account.

In that company, all management incentives included a total company income component, so everybody had some stake in that. But nobody had much of a stake in it because mostly they had a larger component for their business return. You were better off having this set up with this negative return and increasing your positive return for the most part. In fact, the company didn't have any particular

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person who had responsibility for managing that corporate surplus segment.

The good news was eventually it did sell off a lot of those illiquid assets. If you wait long enough, you can sell almost anything. It got to the point where it had a positive cash balance in the corporate segment. It actually made a profit off of some of those legacy assets, so that was good. Also over time it did retain enough earnings so that it had positive cash flow into that corporate segment from the business unit. It's now out there attending seminars like this looking to form a strategy for its corporate segment.

Company B defines its surplus segment as its surplus on a statutory basis. That means the asset-valuation reserve (AVR) component of the balance sheet is allocated with the liabilities to the lines of business. The business units do get an allocation of returns from the part of their target surplus that is held in the corporate account, and that's done at a fixed-income rate. That fixed-income rate becomes the bogey for the surplus portfolio account. The investment guidelines for that surplus portfolio are proposed jointly by the chief investment officer (CIO) and the chief financial officer (CFO) and ultimately ratified by the entire management group. There is some degree of legacy illiquid assets, and those are all, as with the other company, targeted for sale when the time is right.

That surplus portfolio return fits into the total company return, and the total of the company return in this case is the primary basis of incentive compensation. The people at this company all do have somewhat more significant stakes in the success of the corporate account. The surplus portfolio then is managed for long-term return with current income targets based on expected cash-flow needs out of the surplus account.

There is some degree to which this company looks to complement the risk profile of the business units. For example, there had been a lot of equity investments in that portfolio, but as the company sold more and more variable annuities and took on equity risks from variable annuities, it ratcheted down the equity component on the surplus portfolio. It does have real estate holdings in the surplus portfolio, some hedge funds, and one interesting issue that I'll come back to in a minute is it thinks about a duration of surplus concept here.

Company C has all its surplus plus AVR in one account. It has a target return for that account that's based on a stationary portfolio of five-year bonds, which is the same as saying its target return is the yield average over the past five years. It does invest its money in its surplus segment, primarily in fixed income. It has a small position in equities and a little bit of convertibles. The company is doing this for its alternate investments in its business portfolios.

The actual income from the surplus portfolio in this case is allocated to the business units in proportion to the target surplus for each of the business units. It does have, as I said, alternate investments in its business unit portfolio, such as timber, hedge funds, real estate and private equities. It must get interesting at cash-flow testing

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time.

This company has a portfolio management team that works on its surplus portfolio and includes the chief actuary, the CFO, an asset-liability management (ALM) actuary and a portfolio manager. The team has plans to increase its alternate investment holdings in its surplus account, take more aggressive positions on durations of the fixed-income portfolio and increase its equity holdings. The team creates a custom index to benchmark its returns. The company does measure its return on the surplus portfolio on a total return basis, and there is a portfolio manager who gets incentive compensation based on total return of the surplus portfolio.

Company D's segmentation process is business line segments, holding assets equal to reserves again. The surplus segment is then everything that's left over. The business lines get income from the surplus assets with some kind of smoothing. The chief actuary in this case is the owner of the surplus segment, and the segment itself is managed by the asset-liability committee. In setting the surplus strategy, they look at liquidity needs of the company. They do have a number of nontraditional asset positions in private equity, real estate and other assets that they call their non-ALM assets, the one that the cash-flow testing people don't want to say. They do have credit quality and asset-allocation targets, and they generally try to tug their total portfolio to look a little bit more like what the company overall profile has decided to be, rather than where it ends up being from the different products added up. Tax strategy is an important consideration in setting investment targets year to year for the surplus segment.

They use different indices for different pieces of the surplus investment portfolio. They compare public bonds to a Lehman total return index, nonpublic investments in general. They're looking for an excess spread over a long term. The incentive compensation of all management is impacted by this surplus portfolio return. They do set a duration target here, which is the average of their liability durations. Again, there is that idea that if you do the same thing with surplus as you do with your liability assets, you're not changing your risk profile. I would suggest this is not a quantitatively reasoned position.

This company has a low alternate investment component, and its reason for that is that it is a subsidiary of a holding company, and the holding company gives it barely enough money. It doesn't want to take any chance that it'll have to go back and ask for more money because of a bad surplus portfolio investment.

Company E has a totally different approach to all this. It does what it calls holistic ALM where everything is dumped into one portfolio. It undid its segmentation program and dumped everything together. To do this, it believes that it has good total company asset and liability models, so it manages it as if it's all one piece. It makes no distinction in its management between the assets backing liabilities and the assets backing surplus, so it doesn't have a separate surplus strategy. It has a

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process it goes to where it sets its risk return objectives and then comes up with a risk budget. It allocates some of it to investments, and investments split that risk budget between interest rate risk and credit risk. It creates constraints for each type of risk there—how much mismatch it'll take—and it sets duration convexity limits and yield goals.

Then it creates synthetic portfolios to do transfer pricing between its investment area and its product areas. It uses that synthetic portfolio to create its product line investments, and then it has a PNL on the investment division, which is the difference between the synthetic portfolio and the actual returns of the assets. The synthetic strategy is based on noncallable corporate bonds of A quality and with all bonds being held to maturity. Each bucket of bonds that goes into this synthetic portfolio is identical within a year.

Those are my five examples. In the course of these discussions, people raised to me two questions that I wanted to throw out for the other speakers so that they can work them into their presentation or to anybody in the audience who wants to bring it up as we go along. What's an appropriate duration target for surplus? I suggested a couple times here that the liability duration isn't it, and I could explain that if anybody wants.

The second one is a broad question. It was in the program, and when we sat down to look at our presentations, we realized we hadn't necessarily addressed this, which is whether holding stocks in a surplus account adds shareholder value. That's a broad question that I think has been addressed in the finance literature with one conclusion, but the entire insurance industry seems to have reached a different conclusion. With that, I'll turn it over to Steve, and he can take this into a little further level of detail.

MR. STEVEN K. HALL: Thanks, Dave, and also thanks to Martin Larue at ING who was the one who originally asked me to come speak to you all today. As Dave mentioned in my bio, my first job in the investment area was with ING, so I do have a little bit of bias from that company, but I'll try to be broader in my comments here.

I've been in the insurance investment management business for about 11 years. Again, I have a little bit of bias since I was raised at ING, but I have covered about the top 200 companies in some capacity. I've had a lot of conversations with the CIOs, a lot of the senior investment management teams and a lot of actuaries who are on the ALM committee. Hopefully I'm going to have a broad set of statements about the industry and what it's doing with its surplus account, but I'll also give you some of my personal biases. I try to put myself in the shoes of a bunch of CIOs, thinking about how I'd run the company. Again, this is supposed to be an open forum, so please challenge anything that you hear. I'll make a couple of broad, sweeping assumptions, but feel free to ask detailed questions or my opinions on how I might change things based upon some different circumstances.

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Why is surplus such a hot topic? We have a lot more volatile markets in today's environment, whether you want to consider that the equity markets, the credit markets or the interest rate or convexity markets optionality out there. You have a lot more things going on. It's challenging a lot of our old opinions and a lot of our old thoughts. You also have increased competition now in the industry, which is forcing a squeeze on financial results. That squeeze obviously goes to the investment committees and the investment personnel trying to get a bit more out. It goes into a lot of the CFO areas. What can we do in terms of better funding? A lot of this comes together to open up new doors or, as one company said, turn over new rocks. That's what you'll see going on in a lot of the industry now.

Also, companies are selling off more individual product lines. I used to work with a lot of the investment bankers at Goldman Sachs. We used to go in and do a lot of testing for companies, but they're starting to sell off the ordinary lock block or maybe sell off a deferred annuity block as they try to get more scale in a certain part of their business. That increased granularity is starting to make some changes when it comes to the surplus account. These are some of the things Dave talked about. Do you manage this as one big pool of money, or do you try to manage it segment by segment in your business? I'll talk about a couple of things on that side later.

The last thing I would say, and it gets to what Rui and I do at Citigroup, is that we've seen a lot of improvement in risk assessment tools, so as people have wanted to turn over more rocks or open more doors, the tools have allowed people to do that. They are able to assess more complex products and more complex investments to put on their balance sheet. Rui is going to go into this in a lot more detail in terms of some issues there.

How should you approach surplus investing? To echo what Dave showed, there are a lot of different, defensible ways to invest your surplus, whether you're talking to your Board or talking to your investment management committee. The first thing I would say though is absolutely think strategically. This is a trend I've seen over the past two years. As Dave pointed out, there are many different ways people have done this in the past. I think because of the increased competition, forcing better and better results, people have stepped back and said "Let's really think about this portfolio, whether it's a separate portfolio or a combination, but let's start going back to CFA class 101. Let's think about the objectives and constraints on this portfolio, however defined." Everyone shakes his heads and says, "Of course, that's what we do in all of our business lines."

But I think, as again Dave pointed out, people have not been as formal when it comes to the surplus portfolio. That's a change that's happening for the better, and I would encourage everyone to take those steps. It's not easy. We'll go through some of the reasons why, but I think you have to chew through some of these topics.

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I'd like a show of hands. How many of you separate your surplus as a distinct portfolio at your companies? It looks like probably only about one-third of the companies here. I want to come back to that. In terms of objectives and constraints, there are multiple options. Again, you can run this a bunch of different ways. Whether you think about the objectives as total rate of return, as net investment income or a combination of the two, different ways again are both defensible. We'll talk about a couple ways, and I'll give you my bias as to the way I think you ought to be running it.

On the risk side, I think this is a big issue (and Rui is going through this in more detail), but as a constraint, I think that's where you need to focus a lot of your attention. Whether you want to think about market value volatility or earnings volatility, I would probably spend more time on that side of the equation than try to wrestle with whether you should be completely total rate of return-focused or net investment income-focused.

My third point is to consider all asset classes. One of the reasons I'm where I am at Citigroup is this has probably been the biggest area of focus for your investment colleagues and for a lot of the actuaries on the ALM committees. We all are familiar with public and private fixed income, public equity and real estate, but there are a lot of niche asset classes that we haven't looked into that might benefit our portfolio in some way. A lot of people are looking at these new asset classes and again coming back to the investment guidelines saying how should they or can they fit in.

My last point is to analyze critically. This is a point again that Rui is going to talk about, but this is the future. I think a lot of people would shake their heads saying, "Yes, we should diversify. Yes, we should do a lot of new things, but how do we do it?" This is where a lot of the techniques that we've had in the past don't measure up.

One of the things that Martin asked me to talk about was centralized versus decentralized decision-making when it comes to surplus. We've seen a lot of different ways you can do this. I'll go through a couple of examples. There are a couple of reasons why it should be centralized and why it should be decentralized. To be honest, I think the most common is a centralized approach. The reason why I believe people follow this is that when it comes down to it, if you break out your surplus as a distinct portfolio, I think you'll find that the objectives and constraints of those portfolios are similar if you thought about it business segment by business segment. Why not centralize and get a bit of benefit from scale in terms of your asset decision-making? I think that's the right way, and it's prudent when it comes to thinking about it as a senior manager of the company and weighing costs and benefits.

There's another reason is I think you get the biggest bang for your investment buck, if you will, in terms of a lot of the asset classes that go into this. You need

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people who are specialized. You're seeing a lot of CIOs out there saying, "As we think about our broad life business segments, we know it's going to be a lot of investment rate fixed income, whether it's public or private, and that's fine. Actually that's pretty easy, and in fact I'm going to find the lowest cost way to invest in those asset classes because I don't think I can differentiate myself. I can't differentiate my company on those asset classes. Where I do think I can differentiate myself from my company is on these niche asset classes and these new things on the periphery which often end up on the surplus portfolio. That's where I think if I have good people I can maybe earn an extra 100 basis points on the portfolio." If you have a 10 percent surplus, that's an extra 10 basis points on the left-hand side of the balance sheet. It's a good amount of money. Not everybody is there yet for certain.

Let's jump a little bit into more detail from a practical perspective. I'll talk a little bit more on what asset classes are available. Following up on my point, a lot of people are looking into the niche areas nowadays when it comes to surplus. Chart 1 shows the traditional at the top left. We're all familiar with it. Dave mentioned some companies already do the nontraditional. If you look through schedule BA and the balance sheets, a lot of companies are not involved in these asset classes. It could be for good reasons, but if you want to call nontraditional, private equity, hedge funds, commodities or tax structures, this is where a lot of people are turning over rocks. But why?

Why take the time? Certainly these are not things that are as common to people. It takes a lot of education not only for the investment side, but for the actuary side, for CFOs and for Boards. These are things that people aren't used to seeing in the *Wall Street Journal*, *USA Today*, you name it. They're not familiar with the issues here. The reason why people are looking into new areas is the basics—an increase in return, which means either maybe money to the business segment or the fact that you build surplus.

That's probably the biggest driver, but the caveat that any Board or investment committee would say is, "Don't blow it." I think some of the companies Dave mentioned said, "You know what? We don't want to have any more risk. We have enough risk in our business. Let's take it off the table." The result you're seeing in terms of balance between these two things is not only an increase in more equity-type risks out there, especially when it comes to surplus, again to grow, but also the fact that we want to stabilize. So these noncorrelated assets, whether you call them hedge funds, commodities or anything else that has low correlation to the rest of the market, are assets we're very comfortable with.

How does this blend into the actual practical world day to day? Chart 2 is a busy chart. You've probably seen this in some other presentations, but take a strategic perspective. Think about it from a high-level meaning: What are the factors that go into making your guidelines? Where there's culture, your financial strength, ratings, etc. All basic drivers I think we're used to thinking about when it comes to trading

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guidelines, not only just basic economic objectives and constraints, but the bigger things that really and honestly drive a lot of decisions nowadays. When it comes to accounting results, rating agencies and regulators, I think we'd all shake our heads saying, "Yes, we obviously think about these issues." But at the end of the day I'm starting to see the accounting drive the decisions as much as the economics do, which I think is pretty fair.

In the middle we're talking about the actual investment guidelines that people have come up with. I think you can do this not only on a stand-alone basis if you think about the surplus as its own portfolio and what is right for surplus, but also you can do this in the context of your broader company. Obviously each of the surplus portfolios is attached to some business segment, so you cannot do it in a complete vacuum.

I have one quick note in terms of what is industry standard. As I mentioned, there's no standard nowadays, but I think if you looked across and made some generalizations, you'd see that surplus is combined for all product lines. As I mentioned, most surplus assets that belong to business segments are run in similar ways. Why not combine them? Why not get some scale? It's easier for one person to manage one block of assets, and it's much more efficient from a management standpoint. You will see some people, as Dave mentioned, split out excess surplus, but at the end of the day when I ask people and CIOs how they manage that, the guidelines are similar, so you wind up making some efficiencies.

Most do think in the total return space. This is again a way to grow. You want to maximize your economics, so not only do you include investment income, but you include capital gains, as well. There's a big caveat, and I'd say this is a growing trend not only to people who have thought about total return in the past, but to the people who are thinking more strategically about their surplus, and it's a large net investment income overlay. If you're a stock company or a public company, this is what the equity analysts are thinking about day in and day out. I don't think we have any equity analysts in here, so I can pick on them a little bit, but the fact that if you look at their spreadsheets, for investment income you've gotten a certain PE multiple. It's applied to that investment income. If you thought about capital gains in the worksheet, you'd have a zero PE multiple.

That's very much the end of the spectrum. That's not the case for everybody, but I think it's reflective from conversations with equity analysts. That again tends to be a disincentive to go for a maximum capital gain type of portfolio. I think from anecdotal evidence if you look at all the balance sheets at companies you'd consider aggressive or conservative, it's not a wide range in terms of capital gain and equity types of assets. If a company has 5 percent on its balance sheet as a life company, that would be quite a bit. You have a lot of pressure to tap the amount of allocation you can have.

This is where most people keep the equity-like and riskier assets in portfolio. That's

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probably not a big surprise, talking to a bunch of actuaries. From an investment standpoint, we're always beating on "Let's make sure that we're matching. Let's make sure that we're careful about controlling duration, etc." When we get to things that are equity-like, what is the duration of equity? You can argue three or four, but at the end of the day it is hard to justify those assets into the main segment, so why not push them aside? We can make our money investing in traditional fixed income, and away we go. It makes your life a lot easier.

I'll do a couple of quick case studies here and then turn it over to my colleague Rui. The first one is a mutual life company (Chart 3). Hopefully you'd all believe this is a good proxy to its balance sheet—the fact that medium-sized companies, \$10 billion, about a 10 to one ratio in terms of general assets or total assets to surplus, mixed here 80 percent ordinary life and 20 percent fixed annuity. This is a good cross section of the industry out there. I consider it to be conservative. This company does manage its surplus in a separate portfolio, but right now the surplus is allocated similarly to the product assets. This was the example that Dave showed, but it wants to grow organically, meaning it's not going after a lot of acquisitions. You can see the current asset allocation on the right hand side, which I think is standard for the industry.

Chart 4 shows this kind of company stepping back and thinking about its surplus strategically as a separate portfolio. The company is considering what asset classes, the right objectives and constraints and where that leads it. You can see some of the factors that it considers in the upper left and some of the constraints on the down side in terms of limited expected loss in the portfolio and this fact that the company wants to leverage its current investment knowledge, meaning that it didn't have a lot of specialists in its investment staff. That's something that you have to think about when you're in the practical day-to-day management of your surplus.

What you see on the right-hand side in terms of the surplus allocation is a bit more investment toward private equity, a bit more in terms of public equity. The fact that it's a mutual company means it doesn't have to worry about this investment income versus capital gain issue with the equity analysts, so it can take on a bit more risk from that perspective. But it didn't want to go into some esoteric assets because it didn't have the resources. I think that's a fair way to approach it.

Chart 5 shows a stock life company. I think this is a reasonable way to approach investing for surplus. It has the same kind of balance sheet. The overview is a little bit different, a bit more experienced, again a separate portfolio, but this company was built through acquisitions, so you can see the asset allocation on the right. When you move forward, as a stock company, again it has to think about GAAP, and it does, at the end of the day, drive a lot of the decision-making. Its primary objective is total return.

This company has big overlay from the net investment income standpoint, so what I

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point out on the right-hand side is what it thinks about what made sense from a total return perspective. Private equity felt right at a 2 percent level, but how do you take that in? You don't take it in from a standpoint of leveraged buyouts or venture capital because you don't get the income from a GAAP perspective or STAT perspective if you'd like, but mezzanine gave you some of the private equity exposure and gave it to you in an accounting-friendly manner. You'll start to see people make some tactical decisions when it gets into the accounting issues and the way that drives their decision-making process.

If you did go from an overall surplus portfolio, meaning one portfolio for all business segments, how do you allocate per business segment? You're seeing some of the bigger companies do this and a couple of the small companies, as well, but it takes more resources and more time. I think Chart 6 is reasonable in terms of the characteristics of fixed annuity versus ordinary life, some of the issues you probably deal with day to day, and a split based upon what I've seen in the past of that allocation I showed you on the prior page.

What I think is more important is that was a top-down, meaning someone said, "We think this is right for the overall surplus, and people want to get allocated, so here's what I'd do." Someone from the top allocates to the business segments. I think if you ask the business segments by themselves to do the allocation, and you roll it up, you'd get a different answer, especially with people who are maybe managing a fixed-annuity block (Chart 7). They feel it's a safe block of business; they don't want a lot of capital allocated to their business segment; they like to juice up the return on capitals; they hope to have a liquid type of business. You'd get a lot of different answers from them maybe versus an ordinary life product manager. This is important because it will drive the investment decisions you make day to day.

At the end of the day if I had my choice to make, I think I'd do it bottom up because I do think you are seeing more companies having to evaluate their business segments as stand-alone entities. It's a fact that the companies are being more strategic about what blocks of business they want to be in, and the analysts are coming in and asking more and more detailed questions. If you're running the ordinary life block, you want to think about your piece of business if you were spun off or someone valued you, and so I think it's right to think about your own surplus, make your allocation decisions and then roll up and let someone manage on a centralized basis. Again you'll see some differences in terms of fixed income, private equity, hedge funds and things like that.

The takeaways I would leave you with are carve out surplus if you haven't. It's important in terms of the way you manage your business. I do think that the objectives and constraints are different for surplus in the business segments. In the business segments you have to match. That's the way this business is run. The surplus is the surplus of the company. People may want to challenge or argue that, but I do believe you are looking to build or maximize economics for the company. That's a different objective than your basic business lines.

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The next points lead into Rui's comments. This probably seems like a biased comment from the fact that I work in an alternative investment business, but there are good reasons to think about the new asset classes. We talked about diversification. I think all of our companies have diversified well when it comes to fixed income. When it comes to public equities and real estate, you don't see a lot of people putting big bets on real estate any more, driving a lot of bankruptcies in the past, but encouraging people to continue to roll down and get even more diversified as you go down into the subsegments out there.

We all talk about asset-allocation frameworks and modeling. Beware of garbage in, garbage out on the asset assumptions. This has probably been the biggest hurdle and what Rui's going to talk about. When you go through the economic and accounting discussions of whether it's a new niche asset class for your company, a lot of people will shake their heads saying, "Yes, that makes a lot of sense." That's nice, but when I come back from the investment guys, I have to go deal with my actuaries. How do I convince them, and how do I measure these new asset classes on an apples-to-apples basis? I will say that is absolutely the biggest hurdle.

This is the art versus science. If you look at a lot of the balance sheets and a lot of the schedule BAs, you will see these new asset classes—private equity, hedge funds and timber—but if you start to ask how you came up with a 2 percent allocation, a lot of people will be scratching their heads and saying "Yes, it felt about right. I wasn't outside of the herd and didn't get a lot of questions from Moody's and S&P, so we always stuck with it." As you get more scrutiny, the brighter spotlights shining on your business, more and more that's not an acceptable answer. People are looking more to add some science into that asset-allocation question to take away the art a little bit. With that, I'll turn it over to Rui, and he'll talk about some of the things we're working on balancing the art and the science.

MR. RUI DE FIGUEIREDO: What I'm going to talk about is what Steve mentioned. This is going to be a much more granular discussion. It's about what I believe is some exciting new research that we've been doing that I've been working with Citigroup for about two years on. We've been thinking about how to take all of these asset classes that everybody finds interesting at least, that potentially can perform an attractive role in the portfolio, but that at the same time have been historically difficult to incorporate in a traditional sort of asset-allocation and asset-liability framework. How much? Where did it go? How much risk am I taking?

We spent quite a bit of time trying to address some of these issues for what you would think of as alternative asset classes—things like hedge funds and private equity, including both venture capital and leveraged buy outs. We also considered real estate, which you might not even think of as an alternative asset, but in some regards is, and it has some features that are similar. Timber commodities, structured credit products and so on are also included. We spent quite a bit of time thinking about these issues.

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Today I'd like to take you through, first of all, a discussion of why it is that we need new approaches to deal with these assets. We know that they're attractive or potentially attractive, but at the same time we don't know how to incorporate them. That is a fundamental disconnect between theory and practice. Then I'll take you through two worked examples. First of all, I'll talk about private equity, but when I say private equity, I mean all types of private equity, including venture capital, leveraged buyouts, mezzanine and so on. Second, I'll discuss hedge funds, which I think are even more difficult to deal with because people don't even know what they are. How do we classify them, let alone characterize the risk? Finally what I'll do at the end is give you a couple real worked examples with insurance cases. The first one is looking at misestimates of risk in a P&C portfolio, and the second one is thinking about allocating, including these assets to a full life portfolio.

Let me step back and say people have been studying asset allocation and ALM for years. For the past 40 years, there's been an incredibly robust science that has developed behind portfolio theory and ALM, being all of the kinds of things that I know that many of you and your colleagues do on a day-to-day basis. The question is: Why is it that we can't just use those models when we start to include some of these new asset classes like hedge funds, leveraged buyouts, venture capital, real estate or commodities? Why is it that we can't just use those traditional models?

The way that I think about this is, in the development of both theory and practice of these asset-allocation models, underneath all of these models lie a number of what I call implicit assumptions. When I say implicit, I mean that they've never surfaced, and we never talk about them for good reason. Assumptions as basic as: I can accurately measure the returns in a particular asset class, and because of that I can appropriately measure risk. That's a basic assumption. Another assumption that we make is that the assets are roughly comparable. Steve talked about making apples-with-apples comparisons. What do I mean by that? We're looking at marked-to-market bases for measuring risk, as I mentioned previously, and then we can compare that these assets are roughly comparable in terms of level of liquidity. Another assumption is that risk is appropriately measured by traditional risk measures like volatility. All of these assumptions are assumptions that sit beneath these models, and the reason that they sit beneath these models is when you think about traditional types of asset classes—public equities, fixed income and so on—those are all reasonable approximations of reality. When you start looking at some of these more exotic asset classes and some of these more unusual asset classes, every single one of those assumptions to a certain extent is violated. Think about accurately measuring risk. What do I mean by accurately measuring risk? There are lots of different ways you can measure returns and therefore measure risk. It doesn't matter what the way that you measure it is. The question is am I measuring every asset on the same bases?

If I look, for example, at volatility in the public equity markets or in the fixed-income markets based on observed historical prices, whether or not I'm trading that

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portfolio, then I should be measuring risk in other assets in the exact same way. When I go to look at something like private equity, for example, or like hedge funds where there aren't observable market prices, that means that I have this fundamental disconnect in how I measure the risk. On the one hand, I measure risk on the basis of market prices, independent of my trading pattern and on the other hand I don't have any basis for doing that because I can't see the same things that I'm using to measure risk in other asset classes.

Think about liquidity or tradability. Dave and I had an interesting discussion about this yesterday. You guys think a lot about liquidity, obviously, in the context of an insurance investment portfolio, but how do you compare an asset where you're restricted from trading to an asset where you're not restricted from trading? Again that's a fundamental disconnect. If I'm looking at public equities versus fixed income, I don't have that problem because I can always trade out of both whenever I want or at least over a reasonable time horizon.

What we've tried to do over the past few years is to somehow bridge the gap between assumptions that are classic to assumptions that are appropriate for a broader range of investments, and that's where I wanted to take you through a couple of examples today.

I'm going to start off by talking about the most illiquid assets. I'm talking primarily about, and most of the examples I'll give you are from, private equity. Again with private equity we're talking about the full range of financing rounds that you can have in a private equity investment from venture financing all the way to buyouts and recaps and so on, but also thinking about things like commercial loans, real estate, collateralized debt obligations (CDOs), collateralized loan obligations (CLOs)—any asset that does not trade. Then I'll take you through some examples on hedge funds.

If you think about these asset classes like private equity, like real estate that doesn't trade, there are a number of issues that I'm sure many of you have encountered, but fundamentally we categorize these into two broad categories. The first one, and I think this is the most important one, is: How do I measure the risk? How do I measure risk in a way that's comparable to the way that I measure risk in other types of assets? We know, for example, that these types of assets have maybe greater sensitivity to macroliquidity shots that happen in the marketplace. We know these assets restrict your exit options probably exactly at the time when you want to get out. The question is: Do we observe that if we look at historical data, if we look at reported prices for these assets and, therefore, the reported volatility in those prices? The answer is no because we're not necessarily observing those market prices on a regular basis. That's one broad set of issues.

The second set of issues relates to the tradability of those assets. We can think about risk, but we also want to think about: Do I get compensated for taking that risk? What we end up finding is without incorporating the notion of tradability into

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the asset-allocation framework, then you're going to have some serious mistakes in terms of how you allocate to these assets. I'll talk about both of these in turn.

Let me start off with just talking about risk. If you think about private equity, for example, there is a range of valuation issues. How many of you have looked at or make investments in private equity in your firms? It looks like it's limited. How many of you own a house? Okay, I own a house. If you think about how your house is valued, it's the same thing as for private equity. How is your house valued or how is commercial private real estate valued? It's basically valued on two bases. One is accounting, and the second one is appraisal. On the accounting basis, think about how you value your house. I live in California, and I hold my house at book value for as long as I can so I can avoid paying taxes. The official value of my house is probably much different from the true value of my house. Hopefully it's lower on the books than what it's worth.

Second, if you think about accounting rules, many accounting rules require you to hold these investments at cost until there's an actual liquidity event. A new financing round for a venture capital investment, an acquisition or an initial public offering are some examples. Then you step back and say what does that mean for how I measure risk? If you think about how you measure risk in your real estate investments or your private equity investments, you're going to immediately see the problem—introducing the staleness in pricing, the fact that today's values are reported to be the same as yesterday's values, just because I haven't observed the price. What does that mean for risk?

I'd like to talk about the reported returns on venture capital over the period from the beginning of 2000 until the first quarter of '02, admittedly a biased period, but one I think most people will remember. What was happening in the public markets at that time? In that period, from the beginning of '00 to the first quarter of '02, the NASDAQ was falling through the floor at a rate of about 30 percent per year. Everybody's familiar with that, and it was well-publicized and painful for certain people. At the same time, venture capital was reported to be falling at a rate of about 7 percent per year. Seven versus 30—about one-fourth the rate of the NASDAQ. Most people look at that and ask whether they believe that venture capital investments were falling at a rate almost flat in comparison to the NASDAQ. I think most people would say, "Not really." If anything, the venture capital investments are at least economically related to what's going on in the publicly traded markets. This, I think most people would conclude, is an artifact of the way that pricing is done. It's an accounting artifact because the venture capital investments simply haven't been written down.

You might ask what the implication for this is for how I think about asset allocation, ALM and investments in these asset classes. The answer is it has big implications. Why is that? Eventually the venture capital valuations will catch up with the public market counterparts, so on average it's not going to be a problem. It's not a Ponzi scheme in the sense that you never have to realize the value of an investment.

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What Dave was saying is eventually you do have to realize the value of any illiquid investment. The problem is that we don't only care about the average, even though the average valuations might be right, but we also care a lot about patterns. That's what investment people care about a lot. They care about risk. They think about risk-adjusted returns. They think about diversification benefits or concentrations of risk by adding these types of assets. Those two pillars of thinking about ALM—risk-adjusted returns and diversification—are both affected by this kind of pattern.

Think about the following in your mind: Think about an asset. Think about your house that's held at book value for a long period of time. Book, book, book, book and then just marked-to-market occasionally when there's a liquidity event, when you sell your house, when you get some new capital for your house or whatever the reason is. Even though its true valuation might be fluctuating up and down, might be going up all the time or whatever it is, think about what that does for both risk-adjusted returns and diversification. Think first about risk-adjusted returns, something that goes book, book, book, market compared to market, market, market, market.

What's the difference between those two? Market, market, market fluctuates a lot, whereas book, book, book, market doesn't. On that first basis, thinking about risk-adjusted returns, this is going to have a huge implication because the pricing distortions are going to understate the volatility. This is going to overstate the risk-adjusted returns, which is potentially going to lead you to an inappropriate way to incorporate these assets and the allocations.

Then think about diversification. What's the correlation between something book, book, book, market and anything else, say the Lehman Aggregate or the S&P 500? The correlation of something that's not moving with anything else is going to be close to zero. That's the statistical fact, which I know I can talk about in this audience. That is also going to potentially overstate diversification benefits by understating the correlations and again leading you to inappropriate allocations to these assets.

This doesn't mean that you don't want to invest in these assets; it just means that you have to understand the risks on a comparable basis to the way that you measure risk in other asset classes before you can access the benefits. The question is: What do you do about this? We have only these data, so what can we do? When we looked around at many firms like yours, even internally within Citigroup, there weren't robust approaches for dealing with this issue. How do I characterize the risk in these types of assets on a comparable basis? If you think about it, there were two polar extremes to what people were doing. One extreme was to close your eyes to the problems. I'm going to ignore that. I'm going to use the data I have, and then I'll make some ad hoc adjustments after the fact. I'll show you in a minute why that leads to inappropriate answers.

Another extreme was to throw out this data. I'm not going to use any of the

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reported information, and what I'm going to do instead is use proxies. I'll use the NASDAQ if I believe that it's correlated with the venture capital market. I'll use publicly traded real estate investment trusts (REITS) as a proxy for private real estate. What's the problem with that approach? The problem with that approach is that it goes too far in the other direction. It says these things are perfect substitutes, public real estate and private real estate, when we know they're not. If nothing else, because of their exposure to liquidity effects, concentration biases and different forms of leverage, they are going to be different. Even though they might be related, they're not going to be perfect substitutes.

What we've done is we've essentially taken an approach that draws on the insights in both of those polar approaches. On the one hand, you want to use the information that is good in the reported data. It's not all bad. There's some information in what the reported venture capital returns are and what the reported value of your house is. There's also some information in what's going on in publicly traded markets that is related to private markets. We've set up a model that allows us to incorporate all of these effects, so we essentially have a rigorous, statistical, analytical model that starts with the existing data and then tries to eliminate the errors in those data on a marked-to-market basis to estimate what marked-to-market movements would look like in private equity, real estate, commercial loans and so on. That incorporates information about pricing, what's happening in publicly traded markets, so REITS for private real estate, what's happening in a value index for leverage buyouts and what's happening in the NASDAQ or the Russell 2000 for venture capital.

We also incorporate effects for the unique aspects of these markets. How will liquidity affect these markets in a way that's different from the way it affects public markets? When the Asian crisis happens or when long-term capital management blows up, does that affect venture capital in a way different from the S&P 500? The answer is probably yes. We'll allow the data to tell us that. That gives you an overview of how we approached this, but this is where the rubber hits the road, which is what the impact is.

What Chart 8 shows on the left-hand side is volatility, and on the right-hand side is the correlation of the S&P 500 as an example. The bars on the left for both leveraged buyouts and venture capital show the reported statistics for these asset classes. The bars on the right show our estimate on a marked-to-market basis and what the risks look like in these asset classes. What you can see immediately, if you take the one on the far left, is that there's a big effect. The reported volatility for leveraged buyouts, for example, is about 11 percent. That's lower by about one-third than publicly traded equities, the S&P 500, which is about 16 percent. We have found that that is an artifact of the way that these things are measured, exactly as I talked before. When you go through the process of estimating marked-to-market risks for these assets, you end up with an estimate of about 21 percent or almost double.

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With venture capital, you see even more dramatic effects. If you start with the reported volatilities, they're about 17 percent. When you mark them to market, they're about 44 percent. It doesn't mean that you don't want to invest in these assets. Some people look at this and say if the volatility of venture capital is 44 percent, they shouldn't have any of it. That might be the right answer for certain investors, but I haven't talked about how you get compensated for taking those risks. The issue here is: Do I understand what risks I'm taking, let alone how I'm getting compensated for them?

If you look at the correlations, you'll see the same thing. The reported correlations are in between 0.4 and 0.6, again seeming to be fairly uncorrelated. I think most investors think these assets are likely to be somewhat like equities. The day before and the day after an IPO, an asset doesn't all of a sudden become correlated with the public markets, whereas before it was completely uncorrelated. Again, this is an artifact of the lack of marked-to-market data for these asset classes. When we estimate the correlations, we estimate them to be between 0.6 and 0.8, which not only gives you a different picture of risk, but also in my view comports more with your intuition about how these assets should behave. This gives you a dramatic valuation of the risk in these asset classes and gives you much more of a systematic way of incorporating them in a portfolio.

The other issue is thinking about tradability. When you think about tradability, there are a lot of issues that are related. Let me talk about a broad way of thinking about it conceptually. Think about in theory whether I am compensated for those risks that I talked about before. In a traditional economic sense, we should be getting compensated for all of the nondiversifiable components of that volatility that I talked about before. The question is: Do I get compensated on top of that? When you invest in nontraded assets, strictly speaking in theory, you should get compensated for the nontradability as well as for the risk. When you think about how you get compensated for equity risk, you get compensated for the variation in the market valuations. The more variation there is over the long run, I would expect, according to traditional finance theory, to be compensated more for it than I would say for a fixed-income portfolio that doesn't vary much.

That's true here, as well, but on top of that you're getting compensated for something else. What are you getting compensated for? You're getting compensated for giving up the option to trade the assets. Why is that option valuable? It's valuable because it helps you with rebalancing. If you lock up your assets, you can't rebalance in the same systematic way that you would if you have completely liquid assets. It helps you with responding to unforeseen cash-flow requirements. If you think about it in an ALM context, if I get the L side wrong, what implication does that have if I've locked up my assets? That also has a cost. You get compensated potentially for accounting distortions. All of those things mean that you should, on top of the risk premium, also get a premium for nontraded assets. If you think about it, if I have two assets, one that allows me to trade and the other one that doesn't allow me to trade, in other words, one where I can get a

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10 percent return in year one, year two or year three and the other one where I could only get that return in year three, which of those two assets is more valuable? The asset that gives you the option to get out of year one, year two and year three is more valuable.

We have this premium for nontradability—what do we do about it? One approach that people have taken is that they completely ignore it. That's problematic. If you compare things only in terms of risk and return, you're not going to be making a valid comparison because now I'm getting compensated for something other than just taking risk or at least traditional market risk.

What do you do about it? One approach is to simply drop it, estimate what the size of that premium is and take it out. I have this premium for nontraded assets, I remove it, and then I have everything on this like-for-like basis. I have everything on a risk versus return basis, which is traditionally how I construct portfolios. The problem with that approach is that premium exists in the marketplace. The value that Steve puts on that premium or that MetLife puts on the premium can be different from the value that I put on that premium or the value that New York Life puts on that premium. The valuation, the cost of giving up that option, is going to be specific to the investment characteristics of that particular investor.

You don't want to just remove it and compare everything on risk return. Instead what you want to do is incorporate it as a third dimension in terms of thinking about asset allocation. What we're advocating is not just thinking about the traditional approach, which is how I manage between my risk and how I get compensated for the risk in terms of return, but now how do I think about risk, liquidity and return? When we do that, both looking backward and forward, we find that there is a premium for illiquid assets. That premium, whether it compensates you sufficiently, is going to be specific to the particular institution you work with.

This is a simple characterization of this problem where we say traditionally we look in terms of risk return, but we also want to think about liquidity. As we start to take down liquidity in our portfolio, we should expect to get compensated for it. That can be reflected in a three-dimensional way of looking at portfolios rather than two-dimensional. We estimate that the premium for illiquid assets is about 300 to 400 basis points on a 100 percent illiquid portfolio. For every 10 percent you add in the surplus, for example, you'll earn 30 to 50 basis points in the surplus in excess of what you would do in liquid assets. Is that 30 to 50 basis points worth it? It depends on whether or not you can afford that level of illiquidity.

I'm going to go through an overview of one other example of how we've looked at these problems of incorporating, accessing and taking advantage of nontraditional assets in a surplus account. There are a number of issues related to hedge funds. I'll ask the same question. How many of your firms invest in hedge funds? It seems to be a little bit more. If I ask you what a hedge fund is, do you have an answer? We have about 30 people here. If I asked each one of you, we'd get about 30

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different answers. The reason is because hedge funds are lots of different things. It's not even clear that they're an asset class in the traditional sense.

The question is: How do we get access again to these types of assets but do so in a responsible and considered way? There are a number of issues when you think about it in the classic ALM framework that you have to deal with. I'm not going to go through all of these here. I'll just highlight them and go through a couple of examples. One issue is that, again, even before returns are reported, we don't even know what the returns in the industry are in a systematic way. Why is that? When you think about your fixed-income investments, when you want to characterize those in an asset class level, there's a lot of information. There's a lot of information that's drawn from the entire universe of fixed-income assets. The Lehman Aggregate draws on all of the fixed-income debt instruments, and the S&P 500 covers the entire 500 well-defined S&P index.

When you think about hedge funds, there are 6,000 of them out there. How their performance is reported depends on which database you go to. We have pseudo indices, but not actual indices. That introduces, from an actuarial point of view, all kinds of sampling biases, reporting biases, back-fill bias and survivorship bias. All those biases will affect the way that you see how hedge funds performed in the past and, therefore, how you think they're going to perform in the future. One of the corrections that we do is to explicitly model and then correct for those types of biases. Not surprisingly, that reduces our view about forward-looking hedge fund performance. That's step one.

Step two is thinking about those pricing distortions I talked about in the highly nontraded assets such as real estate, private equity and some hedge fund strategies. Take, for example, strategies that focus on stress debt. Those types of hedge fund strategies are also difficult to mark to market. What that means is as in those other illiquid assets, it introduces pricing distortions. In a statistical sense, what does this mean? In a statistical sense, it introduces what's called serial correlation into the returns in hedge funds. Today's returns are correlated with tomorrow's returns. That's something that we have standard techniques to fix in statistics and in finance. When you do that, it gives you a much better picture about what the risks are in these assets. I'll show you some examples of that in a minute.

A third issue is what's sometimes called strategy or style drift. What do I mean by that? I mean that hedge funds are unregulated. Because of that, that's how they generate part of their returns because they have a lot of freedom and fewer constraints to act on attractive opportunities. From an active management perspective that's great, but from a risk perspective that's problematic because all of a sudden it means that you might have risks in your portfolio that you didn't know you were taking. If today's manager who's managing a convertible arbitrage fund all of a sudden says, "There are no opportunities there. I'm going to do merger arbitrage," what does that mean? It means that all of a sudden you have a whole lot of risk that's merger arbitrage risk, even though you hired that guy for

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convertible arbitrage type of risk. That's problematic because all of a sudden you might have types of risk in your portfolio you have no idea that you have.

Again we've developed some techniques for controlling that risk at the allocation level where you could do something about it. You can't do anything about it when it's too late.

The final issue is whether volatility is even an appropriate measure of risk. I think in the context of insurance companies, one of the things we've found is that clearly many insurers are more sophisticated than that, using range of risk measures. In the hedge funds it's particularly important to do that. Why is that? It's because the downside risk is not the same as the upside risk across all strategies. For some strategies it is; for some strategies it's not. If you're particularly, as Steve mentioned, worried about downside events or say that you define your objective function as being a shortfall probability, I want to meet my liabilities with less than some probability of falling short of that in any given year. That means that you need to appropriately characterize the tails because you care a lot more about the tails than just thinking about volatility. That again is something you can control, but the first step, if you have a problem, is to recognize that you have a problem and then once you've recognized it, you can correct for it.

I'd like to talk about the volatility of the hedge fund strategies across a number of different strategies. What you end up seeing is that there is a range of effects that you can have in terms of how you see the risk. For some strategies such as, for example, distressed, the volatility that's reported is about half of what its true marked-to-market volatility is. When you correct for these pricing distortions, just as in private equity, it gives you a much different picture of the risk

I'll conclude with this one example. This is a case where we were looking at a P&C portfolio. There were a lot of bonds. We were looking at the total account here and not just the surplus, but a number of alternative assets, hedge funds and so on. The first question we asked these guys was: Do you understand the risks that you're taking? This is the most basic investment question. What we found was that the risk that they thought they were taking was about 3 percent volatility of that overall portfolio. The risk was actually about two-thirds higher, but the actual volatility of this portfolio when you're measuring things on an appropriate basis is about twice that. That has a big impact on how you structure the portfolio. If you do it properly, you can at once take advantage of the attractive features of these asset classes, but to do it in a very considerate and appropriate way just like you've done on the traditional side all along.

MR. INGRAM: Steve and Rui, I think I heard you mentioning yesterday that you're in the process of publishing a paper.

MR. HALL: Part of what Rui was going through here is part of a paper that we just published, so we appreciate your being the guinea pigs for hearing the topics he

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was covering. The paper goes through a lot more detail talking again about more of the science on this versus the art because that's been a big hurdle for people to get over. The paper is out there and available.

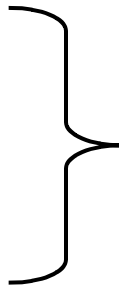
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Chart 1



- **Traditional**
 - Public Fixed Income
 - Private Fixed Income
 - Public Equity
 - Real Estate (Equity)
 - Real Estate (Debt)

- **Non-Traditional**
 - Private Equity
 - Venture Capital
 - Leveraged Buy-Outs
 - Hedge Funds
 - Commodities
 - Tax Structures



WHY THE INTEREST IN EXPANDING ?

- Desire to increase returns
- Desire to build Surplus

CAVEAT

- DON'T BLOW IT !

RESULT

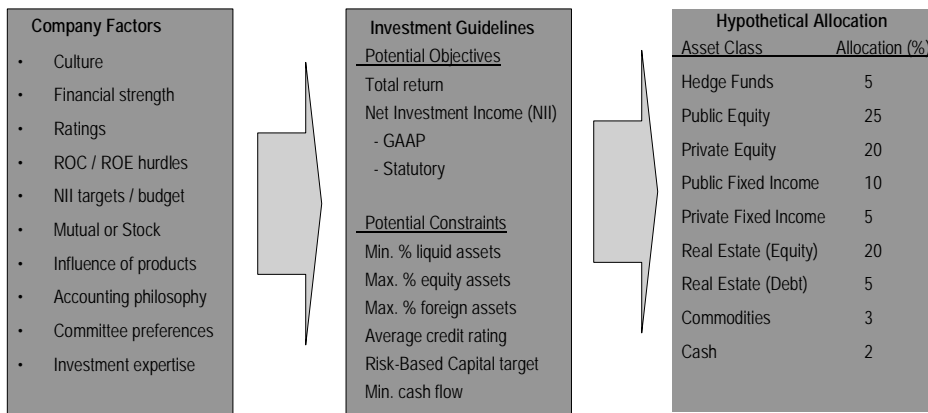
- Increase in equity type risks
- Increase in non-correlated assets

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Chart 2



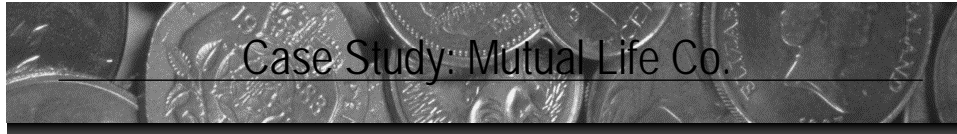
- Companies need to take a strategic perspective



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Chart 3

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Stats:

- \$10 bln General Account
- \$1 bln Surplus
- 80% Ordinary Life and 20% Fixed Annuity

Overview:

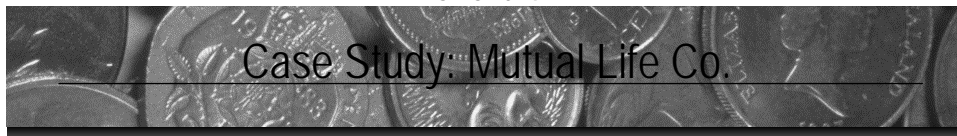
- Conservative company
- Surplus is separate portfolio
- Surplus allocated similar to product assets
- Growing organically

Current Asset Allocation:

- Public Fixed Income (74%)
- Private Fixed Income (10%)
- Commercial Mortgage Loans (10%)
- Preferred Equity (3%)
- Real Estate (3%)

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Chart 4



Factors:

- Only files Statutory financials
- Can afford long term, total return view
- Limited investment expertise
- Conservative management

Potential Surplus Objectives:

- Total return

Potential Surplus Constraints:

- Limit expected loss on portfolio
- Leverage current investment knowledge

Potential Asset Allocation (General):

- Public Fixed Income (73%)
- Private Fixed Income (10%)
- Commercial Mortgage Loans (10%)

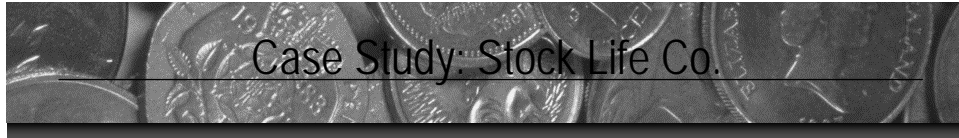
Potential Asset Allocation (Surplus):

- Public Fixed Income (1%)
- Real Estate (3%)
- Public Equity (3%)
 - Preferred (2%)
 - Common (1%)
- Private Equity (3%)
 - LBOs (3%)

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Chart 5



Stats:

- \$10 bln General Account
- \$1 bln Surplus
- 80% Ordinary Life and 20% Fixed Annuity

Current Asset Allocation:

- Public Fixed Income (74%)
- Private Fixed Income (10%)
- Commercial Mortgage Loans (10%)
- Preferred Stock (3%)
- Real Estate (3%)

Overview:

- More experienced company
- Surplus is separate portfolio
- Surplus allocated similar to product assets
- Built through acquisitions

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Chart 6



- Fixed Annuity argues nature of business demands lower ROC
- Fixed Annuity is extra sensitive to ratings
- Ordinary Life can absorb more volatility
- Ordinary Life generating acceptable operating returns from liabilities

Product Line	Total	Public Fixed Income	Real Estate	Public Equity (Preferred)	Private Equity (Mezz)	Hedge Funds
Ordinary Life	8.5	3.5	2.0	1.0	1.0	1.0
Fixed Annuity	1.5	0.5	-	-	1.0	-
Total	10.0	4.0	2.0	1.0	2.0	1.0

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Chart 7

Case Study: Surplus by Product, Bottom Up

- Surplus built at product level, then aggregated
- Pros: Allows management more accurate measure of performance
- Cons: Requires company to allocate return and risk back to products

Product Line	Total	Public Fixed Income	Real Estate	Public Equity (Preferred)	Private Equity (Mezz)	Hedge Funds
Ordinary Life	8.5	1.5	2.0	1.5	2.0	1.5
Fixed Annuity	1.5	1.5	-	-	0.5	-
Total – Bottom Up	10.0	3.0	2.0	1.5	2.5	1.5
Total – Top Down	10.0	4.0	2.0	1.5	2.0	1.0

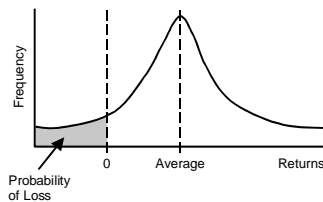
14

Chart 8

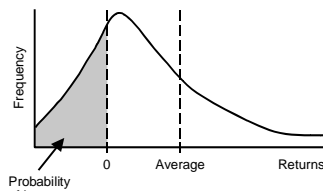
Alternative Bases for Risk Measure Required

For Illustrative Purpose Only

When returns are "normally" distributed, loss probabilities are simply a function of volatility...



...but when they are skewed, loss probabilities could be much higher

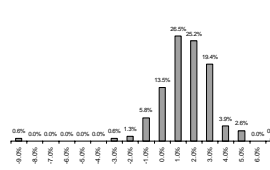


* Significantly different from normal
 Note: Jan 1990 – Jul 1990 also used to estimate serial correlation. Vertical scales not equivalent. Past performance is no guarantee of future results.
 Source: HFR, Jul. 1990 – May 2003; See "Appendix"

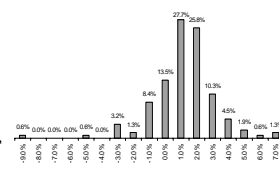
Return Distributions (%)

Skew & Tail Risk

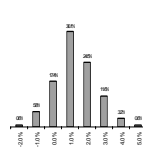
Event Driven Plus



Fixed Income Arb



Equity Arb



Discretionary

