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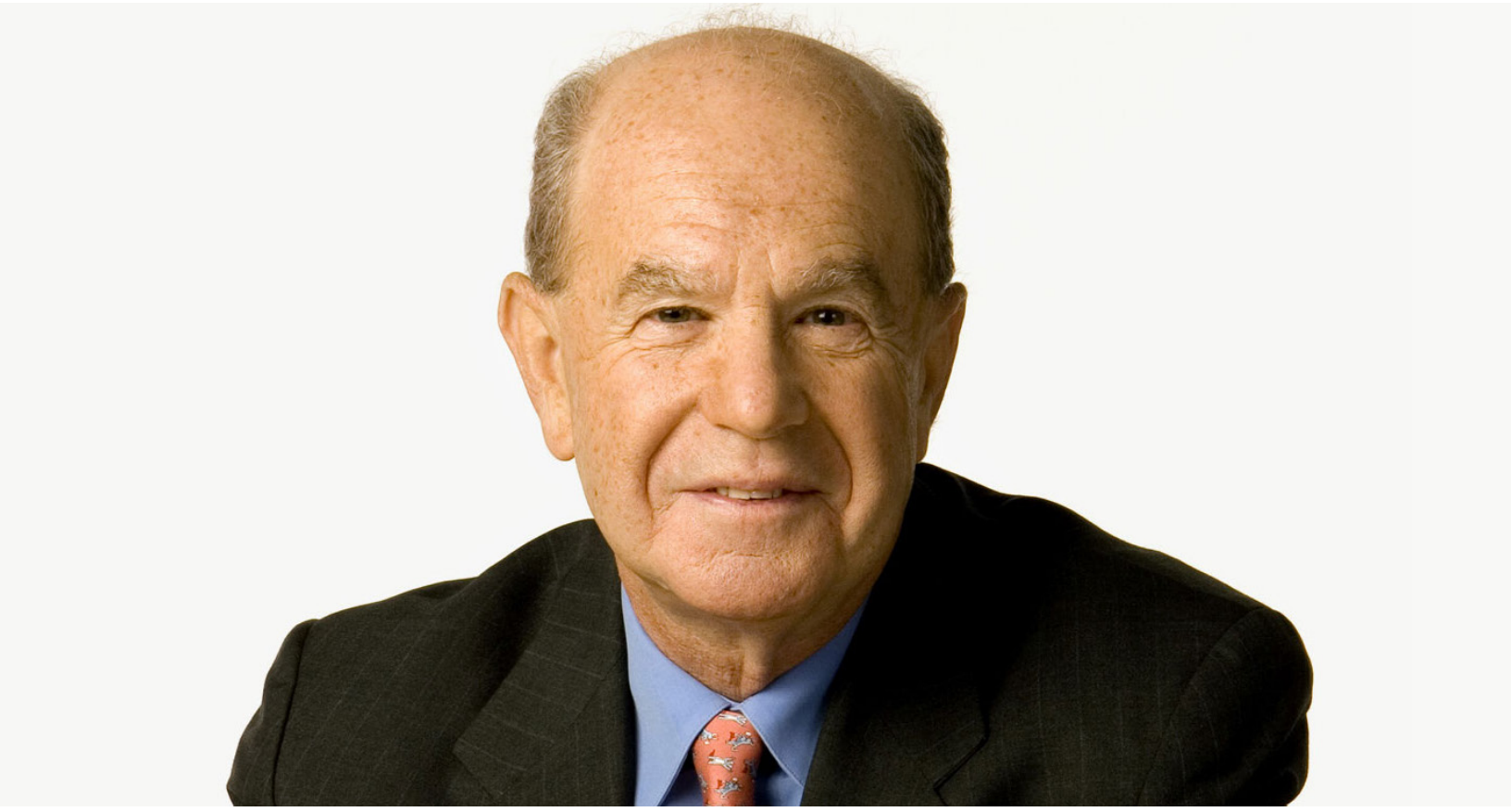
Risk Practices

Resilience in a crisis: An interview with Professor Edward I. Altman

One of the leading researchers in corporate financial health discusses what executives can do to help their companies endure the financial stresses of crisis times.



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Professor Edward I. Altman of the Stern School of Business, New York University, is a leading expert in credit and debt. He has written or edited two dozen books and more than 160 articles on finance, accounting, and economics. He is also the creator of the Altman Z-Score, developed originally as a means of predicting bankruptcy probabilities. McKinsey researchers successfully used the Z-Score to test company resilience through a crisis.[1] We spoke with Professor Altman about how executives can best face financial stress in times of crisis.

McKinsey: The Z-Score has had a variety of practical applications. Do any stand out as particularly helpful? Have any applications of the model surprised you?

Professor Altman: I didn't know of McKinsey's use of the Z-Score to indicate resilience. Interestingly, you found it useful in gauging firm performance before and after a crisis. Banks have used the model in making lending decisions, and some use it to complement their own internal-ratings-based models for expected loss provisioning under the Basel rules. It is also used by investors in making bond or stock purchases. I was surprised, for example, that several investment banks have used the Z-Score as one of several criteria they apply to customers. Some investment banks offer a basket of common stocks with the highest Z-Scores and sell short the lowest. That came as a surprise—that the Z-Score was generating profit for investment banks selling a structured product.

I used the model in my testimony in December 2008 before the US House Finance Committee, at the onset of the financial crisis. The hearing would help determine whether General Motors and Chrysler would receive government bailouts. The Z-Score model showed very clearly that GM was heading for bankruptcy. I recommended against a bailout for GM and in favor of restructuring under Chapter 11. That was the path, in my view, that gave GM its main chance of survival. They were really on the brink at that time, having hemorrhaged $2 billion per month for several months. I was not very popular at that hearing. Congress did not want to hear my "B word"—*bankruptcy;* they preferred the other one, *bailout.* The House voted for a bailout, but the Senate voted against it. President Bush eventually bailed out GM and Chrysler under the funding that Congress had given for financial institutions (using GMAC as the entry point).

But the bailout didn't work. Six months later, under the Obama administration, GM filed for bankruptcy and received about $50 billion in debtor-in-possession loans, exactly as I had predicted should happen. The rest is history. GM survived and is now an investment-grade company. That status may be a stretch, but it is certainly a solvent company with operations globally, and much healthier today *because* of going bankrupt, not despite it.

Finally, an application that really surprised me is the use of the Z-Score by managers to make strategic decisions. In 1981, I learned of a turnaround strategy used by the CEO of a large manufacturer of precision equipment in which he simulated business decisions like selling assets, reducing personnel, consolidating locations, paying back some debt. He plotted the effects of each simulated decision on the firm's Z-Score. No action was taken that would depress the Z-Score, at least in his estimation. And it was amazingly successful.

McKinsey: Professor Altman, you have studied the credit market for years. What fundamental changes have you observed? Today, we see many alternative financing instruments, and high-yield bonds have gained steam as well. Would you say that the Z-Score can account for such new developments? Has it proved timeless as a tool for measuring credit risk? Should we do anything

[1] McKinsey's results were published in Cindy Levy, Mihir Mysore, Kevin Sneader, and Bob Sternfels, "The emerging resilients: Achieving 'escape velocity'," October 6, 2020, McKinsey.com. The authors used a common form of Professor Altman's Z-Score, with the following weighted determinants: $Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$, where X_1 = working capital/total assets, X_2 = retained earnings/total assets, X_3 = earnings before interest and taxes/total assets, X_4 = market value equity/book value of total liabilities, X_5 = sales/total assets, and Z = overall index. Edward I. Altman, "Predicting financial distress of companies: Revisiting the Z-Score and ZETA® models," Leonard N. Stern School of Business, July 2000, stern.nyu.edu.

differently today, compared with what you were doing 50 years back?

Professor Altman: Those are great questions. I would say most companies are riskier today than they were back in the 1960s when I built the model. Amazing progress has been made in technology, in strategy, over those 50-plus years, but the credit posture and structure of corporations have radically changed too. Back in the 1960s, and as late as the early 1990s, maybe 100 companies in the United States were rated AAA, and probably as many or more rated AA. Today, there are two AAA-rated companies in the US: Microsoft and Johnson & Johnson. And who knows how long those ratings will last?

An A rating is no longer the objective of companies. When I surveyed CFOs in the 1970s, as a visiting professor at Hautes Études Commerciales in Paris, the A rating was their predominant choice. Today, the preference is clearly for BBB. The reasons are low interest rates, certainly, but the lower rating also makes it easier to use leverage to raise earnings per share. Now there are other ways to raise earnings, as McKinsey and most CFOs well know. But a tried-and-true method is to increase leverage, especially where the cost of capital is low, and then invest in projects for which the return will be greater than the cost of debt and hopefully better than the cost of capital.

You mention high-yield bonds—we can add leveraged loans and shadow banking and so forth. The amount of leverage in the system now is far greater than it was 50 years ago. Is the Z-Score model still robust enough to be used today as it was then? The answer is yes. But I've learned some things over the years about the evolution of credit risk. I no longer use the cutoff scores from 1968. At that time, a company needed a Z-Score above 3.0 to be designated as a safe company. Companies with a score of less than 1.8 were considered distressed and likely to go bankrupt. Today, the cutoff score is much lower—*about zero.* A score of 1.8 is actually above average now for B-rated companies—and the dominant junk bond out there is a B-rated company. There are more B ratings than any other for high-yield bonds—more Bs than double-Bs or triple-Cs. And the probability of a B-rated company's bond issue defaulting is about 28 percent in the first five years. So, 72 percent of Bs survive. And if you invest in a portfolio of Bs, assuming you receive interest compounded over five years, you will do quite well, relative to the risk-free rate—even given the default rate of 28 percent and the loss rate of about 20 percent (adjusted for recoveries).

I now use the bond-rating-equivalent technique to adapt to the changes over time in the capital structures of corporations. We look at the median score, by bond rating—AAA down to CCC—and assign a bond-rating equivalent to each firm, based on its score. And then we assess the probability of default given that bond-rating equivalent, using a mortality-rate approach, like an actuarial approach. That is the way I have adapted the original Z-Score model, and that model, with its original coefficients, is still quite effective.

You can go with the flow, in other words, making changes in rating equivalents over time, rather than building a new model each year or each five years. The Z-Score was originally based on a small sample of comparatively small companies. Today, companies are much larger, and the incidence of default for large companies is so much greater. Already in 2020 more than 50 companies in the United States with more than $1 billion in liabilities have gone bankrupt. Of course there were none of these "billion-dollar babies," as I call them, back in the '60s. So it is striking that a model built on smaller companies is still effective, generally, and for much larger companies as well.

McKinsey: Speaking of bankruptcies, we observe that companies continue to issue bonds—trillions of dollars worth in 2020. They are short of funds, as demand has dried up, and they are locking in the low interest rates as well. But the great volumes of debt are eroding companies' credit health. Do you expect filings for bankruptcy protection to rise in the months to come?

Professor Altman: I was worried about a potential debt bubble before the pandemic. I was in the minority then because the economy was doing well, bankruptcies were few, and defaults in the high-yield market were below the historical average. But I saw a lot of vulnerability. Not only for companies going bankrupt but also for the triple Bs, which were so popular, to be downgraded as fallen angels into the high-yield and junk categories. Well, things of course changed in March.

Because of extraordinary government support around the globe, companies with low Z-Scores are surviving. In some countries, it is even verboten, impossible to go bankrupt. The bankruptcy code is suspended in Germany and some other countries, except where fraud was involved. Italy and other countries have applied a moratorium on interest payments, a measure which reduces bankruptcies.

But the reduction in bankruptcies is temporary, in my view. We will have a second wave once government supports are reduced. I remain concerned about a debt bubble. Record amounts of new bonds and loans are being issued, both investment grade and noninvestment grade. Companies are doing this to raise cash as a reserve against problems stemming from the pandemic. Not all can do this—only those with reasonably good credit profiles. However, even companies that have been downgraded from investment grade to high yield are eligible for support from the Federal Reserve, for example, in purchasing in the secondary market of their bonds. This has given investors the confidence they need to buy the bonds even if they think that the issuing company is going to suffer during the pandemic. Because the price will be supported—as long as they don't default, of course. So the market is bifurcated: the haves are issuing debt and the have-nots are not.

There are zombie firms out there—companies artificially kept alive by banks and nonbanks. What can companies do to keep a debt bubble from building and to avoid potentially defaulting themselves with overwhelming amounts of new bonds and loans? I see two positive developments. One is that companies are buying back their debt, reducing the amount of debt in their capital structure, using a lot of the cash that they raised over these past four or five months, since April of this year. Second is the issuance of new equity. I am surprised this has happened so quickly. But both IPOs and established companies (with secondary equity issuances) are beginning to do this. In my opinion, the sooner the better.

The easiest way to reduce your debt-equity ratio, as McKinsey well knows as strategists in the corporate-finance area, is an equity-for-debt swap. And the best time to do that is when the stock price is high. You raise new equity at a very attractive rate and then, instead of investing in a new plant and equipment, you buy back debt with it. Now the debt comes at low interest rates, so equity-for-debt swaps might be less attractive for some companies. But most have a target capital structure in mind, at least I believe so. And such a swap is one way to get back to it, if you are overweighted in debt.

For companies that cannot buy back debt because they don't have the cash, or those unable to issue new equity at attractive prices because their performance has been poor—these are the companies that I believe are going to default in increasing numbers in 2021, but probably not before then. Other forecasters agree with me on this, including investment banks and rating agencies.

McKinsey: As you know, some economists see things the way that you just laid out, while others are less concerned about the buildup of debt right now. Given the stressed economic environment, what advice do you think the Z-Score offers to executives today, as they approach the 2021 planning period?

Professor Altman: One of the interesting applications of the model is as an early-warning system. Executives of companies tend toward a biased view of their strengths and weaknesses, overestimating the former and underestimating the latter. If they see problems on the horizon, they think they can handle them. They may not realize the seriousness of a situation until late in the day. Once

the crisis hits, then they begin to react. If leaders are open-minded, however, they can use the Z-Score as an objective model. It will show where the company stands in terms of a bond-rating equivalent or a zone of distress. Applied early enough, this approach can help executives take action—selling assets, cutting back on debt, for example.

In this pandemic, some companies—high-tech companies and big banks in the United States, for example—have actually thrived. But many companies are in survival mode and preparing for that second wave. Banks are preparing with respect to capital provisioning, because they are regulated, and they know they should be doing so. Most companies are not regulated. I think a Z-Score or similar technique could help them see, unambiguously, how they are deteriorating during this pandemic. It might also show that they will recover when the economy recovers. Or maybe they will realize that they were deteriorating before the pandemic began, if they look at their Z-Scores for 2018, 2019, 2020. At any rate, they will see their vulnerabilities to financial distress. I would hope that companies use the Z-Score in that fashion. I know that investors are.

The McKinsey study shows that resilient companies can be identified as those whose Z-Scores decline less in a crisis. Scores for nonresilient companies are affected more negatively. You are not the only ones to have discovered this: as I mentioned, some investment banks have products that depend on the Z-Score for their investment (and divestment) choices.

McKinsey: Can you give us your view on the apparent disconnection between the stock market and the real economy? One much discussed factor is the overrepresentation of technology companies on the markets compared with their weight in the real economy.

Professor Altman: I am as surprised as anyone that the stock market is doing so well when the real economy is not. Noneconomic as well as economic and financial reasons play into this. Forecasts show overall GDP contractions for most economies in 2020. And yet, the stock market has rebounded dramatically. The S&P, where technology companies have an outsize role, and the Dow as well, where they don't. And bond prices have also rebounded dramatically.

Puzzled as we may be, we economists and financial analysts need to have a view on why the markets have been buoyant. Of course, very low interest rates play a part. Where else will you put your money? In a safe? In government bonds? Not very attractive, unless you believe the market is headed for a real fall soon. The US Federal Reserve and other central banks have said that interest rates will remain low for quite a while. And so the outlook for the bond market is not very rosy. A second reason I think is that many people are spending more time following the market and investing. They are focused now on safeguarding their money or making profits—because they are at home, can't travel, are unemployed, or whatever. Day and retail traders have been an important force in this market. Many individual and institutional investors, furthermore, believe that the economy is going to rebound dramatically and feel that the time is right to buy cheap stocks.

Nevertheless, many investors have been losing in this stock market. Many funds are down, even though the stock market is up overall. The average investor is probably down in their own portfolio—except for those perhaps who picked some of the zooming companies like Zoom or Tesla or the tech giants. But will stock-market growth continue if economic recovery lags? I am being cautious in my own portfolio, taking into account the potential for another big downturn in the financial markets. This could be triggered by one or more factors—continued spread of the virus, delayed or ineffective vaccines, or a lagging recovery in the real economy. Investors could lose patience with companies.

McKinsey: I'd like to finish with a question about how business executives might best use the Z-Score. It's the product of several weighted variables, including earnings, margins, stock

price, optionality. Should executives steer toward improvements in particular metrics or look to strike a balance among them?

Professor Altman: A balance. Companies need a multivariate approach, maintaining or improving performance on a number of metrics. Key drivers in the Z-Score are total assets and total liabilities. Companies concerned about their future could therefore seek to concentrate assets. Consolidate where you can while reducing investment in fixed assets if your situation is deteriorating. That would be part of a prudent strategy. It would raise cash needed, either for new investments (in products that are at an earlier point in their life cycles) or to pay back some debt. Companies are doing that also, to reduce vulnerability should conditions worsen.

But it's hard. Reducing exposures to protect yourself in case things don't improve—that is not part of executive psychology. Executives think about how to improve earnings or market share. They don't want to think about reducing exposures by selling assets. Companies also need to better understand their liquidity positions. Inventories that are not selling well now should not be stockpiled in anticipation of better times in the future—unless, of course, companies have good reason to be very confident. So, working capital is an important factor. And of course, stay away from borrowing, especially short-term borrowing, when in a vulnerable position.

McKinsey advises CEOs all the time, and likely well understands this issue. When a company encounters major problems, the executives whose decisions led to the situation have a hard time turning it around themselves. They can only be effective if they can take an objective view toward their own past, and act without bias. Very hard to do. At such times, companies need an adviser or an interim CFO or CEO to make the hard choices. CEOs could help themselves by recognizing that they can't do this alone. They need a clearly objective model. I have always said that there is help out there, but whether leaders can embrace help in times of crisis—that is the question.

McKinsey: That is golden advice. Thank you very much, Professor Altman.

Professor Altman: Thank you.

Edward I. Altman is the Max L. Heine Professor of Finance, emeritus, at the Stern School of Business, New York University, and director of research in credit and debt markets at the NYU Salomon Center for the Study of Financial Institutions. This interview was conducted by **Jeffrey Caso,** an expert in McKinsey's Washington, DC, office; **Peeyush Karnani,** a senior expert in the New York office; and **Mihir Mysore,** a partner in the Houston office.

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