COMMENTARY

A Report of TIFF EDUCATION FOUNDATION

WINTER 2006

HIGHLIGHTS

■ As promised in the Fall 2005 *Commentary*, this Winter 2006 *Commentary* comprises excerpted transcripts of presentations by some of the money management profession's leading lights at a seminar on endowment management conducted in late September 2005 by the TIFF Education Foundation.

■ The final three of the seminar's five presentations are excerpted here: one by Jim Garland, president of The Jeffrey Company and author of the recent essay entitled "The Fecundity of Endowments and Long-Duration Trusts;" the second by Charley Ellis, a prolific author and seminal thinker in the investment management arena and current chair of Yale University's investment committee; and the third by Mark Kritzman, a member of the cooperative's board since July 2005 who is president and CEO of Windham Capital Management, LLC and teacher of a popular course in financial engineering at MIT's Sloan School of Management.

■ In order to make the seminar proceedings available to as wide an audience as possible, TEF has posted the unabridged audio recordings and handouts from the presentations of all five seminar speakers at www.tiff.org/TEF.

■ The TIFF Education Foundation is pleased to announce that it will sponsor its second educational seminar during the summer of 2006 in response to the highly successful seminar in September of 2005.

ABOUT TIFF

Origins. In 1991, a network of foundations founded an investment cooperative whose organizational structure and eligibility criteria have evolved over time but whose core mission has not. Known colloquially as TIFF, the cooperative seeks to improve the investment returns of endowed charities by making available to them a series of multi-manager investment vehicles plus resources aimed at enhancing fiduciaries' knowledge of investing.

The cooperative comprises three regulated entities at present: a tax-exempt private operating foundation whose d/b/a (TIFF Education Foundation) is more descriptive of its focus on education and research than its formal legal name (The Investment Fund for Foundations); the TIFF Investment Program (TIP), a registered mutual fund family; and TIFF Advisory Services (TAS), a taxable non-stock corporation and registered investment advisor that administers all investment vehicles bearing the TIFF name. As noted at left, there is substantial but not complete overlap among these three entities' boards, all of whose members (except Richard Flannery and David Salem) serve as volunteers who receive no fees or salary but are eligible for expense reimbursement and matching charitable gift programs.

Inquiries. For more information, please call TIFF at 434-817-8200 or visit www.tiff.org.

Jim Garland

Jim Garland is president of The Jeffrey Company and author of several papers dealing with trusts, endowment spending and taxable investing. Excerpted below is a conversation between TEF's president David Salem and Mr. Garland regarding Mr. Garland's seminal essay entitled "The Fecundity of Endowments and Long-Duration Trusts." This essay plus Mr. Garland's bio are posted at www.tiff.org/TEF.

"Fruitfulness" or "Fertility"

David. Jim has written a seminal paper that's properly regarded as essential reading for all of us who work with endowed charities. It's about fecundity. You've argued in this paper, Jim, that endowment fiduciaries should evaluate their funds' performance differently from the way that pension fund fiduciaries evaluate the performance of pension funds. Tell us what you mean by "fecundity" and explain, if you would, the chief reasons why endowment fiduciaries should approach their work in a fundamentally different manner than pension fund fiduciaries do.

Jim. Endowment fund fiduciaries have a different mission than do pension fund fiduciaries. I'll add a third class of investors to help illustrate my point: investors who are going to liquidate their entire portfolios and buy condos tomorrow. Let's think about this in terms of time horizons. The condo-buyers have a very short horizon. Pension funds theoretically are going to liquidate everything they own in 10 to 20 years — they have a longer time horizon. Endowment funds think perpetually — they have a very long horizon. For the person who is going to liquidate his or her assets tomorrow and buy a condo, all that matters is market value. For the person in the middle, the pension fund fiduciary, all that matters is total return. For the perpetual investor, all that matters is **fecundity**. Fecundity is primarily an agricultural term meaning "fruitfulness" or "fertility," but I use it to apply to the cash that an endowment can throw off today and in perpetuity — the constant real rate of cash, adjusted for inflation, that an endowment can throw off.

Suppose that, David, you're the new head of an institution that has an endowment, and I'm the head of the investment committee. You come to me and say, "Jim, I hear we have a great endowment — how big is it?" I can give you a totally useless answer by saying, "Well, it would buy you 700 million bananas." I can give you a practically useless answer by saying, "Well, it's

worth $60 million, market value." But the best answer I can give you is to say, "Well, it's worth about $2 million per year now and in perpetuity." That's fecundity. It's actually an old idea: if you go back and read *Pride and Prejudice*, you'll find that back in 18th and 19th century England most wealth was held in land — and it was **held**, not traded. The measure of Mr. Darcy's wealth in *Pride and Prejudice* is the fecundity of his property. Mr. Darcy happened to be worth £10,000 a year. That's fecundity.

Fecundity vs. Market Value

David. Let's talk about spending rates and spending rules that make sense in light of this concept. In discussing these sensitive topics, you might also comment on the historical fecundity of a well-managed endowment.

Jim. Fecundities are much harder to measure than market values. The IRS requires that fiduciaries of private foundations base their spending on market values [i.e., spend 5% of their endowment per annum]. Everybody else seems to follow this lead. The problem with market values is that they're related to true fecundity the way that a bungee jumper is related to a bridge: sometimes the jumper is close to the bridge, sometimes he isn't. If you base spending on market values, you won't achieve the one thing that all endowments claim they want: **stability of spending**.

The bad thing about fecundity is that no one knows precisely the fecundity of, say, an S&P 500 portfolio today. I have a guess and other people have guesses, but no one knows for sure. The nice thing about fecundity as a measure of worth — besides the fact that it really applies to what matters — is that it's easy to draw a bound around it. Let's talk just stocks for example. The fecundity of a stock portfolio is certainly less than the earnings reported by the companies and certainly more than the dividends provided by the companies. Just having that range is useful. It's useful right now because the earnings yield of the S&P 500 is 5.2%. If you throw bonds into your portfolio, even if all earnings were spendable [i.e., earnings were equal to fecundity], the fecundity of a traditional balanced endowment could not be 5% today. With just stocks and bonds you cannot spend 5% today without hurting your endowment.

I've never taken an economics course in my life, but my impression is that Economics 101 explains that if you own a corporation, the fecundity of the corporation equals its earnings. You can keep taking your earnings

Exhibit A
Spending EARNINGS = Spending Too Much

Spending All Earnings
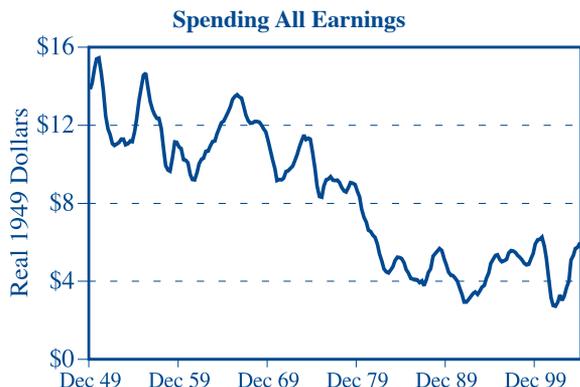
Source: James P. Garland, The Jeffrey Company.
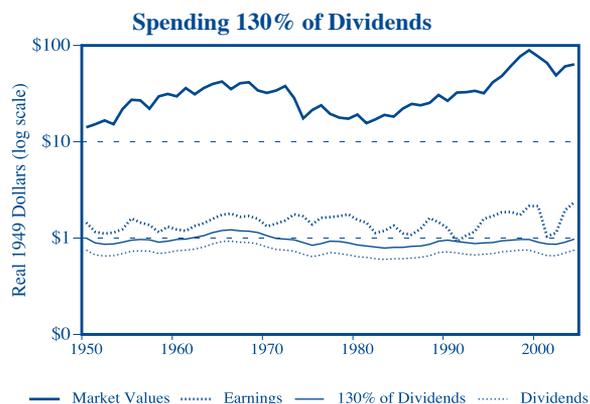
Exhibit B
Spending DIVIDENDS = Spending Too Little

Spending Only Dividends
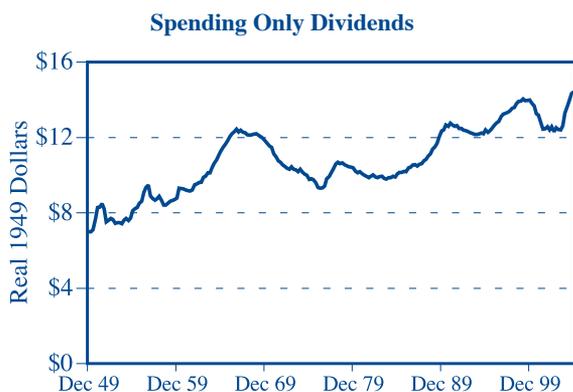
Source: James P. Garland, The Jeffrey Company.

Exhibit C
Stable Spending Requires a Stable Anchor

… and Dividends Are More Stable Than Market Values or Earnings

Spending 130% of Dividends

Market Values ······· Earnings ——— 130% of Dividends ········ Dividends

Source: James P. Garland, The Jeffrey Company.

out every year without hurting the corporation because it'll still have enough money to keep going. But in fact that doesn't seem to work. If, in theory, you try buying just the S&P 500 and pulling out all earnings, and if you watch what happens in real terms to the flow of earnings you're pulling out year after year after year, you'll find that this flow shrinks [see Exhibit A].

Peter Bernstein and Rob Arnott wrote a paper in 2002 entitled "What Risk Premium Is Normal?" They have data suggesting that withdrawing all earnings from an American equity portfolio causes that portfolio to shrink. Fecundity ain't earnings. Now if you want to be **really** conservative you can say that fecundity equals only the dividends you're going to receive (if GE pays me a dollar dividend that's all I can count on getting from GE). But that's being too pessimistic [see Exhibit B]. The numbers suggest that over the last 50 years the amount you could have spent without harming your portfolio was about 130% of dividends every year [see Exhibit C]. The dividend yield today of an S&P 500 portfolio is 1.85%; 130% of a 1.85% dividend yield gives you a 2.4% spending rate. The simple answer to how much you can spend if you're thinking perpetually and you own the S&P 500 and ignore expenses is a very, **very** low 2.4%. I think, by the way, that number is lower than it needs to be. I wouldn't argue with anyone who wanted to spend in the 2.5% to 3% range. You would probably get away with spending more because the dividend payout of the S&P 500 is low right now. By inference, the retained earnings that corporations have are very large, but because of the fact that corporations over-report earnings, the true earnings they have aren't as great as they claim. In spite of the fact that corporations have a 203-year record (according to the Bernstein/Arnott paper) of wasting some fraction of their earnings, they have more to work with than normal and so spending 150% to 160% of dividends may be possible. That's how you get to the 2.5% to 3% range.

No one owns only the S&P 500 though. Let's look at bonds. The fecundity of a bond portfolio is easy — assuming again that you just want a stable income stream: you either buy TIPS and get 2% per annum or you buy ordinary bonds and subtract the recent inflation rate from their yield — you actually get a TIP-like number by doing this. This puts you somewhere around 2% for bonds, 2% for TIPS, 2.5% to 3% for the S&P 500 — they're all low numbers.

David. The implication of what you're saying would seem to be as follows: if you're a college president, you might appear before the faculty and say, "I have

news for you folks, and it's not particularly good news. We've been spending 5% every year, but we've just read a seminal paper by this guy in Ohio named Jim Garland, and we realize we've been making a huge mistake. We need to adopt a different spending formula, and it's going to mean some budget stringency because we have to spend a lot less if we want to achieve intergenerational fairness."

Jim. If you're Harvard and you cut your spending to 2% per annum, you're probably going to be very well off 30 years from now. But in the meantime, Princeton, Stanford and Yale are going to poach all your professors. Harvard can spend more than the numbers I've suggested for the following reasons. Harvard is budgeting for the fact that they're going to continue to achieve 100 basis points to 150 basis points above market returns. Harvard also has an open endowment, which private foundations don't have. It's getting something like $500 million a year through the back door.

David. But if I'm a president of a smaller college or the director of any endowed charity, museum or hospital, and I have a private, off-the-record conversation with Jim Garland and say, "I really want to do the right thing and I don't want to hamstring and undermine the professional success prospectively of my successors, so I want to adopt a spending rate and a spending formula that really makes sense over the very long term for my perpetual life charity," it seems to me that what you're suggesting is that if the metric is fecundity rather than market value, even though we're *circa* 2005 and most endowments are worth more in real terms than they were in 1985 or in 1965, I'm actually worse off?

Jim. Yes. The company I work for is a family endowment fund. It's taxable. Let's say that its endowment was worth $10 million in 1974 and that it's worth $100 million today. The common way of looking at things is to say, "the cost of living has only tripled between 1974 and today so we're much wealthier and better off than we were back then." However, we're **not** better off because if you go back and look at the cash-throwing-off power, or the **fecundity**, of our assets in 1974 and the fecundity of our assets today, they're virtually the same. In terms of our goal, which is to act like an endowment, we're worth almost exactly the same amount we were in 1974.

David. This gets back to *Pride and Prejudice*.

Jim. Yes. Mr. Darcy, as far as I know, never knew the market value of his assets.

David. He didn't really care.

Jim. As long as £10,000 came in per year.

Hang onto the Dog

David. Let's talk about the growing tendency of endowed charities to use illiquid assets — assets that either don't generate current income or the current income from which is by definition not available to the charity (think hedge funds with three-year lockups that reinvest all current income). How does that factor into your thinking?

Jim. It's useful to use illiquid asset classes, but it's riskier. I think it may be productive to think of this, again, in terms of what those assets will do for you in terms of fecundity. Charley Ellis is going to speak later, and I think you all have heard his expressions "loser's game" and "winner's game." You shouldn't mix up these two games: to play the loser's game [i.e., try to make fewer mistakes than everybody else], you just buy an S&P 500 index fund. We don't buy index funds, but we look like an index fund. Our portfolio turnover is about 5% or 6% per year. What ends up happening if you buy the S&P 500 is that — in a sense — you become a flea on a dog. The dog is the world economy. You're hanging on to an economy with all eight feet, and you're hoping that the economy is going to survive. As long as the economy survives, you'll be happy. In terms of what we're hoping to do as investors in the S&P 500 and foreign equities, we're hoping to hang on to those companies, have them do the hard work for us, have them earn profits and have them pay out dividends. To the extent that they do so, we can be successful by just hanging on.

Exhibit C shows the fecundity of "just hanging on" to the S&P 500 and spending 130% of dividends for 50 years. If you want to invest in private equity, private equity is really just buying corporations in illiquid form. If you want to invest in hedge funds, then you're really jumping off the dog and trying to do something else. You'd have to assume that the return you're going to get is higher than what you'd achieve by just riding the dog. That's a hard call to make. Investing in stocks is relatively risk free — and notice we haven't talked about market values at all. Market values don't matter. The fecundity of The Jeffrey Company's assets at the bottom of 1974 was essentially the same as it was at the peak of 2000 and the same as it is today. It's been awfully stable for the last 30 years.

If you buy a 20-year TIP with a 2% coupon [which is the fecundity of that TIP], you're essentially risk free. The fecundity of bonds should be somewhat stable because the market demands a real return from bonds. TIPS are safe, sure and secure. Ordinary bonds are pretty safe. Ordinary stocks are pretty safe. Foreign stocks are pretty safe. Private equity should be pretty safe. Timberland may be pretty safe. But things that don't have stable or growing cash flows are riskier to us as perpetual life investors than they would be to a pension fund investor.

David. Let's go back to a question – *reductio ad absurdum* – that some people were asking in the late 1990s which is, "why not 100% stocks?" If the ultimate metric that you're advocating for fiduciaries of endowed charities is indeed fecundity, and if they're capable of tolerating the volatility inherent in 100% stock portfolios, then an all-stock approach would seem — because of the nature of capitalism — the best way to go.

Jim. It's a behavioral problem. Individuals can tolerate 100% stocks, but committees never can. Committees report to bigger bodies, and the bigger the group the less tolerance there is for a 100% stock strategy. For The Jeffrey Company, which tries to act like a family endowment fund, the theoretical idea **would** be to go 100% stocks. We haven't done that for behavioral reasons. We asked ourselves how large a stock weighting our board and our family would tolerate and decided we needed to have a double-digit weighting in bonds — at least 10%. We've told the family and the board that we'll "ride the dog": we'll own stocks that look like the S&P 500 and some foreign indices, we'll collect dividends and we'll pay out slightly more than those dividends. And the worst thing that could hurt us would be a repeat of the Great Depression.

In 1980, just to make the family comfortable, my predecessor sat down and ran through what would happen if we had a repeat of the Great Depression. During the Great Depression, the S&P 500 dividend yield (let's call it a dollar in 1929) dropped from $1 down to about 45 cents. It didn't drop as much as stock prices did, and it didn't come back in real terms until 1950. That's a 20-year trough in the S&P 500 dividends. It turns out if you knew that this was coming, you could have set aside 8.5% of the money you had in 1929, cannibalized the 8.5% to continue the payout at its 1929 level, and come back in 1950 with 91.5% of your assets in stocks. And if the family never read the newspapers, they wouldn't have known that the Great Depression had happened.

The 8.5% was not quite up to our double-digit psychological point, so we doubled it to 17%. We have it invested in municipal bonds because we're taxable. This muni bond portfolio is our so-called self-insurance fund, and we measure our insurance need in terms of the payout to the family, not the market value — we measure nothing in market value terms. We set the amount of money needed to fill the trough as a multiple of our payout, and the current multiple is about 8. If we're paying out to the family $2 million a year right now, then we keep $16 million in the muni bond portfolio.

David. You seem to be implying that there's no reason at least in theory why an endowed charity could not follow the same approach. It's just a different set of beneficiaries, with no slippage from taxes, of course.

Jim. Correct. But it takes **a lot** of courage to stick with it. Of course there's still a benefit to diversification. If you diversify into other asset classes, your likelihood of surviving increases. Peter Bernstein says this constantly: "The basic objective is just to survive." The chances of surviving are better if we diversify. The chances of meeting our objectives are maximized if we can tolerate 100% equities.

Inflation and TIPS

David. You just talked about the 1930s and how it took until the '50s for the real value of stock dividends to reach their pre-crash levels. You also advocated the use of bonds to hedge against such a disaster. Unfortunately, an extended deflation is just one of the two major disasters that can befall an endowment portfolio. We also have to be concerned about the opposite scenario, which is very high rates of unanticipated inflation that go beyond what the current bond market is discounting. How would you hedge against that?

Jim. We haven't. We assume that there is very high inflation in the absence of price controls — and that corporate profits and dividends [and therefore fecundity] will keep pace. And they have. The only times in fact that S&P 500 dividends haven't done a good job at keeping pace with inflation were in 1999/2000 when corporations starved their dividends — they all wanted to use the money for stock buy-backs — and in 1971/1972 during Nixon-era price controls. We're assuming no governmental control.

David. To what extent have you given attention to TIPS as a way of hedging against unanticipated inflation? Of course, you're managing primarily taxable wealth and they're tax inefficient, but you might just speak to this for our benefit.

Jim. I'm on some investment committees for tax-exempt endowments, and I was trying to push TIPS back when they first came out. No one would buy them when the real yield was north of 4%, and now they're buying them at about 2%. Going back to the old puritan idea that there should be no "free lunch," if you buy a TIP you're really buying insurance, which is valuable, but it comes at a cost of reduced fecundity relative to conventional treasuries or common stocks. But TIPS are a sensible asset to own because you should pay for insurance on your portfolio – just as you pay for insurance on your house.

Home or Away?

David. If you had unilateral control over an endowment with a 50-year investment horizon and no intra-horizon measurement of results, and I gave you a binary choice between investing all of it on a passive or indexed basis in the broad US stock market — in the Wilshire 5000 — or alternatively, in the broad **non-US** stock market — in the Morgan Stanley All Country World ex-US index — which choice would you make?

Jim. I suspect that returns from non-US stocks over the next 50 years will be greater than returns from US stocks. The rest of the world is growing faster.

David. Final question. You're the sole trustee of a major endowment and on behalf of the board, you have to decide what portion can prudently be invested in assets not readily reducible to cash within five years; or, putting the question differently, what would be the maximum illiquidity ratio that you would tolerate as a fiduciary? Assume a 5% spending rate. The investment time horizon is very long term, but of course you have to pay the bills.

Jim. If I could find naturally fecund assets, then I wouldn't mind having 100% of my money in them. If they're acting the way I want them to — if they're naturally throwing off cash — and if it's a reasonable assumption that the cash flow might at least keep pace with inflation, why not go 100% illiquid?

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CHARLEY ELLIS

A prolific author and seminal thinker in the investment management arena, Charley Ellis currently chairs Yale University's investment committee and has contributed to the extraordinary success that Yale has achieved in endowment investing in recent decades. Here, he discusses with David Salem governance challenges confronting endowment and foundation trustees.

The Great Game of Tennis

David. Among your many stellar intellectual contributions to our field, Charley, was the celebrated book you wrote almost three decades ago entitled *Winning the Loser's Game.* I'd like you to recap briefly what you meant by "the loser's game."

Charley. The easiest illustration is tennis. My father-in-law's basic proposition to his children as they were growing up and learning the great game of tennis was "if you can hit it back three times, you'll win every set you ever play." Professional tennis players are playing a game that's very different from the game my friends and I play: we double fault, we sometimes hit the ball in the net and we sometimes hit it out of bounds. In the game that we play, reducing the number of times you make a mistake is a **very** good idea. That's a loser's game because the outcome is determined by the action of the loser. In a winner's game, the ultimate outcome is determined by the winner. In a loser's game, the ultimate outcome is determined by the loser. In investing — especially active investing — if you could reduce the number of mistakes you make, you'd be much better off.

Stay Out of the Corner

David. Considering you've been an active contributor to Yale's conspicuous success in investing and recognizing that Yale's portfolio is large relative to those of most endowed charities **and** that Yale has certain other relative advantages as an investor nonetheless, what lessons about **governance** broadly defined can the trustees of other endowed charities glean from Yale's governance norms as they relate to investing?

Charley. I've had the rare privilege of sitting in the front row and watching one of the most beautiful players of one of the most difficult games that there may ever have been. It's a little bit like being the co-pilot sitting right behind Charles Lindbergh as he flies

across the Atlantic. David Swensen is brilliant, he's extraordinarily disciplined and he's **very** hard working.[1] He's very open to any kind of idea that could be relevant to the long-term success of the endowment for which he takes such substantial responsibility. I've learned a fair amount from witnessing up close what David does, and the first thing I've learned is very clear: he's a lot like my mother. My mother was one of the best cooks I ever knew, and she was very clear that in her kitchen the corner in between the stove and the sink was **her** corner. If you **ever** got in the way, you were volunteering to do the dishes. One of the most useful things that a committee can do is to **stay out of the corner** so that the person who's actually doing the work is free to do his job. My mother thought it was perfectly appropriate for us to give her guidance on the kinds of food that we liked. She thought it was perfectly appropriate for us to clean our plates and clear away our dishes. And she didn't think it was a bad thing to say, "Thank you very much for a lovely dinner, Mom." Committees can do a great deal of good by making a commitment to staying out of the kitchen, being emotionally supportive when the going gets tough (and it always does get tough one way or another), and being a bit cautionary and willing to dampen down when things seem to be going quite wonderfully ("yeah Mom, but it wasn't quite perfection…").

The second thing I've learned directly from David is the following: each year we rigorously, vigorously and enthusiastically kick the tires on every single assumption that has been used in formulating our portfolio structure, our long-term investment objectives and our spending policy. This kind of aggressive and confrontational approach to every single assumption has made it possible to do two things. First, it allows us, on occasion, to uncover things that are really worth thinking about — and under virtually all circumstances to know where things are and why they're there, which allows us to sleep quite comfortably at night doing what might otherwise seem rather spooky. Second, it allows us to come away from that meeting secure in the knowledge that we've had our say and comfortable with the fact that we won't be raising any of those spurious, curious and interesting questions that might be disruptive in future meetings for at least a year. We try to get everything out on the table and talk about it all seriously enough so that we can say, "we'll leave this alone for a year."

The third thing I've learned is that David has been conscientious in selecting members of our committee who are good at functioning in small groups, interested in being part of a collective effort and have something to contribute. Roughly half of them are trustees and roughly half of them aren't — and the half who aren't may or may not be Yale alums or parents. They're chosen because of their ability to make a contribution. Now, the documentation in preparation for our committee meetings is daunting. It averages two inches thick — single spaced and double sided! These meetings are not light-hearted, waltz-through entertainments. I think one of the best ways of crystallizing the way a meeting should work is by hearing how John Weinberg of Goldman Sachs ran meetings. John has been in the Marine Corps in two different wars, and he's a short-sleeved shirt, short socks, very straightforward kind of a guy. He's easily defined as tough in an engaging kind of way and is one of my real heroes. He clarified the way his meetings would go by saying the following: "There will be no presentation at the meeting. That will have been given to us a week in advance. The meeting will begin with questions, and I will ask the first question." And what he did by doing this was to be sure that all members of a committee would **for sure** have done their homework and that the presentation would **for sure** have been developed in advance and that the time would **for sure** be used very relevantly discussing serious questions. This created a tremendous upgrade in the quality of dialogue at Goldman's management committee meetings. It's something that we can learn from and borrow to our benefit.

The last thing I'll suggest is that there's no committee that should not have substantial control over its own meeting agendas. I'm working with a group of large investment organizations on the management of their assets, and when they meet with investment managers, I'm astonished at the extent to which they give control of meetings away to managers. A manager comes in with a presentation and asks, "Do we have 40 minutes or 45 or 50?" Having verified this, the manager holds forth for at least the time allotted, so that trustees and staff never get to lay a hand on them! They give you a presentation that can only be described as a sales pitch — "I've never done anything truly wrong if you only know how to look at it" — and there's baffle gabbing and miscommunication that may not be malicious but sure as hell doesn't do any good. Committees could eliminate this sort of nonsense by saying simply, "We don't play that game."

[1] David Swensen has been Yale University's chief investment officer since 1985.

Marry Your Managers!

David. Let's talk a bit about some of the asset classes in which Yale has had conspicuous success. Private realty comes to mind. If you look at the way Yale or other endowed charities go about investing in private realty, it strikes me that one could argue plausibly that there is **way** too much turnover. Almost no one is investing in private realty on a true buy-and-hold basis. I'd like you to comment on this and, of course, reflect backward if you would. Yale for a very long time owned a building right around the corner from here on Fifth Avenue, and to me it was the shining example — an exception that proved the rule actually — that an institution could actually buy and hold a building forever. And then they let it go!

Charley. We didn't let it go voluntarily. The market took it away from us. And I agree with everything else you said. There's too much dating in the management of endowment funds. I confess: I was once married, once not married, and now I'm married forever. It's absolutely thrilling to be married to a truly wonderful woman. I enjoy it in every single way day after day. There's an alternative, and I've experienced that too. But it pales in comparison rather quickly, and I think being married is profoundly more enjoyable, more fulfilling and more meaningful in so many different ways. The way you think about day-to-day experiences and year-to-year experiences is profoundly different, and the way you make commitments to your relationship is very different if you're married than if you're dating. All of us would be better off if we thought about the selection of managers and illiquid assets as **marriages**, not dates.

The best illustration I can give you is the Whitehead Institute for Biomedical Research, which I've had the privilege of working with. Whitehead's endowment isn't large: roughly $350 million split 80/20 between public and private assets. Capital manages the 80% and another firm well known to many in this room manages the residual 20%. It's not easy to develop the serious working relationships that we have with these two managers, but it's more likely to be deeply fulfilling. And it certainly helps in the selection of managers if you think about which you would seriously consider marrying. It causes you to think about things other than a "gee whiz" chart of recent performance, the terrific guy who came in to make the presentation, the brilliant analyst who got so much into Google and so on. All of these things pass, all too soon. The only thing that truly lasts is the **culture** of a money management organization. If you understand this culture and focus on it, you'll find yourself able to say, "There are very few managers that I could even imagine committing to for the next 20 years." Those managers that you could commit to are the ones you **should** commit to because they have a commitment to professionalism way beyond their narrow economic interests. They've attracted people who really love the process of investing and are devoted to it. They do it full time, and their organization is large enough to accommodate five or six different kinds of investment disciplines — fixed income investing, international investing, emerging market investing, US investing, etc. If you can develop a great relationship with a great organization like this — which takes time and patience, a serious commitment, and extensive communication — you'll have developed something that'll have a tremendously long life and will be mutually enjoyable.

The other option is to have an investment consultant come in and choose 10 to 15 different investment managers, fire the dummies, hire the geniuses and keep right on top of the whole thing. In the long run, this is about as much fun as playing tennis against a backboard and has about as great a chance of being successful. So why do it? There's an alternative, and I strongly recommend it.

David. Let's see if we can extend this principle of stability to the next logical level, if not a logical extreme. Let's leave aside Whitehead, a relatively small endowment, and come back to Yale with $14 billion under management. Why not have stability that cuts out the middle man — that cuts out what Charlie Munger calls the "croupier's take?" Why doesn't Yale take large, but not necessarily controlling, positions in major companies and buy and hold them, developing stability not with a money manager such as Capital but directly with the managers of publicly traded corporations in which it can invest on a more or less permanent basis?

Charley. Well, in fact that's exactly what is done in the small part of the portfolio in which we invest in fixed income. David Swensen, who spent time at Salomon and Lehman before coming back to Yale to run the endowment in 1985, was the first person to do an interest rate swap and is pretty damn good at bond investing. He's really interested in it. We have one full-time member of the staff who does nothing but fixed income investing, and David and he spend a lot of time together. That's all done directly.

Now let's shift to real estate. If you use commingled funds, you're likely to get average real estate returns (minus fees and expenses). That takes some of the fun out of real estate. Doing real estate very differently on your own is unlikely to be a good idea. Doing real estate very differently with a **manager** whose own income depends upon success, whose sense of pride and self-fulfillment depend deeply on success, who has a very specific idea that intellectually appears to have real chances of being successful and who has an unwavering commitment to making it work, seems to have a pretty good chance of working well.

Sizeable and Swift

Charley. Yale has established a reputation for being sizable and swift, so people who are trying to put together a fund know that one of their first calls ought to be made to Yale. There's a large pool of capital, there's a group of very bright and hard-working people and they'll give you a quick "yes or no" decision. They won't lead you on. They won't say, "well, it's up to the committee… " Yale is very quick to give you clarity and so it makes good sense to think about going to them first.

The staff sorts through a lot of terrific ideas and pulls out a very small number of them that seem to have particular distinction — managers with whom you'd be very happy committing to and then going off on a 10-year cruise to points unknown where you're incommunicado and unable to do anything about the decision you just made (i.e., marriages). That's pretty much the way it's done. The turnover of managers in the Yale portfolio is very low. Thank goodness. It's a beautiful reflection of the rigor and care that goes into making decisions. The one problem is that there are a fair number of managers who have some sort of a chip on their shoulder about the way Yale makes their decisions. Yale says "no" fairly often, and some people find it unbelievable that anybody could say "no" to them quite so quickly. They have difficulty accepting this. Others are appreciative and say, "Thank goodness they said no; they told us exactly why, we were able to modify our proposition, and it's worked out very nicely."

To Spend or Not to Spend

David. Can we talk about Yale's spending rule? It's more complex than a very straightforward 5% of a 12-month moving average, which is what many endowments use.[2] You've been an observer of Yale's approach for a long time: is it the "least worst" approach for a complex institution like a major research university? If you had a free hand, would you move to some variant of Yale's current rule — or perhaps a completely different paradigm?

Charley. The Yale rule is actually the Jim Tobin rule. Jim was probably the nicest man who ever practiced economics — a natural teacher and a deep thinker. You can make Yale's rule seem awfully complicated if you dive into its details. But it's the formulation of the rule and the process of deciding on a spending rate that's important for trustees and investment committees. Yale's rule, I think, is perfection. Jim always said, David Swensen has always said and I believe that spending rates can and should vary. The concepts governing Yale's spending policy are more or less etched in stone but it has parts that can be moved. We continue to adjust those parts — such as the level of spending and the smoothing proportion — but only after lots of thinking about what-if scenarios. Indeed, we've adjusted some of these parts several different times over the last decade.

David. Is 5% too much for the typical endowed charity that wants to maintain purchasing power over a multi-decade time horizon? Assume it'll never have additional money coming in.

Charley. That's a huge and very important question. You're never going to get a perfect answer. I think the right question is the one that you're asking, and the right answer will only come from each individual organization making its own trade-off: on the whole, would you rather be depleting your institution's endowment purchasing power or increasing it? Why is 5% anywhere near the right level of spending for a small private foundation? Why shouldn't it be 10%? Why shouldn't you spend yourselves right out of existence? If you're the Whitehead Institute for Biomedical Research, the quality of the science that's being done is a hell of a lot better than the return on invested assets. Maybe its better to have more money available to those brilliant people who are giving their lives and talent to science than to say, "We saved a little bit of money here and there."

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[2] Since 2005, Yale's spending rule in any given year has used 80% of the prior year's spending plus 20% of its target spending rate — currently 5.25%. This eliminates large fluctuations in spending (by incorporating the previous year's spending) and ensures that spending will be sensitive to fluctuating endowment market value (by adjusting spending toward the long-term target rate).

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Mark Kritzman

A member of the cooperative's board since July 2005, Mark Kritzman is president and CEO of Windham Capital Management, LLC and teaches a popular course in financial engineering at MIT's Sloan School of Management. What follows is excerpted from Mr. Kritzman's presentation at the 2005 TEF Investment Seminar. Mr. Kritzman's bio and the exhibits that accompanied his presentation are posted at www.tiff. org/TEF.

Modus Operandi. This isn't going to be a big picture speech but rather a presentation on a technical topic. Here's the issue. Hedge funds have become a popular and widely discussed form of investing. It turns out that hedge funds are different from traditional asset classes. They seem to produce returns that are not normally distributed. There's another issue that makes what I'm about to say relevant: investor preferences seem to be more complex than economists typically assume. I don't know to what extent any of you subscribe to the ideas of behavioral finance, but if you do subscribe to those ideas you know that the typical assumptions about attitudes toward risk aren't valid for everybody.

The standard approach to forming portfolios is to use mean-variance optimization, which assumes that either (i) returns are normally distributed or (ii) quadratic utility is a good approximation of investor preferences. I'm going to present an alternative approach. It's called full-scale optimization, and it's not limited by any assumptions regarding the distribution of returns or investor preferences. We're going to use these two approaches — mean-variance optimization and full-scale optimization — to create portfolios of hedge funds. Then we're going to compare the results and learn when the approach we choose matters and when it doesn't matter.

Hedge Funds Are Not Normal. Shown below are statistics on four common strategy groupings of hedge funds calculated using data from the CISDM hedge fund database.

Statistical Properties of Hedge Funds

	Average Skewness	Average Kurtosis	Percent Failing JB
Equity hedge	0.19	6.10	80%
Convertible arbitrage	-0.61	5.42	90%
Event driven	-0.37	7.38	84%
Merger arbitrage	0.16	6.51	100%

Note: A normal distribution has skewness of 0.00 and kurtosis of 3.00. *Source:* "JB" or Jacques-Bera statistic tests for normality.

These returns are not normally distributed — and these are indexes of hedge funds; individual funds are even less normal. Certain strategies produce positive skewness; others produce negative skewness; all produce "fat tails," characterized by excess kurtosis. (A skewed distribution is not symmetric: e.g., a return 10% above the mean is more likely than a return 10% below the mean. "Fat tails" contain more extreme outcomes than you'd expect from a normal distribution: e.g., a "once in a 1,000-year event" occurs twice in five years.)

Happiness by Another Name. The second assumption of mean-variance optimization is that investors have quadratic utility. "Utility" is a term describing how much happiness or satisfaction you get from a certain level of wealth. A "utility function" is simply a way of relating different levels of wealth to different levels of happiness or satisfaction. Quadratic utility is implausible for two reasons: (1) it assumes investors are as averse to upside deviations as downside deviations and (2) it assumes that at certain levels of wealth investors prefer less wealth to more wealth. I haven't met anybody with that preference — I would like to (!), but so far I haven't. I'd argue that nobody has quadratic utility.

[Editor's note: The next section discusses utility functions in detail. We recommend readers unfamiliar with this concept refer to the staff prepared insert which appers at the back page.]

The Plausibles. The plausible utility functions that I'm going to discuss are the power utility function, the bilinear utility function and the S-shaped value function. Power utility assumes that investors prefer to maintain the same percentage allocation to risky assets as their wealth changes: If you have $10 million and you put $6 million in a risky asset, when you have $100 million you'll put $60 million in a risky asset. Power utility also recognizes the obvious preference for upside deviations to downside deviations and never assumes a preference to reduce wealth. These properties are plausible. When you have bilinear utility, also referred to as "kinked" utility, your satisfaction or happiness changes abruptly at a certain level of wealth or return. Bilinear utility characterizes investors facing thresholds such as reserve requirements, loan covenants, risk of insolvency or risk of termination. S-shaped value functions comes to us from behavioral finance. A couple of years ago, Danny Kahneman won the Nobel Prize in economics for work in this area with the late Amos Tversky. They conducted experiments in which they discovered that investors — and people in general — seem to be risk averse when facing gains but seem to seek uncertainty when facing losses.

Here's one of their experiments. Let's say that you face the following choice:

(a) a sure gain of $3,000, or
(b) an 80% chance to gain $4,000 and a 20% chance to gain nothing

Typically about two-thirds or more of any group choose (a) even though it has a lower expected value than (b) ($3,000 vs $3,200). They would rather have the sure gain of $3,000; they are risk averse.

Now, let's say you have this choice:

(a) a sure loss of $3,000, or
(b) an 80% chance to lose $4,000 and a 20% chance to lose nothing

Most people now choose (b) even though it has a higher expected loss than (a) — $3,200 vs $3,000. They're actually seeking uncertainty when facing losses. People are risk averse when they face gains but risk-seeking or rather uncertainty-seeking when they face losses.

Five Million-Trillion. Full-scale optimization is simply a trial-and-error procedure to identify the portfolio that yields the highest level of utility. Why haven't we always done this? Well, it requires lots of computational power. Consider a situation in which you want to allocate across 20 different asset classes and you're willing to vary your asset mix by increments as small as 1%. There are approximately five million-trillion different portfolios that you would have to look at. We have lots of interns in our office but this would be heroic even for them! Fortunately, today there are efficient search algorithms that can find the answer pretty quickly.

Full-scale optimization gives the truly optimal, truly utility-maximizing portfolio. There's no approximation error. This is an important distinction. Mean-variance optimization is always an approximation to the truth in the sense that no one truly has quadratic utility and returns are not perfectly normally distributed. That said, in many cases mean-variance is a very good approximation; in some cases it's a horrible approximation. It's important that we understand when it's good and when it's horrible.

Dueling Optimizations. Shown in the following table is the percentage difference in utility between the two models when they're applied to three different utility assumptions.

Utility Decrease from Using Mean-Variance Instead of Full-Scale

	Power Utility	Bilinear Utility	S-Shaped Utility
Equity Hedge	0.0%	20.9%	30.8%
Convertible Arbitrage	0.0%	4.4%	61.3%
Event Driven	0.0%	17.1%	9.7%
Merger Arbitrage	0.0%	7.5%	14.6%
All Hedge Funds	0.0%	25.6%	12.6%

In the case of power utility, mean-variance does a great job. There is essentially no difference between the true answer and the mean-variance approximate answer. However, if we assume that thresholds are important — i.e., that our preferences are better represented by a bilinear utility function — mean-variance in many cases does not get us very close to the true utility-maximizing portfolio. It fails by quite a bit, in some cases by more than 20%. The same is true if we subscribe to the behavioral view of finance and use an S-shaped utility function: mean-variance does a very poor job.

Most Investors Like Negative Skewness! What surprises many people is that the true utility-maximizing portfolio for most investors displays negative skewness. Most people consider negative skewness a problem. Remember, negative skewness means really bad outcomes are more likely than really good outcomes. Why would anyone want that? It turns out that people don't want a really bad outcome, but this really bad outcome is offset by many moderately good outcomes; people like lots of moderately good outcomes. People don't care whether they have a slightly bad outcome or an extremely bad outcome, but they really care if they shift from moderately good outcomes to moderately bad outcomes.

In Practice. If you face thresholds or if you are risk averse when you face gains and risk seeking when you face losses, mean-variance is going to do very poorly. It won't get you close to the right answer. In those cases you should use full-scale optimization. Since full-scale might reject hedge funds that have lots of negative skewness or too much kurtosis, you end up with a portfolio that uses other hedge funds that do not display negative skewness and that do display less kurtosis. Do enough such funds exist? This reminds me of my favorite aphorism: "the real world is an uninteresting special case of my model." I'm kidding, of course. My point is that the world is getting more complicated in terms of what's available to us. Not only do hedge funds have non-normal distributions, so

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too do other assets such as emerging market securities and commodities — assets people are using more and more. And many of us, for good or bad reasons, face thresholds or have preferences that aren't described the way economists have historically described them. If this is the case, at the very least people ought to be aware of how badly or how well mean-variance will do for them.

EDITOR'S NOTE: UTILITY FUNCTIONS

"That which we call a rose by any other name would smell as sweet." Shakespeare possessed of the human condition, but the Bard most likely was unfamiliar with cognitive dissonance — the discomfort one feels when something new contradicts what one already knows (or thinks one knows). Because understanding the concept of utility is critical for understanding Mr. Kritzman's presentation and because its usage herein might be new and perhaps uncomfortable, we've included this brief exposition in an effort to reduce any cognitive dissonance readers might be experiencing.

Consider a billionaire real estate developer. Of course he prefers more wealth to less wealth, but would another billion (point A) change his life as much as the first billion (point B)? Surely not. Zone 1 depicts power utility. Now suppose this developer falls on hard times and defaults on loans (point C). He arguably is much less happy on the day he defaults than the day before. Now let's say the bank takes control of his operations (point D), his happiness declines steeply. Zone 2 depicts a bilinear, kinked utility function. Finally, because he's critical to the company, the bank asks him to remain as CEO. Remember, he's now effectively bankrupt. His overall happiness probably isn't impacted materially whether the business merely fails to meet its loan payments or hemorrhages cash (point E). Zone 3 depicts an "S"-shaped utility function.
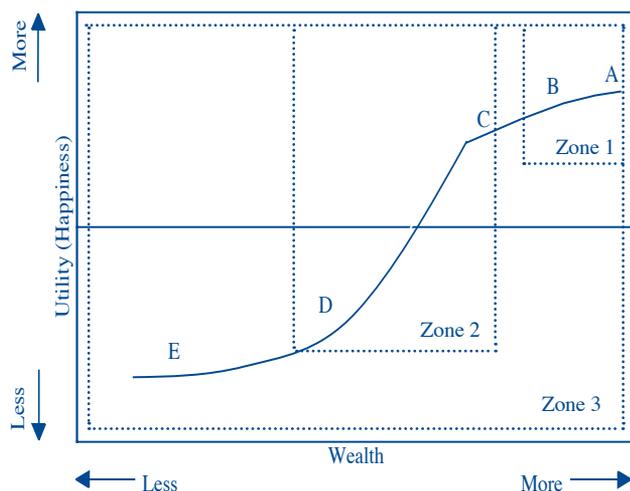
STAFFING ANNOUNCEMENT

Esther Cash, who had been with TIFF since its earliest days, recently transitioned to a new career with Vastardis Capital Services. The contributions Esther made to TEF are inestimable, and we are enormously grateful for them. Happily, Esther will continue to work closely with the cooperative, its members, managers, and other service providers — albeit from a new chair — as a senior member of a key service provider to the cooperative. We wish Esther all the best and look forward to continuing to work with her in her new role.

SAVE THE DATE

The TIFF Education Foundation will sponsor its second educational seminar on July 26, 2006. It will be held at The Charles Hotel in Cambridge, Massachusetts. Confirmed speakers include Harvey Dale (NYU Professor of Philanthropy and Founding President and Director of The Atlantic Philanthropies), Jeremy Grantham (Chairman of the global investment advisory firm GMO), and Bill Helman (Managing General Partner at private equity manager Greylock Partners). Topics will vary widely depending on the speaker, with each furnishing different thoughts and perspectives on institutional funds management as well as their own career paths. For further information, please contact tiffevents@tiff.org.

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