

MR. STEVEN SIEGEL: I wanted to start off by thanking everybody on behalf of the SOA. We really appreciate your participation, and I'm really looking forward to the discussion today. I'm going to turn it over to Anna in a minute to get started. Anna's going to moderate and then also lay out how we're going to ask the questions. I'm planning to write an article based on our discussion today. I feel very fortunate that we were able to gather everybody together. This is a very exciting topic and one that's very relevant for the SOA and other organizations.

MS. ANNA RAPPAPORT: Thank you. I chair the Society of Actuaries' Committee on Post-Retirement Needs and Risks, and we've been exploring the post-retirement period. I think this project can be viewed as being sponsored by that committee.

I was very excited to attend a conference that was sponsored by Boston University and the Federal Reserve in October. I felt there were a lot of concepts that we can meld into what actuaries are doing. Sometimes we use the same models; sometimes we use different models; sometimes we use different terminology, and it seems that bringing more of these ideas to the profession, as well as having a dialogue

would be a really good thing. Steve and I talked about how to do this and that got us to the notion of the roundtable.

We'd like to start by going around the table and introducing ourselves. For the first few questions I'm probably going to call on somebody to be first, then anybody can jump in. I might call on somebody else to keep the discussion going. We want this to be really interactive. We have no pre-assigned speeches in this at all.

MR. ZVI BODIE: I am a professor of finance at Boston University, and I know Anna from having served with her on the Pension Research Council at the Wharton School. My research and consulting work has focused on retirement issues and lifecycle investing for many, many years. I was the initiator of the conference that Anna referred to at Boston University back in October. The main idea behind that conference was to bring together professionals who specialize in various aspects of lifecycle saving, investing and risk management. Anna and Jerry Golden were there.

MS. RAPPAPORT: I think Jeff was there. Dave was there.

MR. BODIE: I'm sorry. Jeff Brown was there too. It was a huge success primarily because we were sharing ideas in a

way that rarely happens at purely academic conferences or at purely professional conferences.

MR. MICHAEL LEONESIO: I'm an economist in the Office of Policy at the Social Security Administration. About half of my job is to serve as the Agency's liaison to the two public trustees on the Medicare and OASDI boards. When I'm not involved with those duties, I conduct research on Social Security policy and evaluations Social Security reforms. I've written some papers on work incentives inherent in Social Security retirement provisions and done a little work on the disability population.

MR. RON DESTEFANO: I'm with AON Consulting in their Baltimore office. I'm an actuary who works with large corporate plans, helps design them, restructure them and at this point terminate a lot of them. I guess my claim to fame here is I'm responsible for the AON Consulting Replacement Ratio Study that's being done about every three years. Actually I'm in the process of wrapping that up for us to put something out at the end of this year.

MR. JEFF BROWN: I'm a finance professor at the University of Illinois and also the associate director of the NBR Retirement Research Center. On the academic side, my

research mainly focuses on the retirement portfolio decisions of individuals, including insurance decisions, annuities, life insurance, long-term care insurance and pension plans. On the policy side, I'm a member of the Social Security Advisory Board and previously served at the Council of Academic Advisors and on the staff of the 2001 Social Security Commission.

MR. JERRY GOLDEN: Right now I'm president of the Income Management Strategy Division, which is a part of MassMutual. They acquired my company, Golden Retirement Resources, about two years ago. We spent the prior five years or so building a system for helping people manage their money in retirement, combining investment and initially just annuity products. Prior to that I'd been at Equitable and was involved in the development of variable annuities, variable life and products like that.

MR. DAVID K. SANDBERG: I guess I come with a couple of hats. I was at the conference in the fall, invited on behalf of the American Academy of Actuaries. I'm currently the vice president for the Life Insurance Practice Council for the Academy, so long range issues dealing with risk management for individuals and how that may flow through the insurance aspect of it is of interest to me. In addition,

my company, Allianz, has made a major commitment to be involved in the lifecycle retirement income market, from both the fixed and variable side, as well as from the asset management side. I'm someone from a company who has been out there trying to market new products. We have a history of innovation. We are the only company that has two-thirds of our policy holders actually take annuity benefits from their deferred annuities. We've also been one of those companies pioneering long-term care concepts and products in the marketplace.

MS. RAPPAPORT: You all can see that we have a truly diverse group of people on the panel. I hope that as we go through each question we can reflect this mix of people that work with plans, work at insurance companies, the academic perspective and how it fits with our public programs.

Zvi, I hope you'll lead us on this first question. What are the key features of smoothing lifecycle consumption as it can be applied by individuals and families and how would this impact people of different life stages?

MR. BODIE: First of all, let me say that economic theory tackles the issue of lifecycle planning, financial planning from the perspective of assuming that it is consumption over

the lifecycle that the individual and the family care about. Not wealth per se, although wealth certainly is an intermediate goal. Ultimately it's their standard of living as measured by consumption that individuals and families care about. Now that's very important because it's easy to show that there are situations in which what you would do to optimize your wealth at different stages of lifecycle is actually different from what you would do to optimize your utility from consumption or your welfare from consumption. For example, the clearest example of that would be in a plan for retirement saving, it makes a big difference whether your objective is to optimize your wealth at the retirement date or optimize your standard of living, because if it's the latter, then the definition of a risk free asset would be a lifetime deferred annuity that guarantees you some standard of living rather than an investment product or contract that guarantees you some level of wealth. In fact, we know that if you lock in a level of income, then changes in the interest rate might cause your wealth to fluctuate at the same time that your standard of living would be held constant, so it really makes a huge difference. I take that as the starting point.

There's another key feature of lifetime consumption smoothing that is very important and that makes it different

from, say, the models used by the investment industry in designing their products for the lifecycle and particularly for retirement, and that is the notion that to deploy your resources most efficiently typically would result in some sort of contingent contract. The clearest example of that would be a life-contingent contract. It's always going to make more sense to buy a lifetime annuity than a stream of income that would be paid whether or not you are alive. So for the same amount of retirement wealth, you're going to get more lifetime consumption efficiency out of an insurance type contract (a contingent life annuity) than you would out of a certain stream of income. I would take those as the starting point.

Finally, there is the issue that I think is extremely important that gets ignored in standard investment literature on this subject: one's human capital. In other words, the appropriate context for studying and planning a lifetime consumption is where you consider a lifetime earnings as the basic resource which is going to be used to finance lifetime consumption. It makes a very big difference what the lifetime profile of that earnings stream is, how risky it is at various stages of the lifecycle, in designing the optimal lifetime consumption contract.

MS. RAPPAPORT: So you would say that my son-in-law, who is a TV writer, needs to be a lot more conservative because of the uncertainty of employment than someone who is a teacher or policeman?

MR. BODIE: Precisely.

MS. RAPPAPORT: Jeff, you mentioned that you've been doing modeling where you're looking at not just traditional asset classes, but financial products as well. Can you help us bring that into this discussion of lifetime consumption smoothing?

MR. BROWN: Absolutely. First of all, I'd begin by reiterating some of the points that Zvi made. The key idea in these economic models is that you're trying to avoid a feast-or-famine approach to planning, and instead find a way to smooth your consumption so that you have a roughly similar standard of living across different periods of time and across different possible outcomes. Consumption is obviously not the same as expenditures. For example, if you go and buy a car, what we care about as economists is the consumption value of the car over time, not the expenditure at the point you buy the car. You also have to adjust for differences in family size, and it's also perfectly okay for

an optimal path of consumption to maybe be slightly increasing or decreasing over time based on people's preferences. But the point is you try to have a consumption path which is smooth; it's not jumping around. That's where the role of these insurance products comes in. If you think about it, having a financial plan where you smooth your consumption would be really easy to do if you knew how long you were going to live and exactly what your medical expenditures, your earnings and inflation were going to be. The fact of the matter is there are risks in each of those areas. There's always mortality uncertainty, inflation uncertainty, rate-of-return uncertainty and medical expenditure uncertainty. I think those are the four big ones, although I'm sure we could come up with others too.

In those four uncertainties that I mentioned, that is where insurance products come in, and in a very important way. For example, take mortality uncertainty. If you reached retirement at age 65 and knew you had exactly 20 years left to live, it would be relatively easy to spread your wealth out just by amortizing it over 20 years and spending it down, but the fact that you have a chance of only living five years and a chance to live to be 105 years old is where products like annuities come into play. Annuities can provide you a guaranteed source of income for as long as you

live and do so that in the most efficient, or least costly way. Medical expenditures are a big deal, especially long-term care expenditures toward the end of life: nursing homes, assisted living facilities, home care and so forth. There are, of course, products out there that provide insurance against those expenditures, although research shows that the existence of the Medicaid system and the incentives it provides means that many people don't find it in their interest to buy it. The more general point is that when you're planning for retirement consumption—really when you're planning for lifetime consumption—it's not enough to think in terms of expected values or average outcomes. You really have to think about the risks involved, and that's where insurance products and hedging products can help you maintain a constant standard of living.

This gets back to exactly the point that Zvi was making—if you just want to maximize your expected value left at retirement, that's one thing. You can invest a lot in stocks, but most individuals also care a lot about the uncertainty. They don't want to live knowing that they're going to have either a feast or a famine. They want to have some certainty, and that's where both the government-provided and private-sector-provided products (Social Security, private annuities, Medicaid or long-term care

insurance) really come in and play a key role in thinking about consumption smoothing.

I'll stop there, but I want to make sure we come back to this point when we talk later about the comparison of consumption smoothing models to replacement rate models. One of the shortcomings of replacement rate models is that they don't do a very good job of thinking about the risk aspects, and I think that's a fundamentally important piece of the puzzle.

MS. RAPPAPORT: I want to ask if any of the other panelists would like to comment on the first question.

MR. SANDBERG: I will add one more slice of complexity to this. In addition to the comments and papers mentioned earlier, an additional dimension is the changing time horizon of the individual. At different levels of wealth, a person's time horizon may range from personal income to a couple's income and may then include a generational perspective or, to take it to the extreme, one I'll call the Warren Buffett approach. This horizon includes the desire for an enduring legacy that lasts through a long period of time. I haven't seen it addressed in the literature and certainly the comments that are made currently talk about

segmenting funds from survival on to different levels of consumption, but I think taking those slices individually also changes the color of what we're looking at on these kinds of targets that are being defined.

MS. RAPPAPORT: I want to add to Dave's comment about time horizon. The SOA focus groups that we did a couple of years ago show that when people are making decisions about what to do at time of retirement, even though retirement might last somewhere from zero to 40 or 45 years, they seem to be thinking two to five years. There is a big time horizon challenge as individuals plan, and we're documenting this more and more.

MR. LEONESIO: I think that the general notion of consumption smoothing as a fairly simple lifecycle model is instructive for most planners. But, in fact, slightly more complex lifecycle models that are tested against data tend to show that there are discontinuities, particularly at retirement. There's a recent study where, for approximately half of retirees interviewed in the health and retirement study, there is, on average, a 15 percent decline in consumption. Part of that could be due to people who are retiring because of health. New retirees with health problems certainly tend to report larger spending declines.

But, it could be the case that at retirement, retirees suddenly have much more leisure available to them and they tend to be involved in more leisure-intensive activities. For example, we see instances of people spending much more time shopping for bargains and preparing food in the home rather than going out to eat. There are a number of reasons why I think we do observe these declines.

MS. RAPPAPORT: I want to build on the question about the discontinuity. Does anybody want to mention other key points of discontinuity? I wanted to throw widowhood into that mix.

MR. BODIE: I would agree. We're going to move on to some of these things as we get to the other questions, but I would make the point now that first of all there are big differences as you move to different income levels. My concern is that I think most economists who study the issues of retirement in a lifecycle model are not thinking about the very rich for whom estate motives are critical and in fact maybe even dominant. People in that category, whether it's a Warren Buffett or a Bill Gates or even people who are down on the scale of wealth, have different aspirations and different goals, so I don't think we want to use the same model to encompass everyone.

MS. RAPPAPORT: I'm going to move us on. Ron, what are the differences between consumption smoothing and replacement ratio modeling of retirement needs? What do you see as general pros and cons? Then we'll move on to some other aspects of that.

MR. DESTEFANO: We've been talking primarily about consumption smoothing which is, if you will, the payout side of things, how much is spent. What we focus on is the replacement of income, so in other words, how much income a person has and what portion of that income they need after retirement, partly because we're working mostly in corporate environments where people have regular salaries. I think it's not unrealistic to assume that the difference between income and outgo is what we call savings. What we do for replacement ratio is we look at the income pre-retirement and adjust it for savings. Some assumptions going on in the country right now are that people aren't saving a whole heck of a lot. We look at tax rates, because there are differences in taxes because of the graduated nature of the tax system in the United States. The effective tax rate might drop after retirement, especially if there are Social Security benefits that are paid which are partially or totally tax free. You have tax rate changes such as the

Social Security tax, OASDI and Medicare, and then we also look at the change in work-related expenses. However, I was just looking at our study and they're not very large overall as we measure them. We take a look at this. If we take the income and we adjust for these items, at least I believe we're approximating the consumption method. I'd be interested in comments otherwise.

Shock happenings at retirement such as disability and maybe the need for long-term care are not explicitly provided for in the approach. We assume that it would either be covered by some sort of insurance or some savings beyond what we have as the normal income need. One of the big issues with replacement rates is that they tend to focus at the point of retirement. I'm becoming convinced (and this is one of the things we're going to focus on) that replacement rates may actually turn out to vary over time and maybe this is when you get into the consumption model—where retirees 85 and over may not be buying cars any more, going on fewer trips for example. It may be that the method that we have, which is a replacement rate at 65, does not carry over until later years. I don't see that much of a difference between the consumption rate which we try to approximate by adjusting income, by adjusting for savings and those other items I mentioned, and I'd be interested in what other people think.

MR. BODIE: I think that the difference between the two models becomes clearest when we take into account that the decision variable that households control and increasingly are going to rely on in the future is actually labor force participation. The notion that one works full time until age 65 and then one retires is, I think, going to become obsolete. It has to become obsolete because for most people it's just not feasible. They're not saving enough during their working years. Certainly, if you look at the level of society, it's just not possible to sustain a model where people are living 25 or 30 years without working and are, for the most part, healthy. Not only is it not feasible; I'm pretty sure it's not desirable, because increasingly people are working at jobs that are not that distasteful. Many people enjoy the work they're doing. That's probably truer today than it ever was in the past, and will become even truer in the future.

I think if you take the perspective that economists do, of you have resources over your lifetime and human capital is one of them, you can choose how much of your potential future earnings you want to consume as leisure and how much you want to use to earn income; that is going to be the first choice that most of us make. It's not really going to

be about retirement needs per se; it's going to be how one maintains a balanced lifestyle into one's later years. Furthermore, how does it provide the kinds of insurance that are needed against disability, poor health and so forth?

MR. BROWN: It's not that difficult to write down a model under which you can start with a consumption-based model and then out of that work out the optimal consumption path. Then you pick a particular age, say 65, and compare the optimal consumption at that point in time to the pre-retirement income to come up with an optimal replacement rate. These concepts aren't completely separate from one another. You can get one from the other. But they have very different strengths. I'm an economist, so I obviously come at it from the standpoint that the consumption-based models are the richer, better models, but the problem is that they're difficult to explain to non-economists because you need to think about multiple periods of time and uncertainty as well as the expected value. The replacement rate concept is very easy to explain, because it's just a single number. It's not that hard to calculate the way it was described a few minutes ago if you understand it. The problem is that the replacement rate approach should only be a first step, and nowhere near the last step, when planning for retirement. You do need to recognize that, number one, the replacement

rate might change over time because your desired consumption may change over time as there are life changes (a spouse dies or someone becomes unemployed or any number of medical expenditures.) Second, in addition to it changing over time, the replacement rate concept doesn't recognize the role of uncertainty in all of this. If you're not thinking about uncertainty, then you're not going to choose the right financial products to help insure against those uncertainties. For someone who has never given a thought to retirement planning and trying to get them to think about it for the first time, I don't think there's anything wrong with using a replacement rate concept to help people start to think about it and get their mind wrapped around it. But it is only one data point in a much larger picture. I think the problem occurs when that is the end all and be all of financial planning.

MR. DESTEFANO: I think those are all excellent points. One of the issues that I think is not really addressed maybe even in this discussion is that the concept of retirement has changed. We've always treated part-time work as being not a new career, but a supplement to retirement income—that is, a different form than pensions or 401k but nonetheless having many of the same attributes. Whereas now it may be that your second job is as important to you as your first

after retirement and you may not have even "retired" at that point. So the whole idea of what retirement is and whatever has changed will have an impact in all of our discussions.

MR. LEONESIO: I have a small footnote on Zvi's comment. I think the more flexible labor market arrangements become for older workers, the more that they're allowed to choose their retirements and with this, gradually ratchet down their involvement in the labor market, the stronger the case for consumption smoothing around the time of retirement.

MS. RAPPAPORT: I want to move us into the next question. Jerry, we're going to ask you to start. We talked a little about this already. How does your experience fit into the framework of each approach, and what types of products would support risk management under the approaches? I think we might also tack on how each of the models would respond to such changes during retirement for that discussion.

MR. GOLDEN: I'm not an economist, I'm a practitioner.

MS. RAPPAPORT: We are trying very much to balance practitioner comments with theoretical comments.

MR. GOLDEN: Actually this call is coming between two

meetings. Tomorrow I'm speaking at an investment advisor conference, and this morning I was talking to three or four advisors/financial planners. To me the big fundamental issue of this is that a lot of retirees are going to have financial solutions delivered by various people calling themselves advisors. Based on my conversations this morning, it is a mess in terms of what advisors are thinking. I'm hoping in my presentation to add a little light to it.

MR. DESTEFANO: What conference are you talking about?

MR. GOLDEN: The *Investment News* has put together a retirement income conference.

MR. DESTEFANO: Oh yes, I saw the ad.

MR. GOLDEN: A large part of the market is going to be served through advisors. There will be a part of the market that's going to self-select some kind of solution, except unfortunately the solutions are going to be a little more sophisticated and probably require an advisor. When it comes to risk management (and I saw it this morning in terms of taking a fixed amount of assets), the speakers this morning said living benefit guarantees are the only thing

that makes any sense. I'm making the case that no, you need to figure out a smart way of integrating income annuities into the mix, and we have really no basis of even having an intelligent conversation around this because we use different standards of measuring the efficacy of these strategies.

MS. RAPPAPORT: Jerry, I want to come back to your statement; it's a mess. You mentioned one thing. Can you mention some other things that you see are going wrong in the real world or that aren't being done the way you think they ought to be?

MR. GOLDEN: Yes. Again my basic talk tomorrow is advisors have "fiduciary responsibility" to evaluate reasonable objectives in addressing retirement income solutions. But they're in a very difficult position because they don't have the tools that are going to enable them to evaluate these strategies whether they use Monte Carlo, deterministic, historical or some other methodology. Do they rely on the product provider to provide that tool? So, they're in a very difficult situation. What a lot of them do is say this idea will sell; it's a very sexy idea. They don't go beyond what I would consider the right evaluation process that should be taking place, and so the messes result. You have

all channels of distribution from people who call themselves planners, asset gatherers, product sellers, etc., presenting for an individual that we have the solution. But that individual has no standard way of evaluating these solutions that the advisors provide them with and probably they couldn't. It's likely way beyond their ability to create those kind of tools. Again, you have a mess in terms of who may be bringing you the solution; you have a mess in terms of how these solutions compare; you have a mess in terms of how to evaluate them; you have a mess as to whether these solutions are solutions that will work today but will adjust to circumstances as they evolve. That's the mess as I see it.

MR. SANDBERG: I'll share a few thoughts on that too. I agree. It's partly because there's no common language or standards to support clear explanations about risk. There are some interesting intersections of investments and insurance that are causing some of the mess. I see, for example, investment advisors saying, "I have a program for you and there's only a 5 percent chance that you will lose money." This is considered a conservative portfolio, and yet it's going to provide some attractive returns. Then I look on the insurance side and the message starts with a 100 percent guarantee. But now the possible returns are not as

attractive. A lifetime annuity may offer a 3 percent investment yield (ignoring the yield impact of mortality) yet have trouble competing with the "expected" stock market return of 4 to 6 to 7 percent." I think this discrepancy in investing and insurance markets and the public understanding of these different approaches is an important contributing factor to "the mess."

I think another way it reflects itself is in the compensation schemes for the two different kinds of major distributions. Some of it comes down to a philosophical question of whether or how much an advisor (or their recommended investment regime) adds value or "alpha" in the marketplace. If an investment advisor is advising on how to stay ahead of the market they are generally paid for the assets that they're managing in a changing risk environment. If you win they win and if you lose they lose. On the other hand, what the insurance or hedging approach, says I basically dial in the kind of guarantee I want. I tend to think that risk management for an individual today starts with a lifetime annuity with a 3 percent guarantee from which I could buy a 1 percent additional guarantee.

MS. RAPPAPORT: Can I get you to clarify what the 3 percent and the 1 percent are?

MR. SANDBERG: If we look at the marketplace today, let's assume that most of the lifetime annuities include at least 3 percent guarantee (maybe as high as 4 percent.) This is just a flat percent independent of a cost of living increase. If I were to take the most conservative end point, I could buy a cost of living increase benefit and that may translate into \$500 a month the rest of my life. If I want to ignore the cost of living benefit, I take on the investment risk, but I get higher consumption up front (say, \$600 a month that never increases). If I'm willing to take a lower initial rate the other option is I could take a \$400 or \$300 payment that is, instead of funded all by bonds, invest some in the equity market. I think this ties off of Zvi's paper. I like the changing risk horizon where you're shifting from bonds and equities, but from the insurance side, the equity indexed approach has been taking that same kind of reduced risk approach and saying let's move into more fixed guarantees and provide some participation in the equity market. I'm not going to hit a home run, but I get to collect singles and doubles along the way. That's a different place on the risk curve than the equity choice.

Now I'll add one more element to it, which I'll call the

traditional variable annuity approach which emphasizes higher equity yields. This approach is able to provide some additional kinds of guarantees, although typically they have a bit less value than the equity indexed product. As I look at it, we have this whole spectrum of risk choices to the consumer about risk return tradeoffs, and I agree we have not developed very effective tools in helping people understand that. I'll stop at that point for right now.

MR. BODIE: I'd add two things to what has already been said. First of all, I couldn't agree more with Jerry about the inability of many financial planners to really comprehend structured products. If they're having trouble, imagine their clients. A top priority, at least for me personally, is trying to work with professional financial planners to just get them up to speed in understanding derivatives and structured products. In fact, I'll be doing a half-day workshop on exactly that topic in Chicago in early May. Paula Hogan, who was at the October conference at Boston University, is going to work with me on trying to make that into some sort of educational monograph. Let's call it the introduction to derivatives and structured products for financial planners. That's point number one.

Point number two that I want to add is that the products,

and this is for the point of ... Dave, you're from Allianz?

MR. SANDBERG: Yes.

MR. BODIE: Allianz and AIG and a couple of other insurance companies have been trying to be innovative in this area and make the products smarter. If you have smart products, then the customer and the advisor don't have to be quite as smart, because the sophistication goes into the design of the product. The product itself becomes easy to use and easier to understand. I think as we look into the future, we're going to see more and more of these—let's call them customized solutions that integrate insurance and investment features. That, of course, is going to call for new types of regulation. A big barrier is the missed education that is coming out of the investment industry—in particular, the mutual funds and the brokerage firms for whom tail risk doesn't exist, because they truncate the lower tail of distribution.

MR. SANDBERG: I have spent probably the last 10 years trying to integrate financial economic principles into insurance valuation. As you actually guarantee the tail end of the risk, it just gets exponentially more expensive. I think that aspect of it is lost in the current discussion.

MR. BODIE: Yes. I could give you examples of where, in the so-called investor education materials that you find on the mutual fund Web sites (by the way these are totally approved of by the SEC), there are basically implied arbitrage opportunities. If you ignore the lower tail, then you see in these diagrams that they show that the worst possible outcome when you invest in equities is better than the best possible outcome when you invest in rolling over short-term securities.

MS. RAPPAPORT: We've heard about several products in this discussion so far. I want to come back to the question and ask if there are any additional products that we haven't mentioned that we should mention for completeness. Also, are there additional comments on this?

MR. GOLDEN: Our approach is less about a product; it's really about a process. How do you plan and how do you implement a plan? Our notion is actually quite different. We can use mutual funds, and we use a new form of income annuity. Really it's all about how to combine those in efficient ways. Our approach is to take traditional income annuities, make it easy for people to combine them, evaluate alternatives and to make changes in their strategies. Ours

is less about a product than it is more about a process of how you integrate essentially products from the investment industry and an income annuity from the insurance industry.

MR. SANDBERG: It sounds like the process is to address longevity risk by blending the risk taken in equities with the amount of hedging needed to address longevity.

MR. GOLDEN: Right. To the plan previously on consumption and other things, we actually find something that's quite interesting. Having a smart income strategy—if you live a long time—rather than destroyer of wealth, it's a creator of wealth for individuals. Because if you use income annuities properly and tie up less capital, to produce the same amount of income leaves more money to be invested in the market and more money to be invested more aggressively. Failing to do that means you end up having all your assets trying to support all your income, and inevitably you're going to get more and more conservative over time and actually end up with less wealth.

MR. BODIE: I don't think I disagree with you, Jerry, but I may be in disagreement with you. Here's the reason. We all seem to be agreed that the efficient way to deal with longevity risk is to annuitize. However, the mutual fund

industry has the idea out there that the way to deal with income risk, level of income is to invest heavily in equities, so they say things like you need to maintain a high fraction or relatively high fraction of your wealth invested in equities, even in retirement to provide for growth and inflation protection. Well, equities don't have that property. They don't have either of those properties really. Again it comes down to misselling. Mutual funds don't do those things. Equity investments don't do those things. Stretch your products. Derivatives do those things. Inflation protected bonds protect you against inflation.

Another example is the battle with the Department of Labor over qualified investment alternatives. The Department of Labor is apparently willing to approve a target date lifecycle fund that even at retirement has as much as 40 or 50 percent invested in equities.

MR. DESTEFANO: What I find interesting in that is they recommend you only take 4 percent of your money out each year, which is probably less than you'd get out of an annuity with comparable type characteristics.

MR. BODIE: It's nuts.

MR. SANDBERG: Anna, to go back to your other question, you asked about additional products. I think one of the other concepts maybe we have not talked about is blending medical and annuity issues.

We've talked about the positive of lifetime annuities and in some ways they become a replacement for long-term care if you have enough of a foundation that the annual income is also meant to include it. If you're funding for that, you can actually fund for long term-care needs out of the annuity if you have enough assets to include that on the front end. But we currently have a fairly bifurcated regulatory environment and other than explicitly planning for that possibility in your consumption or replacement ratios, we're a bit challenged. I think that's the other aspect that needs to be included, especially when we have an uncertain Medicare future ahead of us.

MR. BODIE: That has its counterpart in corporate risk management. Here I want to emphasize the fact that you have this complementary professional organization out there called the Professional Risk Managers' International Association (PRMIA). I've noticed that increasingly the SOA and PRMIA are doing things jointly, which I think is a

terrific idea. What we know from the corporate applications of risk management, so-called enterprise risk management, is that there are huge economies to be reaped by taking a comprehensive approach to managing the risk of the whole entity rather than buying separate insurance policies for each different type of risk and that same approach has yet to be applied to individuals in households.

MS. RAPPAPORT: I think a key thing if long-term care and annuities would absolutely combine into the same product, there's a bunch of stuff that we have to deal with in the form of regulations and other considerations to make that much more feasible.

MR. SANDBERG: Right, and in fact that was our experience. We changed our approach in the market four or five years ago just because the regulatory uncertainties became more than we wanted to deal with.

MR. GOLDEN: We have a design on the drawing board that started out as an increase of income in case of two out of six ADLs in cognitive impairment, and the financial underwriters said cognitive impairment is not well correlated with longevity, so we just changed it to a longevity benefit. We figured if you made it to 90, there

was a 40 or so percent chance that you were going to be cognitively impaired, so we're just going to pay you whether you live or qualify. I guess the point is if by back ending some of the incomes through these longevity benefits, you can provide extra cash. It's not true long-term care; it's just mainly more income maybe to keep you in your home or what have you.

MR. BROWN: I should point out that, for the long-term care market to really function effectively for one outside the upper 25 to 35 percent income distribution, research suggests we're going to have to make changes in the Medicaid system. I don't think we can look at private policies in isolation of the government programs that influence the payoffs to owning these policies. Basically what happens is that the existing Medicaid system imposes a huge implicit tax on the purchase of private long-term care insurance policies and that implicit tax is not going to go away just because these policies are linked with annuity products. There's a whole host of factors that are influencing the long term care markets besides the fact that they haven't been bundled with annuities.

MS. RAPPAPORT: I want to bring us to our next question. I'd like Mike to help us start this one. Why are there

large differences in the role of retirement resources needed to satisfy retirement based on the recommendations of a variety of experts? You see one article in the paper that says advisors are suggesting people save much too much money; and then you see something else that says no, they really need to save more money. Why are there these big differences?

MR. LEONESIO: Three things come to mind when I look at this question. One is a theme that's been running through some of these answers, and that's the large personal differences among retirees and how various analysts handle that heterogeneity. The second is the potential mismeasurement of resource availability to various people. Certainly it's easy to mismeasure wealth components, particularly something like housing equity, which is a large asset for many people. Particularly difficult to measure I think are potential resource transfers from family, community, churches and other institutions, which have a lot to do with the retirement conditions that people live in. That brings me to a third point. I think this discussion (and discussions typically by economists and I suppose actuaries) focuses on factors that are normally denominated in terms of money. But whenever I'm in a forum that has aging experts from other disciplines, I hear lots of conversation about the

quality of life in terms of health status, connectedness with surroundings and community, people's sense of autonomy and control over their lives, as well as self-assessed happiness. I think it's easy to see how a low-income elderly person can in fact be quite happy; however, a very high income person can find old age a real misery. I'd start with those three ideas.

MS. RAPPAPORT: Ron, do you have anything to add to this question?

MR. DESTEFANO: Yes, there are a couple of things that I've noted, not the least of which is that 4 percent withdrawal rate I was talking about, which is lower than you get from an annuity with roughly equivalent characteristics, although it's very difficult to get pure inflation protection out there in a product. What you need to get 4 percent out is 25 times whatever your income goals are just for that alone. The other things I've seen are that some of the calculators are just outright bad. They ignore Social Security benefits or just do the calculations very poorly—not some of the larger mutual fund firms, but some of the others I've looked at. I think overall there are a number of reasons, but one of them is that they want you to have a lot of money sitting there to take out money.

MR. BODIE: Right. Let me reinforce what Ron just said. You can go to the online calculator that AIG has at the Vanguard site, which is to my knowledge the only place you can buy an immediate annuity with inflation protection as a retail customer today—maybe there are others, but that's the only one I know of. I just was there yesterday to make the very point that Ron is making. As a 65-year-old single male, I can get 6 percent instead of 4 percent out of my retirement wealth as an income flow for life. That's a 50 percent difference in income level.

MR. DESTEFANO: Is that including increasing annuity?

MR. BODIE: Yeah, that's with full CPI.

MR. DESTEFANO: Right. Those are the calculations I've been doing. It's amazing.

MR. BROWN: I basically agree that many of the calculators that are out there on private industry sites are, to be blunt, garbage.

MR. BODIE: They're marketing people.

MR. BROWN: Yes, that's exactly the point. They're not

studies. They're not based on any data. They're based on arbitrarily chosen withdrawal rates. There have been a handful of studies that, methodologically, are just better than anything else out there. I would suggest that this problem is not as dire as people say. A lot of people are actually saving enough when you take into account the fact that there are Social Security benefits, the social programs and the ability to substitute household production for a formal consumption of markets. Having said that, even those studies, which are the more current and more optimistic ones, suggest that there's a significant fraction of the population that is still under-saving relative to an optimal pull. Of course you can make those numbers bounce around a little bit, but I do think that, on average, these calculators that are based on "let's assume a 4 percent withdrawal rate and some arbitrary date of death and let's ignore the ability to annuitize" and so forth are just misleading at best. I think people basically need to know that, and why that's the case. If you're out there trying to sell investment and savings products, you want people, even people who are saving, to feel like they need to be doing more of it. That's perhaps not optimal for everyone, and I think that's what we're observing.

MR. DESTEFANO: If I could make one more comment. I'd like

to say that even though these calculators tend to make you try to put away more money than you probably need, that's not necessarily a bad thing. I'd rather that than they tell you to put away too little and by saying that we don't really have to save. There were some articles a couple of weeks ago, I think that actually works against us, because it makes people who aren't saving enough feel more comfortable in what they're doing. I think scaring people every once in a while is not the worst thing.

MR. BROWN: The problem is they're scaring people and then they're selling them the wrong products. What they're trying to do is say you need to save more rather than being out there and saying look, maybe you're saving enough, but you haven't actually adequately figured out how to make that savings last over your lifetime. You haven't bought the right mix of products in order to actually ensure a fairly constant standard of living regardless of how long you live or what your medical expenditures are. I'm not going to sit here and say that people are doing optimal retirement planning. Because even if we think they're saving enough, my guess is that they're completely misallocated, that they haven't adequately considered the risk aspects, maybe they have too much in equities or too little in equities or maybe they haven't insured against longevity risk, but that's not

the message that's out there. The message that's out there is no one's saving enough. "You need to save more, so here stick it in our actively managed mutual fund with 200 basis points of fees."

MS. RAPPAPORT: I want to throw one thing into this mix that's going to get us into the next question. One of the things about how much we need to save is the question of when we might expect to retire, and about four out of 10 people end up retiring earlier than they had planned to and usually when they don't want to, either because they lose jobs or because of poor health. Now some of them can get another job and some can't, but counting on being able to work for a long time just does not work out well for everybody by any means. This gets me to the question I want to ask now: What are the phases of retirement and how do we incorporate them into approaches for meeting retirement needs?

MR. SANDBERG: Allianz has sponsored a study that Ken Dychtwald has been publicizing for the last year and a half or two, dealing with the concept of retirement and how individuals choose alternative retirement lifestyles. There are some who take the "I'm getting my lifetime of ease;" many say "I still have value and desire to work;" others

that struggled most of their life are still struggling in retirement, and it's a very kind of mixed landscape. I think it's important to realize that there is not a simple, one-step process that we're going through.

I think it goes back to one of the other comments I'd like to make about annuity products and their risk management potential. You want to be able to have products that have some kind of optionality and that allow you the flexibility to either add assets or take out liabilities or use them for different risk mitigation options over the lifetime of the holder.

MR. BODIE: Absolutely. I agree with that completely. I just want to point out again that the way I think to approach all of these different situations is we're really just pointing out that there are different contingencies in life, and the answer to that are various types of insurance or contingent contracts and it's not mutual funds. In mutual funds, the element of contingency is the performance of the market.

MR. BROWN: I completely agree, Zvi, and I also agree with the point you made earlier that the right way to do this is not to expect that every individual out there can go out and

look at a menu of a thousand products and put together the one that's right for them. What we need are the companies out there that are packaging these products, to basically go to consumers and say: "What do you want your income package to look like? By the way, here are the risks you ought to be thinking about. Now here's a product that does it all for you. Here's a product that will cover you if you get disabled and here's how we define disabled. When you get to retirement, by the way, it's going to start paying you an annuity and if you want some upside potentially here's how we're going to do that." That way an individual can think about what they need, not how to put the products together. Half the population can't describe the difference between a stock and a bond; they're never going to understand how put options and call options work, but they don't need to.

MR. DESTEFANO: Exactly. One point that I want to make is that we're talking about people doing the right thing, but I've put some stages of retirement down. For example, before age 40 is denial—I'll never get old; I'll never need retirement. I started with age 40 being awakening. That means yes, I'm getting older, but slow, retirement's a long time away. Age 50 seems to be the magic age. This is anecdotal, but I've talked to so many people. That's when you begin really planning for retirement. I've seen a half

dozen articles with the retirement stages, your honeymoon stage for the first year or so and disillusionment. You have to remember that especially if we are trying to encourage people to retire some day, we have to take into account the people who are currently younger than 40 and people that are 40 to 50 and 50 and above and that may require some things that are not financial in nature, but rather how do people think about retiring and saving.

MS. RAPPAPORT: I've heard some very flip things where people just say go-go, slow-go and no-go. Yet when I think about the people I know, those are pretty good descriptions of an early period where you can do all sorts of things, you're meeting your dreams and you're not limited; and then you get more limited and then you get really limited.

MR. BODIE: That's exactly right, but it varies tremendously. Anna, you remember Paul Samuelson at our conference who gave the opening address. Now in many ways he's frail. He's 93 now. He had to be seated while he gave his talk, but as Anna can bear witness and as Jeff and Jerry can tell you, there were no signs of aging in the content of his remarks or in his sense of humor. He's going to need assisted living, and he does need assisted living now. He doesn't drive any more.

MR. BROWN: But he still has an IQ of 300.

MR. BODIE: Right, and he certainly has the ability to earn a living if he needed to.

MR. SANDBERG: One of the interesting issues I've dealt with over the last 10 years is trying to integrate the powerful analytic capacity of financial economics in the markets to quantify tangible financial assets and liabilities and then link them or try to relate them to "fuzzier" intangible assets and liabilities. Whether it's done at the corporate level or at the individual level, they're both there, and I think that's one of the shortcomings of some of the approaches. If they only focus on a financial answer—that's not integrated to a person's choice about their values, how they want to spend their personal time and invest their time in retirement, as well as their money and finances—it's going to have an incomplete picture.

MR. BODIE: The good news is that this revolution that has occurred in behavioral economics makes it easier to integrate across the area of social sciences and the dimensions that you're mentioning.

MR. SANDBERG: Yes, I'd agree with that.

MS. RAPPAPORT: I want to mention one thing, and then I'm going to move us on to another question so we don't lose it entirely. I think that there's a danger of some people planning not to retire. Samuelson might be great at 93, but for most people planning on them doing much work beyond age 75 is probably unrealistic. I'm thinking in the middle 70s there's a point at which, for a lot of people, their options may well change.

My next question is: How does the role of borrowing fit within the framework of a lifetime consumption model and are we comfortable with that? Are there any dangers about it?

MR. BODIE: I have a strange view about that, and it has to do with this notion of designing products that incorporate various types of contingencies. When you have financial institutions designing the products, borrowing is not an issue, because the financial institution builds in the leverage. We know this from the insurance industry having policies where the payments may be lower in the beginning and, in effect, lending some money in a way to the people who are buying them, then later on getting it back. I think the way the borrowing occurs over the lifetime in the

smoothing models is through the way contracts are designed.

MR. BROWN: If you start off with a basic lifecycle model in economics, borrowing has a very useful and important role. If you're trying to smooth consumption over your lifetime and you're reasonably confident that you have an upward slope of an earnings path, there's absolutely no reason not to borrow early in life in order to consume a little more knowing you can pay that back. I think for people who do it responsibly, it's a very important and welfare-enhancing tool. The problem of course is that there's a segment of the population that is not sufficiently financially literate or they don't have enough self control and they get themselves into trouble. You constantly hear the stories about the people racking up credit card debt while in college or the case that they just dig too big of a hole for themselves. But to some extent I always have this view that you can't design public policy for everyone around just a small segment of the population that's going to do bad things. I think we're certainly better off with people having the ability to borrow than not. I'm not exactly sure what the motivation behind this question was, because I think borrowing plays an important role in people's lifetime financial planning, and it's not something that we should be afraid of as long as it's done intelligently.

MR. GOLDEN: Let me make one comment as it relates to retirement distribution and the use of reverse mortgages. Question: Should reverse mortgages be a source of long-term care premiums? Should reverse mortgages be a source of longevity premiums? There are active marketing programs where they basically say take the equity out of your home and purchase some protection product with that. We've seen obviously life insurance sold on a leverage basis. Does it make sense to do that? In retirement are those smart transactions? Again on all of these things, what's the tool that's going to enable somebody to evaluate whether that's a smart strategy or not. I don't know if that was on there because of the use of borrowing in retirement.

MS. RAPPAPORT: Actually the question was due in part because of this issue of the borrowing when people are young. It's perfectly sensible in some situations, but there's a concern about the misuse of it. Also some of the actuaries that worked on research projects with planners hear that a lot of people are reaching retirement age with a lot of debt.

MR. DESTEFANO: Borrowing is a way of taking future consumption and using it today or future income and using it

today, just like savings is a way of taking past income and putting it to the future. The idea is that you're supposed to have that income in the future, so if people get to retirement and they have all this debt, they have to have some place to get the income to pay it off. That would be a concern. I think the reverse mortgage on the other hand is a vehicle for getting money that you would have had in the future after you die and transferring it into the lifetime. I think that makes perfect sense, but as a positive for a new retiree having tons of debt is obviously a bad thing.

MS. RAPPAPORT: What I'd like to do now is to give everybody a chance to answer the last question and to say whatever final comments that they might like to say.

We're really blessed to have a balanced panel of actuaries and economists, so how might actuaries and economists work together to move forward? The dialogue is the question, but besides that, each speaker is welcome to mention two things that they wish they'd had a chance to say and get into the record.

MR. BODIE: It's my hope that we can work together increasingly, and what we're doing today is a prime example of what can be gained from that type of dialogue. I am now

working to be very concrete. I think first we need to be talking with each other and addressing real world policy questions of the sort that we've been talking about. I am now putting together a program with a small group from the Federal Reserve and the CFA Institute for the next conference at BU. It's going to be in October of 2008. Exactly the things that we've been talking about today are the things that we want to address in that conference. The emphasis is both on conceptual issues—what's the right framework for addressing these issues—but also what are best practices across the various disciplines. It's not just economists and actuaries; it's also the professional risk managers, the folks who do the derivatives and PRMIA in particular. They already have said that they're going to be cosponsoring the conference. CEO Dave Koenig has given me his commitment, and we'll probably also have cosponsorship by the National Association of Personal Financial Advisors (NAPFA). I think bringing together economists and practitioners who specialize in these various areas is the way to go, not to forget, of course, the folks in government and in the other regulatory agencies.

MR. LEONESIO: Perhaps because I work with Social Security and to some extent Medicare, I see collaborations between economists and actuaries all the time, but I guess I would

characterize the interactions in this simple way. It seems to me that economists essentially have a tool kit that allows them to explore how people make choices. A lot of times those choices are well described and characterized by actuaries, so the collaboration is natural.

MS. RAPPAPORT: Did you have anything else you want to add to our dialogue?

MR. LEONESIO: I sensed that perhaps the last question had been in terms of potential reckless use of borrowing by the elderly. I haven't seen a lot of studies of this, but certainly in the last two or three years we've had a lot of press coverage about use of credit card debt by the elderly, particularly in the context of paying for health costs. I don't know where we really stand on that issue now but, again, I haven't seen a lot of research work on it.

MR. DESTEFANO: I think the thing we probably do best is teaching—in other words, providing input to some of the groups that need it, in particular, employees from my standpoint, but also the service providers, and, to the extent that we can, to provide tools that they can check the calculations on these Web sites. Of course, the challenge is to come up with something better. We also, I think, can

help define the national debate. I heard a product somebody was talking about that provided disability income before retirement, maybe some death benefits, and then retirement income when you got there. It sounded like Social Security to me. It may be that we can have some input into that system, although that has its own set of problems.

The one thing I thought we might add to this whole debate, and this ties into my concept that before age 40 people just deny it, is some sort of psychological reasoning or underpinning for what we can do to make employees contribute and actually plan for retirement at earlier ages. You may have to trick them into saving for something else, for example, and making it retirement. The idea of how do we get not just these people that are approaching retirement, which is I think what we focused on, but the younger generations to prepare for retirement in a world that's going to be a lot different than the one I'm in right now is important.

MS. RAPPAPORT: So you want to get the younger generation engaged; that's great.

MR. GOLDEN: I think that a role that the actuaries together with the economists could have would be to help the regulatory bodies (the SEC, NASD or the state insurance

departments) as to how these various solutions should be evaluated. I think it's the intersection of those disciplines, and it's a quantitative analysis and evaluation as well as a qualitative one. I just don't see it taking place. I don't see product providers necessarily doing it. The regulators don't know enough because they're regulating one part of the solution, and maybe this is somewhat self-serving, but I think that's where the intersection of actuaries and economists could help in this critical area in terms of what I call sales to seniors.

MS. RAPPAPORT: Zvi, I think you just received a really good suggestion for your conference, and I think we ended up with a good suggestion for our committee too.

MR. BODIE: I agree. By the way, Jerry, what you've identified is in large part why the Boston Fed is interested in cosponsoring these conferences.

MR. GOLDEN: The challenge is this group has to take off there if they're in the commercial part of the industry, to look at it somewhat separately. Because that's where the smart people are; that's where we see the different issues and it's not going to come from any place else.

MR. BROWN: I guess I'd just begin with the big picture for a moment. If you go back 30 years, I think a lot of people felt that between Social Security, their defined benefit pension and their Medicare, they were pretty well set. I think we can all agree those days are gone. More and more of the responsibility for financial planning has been shifted to the individual. Social Security is going to have to decline in generosity in the future. Medicare expenditures are growing. We've evolved into this world now where people are a little bit more on their own in making this decision, and yet there's this growing body of research that suggests that average people are good at being lawyers and teachers or whatever, but they're not particularly good (unless they've been trained at it) at making financial decisions. I think where we need to evolve to is a world where, yes, there is this big private sector, individual piece of it. But as we discussed earlier, it needs to be a world in which the products that are available to people are ones where all the complicated financial calculations that are going on are being done in the background. They're being packaged in an easy to digest and understandable way, but it considers risk.

I think if I had to pick one shortcoming of the financial planning industry today it's the inadequate understanding,

inadequate treatment and inadequate planning for risk, and I mean all aspects of it—returns, longevity, medical expenditures and so forth. I think we're starting to see some movements in that direction, but as far as how economists and actuaries can work together, they both have great skill sets and I think the more they can work together and the more we can have these conversations, the better. It would help to start to develop some common language and common understanding so that we don't have these sorts of competing "value at risk" on the one hand and "probability of a shortfall" versus lifecycle models. We tend to, I think, as professions, come at these questions from somewhat different perspectives. I agree that calls like this and conferences and so forth are a good way forward, because I think we're certainly in a better position to help educate not just the public in general, but the financial planning community. They're the ones on the front line, but I don't think they really understand this stuff to the level that we would like them to. It's an important role we can all play.

MR. SANDBERG: I'll just echo those comments and add an additional one I had jotted down earlier: specifically, the tools for the understanding of risk for the users of risk products. Users would include distribution, consumers and regulators. Risk would include both financial and insurance

types of risk. We are working pretty vigorously within our company on some ways to frame the question and develop some prototypes for communicating the exposure to and benefits of insurance and financial risk in a specific product.

Another intriguing thing out of all this is the important need to combine both the personal and social insurance questions together in the larger regulatory questions. While we are facing possible declines in Social Security and Medicare benefits from the levels we currently have, many "retired" people will continue to work. We (as a society) may be in better shape than that forecast with the current assumption that extrapolates everyone stopping work and then taking out an income. In addition, if our individual preference on an individual basis means we overhedge our exposure to longevity risk via the traditional methods, then the other social policy reality is that over the next 20 years, current estimates point to possibly (Need to verify!!!\$20 to \$30 trillion) of assets that will actually be left over at the end of the day, that people somehow didn't need to consume before they died. Certainly, some of that is their own choice to leave it as an inheritance. It highlights the importance of blending the individual risk decision with the social frameworks built to address social risk management issues.

MS. RAPPAPORT: I want to tell everybody that I think this has been fabulous and thank you all so much.