

# Greenwich Roundtable *Quarterly*

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# INTRODUCTION

Inside this issue of the *Standard & Poor's Greenwich Roundtable Quarterly* we explore some uncommon themes that are shaping preferences of alternative investors: hard assets, human capital, financial engineering, global uncertainty, and managers who are able to influence the outcome of their investments.

Thinking of labor as a measurable asset rather than a cost to be expensed may seem impossible. This discussion was first conducted in the early stages of the outsourcing trend to India. Today that trend is one of the most important transfers of labor and capital shaping the global economy. With human capital playing such a large and catalytic role in the economy, it's long past time for us to learn how to identify and invest in it. As Gary Becker explains, the potential returns from investing in human capital are enormous. Gary Wendt explores the opportunities and risks in what he calls human capital arbitrage. Our symposium on hard asset strategies was a continuation of our focus on commodities. As developing economies are seeking to improve their standard of living, demand for hard assets continues unabated. John Hill frames how to look at investing in oil exploration and production (E&P) assets. And Peter Palmedo gives us a wonderful primer on the history and fundamentals of gold. Toby Crabel, Ken Tropin, and George Crapple delve into managed futures. Mr. Crabel explains his firm's quantitative, highly diversified, short-term CTA strategy. Mr. Tropin compares systematic versus discretionary and short-term versus long-term CTA strategies, focusing on trend-following systems. Mr. Crapple delves into similar themes and concludes that given the lack of correlation between CTA funds and the market, every investor should have at least one CTA in their portfolio. For a view from 30,000 feet, Douglas Cliggot's words afford us the opportunity to reconsider our forecasts from 2005 in light of what actually transpired. How did your views on 2005 play out? Such questioning is part of the self-assessment that allocators and investors must undertake constantly. And to help sharpen your forecasts going forward, Mr. Cliggot offers a framework for predicting equity performance beyond the horizon of six to 12 months. Finally, our look at financial engineering included Romita Shetty, Richard Gugliada, and Thomas Kubr as they defined their structured finance strategies. Ms. Shetty discusses how to use derivatives to structure tax-efficient portfolios, earn high absolute returns, and guarantee principal. Mr. Gugliada spells out Standard & Poor's criteria for rating special purpose vehicles. Mr. Kubr talks about the use of SPVs for private equity assets. Kevin Magid and Ed Mathias are reliable role models for managers who provide value beyond capital. Mr. Magid discusses mezzanine financing and Mr. Mathias provides an overview of private equity fundamentals.

The *Greenwich Roundtable* finds its vigor through our members. As we mourn the passing of Hunt Taylor, a trustee and one of our favorite moderators, we are gratified by the efforts of our members who participated in our Best Practices in Hedge Fund Investing publications — with more of the series to come. Education and due diligence are important endeavors, both of which are crucial to the world of alternative investments. Standard & Poor's is a valued participant in our research effort as one of the underwriters of our Best Practices series as well as the publishers of this Journal. We appreciate their deep commitment and support.

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# HUMAN CAPITAL: DEFINITION, VALUATION & ARBITRAGE

Gary Becker, Ph.D., Economics, University of Chicago

November 19, 1999

**Human capital comprises the education, the skills, the training, and the knowledge that people have.**

**A good economy takes the knowledge of each individual, each company, and combines them together in an effective aggregate.**

It's important to make sure we all understand what is meant by the term "human capital." When I wrote my book in the early 1960s called *Human Capital*, people didn't understand; they thought it meant to talk about people in the form of capital. Human capital comprises the education, the skills, the training, and the knowledge people have. Unlike machinery, you can't separate people from their capital. That's the human aspect. Typically, while the knowledge we acquire doesn't last forever, it has a long life. Some of what we learned in college or university is retained although we may have forgotten a lot of it by the time we get older. That's the capital aspect.

The reason it's receiving so much attention is that modern economies obviously are not based on strength, or land, or even equipment, although equipment is clearly important. They are organized mainly around how effectively to utilize the skills and knowledge people have acquired. Modern economies in the aggregate command an immense amount of knowledge. Each of us has, no matter how informed and how varied we are, a tiny, tiny component of that knowledge. A good economy takes the knowledge of each individual, each company, and combines them together in an effective aggregate.

There are a few statistics that indicate how important human capital is today in comparison with what it was in the past in less developed countries. When we think of the capital of an economy, we usually think either of the financial assets; the value of securities on the various stock exchanges in the trillions of dollars; or the physical assets that underline these values, the plants and equipment and the like. Those are all important, of course, but they're dwarfed in magnitude by the valuations placed on the education and training people have.

There are not any direct, standardized valuations of human capital, so it is up to economists like me and many others to estimate these values from earnings and other bits of information. A number of economists have worked on this question and their estimates suggest that roughly 65%-70%, maybe 75% of all the capital, truly and accurately defined, all the capital in an economy like the United States', is in the form of human capital, not in the form of assets. The rest of the capital will be mainly the education and training that people receive, and the like.

Another way to evaluate it is to ask how much of our Gross Domestic Product (GDP) or Gross National Product (GNP) is invested in various forms of human capital. The

**Unfortunately, the amount of education that is done at the company level is the hidden component of the human capital investment. Very few companies have any explicit accounting for this capital, mainly because due to tax laws, they can write it off as current expenses — they don't have to take depreciation on this capital. It shows up, to the extent it is useful, in good will and other residual accounting categories rather than in an explicit category.**

three most important forms are education, on-the-job and other forms of adult training, and health. We know how much is spent on education — roughly 6%-10% of GDP. We only can guess at on-the-job training because unfortunately businesses do not keep accounts where they separate out their human capital, but the best guess is maybe 6%-8%. And we know that roughly 15% of GNP is spent on health. Of that component, a good 6% is really capital investment as opposed simply to maintenance. I'm leaving out other forms of adult training. These three components alone make up about a quarter of GDP. So when we talk about how much is invested by the United States, we grossly underestimate those investments by concentrating alone on physical investments. We more than double, I think, the total investments when we include human capital.

Another measure of the value and the growing importance of human capital is the premium that more educated people receive compared to those less educated in the labor markets, business markets, as executives, as workers. A simple measure would be the gap between the earnings of people who have some college education and high school graduates. Around 1960 that gap was on the order of 40% on average. But it varies a lot from person to person. Some people drop out of high school and are worth hundreds of millions. Other college graduates can barely get by. So there's a big variance in this average. It's misleading to tell somebody to go to university and you'll do 40% better than if you went to high school.

But on the average, it is a very persistent earnings gap that's found all over the world. It's not unique to the United States. People have studied the effect of education on earnings for maybe 100 countries of the world and generally speaking, this gap is large in every country that's ever been studied. The gap was generally somewhat larger in less developed countries, because they don't have many highly educated people, and it was sizable in the U.S. until 1960. And the remarkable trend since 1960 has been that this gap has exploded from 40% to now 65%-80%, depending upon exactly whom you count in the college educated population. This is a gap comparing not all people who didn't go to college, but to high school graduates alone. So it's an enormous gap. It explains why many more people of all ethnic, racial, and other groups in the United States are now attending higher education than they did in 1960. It is an explosion that is a reflection of the growing importance of human capital in modern economies.

When students come out of colleges and universities or high school, they have some general information and the purpose of university generally is to give people basic principles, basic knowledge, that they will then convert into more specific knowledge as they go to work for particular companies through training and learning. That is the basic purpose of formal education — to give them knowledge that is flexible and can be adapted to new circumstances in a changing economy like ours. Then it is up to companies to take this raw material they get and convert it into usable useful, productive employees.

Unfortunately, the amount that is done at the company level is the hidden component of human capital investment. Very few companies have any explicit accounting for this

capital, mainly because due to tax laws, they can write it off as current expenses — they don't have to take depreciation on this capital. It shows up, to the extent it is useful, in good will and other residual accounting categories rather than in an explicit category that you can go to see, like plant equipment or inventory. So economists have to estimate company-specific education from various bits and pieces, and individual studies. These estimates suggest that the amounts spent that are affecting the valuation of companies — the stock equity values and the market worth — are enormous. Some estimates say the total investment by companies is as large as the total amount spent on education in the U.S. Others come up with maybe 50% of the total spending on education. But either estimate — even taking the lower range to be conservative — is an enormous amount. And it is not being priced out explicitly. I hope it is being managed effectively, but it usually is far easier to manage an asset when you have a good, clear measurement of what you are doing. Unfortunately, we don't have a precise measurement because it doesn't enter into any national or company balance sheets directly, but it does enter into the worth of firms.

I believe it is possible to develop explicit accounting for human capital. In principle, there is no intrinsic difficulty in getting a value on that and showing exactly what you have. Given its importance in general in this highly competitive global environment, one would believe that established and potentially successful companies will be very cognizant of the importance of investing in their workers and mindful of the valuation produced by this unpriced, unexplicitly measured human capital and manage it appropriately.

As the growth in the value and significance of human capital, both in schools and on-the-job has emerged and continues to emerge, an issue develops that was less important in the past. Traditionally, most companies provided their own training because it was of smaller magnitude and they had, of course, firsthand knowledge of their workers and what might be necessary for training their own employees. Training is still organized in-house to a large degree, but with the growing importance of human capital, and the rapidity in some sectors of technological change, training on a larger scale is becoming more and more important for human capital to retain and increase its value. It is always necessary to have some provision within a company or independently of the company for maintenance and reinvestment in your human capital.

As an economy becomes more knowledge oriented, the process of investing in human capital becomes a more lifelong, rather than periodic activity. Traditionally individuals invest in when they are young and when they get older they use up or live off of your human capital. That is partly true, still, but it is also increasingly true that if you don't maintain your human capital, you become obsolete. And that is true in a lot of areas. In my own professional field of economics, if I had not continued to study economics since my graduate school days, I would have become obsolete today. I could not really participate actively in research or other environments. And that is true increasingly in many professions.

Companies recognize that and try to maintain the activities and the up-to-dateness of their workers. New companies are emerging now in larger numbers that specialize in

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**No country has an absolute advantage in anything; comparative advantage shifts. However, some comparative advantages will swing back to the U.S. in light of the commoditization of technologies, maturing products, and processes. U.S. comparative advantage is based upon entrepreneurship, efficiency, and exports of new goods.**

the activity of providing human capital, refresher courses, new information, and maintenance courses to various companies' employees.

The Internet links up with investing in human capital — the most important resource for individuals and companies investing in human capital is the time of the people involved, particularly of employees. We have estimated that more than half the cost of education in the U.S. is due to students being in school rather than working. This cost never enters national income accounts, let alone anyone else's. It should be; it's part of the real cost or expense made in investing, and similarly, for training by companies. Often companies send some executive to school for training and other courses and that will be continued.

The Internet provides the opportunity to bring learning to the student rather than send the student to a physical site. The plan of Internet companies is to provide distance learning in various subjects. Its main purpose is not just simply to employ a new media, but to use it effectively to help economize on the people's time — the adults, the employees, and the executives — who are involved in getting this additional learning or getting up to date on materials in areas that they know.

Education via the internet will be one of the major changes that is going to develop in the way human capital is delivered. There are already companies involved in this delivery process. For some activities, it will radically change the traditional way of teaching: standing before an audience. This is what Socrates did more than 2,000 years ago. He stood before an audience and delivered a lecture. At the University of Chicago I have been teaching for a long time where that is what we do and that is what high schools have done. That is going to continue of course and will not become completely obsolete; but it will be complemented and supplemented in a very important way by a new model of teaching where interaction between student and teacher travels electronically wherever the student and teacher may be. The student may be in Singapore and the teachers delivering the material might be in Buenos Aires. It will be very important at all educational levels, but especially important at the business level — delivering education to people whose time is valuable. It is more difficult for them to go to get their training, so Internet delivery of education will be a new business activity and an important way to improve the delivery of human capital at the adult level.

No country has an absolute advantage in anything; comparative advantage shifts. However, some comparative advantages will swing back to the U.S. in light of the commoditization of technologies, maturing products, and processes. U.S. comparative advantage is based upon entrepreneurship, efficiency, and exports of new goods. We import goods where less skilled labor and raw materials are important. Mexico, for example, has 75%-80% of its trade with the U.S., but it is both ways. Eighty percent or so are exports to the U.S., but also about 80% of their imports are from the U.S. We are exporting to them the high skill component goods, high entrepreneurial component goods, and we are importing from them lesser skilled goods. So in effect, jobs have moved down to Mexico, but they have also moved up to the United States.

It has been a two-way street and nobody really knows the exact net advantage. Countries where some jobs are going will benefit from having lower labor costs.

The productivity issue has been a fascinating issue in the U.S. For much of the time, starting in 1980, we thought we were really improving our productivity enormously by the computer and Internet, for example, and I think we were. The only problem was that it did not show up in productivity statistics for the economy as a whole. I believe that is mainly because we moved much more into a service economy. It gets harder and harder to measure productivity. Even with the poor measurements, the 1990s revealed what we thought was going on for a longer period of time — a significant increase in productivity in this economy. Assuming we maintain a reasonably good environment where the government does not become too obtrusive with regulations and taxing, the productivity potential in the next decade looks excellent for the U.S. We have enormous entrepreneurial talents in this country. By any international comparisons, the number of people who start businesses in this country just dwarfs that for any other country we know about. It is much easier to start it here than in Europe because of regulation. We have people more willing to do it. So I think the productivity potential looks excellent.

Service-based economies tend to be more stable — business cycle-wise, than manufacturing. Some people say part of the reason the business cycle has moderated in the U.S., is that services are more stable cyclically. As countries get wealthier, they move more and more into service. That's just a fact of life. Manufacturing still is important, but as a fraction of total employment, it goes down and the economy shifts into a variety of services. Stability won't be a particular problem. If anything, I think it will improve. ■

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*He was past president of the American Economic Association, recipient of the Seidman Award, and the first Social Science Award of Merit from the National Institute of Health. Dr. Becker was awarded the 1992 Nobel Prize in Economics for his work in human capital theory, the application of economics to crime and punishment, and other innovations in labor economics, and the National Medal of Science in 2000 for his contributions to social policy.*



*Dr. Becker holds a BS in Economics from Princeton University, an MS in Economics from the University of Chicago, and a PhD in Economics from the University of Chicago. He has more than 15 honorary degrees, including Harvard, Princeton, and Columbia.*

# HUMAN CAPITAL: DEFINITION, VALUATION & ARBITRAGE

Gary Wendt, G.W. Capital

November 19, 1999

**Three trends are really quite obvious, but outside the context of today's world, they don't make a lot of sense. They are free market politics, words I use in place of globalization; technology, which has different meanings to all of us; and more than an ample supply of hard currency.**

My observations are focused on opportunities. I'm not a stock picker; I'm a practitioner of practical business. I don't buy stocks myself, but I consider myself a value-builder; a person who takes an opportunity and molds it to build value in companies. I can apply that quite succinctly to labor arbitrage on a global basis. Three trends are really quite obvious, but outside the context of today's world, they don't make a lot of sense. They are free market politics, words I use in place of globalization; technology, which has different meanings to all of us; and more than an ample supply of hard currency — dollars, pounds, deutsche marks, yen. The first two work together to create an opportunity in human capital labor arbitrage. Of course, the movement to trade across country lines and boundaries has been going on since Marco Polo, maybe before that, but somehow the falling of the Berlin Wall focused in on the fact that now we were all going to do everything together. Capitalism had won. And capitalism is trying to trade everywhere, so marking the anniversary of the breakdown of the Berlin Wall reminds us about what's happened over the last ten years.

All of free market politics isn't really free. There's nothing confusing about it, really — in Indonesia, free market politics always meant giving the correct bribe to the right person. In China, it meant making sure that the money got to the Communist party so they remained in control. The point is that generally the trends go toward more trade across political boundaries. The pact that brought China into the World Trade Organization, while perhaps more symbolic than real, does point to the fact that people are trying to do more. There are going to be cracks in this free market political world of ours. Malaysia had to crack down because they would have been overwhelmed by their money problems at that point. China will always try to maintain things inside for a political bureaucracy. The unions in the U.S. may fight somewhat to stop free market politics in the global economy from going forward but they've given up a little bit lately.

Cracks in free market politics, together with technology, make the labor arbitrage possible. I don't understand technology at all, but I do know that I can punch a few letters into my car and it gives me directions. I know that having 110 channels on my TV to flip through is a very important part of my psychology. But something happened a month ago that illustrates my point about labor arbitrage. I was supposed to be in Singapore to give an address to a group of investors and a personal situation developed that simply didn't allow me to do it. If I had been asked to address a group in Singapore 100 years ago, it probably would have taken me three or four months

**If you can get something done cheaper in another country than you can in your own, and if free trade exists, you're going to go to the other country and do it. That's the crux of labor arbitrage.**

to go there by ship. Ten years ago, it would have taken me 24 hours by plane, stopping over in Narita, Tokyo's airport, on the way. But last month I sat in my office; I had a TV screen and they saw me in Singapore and I saw them. I was able to say exactly the same things that I would have said in Singapore. That's an illustration of how communication technology now makes it possible to access skills away from where you physically are. Whether it's airplanes that now go faster and are bigger and carry more things, or ships that do the same, or satellites that carry things that are now intellectual property — I think you get the point.

There are three aspects I consider essential to the combination of free market politics and the advancement of technology. The first is to make sure your subscription to the OAG is always in order. You're going to be doing more traveling, not less, regardless of satellite communications. Our old traditions say we have to be there in person to shake hands, so we'll keep doing that, at least for a period of time. The second aspect is that investors will see more and more opportunities because this trend is evolving and will continue to evolve for a long time. The powers of these two things are really enormous. So you're going to see a lot more opportunity. But the third element — getting down to the essence of labor arbitrage capability — is that worldwide, businesses will be driven by cost. It has already happened in the United States. In the early 1980s, I was part of a team formed by Jack Welch that understood how important it was for large American companies to get very streamlined and cut down their costs in order to compete in the world. We were lucky in the U.S. We started in the late 1980s and early 1990s. The rest of the world didn't. Now that good and services can be easily transferred around the world, cost will be one of the most important things. If you can get something done cheaper in another country than you can in your own, and if free trade exists, you're going to go to the other country and do it. That's the crux of labor arbitrage.

The third major trend when I was with GE Capital was an incredible oversupply of hard currency due to a demographics shift of major proportions. All of the developed countries fought WWII. People came back from WWII and had a lot of fun for the next few years; the population sprung up and we've been watching this big bubble go through the economy. Now they're at the point where they aren't buying as much furniture as they used to buy; they're buying new cars, but they already have an old car to trade in for the new car. They're all worried about being 65 and so they're pushing this money to be invested on a very, very large scale. And what do they want to invest in? Demographics are forcing an enormous supply of money into the system and what do we use it for? We have enough steel mills and we don't need more highways. We're developed economies.

Today, wealth is being created in intellectual property. How much money do you need to build a software system? Almost nothing. You can buy all the Microsoft stock you want, but they don't want the money — they have \$20 billion in cash that they're sitting on at the moment. The point is that in a global economy risk is going to be the issue for investors. In the areas where labor costs are low, political and financial risks remain relatively high. Just such a problem happened in Southeast Asia. Enormous amounts of money went into the region. It seemed a great opportunity and investors

leapt at it. Well, Southeast Asia didn't have either a political infrastructure or a banking infrastructure or, in fact, the knowledge to be able to deal with investment opportunities. We said, "Take our dollars — we have to put this money someplace." We forgot all about the fact that they were selling their goods and services in local currency and when the local currency crashed, that was that. Such an easy lesson that had been learned in Brazil and in South America in the early 1980s was totally forgotten. I suspect it will be totally forgotten again in the next five, 10, or 15 years, because people just have to get the money to work someplace and they believe they see a good place to put it.

I have some pointers to offer. I think there's a way to beat the problem of risk in certain countries where it isn't likely to go away in the near term. The first one is to invest with locals. The amount of knowledge they have is maybe 700 times the knowledge we have, and if they'll put their money in it, you can put your money in it a little more safely.

The second choice is to try and buy businesses that are going to be made better. Don't just invest. Many investors deal in public equities and that's not really the game, but the management of these teams and the ability to make businesses better will become more important.

And the third alternative is to buy external revenue streams. For example, I started a business in India seven years ago. It was great; we became one of the biggest finance companies in India. The papers just loved us. Only one thing didn't happen; we didn't make any money — never made a profit. But the people there were absolutely great and so we took them and began using them to provide services in the U.S.

One of the risks for investors in entities where the people are very important — like advertising firms or investment banking firms — is the transience of the assets. The assets walk out the door in the evening and they don't have to come back. Clearly it's a true concern at the upper end of the hierarchy; it isn't at the commodity labor arbitrage level. There are so many unemployed people in developing countries, and as far as you can project, that will still be the case, so it's not an issue. In developed countries, it is a concern, as I can attest, having lost a great deal of money on an investment bank.

One of the problems that have been addressed in the human capital area, particularly when it comes to company investment and work, is if the company invests a lot in workers and they move to some other company, then they lose their investment — that's a problem in any highly competitive labor market. We call that general training as opposed to company-specific training where it's more useful in a company than it is in the industry or the economy as a whole. And you try to shift as much of the burden of pain for that on the worker in terms of lower wages, so that traditionally you see workers take very low wages even if they're higher skilled and then their wages rise over time. Part of that is they're paying for their investment — at least that's the way we look at it, and then they get a return on this investment later on — that's the way we handle the walkout.

**A free market economy feeds back to the educational system so you get a better match between what's being produced by the educational system and what the economy demands.**

**If other countries don't provide the environment, then the fact that the workers stay in the United States is great, not only for the U.S. but for the global economy as well. They're more productively used here than they would be in their own countries.**

Mismatches between the educational system and the economy depend upon the nature of the economy. A free market economy feeds back to the educational system so there is a better match between what's being produced by the educational system and what the economy demands. The mismatch issue usually arises in economies where there's a very strong governmental club perched over the economy. Russia had a lot of educated people who weren't trained for any useful jobs that the economy was producing. Market economies handle that problem much better because they get the feedback from the potential earnings in the economy to the kind of schooling people obtain. So that mismatch problem is much less important in free market economies. There are very low unemployment rates in the U.S. economy; we have flexibility. Unemployment rates are higher in the European economy because of rigidities in their labor market.

Immigration is an important issue. I've been a strong advocate for the U.S. having a much more generous policy of admitting skilled workers into the economy. We have certain exceptions for skilled workers, but it's been an economy where we've given preference mainly to other types of unskilled immigrants. I think the movement of skilled workers as human capital should be freer worldwide. To the extent that you get jobs going to the skills in other economies, the incentive to immigrate will be reduced and they'll be able to do high level work there and get reasonably paid.

Nevertheless, there is a great advantage for people to come to the U.S. for training rather than other developing countries — not necessarily on a permanent basis, but at least for a few years. For example, we train a lot of advanced students in economics. Many of them, from every country of the world, ultimately hope to go back to their own country — and they do, if the environment is appropriate and they get opportunities there. But even if they plan to go back eventually, they would like to spend five to 10 years working in the U.S., picking up all the knowledge they can acquire. The goal of a country should be to provide an economic environment that is attractive for their trained people abroad to come back and start companies there. It's happening in Taiwan, to some extent in Korea, and in some other places in the world. If other countries don't provide the environment, then the fact that the workers stay in the U.S. is great, not only for the U.S. but for the global economy as well. They're more productively used here than they would be in their own countries.

I have always found the U.S. had a major advantage, not necessarily in the traceable human capital element, but one that's more ephemeral. It's called the entrepreneur. And the U.S. proportionately has entrepreneurs 50 or 100 times to the rest of the world. It's part of our Wild West heritage that remains with us. And I think that's an enormous advantage to the U.S. and will keep this country very strong for a long time.

The world is going to do more buying and selling across borderlines, and if cost is important, countries that have lower labor costs are going to have an advantage and should provide good investment opportunities. Four countries look particularly good, in my opinion. Two are relatively obvious: Mexico and all the central European countries grouped together. Mexico is, in economic terms, the 52nd state of the U.S. today.

The most active part of our economy in production is just across the border in Juarez, which looks like Texas did back in the 1960s and 1970s. NAFTA is going to make that growth expand even further. Yes, that “whoosh” you hear is production work going down to Mexico and there is no reason why it would stop. Central Europe is just five or seven years behind in labor reallocation. Their inclusion in NATO, while it doesn’t help much economically, at least gave them some credibility. They are now all being considered and will, in all likelihood, become part of the European community. When they do, and you can hire a person in Hungary for the equivalent of \$8 an hour while you have to pay somebody in Germany the equivalent of \$50 an hour, I think they’ll make a Volkswagen in Hungary on occasion. I really believe that’s going to happen over time.

Two nations that may be less obvious are India and Israel. Technology makes them good possibilities for labor opportunities. India has a resource that is as important today as copper was at the turn of the century. It has people who speak English and who are well educated. They have a great educational system that goes back to the British. Today, people in India can do all the service jobs being done in the U.S. GE Capital started employing Indians to start doing work over here first by having them input information into computers. An application filled out in the U.S. would be electronically transferred over there; they would type it into the computer program and it would be sent back. Within a year, they began collecting accounts in the United States by voice. Employees in New Delhi talk to people in St. Louis or Phoenix or Chicago, following up on delinquent payments, for example.

In Israel, the cost of labor is not low, but the value of their knowledge base as it’s appreciated in the world is lower than it is in the U.S. Because of their armed forces issues, they have developed a great deal of technology that can be applied to commercial activities around the rest of the world, but their difficulty in getting that information to the developed part of the world is what’s holding them back. So values are simply better in Israel than they are here for the same amount of human capital.

Other possible countries include the Philippines, again because of the common language situation. After that, I don’t find many others, frankly. China and Brazil, I believe, will make goods and export them. I don’t consider Russia a possibility at all; the politics, technology, and currency aspects are all wrong. Ireland is past the cycle of opportunity for labor arbitrage. It came and went three to seven years ago. They had 25% unemployment; now everybody’s working. But that’s good news for Ireland. Ireland’s fully booked at the moment. It’s a great place to visit, but it’s not a good labor environment for investment.

People have been more concerned about economic instability through global involvement. George Soros wrote a book, *The Crisis of Global Capitalism*, which turned out to be totally wrong on that issue. He now says he should have called it, “The Triumph of Global Capitalism.” Karl Marx, it is said, used to look at the world and every time there was a little downturn in one country, he would proclaim it the crisis portending the end of capitalism. Each time he turned out to be wrong. The interdependent global

**The world is going to do more and more buying and selling across border lines, and if cost is important, countries that have lower labor costs are going to have an advantage and should provide good investment opportunities.**



**Technology and free market politics working together will change where work is done in this world. It will be done anywhere. Investors will be forced into situations that have higher risk. I think the answer to that is always to play in conjunction with locals. Always look for external revenue streams and do your best to judge the management.**

economy now in place essentially means that some events in one country will have some implications for others. But the Asian crisis, for example, showed there's also an awful lot of strength in the global economy. Some economies are going to go through periods of difficulty; some, like Indonesia, haven't come out of them yet; others are beginning to come out. Interdependency provides linkages, and it provides supports as countries suffer difficulties. The Asian crisis was very informative and very interesting in that it did not lead to a global crisis; it led to difficulties for a couple of years, but difficulties that in retrospect the world surmounted quite well.

Technology and free market politics working together will change in where work is done in this world. It will be done anywhere. There are some exceptions: you can't build a house in Poland and bring it over here, but large macro elements of the world's economy will be done in other places than where they traditionally had been done. For investors, the opportunities will be there, but so will the competition, so investors will be forced into situations that have higher risk. I think the answer to that is always to play in conjunction with locals. Always look for external revenue streams and do your best to judge the management. ■

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# ASSET ALLOCATION FOR 2005: NAVIGATING THE RISKS, CHARTING THE OPPORTUNITIES

Douglas Cliggott, Brummer & Partners Research

September 23, 2004

To understand the broad outlook for U.S. equities, it's useful to refer to the following formula, which is the famous neoclassical Keynesian model for national income:

$$\{Y\} = C + I + G + \{X - M\}$$

Total income (Y) is an identity from the sum of consumer spending (C), investment (I), government spending (G), and the net trade balance (X - M, exports minus imports). Using this simple framework allows us to consider profitability in any time period beyond the short term and make informed judgments about some very important behavioral characteristics of the U.S. economy. I've rewritten the equation to try and isolate the most important factor in an intermediate term view of U.S. equities — the trend of profit.

We can divide income into two big pieces, wages and profit:

$$\{W + P\} = C + I + G + \{X - M\}$$

Then, we can simplify our equation by pulling wages over to the right hand side to isolate profit in the U.S. economy:

$$P = \{C - W\} + I + \{G - T\} + \{X - M\}$$

I have also accounted for taxes in this revised equation, because what really matters for profit generation is how much the government is spending but not taxing.

Knowing the formulas is a good first step. The core of this analysis, though, is looking at the rate of change of the variables, not just the levels. Total profit generated in the U.S. economy is a function of four different things: the difference between consumer spending and wages, how investment spending changes, the difference between government spending and taxation, and the trade balance:

$$\Delta P = \Delta\{C - W\} + \Delta I + \Delta\{G - T\} + \Delta\{X - M\}$$

Consider consumption minus wages and recall the paradox of thrift. In the case of profits in the U.S. economy, this observation applies very well. When the saving rate is going down, when we're increasing our spending more than our wages are rising,

**Using this framework allows us to consider profitability any period beyond the short term and make informed judgments about some very important behavioral characteristics of the U.S. economy in a fairly simple way.**

**Total profit generated in the U.S. economy is a function of four different things: the difference between consumer spending and wages, how investment spending changes, the difference between government spending and taxation, and the trade balance.**

**The productivity miracle is really a declining saving rate.**

profits tend to improve considerably. This makes sense. If the economy were one company and the saving rate of all workers is going down, a higher level of revenue can be realized by the company without increasing labor costs. It has been called a productivity miracle, but it's really a declining saving rate.

The next variable, investment, may just be the heart of all of this. Keynes came up with the term “animal spirit” as being so important to the dynamics of a capitalist economy and it is true that performance expectations of investment aren't always guided by a review of risks. Right now, the level of corporate earnings are not so great, so maybe we can make money in U.S. equities by a rising price to earnings multiple. Multiples are about 20 times current earnings right now and don't show any signs of changing in the foreseeable future. If you account for how options are valued, with a little cooking of the books, Standard & Poors' 500 earnings are probably really something like \$55 to \$60, and I will guess they will still be something like \$55 to \$60 two or three years from now.

I'm a stick in the mud on earnings multiples. The long-term average is about 16, and I think there are reasons for being higher than that now. We have lower interest rates and lower inflation than the historic norms. On the other hand, there are also reasons that multiples should be lower than the historic norm. Growth prospects for long-term earnings, which I think are important for multiples, are much worse now than they've been in the last 15 or 20 years. The volatility of earnings is much greater, and will be much greater over the next five to 10 years than it has been.

The government sector, that is, the rate of government spending minus what's taxed, is parallel to the household sector in that decreasing saving in both areas is good for total profit. From a dynamic perspective, a growing budget deficit is good for profit; a shrinking budget deficit is bad for profits. When we look at the profit explosion of the past two and a half years, a huge contributor to that is the exploding federal budget.

The final identity in the equation is straightforward net trade. A growing trade deficit is bad for profits; a shrinking one is good. Again, consider the notion of the economy as a company — if demand emanating from abroad is more than our workers are spending abroad, that should be good for profitability. If it's less, that's bad.

To inform the presentation, let's look at the actual numbers from 1999 to 2001:

$$-30 = -20 - 10 + 100 - 100$$

Savings in the household sector rose by \$20 billion; out of our cumulative personal incomes about \$20 billion was saved. Increased saving is bad for profit, so this figure gets a negative sign. Investment fell by \$10 billion over that three-year period mostly because inventories evaporated. But overall business spending declined modestly, as well. Budget deficit — in this instance it's not just the federal budget, it's state and local as well — fell \$100 billion from its previous surplus of \$150 billion. The surplus declined so that lifted profits. The trade balance deteriorated by \$100 billion,

which was a drag on profits. To sum up, there was a negative \$30 billion change in profits from 1999 to 2001.

Let's fast-forward this same analysis, from 2002 through the second quarter of 2004. This data is from the Z.1 flow of funds account release from the Federal Reserve:

$$[ + 520 = + 30 + 300 + 420 - 230 ]$$

In the recent two and a half years, we (U.S. households) have spent more than we've earned by \$30 billion; that's good for profit. Investment has exploded and grown by \$300 billion since the end of 2001. This is not as good as it sounds since 70% of that growth is residential investment. Collectively pouring billions and billions of dollars into our houses hopefully improves how we feel, but it doesn't do much for real productivity of the U.S. economy.

If there's one reason profits have improved so much in the past two and a half years, it is because of the explosion in the budget deficit. What we've witnessed is just a massive transfer from the U.S. Treasury to corporate balance sheets. That may be one of the reasons a lot of corporations aren't hiring a lot or spending a lot: they sense in a very real way that this isn't real. These trends aren't sustainable. We can't keep robbing the Treasury to improve our profitability.

Lastly, we're bleeding at an ever-growing rate on the trade side. The trade imbalance hit the magical \$600 billion in the second quarter, and it doesn't seem to be improving.

Where do we go from here? Right now, the American public is saving about \$100 billion out of an income flow of \$8,555 billion. That's less than 1%. Presumably the next big move in the saving rate is up, but don't expect it tomorrow.

To get the saving rate to go up, interest rates would have to go up and they probably won't in the next six months, but over the next three years they probably will. As interest rates go up over the next three years, the saving rate will go up, and every 1% change in the saving rate subtracts about \$90 billion from profit. That's not bullish for profit growth in the U.S.

Residential investment has accounted for 70% of the growth in overall investment in this two and a half year period. It now represents 5.7% of GDP. The low is 3.2% in 1982; the high for residential investment as a share of income is 6.2% in 1955. At 5.7% we've just broken into the top quintile. We're not off the chart in terms of the share of the economy going to residential investment, but we're much closer to the top than the bottom. If and when rates start to rise, you've got to expect residential investment to decline. When did rates peak? Early 1980s. When did housing bottom? Early 1980s. It's one trade.

On the business side, I wouldn't expect big things from business investment over the next two to three years. Capacity utilization is 77% and revenue growth appears to be slowing. That's not the recipe for accelerating business investment. Our dysfunctional

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**If and when rates start to rise, expect residential investment to decline. When did rates peak? Early 1980s. When did housing bottom? Early 1980s. It's one trade.**

**There are no short-term solutions to the imbalances in government that have been building over the past 25 years.**

health care system has made skilled or intellectual labor in the U.S. extremely expensive relative to other countries in the world. I'm not very optimistic that there's anything policymakers could do, short of a total reconstruction of our health care system that would stop the outsourcing of intellectual jobs out of this country. We're just too darn expensive relative to people who have just as good an education and just as good a toolbox as we have.

There are no short-term solutions to the imbalances in government that have been building over the past 25 years. Somehow, we have to figure out how to deliver a higher average quality of health care to many more people at a more efficient cost than we're doing right now. There are plenty of models around the world, but we stubbornly believe we have a good health care system in this country. Truth is, it's awful.

There needs to be a better way to fund education. We fund public education through property taxes, meaning every change in distribution of wealth guarantees a dramatic deterioration in the education of nonwealthy communities. That's not a sustainable structure. Everyone else on the planet funds education through general taxes.

Another reason we have so many imbalances is collectively we were too afraid of allowing a real recession to happen. Recessions are like forest fires — you have vicious forest fires in unhealthy forests. The National Park Service learned you let them burn, because on the other side comes healthy growth. Federal Reserve chairman Dr. Alan Greenspan, for whatever set of reasons, was paranoid about letting a real recession unfold after the 1990s, and as a result we're left with a legacy of tremendous imbalances and stunted growth on the other side here in the new century.

The total budget deficit is now about 3.5% of federal, state, and local GDP. That's probably going to keep growing. I don't see how in the near term we slow health care spending or defense spending or education spending. No one ever gets elected on a platform of raising taxes; they just vanish into the graveyard of past politicians. I don't know how we address the budget issues, but as the rate of increase in the budget deficit slows, the rate of stimulus to profitability from the government sector also slows.

The trade imbalance is the last piece of the puzzle. There's an enormous spread now between the level of exports and the level of imports. We export about \$1.2 trillion worth of stuff and we import \$1.8 trillion worth of stuff. We need an incredible divergence in the growth rates of imports versus exports to even start to narrow the trade balance. This is a huge drag on profitability for the foreseeable future, and this is where it really gets complicated. How do you fix the trade deficit? You could raise taxes a lot to slow demand violently, but that's not good for profit. You could raise interest rates a lot to slow demand for imports, but that's not good for any kind of investment or consumption, so that's not good for profit, either. Or, you could devalue the dollar violently. Since the elasticity of changes in trade to the dollar is about one-sixth the elasticity of changes in trade to spending, you would need a mammoth change in the value of the dollar to really influence trade. My guess is that we'll head

in the direction of currency devaluation. That's the key to answering the question, "Where in this world can we make money?"

We're at a crossroads now. The next five or seven years are either going to look uncomfortably a lot like the 1930s or uncomfortably like the 1970s. Given the policy choices we're making now, I'd put more chips on the 1970s outcome than on the 1930s outcome, so that means if you do want to own anything in the U.S. bond market, it's probably inflation-adjusted Treasuries (TIPS). In the cash bond market, I would definitely favor Europe, because one piece of this puzzle is a sharp decline in the dollar. The big, liquid European government bond markets will have currency as a tail wind and should give good returns.

Commodities are another place to make money. The way I rank them as investment opportunities is very straightforward. How difficult is it to increase the supply of them? The more difficult it is to increase the supply, the better they look as an investment opportunity. Right now it seems very difficult to increase the supply of oil, so it should continue to be a wonderful investment. Here, there's a structural and cyclical element. How on earth can you be bearish on the U.S. economy and bullish on oil? Well, if you set the Organisation for Economic Co-operation and Development (OECD) equal to 1 in terms of the translation of GDP growth into energy growth, China is 2.3. So for every unit of Chinese GDP growth, they grow energy 2.3 times what the U.S. does. In India it's 2.9. Maybe the U.S. can slow in a meaningful way, but China and India will keep chugging along; globally the demand for oil and energy might slow, but I'd be stunned if it went negative.

There continue to be opportunities long/short within the U.S. equity market because if you look back at returns of different sectors, there tends to be a very wide gulf between the best and worst performing sectors. In 1999, the spread between the best and the worst sectors was 84 percentage points. In 2000, it was 94 percentage points; in 2001 it was 98; in 2002 it was 34; in 2003 it was 33. So far in the first half of this year, it has narrowed to 13 percentage points. If the last few days are any indication, it appears to be gapping out again right now. It would be a surprise if we didn't finish the year up at somewhere around 25, 30, or 35 percentage points between the best and worst performing sectors.

You can see I'm not a fan of U.S. equities. I'd be stunned if U.S. equities gave a positive return over the next two or three years. In fact, you could get a pretty meaningful negative return. For the long haul, you want to own Asian equities. There's nothing different in that view — it's the cliché of the year. But don't hurry, because if we're right about the profit cycle, we're at a peak of a near term cycle. Equity investors tend to flock toward higher quality equities and that isn't Asia — not yet. It might be in the next cycle; it might be in the cycle after that, but right now, Asian equities are viewed as high beta, high-risk investments which tend to not do well when people are running away from an asset class. With a 4% 10-year Treasury yield, I'm not sure you want to load up on pure vanilla U.S. bonds now either. Spreads are very tight. No U.S. cash bond appears to be very exciting at these yield levels.

**Equity investors tend to flock toward higher quality equities and that isn't Asia, not yet.**



Reversion to some historical mean is complicated. It's simple, though, to understand that the world now is an absolute mess and policymakers in Washington don't have any clue how to make it less of a mess. In fact, the recent trend is they appear to be contributing to rather than detracting from the degree of messiness. I don't know how to explain it mathematically, but it seems you should pay a lower multiple for stocks when you have virtually no idea what the world is going to look like a couple of years from now. ■

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# THE SEARCH FOR CERTAINTY: STRUCTURED FINANCE STRATEGIES

Romita Shetty, J.P. Morgan Securities

March 21, 2002

**A range of tax wrappers, repackaging, securitization, as well as derivative techniques are used to split out the risk and return characteristics of these pools [of fixed-income instruments].**

**Recently, we've seen a huge demand for people wanting to apply structured finance techniques to alternative asset classes such as hedge funds, individual hedge funds, funds of funds, and private equity portfolios.**

Structured finance techniques have traditionally been used for many fixed-income instruments to parse out risk and return specifics, and allocate them to investors who can most efficiently price them to their risk/return parameters. Such technologies include a range of tax wrappers, repackaging, securitization, and derivative techniques that are used to split out the risk and return characteristics of these pools.

Recently, we've seen a huge demand for people wanting to apply structured finance techniques to alternative asset classes such as hedge funds, individual hedge funds, funds of funds, and private equity portfolios. One driving factor is that the demand for high absolute return is a predominant feature of the investment landscape, for both individual and institutional investors. Another reason is that most people have readjusted portfolio allocation decisions and definitions of efficient investment frontiers, expanding their horizons to incorporate things like private equity portfolios, leveraged credit structures, as well as hedge funds.

There are certain inefficiencies and unique characteristics of investing in some of these high absolute-return strategies that pose challenges for portfolio allocation decisions. They include the obvious illiquidity of some of these strategies relative to traditional fixed-income and listed-stock investing; the fact that, to a large extent, most of them have more normal distributions of return — either fat tails or two-tailed distributions, which results in the problem of how to adjust for portfolio performance; and the fact that most of them demand multi-period investment horizons. Single-period adjustments cannot be made to portfolio allocations in such cases. A number of them have particularly adverse tax consequences for individual and institutional investors. It is an attractive, low volatility strategy. Investors get to keep their upside and have protection on the downside because somebody else is sitting underneath, taking the risk if there are serious drawdowns and reductions.

Three topics provide an overview of the structured finance techniques that are being applied to address some of these issues. First, in the hedge fund of funds arena there is a huge amount of activity in terms of combining traditional, structured-finance derivative techniques with the underlying investment strategy. Second, leveraged credit has experienced a great deal of activity and some recent developments will probably generate high absolute return strategies, which may be substitutes for hedge fund investing or listed stock investing. Third, there have been some new twists in private equity.

**One example of the increasing hedge fund activity is in fund of funds purchases that also reduce risk. Investors employ strategies with a floor to ensure capital preservation while getting some upside.**

**It is extremely important for institutional investor clients getting into funds of funds, who have a real need for capital preservation, to show the investment boards that there is a floor beyond which some principle won't be lost. There has also been an enormous amount of return interest in cutting off that tail of the return distribution from various individual investors.**

**For a policy that has 10%-13% return with relatively low volatility of 2%-3%, that gets levered out three to four times in the nonrecourse spaces and generates another 500 to 800 basis points of incremental return.**

One example of the increasing hedge fund activity is in fund of funds purchases that also reduce risk. Investors employ strategies with a floor to ensure capital preservation while getting some upside. It is traditionally done in the form of buying a principle protection option — usually from an investment or commercial bank — where essentially some upside is given up in terms of an ongoing premium cost. It usually ranges somewhere between 1%-2%, depending on the nature of the underlying portfolio, essentially selling the tail of the return distribution away to the investment bank, and that tail gets cut. The ploy offers guaranteed capital debt. Usually the cost of that protection is subsidized by putting on minor amounts of leverage in the portfolio. It is extremely important for institutional investor clients getting into funds of funds, who have a real need for capital preservation, to show the investment boards that there is a floor beyond which some principle won't be lost. There has also been an enormous amount of return interest in cutting off that tail of the return distribution from various individual investors.

Another hedge fund strategy employs escalating interest that actually increases risk and volatility for incremental return. Structures are created in such a way as to get nonrecourse-rated leverage on the fund of funds portfolio. For a policy that has 10%-13% return with relatively low volatility of 2%-3%, that gets levered out three to four times in the nonrecourse spaces and generates another 500 to 800 basis points of incremental return. Volatility may go up to seven to eight times on that return profile, and it is a tradeoff many investors are willing to make because they are essentially pushing out further to the right and further up in defining their efficient frontier.

By adding on some volatility for significant incremental return, which doesn't come with recourse, the leverage is limited to the initial capital invested. Investors are either buying the leveraged position in that structure, or buying a mezzanine band of what could be viewed as stripes of risk of that same structure.

Various kinds of tax wrappers are increasing in the fund of funds space. Most of the individual hedge funds include insurance wrappers, second-to-die policies, or alternatively, various option structures that can actually generate returns on the capital gains rather than on an income tax basis. Some have been applied to nonlevered unstructured portfolios, but the most efficient for tax purposes is to take, for example, a leveraged C collateralized fund obligation (a fund of funds strategy levered four times, but at a high return). A tax wrapper is then applied. The upside is significant. In the past, tax wrappers have been applied to nonlevered strategies, but to some extent the leverage allows investors to pay for the cost of the tax wrapper and results in more bang for the buck from the tax benefit.

There is renewed appeal in leveraged credit. If investors can take high-grade credit risk and leverage it 10-15 times, or 20-25 times on a nonrecourse basis with relatively cheap financing, the kind of production on those portfolios can return anywhere from 12%-13% on the low side to 25%-30% on the high side.

Some versions attract a huge amount of interest from various alternative-asset type money in that sector. One is called “synthetic leverage portfolios.” They take advantage of the credit — the increasingly liquid credit — for swapping of market in high-grade names. For a portfolio that’s either single A-rated or high triple B-rated it creates a default swap spread of somewhere between 90 and 130 or more. That in and of itself is not an interesting return profile, but because the risk is available in derivative form, it can possibly be levered up somewhere between 20 and 25 times at very cheap financing costs, on average of approximately 35-40 basis points. It thus imparts an excellent credit that, on a leverage basis, is extremely attractive to the person buying the first loss piece off that structure.

Obviously, event risk calls for diversification. Management, on an ongoing basis, should minimize the impact of single names blowing up and destroying the return profile. This basic structure, sometimes with a tax wrapper and sometimes not, is becoming extremely popular, and it’s really taking advantage of the facts that extremely cheap, nonrecourse leverage is to be had in the derivative market and that it’s a liquid, well-traded market in the high-grade sector.

Even though a plan could be structured in one’s own option or slot on a basket of hedge funds, an investor might want to be in the equity tranche of a collateralized fund obligation (CFO), even though it may seem cheaper to finance the option than it is to finance the CFO. The inclining financing and the option are dependent on cheap dealer financing, which is not an unlimited resource. In the long run, if the market is going to mature, you need to count on ways to provide financing other than cheap value sheets.

Another appealing opportunity to focus on is taking slices of credit risk in what are traditionally known as collateralized bond obligations (CBOs), portfolios of credits tranching up into AAAs and BBBs and equity in its simplest form. The BBB usually incurs exposure to a high-yield pool of credits, but it’s exposure with first-loss protection. Investors would need to have 7%-8% defaults every year in the underlying portfolio before bearing return on that BBB piece. A BBB tranche has an expected loss in kind in the 1% range or slightly below, so the marketing or the simulation is done to project the expected loss to be no greater than that threshold. The idea is to take a relatively safe return, combine it with a number of other pieces of paper that look exactly like it, and re-lever it up.

The return profile may seem difficult in what could be a bad credit cycle for the foreseeable future, but investors end up with a piece of paper that generates somewhere between 12%-16% returns, and the return line is relatively flat even as default rates increase in the underlying universe. That return profile could be sustained despite having default rates of 7%-8% per annum consistently in the high-yield market, thus it turns out to be an extremely good defensive high-yield position and an exceptionally good way to take a leveraged credit bet to generate mid-teens returns. And, again, tax wrappers can always be layered on.

The BBB tranche will typically have somewhere between 25%-35% first loss underneath it. The spreads reflect a gradually growing new market. The range is probably

**There is renewed appeal in leveraged credit. If investors can take high-grade credit risk and leverage it 10-15 times, or 20-25 times on a nonrecourse basis with relatively cheap financing, the kind of production on those portfolios can return anywhere from 12%-13% on the low side to 25%-30% on the high side.**

**The holy grail of returns is something that's tax efficient, with high absolute returns, and principle guarantee. The various pieces can all be assembled in the alternative asset classes in ways that can make sense for various risk/return profiles in the industry.**

going to be 300 to 400 over U.S. Treasuries. The people who want to take hedge fund of funds exposure — but essentially are buying themselves some first-class protection and are willing to give up the upside to traditional structured finance investors in the capital markets — run the gamut from continental insurance companies, Yankee banks, some funds in Europe, to insurance companies in the U.S.

In general — when buying one of the debt slivers — if holding a leverage piece that is then restructured, most already will have some leverage. It's a fairly simple calculation of the net asset value (NAV). The debt slivers may be either self- or third-party-marked, and then part of the debt is subtracted out, and that furnishes the current liquidation value. In some cases, a project NAV type calculation of a position's intrinsic value is an option to consider, since the transaction is tied into the structure over a longer period of time. On the debt, if investors end up buying one of the bands of debt or if they are providing the senior piece to get near 300 in returns, it is a much more subjective valuation. Dealers can provide a mark; it's not an outstanding liquid market. Some element of theoretical evaluation must be taken into consideration. Re-marketing valuation is available for those who want to trade out in that position, depending on whether the kinds of supply-to-market conditions are significantly different.

Additionally, there is increasing awareness in what to do with private equity fund positions. The biggest need for this incipient industry is the desire to monetize existing positions because of their insufficient cash flow. The pressure is greatest in the early years to re-deploy the money in more similar positions or reinvest it in some other asset class. The emphasis on monetizing these portfolios is huge, yet the capital markets distribution of it is still unformed.

Execution of debt for capital markets is not nearly as efficient or liquid in private equity as in the hedge fund structure. It's a much more difficult return in cash flow profile on the debt side, but there is some reinsurance interest, and a number of people try to monetize those portfolios. Others do it to get incremental return on a private equity portfolio now projected to generate, -20%, or even -15% return versus what was expected, perhaps along the order of 25%.

The holy grail of returns is something that's tax efficient, with high absolute returns, and principle guarantee. The various pieces can all be assembled in the alternative asset classes in ways that can make sense for various risk/return profiles in the industry. This direction addresses the principal-protected structure. The investor marketplace typically wants a quarterly redemption right with a typical notice period attached, although most principal protection providers would prefer more frequency for more flexibility to adjust a position if things go wrong. There is an allowable basket for longer liquidity in the semi-annual or annual as well. But, on average, investors want it to be quarterly.

The risk of a challenge by the IRS on these tax-driven strategies may be dealt with in different ways for different structures. The three options on hedge fund of funds rates, for example, requires a lot more structuring to get relief from IRS challenges.

Generally, a short-level opinion with understandable degrees should withstand trial from the IRS. The biggest problem with a lot of those structures is if the option gets mixed up in the money. The tax becomes weaker, which is exactly the position to be in when buying it as an investor. A principle-protected transaction can be relatively off the money and still get a decent level tax opinion. We aim for the point where we could take the CFO to leverage, hedge fund to fund CEO structure, which gives more attractive returns, and try and construct an option where the strike doesn't raise tax challenges. At a minimum, a short-level opinion can be obtained and occasionally a short-level opinion can be constructed on the option structure. ■

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*Ms. Shetty formerly worked at Standard & Poor's, where she was a director in the firm's structured finance ratings practice.*



# THE SEARCH FOR CERTAINTY: STRUCTURED FINANCE STRATEGIES

Richard Gugliada, Standard & Poor's

March 21, 2002

**To achieve an AAA rating on a senior tranche of a transaction, the issuer must be able to demonstrate in all three areas of legal, credit, and structure functions, a 99.5% chance of repaying what they're promising to repay.**

**We look for very strong legal analysis that says these assets have been legally sold, have been transferred to a structured finance strategy (SPV), and are beyond the immediate control of any bankruptcy or receivership of the underlying money manager. The assets are truly segregated and isolated from any event risk of the underlying services.**

The rating process at Standard & Poor's focuses on three primary functions in looking at any structured finance transaction — legal, credit, and structure. To achieve an AAA rating on a senior tranche of a transaction, the issuer must be able to demonstrate in all three of those areas a 99.5% chance of repaying what they're promising to repay. That's the meaning of AAA.

From a legal perspective it means if an unrated money manager or even a rated money manager comes in and requests an AAA rating on their senior tranche, we have to assume that the manager will cease to exist at some point during the course of the transaction. Therefore, we look for very strong legal analysis that says these assets have been legally sold, have been transferred to a structured finance strategy (SPV), and are beyond the immediate control of any bankruptcy or receivership of the underlying money manager. The assets are truly segregated and isolated from any event risk of the underlying services.

SPVs are in fact a very common feature — not a requirement — but a very common feature in structured finance. SPVs have also made the pages of *The Wall Street Journal* on a number of occasions causing some confusion as to the differences between certain types of transactions performed in the market and structured finance.

The types of transactions that have been written about extensively (such as Enron's financial dealings), were driven primarily for their accounting consolidations. They were typically set up with no particular interest in removing the real credit risk of the underlying company from the transaction, but rather done primarily for accounting reasons. The transactions were usually negotiated between sophisticated parties and had a very narrow range of investors with no external review or oversight.

Accounting consolidation or deconsolidation was one of the primary focuses of structured finance in its early days, and still continues to be for many regulated entities. However, consolidation on balance sheets has never been a primary focus of how to put together a structured finance transaction. The real primary factors that the markets will look to and that S&P hopes to represent are true separation of event risks, credit risks, and structural risks from the entity that is sponsoring the transaction.

Assets are scrutinized in detail. The structure is scrutinized in detail. Ratings agencies play a significant role, as do many other parties — lawyers, accounting firms, and

others — in making sure all of these pieces work extremely well together. In highly complex structures, the coordination and analysis of each of those independent elements make the transactions work. As a result, structured finance markets have had an astounding track record over the last 15 years, with very few defaults, and very few downgrades on the senior tranches.

There are numerous legal analyses that go into the creation of the SPV — the jurisdictional analysis of law, analysis of the underlying assets, and many other features. Very strong comfort needs to be achieved through legal opinion and legal analysis to ensure all the different pieces of the transaction work. We have to achieve a 99.5% comfort level with the legal analyses work — a very high standard for most senior transactions.

Credit is one of the most significant features, and one of the linchpins that paved new paths in private equity and hedge funds. The basic credit analysis in structured finance relies upon portfolio theory of one form or another. Within a well-diversified portfolio of assets of any sort, regardless of the credit quality of those assets, confirmation must be found that with 99.5% certainty they will be able to repay a certain amount of debt based traditionally upon the cash flow characteristics of those underlying assets.

Credit analysis allows inclusion of all sorts of different assets. The unique thing about hedge funds and private equity is they do not generate any meaningful, reliable cash flows. Structured finance converts these equity instruments into fixed-income instruments in part, changing the cash flow characteristic from one of ultimate value to one of defined due and payable cash flow streams. The techniques that have structured it allow for more flexibility in the timing of those cash flows. But, as with all debt securities, they must mature and they must repay.

Over the last year or so we have studied these markets, their characteristics, their liquidity, their value, and the means of transforming a private-equity investment or hedge-fund shares into cash. Fortunately, we have come up with some ways in which cash can, in fact, be generated out of such portfolios. The portfolios must be diversified. It is impossible at this point in time to securitize a single asset. Although the stock market for an instance may have a 12% long-run average and a 15% volatility average, those statistics do not apply to one single common stock, as seen in the energy sector during the last few years.

A diversified portfolio is a fundamental requirement for all structured finance. That doesn't mean a single private equity fund could not securitize its assets if it chose to, to raise some leverage or to raise some debt to finance that portfolio. But that would result in the same analyst looking at each of the individual investments in the pool. We can look at the transactions from an individual basis, but only with the separation of the underlying assets from the manager, or we can look at it from the fund of funds perspectives where we are taking interest in many different managers and view the performance of those managers on a statistical basis. And, again, with 99.5% certainty, we can, in fact, get to an AAA rating on the performance of a well-diversified portfolio of hedge fund equity and private equity kinds of instruments.

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**A diversified portfolio is a fundamental requirement for all structured finance.**

**Structure allows investors to be able to configure around any sort of legal, credit, or structural issues; to be able to provide issuers with flexibility; and to be able to provide investors with certainty. The opportunities for tailor-made securities are, at this point, almost infinite.**

**Any changes in credit qualities should be flagged for upgrade or downgrade as we go along. The ratings are only as good as their surveillance once the transactions close.**

**Transparency is a huge issue for us and confidentiality agreements have created tension in this market. Without information, there is no transaction.**

Structure is one of the key elements these techniques bring to the table. It creates big opportunities and big benefits to the market as a whole. The structures we have seen in the markets for the past 15 years have evolved very quickly, to meet a vast array of different investors' needs. Structure allows investors to be able to configure around any sort of legal, credit, or structural issues; to be able to provide issuers with flexibility; and to be able to provide investors with certainty. The opportunities for tailor-made securities are, at this point, almost infinite. Each transaction in the market gets specially made to each issuer, to each investor. The techniques have been in use for many years and will continue to develop as markets develop.

Our job as a rating agency is to make sure the structures actually work. We spend a great deal of time running through transactions models. Some of these models have gone well beyond most mathematicians' ability to program them, but we do our best. We follow every single line item, every single cash flow, every single promise of payment through, and track everything together to the 99.5% level of certainty that we need in order to make that transaction AAA.

A primary issue in the private equity and hedge fund market is one of confidentiality. The underlying assets that compose the fund of funds have been subject to significant confidentiality agreements between the underlying fund manager and the fund of funds investor, which probably creates more dialogue at the rating agencies, at least, than the analysis of the underlying asset performance itself.

In order for us to do our job and in order for investors to take good comfort in these transactions, we need to know what's in these pools. We need to have sufficient information not only at the close of the transactions, but also ongoing performance information through the life of the transactions. We need to ensure that these transactions are not only worth the ratings we put on them, but are also robust through the life of the transactions. Any changes in credit qualities should be flagged for upgrade or downgrade as we go along. The ratings are only as good as their surveillance once the transactions close.

Transparency is a huge issue for us and confidentiality agreements have created tension in this market. Without information, there is no transaction. Issuers are reluctant to give us the information we need to rate the transactions. The disclosure documents required to put new securities into the markets create a great deal of tension. Before embarking on putting together one of these transactions, much time should be spent exploring the confidentiality arrangements. We typically measure the risk report exposure as opposed to individual positions.

Liquidity in our industry is another major issue. In hedge fund land, the best you can hope for is quarterly liquidity in the U.S., monthly liquidity in Europe, and private equity remains quite illiquid. The lack of liquidity hinders the application of structured finance techniques to our world.

The due diligence process must deal with managers as well as assets. Although separation of the assets from the underlying sponsor is a legal and achievable goal, the manager is not expected under normal situations to be replaced. We generally do not like to see a shop where there is one vital person without whom the shop would close. It has happened in the collateralized bond option (CBO) market and in the asset-backed security market. It probably will happen in the private equity and hedge fund arenas. However, these are actively managed pools, for the most part. The assets move around and the underlying assets are actively managed.

Standard & Poor's spends a great deal of care and attention on the due diligence process. The managers can and will affect the returns to this portfolio through their behavior and their actions. We are looking for several critical components when we go in to look at any portfolio or any individual assets of the portfolio. The criteria are challenging. We require audits, minimally one per year on each individual asset as well as on the fund of funds manager. We look for independent valuation of those assets and we look at infrastructure as well as to the impact of substitution of key individuals.

Key management provisions are crucial for many institutions. It's not a requirement if the institution has a diverse group of people, a diverse group of managers, and has a sufficient infrastructure to survive the replacement of a single individual. Institutions that rely heavily on a single individual are not precluded from achieving a rating, but they must demonstrate true substitution stability at any point in time, typically through a backup servicing arrangement.

Having interested parties or having the owner of the asset also be the valuation agent can create situations of conflict where people are self-marketing portfolios. We do allow self marketing, according to a specific process, and we look at independent third-party valuations. Third-party pricing services and publicly available data on common stocks are acceptable means of valuations once we go through our due diligence process to make sure that those pricing mechanisms are being looked at by external auditors. The systems capability and the accounting capability to manage it are required to be in place. ■

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*Mr. Gugliada holds an MBA in finance from New York University.*

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# THE SEARCH FOR CERTAINTY: STRUCTURED FINANCE STRATEGIES

Thomas Kubr, Capital Dynamics

March 21, 2002

Smart money should invest in private equity especially at this time. There are situations today similar to the early 1990s and the first big burst of investment in private equity we had during the late 1980s. Those who had chosen to invest in private equity at that time are still smiling at the returns. Instead of scrutinizing the complexity of securitizing any private equity asset class, we can concentrate more on the actual utility of the systems for the individual investor or the individual institution. In secure-class private equity it became clear to everyone in the late 1990s that it was a bubble at first and that the bubble had been fueled originally by some private equity firms with the eyes of venture capitalists.

Securitization can add significant value to private equity, which historically has been organized in a limited partnership structure in order to invest professionally. The vast majority — more than 99% — of the funds that go into private equity are funneled through limited partnerships managed by professional general partners in various investment groups. It says something about the smart investment community to stay with this asset for many years. They clearly saw that the bubble was on top of a very fundamentally sound and solid investment strategy.

Long-term private equity is basic to any economy. It is the first stake in the investment ground and a very important asset class. If smartly played, private equity will outperform public markets over a long-term period, perhaps eight to ten years. Sometimes it will underperform compared to the markets, but, if you are an investor with the breadth, strength and willingness to invest in it over a long period, it will outperform. Direct investments by individuals in companies are a specific game that is not relevant in volume terms.

The ultimate goal is for returns that are tax efficient, with high absolute returns, and principle guarantees. These various pieces can all be assembled in alternative asset classes in ways that can make sense for the various risk/return profiles of the industry.

The underlying collateral — and, when the collateral is leveraged, there is obviously an increase to the risk profile — typically this has either a very low correlation or no correlation at all to traditional fixed-income and equity markets. For example, collateralized bond options (CBOs) on hedge fund of funds returned the equity equivalent of approximately 20%-25%, in comparison to a market value CBO structure involving a high yield. On one hand this is a high yield structure that is exposed to the credit cycle of

**If smartly done, private equity will outperform public markets over a long-term period, perhaps for eight to 10 years.**

corporate America; on the other hand it is a CBO structure, which isn't correlated to that particular fixed-income cycle. We should keep in mind the interesting aspects of the underlying collateral as we create these structures, and that's where we analyze the risk.

The limited partnership structure has been developed over the last 30 years and has proven to be the right structure for the asset class. Despite attempts to soften it up, there is not much of a force that moves away from this often employed, reasonable deal structure. It aligns interests and works well for everybody. Surprisingly, most people don't actually like to be limited partners because it requires locking up money for 10, 12, or 14 years with no say in what happens. In jurisdictions outside of North America, most people can't be in that department. There are good reasons as to why. In certain regulatory regimes, it is not possible, and that forces us very quickly into a situation where we have to start structuring something in order to build bridges between an industry that is happy with the way the partnership structure works and an investor world that would much rather be a shareholder, bond investor or note holder, for example. That's where the securitization of this asset class can start to make some significant strides in changing the asset class into something much more attractive to investors.

In 2001 and for the first time, we managed to successfully package one of these securities for Prime Edge Capital (that has since been closed). Prime Edge had an effectively collateralized obligation to back private equity assets. About 30-35 managers controlled the assets and ended up with a portfolio of between 450-600 individual companies. That is pretty good diversification, and Standard & Poor's rated 70% of the tranches as investment grade.

One question is, "Why lever private equity if, effectively, the equity guidelines are leveraging an asset class that itself consists of leveraging assets?" On the face of it, there is a pretty high level of risk due to the possibility of over-committing.

A simple example can show that leverage actually reduces risk if properly applied. Exposure to \$10 million would be preferred for private equity. Investors can either buy a fund of funds, a classic product, or ride it up or all the way down to zero. In effect, that is what can be bought and/or combined.

Alternatively, for example, an equity investment of \$3 million in the Prime Edge high structure will also give a \$10 million exposure, to ride up at \$10 million, but only ride it down to \$3 million. This begs the question of how to invest the remaining \$7 million. On the other hand, investors might choose some other asset — bonds, U.S. Treasuries, zero notes, or whatever else is available. However, this can lead to uncertainty as to what value securitization can actually add for individual investors. For the first time it allows them to actually start managing the risk exposure they want to have with respect to an asset class.

Traditionally, private equity investors could choose to be long, illiquid, or leave their investment alone. Through securitization, they now have a piece of paper and they can mold its structure to create something much more to their liking, which can be

**In certain regulatory regimes, we have to structure securitization of limited partnerships in order to make significant strides toward making the asset class much more palatable to investors.**

**In 1991 Prime Edge first established an effectively collateralized obligation to back private equity assets. About 30-35 managers managed the assets and ended up with a portfolio of somewhere between 450-600 individual companies.**

**Standard & Poor's had rated the tranches up to 70% investment grade.**

**Why lever private equity if, effectively, the equity guidelines are leveraging an asset class that itself consists of leveraging assets? . . . Because leverage actually reduces risk if properly applied.**



**The secondary market traditionally provided liquidity to sellers at a discount with no upside.**

**Prime Edge is working on an alternative that essentially is an exchange fund, which can offer investors some liquidity against their assets but keeps the upside going forward.**

**There is value to be derived in securitizing asset classes that are usually not ready to be tradable . . . we can start delivering solutions to individuals or corporations that have real economic value.**

leveraged, for example. If they believe private equity will perform by more than, say, 10% they should invest because with a structure like that they would actually add to the overall return. However, if they just want to manage the risk, they can make use of the prior example and only buy a piece of levered structure — the desired exposure — and then manage the remainder in an appropriate way. They can invest it in public companies, hedge funds, or whatever they want, but they suddenly have the choice and flexibility they didn't have before. This Prime Edge investment strategy was applied to primary private equity.

The secondary market traditionally provided liquidity to sellers at a discount with no upside; some investors hold private equity assets today. Given the bearish state of private equity, it might be expected that the wise thing to do is liquidate some of it. And, of course, there is always the question of liquidity in this asset class.

Very large institutions, those with \$100 million plus, have a couple of choices. They can run an option with the likelihood that they will get a fairly decent price for their assets, or they can structure a specific deal in terms of refinancing that develops these benefits. Institutions with approximately \$50 million invested in private equity — a large sum; nothing to sneer about — are considered too small to do anything fancy by the larger banks, so they have only two options. They can either hold onto it or sell it into a very core secondary market, which might result in them taking a hit they may not want to take.

As a simple example, an asset that today is considered to be worth \$10 million and five years from now is expected to gross \$20 million, investors can go to sector players to liquidate today, and get perhaps \$6, \$7, or \$8 million right now. However, if they think this asset is going to be worth \$20 million in five years, to take \$8 million today may not be such a wise decision.

We're working on an alternative, which essentially is an exchange fund that can offer investors some liquidity against their assets, but keeps the upside going forward. So, if they have an asset worth \$10 million, we perhaps can give \$5, \$6, or \$7 million in cash as well as some equity. If successful in five years time they would get the upside of a pool of the private equity. If the market was right and this whole thing's going to crash, well, at least they got their cash on a non-reimbursable basis. These examples prove very clearly that there is value to be derived in securitizing asset classes that are usually not ready to be tradable. This is where we can start delivering solutions to individuals or corporations that have real economic value, not only for them but the intermediaries who work with them and take their cut. ■

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# PRIVATE EQUITY: ISSUES & OUTLOOK

Kevin Magid, Audax Group

December 18, 2003

**The simplest way to describe mezzanine is as the corporate equivalent of a second mortgage. We lend to an asset on a loan-to-value basis. That value might be the cash flow of a company, the assets or a company or enterprise value, or all three of those things combined.**

**Mezzanine investors are effectively taking a risk-adjusted view on the private equity market, because we make our loans to private equity firms to conduct and complete their buyouts. From a risk/return perspective, mezzanine has less risk than private equity on a global basis, but with slightly lower returns.**

The simplest way to describe mezzanine is as the corporate equivalent of a second mortgage. We lend to an asset on a loan-to-value basis. That value might be the cash flow of a company, the assets of a company or enterprise value, or all three of those things combined. If I buy a house for \$100 and I've got \$10 to put down in equity, a bank might say they'll lend \$70 against the value of that \$100 house. If I've only got \$10, I need another \$20 to fill that gap. The folks who fill that gap are the company that gives me a second mortgage, and they will charge a higher interest rate than the first bank because they'll be taking more risk than the first bank. If the value of the home does drop by \$10, the first to lose money is the equity investor, and the second is the second mortgage company. In many cases, banks lending to real estate don't often lose 30% of their value, but as in the crisis in the 1990s, it can happen. Corporations are inherently more volatile than real estate, but in the broad spectrum of different assets, they're not excessively volatile.

Banks lend to companies at LIBOR plus 3%-5%, which equates to around 4%-6% today, which is quite low. Mezzanine tends to generate a 12%-13% cash coupon, which demonstrates that next level of risk that is taken in this particular investment class.

Mezzanine investors are effectively taking a risk-adjusted view on the private equity market, because we make our loans to private equity firms to conduct and complete their buyouts. From a risk/return perspective, mezzanine has less risk than private equity on a global basis, but with slightly lower returns. Private equity folks who send us financial models are looking for a 20%-25% base return. There will be deals where they will get a lot less than that and there will be deals where they will get significantly more. That translates into 1.5-2.5 times their money — depending on the range they make — or 15%-18% net return. A good mezzanine fund should target gross IRRs at 16%-19%, take the midpoint of that range, and return 1.5 times the investor's money, probably in a shorter time frame and with taking less risk.

Mezzanine is a portion of the alternative asset spectrum somewhat smaller than private equity, venture, or hedge funds, but an important part of many different investors' portfolios. In terms of the range of market size, perhaps the biggest third-party mezzanine fundraising of all time reached \$4 billion. In 2002, it was less than a billion dollars, and in 2003 the number was closer to \$2 billion in money raised for either final closes or folks in the midst of raising another mezzanine fund. In terms of overall market size, there's probably not a lot more than \$10 billion being put to work

**There has been good absolute return — 17%-18% gross that hopefully turns into 13% net over the past three years in some of the better mezzanine funds in the market, although others may not have delivered as much if they were not as successful.**

**Mezzanine investing adds stability to a portfolio. Private equity, venture, distressed, or high-beta hedge funds do not always perform well.**

**Mezzanine offers early distributions. We are generating positive net cash on a quarterly basis, and distribute it quarterly to the limited partners. That is what people are interested in, particularly today, with the lack of distributions elsewhere.**

**Mezzanine limited partners have the ability to generate their own deal flow, which allows for more choices.**

by third-party or other public managers in any given year, versus the \$15 billion to maybe \$100 billion that can be raised in the private equity or venture business in any given year.

Mezzanine is not a well-known asset class across the broad spectrum, except for folks who have been around it or private equity for quite a while. Enough investors have found good reasons to have mezzanine in their portfolio. Why? There has been good absolute return — 17%-18% gross that hopefully turns into 13% net over the past three years in some of the better mezzanine funds in the market, although others may not have delivered as much if they were not as successful. Mezzanine investing adds stability to a portfolio. Private equity, venture, distressed, or high-beta hedge funds do not always perform well. Mezzanine adds stability to the portfolio through current income and generating earlier distributions.

The components of our return include cash coupons of 12%-13% on average. A pay-in-kind (PIK) coupon adds 1%-2% to the loan principal. Combined, they generate approximately a 13%-15% return on the coupon, as long as a good credit decision has been made. Warrants may be attached for 2%-3% of the company, the corporate equivalent of lending to a house and getting equity ownership in the guest room, with an up-front fee of a couple of points. Each component of return is generally negotiable in all transactions, and combined they tend to generate about an 18% return overall.

Mezzanine offers early distributions. We have a \$440 million fund; we have a 1.5% management fee, which is standard in mezzanine, so we generate \$6.5 million in management fees in a given year. If we have approximately a 10% cash-on-cash yield in our portfolio — meaning that we have a little bit less than our cash coupon because we might invest a little bit of equity in a deal, but we may get paid in kind as opposed to cash for a small piece of the transaction — we would have to invest about \$66 million of our funds to generate \$6.6 million in yearly management fees. Once we get beyond \$66 million invested, we are generating positive net cash on a quarterly basis, and distribute it to the limited partners quarterly. That is what people are interested in, particularly today, with the lack of distributions elsewhere. Many middle market and other large funds have had trouble getting exits and generating distributions for their limited partners.

Mezzanine funds have the ability to generate their own deal flow, which allows for more choices. The more deal flow generated, the more relationships come into the firm. Generally, those relationships for a middle market mezzanine firm would be middle market private equity firms. For a large mezzanine shop, it might be a relationship with Carlyle or Silver Lake and trying to be involved in their transactions. The choosier a fund can be, the better the due diligence. The better the fund is at credit, the better the returns will be in that spectrum of gross and net returns.

As to the risks in mezzanine investing, at a fund level, there can't be too many losses. For example, in a \$440 million fund, there might be 20 deals of \$22 million mezzanine investments on average. You need to be right 16-17 times. And on the three or four that

you are wrong, it is hoped that all of the money on two or three of those transactions is not lost. That's a pretty high batting average. Most private equity firms, if able to do that while taking their risks, would have phenomenal returns. On the flip side, mezzanine lending is at three-and-a-half to four-and-a-half times cash flow in comparison to a business that the private equity investor may be paying at six or eight times cash flow. The chances of having a higher batting average are normally good. Homework and due diligence are required to avoid making the big mistakes. Credit skills are key because while there is downside protection, money can be lost in a mezzanine fund.

Another risk is in not understanding the particular type of mezzanine in which to invest. There are a myriad of different strategies. In mezzanine, it's not really industry-focused as much as it is a type of mezzanine. Some mezzanine funds have a debt-oriented, cash pay strategy, a somewhat vanilla approach. Some look for a cash pay coupon in virtually every deal. There are others that are more preferred-stock oriented, which offer a full pay-in-kind coupon and have a little bit more equity risk. In these transactions a cash return is not expected, but a higher all-in return can be achieved with correct predictions. However, if a transaction goes wrong, as a preferred stock, one's investment is lost much more easily because it is not generally secured, and the other debt investors do come first.

Another type of mezzanine investing is late-stage venture. Both preferred-stock and late-stage venture strategies are potentially successful; they are a little bit different and a little bit riskier than vanilla, debt-oriented mezzanine. Mezzanine investors who bounce around and do not stick to the strategy laid out while fundraising can be quite susceptible to danger. Either a semi-annual or annual meeting with the general partner is crucial, and those who stick to their knitting actually can make a fair amount of money in the business.

As a pure play for a portfolio, I am biased more toward an independent fund than a captive mezzanine for a good reason: *More people have invested with captives than in third-party deals.* They might not say it out loud at a meeting, but after the meeting they say, "Get access to the next private equity fund that firm was raising." The decision becomes based on betting specifically on a firm or betting specifically on an asset class, and the credit skills of the people investing with that asset class — that's the reasoning behind why investors choose captive funds.

There will be captives that will make money, but they will have a higher beta. Captives have tended to be higher beta and they might make more money than our funds net/net; they also have tended to be raised by high-growth types of private equity funds. When investing in an asset class, an independent mezzanine fund provides a pure play on the asset class. If there is a very comfortable feeling with a private equity general partner and their investment selections, you can make a fair bit of money on the captive side.

Mezzanine limited partners should look for quality due diligence, first and foremost. Regardless of asset class — private equity, venture, tech buyouts, and mezzanine — even

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**Investors who bounce around and do not stick to the strategy the general partner laid out while fundraising can be quite susceptible to danger.**

**Limited partners need to make sure the group has done lending in their past — and not only bank lending but mezzanine lending — lending where the value of a company is examined versus just the hard value of the assets.**

though there may be less risk, money can still be lost. They should also choose people who are good at credit. Limited partners need to make sure the group has done lending in their past — and not only bank lending but mezzanine lending — lending where the value of a company is examined versus just the hard value of the assets. An understanding of private equity is a very significant part of being a good mezzanine lender. Such understanding can come from having invested in private equity, or having been a banker who covered private equity shops over time, the motivations of how their general partnerships work, who the better partners are, and who the more active partners are. ■

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*Prior to Audax, Mr. Magid was a managing director in the Leveraged Finance/Merchant Banking Group at CIBC World Markets, and also worked at Wasserstein Perella, Kidder Peabody, and Drexel Burnham Lambert.*

*He earned an MBA from The Wharton School of the University of Pennsylvania and a BA from Tufts University, where he graduated Phi Beta Kappa.*

# PRIVATE EQUITY: ISSUES & OUTLOOK

Ed Mathias, Carlyle Group

December 18, 2003

**F**our issues seem to be very topical, and relate to private equity, specifically LBOs, and to some extent, alternative assets in general. People are asking the following questions as they look at the asset class and try to look ahead.

The first is how to get a satisfactory rate of return for an aggregate portfolio in a period when the assumption is the stock market and the bond market are assumed to provide, charitably, lackluster returns. The general thinking then jumps to the conclusion that something incremental is needed — something at the margin, some kind of inefficient asset class where value can be added to achieve superior return. Institutional investors are scampering to achieve a total of 7%-9% over the next five years.

The second topic that people are very concerned about is diversification. They're looking for noncorrelated assets in what they perceive — and it may not be correct — to be a much more hostile investment environment. Diversity can come from various types of noncorrelated alternative assets.

The third concern is something people didn't think about as much a few years ago: cash flow, both income and distributions. Today, if you're in the LBO or venture business and are not returning capital, you're going to have difficulty raising another fund. A subject that is generating controversy and pressure from the limited partners is holding an asset longer versus returning capital to the limited partners.

The fourth area in question is how to cope with the current range of available products and strategies. There are 900 venture firms, 9,000 hedge funds, and perhaps 1,000 LBO firms. In a relatively unstructured and nonregulated market, how can investors deal with the relative lack of information for comparison?

There are some opportunities to highlight. For example, for a good private equity firm, a 15%-18% return would be more than satisfactory. There's very little reason to expect that 40% or 50% can be accrued from financial assets in an institutionalized or semi-institutionalized market with low inflation, low interest rates, and expected returns from the stock market of 7%-9%. Over a long period of time, private equity tends to return one-and-a-half to two-and-a-half times committed capital; the IRR really is a function of how long it takes to get it done. There is no apparent reason why that should change dramatically any time soon. For the actual return of

**Today, if you're in the LBO business and are not returning capital, you're not going to raise another fund.**



**Executing strategies in venture is very difficult, which leads to increasing amounts of money in private equity where the allocations are big, and are due to be paid to LBO firms.**

**It's interesting that people are fighting the disclosure of IRRs, which are basically meaningless.**

capital, there had been some discouraging data from various state funds that have released performance data. The returns on cash-on-cash over long periods of time have not been very encouraging for the future.

We try to discern the variables of how these estimated greater returns are changing the dynamics. There is no question returns will be lower, due to less leverage, higher prices, more competition, and so on. It may be that 15%-18% net will be a very good rate of return. Variables that will exchange their monetary rate of return include balance sheet leverage, cost of the leverage, consolidation of other companies, greater return efficiency, and reductions in costs. Of course, the recent past has been marked by decline until the current trend to refinance companies, pay dividends, etc. Venture capital is always a business of wealth creation.

We may aim for a higher rate of return, probably a 20%-25% target, figure in human error rate, and perhaps realize 15%-18%. Riskier deals could be done with more leverage, but the banks and the mezzanine people won't always allow it. Multiple expansions won't happen because people are paying slightly higher prices and hoping to grow into it. Adding value one way or another is the means for getting incremental return from standard LBO kinds of investments.

Large institutional demand will change the industry. Institutions seem to have a strong preference for LBOs over venture capital now. Some of this inclination is based not only on what the performance has been, but also the fact that significant amounts of money cannot be put in venture capital. Executing strategies in venture is very difficult, which leads to increasing amounts of money in private equity where the allocations are big. To some extent private equity money may go with some of the bigger pools of capital. Many of them are looking for the industry rate of return; it's almost an enhanced index when billions of dollars start flowing into the area.

Scalability of the business must be taken into account. Venture is not scalable, but there are 100 or so LBO funds with more than a billion dollars. As an entity gets bigger, the numbers are inviolate. There have to be either more deals or bigger deals, and both options tend to change the strategy.

Transparency is another issue. It's interesting that people are fighting the disclosure of IRRs, which are basically meaningless. They may be fighting it because it's just step one. The next issue will be terms, what's going on in the partnerships, how are profits distributed, and more. The disclosure of IRRs is merely the battle line first chosen.

In all areas of alternative assets, we are now coming out the other end of a boom/bust cycle. The economy is up; the market is up. In the LBO business, the most important factor probably has been the hospitality of the debt markets. Debt has been very cheap, which has helped many highly leveraged companies work their way out of problems. It has appeared in the junk bond market; it has appeared in distressed debt.

LBOs can be compared with private equity and with venture funds. Private equity was not immune to the boom/bust cycle. When the numbers appear, the LBO funds will probably be seen as having been much less volatile than venture.

Another growing trend is that investors, particularly in LBOs, like co-investment. They like the idea of putting the money to work in a specific deal and getting the money to work right away. More firms are paying attention to co-investment.

The private equity business has been impervious to pressures on terms and fees, unlike what has faced brokers and investment managers. That is beginning to change quite dramatically. To be a big fund today, it is necessary to deal with large investors, and they have some leverage.

Funding of the private equity market is tiny within the scope of financial markets. LBO firms in the aggregate probably have less capital than Microsoft's or General Electric's market cap. The overhang in venture capital is not equivalent to Microsoft's cash on the balance sheet. On the other hand, they're not immune to the cycles. In 2000 more than \$100 million was raised for LBOs. This year (2003) consistently less will have been raised, not including mezzanine.

Activity has picked up at all levels. The real change at the margin has been the emergence of mega-LBOs. In 2003 alone there were 15 LBOs of more than \$500 million in equity. That is just unheard of in the business. Venture capital, which peaked at \$120 billion, was expected to be less than \$10 billion in 2003. For the first time, more money was raised for LBO funds in Europe than in the U.S. in 2003, representing a marked change.

A number of venture capitalists were coming into the lower end of the LBO market. The LBO funds understand the business, not necessarily investments, but the business, better than the venture funds. They're basically financial engineers. They understand the impact of time and fees on returns and the need to invest the money and return capital more rapidly in order to have a decent IRR. They have picked up the pace dramatically. Banks were accommodating; there were a lot of companies for sale, financial sellers looking for exits, and a lot of strategic buyers. Prices were up somewhat, but they did not reflect extreme conditions that would be seen as an anomaly and that suggested investors should stay out of this market.

Conjecture is that the 1999-2000 type venture funds, on average, would return less than 50% of the capital, an occurrence that has never been seen before in venture. The last bad period was 1983-1984, and these funds basically returned the capital. The NASDAQ was down 79% peak to trough; the S&P 500 was down 45%. Interestingly, LBO funds were not down anywhere near that. They were not up, but they maintained some value during that period.

Importantly though, there had not been a huge amount of exits until late 2003. The returns, for the most part, came from recapitalizing companies. More M&A activity,

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**In the fixed-income business, the variation between first quartile and third quartile might be 20 basis points. In private equity, it could be 1,000 or 1,500 basis points.**

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modest IPOs, and even a lot of trading among financial partners are emerging now. XYZ firm is buying from ABC, and so forth. The inviolate rule for most investors is that money follows performance. In the slump, people were very discouraged about private equity, particularly venture capital, and some LBOs; but as performance picked up interest started to pick up again.

Benchmarks can be viewed in two ways. One is by the size of the industry. The LBO industry is four to five times bigger than venture. And venture is probably two times as big as mezzanine. The other is to look at allocations. Endowments and foundations have been the most aggressive in this area. People tend to weigh their investments the way the industry is structured. There's no question people are looking for yield today. The mezzanine market is very small, but it's going to grow, because people want income, so it might be weighted higher than the benchmark. For a variety of reasons, venture is going down. One is general disenchantment; another is that large money can't be put to work. LBOs will stay the same or grow, given achieving investment characteristics. Ultimately, it comes back to objectives and how to structure a fund.

Two anomalies exist in our area: first, small public companies are cheaper than private. Many middle market and public market investors are getting into that space. PIPEs, for example, seem like a very interesting area of opportunity with few people focusing there. The second is low-grade debt. It's just mispriced. LBOs are looking at new strategies and sectors, most notably power. If Warren Buffet is interested, it's huge; it's going through restructuring; it could absorb huge amounts of capital. There is a lot of talk about taking companies private through LBO transactions but that is extremely difficult to pull off. There's not much overhang of money in the LBO business. They are putting it to work very dramatically; it's a big market. It is not a factor in our business, whereas in venture, it clearly is.

Identifying the best funds is a real issue. In the fixed-income business, the variation between first quartile and third quartile might be 20 basis points. In LBO funds, it could be 1,000 or 1,500 basis points, and even more in venture capital. The difference between the best firms and the run-of-the-mill firms is dramatic.

Investors need to pay attention to partnership changes. Generational changes are happening as firms bring in new people and the founders wind down. The ripple effect of new leadership causes strategic changes, as people perceive opportunities in other areas. At the end of the day, data is probably not as important as qualitative judgments about strategy and people. An academician once said 50 years of data is needed in order to be statistically significant. It is not available yet, and we find that partnerships evolve, so the qualitative factors in assessing a partnership are especially imperative.

Investors should carefully consider if it is a reasonable time to be in LBOs. It is not an extraordinary time. But returns should be superior to the public markets. It is really a very simple business. Don't overpay; use leverage; pay down the debt, and hope to get lucky. ■

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*Mr. Mathias was instrumental in the founding of The Carlyle Group and assisted in the raising of its initial funds. He is also now a special limited partner in Trident Capital, a partnership focusing on business and information service companies, as well as an active investor in numerous limited partnerships and private companies. In addition, Mr. Mathias sits on a number of advisory committees for private equity partnerships.*

*After his graduation from The University of Pennsylvania, Mr. Mathias was an officer in the U.S. Navy Supply Corps; he also served as a White House military social aide during the Johnson Administration. Mr. Mathias holds an MBA from Harvard Business School and is the Fund Raising Chairman for the Class of 1971. He is also Chairman of the Board of Visitors at American University's Kogod School of Business Administration and serves on the Board of Overseers at The University of Pennsylvania's School of Arts and Sciences. Mr. Mathias serves on the Board of Directors for a number of firms, including U.S. Office Products, Sirrom Capital, PathoGenesis, and Ovation.*



# HARD ASSET STRATEGIES: ISSUES AND OUTLOOK

John A. Hill, First Reserve Corporation

March 18, 2004

On March 17, crude oil closed at 13-year highs — at over \$38 a barrel despite the news that Iraq was back to pre-war production levels. To better understand how it happened, let's review the current oil and gas price environment — always a good starting point for any discussion on investing, especially in energy commodities. There is little doubt that we are currently witnessing relatively high oil and gas prices. By relative, I mean relative to last year, and relative to the year before or the last five years or the last 10 years, not relative to the \$40 a barrel we witnessed in 1980.

The prices for public equity valuations are not sustainable. We have been looking at stock prices of publicly listed oil and gas companies, primarily in terms of our own portfolios that are now public or may be thinking about taking public. But we are not analysts of public equities *per se*. Nevertheless, we do think that the equity prices in this sector — not only the exploration and production (E&P) sector, but in the oil field services sector — suggests that the owners of these equities do not believe in the current high oil and gas prices. In other words, they are discounting significantly to lower prices sometime over the next nine to 12 months.

Right now the debate about oil and gas prices concerns the current foreign markets versus the public stock markets. Strictly from the resource side, there is no question that oil supplies are tight worldwide. There is simply not enough capacity readily available in the near term to materially and dramatically affect oil and gas prices.

Though Iraq is back to pre-war production levels, it has not really had any significant impact on prices. The fact is, oil demand is currently keeping marginally ahead of readily available supplies. I believe the stock market is over-estimating what's happening at OPEC. Most OPEC countries, in spite of the announced cutbacks, are still producing flat out. The only country really restraining production is Saudi Arabia, and that's only at the margin.

We therefore have a situation similar to the early 1970s, where oil prices are being driven not by a cartel, but by fundamental supply and demand. It is also important to realize that what most people think of when they recall the early 1970s when oil was \$1.35 and then went to \$3.50, is that after we had the embargo, prices went to \$13.50. Somehow many felt the rise in prices was driven by the embargo. But it turns out that was not the case. The price increases were driven by global demand

**There is simply not enough capacity readily available in the near term to materially affect oil and gas prices.**

**Although Iraq is back to pre-war production levels, this has not really had a significant impact on prices. Fact is, oil demand is keeping marginally ahead of supply.**



**We have to accept the fact that the real shape of oil prices in the near term will be driven by global economic activity.**

outstripping supply, and if you go back and take another look at the numbers, you will realize that the big price increase then was really due to oil demand dramatically outstripping supply. The OPEC cartel and the embargo had virtually no impact on pricing activity throughout the 1970s.

So from the supply side, oil is constrained in terms of supply relative to demand. This also holds true for natural gas. Oil is a world commodity; natural gas, from our perspective and in terms of investment opportunities, is a domestic commodity whether you are investing in it in the U.S. or in other countries. It is driven by domestic supply and demand considerations.

There's no question that natural gas supplies have not kept pace with demand over the past five years, in spite of increases in the number of drilling rigs that are looking for natural gas. In spite of the fairly dramatic increase in capital spending on natural gas exploration and production (E&P) we are just not keeping up. There is a demand-pull argument to support the current natural gas price outlook.

From the public equity side, it may seem doubtful that Saudi Arabia can maintain its control on its own production. There are also some doubts about gas, because gas prices are also impacted by weather and oil prices. If gas prices get too high, utilities in the U.S can switch from gas to oil, and they do.

From the public market side, there is some concern that if oil prices collapse sometime over the next 6-12 months, then gas prices will collapse as well, because there would be even more switching at the margin to oil — to residual No. 6 oil by the utilities.

At the end of the day, the real question for this price outlook — while we think that we are in a fundamentally different resource environment today than we were five or 10 years ago, when in fact, we are probably back to where we were in the early 1970s — is to accept that the real shape of oil prices in the near term is going to be driven by global economic activity. If global economic activity continues to be robust, driven by China, you will probably see relatively high oil prices being sustained for some period of time.

On balance, we are looking at oil prices in the \$25 plus per barrel range and gas prices in the \$5 to \$5.50 plus range — there's probably a greater probability we'll be looking at these prices for the next 12 to 18 to 24 to 36 months than of seeing \$20 oil and \$3 gas.

First Reserve's strategy for approaching this industry is as follows: We invest across the full range of energy industries, and have diversified broadly since the early 1980s. We invest in the E&P sector, the oil field service and equipment manufacturing sector. We invest in the infrastructure sector as well, not just in oil and gas, but also in electric power and the various infrastructures required for energy supply in general.

When we look at the E&P sector (the recourse sector) our preferences right now — as they have been for the past several years — are natural gas and coal. Our preference

for natural gas is driven by the fact that we have a declining reserve base in the U.S. and rising demand is being driven by economic growth, as well as by the environmental preference for natural gas over all the other alternatives.

There is a palpable, sustained pressure or, if you will, upward pressure on the value of natural gas reserves over the next five to 10 years. This may change in the short term, due to a warm winter or a poor economy, but the long-term trend is clearly toward increasing values for natural gas reserves. The same holds true for coal. We made our first coal investments in 1994, our second in 1997, and our third in 1999. The thesis was that the excess capacity of coal in the 1980s was wearing off and we would eventually see the elimination of excess capacity.

We also witnessed growing demand for coal; most people forget that half the electric power in this country still comes from coal. This situation is not going to change relevantly in our lifetimes. A lot of the swing capacity or the excess of the increased utilization capacity also comes from coal.

We were wrong about our investment in 1994; that investment did not work out very well. We were wrong in 1997 as well, and that investment did not work out well. But all the factors we saw in those years are now in place — we were just a little early on the thesis, and we've been building a fairly large coal company during the past few years, which hopefully may see the light of day in a public offering sometime this year.

Coal is an attractive but widely misunderstood resource. Today you can burn coal cleanly with the technologies available in the market. And at current energy prices, people can afford to install these technologies. I therefore believe coal has a promising outlook.

As for oil, it is not a commodity or part of the sector in which it is easy to invest. Most of the interesting oil plays today are not in the U.S. — they are overseas, in places like Russia where we do not want to put any of our money into the ground. They are in places like Brazil, where there are all kinds of issues we're not willing to deal with. And probably, in a few months, they may be in places like Libya — that's just not for us.

Oil investing is the domain of the major oil companies that have the capacity to deal with situations in the difficult spots around the world. And when I say difficult, I mean not only politically, but also geologically. I was at a Devon Energy Corporation board meeting a couple of weeks ago and we were looking at a prospector getting ready to drill in the deep Gulf of Mexico in 6,000 feet of water. It's going to be a \$95 million well — one single well. The rig that had built to drill this prospect alone cost \$194 million and it cost \$17 million just to tow it from Korea to Corpus Cristi, Texas. These are big-ticket items, with substantial political and economic risks. Therefore, oil investing is the domain of the majors.

It is also important to note that for a long time we have been interested in derivative investments in oil and gas driven by oil and gas cycles. For example, in the oil field

**We believe oil investing is the domain of the major companies that have the capacity to deal with situations in difficult spots around the world. We therefore focus on coal and gas.**

**For the first time, there's been a disconnect between oil prices and drilling activity.**

**A note of caution on another front: Virtually every E&P company we are looking at has excess cash flows far beyond what it can spend for better prospects.**

service sector, historically, when oil and gas prices have risen, the cash flows of E&P companies have risen, capital spending has risen, and the earnings of the big oil services companies have risen. In the 1970s, during the great debates that raged in Congress on the obscene oil profits in the oil industry, I used to tell people: "Don't worry, the oil field service industry will do better at taking those profits away than you ever will."

And it really was the case throughout the 1980s and the 1990s. There really was a one-to-one relationship: oil prices went up; capital spending and the earnings of the service companies went up. So we played that area as well, and will continue to play it. And while in the resource area, we may be looking more at the value of the assets we buy, and real upside in those assets if we're going to buy them.

In the service sector, it's always been more of a play on operating leverage, not really asset valuation increases, but operating leverage that comes as demand increases, activity increases. Over the past 15 years, we have had a lot of opportunities to consolidate in the industry — buy a core company in one sector; try to buy out all its competitors, consolidate them, improve our margins, and be there whenever there was a step-up in industry activity. This strategy is, however, not working right now. For the first time, there's been a disconnect between oil prices and drilling activity. There's no question about increases in drilling activity in the U.S; there are probably 40% more rigs drilling for gas today than two years ago. But rig rates have not increased, probably because we have excess capacity of rigs.

We have excess capacity of all the service and equipment components. So, because of capacity issues, the service industry has not really benefited from this dramatic growth in cash flows and the improvement in balance sheets that we've seen in the oil industry. I think though that the sector will work this off over time—there will be another round of consolidation, another round of shutting down rigs, storing them, getting rates up. But it will probably take, I think, 12 to 18 months for that to happen.

A note of caution on another front: Virtually every E&P company we are looking at has excess cash flows far beyond what it can spend for better prospects. It's an industry that no longer fears a collapse in prices like it may have two years ago, but is still having difficulty finding prospects in its inventories that make sense at \$30 oil and \$5 gas. Most companies are happy to drill prospects today if they make sense at \$3.75 gas and \$25 oil, but from the evidence we have seen there is no doubt that the availability of such prospects is limited. This is probably the primary reason why the oil and gas prices we're currently seeing are sustainable over the near term. You're going to have prices at these levels to see increases in annual production in oil and gas over the next three to five years.

We tend to invest in metal market companies, operating companies with \$50-200 million of our equity. We have always had an investment strategy that was not based on forecasts of oil and gas prices. That's pretty risky. We try to invest in things that we think make sense over the long term and where we can build value.

And we've always been quite cautious about leverage. The dot-com industry meltdown of a few years ago happened for the same reason as the oil and gas meltdown in the 1980s. The problem was leverage; there was too much on people's balance sheets. We have to continue to remind ourselves: this is a commodity. We're investing in a commodity. Sure, there are short-term constraints to increase supply, but these are not necessarily long term.

Our goal is to keep debt levels modest. Right now, our portfolio of 17 companies has an average debt capacity of about 40%, debt to capital. That's quite light in the private equity buy-out world, but that is where we've always been. We have always believed that you have to earn your returns from trying to create value and doing smart things, not playing prices or playing leverage. ■

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*Prior to acquiring First Reserve with William Macaulay in 1983, Mr. Hill served as President of F. Eberstadt & Co., Inc., an investment banking, research and institutional brokerage, and asset management firm. Between 1969 and 1976 Mr. Hill held various positions in Washington with the Federal government, including Deputy Associate Director of the Office of Management and Budget, and Deputy Administrator of the Federal Energy Administration during the Ford Administration. At the Federal Energy Administration, Mr. Hill's responsibilities included development and implementation of national energy policies and programs, liaison with the Congress and key energy committees, regulation of the petroleum industry, and energy agreements with foreign producing and consuming countries.*

*Mr. Hill received his B.A. in economics from Southern Methodist University and pursued graduate studies as a Woodrow Wilson Fellow. He is a member of the Economic Club of New York and the Board of Trustees of Sarah Lawrence College and Continuum Health Partners in New York City.*

**We try to invest in things that we think make sense over the long term and where we can build value.**

# HARD ASSET STRATEGIES: ISSUES AND OUTLOOK

Peter F. Palmedo, Sun Valley Gold, LLC

March 18, 2004

**The precious metal sector is one of the greatest asset classes in history, with one of the most stellar and dependable records in terms of performance. Yet, investors have been willing to ignore it.**

**If oil has been referred to as the mother of all commodities, then gold is the father of all commodities.**

I find it most intriguing that the precious metal sector, as an asset class, has been dismissed from investment consideration over the past couple of years. It's intriguing because it is one of the greatest asset classes in the history of mankind, with one of the most stellar and dependable records in terms of performance and behavior. Yet, intelligent investors have been willing to ignore it and depend more on perception than actual empirical data. Our work with this asset class, however, leads us to believe that there are many reasons why investors should want to be involved with this sector.

As oil has been referred to as the mother of all commodities, gold is the father. It has been around longer, it has taught us more lessons; it has a far richer history than well nigh any other commodity or investible asset in the history of the world.

What differentiates gold from other real assets? Clearly, what differentiates this asset is its durable nature, compared with consumable commodities that have a more cyclical nature. And from an academic perspective, that's very important in terms of understanding both the micro and the macro economics of the sector.

It's important to note that all of the gold that's ever been mined in the history of the world is approximately 144,000 tons. Let's put that into some perspective by imagining a room that is roughly 12 yards square and 10 feet high. Now, if all the gold was melted down and put into one room, it would contain approximately one-eighth of all of the gold that's ever been mined in the history of the world. The room would contain gold of about \$1.85 trillion in value.

Annual production of gold is approximately 2,500 tons, which means the additional increment is roughly 1.75% per year — an addition of one drop in the bucket each year. But that's an amazingly constant function, with at least 300 years of reliable data to show a relatively steady supply increase over that long a period of time.

The supply shift from new production each year normally does not vary by any great degree. So if prices increase dramatically, and there was a 5% shift in new production supply, that would translate into a significant change in supply. The supply/demand dynamics are therefore rather different from a lot of other metals or commodities such as oil.

Now, let's imagine a single block, within which we can segregate the fundamentals that drive the price and behavior of the commodity. Fabrication is roughly half of this block

distributed around the world. So gold, jewelry, rings, necklaces, etc., constitute half of the giant block of gold, and the market is driven largely by its own internal dynamics. Gold is an extremely traditional commodity. Prices go up, people buy less. Prices go down; people buy more. It's a traditional, negatively sloped demand curve.

Then there's the official sector, about which there's been a lot of discussion over the years. The official sector constitutes Central Bank holdings. Essentially a marketplace that's probably dictated less by fundamentals and more by policy, so it requires scrutiny of its differentiations. The official sector market is not necessarily responding to fundamental economic financial events. It typically responds to political or policy events, so its supply/demand characteristics differ from that of other sectors.

This takes us to the third major area, which is investment. About 18% of the total block of gold is in the hands of private investors in the form of bars and coins. Getting back to our imaginary room that's roughly 12 yards square and 10 feet high or a little bigger — it would effectively contain all of the gold in the world that we, as investors, are competing for. That's the physical metal available for delivery to buy a bar of gold.

One of the defining characteristics of the marketplace is, of course, scarcity. There's only a certain amount of it — you can't produce a lot more, and so the supply function is relatively inelastic. The 18% of all the gold in the world available to private investors (roughly \$335 billion) is, in effect, the value of a large cap stock.

Fabrication and demand factors are fairly normal. If prices rise, there will be drop in demand, and vice versa. This has been fairly consistent behavior over the past several years. Importantly, the Washington Accord constrains the amount of gold that will come out of the Central Bank sector over the next five years.

Investment demand will be the key variable in this marketplace over the next several years. It will not only drive the market, but also drive prices on the margin. The elasticity of investment demand relative to the inelasticity of supply is a driving force of the gold marketplace today. For the gold worth \$335 billion gold that's available to investors, if it's a \$60 trillion world in terms of financial assets, a one-tenth of 1% shift in investment demand would equate to about \$35 billion of demand, and that \$35 billion of the demand would be in excess of annual production.

A one-tenth of 1% shifts in demand can effectively overwhelm the supply function of the marketplace. The critical variable is to understand the dynamics of investment demand, which effectively brings us to the macro factor. Why would investors be interested in this sector? And why would an investor want to own some gold, because as they say, you can't eat it and you can't burn it, so what good does it do?

Clearly, gold is historically a store of value. It has been used as a currency for 2,500 years. It has a reasonably dependable track record as a unit of measure, and that is what drives current interest in this sector.

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**Precious metals  
are going to become  
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down the line.**

A significant increase in interest in the gold sector in the beginning of 2002 was well after the burst of the equity bubble. Earlier, there was little interest in this sector when financial assets were appreciating significantly. Then somewhere along the line something began to shift.

We saw a renewal of interest in the gold sector in the fall of 2002, when Ben Bernanke of the Federal Reserve spoke about deflation. There were indications then of the policy that could be put forward by the Fed to combat this type of economic weakness.

There seemed a clear strategy on the part of monetary authorities that certainly spooked the marketplace a bit. As people began to ponder the implications the authorities showed up and said: “I’m not sure what it means, but it sure seems to me as if you’d want to own some gold.” It was a watershed event that began to translate gold into a monetary element within the economic framework.

From a long-term financial history perspective, this is the first time in 200 years of modern financial history that we’ve dealt with a significant post-bubble type of global economic environment while we’ve been combating that or dealing with it in a free floating exchange rate system. So this is effectively an experiment and there is no history in terms of the outcome, which makes this whole investment arena particularly exciting. We’ve never walked down this path before. There is a different construct and architecture to our system in dealing with the financial and economic problems today, leaving us with wide-open opportunities and possibilities. Precious metals are going to become increasingly important in the investment fold down the line.

In 2003, gold had a good year — it was up about 19%. But clearly, it was an anomaly in the marketplace — we’re not used to it when gold goes up, stocks go up and everything else goes up. Historically, gold is a store of value. It’s something that people have an interest in when other things are not doing well. The depreciation of the dollar is the driving factor. By applying a simple exercise of algebra, the value of anything in today’s world in a variable exchange rate system is basically ‘y’ over ‘x’. If you slice the value of x in half — by depreciating the dollar if that is how you are measuring it — and you solve for y, then y equals 2x. And if you do that exercise across any of the asset classes, say, the dollar is down 30%, but the S&P is up 30%. Or the dollar is down 30%, but gold is up 20%. Solving for real value in today’s world is going to become a more complex function with when we’ve floating exchange rates, and it becomes harder to measure the value.

As investors, the spiral function to watch out for is whether gold increasingly becomes a fifth currency as a unit of real asset value or real value in the world.

The risks must be considered. The first in terms of gold and precious metals in general is if everything goes right. If everything goes right and people get high real returns, there should be less need for gold within portfolios. Capital ought to be deployed productively and gold would become less prevalent within portfolios.

The second risk is if everything goes wrong. Deflation is clearly a risk in the world. Right now, the Fed is saying it is still 50-50, and it is important to understand that in a severely deflationary world — which could be the result of rapid credit contraction — the nominal price of gold could fall while the real value of gold rises. Clearly there is the risk of nominal prices declining in a deflationary environment, although on a relative basis.

The third risk is if everything is both right *and* wrong. Clearly, in the world of equities, there are valuation issues. The equity world pays what is accepted as two times an enterprise value or business value for equities in this sector. What would happen if investors view equity and gold along the same wavelength? Has speculation — and equity likes speculation — already bled over into the precious metal sector? ■

*Prior to founding Sun Valley Gold in 1992, Mr. Palmedo worked for Morgan Stanley & Co. in New York from 1981 until 1989, where he was a principal of the firm. His concentrations included equity portfolio risk management, derivatives, and the development and analysis of listed, long-dated, synthetic and imbedded options.*

*Mr. Palmedo has been an investment professional since 1980.*



# SYSTEMATIC TRADING STRATEGIES IN MANAGED FUTURES

Toby Crabel, Crabel Capital Management

November 20, 2003

**The shorter term we trade, the better the risk-adjusted return. It's easier to predict something in five minutes than in five days. Unfortunately, there are capacity restraints in a five-minute time frame.**

**The success of our firm depends on quantitative strategies that can be applied the same way to any market in which we trade. Robust models are those that deliver profits in any market. Diversification is extremely important [so] we make scores of small bets frequently.**

It was once said of short-term traders that the shorter term we trade, the better the risk-adjusted return. It's easier to predict something in five minutes than in five days. Unfortunately, there are capacity restraints in a five-minute time frame. The shorter our time frame, the less capacity we have. We have learned to make compromises in order to best manage our clients' capital. To understand what short-term trend followers do, we can use our program as a case study.

We are primarily a short-term futures trading firm with a small equity portfolio. We turn over our portfolio every day, so our time frame is approximately one day. We trade only liquid and high-volatility markets. Of course we like to diversify as much as possible, but we're limited because of the time frames. We trade about 40 futures markets and about 100 equity markets. We split our portfolio into three tranches: 30% each into fixed income, stock indexes, and foreign exchange. The balance is allocated to commodity products. In the past, we've found severe limitations in the commodity sectors because of the liquidity and the volatility. These two factors are changing now and provide one of the potential opportunities in our industry.

The success of our firm depends on quantitative strategies that can be applied the same way to any market in which we trade. Robust models are those that deliver profits in any market. We execute our orders using highly automated and algorithm-based models. Diversification is extremely important, and what we try to do is make scores of small bets frequently. Approximately 52% of the days that we trade are profitable, translating to about 55% in profitability per system. That profitability percentage makes us slightly higher than the trend-following class, but still relatively low. We are dependent upon making many small profits over a long period of time.

The asset class, and in particular the commodity sector, has emerged from a 25-year decline in commodity prices. As futures traders with a portion of the portfolio in the commodity sector, we see this as a good thing. The U.S. and worldwide economy has been stable over the last 10-15 years, but in the next five to 10 years, the chances are slim of the environment continuing to be as benign.

One of the things that we thrive on in the short-term environment is volatility. In a way, we are a crucial hedge against anxiety or economic instability. Also, the stock market has come off its highs of the 1980s-1990s and volatility has dropped by at

**One of the things that we thrive on in the short-term environment is volatility. In a way, we are a crucial hedge against anxiety or economic instability.**

**There are real limitations but there are definitely opportunities where capacity still exists.**

least 50%. Opportunities in stocks are limited now, and as a result, we are an alternative to the stock market.

A couple of events have happened that have changed the industry. Profitability in general has increased over the last several years while assets in commodity trading advisors (CTAs) specifically have increased significantly in the last couple of years — by as much as 50%. The trend should continue, and over the next five to 10 years volatility should increase, thereby increasing the potential for profit.

There are a couple of problems to watch out for, however. Many CTAs have benefited from volatility in the stock index futures, but this may not continue and an adjustment will have to be made in many CTA portfolios. Assets will have to be targeted more toward commodity products, which are likely to see increased volatility. The next five to 10 years will look more like the 1970s and early 1980s. Our short-term profitability in the last five years has actually dropped by 80% compared to the early 1980s. So when we make a trade, our profitability is about 80% less than it would have been in 1980 or 1985 or even 1990. The margins are becoming slimmer. Going forward, margins will increase, but it's a very tight area. As a result, our capacity is severely constrained. Our firm's assets, on a volatility-adjusted basis, are not huge, but in absolute dollars, our assets are around \$2.5 billion, making us the third or fourth largest CTA in the world. So what we can actually take out of the market is limited and that's a concern for us and for any short-term trader of size.

If we are bumping into capacity constraints now, we don't know how much more growth there may be. There is a limit to how many futures contracts are going to be traded and how much liquidity there actually will be. The hedge fund community has increased assets 14 times, but we don't think that's possible in the CTA world; it is a much smaller sector. Something might drastically change and go back to short-term interest rates of more than 10%, but that's probably not going to happen. There are real limitations but there are definitely opportunities where capacity still exists. Over the next five to 10 years it will be a valuable area in which to invest. ■

*Toby Crabel is the founder of Crabel Capital Management, LLC which was registered as a Commodity Trading Advisor in March 1987 and is a successor to Toby Crabel & Company (William H. Crabel) which was registered in July 1983. Wisconsin-based Crabel Capital Management is engaged in the business of providing futures trading management services.*

*Mr. Crabel has a long and noted career in commodities analysis and trading, beginning in 1980 as an associated person (AP) with Rufenacht, Bromagen & Hertz (RB&H) in Chicago. In 1982, Mr. Crabel began offering his trading advice to market professionals in newsletter format. One year later he founded Analytic Commodity Trading, Inc. (ACT), which published a daily (ACT Daily Service) and weekly newsletter (The Active Trader) until 1986. In 1989 Mr. Crabel wrote the seminal book *Day Trading with Short Term Price Patterns & Opening Range Breakout*.*

*From September 1991 until May 1993, Mr. Crabel was employed as a trader and analyst at Niederhoffer Investment of New York.*

*In 1975 Mr. Crabel graduated from Florida Technological University where he majored in Finance.*



# SYSTEMATIC TRADING STRATEGIES IN MANAGED FUTURES

Ken Tropin, Graham Capital Management

November 20, 2003

Over my many years trading managed futures I've seen considerable changes in styles and technology, but one thing that's stayed pretty much the same are investors' questions, regardless of the type of investor. Typically, the first question is "What do traders like ourselves trade?" or "What markets are we in?"

My firm trades in about 80 markets, which puts us in the upper range of an industry average of 50-80 markets. About 80% of what we do is in a financial market of one type or another around the world: 30% of our trading is in foreign exchange markets, another 30% is in fixed-income markets, and 20% is in stock index markets. We go where the opportunity and liquidity take us. Most of our performance results are pretty highly correlated to how well we're trading the trends in the global macro markets, meaning foreign exchange, fixed income, and global stocks.

There are all kinds of systems and many different shapes and sizes of managed futures programs. Of the \$50 or \$60 billion managed by commodity trading advisors (CTAs), it would be fair to say that three-fourths of those assets are in trend-following systems. Trend-following systems tend to be looking for big, global, macro events that happen from time to time so they can participate in and exploit those events. They tend to be longer term in nature with trades that last two, three, or four months in duration and tend not to be able to perform very well in a sideways market.

Periods of stress when volatility blows out, such as the Long Term Capital Management (LTCM) situation, the Asian flu, and September 11, have historically been our best performance periods. Increasing volatility is not bad for us. Actually, the opposite is true: we need volatility for our best returns. Several of my trading systems are based on volatility. Our strategy has the profile of a long volatility strategy.

Then there are very short-term systems traders who may be looking at trends that are one or two days in nature, or they may be counter-trend trading. Short-term trades are very demanding from a technology point of view, with many more data management requirements and much more skill required on the execution side. That's why short-term traders tend to be very focused on the quality of their data and the quality of how well they execute.

*Why should we trade these markets using the systematic approach? Why not a discretionary approach?* There is not an absolute perfect set of advantages for one

**Periods of stress when volatility blows out, such as the LTCM situation, the Asian flu, and September 11, have historically been our best performance periods.**

approach over the other. There are times when discretionary traders can clearly outperform systems traders, particularly in cycles, for example, when trends end and the systems traders will be exposed to a position longer than they would like, in hindsight.

There are other times when systematic trend-following traders, such as ourselves, who use computers to time the market, can get involved in a trend that doesn't seem to make sense from a discretionary point of view. As an example, in 1995, when the dollar/yen went all the way down to \$85, most trend-following traders said there was no reason, with interest rates as low as they were in Japan, for dollar/yen to be that low. The trend-following trader who has a model for timing the system can participate in a trend like that and because of the lack of subjectivity, sometimes can benefit greatly from things that others would choose to opt out of.

Most long-term trend-following traders are accomplishing something that is very difficult to do when trades are instead determined by an individual's discretion — which is, waiting for a market to make its new highest price ever and then get in it. There's never the celebratory feeling of *"Oh, I really bought this right!"* Instead, with every trade there's a feeling of *"I think I bought this wrong!"* Trend followers never feel secure that they got a good price. Yet it's a profitable way to trade.

Systems traders are clearly not front-running market opportunities; they are following them, and that's why they're called trend followers.

*What type of benefits does systems trading offer investors?* They have proven, over a relatively long period of time, to be able to generate returns from trends in the global macro markets, without much correlation to other traditional asset classes. Also, successful portfolio managers and traders in trend following have learned to be very good at managing risk. It's about statistics. When we trade, we win on maybe 45%-50% of our trades. So we've got to do a good job of making sure the winners are bigger than the losers. We know if we have 25,000 trading opportunities over some number of years, we're going to get enough good trades to pay us off and overcome some of the losing trades we know we're going to have every single day. The almost random mix of daily winners and losers coming from a variety of underlying markets helps CTAs remain noncorrelated to equities and bonds.

If you look at the hedge fund arena, it's grown geometrically over the last few years. Interestingly, any asset-weighted hedge fund index has about a .7 correlation to the S&P 500, due in large part to the fact that equity long/short has by far the heaviest weighting. On the other hand, CTAs have little or no correlation to the S&P 500. Over the last 10 years, we have a negative correlation to the S&P 500 of -0.2. Over the last four years, that correlation has grown to -0.4. If we were to enter into a long-term bull market for stocks, that correlation would stop being negative and could go to perhaps 0.1 positive. Nonetheless, even during times of a bear market for equities, a very challenging environment for equity long/short traders, we're able to participate in and perhaps perform well in other markets and events that aren't correlated to equities.

**Systems traders are clearly not front-running market opportunities; they are following them.**

**We win on maybe 45%-50% of our trades. So we've got to do a good job of making sure the winners are bigger than the losers.**

**Trend-following systems are in general trying to determine... which price behavior is an established or emerging trend, and which is really noise. The art and science of a system is to be able to stay out of the noise and get involved in the right trends, holding those positions until they ultimately fail.**

**The nature of data is that it changes a little all the time. The key to success in systems trading is to have a loose-fitting suit. I can't wear a suit that's so tight and perfectly proportioned to me that if I gain two pounds, it won't fit (the data) anymore.**

A logical next question then is “*In general, how do trading systems differ from one another?*” or “*Specifically, how do Graham's trading systems differ from other trend followers'?*” Trend-following systems are in general trying to determine, in all of the market and macro events that happen every day, which price behavior is an established or emerging trend, and which is really noise. The art and science of a system is to be able to stay out of the noise and get involved in the right trends and then hold those positions until they ultimately fail. Every trend ever has always failed eventually. Make sure that when the trend fails, you have taken away some profit. By definition, trend followers never take peak profits. They are always waiting for that market to tell you the trend is over, so they're always giving back some unrealized gains.

Trend followers differ in the models they use to time markets. We enter and exit at different times and there's not a whole crowd of us trying to put on the exact same position at one time, which would of course be tough to overcome in terms of slippage.

In our systems, we try to avoid market noise. Our firm tends to be the last guy to the party. Sometimes when you're the last guy to the party, everyone's shocked when you get there and the minute you get there and get your position on, it's game over; it's the end of the party. That's a risk we take to not get involved in too many of the little parties, which turn out never to be good ones.

In order for a system to be successful, it has to be robust. The system must not be such a tight fit to the market we designed it around that it cannot be applied elsewhere. If we are using it in U.S. Treasury bonds, and then switch the system for the euro, it should still work. If we switch it over to corn — something totally different than Treasury bonds — it still works. That's a robust system. Then we have something that might be interesting and have a chance of living with in the future. The nature of data is that it changes a little all the time. The key to success in systems trading is to have a loose-fitting suit. I can't wear a suit that's so tight and perfectly proportioned to me that if I gain two pounds, it won't fit (the data) anymore.

“*How much do you delegate to your computers and how much do you use your judgment?*” is another great question I've been asked, and it's one of the most widely misunderstood issues in the business. There are some important things for which we use a computer, and there are some important things we don't expect it to do. Asking a computer to design a trading system is a guaranteed road to failure. We use computers to test ideas created by human beings. Humans decide whether the output from testing those ideas makes sense, and humans decide if it may be fashioned into a trading program or system. We can then use the computer to automate the execution and administration. Computers can handle data that would otherwise be impossible to handle. Besides testing systems, it allows us to measure volatilities.

Finally, one of the best questions that any client can ask me is, “*If I'm going to invest with you, how can I do it successfully?*” or “*How should I time my investments to trend following? I see that trend followers have cyclical, lumpy performance. How do I overcome that and not get hammered the day I get in?*”

The single most important piece of advice I could give is to do the exact opposite of what your emotions and thoughts are telling you. When people's choices are performing well, they tend to feel like they can do no wrong. Then it is a really horrible time to invest. At other times, when we've just had a slew of losing trades, then it is the absolutely perfect time to invest.

Expectations are the hardest thing for the manager and the client to agree on as the years go by. Expectations must always include reality — not just plans, systems, hopes, and speculations. Reality for our trend-based strategies is that we win on about 60% of the months we trade, or about three and a half out of five years. Each of our funds has been up every year and there's no two-year period in which we haven't made money. If investors are unlucky enough to get in at the wrong time, that can certainly happen once in a while, I always encourage investors to look at all of our past difficult periods and make sure that those periods would not cause them to exit at what might in the future be a very inopportune time. Another part of managing expectations is size. If you size it too big, volatility may get uncomfortable for you at the wrong time. If you don't size it big enough, we can't give you any advantage when you need it. ■

*Ken Tropin is the founder and chairman of Graham Capital Management, L.P., an alternative investment management company with approximately \$4.4 billion in assets under management including over \$500 million of proprietary capital. Mr. Tropin developed the majority of the firm's core trading programs and he is additionally responsible for the overall management of the organization, including the investment of its proprietary trading capital.*

*Prior to founding Graham Capital in 1994, Mr. Tropin was president and chief executive officer of John W. Henry & Company, Inc. and previously, senior vice president at Dean Witter Reynolds, where he served as director of managed futures and as president of Demeter Management Corporation. Mr. Tropin has also served as chairman of the Managed Funds Association and its predecessor organization, which he was instrumental in founding during the early 1980s.*

**If you size [your investment] too big, volatility may get uncomfortable for you at the wrong time. If you don't size it big enough, we can't give you any advantage when you need it.**

# SYSTEMATIC TRADING STRATEGIES IN MANAGED FUTURES

George E. Crapple, Millburn Corporation

November 20, 2003

**A systematic manager will take an idea and turn it into a mathematical formula.**

The first rule of managed futures is that they should never be anyone's total portfolio. Rather, it's an important diversifying element for a portfolio that is full of core assets. You should judge what contribution managed futures make to the overall performance of a portfolio.

What is a system in the context of futures trading? A system is an idea. It's a trading idea for making buy and sell decisions in interest rate futures or currencies or commodities or stock indices. A systematic manager will take an idea, turn it into a mathematical formula and back test it against historical data to see if it would have made money with good characteristics.

The data may be daily or it could be every tick in the market. Some systems trade five or six times a year while short-term systems might trade several times a day with a holding period of minutes or hours or a day or two. A long-term system may hold a position for months and months. For example, when the euro was introduced, nobody expected it to go from 118 to 82, but that was a great move for systematic trend followers.

Computers give us the ability to handle data that would otherwise be impossible to handle. In addition to testing systems, they allow us to measure volatilities and to optimize portfolios, but our thinking and our effort go into the construction of the program. Do we then mindlessly let the computer take over? No. It would be crazy not to look at every trade, every portfolio decision, and every decision. We look at every decision and our traders discuss execution strategy on every trade.

Many look at reliability by testing the system against historical data and looking at the P&L. Good system traders make money around 50% of the time. At that batting average, your average profit is a great deal better than your average loss, because every system has a stop-out point. A trader hits that point and is out of the market. There's no watching the S&P 500 go down 50% over three years.

After accumulating a stream of P&L from the system, a trader next must ask, is it useful? Is it robust? Is it better than what you're now using? The trader basically chooses a system appropriate for that particular market that she is trading. It might be a trend system or a counter-trend system. It might be looking at volatility opportunities; it may be looking at patterns. It may be an arbitrage type of system.

**Good system traders make money around 50% of the time. At that batting average, your average profit is a great deal better than your average loss, because every system has a stop-out point. A trader hits that point and is out of the market.**

With system trading, it is unlikely, at least in the intermediate and long-term trend following space, that we will ever miss a major move such as interest rates moving to historical lows, or the euro going from 118 to 82 and then all the way back. These are major moves that an intermediate and long-term trend follower will surely exploit: not 100% of the move, but it will be profitable for a portion of the move.

What's wrong with system trading? You don't get out at the top of a trend when it reverses. You give back a chunk of your profits — that is inevitable. Also, there are periods between major trends where you have trendless volatility and it may be in a sideways trading range that's exactly right to foil the systems you're using in a particular market.

Many have voiced a concern that if everybody is trying to do the same thing, how can anyone possibly make any money? The answer is that in the futures markets, fortunately everybody's not trying to do the same thing. The world currency markets and the world interest rate futures markets are relatively sparsely populated with people like us. There, main participants are people who may be hedging portfolios; it might be Fannie Mae changing the duration of their mortgage portfolio by using the interest rate markets, or it may be someone in the foreign exchange market trying to finance a plant somewhere. Many people use the futures markets, and the majority use them for commercial reasons unrelated to understanding market direction. They are hedging. Plus, the trading community has a different agenda than my firm does, so intermediate trend following is not dominant in the big financial markets. For example, bank currency traders would be fired if they took the kind of volatility that we will take with, say, the Swiss franc, because the Swiss franc is a tiny bit of an overall portfolio, whereas they have a daily P&L. While it may be a zero-sum game, many people don't care. It's not that they're stupid; it's not a speculative frenzy; they're just using these markets for a completely different purpose.

How do we approach these problem areas? We begin by using multiple models in every market. A market might be the dollar, yen, gold, or crude oil.

Some might say that with multiple systems we are just looking for mediocrity. Well, in a way that's correct. By using five to eight systems in each market, we will get the average of those systems in the big financial markets. We do this because we have not figured out how to assess the environment for the next 12 months. We know all the environments that have occurred over the last 10 or 20 years, and we want to have a program in each market that has been able to achieve reasonably good results no matter the environment. There will always be an environment where being very fast is much better than being very slow or being somewhere in between. We don't try to predict it; we just try to put ourselves in a position to do fine regardless of the environment.

We also analyze volatility very carefully. Hypothetically, a trader wants each market in the portfolio to have the same weighting. Does that mean you trade a bushel of corn and a bushel of soybeans? No. Soybeans are twice as volatile as corn, so you might trade two bushels of corn and one bushel of soybeans to take the same amount of risk in the market.

**While it may be a zero-sum game, many people don't care. It's not that they're stupid; it's not a speculative frenzy; they're just using these markets for a completely different purpose.**

**There will always be an environment where being very fast is much better than being very slow or being somewhere in between. We don't try to predict it; we just try to put ourselves in a position to do fine regardless of the environment.**



**Such non- or negative correlation to *down* stock markets does not necessarily mean CTAs are negatively correlated to the stock market per se.**

Based on historical volatility, we've calculated how much of everything in the portfolio will give an equivalent amount of risk in each market. We measure the volatility of positions in our portfolio every day. Let's say you're trading a certain amount of gold and gold goes from \$300 to \$600 an ounce and it's fluctuating 5% a day rather than 2% a day. Gold has become a much riskier part of your portfolio. It's achieved a much heavier weighting than you intended, so if a gold position's volatility goes up by 10%, we cut the position by 10%. If it goes down by 10%, we increase the position by 10%. While this may be counter-intuitive, you're escaping the things that are becoming more volatile. You're simply keeping each market in your portfolio at the designed volatility weighting within the portfolio. By doing this in every market, you are keeping the overall volatility of your portfolio in the range that you designed it.

In terms of our overall portfolio, we try to be very diversified. We have around 600 systems that are available for trading. Once we have picked our systems in each market, an algorithm will pick the five to eight best systems in every market looking for the best risk-adjusted return. That gives us a stream of income from each market, based on the selected systems. A second algorithm will then determine the optimal weighting among the markets. We put heavier weights on the more profitable markets and emphasize noncorrelation of markets. Running this once a month, we come up with five optimal portfolios that are mathematically equivalent. We take the average of those five, giving us a month-end optimal portfolio. Averaging this with the 11 prior month-end optimal portfolios, we come up with a gradual evolution of the portfolio towards the sectors that have been performing better for systematic trading.

After selecting the systems and the portfolio, we simulate the entire portfolio with a range of risk overlays. We're looking for worst-case drawdown in the last 20 years, and we will accept, in a simulation, a peak to trough drawdown of 15%, which gives us a good balance between upside potential and downside protection. These simulations guide us to determine how big the position should be, how much leverage is optimal, and how much volatility we should take on.

Now, does that mean 15% is the worst drawdown you can have? Unfortunately not. These simulations are good guideposts for the future, but certainly no guarantee you will not see a worse result.

Why should anyone be interested in this? Because for a long period now this systematic, diversified approach to trading has had a decent rate of return compared to any kind of investment strategy. Our firm has been in business since 1971. We have a fund that's completing its 27th year and has had a compounded return of 18% over its life. It's had two down years; the worst was 8% in 1986.

The real reason why people should consider managed futures, however, is the non-correlation. Since our oldest fund started trading, the S&P 500 has seen 31 down quarters, losing an average of 6% those quarters. Our portfolio made money in 20 of the 31, and averaged a 7.5% return. That is a nice addition to your portfolio when things are going bad in your core investments. Such non- or negative correlation to

down stock markets does not necessarily mean commodity trading advisors (CTAs) are negatively correlated to the stock market per se. In the last 20 up years for the S&P 500, we made money in 17 and were flat in three. In the last six down years, we made money in five out of six. Our best contribution to investment portfolios has been when stocks and/or bonds are down. If you were the most unlucky investor and started at the beginning of the worst 12 consecutive months the portfolio has had since 1987, you would have been down 16%: not great, but in that period, the worst 12 months for the S&P 500 was down 27%; the worst for the NASDAQ was down 60%, and the worst for the Lehman Long-Term Treasury Index was down 16%. Only investors in short-term Treasury-bills get by with no fluctuation. Generally, managed futures aren't correlated to other hedge fund strategies, either.

Our portfolio has negative correlation to nine of 13 of the main hedge fund strategies and the level of the negative correlation varies with the strategy. We had positive correlation of +0.11 to equity market neutral and +0.25 to macro, because we are trying to exploit the same kinds of markets, although we have more diversification. We have a +0.26 correlation to short selling, also not surprising since we've done well in down stock markets. Of course short selling has certain drawbacks in up stock markets.

Investors are better off having at least one CTA in a portfolio. In fact, they may be better off yet having several, because there are a lot of decisions that go into systematic trading methodologies that result in very different and not highly correlated returns among CTAs. ■

*George Crapple is co-chairman and co-CEO of Millburn Ridgefield Corporation. Millburn has been managing money in alternative investment strategies since 1971 and manages over \$1 billion in managed futures, fund of funds, hedge funds, and currency overlay strategies. Mr. Crapple was first associated with Millburn in 1976 and joined Millburn full time in 1983. Prior to that, he was a lawyer with Sidley & Austin in Chicago for 14 years.*

*Mr. Crapple graduated with honors from the University of Wisconsin where he majored in economics and was elected to Phi Beta Kappa. In 1969 he graduated from Harvard Law School magna cum laude where he was an editor of the Harvard Law Review.*

*Mr. Crapple is a member of the Technology Advisory Committee of the Commodity Futures Trading Commission; a member of the Board and Executive Committee and Chairman of the Appeals Committee of the National Futures Association, which is the futures industry self-regulatory organization; past Chairman of the Managed Funds Association, which is the trade association for futures and hedge funds; and has testified before the House Banking Committee, the Senate Agricultural Committee, and the CFTC on futures and hedge fund matters.*

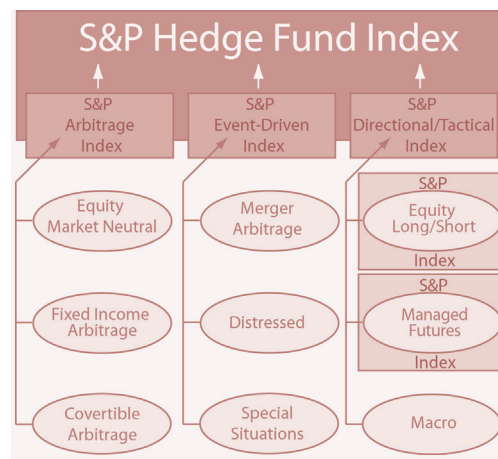
**Investors are better off having at least one CTA in a portfolio. In fact, they may be better off yet having several, because there are a lot of decisions that go into systematic trading methodologies that result in very different and not highly correlated returns among CTAs.**



# S&P HEDGE FUND INDEX DATA AND ANALYSIS

Standard & Poor's offers a growing family of hedge fund indices. The main S&P Hedge Fund Index offers investors an investable benchmark that is representative of the broad range of major strategies that hedge funds employ. The index currently has 40 constituents grouped into three sub-indices. The nine strategies are equally weighted to ensure well-rounded representation of hedge fund investment approaches and to avoid over-representation of currently popular strategies. The S&P Managed Futures Index and the S&P Equity Long/Short Index are expanded versions of their respective strategies in the main index with constituents added to ensure broader representativeness.

Standard & Poor's commenced calculation of S&P HFI values in October 2002, of the S&P MFI in January 2003, and the S&P ELSI in April 2004. The S&P Hedge Fund Pro Forma Indices returns are derived by Standard & Poor's from data received from the fund companies themselves to the extent available back to January 1998 for S&P HFI and S&P MFI and April 1999 for S&P ELSI. Standard & Poor's has not verified the validity or accuracy of this data and does not recommend any investment or other decision based on their results or on any other index calculation. The funds included were constituents of the S&P HFI as of September 2002, of the S&P MFI as of December 2002, or of the S&P ELSI as of March 2004. Past performance is not necessarily indicative of future results.



## Daily Indicative Index Series Return Summary (as of December, 2004)

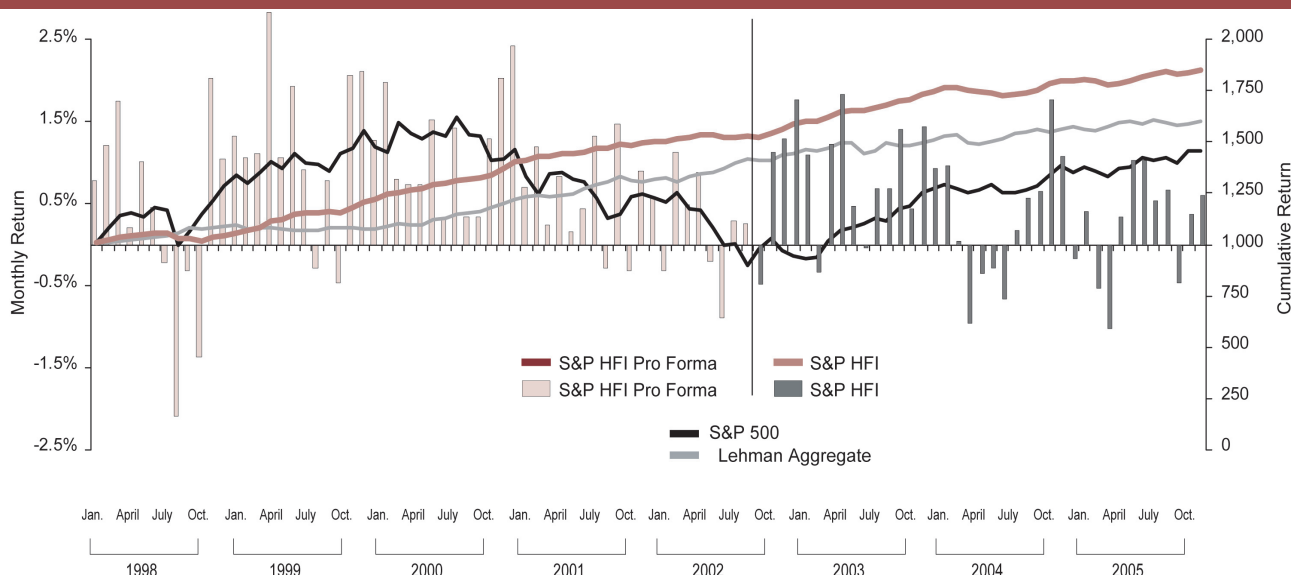
Index	MTD	QTD	YTD	ITD <sup>1,2,3</sup>
S&P Hedge Fund Index	1.23%	3.43%	3.88%	17.26%
S&P Arbitrage Index	0.91%	0.45%	2.36%	5.51%
S&P Directional/Tactical Index	1.45%	6.30%	3.62%	20.11%
S&P Event-Driven Index	1.33%	3.66%	5.66%	26.49%
S&P Managed Futures Index	-1.03%	10.10%	4.59%	13.85%
S&P Equity Long/Short Index	1.33%	4.34%	-----	1.73%

[www.sp-hedgefundindex.com](http://www.sp-hedgefundindex.com)

See the above Web site for a daily, dynamic update of this Index Return Summary, as well as historical returns, pro forma returns, methodology, announcements, and constituents.

1. Inception (9/30/2002) to Date for S&P HFI and three sub-indices.  
 2. Inception (12/31/2002) to Date for S&P MFI. 3. Inception (3/30/2004) to Date for S&P ELSI.

## Monthly and Cumulative Returns of S&P HFI and Pro Forma Index with S&P 500 and Lehman Aggregate Bond Index



### Correlation to Other Asset Classes and Similar Indices (January 1998 - December 2004)

	S&P Hedge Fund Index	S&P Arbitrage Index	S&P Directional /Tactical Index	S&P Event- Driven Index	S&P Managed Futures Index	S&P Equity Long/Short Index	S&P 500	S&P Small- Cap 600	Lehman Agg. Bond Index	Merrill High Yield Master II	CSFB Tremont HF Index	HFR Fund Wgt. Comp.
S&P Hedge Fund Index	1.00											
S&P Arbitrage Index	0.51	1.00										
S&P Directional/Tactical Index	0.68	-0.08	1.00									
S&P Event-Driven Index	0.73	0.29	0.18	1.00								
S&P Managed Futures Index	0.31	-0.07	0.76	-0.27	1.00							
S&P Equity Long/Short Index	0.67	0.07	0.51	0.66	0.06	1.00						
S&P 500	0.28	-0.09	0.07	0.55	-0.29	0.56	1.00					
S&P SmallCap 600	0.48	0.00	0.26	0.65	-0.15	0.71	0.73	1.00				
Lehman Aggregate Bond Index	0.10	0.02	0.26	-0.14	0.35	-0.14	-0.22	-0.18	1.00			
Merrill High Yield Master II	0.49	0.24	0.08	0.68	-0.22	0.37	0.47	0.53	0.09	1.00		
CSFB/ Tremont HF Index	0.66	0.25	0.41	0.60	0.01	0.85	0.42	0.61	-0.01	0.41	1.00	
HFR Fund Wgt. Comp.	0.65	0.10	0.39	0.74	-0.13	0.92	0.72	0.84	-0.12	0.55	0.83	1.00

### Performance of Various S&P Indices and Other Asset Classes\*

	1998 (%)	1999 (%)	2000 (%)	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	Last 12- Month Return (%)	3-Year Annual Return (%)	5-Year Annual Return (%)	3-Year Ann. Std. Dev. (%)	5-Year Ann. Std. Dev. (%)	5-Year Sharpe Ratio
S&P Hedge Fund Index	4.49	15.35	13.48	9.36	4.15	11.12	3.95	2.74	2.74	5.87	6.21	2.61	2.60	1.57
S&P Arbitrage Index	-0.22	13.20	14.52	13.01	6.96	2.08	2.06	0.59	0.59	1.57	4.84	1.62	2.42	1.12
S&P Directional/Tactical Index	13.51	17.30	12.32	6.74	4.76	15.28	3.36	2.81	2.81	7.00	6.50	5.19	5.09	0.86
S&P Event-Driven Index	0.29	15.52	13.40	8.47	0.69	15.97	6.41	4.81	4.81	8.95	7.15	2.81	3.86	1.30
S&P Managed Futures Index	21.58	6.29	15.92	5.70	20.03	8.89	4.45	-6.21	-6.21	2.18	6.24	14.91	16.29	0.25
S&P Equity Long/Short Index	---	37.84	12.29	6.71	-5.15	17.41	4.11	9.48	9.48	10.20	6.26	5.21	5.23	0.79
S&P 500	28.58	21.04	-9.10	-11.89	-22.10	28.68	10.87	4.91	4.91	14.39	0.54	9.17	14.94	-0.11
S&P 500/Citigroup Value	18.91	4.88	-0.51	-8.18	-16.59	30.36	15.03	8.71	8.71	17.69	4.54	9.94	13.45	0.18
S&P 500/Citigroup Growth	38.16	37.38	-19.14	-16.12	-28.10	27.08	6.97	1.14	1.14	11.20	-3.68	8.78	17.95	-0.32
S&P 500 - Cons Disc	41.14	25.18	-20.00	2.79	-23.82	37.41	13.24	-6.36	-6.36	13.37	2.67	13.63	19.36	0.03
S&P 500 - Cons Staple	15.76	-15.09	16.78	-6.40	-4.26	11.57	8.15	3.58	3.58	7.72	2.29	8.16	9.85	0.02
S&P 500 - Energy	0.63	18.73	15.68	-10.40	-11.13	25.63	31.53	31.37	31.37	29.48	11.57	18.00	18.56	0.51
S&P 500 - Financials	11.42	4.12	25.70	-8.95	-14.64	31.03	10.89	6.48	6.48	15.66	3.75	11.43	14.65	0.11
S&P 500 - Health Care	43.88	-10.66	37.05	-11.95	-18.82	15.06	1.68	6.46	6.46	7.59	-2.30	9.41	12.20	-0.36
S&P 500 - Industrials	10.87	21.50	5.88	-5.74	-26.34	32.20	18.03	2.32	2.32	16.88	2.08	11.49	16.76	0.00
S&P 500 - Info Tech	78.14	78.74	-40.90	-25.87	-37.41	47.23	2.57	0.99	0.99	15.10	-6.68	15.32	33.20	-0.27
S&P 500 - Materials	-6.18	25.26	-15.72	3.48	-5.46	38.19	13.20	4.42	4.42	17.77	9.83	16.30	19.36	0.40
S&P 500 - Telecom Svc	52.37	19.14	-38.81	-12.25	-34.11	7.08	19.86	-5.63	-5.63	6.60	-6.88	14.70	26.59	-0.34
S&P 500 - Utilities	14.84	-9.18	57.19	-30.44	-29.99	26.26	24.29	16.84	16.84	22.39	-2.24	12.47	18.60	-0.23
S&P MidCap 400	19.11	14.72	17.51	-0.60	-14.51	35.62	16.49	12.56	12.56	21.15	8.61	11.67	16.16	0.40
S&P SmallCap 600	-1.31	12.40	11.80	6.54	-14.63	38.79	22.65	7.68	7.68	22.38	10.76	14.02	17.49	0.49
CBOE Volatility Index (VIX)	1.71	-4.18	14.74	-11.36	20.25	-36.02	-27.42	-9.18	-9.18	-25.01	-14.78	45.51	52.30	-0.32
S&P REIT Composite	-19.68	-5.53	28.86	14.15	4.19	36.11	31.77	11.33	11.33	25.92	18.88	15.62	14.20	1.18
S&P Commodity Index	-27.63	7.23	42.43	-31.68	27.19	21.74	8.22	27.60	27.60	18.90	7.87	16.49	16.73	0.34
S&P Global 1200	24.64	25.13	-10.79	-15.01	-19.55	32.94	14.91	10.17	10.17	18.95	2.85	9.78	14.84	0.05
S&P 700	18.08	32.60	-13.28	-20.26	-15.55	40.87	20.22	16.43	16.43	25.40	5.84	11.87	16.12	0.23
S&P/IFCI (Investable Emerg Mkt)	-22.01	67.11	-31.76	1.77	-3.94	57.17	28.15	35.02	35.02	39.58	21.60	16.49	21.01	0.93
S&P/IFCG (Global Emerg Mkt)	-21.07	62.70	-28.77	-0.28	-5.65	54.44	27.64	41.83	41.83	40.88	21.34	14.59	18.86	1.02
U.S. T-Bills	4.82	4.66	5.85	3.45	1.60	1.02	1.40	3.19	3.19	1.87	2.13	0.29	0.33	-----
Lehman Aggregate Bond Index	8.67	-0.83	11.63	8.42	10.27	4.11	4.34	2.43	2.43	3.62	5.87	4.12	4.00	0.94
Merrill High Yield Master II	2.95	2.49	-5.14	4.49	-1.84	28.14	10.88	2.74	2.74	13.44	8.41	5.47	8.65	0.73

\*As of December 31, 2005







# The Greenwich Roundtable

We are a not-for-profit research and educational organization located in Greenwich, Connecticut for investors who allocate capital to alternative investments.

The Roundtable operates as an intellectual cooperative for the alternative investment community. In general, its 120 regular members are institutional and private investors.

In addition to regular members, associate memberships are available and are designed as a web-based membership intended for those qualified investors who reside 75 miles beyond Greenwich, Connecticut. Candidates for associate membership must be actively allocating capital to alternative investments, or be an advisor. Associate members have access to the Greenwich Roundtable website with audio recordings, written transcriptions and summaries of symposiums, as well as the *Greenwich Roundtable Quarterly*, the *Roundtable Newsletter* and the *Best Practices in Hedge Fund Investing* series. We extend to associate members invitations to our monthly symposiums on a space-available basis and every Founders Council evening session.

Most importantly, the password-protected library of audio transcripts is considered the largest audio database of alternative investment discussions. We encourage you to submit an application for associate membership by visiting [www.greenwichroundtable.org](http://www.greenwichroundtable.org).

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