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Convertible Bonds: A Valuable Asset Class Ignored by the Insurance Industry

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Summary: The panelists discuss and invite attendee questions on the value of convertible bonds as an asset class for insurance companies. Topics include:

- *An overview of the market*
- *Different types of convertible bond issues*
- *Historical performance*
- *The role of these bonds in an insurance company portfolio, including risk management*

Mr. David X. Li: I'm from RiskMetrics Group in New York. Today we have two outstanding speakers, the first being Marshall Greenbaum. Marshall Greenbaum works for Ernst & Young as a consulting actuary. He has many years of experience on advising insurance companies about investment in convertible bonds. We also have Matthew Li, who's a managing director of TD Securities (USA), Inc. Matthew actively manages a large convertible bond portfolio. As everyone knows, people who work on the trading floor are in a chaotic environment.

The convertible bond is an interesting class of financial instruments. When we talk about the financial market we say it's an equity market or it's a fixed income market. The foreign exchange market, at least from a modeling point of view, is just like a special case of the equity market. But there's one interesting instrument, convertible bonds, which act as a bridge between the equity and fixed income markets. The insurance company as a group is one of the largest investors of convertible bonds.

Mr. Marshall C. Greenbaum: Let's start out with a very simple layman's definition of what a convertible bond is. Essentially a convertible bond is a bond that gives the holder of the bond the right to convert it to an equity. The equity doesn't even have to be equity for the issuing firm. It can actually be for any firm. There are so-called exchangeable convertible bonds.

I thought we'd start out by taking a look at actual convertible bond use in the insurance industry today. They show up in a number of different ways. The first one actually is a product feature where the insurance industry actually doesn't directly write or participate in convertible bonds, but they have it as a product feature where they allow their policyholders to participate in

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convertible bond funds. These are the so-called pass-through products and the variable annuities (VA) with particular subaccounts that might allow the policyholder to invest in convertible bonds. The second way the insurance industry can use convertible bonds is to basically invest in them, and they can invest in them to support any particular product line. The third way is typically to issue a bond for a particular financing reason—a way to raise capital. We're going to take a look at all three of these in a little bit more detail and explain each of them and take a look at how much the insurance industry is currently using convertible bonds.

Let me give you a brief description of these pass-through products, which have been taking advantage of convertible bond features. They are sometimes referred to as direct recognition products, for those of you who may not be familiar with the pass-through terminology. They essentially allow the policyholder to participate in upside convertible bond returns. I say upside because the products are subject to minimum lifetime guarantees if the convertible bond funds perform poorly. They surrender at their lifetime guarantee, but, on the other hand, if the convertible bond fund performs very well, then the policyholder has a market value surrender adjustment that adjusts for all accumulated gains and losses throughout the lifetime of the contract. Also, these products satisfy standard nonforfeiture laws, which regulate general account products. There are a number of companies that have had tremendous success over the recent years with these types of products.

Well, I thought to myself, if the general account products are successful in offering convertible bond features, what about separate account products? I went on a mission to investigate how many convertible bond funds are offered as part of a VA contract or a variable universal life contract. I was surprised to find out that of more than 9,000 funds, I was only able to identify what I refer to as 5 pure convertible bond funds where essentially the overwhelming majority of the investments in the funds were convertible bonds. Also, it turns out that these five pure convertible bond subaccounts were offered only by one firm, and they were only managed by one particular mutual fund operation. And, in this particular company that offered this one convertible bond as a subaccount, it was offered as only 1 of 26 subaccounts in their VA product. If you're looking to buy a VA in order to invest in convertible bonds, you're going to have a tough time.

Let's take a look at direct investment in convertible bonds by the insurance industry. As it turns out, convertible bonds are approximately 6% of the corporate bond marketplace. As such, you would expect the insurance industry to roughly invest something similar to 6% since they're essentially a main purchaser of fixed income securities. The current market capitalization of the convertible bond industry is roughly \$120 billion. To give you a slightly different perspective, I went ahead and sampled 20 large life insurers for evidence of convertible bond holdings. Quite surprisingly, I found that 12 out of the 20 didn't even have any convertible bonds in their portfolio. Eight out of the 20 held a very little amount, between 0.02–1% of total assets, with the average being 0.16% of total assets. The total market value of that 0.16% was \$600 million—that's quite a small fraction of the \$120 billion available.

What about the use by the insurance industry for convertible bonds as a financing vehicle? When I researched this in 1997 it turned out that the insurance industry represented roughly 3.7% of the Standard & Poor's (S&P) 500 on a market-weighted basis, and by just taking a snapshot look at the convertible bond marketplace the insurance industry sector represented 5.5% of the entire convertible bond marketplace. While they're not investing in convertible bonds, at least they are issuing them as a way to raise capital.

Essentially, think of the convertible bond as a noncallable straight bond plus an equity call option. Without getting into the specifics of the equity call option, just think of the equity call option as the equity exposure for the convertible bond. This is a very simplified convertible bond where essentially there's only one optionality in the bond; the holder of the bond has the right to convert the bond into equity only at the time of maturity. It simplifies down to this basic formula. Otherwise, it's a lot more complicated, and we can discuss that a little bit later. But essentially by just looking at this formula you can see that in general as equity rises the equity call option piece of the formula becomes very valuable, and the convertible bond essentially starts to behave exactly like a stock. The higher the equity goes, the more it behaves exactly like a stock, and vice versa. When equity falls the equity call option becomes worthless, and the convertible bond starts to behave exactly like a regular noncallable straight bond.

Let's take a look at some historical return statistics. It turns out that the Ibbotson series is one of the longest historical series for capturing convertible bond returns. It actually goes back to 1957. I've computed the return statistics from 1973 to 1998. I simply dropped out the earlier part because, as it turns out, Goldman Sachs did not update to the Ibbotson study that came out in 1993 and wasn't comfortable reporting the statistics prior to 1973 because they felt it was unreliable. I simply computed the returns, since the convertible bond has an equity exposure plus a bond exposure you would expect the return statistic to fall exactly in between the two, and that's exactly what happened. The convertible bond index over the 25-year period had an 11.8% return compared to the S&P 500 at 13.7% and the long-term corporate bonds at 9.5%.

Now let's take a look at the annual standard deviation, which is just a measure of that return around its historical average. If you see that the convertible bond return doesn't actually in this case fall in between the S&P 500 and the long-term corporate bonds, it's actually lower than long-term corporate bonds. It comes in at 11.7% compared to long-term corporate bonds at 11.9% and the S&P 500 at 17%. Typically, that's attributed to the historical period that we're using. From 1973 to the early 1980s there was an incredible volatile interest rate environment which essentially drove up that long-term corporate annual standard deviation.

Some other popular indexes also report convertible bond returns. For example, the First Boston Index had its inception in 1982. And Merrill Lynch had a number of convertible bond series. However, the oldest one dates back to 1988. One has to be very careful with interpreting the return statistics from that series because it's a very recent period. It also captures a period when the equity markets performed extremely well.

For those of you who are interested in the returns prior to 1973, I put these data together for you. What you'll notice is that when you consider the standard deviation over a longer historical period, the convertible bond index does actually fall between the S&P 500 fund and the long-term bond fund. The convertible bond has a 13.1% standard deviation compared to the S&P 500 at 16.8% and the long-term bond fund at 8.6%. Another interesting point to note is that when we went back to a longer period the convertible bonds didn't perform as well. That's attributable to the S&P 500 fund not performing as well during that time period.

As a general rule of thumb, if common stock rises, convertible bonds appreciate two-thirds as much as common equity. However, when equity falls, convertible bonds tend to suffer only half the damage. When I looked at it, I always dismissed it as marketing propaganda coming from an investment banking firm that was trying to sell convertibles because intuitively it didn't feel right. It felt as if those numbers should have been reversed. It felt like the downside protection from owning a convertible bond; you would need to give up more on the upside, and the two-thirds and the one-halves would be reversed. But when I stopped to think about it, there was a

very reasonable explanation why that might be the case. In general, convertible bonds have a much lower current yield, so over the life of the bond, without converting the bond to equity, you'll earn a much lower yield. The yield-to-maturity will be much lower compared to other nonconvertibles.

When you look at the historical correlation of convertible bonds with these other indexes, it turns out that the correlation of the convertible bond indexes with the S&P 500 has historically been very high. I've calculated it over a number of time periods. It always seems to come in the 0.8–0.95% range. Correlation is a measure of how two random variables move together. It's typically calculated by using a correlation coefficient that ranges between -1 and +1. The closer to 1 that statistic is, the more correlated the two variables are, and the closer to -1 indicates that they're highly but negatively correlated. They move in opposite directions. A correlation coefficient of zero means essentially complete randomness; the two variables are independent of each other.

I just wanted to point out that these statistics are calculated over a recent bull market, which tends to drive the correlation, so that seems to make sense. When equity markets are doing well, you would expect a very high correlation with the S&P 500, and when equity doesn't perform very well you would expect a high correlation with bond indexes. I've actually gone through the historical data and tried to segment particular parts of history where the convertible bonds have a higher correlation with bond indexes, and I've been able to calculate a 0.5 to 0.6 correlation in some cases. Definitely the correlation of convertible bonds is tied to the economic conditions we're experiencing.

The correlation appears to give the convertible bonds a good attribute in terms of portfolio diversification. Some of you may remember from your modern portfolio theory classes that any correlation between two assets which is less than one provides a decent amount of diversification.

Just to recap some of the convertible bond pros and cons. First, we've just gone over higher expected returns. Simply, there's equity exposure. It's more volatile. Therefore, you'd expect to be compensated for it. Second, reduced risks over longer horizons. Many practitioners have gone through calculations where they've done risk-profile curves over longer time horizons. They have shown that the advantages of owning equity in general tend to outweigh fixed income securities when you're looking at risk over longer time horizons. I'm not here to debate that issue, but I just wanted to point it out. There is downside protection of owning convertible bonds, and a downside protection comes from essentially owning some equity exposure, but if that equity exposure for some reason falls out of the equation then you're essentially holding a noncallable straight bond. You don't have the same downside risk that you have with just owning equity.

The most important of all the pros in terms of the insurance industry assessing convertible bonds and possibly assessing its merit in their portfolio is that it receives NAIC fixed income treatment. Essentially you have equity exposure, but you don't have the additional risk-based capital (RBC) charges that are associated with owning equity. They are, essentially, disguised equity investment. When I joined Ernst & Young a couple years back, one of the first questions I asked when I started doing work with the insurance industry was, "Why doesn't the insurance industry invest in equities?" One of the reasons I was told was because of these incredibly high RBC charges. After you reflected them into the equation, its fixed income securities seemed to outperform them on a risk-adjusted basis.

Some of the cons of convertible bonds. They're certainly riskier, as we saw, measured by their annual volatility statistic. If you're looking at volatility over shorter time horizons, then there's this increased risk exposure and lower current yields. If you're looking for current income, then the convertible bond probably isn't the instrument of choice. And the last item is poor liquidity. While there's \$120 billion in the convertible bond marketplace, it's in general not a very large asset class. If someone wants to hold a significant portion, they might have liquidity problems in terms of disposing their assets.

I just wanted to review very quickly some traditional valuation methods to take a look at convertible bonds. One of the most common ones looked at is the payback period, and you'll find this calculation in just about any of your major textbooks. The calculation essentially determines the number of years it takes for the convertible bond's income advantage to offset the premium paid. Just to go through a quick example, the premium paid is essentially the convertible bond price in excess of the conversion parity. Let's say a convertible bond is trading at \$120, but at that particular time it's bought the conversion ratio is 1, the current stock price is \$100, and the premium paid is \$20. You take the excess premium paid and divide by the excess income earned from CDs over holding a common share. Typically, the current yield from a convertible bond will be in excess of the dividend yield. Let's say that \$100 convertible bond has a current yield of 4%. Essentially, you'll be receiving \$4 a year from that convertible bond. And let's say that the common share has no dividend yield. Essentially, you're earning in excess \$4 per year. Your payback period would be 20 divided by 4, which means a 5-year payback period. Also, the traditional standard valuation methods have also been applied to convertible bonds, which are the yield-to-maturity, current yield, and yield-to-call measures.

What's the problem with these traditional methods? Essentially, all the ones that I described before ignored the equity conversion option, which is the key to holding a convertible bond. Definitely it is going to pay an excess premium for that. While it's embedded in the payback period, it suffers from just not accounting for that embedded optionality. Also, the yield-to-call and the yield-to-maturity measures suffer for all the same reasons the traditional methods suffer for straight-line nonconvertible bonds. We've essentially ignored the optionality and all the potential outcomes that might arise from the convertible bond, which is essentially the risk profile curve of owning a convertible bond.

Let's take a look at some of the current valuation techniques. The current methodology is much more sophisticated and reflects option-pricing theory to evaluate a convertible bond. It takes into account all of the embedded optionality in a convertible bond. Now, let's just go through a convertible bond that has a little bit more optionality than the bond I described earlier. The price of the convertible bond can be broken down into a number of subcomponents. First, the purchaser, the holder of the bond, essentially purchases the issuer's straight debt, which we've gone over, but secondly, and more importantly, he or she purchases the equity conversion option embedded in the bond. But, in addition, most convertible bonds are actually callable, which allows the issuer of the bond to essentially redeem the bond when it's in their best interest. So the purchaser of the bond actually sells back to the issuer that earlier redemption option, and that's going to be important in terms of developing a market value calculation for convertible bonds.

And, last, many convertible bonds contain put options, which allow the holder of a bond to put the option or the bond back to the issuer when it's in his or her best interest. Essentially, to evaluate convertible bonds correctly you need not only to reflect all of the embedded optionality in the bond but to appropriately reflect all of the interaction between the embedded optionality. You can't try to evaluate all those options individually and add them up; you need to actually go

through the process of how they interact with each other. For instance, let's assume that it is in the best interest for an issuer to call the bond. When the issuer calls the bond, the holder of the bond will make an assessment as to whether he or she should actually convert the bond. If it's in the holder of the bond's best interest to convert the bond, then a forced conversion will happen. The holder of the bond doesn't get the full value of that equity conversion option if there's a callable feature. Essentially, when you're doing your valuation you need to take into account all of these options. If you're running a Monte Carlo stochastic model using a binomial lattice, at each point in the model you need to correctly assess which one of those options is going to take place.

Modeling convertible bonds. Let's say we're an insurance company and we've purchased the convertible bond. What do we have to do for cash-flow testing or for projection purposes? How are we going to take a look at them now? Well, as it turns out, you need the same exact elements that you need for nonconvertible bonds. You need to have a projection model for your interest rate changes. You need to have a spread to Treasury assumption so you know how to discount all of your expected future payoffs and so on. But the one key ingredient missing is the projection for the underlying equity of the bond so you can evaluate the call option appropriately. For cash-flow testing purposes you have the same problems as equity-indexed annuities in terms of trying to capture the equity market exposure.

I just wanted to briefly reveal some best-kept secrets about taking a look at convertible bonds and evaluating them for anybody who's interested in playing around on their own with them. For \$35 you can purchase an absolutely great book called *The Complete Guide to Option Pricing Formulas* by Espen Gaarder Haug, (McGraw Hill Professional Book Group, New York, 1997). You will find in the back of that book a disc which is well worth the \$35 price tag, and on that disc is a very simplified Excel model for computing a price of a convertible bond. However, that model only accounts for the bond if it has this equity conversion option. If it has any call or put features embedded in the bond, it's not going to do the trick. However, for those of you who have access to the Internet, you can download free software at www.wilmott.com that will account for call and put options embedded in a bond. For anybody who's interested in taking a look at that, it's a nice piece of free software. And for those of you who wanted something a little bit more sophisticated and were interested in taking a look at them, there are a number of commercial software packages that will do the job for you. There's no need to re-create the wheel and develop your own sophisticated model. Without promoting any of them, I'll just say that they exist. We have one back at the Ernst & Young office that is quite sophisticated; it calculates Greek sensitivities, for those of you who are familiar with that. It has plenty of advance features in terms of how to calibrate the model.

Mr. Li: Do you have any specific questions addressed to Marshall?

From the Floor: In regard to the direct recognition products on the street, you indicated of course that the insurance company would prefer not to hold the equity portion because of all the extra surplus and things associated with it. You also mentioned the potential liquidity problem if you happen to have a bunch of these things in your portfolio. If the person wants to cash out the policy to take advantage of the gains that are inherent in these things, the company really doesn't want to convert these bonds. Are they selling the bonds on the street because they, again, don't want the stock in their own portfolio? And what are they doing about the liquidity process?

Mr. Greenbaum: That's an excellent question. I think it's been an issue for insurance companies because they take a look at their product on an ongoing basis, and there's certainly enough, at this point, incoming premium to offset anybody who's being cashed out at this point.

In general, the convertible bond funds are just growing at this point. They're actually reaching problems on the other end, which is that the market capitalization isn't deep enough for them to go out and purchase enough bonds. They're actually supplementing the portfolio with bonds other than convertibles. I think the bigger issue is going to be current market capitalization issues rather than liquidity at this point.

From the Floor: Are you saying that they are liquid? Are there so many buyers of convertible bonds that you wouldn't have any problem selling them?

Mr. Greenbaum: No, I'm saying that the insurance industry is running out of good convertible bonds to purchase. While they're going out there, you can definitely refer to Matthew Li in terms of whether there's a premium being attached to them, but there is the liquidity there in terms of selling them at this point to at least the insurance industry.

From the Floor: Will *Financial Accounting Standard (FAS 133)* limit the exposure to convertible bonds?

Mr. Greenbaum: Another excellent question. It appears that convertible bonds will definitely be subject to *FAS 133* in terms of that equity call option being bifurcated, and I'm not really sure what the impact of that will be. I know that a number of firms that are being fairly successful with these direct recognition products certainly don't want to cut back. I think they'll find ways to certainly implement *FAS 133*.

Mr. Li: Let me introduce to you our second speaker, Matthew Li. Matthew has a B.S. in pure mathematics from a top university in China, and he came to the U.S. to study for his Ph.D. at the University of Chicago. He then went to work for Merrill Lynch as a trader in equity derivatives. Currently he's managing director of The Global Convertible Arbitrage Group at TD Securities (USA) where he actively manages a large convertible bond portfolio.

Mr. Matthew Y. Li: I guess Marshall has given a very good presentation on this product, and there's some overlap in terms of the presentation between Marshall's and mine. I will go through those points very quickly.

I used to trade equity derivatives when I worked for Merrill Lynch. Three years ago I came to Toronto Dominion Bank, and we started a convertible hedge fund there. Currently we run about \$2 billion in assets. It sounds impressive, but it's actually quite small in terms of equity exposure.

I will talk about the basics of the convertible bonds a little more. Convertible bonds are fairly complicated products when you really look closely at them. I will talk about globally how many of these little animals are around, and how the product behaves when things happen in the equity market and fixed income market, and also how, given the complexity of this product, there are many different kinds of players and each has a different take on this product. The insurance companies are also involved in this product. I'm going to talk about how each player plays this market, and I'll touch briefly on how arbitrageurs like me make a living. The best way to do it is to use a real example. This is a bond issued by Home Depot. I guess everybody is fairly familiar with this company.

HD 3.25% 10/1/2001	Current Price: 256%
Issue Date: 10/1/1996	Issue Price: 100%
Conversion Ratio: 43.4 per 1,000	Stock at Issue: \$18.875
Parity: 81.92%	Bond Value: 84.79(6.9%YTM)
Term of Call: 10/1/1999 at 100.81	Poison Put: at 101%
Rating: A1/A+	

In October 1996, they issued a fairly large amount of this bond. I think it was \$1 billion or so. It was a 5-year bond with 3.25% coupon convertible into 43.4 shares per 1,000 notional. I have some statistics. That was issued at PAR. What this is saying is if you convert right now, right after the issue, you get roughly 82% of your money back. Of course, you're not going to do that. If you compare that to a fixed income instrument, at that time I think for five-year money they had to pay something like just under 7%. This piece pays you 3.25%, and that's what it gives you. The fixed income value is roughly 85%. In other words, you are paying 15% premium for that equity participation on the upside. This bond has done very well currently. The last time I looked the bond is trading around 250% of PAR because of the equity participation.

How do you look at this piece of paper? It's callable in three years. It has Poison put and all the nice stuff with it. If you start with the fixed income piece or if you are more like a Swiss person and ask, "It's a bond, right? I'll get my money back, right?" that's true. You get your money back. The worst I can do is I get 3.25% coupon every year. The tendency for them is to buy bonds. Whenever the convertible bonds drop below PAR, they tend to be big buyers. That's the way they look at it. They say, "I don't lose money, and I get a small yield." The equity option is almost like a lottery. If equity turns out to be like the Home Depot's, which is up almost three times, then you make a fortune on it. Otherwise you do not; you just sacrifice some current yield on a bond.

And if you are an equity investor, you are more likely to look at it the other way around. You would say, "If I were to buy the equity, I would have to pay \$82. That's how much equity content is in there. But if Home Depot drops in half, I will lose 50% on my equity investment, but on this piece chances are I won't lose more than 15% because that's the fixed income value." So we are paying 18% for the downside protection or for the fact that it has a fixed income feature to it. And, of course, you can be like me and look at it as a bond-plus option and price the option at whatever volatility and think about how much value you can extract from this product.

I used to tell people that it's funny how people like us can make a fairly nice living out of this very little market, being that the global market on convertibles is just under \$400 billion. As Marshall said, one-third of that is in the U.S., and another one-third of that is in Japan. Only a quarter of that is in Europe, and the rest of that is in Asia. Japan used to be a big issuer in convertible securities, but right now the market value is very small. Many of the convertible bonds are converted out. The Japanese market is no longer the dominant market. In Europe you have France and the U.K. being 50% of the market. Asia is something else. There was a frenzy issuance in convertibles, and most of them haven't really done well, but still they have done better than the equity market. We'll talk about that when we talk about performance.

The example I am using on Home Depot is a convertible bond, which is the most common type of convertible security you will see, but then, just like other things, you could add this convertible feature to a convertible preferred. You could do a zero-coupon type of structure, or you could do a mandatory structure. Of course, you start with a zero-coupon bond whose equity component is the smallest, and then you go up. The second type is the original issue discount bond, which is bond-issued below PAR with a small coupon. You then get to PAR bond, coupon bond, and

preferred. PERCS is something new. PERCS is a product that's basically a share of stock, but you enhance the dividend on the share of stock. On the upside, you get a cap. If the stock goes up three times, the maximum payoff you can get, let's say, is 30%. That product somewhat died, I think, in the last few years because of the huge run in the equity market. People realized that they got ripped off by the issuers.

Then there is something called PRIDES. That's a quite a strange animal. It's not really a bond and it doesn't have the downside protection, but it has variable ratios depending on where the equity ends up at maturity. Chart 1 shows the whole spectrum of the convertible payoff at maturity. If you look on the right side, it's more like equity. On the upside it does participate. This is only at maturity. It participates one to one. In a very large zone in the middle we have a fixed income type of payoff. If you look further left, I kind of left them sort of unknown because theoretically you have a bond, but there are cases where these companies cannot afford to pay you, so it's quite dubious whether they pay out if equity goes really low.

Globally, the European issues and the Japanese issues tend to be more investment grade, while in the U.S. you have a lot more junk bonds. One of the reasons is that convertibles are such a small piece of the global market and are ignored by a lot of people. There is a good reason for that. The market is somewhat segmented. You have the convertible or you have everything else. For example, everybody knows that there is a company called Amazon.com. You can think whatever you want to think about that company, but how many people know that they actually have a big outstanding convertible bond? It's close to \$1.25 billion. And the question people ask, "Why did they do that? Why don't they just issue equities?" It seems to me that they can sell an infinite amount of equity. And why don't they issue a bond? My understanding, therefore, of a company like Amazon is it's probably very tough to price a fixed income instrument and to actually determine what kind of spread you should put on. To issue equity is probably going to send a signal to the marketplace. It would somehow destroy the hype that they carefully created. So they turned to this little market called convertibles and issued \$1.25 billion in convertible bonds. I think after that issue their book value turned positive somewhat.

If you look at the U.S. convertible market, you do see that over half the issues are below investment grade; many of the issues are like Amazon or the start-up technology companies. And on the investment-grade side you do have some good S&P type of names like Hewlett Packard.

Referring back to our Home Depot case, you can look at it from an equity point of view or from a bond investment point of view. The first type of players are the outright players. These people basically use the convertible securities as an investment tool, and for these people Table 1 shows you the Sharpe ratio. Now, this is probably one of the most controversial things I have seen because if you are a convertible dealer, you would argue that convertible is somewhat an asset class, and over time it has delivered superior return with less risk, so the Sharpe ratio should be higher.

TABLE 1
 CONVERTIBLE SECURITIES

Some Comments on Historical Performance

The Sharpe Ratios
 U.S.

12/89-3/99	Total Annual Return %	Standard Deviation %	Risk Free Return	Sharpe Ratio
Merrill Lynch All Convertibles Index	13.51	8.54	5.3	0.96
S&P 500	18.04	12.89	5.3	0.99
Merrill Lynch Corporates & Government Master Index	8.47	5.65	5.3	0.56

Europe: Returns & risk comparable to 50-50% Stock/Bond Portfolio

Japan: Total Outperformance

Asia: Even more so

If you look at Table 1, it's not very clear to me. It's also dependent on what time period you look at. It's open to interpretation. But for the U.S. bull market it's hard to imagine that this is a superior product. On the other hand, if you look at the convertible returns versus the equity market returns in Japan and in Asia, there you see very high outperformance. The only reason is because for Japan most of the bonds were issued with a 2% coupon, and for the last 10 years the equity market is still 50% below the peak. With these convertible bonds they have enjoyed at least 2% a year in positive returns.

I guess one conclusion you could draw from here is that convertible bonds do provide a great alternative to a traditionally outright equity investment. It's really between fixed income and equity.

Of course, the second type of player is a fixed income player. The convertible bond has an equity piece and a fixed income piece. The second type of player is from the insurance companies. There's a bond component, so they strip it off, and they sell the equity component to people like us who pay the options. That could be very intriguing. I mean, why don't I just buy fixed income since the fixed income market is much bigger and much more liquid than this market here? It is true, but from time to time there could be opportunities in a convertible market that are not afforded by the fixed income market just because it's small. It's not well-researched. For example, we have cases where you have the straight bond trading at 200 basis points over Treasuries, and convertible bonds trading at 400 over Treasuries and they have an equity conversion option. But the convertible players don't understand the credit as well as the fixed income players. You could be buying this piece with a 200-basis-point yield pickup. But in that particular case it's even better because the maturity on that CD is much shorter. I've seen a lot of insurance companies which do that, and that's the fixed income piece. Also, among the outright investors you could have the equity investors or the dedicated convertible money managers.

The last type of player is someone like us, who is basically an arbitrageur. We break them down, look at each piece, and figure out what it's worth in theory. If it is worth more than the market, then we buy the convertible bond and short the equity against it, because the equity piece is more volatile than the fixed income piece. For example, in the Home Depot case one

classical move is to buy the bond at 250% of PAR. We short the underlying equity for 250 because there's no premium to it. A company like Home Depot might or might not drop 50% one day, but I have followed this strategy. The stock for some reason can drop by 50–60%, and I will make that amount of money. Let's say I make 150 points on the short, and on the long side I'm not going to lose 150 points because it is a bond; it's going to trade a certain premium to the underlying equity value.

That's one typical strategy employed by the hedge fund, and you can also see why in a hedge fund the leverage ratio is fairly high. If you use that type of strategy on Home Depot and use a lot of balance sheet and the stock doesn't crash in a year, you're wasting all of the balance sheet of your firm. But on the equity side the equity requirement is fairly small because if you were to borrow money from a broker to finance this trade, they would ask you to put up a very small margin because you have both sides on. If something happens to the marketplace, you can always convert.

Let's say you have the bond long and the equity short and the market price is trading off-balance. The worst action the broker can do for you is to convert your bond out and cover the short position. The only cost is the fee that you have to incur. And, as a result, you probably have to put up only 1–2% of the notional value as your capital. That's why I think most of the convertible hedge funds, depending on their style, are fairly leveraged. But there is a difference between that kind of leverage and the leverage probably used by long-term capital. If you have a 30-year bond versus a 29-year bond, even if the price has a big discrepancy, it's very tough to realize a profit. There is no clear exit strategy for you because in theory they will converge. But in theory you could also be waiting for 29 years for them to converge. Now, in that case it's very straightforward, but in most other cases it's kind of in-between. You have to rely on the market to come back to equilibrium in order to make money even if you think this bond is dramatically cheap.

It took people a long time to figure out Chart 1. I mean it looks simple. I classified things into different regions. On the right side you can see that it's very equity-like; in the middle it's really classical CDs where you have bond-plus equity options. Then to the further left you have more of a fixed income instrument, and at the far left it's a distressed situation. Once it gets out of the classical range going to the left where the stock drops too much, convertible bonds could behave very, very weird due to the player in the market. If you think about the players who are in the market, you have the outright equity investors who don't really care when the convertible bonds are busted because they are no longer sensitive to the underlying equity prices. You then have the dedicated convertible money managers who are really looking at ROE. The bond price does not really move anywhere. And then you have arbitrageurs like us. Most of the arbitrageurs don't really do credit work on convertibles, so once something goes wrong everybody gets scared and heads for the exit. This bond could get really depressed. You could have a 3-year bond, single A, but these bonds would be trading at 400 over Treasuries, which is not something you typically see for a more liquid market. This also creates opportunities for people who are willing to look at that. Once these bonds become bond-like, the liquidity is basically gone. I guess somebody asked a question about the liquidity. When the bond is more like equity of classical bond, basically the right two regions, the liquidity is fairly good. There are many types of players. Every player is in there: the equity investor, the bond investor, and the arbitrageurs. There are many, many dealers. It's interesting that so many people are setting up shops brokering convertible trades, but once it gets to the bond zone, the liquidity is very limited. Because the convertible bond market is fairly small I don't think many fixed income people really focus on this market. When it gets a little more distressed, the liquidity is totally gone. These bonds might not trade for a month, and once they do trade they trade very poorly.

From the Floor: I was once told, and I'm going to guess that you're going to tell me something different, that the coupon on convertibles was 1.5-2% lower than the typical bond industry. Your example of Home Depot seemed to have a bigger spread between those two. That's one question. The second question is for the foreign convertibles, are they paying interest in foreign currency? Are they convertible to foreign stocks? What do they convert to, and what's the denomination for their coupons?

Mr. Li: The answer to the first question depends on what kind of quality you are looking at and the general condition of the convertible market. In a case like Home Depot it's much lower than the straight bond because Home Depot is a very good name for people to have. It does make a lot of difference when you are a premier name trying to place a big piece of paper in a small market. People just love it. That's why on names like IBM, Hewlett Packard, and Home Depot they are priced at a fair lower coupon because people want it. It's the supply and demand that makes a big difference. Now, for a company like Amazon, the pricing is much worse.

Now, for the second question, there are all sorts of them. I'll say that most foreign bonds are denominated in foreign currencies. The biggest market is the domestic market. They are convertible into their underlying stock, which is usually denominated in the same currency. The coupons are usually paid also in that same currency. But there are quite a few Eurodollar issues that are convertible into dollars.

Mr. Greenbaum: How many particular plays do you look at in any one particular time, and where are they generally focused? Are they equity plays? Are they on the other end of the spectrum here in terms of distressed?

Mr. Li: I work for a bank, and the bank is always scared about the credit qualities of my portfolio. I guess for a convertible arbitrage fund or for a hedge fund like ours, you can employ basically four types of strategies. One is the one I just talked about, the Home Depot case, which is really betting the stock will drop more than everybody thinks. That would be a put type of structure. The second type of structure is betting the stock will rebound—you buy busted convertibles and hope that that stock will double or triple. The third one is the classical equity, which is the classical arbitrage. You have a bond with a 50% type of hedge. You are basically trading volatility. When the stock goes up, you sell some more, and when the stock goes down you buy back some more. You also have the straight cash-flow type of thing, because if it is a 5-year convertible trading at 15% over their equity conversion value and the bond is paying, let's say, 6% coupon and the equity pays nothing, then you can just go long and short and collect the income on it.

The cash-flow trades don't show up anymore, and people are way too smart for that. The put type of strategy is very common, and also because the equity market is so high you almost have no choice but to expect them to go down. Also common is the classical type of structure, which is basically trading volatility. And on the synthetic call strategy it depends on what kind of credit you can take. For most of the hedge funds I think they can take very low credit. For us, since we're a bank, we're fairly constrained as to what exposure we may have. That's not a big part of our strategy.

Mr. David Li: I would like to ask a question. It seems to me that the convertible bond is a hybrid product that involves the stock market and the fixed income market. Another element involved here, it seems to me, is the credit market. According to you, the largest proportion of the convertible bonds, 28%, is triple B rated. That is what we called below investment grade. Will you take an integrated approach to your trading operation and try to incorporate some of these

credit derivative strategies into the trading of those convertible bonds? I know TD is one of the big players in the credit derivative market.

Mr. Li: We do that, and we're all compensated on how much money we make. It's like buying insurance. If I'm not comfortable with the credit, I can't go and buy credit derivatives. It's more like insurance. But it is costly. For example, we used to own a fairly big position on Bank of Tokyo, and my simple theory was that if Bank of Tokyo goes, Japan goes, and if Japan goes, the world economy probably will go. In that case, if my business goes, I guess I could still explain to my grandchildren what I did wrong. But you also have to realize that in a hedge fund structure it's not a matter of whether you're right or wrong in the end because we're so highly leveraged. That's exactly what the problem was with long-term capital. If you have 10 times the leverage and you lose 5% on your asset, you're losing 50% on your equity. Then your leverage becomes 20 to 1, and it doesn't matter whether you're right or wrong. The brokers started calling in the loans, saying that you have to get down to 10 to 1. Some of my peers had the same problem with their investors. Long-term capital came out, and there was this high leverage. You have to cut down your leverage from 4 to 1 to 2 to 1. One of my peers had no choice but to dump everything he owned, and once he dumped everything he owned, my marks went down. My leverage got higher, and I had to dump some of the stuff I owned. That was the whole chain reaction caused by deleveraging last year.

So we bought some and Bank of Tokyo also traded badly. The Bank of Tokyo bond was a four-year bond senior note. I think I was trading something like 500 over Treasuries. It was a dollar bond, so we had to buy some credit derivatives on this piece. We are paying 120 basis points for each year, but now everything is coming back, and it costs me a lot of money because every year it goes by I have to pay that 120 basis points. When the market gets rich, it gets even riskier because few people can really afford to buy protection like that. Still, I'll squeeze some money out of the product because our margin on assets on average is probably 2-3%. If I buy protection on my long notional, and it cost me 1%, my performance goes down by a half. I need to do some research work on the credit and see if we really need it and can take the downside risk if something goes wrong. If we get really nervous, we do buy credit derivatives, but it's rarely used.

CHART 1
CONVERTIBLE SECURITIES
HOW TO LOOK AT CONVERTIBLE SECURITIES

Convertible Price

