HAS THE BENIGN CREDIT CYCLE ENDED AND IS THE CREDIT BUBBLE LIKELY TO BECOME EVEN MORE INFLATED?

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2016 Financial Analysts Seminar
20 July 2016
Chicago

Edward I. Altman discusses the current conditions in global credit markets and the implications for investing in fixed-income and equity markets. Altman also covers current trends in high yield debt markets, increasing default rates, increasing spreads on leveraged finance securities, and reduction in liquidity. Altman concludes his presentation by discussing future prospects for the high-yield bond cycle driven by negative performance in high-yield and leveraged loans in the late 2015 and early 2016.

Edward I. Altman: Thank you, Brian. Good morning, everyone. Very nice to be here. Thank you, Julie, for inviting me again.

And yeah, I guess if you’re talking about the research on default rates and high-yield bonds and distressed debt, that was the closest time I actually came to leaving academia and going into the, quote, “real world” that most of you live in. But it was a fantastic job description that I read from a headhunter. And they were asking, do I know anybody who could fit this?
It was a new position at Morgan Stanley that was being created in the area of credit risk. Believe it or not, back in the ‘80s, there was very little research and people assigned to credit risk. Now, of course, that’s a different story, with the high-yield bond market now $1.6 trillion in the US, €500-plus billion in Europe, and of course, in other parts of the world as well.

And so I got this job description, and I said, “God, this is terrific. I’ve never seen such a wonderful job description.” So I called up the head hunter, and I said, “This is terrific.” He said, “Well, would you be interested in it?” And I said, “No, I don’t think so. But I’d love to meet the guy or the woman who wrote it.”

And he said, “Well, that’s highly unusual. We don’t usually do that, but let me check with them.” And he said, “By the way, would you be willing to be a candidate for this position?”

Morgan Stanley, at that time, was trying to decide whether or not to get into the high-yield bond business. Believe it or not, in the early ‘80s there was only a few dealers — Drexel, of course, was the leading underwriter and trader research house in that area. So Morgan Stanley was saying, should I get into this area or not?

So I met the fellow who actually wrote the job description, and he said, “I actually wrote it for you,” because he knew me. He was on the faculty at Stern in the economics area. Terrific guy who left and went into Morgan. And he said, “Would you be interested?”

And I said, after I thought about it, “Yeah, it will probably be a lot more zeroes after in my salary than I was then making at NYU.” But I said, “I don’t really think I want to change my lifestyle. I like being a professor and doing a lot of other things as well.” But he said, “Well, would you be willing to do some research on this high-yield bond market?”

So we built databases. We started indices, and we started work on the high-yield bond risk and return trade-offs. Indeed — well, Julie just left. But that article on default rates and high-yield bonds from an academic perspective was the recipient of that Graham and Dodd’s Scroll Award.

So fast forward now to 2016, where we are today. You have a long title up there — lot of words in it. Benign credit cycle, bubble, inflation or inflated — a smaller, more simple title of my talk today is “Where We Are in the Credit Cycle,” and that would be covering a lot of what is in that longer title. And so let me introduce a couple of concepts to you.

And by the way, I will not only be talking about what’s happening in the world today and my outlook for what’s going to happen in the credit markets in the short term and medium term following from now, but I’m also going to refer to a number of studies that I’ve published over the years as helpful in understanding where we are today. The Z-score model we probably will refer to, mortality rate approach, the trade-off and correlation between default rates and recovery rates.
These are all articles that have been published in academic journals but also have relevance, I think, for the world today.

And I apologize in advance for those of you who have a CFA for having to study some of these articles in order to pass your exam. But I assume if you have a CFA in front of you, like Mr. Osborne here, that you passed. So I guess I don’t have to apologize to people who passed.

But anyway, it’s nice to meet the people over time. And I speak to CFA Institute members all over the world. I’ll be going to Japan and Korea in October. And I’ve been in the Far East and other parts. And so this is great to be here and trade ideas with you.

There will be time for a Q&A at the end, I hope. It may even encroach on your lunch. I hope that won’t bother you too much. And I’ve been told, Brian, that we can go to midnight, correct?

[LAUGHTER]

We’ll try to do that. And for you folks overseas or wherever you are watching, I hope it’s not encroaching on your dinnertime or whatever that we’re going to talk about it.

So in terms of where we are in the credit cycle — and another way to put it is, is the benign credit cycle that we’ve been enjoying in credit markets now for six and a half years, ever since 2010: Is it over? So let’s first talk about, what is a benign credit cycle? It’s a general term. You kind of think you know what it is. But I’d like to put some meat on the question by talking about four metrics that I look at to determining if we’re in a benign cycle or not.

And of course, the opposite of a benign cycle would be a stress cycle. And then you have, of course, the extreme of the stress cycle — a financial crisis, like we had in ‘08, ‘09, and minor ones that we had in ‘01, ‘02 and again, back in 1990, ‘91, if some of you remember some of those periods.

So the four metrics I look at — and they’re up there in the first bullet — are default rates, recovery rates, yields and yield spreads, and liquidity. If we have low and continuously low default rates — and my frame of reference in this talk and in a lot of my writings is the high-yield bond market. The reason is that it’s a risky market, and that’s where the defaults come from. They migrate perhaps from investment grade to non-investment grade, and then if they keep migrating south, they end up in default.

There’s only been a few companies, like Lehman Brothers and a few others over time, that actually have defaulted straight from investment grade. Most of them migrate to non-investment grade. Or they start out, and they never leave it.
So default rates, if it’s below historic average for long periods of time, that is a benign indicator, and vice versa. If you get to above historic averages and default rates, then you lose that metric as one indicator of a benign cycle.

Recovery rates — here we're talking about the price of bonds just after default. And if recovery rates are very high — so the LGD, lowest given default is low — that’s also an indication of a benign cycle. However, if recovery rates drop a lot, and you get a double whammy of a high default rate and a low recovery, that’s an indication of a stress cycle. And I’ll come back to all of these metrics and talk about the current numbers.

Third, yields and yield spreads — the historic average yield spread on high-yield bonds is about 5 and 1/4% — 5.2%, 5.25%. That's a spread between the high-yield bond index and what we used to call the risk-free rate. Now, of course, we don’t call that anymore. We call it benchmark. And I’ve used 10-year Treasuries, or you can use a comparable-duration Treasury as the benchmark. Anything above five and a quarter is more than the historic average and begins to look like a stress cycle. And anything below it or at that is probably still in a benign state.

And finally, liquidity — that’s the most difficult one to clearly articulate and measure. I’m going to refer to liquidity as the ability of marginal, high-risk companies to raise capital fairly easily at relatively low interest rates. I know it’s not as precise as the other definitions, but liquidity is very difficult to measure. If there’s one area that we still need a lot of good research in, among a number that we’ve been talking about and will talk about, it’s liquidity. Some of my colleagues at the Stern School have done great work on liquidity, but nobody really, really understands liquidity, I’m sorry to say.

And we know liquidity is critical. It was in 2008, when the yield spread on high-yield bonds reached over 20%. We knew that the main reason for that was the lack of liquidity in the market. It wasn't default rates. It wasn’t recovery rates only. It was liquidity risk, and that became critical at that point in time.

So those four indicators are what we’re going to concentrate on first and then look at current conditions, as to where they are in this cycle. Now I started writing and thinking about this issue of where we are in a current cycle about a year ago. And I used a baseball metaphor, which I’ll use, for this audience, fairly comfortably.

Sometimes when I go overseas and I talk, and I talk about baseball, you see this big blank look on people’s face, because they’re not as familiar with the fact that in baseball, as you know, we have nine innings and then the game is usually over. And the equivalent in football, or soccer, that we call it, is 90 minutes. And then the game is usually over in football.

Well, about a year ago I said we were in the seventh inning of the benign credit cycle. We were still in it, but it was beginning to get to the point where we thought that the cycle would be
coming to an end fairly soon. And then at the beginning of this year, you probably all remember — January, February, and particularly February 11th when things turned around — we said we were in the ninth inning. But the score was tied.

And as you know, when the score is tied after nine innings, you have extra innings. And extra innings can last for one inning, or it can last for many innings afterwards. And as a matter of fact, I mention this baseball metaphor to my dentist last week — no, it was more than last week. It was just before our conference we had at Stern on May 24th, so it was just before May 24th.

And he said, “Oh, that’s great. I love that metaphor.” He said, “Can I add to it?” I said — you get a lot of good information from taxi drivers and your dentist sometimes. And he said, “Can I add to your metaphor?” And I said, “Sure. What do you got to add?”

He said, “Well, let’s think about extra innings in terms of relief pitchers.” You got Janet out there, Super Mario out there, and whoever else is in charge of the Central Bank in Japan and in China. And if you throw them into the game, they’re going to see that the game keeps going — that the benign cycle keeps going by lowering interest rates, by increasing liquidity, and that’s exactly what happened in February.

The four major banks in the world kicked in all at the same time. Of course, some of them had already been doing it earlier, like QE1, 2, 3, and so on. And kicked in at the same time, and at the same time, the price of oil started going up.

And so the benign credit cycle clearly continued. Or the stress cycle that was at the outlook at the beginning of this year began to moderate. And I’ll show you what happened to yield spreads and what happened to returns since February up until today.

And so the metaphor is, we are in extra innings in the ball game. Of course, there’s another wild card out there. It’s called negative interest rates or near-negative interest rates. Incidentally, do any of you read *Grant’s Interest Rate Observer*? A few of you do. Remember what he wrote this week, if you saw it?

The last time we had negative interest rates — 3,000 years ago. You talked about an avalanche in the prior talk or how often these things happen, negative interest rates don’t happen very often. And to think that it’s going to continue for long periods of time, I think, is a major mistake. It could change very quickly. I don’t know, of course, when it’s going to, but it certainly has been around certainly in Europe for a while and could continue. But if it changes, the big short is very clear right now as to where to go.

OK. So enough about the metaphor. Let’s talk about these four metrics and where we are. Just for those of you who like numbers and size of markets, the investment-grade market in the US,
corporate investment grade about $4.3 trillion, $1.6 trillion high yield. So it’s about a $6 trillion corporate bond market.

And they’re breaking down by financial, industrial, utilities. So you can see some numbers to get a feel for when I’m talking about default rates, what’s the reference in terms of size. Here you can see the growth of the high-yield market. So here I was, in 1982 when I got started, was the only high-yield bonds out there. There were a few original-issue high-yield bonds, but most of them were called fallen angels — beautiful, angelic at birth. But like many of us as we get older, we get uglier. We develop wrinkles, we lose our hair, and we get downgraded to non-investment grade.

And so back in 1982, that was most of the market. It was only a $10 billion market then. Today, $1.6 trillion, probably 20%, 25% of the market at most — probably even less now. Of course, there’s been a ton of new issues in the non-investment-grade market in the last five years. That’s going to be one of the metrics we look at as to predicting default rates going forward. How much and how risky within the high-yield bond market?

Now I’m going to particularly emphasize the real trash, the triple Cs, that have been issued and when they will come home to roost. At least, we have historically observed them.

OK, so you can see that growth starting in late ‘70s, and now $1.6 trillion growing dramatically. And just the last couple of months, huge, big issues, again, after stopping somewhat the growth in the third and fourth quarter of last year and the beginning of the first quarter of this year.

So here’s numbers of default rates on high-yield bonds. You should have, by the way, a handout on this. If you don’t have it, there’s copies outside. And you can see that we have three columns here — amount outstanding, par value of defaults, and the default rates. Very simple calculation. It’s dollar denominated one rather than a number of issuers. How much and how risky within the high-yield bond market?

So you notice that we’ve had three periods in the most recent time series of default rates of above 10% — that default rate’s on the right-hand axis — in ‘90, ‘91, ‘01, ‘02, and in 2008, 2009. Now I guess I should also apologize to all of you out there, but I love defaults. I love bankruptcy. This is where the action is if you do research in this area.

The thing you absolutely need when you do research are data points. And so if you’ve got a lot of data points — so we’re very privileged in the United States. We have lots of recessions and lots of defaults and lots of bankruptcies. And in fact — some of you may have heard me say this if you’ve heard me speak before — but my wife and I have this tradition of opening up a bottle of fine red wine every time there’s a big bankruptcy.
And if there are two or three in a short period of time, we move to the fine champagne. Well, particularly in ‘02 — I don’t think this — yeah, it is working, but it’s kind of not very — I don’t think you’ll see this very much.

Anyway, you can see this in ‘02 — I’ve always wanted to be 6’8” for a lot of reasons. I’ve never dunked a basketball. Probably most of you haven’t either, but there’s no chance. But also to be able to point clearly to charts like this one.

Anyway, back in ‘01, ‘02, my wife and I were drunk all the time. It just was an absolutely fantastic period for defaults and bankruptcies. I know that many of you like to avoid defaults. And thank you for using the Z-score model as an indicator.

And incidentally, I don’t know who mentioned it in the last panel that I was here just before about equity research. And I’ve been surprised. Mr. Bloomberg tells me, not personally — though I do live in the same city that he lives in and he, of course, was a mayor for many years — but he’s got a little service that’s called Bloomberg that many of you know. And you can access Z-scores on Bloomberg.

And from what I understand, they get about 5,000 hits a day on the Z-score model, which I thought was pretty high. I don’t get a nickel, by the way. He’s a very wealthy guy. But he doesn’t share it, at least not with me. But he is very good for philanthropic giving. I must give him credit for that.

At any rate, I asked him, “Who’s using the Z-score?” And the real surprise answer was dominated by equity research people, not fixed income. I was surprised with that. So typical fixed-income people are really concentrating on a downside equity, of course, upside and downside symmetrical returns around mean. But they’re also interested in how much you can lose if a company goes under.

And so we’re going to talk about that as well. And another chart that’s perhaps even more interesting is this relationship between default rates and economic recessions. So the yellow bars represent recessions in the United States since the early ‘70s. Notice we’ve had six of them.

And a very important question is, when will the next one happen? And I’m going to come back to that as well. I’ll try to. But notice that — and the horizontal line in there is the mean. The average default rate over the last 45 years, 3.4% per year. So keep that in mind; 3.4% is the average annual default rate measured in dollar terms over the last 45 years. So anything above that would be above the historic average, and obviously below that as well.

So take a look at the benign cycles in this time series. And they are the period of time when you have continuously annual data several years in a row or more of below-average default rates. So
notice we have, and particularly in this period, in this period, and in this period — for those of you hopefully are able to see this who are looking in the video.

The average benign credit cycle over the last 40 years is 5 and a half years. The range of benign cycles is between four and seven years. We are now in the six-and-a-half-year benign cycle. However, notice on the right-hand side of this graph, for the first time this quarter, the default rate has moved above the historic average.

And in that prior chart — sorry, here — the current default rate — where are you? Yeah. We don't have the new one on here, I don't think anyway. Anyway, let me give you the latest number.

As of 7–15, as of July 15th, the default rate is almost the same one that's up there — 3.1%. So maybe I sent you the wrong chart. So we are 3.1%, but that's year to date. The last 12 months’ default rate — 4 and 1/2%. And so if you look at this graph, you'll notice on the right-hand side we are now, for the first time in six and a half years, above the historic average.

True, most of them are coming from oil and gas and mining. Probably over the last — not probably. Exactly over the last — since January of 2015 — one and a half years, something like 60%, 65% of all defaults are oil and gas and mining. The rest are other industries.

So you can point to that and say, “Oh, if we didn’t have an oil and gas problem, we wouldn’t have so many defaults.” Well, ladies and gentleman, there’s always the outlier industry out there. It just happens to change over time, whether technology, whether it's steel, whether it was automobiles back in ’08, ’09 — there always are outlier industries. Don’t throw out data just because it's a single industry that’s dominating it. At least that's what my feeling is.

So four and a half year — sorry. Six and a half years, we're getting close to that seven-year longest range. That doesn’t mean it couldn’t last longer than seven years. We could go to the end of this year or even into 2017 and still be in a benign cycle. But it’s not likely to go much beyond that.

So I was thinking we were just about the end of the cycle in January, February. A lot of other people were thinking the same. Spreads were 860 basis points — remember, 525 is the historic average — in February. Today they’re back to 540, just about the historic average.

Things have changed for the better, at least for the bond markets, in the last four, five months. OK. So this is the default rate first metric.

In terms of our forecasts, just to give you the bottom line in case I don’t have time to go through it, here are our forecasts and the three rating agencies as to what the 2016 default rate will be by the end of the year. Fitch has the highest at 6%. We’re at 5%. Moody’s, 4.4%. They may have changed.
Somebody once said, never forecast. But if you do, never put it in writing. But if you do, do it frequently. And believe me, the rating agencies do it frequently. So they change their forecasts. We don’t change it as much, but I’m learning from them. And so now we do quarterly. And when I make a presentation like today, I will give you my latest forecast for the next 12 months.

But at the beginning of this year, these were their forecast — 6, 5, 4.4, 5.3 — all higher than the historic average, and now we are, in fact, at that point. If you’re interested in Europe, I’m not going to spend time on it here, but you Europeans listening in — it’s interesting. Europe is a basket case in terms of many things — in terms of growth, recessions, and whatever — but the default rate on high-yield bonds — and it’s not a trivial market anymore; there’s over €500 billion — has been consistently lower in the last four or five years than the US.

How do you explain an economic environment that is not doing well relative to our environment and yet, default rates are much higher in our environment compared to Europe? So I was curious in that. And then I began to look into it a little bit more. I’m not an expert on the European high-yield market. I don’t spend as much time on it.

But what I noticed is, most of the European high-yield market are double Bs and Bs, very few triple Cs. Where our market, while it doesn’t dominate triple Cs, is much higher. Something like 15%, 20% of all high-yield bonds issued in the last five or six years are triple Cs. And when I show you the default rates historically on triple Cs, you’ll wonder, how could anybody invest in a triple-C original-issue bond?

Yes, you may have one as a legacy in your portfolio. But to invest in it, where you know that default rates are going to be very high, it happens all the time. Of course, investment managers say, “I’ll get out before the default.” Or, “It’s not going to happen on these particular bonds.”

Anyway, looking at the default rate for Europe, you’ll notice particularly in the first quarter of 2016 — by the way, that 2016 number for Europe, 1.29%, is the last 12 months. It’s not year to date, so still pretty low. All those years are low. They’ve had big years, too, back in those years we had them. But by and large, lately the European market is less risky in terms of default than the US high-yield market. And this is by issuer, same area.

Let’s talk about recovery rates. Now most of you probably don’t follow recovery rates very closely. But let me tell you, there is a number of metrics you can use to measure the recovery rate on a defaulted bond or loan. We use the price just after default. What you can sell the bonds for if you owned it, or what you could buy it for if you are a distressed investor and interested in investing in a defaulted security.

I know you had a talk earlier this week on distressed investing. It’s something we teach at the Stern School. We’re probably one of the few business schools that emphasize distressed debt as an
asset class in the classroom, of course. It’s a pretty big market out there — well over 250 institutions specializing in distressed debt. So it’s not trivial.

And probably hard to know the exact money under management, but I would guess 300, 400 billion at least in this area. And it varies over time depending on market conditions. At Franklin Templeton, where I am a director of, we’ve added now a new fund of hedge funds in the credit space. And these folks do emphasize distressed and defaulted securities.

So recovery rates can be the price just after default. Anybody know what the paradigm is in the credit default swap market? The price 30 days after default, and that’s what they use as the closing price on a credit default swap for the recovery for the issuer of the CDS.

And there’s another definition called the ultimate recovery that some of the rating agencies specialize in. And that’s the price or the value of the exchange securities when the firm gets out of restructuring. Like Chapter 11, they come out and the old debt is exchanged for new debt, or equity, or a combination of debt, equity, and cash. The value of the exchange is the recovery rate. And banks use this all the time on a recovery rate on their bank loans.

So three definitions at least — price just after default, recovery 30 days later, and ultimate at the end of the restructuring period. You discount it back to the default date to get a kind of a present value analysis of that recovery to use.

Notice that in 2014, the overall recovery rate, 63%. This is on bonds. So in 2014, when we were in the benign cycle, very high recovery rates. Historic average, down at the bottom, around 46%. So the average bond over many years sells at around 46% of par value just after default.

It was 63% in 2014 — very high, very benign. 2015, something strange started happening. The average recovery rate was $0.34 on the dollar — 33.9. Broken down by energy, mining versus all other — yeah, all other was about the historic average, but energy and mining was $0.25 on a dollar. Of course, that reflected the low price of oil and the amount of oil in the ground, which is the collateral on most of the bonds. That’s why the recovery rate was much lower for energy and mining companies — $0.25 on a dollar.

So you can explain away the fact that the recovery rate was now lower than the historic average by saying, “Oh, it’s mainly energy.” But take a look at 2016 so far. 2016, the overall recovery rate is about $0.20 on the dollar. We’ve never seen $0.20 on the dollar for the overall recovery rate. Never.

The lowest it’s been in really bad years was around $0.25 on the dollar. So something’s changing in terms of investors’ expectations of what they will recover on companies’ debt securities after they restructure. $0.17 for energy mining and $0.31 on a dollar for all other, all below the historic average. So I’m convinced, if you look at the recovery rate metric, we are no longer in a benign cycle.
Third metric — anybody interested in this? I don’t know if this is on your CFA at all. It is? On recovery rates? But we did an analysis back in 2002, and we became very unpopular with bankers as a result, on the correlation between default rates and recovery rates over time. So notice you can fit regression lines, either linear or nonlinear, between the default rate on the x-axis and the recovery rate — this is the price at default — on the y-axis.

And notice they’re all negatively sloping and quite significant. I’m going to use this relationship a little later on to estimate expected recovery. So for example, if we expect default rates to be 4% in a particular period, we can go up the line from 4%, and you’ll see that it interacts at around $0.40 on the dollar as an expected recovery.

And the $r^2$s on this regressions are quite high. We’re talking about 0.5, 0.6 adjusted $r^2$s. And we can even break it down by seniority. But the major takeaway on this is, the higher the default rate, the lower the recovery rate; and vice versa. And why were we unpopular?

Well, banks — for those of you follow Basel 2 and Basel 3 — have to estimate LGD, loss given default, for every asset on their balance sheet. And for many years they were arguing, OK, we’ll estimate PD, the probability of default, for our assets. And then we’ll take some historic average recovery and plug it in to get LGD.

And then we published this, and we said, “Well, that wouldn’t work, because in a downturn, in a recession, you’re going to have high default rates and low recoveries. That should be part of the stress test.” And so it became part of the stress test. So we were not very popular, because they had to go back and re-estimate LGDs as a result of this and probably some other studies. So that’s also something that’s relevant to consider.

In terms of bankruptcies — incidentally, you might not be, realize it, but only 50% of all defaults are coincident with bankruptcy. And another 50%, companies default on their debt, but there’s not a bankruptcy then. There may be later on. So a missed interest payment, but not cured in 30 days, is a default but not necessarily a bankruptcy.

Then there’s also something called a distressed exchange. I don’t want to spend too much time on definitions, but this is very popular today. The investment bankers and the lawyers say to their creditors, “You know that debt out there? We think that the company will do better if they have a little bit more time. And we’re going to give you some new debt for the old debt — maybe with a different interest rate and a different maturity — or, we’re going to give you equity for the debt.”

That’s really what an equity-for-debt swap is. And this will take the pressure off the company to meet their interest payments. So that will give you more time. And we can even give you cash for debt, but not at 100 cents on the dollar. Any of those is a distressed exchange, and we count that as a default. And so do the rating agencies, just in case you’re interested in pursuing this further.
In terms of Chapter 11 filings of at least $100 million, look at the difference between 2015 — this is the right-hand side of the graph. There were 31 filings. I’ll give you the latest number. Now I think it’s — as of 7-15, there were something like 35 filings greater than $100 million in liabilities in 2015, as of July 15th. This year, 2016, there are already 65, almost double. So 2016 is a much more stressful year than 2015 in many dimensions.

Here’s a list of energy bankruptcies, in case you’re interested in this. I’ll get over that. And these are energy defaults, so it’s in the data in case you want to look at that.

Let’s talk about yields and spreads. I mentioned that the historic average spread — and I use the yield-to-maturity spread. The market tends to use the option-adjusted spread. The lowest it ever was in the history of the high-yield bond market — not 3,000 years of history, as Jim Grant — incidentally, the Jim Grant newsletter, in case you’re interested in looking at it — it’s not his analysis that showed the last time we had a negative interest rate was 3,000 years ago. It was one of my colleagues at NYU, Richard Sylla and Sidney Homer, in the interest rate tome that they published and updated for many, many years now.

Back in June 12th, ’07, the spread between high-yield bonds and 10-year Treasuries was 2.6%. That was the lowest ever. And then, of course, things started going badly. And the spreading craze hit the historic average at the end of ’07, reached about 800 basis points March of ’08 — that’s when Bear Stearns got bailed out. Market said, “Oh, too big to fail, bailing out. Let’s calm down.”

Same thing happened to Greece in 2009. Market calmed down when the ECB — sorry, the other European countries came in to bail them out for a while. They did default in 2012. And they might default again, by the way. They’re not that much better than they used to be, but the ECB and the other European countries seem to be willing to continue to bail them out.

And then we had Lehman Brothers in September ’08. And the spreads jumped from 800, by December, 2,100 basis points. We never have had a spread that large. Some people say we never will. I don’t know what the spread was 3,000 years ago. There certainly weren’t any high-yield bonds 3,000 years ago.

But the point was, nothing moved when you have a 21% spread. Companies can’t refinance. Nobody’s willing to put any money into credit anymore. Equity markets fell by 30%, 40%. We were in the Great Financial Crisis.

It’s funny where I heard that term the first time, it was Australia — the use of the term “the GFC.” Anybody here from Australia? Anybody on the video from Australia?

Well, you folks, I really feel sorry for you in Australia. You haven’t had a recession since the early ‘90s. You’ve been really underprivileged. We have so much better data than you do on recessions.
And Australia was one of the few countries that didn’t go through the GFC, but they call it the GFC because they didn’t have a recession. They didn’t have huge defaults like we had here and in most of the rest of the world.

Twenty-one hundred basis points, and then it came crashing down. Pumping money into the system. It was Uncle Ben rather than Aunt Janet at that time. And it was also, the stock market turned around and say, the world is not coming to an end as we know it. And things calmed down, went above and below the historic average, reached about 800 in 2011, a sign of distress, calmed down.

Super Mario, in 2012’s, famous 20 words, “We will do whatever is necessary to save any European country that’s in trouble, particularly the southern European countries.” And the markets calmed down. They calmed down, calmed down, calmed down.

And then at the end of last year and the beginning of this year, again it reached 800 — in fact higher — 840, 850 basis points, 300 basis points higher than historic average. Many people were saying the benign cycle was over; the stress cycle is starting.

And once the stress cycle starts, it oftentimes goes to 10%, 12% default rates. And we were, at that time, only at 2%, 3%. So imagine what the trend is going to be if in fact it started. And of course, debt would do poorly.

But for major central banks in the world, pumping money, China — I think China was also a big issue at the beginning of this year. Incidentally, many of you are not in fixed income, probably. I don’t know. How many of you are in fixed income in some way? Oh, OK. I’d say maybe close to half. That’s more than I thought.

The point I want to make about whether you’re interested in fixed income or equities or both: It doesn’t make a difference. You know what the correlation is — monthly total return correlation — between high-yield bonds and the S&P 500 since the Great Financial Crisis? Take a guess. The monthly total return on high-yield bonds and on the S&P 500 since January 2010. How much? 0.8 — it’s very close to 0.8.

What do you think the historic average is, going back to, say, 1980s? Like 0.4 — 0.3, 0.4. The markets have changed. Whatever moves, the high-yield market moves, stock market and vice versa — not 100%. And the correlation between oil prices, by the way, in the stock market is huge also — probably at least 0.8. So I don’t know how long that’s going to continue, but that’s a new phenomenon as well.

So you talk about risk management and you talk about asset allocation between fixed income and equities, and if you’re talking about risky fixed income, you’ve got to really understand that things have changed, at least in terms of risky debt. And of course, the correlation between Treasuries
and the stock market in Treasuries and high yield is super negative now and has been for a number of years.

And that’s why we had interest rates at 1.35% recently, because that’s when there was the Brexit problem. And everybody ran to Treasuries, the flight to quality. They’re still very low in — what’d I say? 1.5%, 1.6% now — sorry, 1.5, 1.6 for 10 year.

Where are we today? We’re back at the historic average. So I can no longer say that yield spreads imply we are clearly no longer in a benign cycle. We probably still are in the benign cycle.

And finally, liquidity, just to finish everything. Liquidity — let’s talk about — I may have to skip around a little bit. Yeah, we can talk about this chart as well.

This shows the percentage of new issues B minus or lower. It’s an indication of how much the market is willing to spend on very risky debt. So you had huge amounts in ’04, ’05, ’06, and ’07 before the crisis. Then you had reasonably high amounts in the high 20s and low 30s percent. This is percent of high-yield debt B minus or lower. I’m going to do the same thing with triple Cs, the real trash.

And then it dropped a lot when the markets got scared in the end of 2015 and the beginning of 2016. But it’s come back. Money is pouring into the high-yield market. I think last week or last month was the biggest net inflows into the high-yield space ever.

And of course, the reason is quite obvious — search for yields. The only place you can get yield these days. So the average yield on a high-yield bond today is about 7% — not the spread, but yield.

And compared to what you get on Treasuries or investment grade — even investment grade is popular, because the spreads are not zero. The yields are not zero. They’re high. Our default rate forecast, I’m going to skip over this in the interest in time, because I want to have some time for questions. But I gave you my forecast before. We have three ways of forecasting it. I’m going to skip over that but tell you that it has to do with yield spreads, had to do with the stress ratio — incidentally, have you ever heard of a term called a distress ratio? It’s quite common now in the high-yield industry. It’s the percentage of high-yield bonds selling more than 1,000 over Treasuries. So those are bonds selling at very high yields. But the higher the yield goes, the closer the company comes to no yield, because that means default.

So if you get 15%, 16%, 17%, 20% above the risk-free rate, that’s very high yield. But it also means that it’s close to defaulting, and so you’ve got to be careful of those. So the percentage of the market that is distressed is a very good indicator of future default rates.

What do you think the distress ratio was, or take a guess, in December ’08? That’s the percent of bonds selling at very high spreads — 82%. Eighty-two percent of the market was distressed. So
the high-yield market was the distressed market. Today it’s about 17%, 18% of the market. So those are the ones that you want to concentrate on if you want to be concerned with getting very high yield but also having high PDs, probabilities of default.

OK. Now let me ask you another question. Is the average American company now issuing non-investment-grade debt — take investment-grade debt, too. The average corporation in the United States — is it more or less creditworthy than it was in 2007? Is the probability of default among American corporations higher, lower, or the same as it was in ‘07? Don’t forget, ‘07 right before the GFC.

How many of you think that the average American company is more creditworthy than it was in ‘07? More creditworthy — raise your hand. OK. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 — 10. How many think it’s less creditworthy? A little bit more bearish group. All right. That’s about 15, 16.

How many think it’s about the same — just as creditworthy as it was? Nice. 1, 2, 3 — OK. Less folks. And how many of the usual professor lament? How many don’t think? But it’s not something you’ve been thinking about, perhaps.

So I had the same question, because if it’s more creditworthy than it was, that would explain why default rates might stay low. But if it’s really less creditworthy, that’s not very good news, because that was before the crisis that we’re comparing it to. And the same — well, let’s talk about that when we look at the results.

So guess what metric we use to measure that? Z-scores. So for those of you who remember this, or have nightmares about it, this is the original Z model, vintage 1968 when we first published the model. In fact, Charles over here — let me put a plug in for your magazine and for Z-score — has an article explaining the evolution of Z-scores and some other models in the family of prediction models in the current issue of the AAII Journal. And there are 2 million copies outside for you to take home with you.

Anyway, Charles did a great job in pumping me for information. And he actually made me think about some things I didn’t think about. But here is the original model. Five variables and their weightings. It was based on a discriminant analysis model, vintage 1968. And the result is a Z-score, which — oh, incidentally, here is a Z double-prime model. So this is the model I built in 1995 for emerging market credits and non-manufacturing companies. Most people don’t realize that Z-score was mainly for manufacturing companies. You could try it for other companies’ industrials, but some sectors are obviously going to be biased.

The average Z-score for a retail company is going to be much higher than the average for a manufacturing, mainly because of the sales-to-asset variable — the fifth variable. So we don’t use that one in the Z double prime. Anyway, there are other models.
This is a bond rating equivalent analysis. And the bond rating equivalent says there’s an average Z-score for bond ratings — notice we’ve combined AAA, AA. You know how many AAA companies are left in the United States? Three. There used to be 15 or 20.

AAA is an extinct beast almost. Some people think, “Oh, well, that’s too high anyway.” What do you think the optimal credit rating is for a company? Well, there’s no answer to that. But if you ask US treasurers what it is, probably they will say something like A.

It can fall further and still be investment grade at BBB, and it can even get better. But anyway, this is the what it is. And so the average score — you can give a bond rating equivalent to a score. Why is that important? Because the holy grail in credit risk is not the score, not the bond rating equivalent, but the probability of default over time.

And so we built a model called the mortality rate approach, which I have a slide later on. But just to give you the results of that study that I just asked you — the answer — well, it looks like the average Z-score — that’s in the center part of the graph in 2007. The median Z-score was 1.81, second box. The median Z-score in 2014 — we’re just doing 2015 now — 1.80. Essentially the same average, or median score, slightly different averages. So those of you who raised your hand and said the average creditworthiness of US companies, as measured by the Z-score anyway, is about the same as it was in ‘07, you would be correct. Gentleman in the back, maybe two or three others.

Is that good news or bad news for future defaults? Well, you have to understand, good news for me means more future defaults. But for you folks, it may be the opposite.

I don’t think it’s good news. I don’t think it’s good news, because we’re saying that with all the profitability, all the so-called cash on the balance sheet — and a lot of companies have a lot of cash on the balance sheet so the net debt is not so high. But the amount of leverage that has been put on American corporate balance sheets has been huge. And there haven’t been much written about this.

Both investment-grade and non-investment companies are loading up. Of course, it’s because interest rates are so low. And we do have tax deductibility, through subsidy of the government, to issue debt as opposed to equity. So this is something to consider in terms of a lot of things, but in terms of risk going forward.

Let me skip over these to move on. New issues — I’ll show you a graph that shows this better. The blue line shows the new issues in the United States. High-yield bonds and the yellow line are the — is it yellow or green? Sorry, I’m color weak. Maybe my wife says color blind, but I can see some things like browns and — I shouldn’t tell you this, but the green traffic light looks white to me. But I can tell the difference between white and red.
Anyway, high-yield bonds, $280 billion in 2012, $270 billion in 2013, $240 billion, $214, $215 in 2015. Oh, that’s very good. And it’s really dropped the end of last year and the beginning of this year, but it’s come roaring back.

You will see outstanding numbers for the second quarter of this year and the third quarter going as to new issuance of low-quality debt. Junk is back in style — believe me — big time. Lots of money flowing into ETFs and other investment vehicles, and also lots of companies saying this might be the last hurrah. This is the time to get the low interest-bearing debt before interest rates go up. Now they may be wrong about the timing. But they’re certainly right about that interest rates are low.

CCC percentage — not as high as it was — on the right-hand corner — as it was. Look what it was in ‘07: 37.4% of all high-yield bonds were triple C’s. What do you think the probability of default, historically over the last 50 years, is on a newly issued CCC for three years and five years?

Anybody want to hazard a guess? How much? You’re looking at my table. Now if you looked up at me, you didn’t look down, I probably would have figured out that you’re a pretty smart guy, come to that conclusion. Well, you probably are a smart guy anyway, because you looked at the right place.

Well, we built a model in 1989 called a mortality rate approach, that looks at bond defaults in the same way an insurance actuary looks at mortality of people. So you can tell a lot about somebody’s life expectancy by a number of variables at birth.

And a very important one is gender — sex. So the average American male has a life expectancy of about, say, 78 years. And the average female, 103. No, I’m only kidding. About 80 through 83, except in the finance industry. No, I’m only kidding. Lots of stress — they don’t live as long.

I don’t know about the finance industry. But I do know that bambinas live longer than bambinos. So we can say maybe the same thing about bonds and loans. But there are no boy bonds and girl bonds, but there are beautiful AAA’s, good looking AA’s, handsome A’s, decent-looking BBB’s, not-so-good-looking BB’s, kind of ugly B’s, and downright disgusting CCC’s.

So now let’s talk about what does that mean in terms of PD’s — probabilities of default. Well, we ran the analysis, and this is what the results show. CCC’s over the period 1971 and 2013 have a 34% probability of default within three years and a 47% within five years.

Almost one in two bonds can be expected to default — these are in dollars, so it’s not exactly one in two bonds, but almost that — within five years of new issuance. So you would expect that if you had a ton of CCC’s been issued and history will repeat itself, that there will be a lot of defaults three, four, five years after issuance.
So that’s what we’re looking at as one of our ways of a historic default, and particularly if we have a recession. So let me get to that theme, because I’m running out of time.

A lot of people ask me, if you’re talking about your outliers for another distress cycle, will we reach again 10%, 11%, 12% of the market defaulting in a single year? And how many years will it happen? And my answer is unequivocal.

Yes, we will have another 10% year. We’ve had it five times in the last 40 years. So we’re probably going to have it again. I don’t know when, but again. But we won’t have it unless we have a recession. The two usually go together.

But another caveat is, you don’t need a recession to have increasing default rates above the historic average. And I would have to go back a lot, but if I go back to that very important graph — almost there.

Ah, here it is. You will notice that in the ‘89, ’90, ‘91 period when default rates went above 10%, they started going up two years before the recession. In the ‘01, ’02 recession, the default rate started going up three years before. And in the latest recession, they were coincident.

So the caveat is — at least the empirical — maybe it’s casual empiricism, because there’s only three data points. But it’s the last three we’ve had. Caveat is, you don’t need a recession to have higher default rates and default rates above the historic average. You probably need a recession to have very high default rates. Obviously, in a recession, more firms default than not.

So let me now conclude — and then we’ll open it up to Q&A — with one more metric that I like to look at now. And it’s called private equity sponsored LBO’s.

Some of you may look at this as a metric in your own analyses of corporate performance. I know the private equity industry looks at it very carefully. It’s called a purchase price multiple. That’s the price that a company is bought at, relative to their EBITDA, their cash flow proxy.

And if you take a look at what it was in 2007, the average LBO purchase price multiple was 9.9 times. In other words, for every $1 of cash flow, $10 was being paid then. Of course, interest rates were higher then, admittedly. And then, of course, we had the GFC after that.

It dropped, but not as much as you would have thought, to the low and mid eights. And it reached an all-time high in the first quarter of 2016 when it was 11.7 times. We’ve never seen that high a purchase price multiple.

Of course, the private equity folks are saying the following. One, interest rates are low, so I can use a lot more debt. And I’m pumping a lot of equity in there, too, but I’m really exploiting the
fixed-income market. And two, the bigger-fool theory — you probably heard that one. Doesn’t matter what I pay; there’s going to be a bigger fool out there that’ll pay more.

And that’s what’s happened. It’s called secondary buyouts. It’s where you buy out a company, and you sell it again to another private equity firm, usually at a higher multiple. And you exit that way.

Well, it’s come down a little bit in the first, second quarter of 2016. It’s now about 10 times, exactly what it was in ‘07. Again, an indicator to me that the benign cycle is coming to an end, if not already there. So — oh, and debt to EBITDA is high, but not as high as it was in ‘07. That’s debt per cash flow.

So let me end up — there are some data at the back of the handout that might be of interest to you. I’ll give you one really astounding piece of information. If you had invested all of your money — no, strike that — some of your money, maybe even a small amount — in what’s called distressed debt.

And by the way, there are now indices that follow this industry, like the Bank of America Merrill Distressed Debt Ratio Index. That is the performance of firms selling at 1,000 over or more.

You would have lost, in 2015, 38% of your money. But so far this year — and now I’ll give you the year-to-date number — the rate of return on distressed debt year to date through July 15th is 25%. You can’t get a higher return than that. Twenty-five percent is the average return this year.

And the ones that have done best are the ones that did the worst in 2015. You probably have seen that over time that things rebound when the markets change dramatically, as they are now, back and forth. There is that regression-to-the-mean phenomena.

So in conclusion, we are, in my opinion, in the end of the benign cycle. We’ve been in it for a number of months now. We’re in extra innings, in the metaphor.

I do think that the fundamentals are weak in terms of higher default rates to look forward to or not, and that the benign cycle, if it isn’t over, will end very soon. But it will not peak at anything close to what it was before unless we have a recession. So that’s the final part.

I’m not a macro forecaster. But if we asked an educated audience — educated in terms of, say, macro forecasting, or people who just read about this all the time — the probability that they would put on of a recession in the next 12 to 18 months, just like spreads and just like stock prices, has wildly fluctuated. If I asked this question in June before the jobs data came out, what would you think? What percentage of economists thought that we’d have a recession in 2017 — by the end of ‘17? Well, I can tell you the answer. It was about 30% probability — 30% to 40%.
If I asked that same question today — I’ll ask you. How many think that the likelihood of a recession in the next 12 to 18 months is less than 10%? OK, the bulls here, a couple of bulls here — lady bulls, sorry. But anyway, you are pretty bullish.

How many think between 10% and 20%? Greater than 30%? Wow, this is a great audience. I didn’t expect that now. I expected with the latest jobs data, the latest interest rates, the latest amount of money being pumped into the system, that the likelihood that people felt about a recession would be quite low. But it’s higher than I thought.

Well, if you’re right, those of you who voted that it could be as high as 30% or more percent probability of default, we’re going to experience, if it turns out to be that, a very high default rate going forward. And it won’t be only oil and gas.

With that positive scenario, thanks very much for your patience. And I’ll be happy to take questions. Thank you very much.

[APPLAUSE]

Brian Singer, CFA: Well, thank you very much. Very entertaining, and we appreciate the insights. I’ve been asked to introduce myself as we go into the Q&A portion. I’m Brian Singer. I work in the Dynamic Allocation Strategies team at William Blair.

It’s always tough for me when I’m at University of Chicago or Northwestern in terms of which side I take in the economic debate. So I split the difference. I did undergrad at Northwestern, graduate here in Booth for my MBA.

And I will disagree with one comment that Ed made. He said we “have” to read his work. I always thought of it as “get” to read his work when we see it in the CFA [Program]. And then finally, an apology for Stern — it is my daughter at Columbia rather than you. So in my view, Stern is the right reference.

Edward I. Altman: And we feel about Columbia and Stern the way you feel about Northwestern in Chicago.

Brian Singer, CFA: Other side of the city. So just a clarification, you did make the comment that things are different now. And when you say that, just to clarify, do you mean structurally or cyclically, such that there would be no change in the structure of your model?

Edward I. Altman: Well, cyclically in terms of the health of corporations, the amount of debt on the balance sheet, we de-levered the banking system. But we’ve re-levered the corporate system a lot. So that’s, I think, cyclical situation.
Structurally, we still have the interest deductibility of — sorry, the tax deductibility of interest payments. So that has not changed. But we do have this long period — I wouldn’t call it a cycle; I’d call it more of a trend — of very low interest rates. And that’s been with us for many years, because that’s the main bow and arrow of the central banks.

But structurally, you could say they’re running out of arrows. So I don’t think — you didn’t ask this question, Brian. Maybe it’s more than you’re asked for, but some people may be wondering. Well, if we have another downturn, we have another event like China, like oil and gas, like what was happening at the beginning of this year — well, we don’t have to worry about. The Fed and the other central banks will come to the rescue. I’m concerned that they’re running out of arrows. But it’s worked up to now. So that, I think, is a long-term trend. We’ve never seen anything like this.

It seems now central banks are only concerned with growth. They think inflation’s under control. That’s got to come to an end soon, but we don’t know when.

**Brian Singer, CFA:** Excellent. Well, thank you very much. And we’ll turn it now over to the audience and as well our virtual audience over the chat line for questions. Yeah.

**Audience:** Any perspective on why the US government hasn’t issued 50-year debt at these low rates or something along those lines? Corporations are doing it, as you stated. Why not the US government?

**Edward I. Altman:** That’s a good question. I don’t know how many corporations are doing it either. I don’t think investors really want to take that kind of a risk. And certainly at the interest rates that they’re being offered, why would you ever want to buy a 50-year bond at 25 basis points? So I just don’t think there would be a demand for it at the government level.

I’m surprised there’s a demand for negative interest rates at all, to be honest with you. And that’s why, by the way, a lot of this money is now flowing into even investment-grade corporates, but certainly high yield is at — I think it’s really sad.

Most of you are not at my age or even close to it, but folks who have to depend on fixed-income securities for their pensions, for their meeting bills, they’ve been disadvantaged for so long with these low interest rates, all in the name of growth. And let’s face it. It hasn’t worked.

We’ve been growing at 1.5%, 2% max all these years with this tremendous amount of money that the Fed is pumping into the system. Maybe it’s kept us from a crisis. Maybe that’s the other alternative. But 50 years at 25 basis points — or it would be higher, of course. Ten years now, what, one and a half — so what would fifty years be? Two, two and a half? I wouldn’t want to do it.
Brian Singer, CFA: And just to clarify, the question was, why hasn’t the government really thought about taking advantage of the low rate opportunity to issue longer 50-year bonds?

Edward I. Altman: I’m worried about the government having to issue bonds at 3% and 4%, let alone — with the amount of government debt out there, I’m worried about it for us, for Japan, for Italy — of countries like that.

Brian Singer, CFA: In terms of worry, that would be a worry that you would consider beyond a Z-score that you’re looking at there.

Edward I. Altman: Yeah, we do have a model, by the way, for sovereign risk. I haven’t talked about that. And it’s not a Z-score type model where leverage is in it. What we look at is the health of the private sector in a country.

So if you had looked at Greece, Portugal, Spain, in 2008, ‘09, they were clearly, clearly much more risky than any other European country, because their private sector was weak. And so in most countries, except for the oil-rich countries, as the corporate sector goes, I believe, so goes the country. And look at Brazil now. We could have predicted Brazil’s problem simply looking at the private sector, even before the political turmoil that’s now involved.

Brian Singer, CFA: You mentioned that the Z-scores were available for Mr. Bloomberg to make money. You’ve mentioned a lot of research and things here. What of that is publicly available, and what’s not? Is the vast majority of this available?

Edward I. Altman: Oh, well, certainly our research, and not only my research but anybody’s research on the Internet these days, is publicly available whether it’s been published or not. But certainly published data is.

In terms of models, not only Bloomberg but Reuters, Thomson Reuters, Capital IQ — some of you may know Capital IQ? Well, they’ve changed their name. They’re now called GMI, Global Market Intelligence, out of Standard & Poor’s. They’ve got fantastic databases that are available. And they all have Z-scores on it.

Charles, in his article, talked about Z double prime, which I think is a less well-known but very powerful model. If you’ve got a lot of money and you can take the KMV model from Moody’s. There are number of other models out there on these algorithms that are available on software programs. There’s no shortage of models.

Brian Singer, CFA: First one.
Audience: Professor, a concept you didn’t bring up was moral hazard, which is kind of a philosophical term as opposed to something that you can measure compared to default rates, or to stress rates, or things like that. But where do you think that fits in right now where we’re at in the potential for what this means as a whole to our economy and potentially this allocation of resources, and then put money over here?

Edward I. Altman: Well, the obvious resting place for moral hazard is the banks and the bailout of banks. So that was the big issue, whereas before, banks felt, rightly so — I don’t mean rightly from a moral standpoint, but factually so — oh, by the way, it’s happening in Italy today that if they got into trouble, they would be bailed out.

So that’s an incentive to take risk. And that’s the moral hazard that a lot of people say. It’s a moral hazard that somebody else has to pay. You and I, as taxpayers, have to pay for excessive risk-taking on the part of institutions that are too big to fail, or the systemic risk area.

Same thing with countries. So a lot of the European countries that were part of the euro took tremendous subsidies from the euro commission — from the euro countries — and not necessarily invested it in infrastructure and making life better for their citizens. They pumped it into projects that were not very profitable and the like. And now they’ve got to pay back the debt.

Well, they don’t have to pay back the debt if they’re going to be bailed out again. So there, again, is the moral hazard issue that has come back to haunt the European sector. That’s where it fits in.

Now the question is, does it still exist today? I’m not an expert on this. Some people still think that if our big banks get into trouble, they’ll still be bailed out. Dodd–Frank says, no, you’re not going to do that. So therefore, we’ve got to have in place natural mechanisms to avoid the moral hazard of bailing out the institutions.

So one of my colleagues at NYU, Rob Engle, has something called a Volatility Institute. And they look at, how much capital would any bank in the world have to raise to have normal operations in a financial crisis? And then you can aggregate that by country or for the individual bank and say, is that realistic?

So one of the big banks today that has a lot of capital necessary if we have a crisis — well, I won’t mention their name. But they’re in a very big, powerful European country. That bank would have to raise a lot of capital.

The Italian banks, they need to raise a lot of capital today. They can’t do it themselves. The European Commission says Italy cannot bail them out. So that means they’re going to go under.
Except Italy is saying, too big to fail. We’ve got to bail out our big banks. And so there’s a battle going on as we speak between a country like Italy and the European Central Bank. The European Central Bank says, “Thou shalt not bail out banks anymore.”

So we don’t have the moral hazard problem. Sorry, it’s a long answer. Dodd–Frank says we shouldn’t have it, and therefore, we need to do other things. But I’m not convinced. I think it’s still likely we will bail them out if they get into trouble in some way.

Brian Singer, CFA: Other questions?

Audience: What about the ABS and the MBS markets? Are they behaving similarly to the corporate bond world in terms of the investment-grade tranches and the junkier ones?

Edward I. Altman: I’m not sure about investment grade versus non-investment. Of course, there are many tranches within those categories as well. What I do know is that markets like the CLO market has come roaring back, and maybe rightly so, because the CLO, collateralized loan obligations, really didn’t get hit very much, as much as you would have thought, in the Great Financial Crisis. Those are asset-backed securities secured by bank loans.

So they’ve come roaring back. In terms of mortgage-backed securities, I think the residential ones have not come back very much at all in terms of — but the commercial ones are quite commonly out there. And I think this is a potential bubble area — the fact that we have huge increases in prices at both residential and commercial real estate levels, but the amount of debt out there is much higher in the commercial area than the residential, relatively speaking now.

So I think that is one area that we have to keep our eyes on, as well as something like auto loans. But I don’t think we’re near what we were like in ’07 with the residential mortgage-backed was crazy.

Brian Singer, CFA: Let’s take one from our virtual audience.

Ron Rimkus, CFA: OK, I’ve got a few questions here. The first one is how do you compute a Z-score for financial institutions?

Edward I. Altman: Yeah, this is a — I don’t know if you heard. The Z-score for financial institutions, I’ve been searching for that holy grail for a long time. And I don’t know any really good, robust, continuously accurate model for banks, for example.

And so you have to ask the question, why? There are very good researchers who have looked at this area. Certainly the Fed is interested in it, central banks. Why don’t we have a good financial scoring model? And what I mean by good is, accurate over many different cycles.
So you have to ask the question, why? And here are some possibilities. One, bank’s balance sheets are much more opaque than corporates’. They can hide risky assets. They are less likely to do it now, probably, but they certainly have in the past.

So it’s not as clear to take the usual CAMELS ratios or some of the typical profitability leverage ratios and figure out how risky a bank is. Another thing is, many times a bank’s problem has to do with fraud — certainly small and medium size. And fraud is very difficult.

But to answer the question in another way, we have a new model for financial institutions. I’m not confident that it will be nearly as accurate as the corporates. We have not published it yet. But we’re not the only ones playing around with financials. I’m not optimistic about a really accurate financial institution Z-score-type model.

Ron Rimkus, CFA: OK. Another one is, what’s the impact of additional covenant-light bonds affecting recovery rate trends and overall risk–return characteristics?

Edward I. Altman: So the question had to do with covenant light. And by the way, almost 100% of leverage bank loans now are covenant light, meaning you have very few covenants, if at all. So what are covenants?

Covenants are mainly protection for the lender. And if they’re eliminated or reduced, then the lender has less ammunition to rein in the company to get higher interest rates and the like. And therefore, the company is less likely to default. So the PD ratios for a given financial statement analysis will go down when there’s covenant light.

But if the fundamentals are bad, they’ll eventually will default or most likely will default. And then the recovery rates will be lower, which is the question. Why will they be lower? Because the company has been a zombie or a basket case for a longer period of time.

That’s why if these European banks now fail, the recoveries to their lenders will be much lower than if they had been restructured several years ago. And that’s not only true of Europe. That’s in general.

Banks generally either are bailed out, but they still might be fundamentally weak, and when they do fail, their recovery rates are low. And the same thing for sovereigns. Why do you think in Greece the average bondholder got $0.21 on the dollar when historically it’s much higher? It’s because they kept bailing out Greece, bailing out Greece, and finally they couldn’t do it anymore. Same thing with covenant light.

Ron Rimkus, CFA: Where is the covenant light now, do you think, compared to the prior peak?
Edward I. Altman: That’s a good question. Certainly on loans it’s the highest it’s ever been, leveraged loans in particular. Bonds, I don’t have the latest data on covenant light, whether it’s higher or lower than it’s ever been before. But it’s quite prominent.

Brian Singer, CFA: OK. One more question. Yes.

Audience: It’s on the deliberation of index investing in the high-yield space and these liquid vehicles when the underlying assets may not be as good.

Edward I. Altman: Yeah, that’s a great question. The ETFs on high-yield space — there are, of course, two that dominate. But there are a lot of others out there that are adding to it.

Brian Singer, CFA: And the question is, with respect to those passive vehicles that are more liquid, the impact on the overall high-yield market.

Edward I. Altman: Yeah. That’s what I was going to talk about.

Yeah, his question, for those of you in the video space, had to do with the liquidity of these passive instruments, like ETFs, on very risky asset clouds, like high-yield or distressed debt — strike that. There are no ETFs on distressed debt.

I actually have a project on the waiting list, so to speak, for an ETF in distressed and defaulted debt. But the liquidity is a real issue there. But it’s an issue also on high-yield bonds. So you have to have A, bonds that have large amounts outstanding in the portfolio of these ETFs. The average is probably to — high-yield bond is pretty high standing, but nothing like you need in case there’s a run on the market.

And your question dealt with that. What happens if everybody runs to the exit at the same time? Well, the ETFs, the way they’re structured, that’s going to be difficult for them to meet the liquidities without a dramatic drop in price. And the drop in price will be much greater than the drop in price of the underlying securities because of the structure of ETFs.

So I’m concerned about downturns. We have not had any experience with major — we’ve had minor — but major downturns in the high-yield market when the ETFs have been so popular. That has not happened yet.

A little bit began to happen in January, February this year. And the ETFs plunged far more than the high-yield indexes, I believe. I don’t know the exact numbers. So I’m just doing it from memory rather than having studied the actual price.
I’m concerned with that happening again. They’re not as liquid. They’re liquid in the sense that you can sell your ETF like you sell a common stock. Call up a broker and get out on the market, as opposed to selling your individual bonds as easily. But when everybody is doing it at the same time, it’s going to be the usual liquidity problem amplified. So I am concerned with that performance in a distressed market.

It’s a very good question that now the ETF issuers are saying, “Don’t worry. We’ve got it covered. These are highly liquid bonds in the portfolio; we can sell the underlying if necessary.” We’ll see.

Brian Singer, CFA: Thank you very much, Professor Altman. Thank you to our virtual audience for joining us as well.

[APPLAUSE]