

Impressions

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I have come to believe that the whole world is an enigma, a harmless enigma that is made terrible by our own mad attempt to interpret it as though it had an underlying truth.

Umberto Ecco

One's first step in wisdom is to question everything - and one's last is to come to terms with everything.

Georg C. Lichtenberg

Risk and Uncertainty

I am going to take the risk here of attempting to add some clarity to the current mess developing in the credit markets.

This is really about the confusion of risk and uncertainty.

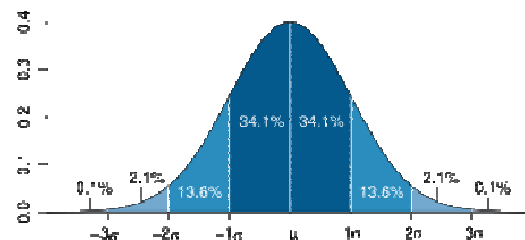
Risk is a mathematical concept based on the probability of loss. As such, it can be calculated and added or subtracted from the prices paid.

The problem with pricing risk is that two solid formulas can produce different results. This seeming paradox between the exacti-

tude of math and the vagueness of result arises from the assumptions used as elements of the formula.

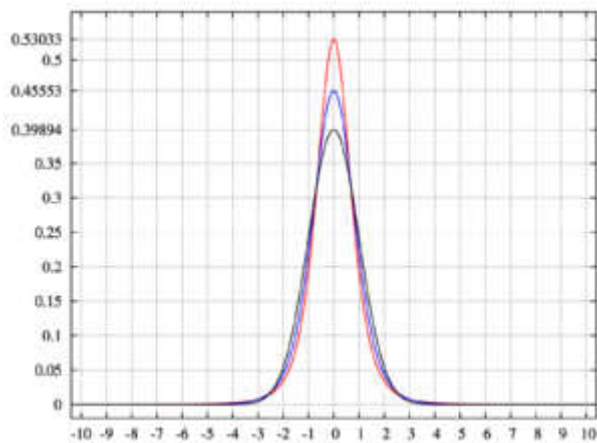
Risk is also a constantly calculated. As the price of the asset changes the risk should change but the change is never, ever linear.

The reason risk can be priced and perhaps forecast is that most occurrences exist with a normal distribution of probability. This can often be demonstrated by the famed bell shaped curve below.



Uncertainty is a whole different animal. Uncertainty is those events assigned to the extreme tails of the curve. They are rare events and hold within them the possibility of large disruptive actions. Curves with a great deal of uncertainty have high central peaks and longer, fatter tails. Such curves are called leptokurtic or leptokurtotic. Those are great words to throw around at the next cocktail party. A graphic example is shown below.

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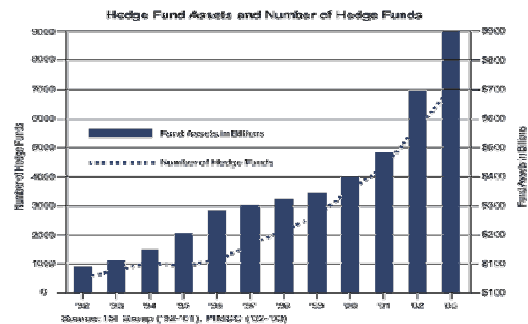


If the random walk guys are right then there should never be a kurtotic curve but there are. The derivative players will tell you they never happen. Of course the 4 Nobelists at Long Term Capital Management found out differently.

What has happened in the last few years has been an a conflation of risk and uncertainty. Pricing risk has been the subject of intense academic research and the awarding of several Nobel Prizes and is pretty mundane.

The ability and accuracy of pricing risk has increased tremendously with the rise in available computing power. This rise in the ability to compute has led to more and more elements affecting the securities markets to be included in the risk pricing formul.

There has been another element here, the dramatic rise in hedge funds. The chart below demonstrates the scope of the transistion.



Hedge funds are considered an asset class now, but in the words of Jean Marie Eveillard they are really compensation schemes. Since equity hedge funds make most of their money from incentive fees they have a different mentality.

Most of the fee arrangements are 2 to 3% base fee and 20-30% of the increment above a benchmark return. For equity based funds the benchmark is typically the S & P 500. Let's suppose that a product is available that will allow you as the hedgeie to control the risk of the market making you look foolish. Let us also suppose you are a hedgeie driven by a desire for great wealth- but I repeat myself.

This person would then construct strategies allowing participation in the movements of the index. So now you are going perform at least close the index securing your base fee and with a little luck being able to make the incentive.

You think yourself clever to have constructed this model but in the words of the British, you have been too clever by a half. Everyone else has done the same thing or will shortly.

But with unbound arrogance and insufferable confidence in your uniqueness you can spend the rest of your time finding ways to further outperform. Quite incidentally I am sure, this outperformance means an increase in your fees.

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If you will direct your attention to the second curve you will see that the tails (ends) of the curve are further above the horizontal than in the first curve. Notice the flat line from 3 standard deviations to 9. This is leptokurtosis. That is where hedge funds live.

Since the S & P 500 is the very model of the market its performance over time falls in the normal distribution shown above. The first extension of that for a hedge fund manager is to seek investments that have returns 2 plus standard deviations from the mean. (I know this is sick but see the last page for a discussion of standard deviation). Hedge funds call this adding alpha. Alpha being the measure of how much performance a manager's skill adds.

Stay with me and I will link this all back to risk and uncertainty. Inherently, the higher the return expected the higher the risk that must be taken. This axiom of investment has not been suspended for hedge fund managers.

Since mundane investments have market returns the search began for ways to either make the mundane extraordinary or to create new investment types with superior returns.

Hedge funds began to create complex mathematical models of the markets and individual securities in an attempt to catch that fleeting wiff of outperformance which sometimes accompanies mundane securities.. In their rush to do so they pushed up the indexes and created performance which became increasingly hard to beat. This of course threatened the very reason they existed -to get paid. Eventually that was not enough and the search started anew.

Somewhere along the line a manager a trois occurred. The math boffins of Wall Street and Hedge land mated simultaneously with both excess liquidity and Wall Street's desire to earn fees. What erupted is the current mess.

There is nothing more mundane than a home mortgage. Investments in mortgages generate good but not spectacular returns.

There are risks in mortgages. Some buyers will default, some will be late in payment. Sometimes there is natural disaster that throws whole communities into financial trouble. There are people refinancing thus ending the certainty of interest and principal payments. But these are risks and can be observed, quantified and priced. Along with these risks there is at least one uncertainty in even the most prosaic mortgage backed security. They are not readily transparent.

What is also not ordinary in mortgage land is the ability to package, repackage, strip, enhance, leverage, and twist the product. In the search for the high alpha product investors sought a way to make this safe product sexy. This is the sole territory of Wall Street.

Here is the scenario. A single mortgage is a risky product because a single borrower may have financial troubles, default and you lose. There are always some percentage of borrowers who default. The very heart of risk control is to diversify the risk. Thus mortgage backed securities (MBS or residential mortgage backed securities RMBS). They combine the steady cash flow and historically low default rate of residential borrowing with the safety of a group of similar instruments and you have a good looking product.

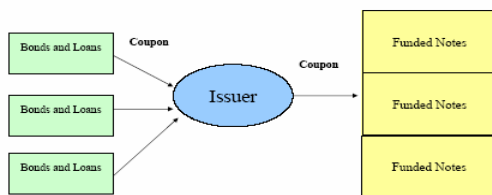
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If the actual default rate in the pool is lower than forecast, the cash flow higher, if rates decline then the pool becomes more valuable. But it still will not produce the alpha needed. Now another marriage of convenience occurred. Alpha met leverage.

It is well known that you can increase your performance if you increase the leverage applied to the investments. Beyond some level however leverage (borrowing) increases the risk of the investment.

The first way to increase your return is to restructure the pool of mortgages into tranches (French word meaning slices).

The chart below shows how a mortgage pool might be structured.



Pretty simple, except that not all the notes are treated equally. The top tier gets the cash flow and the bottom tier, known as the “toxic waste” takes all the losses. If there is adequate cash flow then everyone wins.

Here is where risk and uncertainty ran into each other. There is always a risk in putting together a pool of mortgages that bad paper will be included. It can be bad due to poor underwriting, fraud, deception or sloppiness. If the bad ones fail then the cash flow stops. If enough of the mortgages default all the principal value of the lowest tranches is destroyed. If the default rate continues to climb each tranche absorbs loss until it is wiped out. This was uncertainty and Wall

Street needed to get rid of it to sell the product.

Therefore, Wall Street created ways to predict the risk, using math. What they could not predict, try as they might is the uncertainty that can creep in.

Part of the uncertainty came from the unusual situation in the mortgage markets.

Usually the demand for homes drives mortgage origination. However, in recent years persistently low rates have made refinancing and equity cash outs a game. The ability to borrow virtually the entire purchase price of a home at low teaser rates and optional payments created a demand for mortgages and a demand for housing.

This created more loans. Now not everyone who wants to purchase a house can afford to do so. With rates of 3% and not to have to pay down on principal and the ability to borrow in some cases more than the value of the house, more people than ever qualified. Many of whom had a very high chance of defaulting.

With home prices rising and seemingly effortless fortunes being made taking the equity out of your house to purchase other real estate seemed like a no brainer. The mortgage originators like Countrywide, the banks, found they could sell the mortgages they made to investors (hedge funds), The demand they found was insatiable.

The hedge funds were such strong buyers because they found that mortgage could add alpha (fees) with seemingly safe investments. They could add more alpha by taking the bottom tranches. There was no uncertainty it would take a 6 or 8 standard deviation event to affect the securities.

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The originators make money making loans so they started marketing. “Bad Credit? No problem! Call Whip-Um and Stab-Um Mortgages”. “Greatest no brainer in the history of earth!” Think about how many mail and email offers you have gotten for mortgages in the last two years. This led to a whole new class of home buyers.

The uncertainty was that these new borrowers had little or no equity in the game and could walk away with little actual loss. Yes, they might suffer lower credit scores but people will still lend money to them.

In this lending rush, the seeds of uncertainty were created. The big brains on Wall Street convinced themselves and their customers that their vaunted models could price **both risk and uncertainty**. They could not, cannot and will never be able to do so.

The demand for CMO securities lead to the creation of a completely new argot of words and structures. CDO, CLO, CDO², CDO³ and probably a bunch I never heard of. CMO are at least backed by mortgages. With them, the fiction could be made that there was property as security. The rest of them were such peerless security as loans to small business (75% historic failure rate), home equity lines of credit, auto loans, credit card receivables and other junk.

In fact, the fiction went so far as to include something called a synthetic CDO that owned no real securities.

The self same masters of all things the hedge funds and those other superstars of investment, pension managers became gluttons and sucked up everything that was created.

So now, another factor enters the picture. I have purposely ignored up to this point to

avoid too many complications. This new factor is leverage.

Let us suppose that you have \$1 million in cash. You take that cash to a prime broker (Bear Stearns, Morgan Stanley etc.) and you can borrow up to \$3 million. In turn, you can take this \$4 million and give it to a fund of funds. This fund of funds will take 1% and then they will go to a prime broker (maybe the same one) and leverage the money again by a factor of three. Still with me? Your \$1 million is now \$12 million. The FOF (fund of funds) will invest that \$12 million in hedge funds who will again leverage that seeming equity 3 or 4 times. \$12 million just became \$48 million- ain't life grand!

We aren't done yet. The hedge fund invests in the junior tranches of a CDO or CMO which itself is leveraged by up to 10 times. So, your \$1million created \$100 million of buying power. In this cantilevered situation, a measly 1% fall in price or rise in rates or default can wipe out the entire \$100 million.

Can't happen? Call Bear Stearns, or Bank Paribas, or the other 10 funds that have blown up. Call the management of Sentinel in Chicago- a money market fund for Pete's sake! This is the stuff of uncertainty!

These types of events we are told, only occur once in a million years. Except that we heard the same line in 1987 with portfolio insurance, 1991 with the credit crunch from leveraged buyouts and real estate. We heard it again in 1998 with Long Term Credit, and in 2000 with the tech and dot com collapse.

This tells me one thing. The extraordinary is the new ordinary.

Here is the final uncertainty. With the degree of leverage, and the degree of separa-

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tion of the original equity to the actual investments the investments are no longer transparent they become impossibly opaque.

The irony is that everything that has been done by regulators since Long Term Capital blew up in 1998 and the tech crash has been in an attempt to create transparency! The first law of physics is now the first law of regulation. For each effort to increase transparency there will be a greater effort to create opacity.

It is often interesting that in times of great financial stress once obscure economists often become superstars.

After LTCM in 1998, it was James Tobin of Yale, now it is a guy named Hyman Minsky. Minsky apparently theorized that lenders will become more lax in their standards during times of stability.

There have been warnings of course. When the most conservative mortgage lenders in the US, Herbert and Marion Sandler of Golden West Financial, sold out, when Angelo Mozilo of Countrywide said last year that Countrywide was pulling back and would allow Wells to overtake it should have been warning enough. When greed takes over, warnings fail to impress.

The creation of hedge funds, asset backed commercial paper, CDO, CMO and that claptrap obscure what investments are actually being made. All of this was to capture that last few basis points of return.

The real question of course is what the effect of this will be on the general economy and the securities markets.

With all the leverage in the financial markets it is highly likely that prices are artificially high. As equity is destroyed, leverage declines logarithmically. As the markets

deleverage securities have to be sold and prices decline.

There is no doubt that in some geographies real estate prices are hugely inflated. Lenders are now pricing in the risk of default and closing the barn door after the horse has left.

It is also very likely that aggregate demand in the overall economy is inflated. A good deal of the money borrowed in home equity loans and in the constant refinances went to consumer purchases. As those mortgage teaser rates end and rates reset, spending could decline.

In recent days, the Federal Reserve and the President have made mistakes that could be the start of the next great crisis. They have indicated that the government will provide liquidity and regulatory relief to prevent a total collapse. President Bush and Hilary Clinton are couching this as helping the consumer, which is total crap.

What all this is doing is bailing out those who caused the mess. When the Fed did a system repurchase a few weeks ago, they purchased mortgage-backed securities. Of course, on Wall Street when you find a full price buyer for a security which you cannot price you take advantage of them. The Fed was sold a bunch of crap by hedge funds, banks, brokers and other low lives.

Second, the political class whose understanding of investment risk and uncertainty is non existent is overreacting. While defaults in sub prime and Alt A paper are rising they have not reached crisis proportions. What is happening is that people have investment products they can not price. Without a price they cannot leverage.

Third, a good deal of the loss to be taken will be in so called mark to markets. Accounting standards require companies who

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use derivatives to mark the balance sheet price to the current market value. No price=big write down. However, if the company does not have to sell the securities the write down is non economic. Unless a company is highly leveraged a mark to market should not threaten its solvency.

The one thing that will threaten to make this worse is a bunch of dunderheaded elected attention grabbers trying to make things "better"- in return for your vote of course.

By becoming the buyer and lender of last resort, the government, in pursuit of votes, is removing the moral hazard of investment. This removes one more check on foolishness creating the next trap for the unwary and greedy.

Good Luck

Dennis Gibb