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Credit Enhancement for Jumbo MBS: Where is the Bottom?

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OPINION

Credit enhancement levels on jumbo MBS deals have become so thin that many recent deals do not deserve **Aaa** ratings. The strong average performance of recent mortgage vintages has prompted excessive optimism among certain market participants. Recent vintages have not yet experienced periods of stress, and their performance to date is partly a reflection of good times. In addition, recent vintages are still too young to form the basis of expectations for even newer pools.

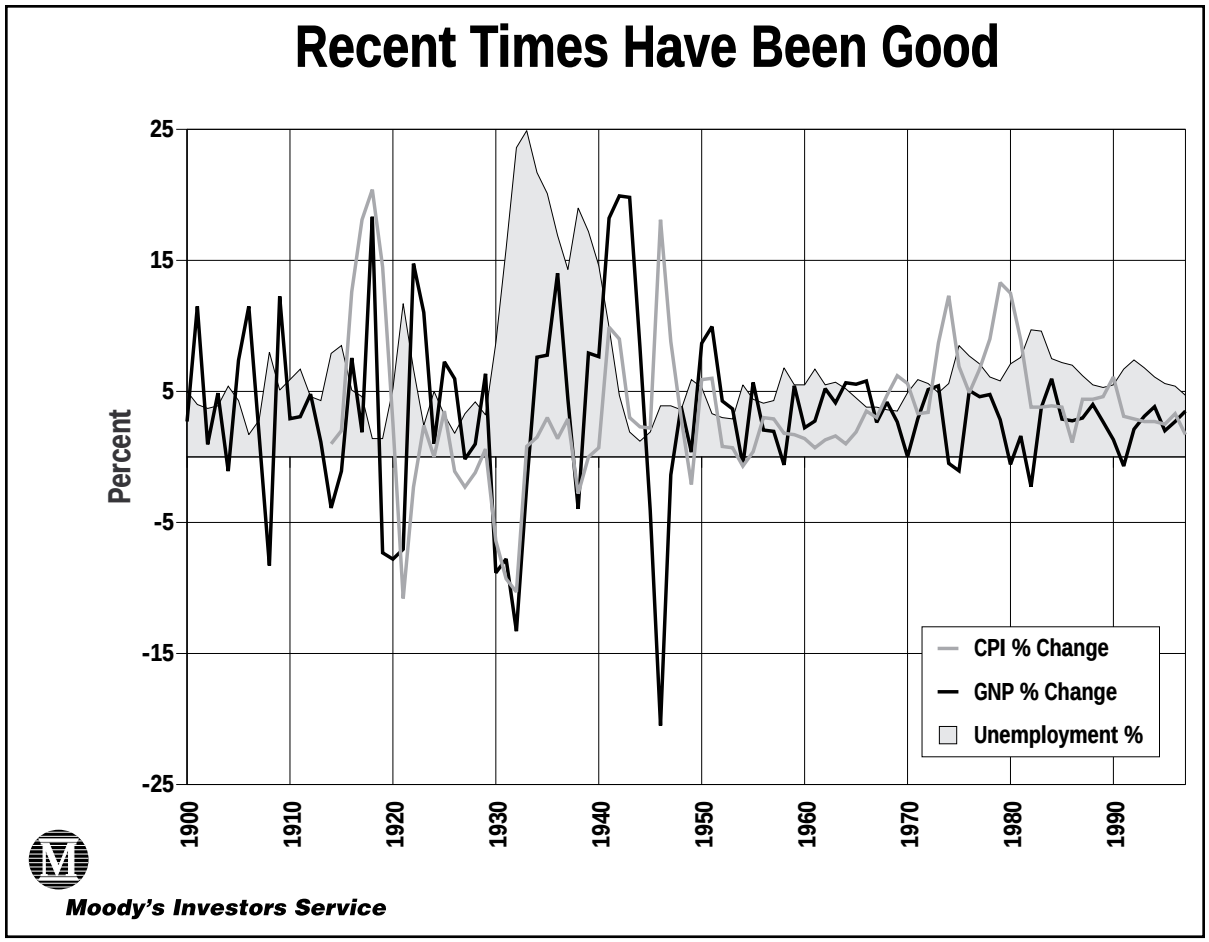
In fact, slightly older vintages contain individual pools that have performed far worse than the averages of their respective vintages. These pools, the performance outliers, show clearly how the average performance of a vintage can be misleading. Investors invest in individual pools, not the averages.

The best analysis of jumbo mortgage pools comes from an approach that combines automated computer analysis with human judgment and experience. Purely automated systems suffer from significant shortcomings: They are vulnerable to manipulation, and the data that they rely on can be defective or misleading. Human intervention can remedy these weaknesses as well as broaden the scope of analysis to include all relevant factors, even those that are not readily quantifiable.

PRESENTATION

Let's start out by looking at what economists can tell us about our current environment.

Slide 1

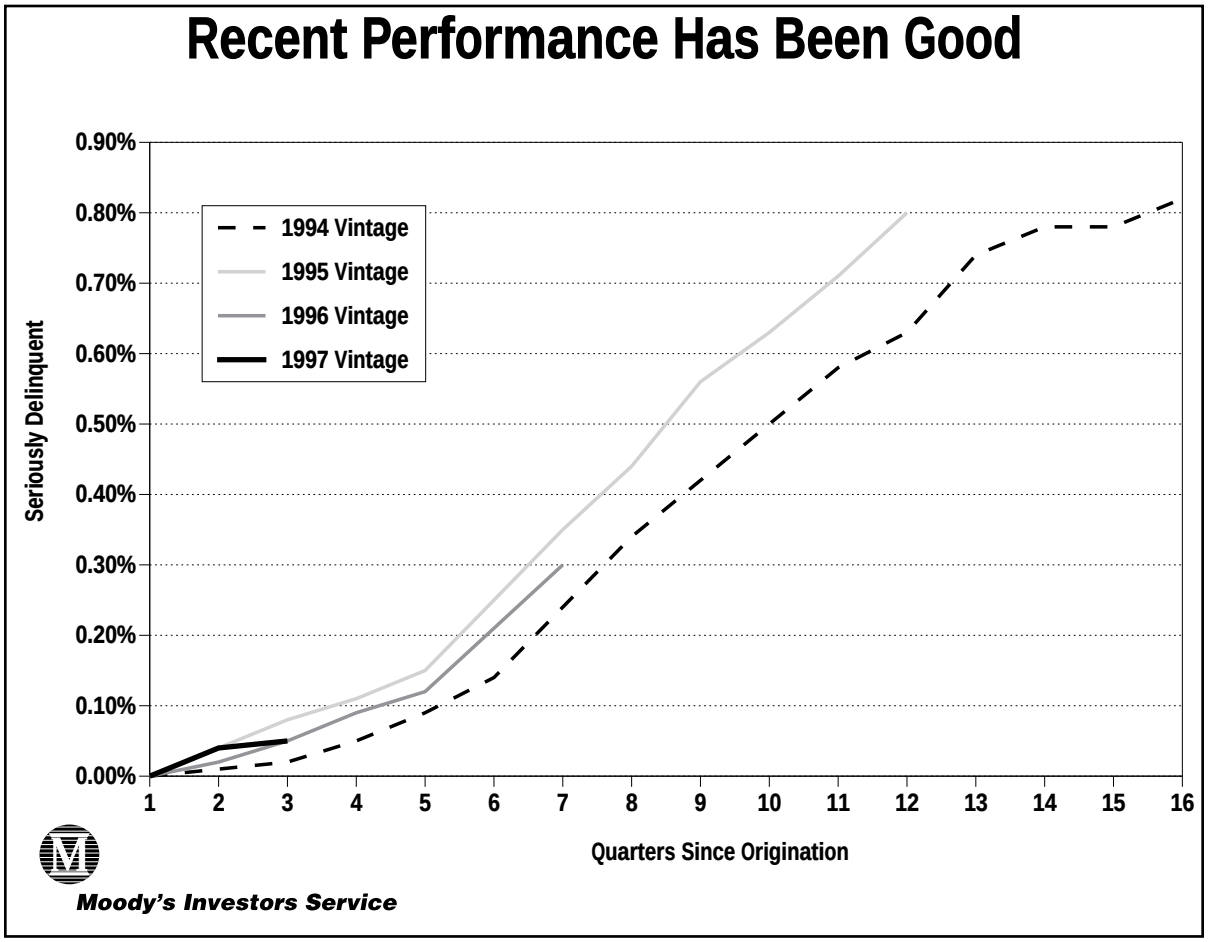


Slide 1 shows the path of certain major economic indicators during the 20th century. The shaded area shows the unemployment level. The black line shows the percentage change in real GNP from year to year. The gray line shows the percentage change in the consumer price index from year to year. The large shaded mass just left of center shows the high unemployment levels that persisted during the Great Depression of the 1930s.

The far right region of the chart shows more recent times. As you can see, unemployment and inflation have been low and stable during the 1990s while real GNP growth has been relatively stable and positive every year since except for 1991. All in all, on a national scale, the 1990s have been very benign economic times.

The good performance of mortgage pools overall has reflected those conditions:

Slide 2



Slide 2 shows the performance of four recent vintages of mortgage loans. A vintage consists of a large sample of the loans originated during a particular year. Here, performance is measured by the proportion of loans that are more than 90 days delinquent or in foreclosure.

The horizontal axis of the graph measures time since the origination of a vintage. The vertical axis shows the percentage of loans in a vintage that are seriously delinquent – that is more than 90 days delinquent or in foreclosure. The lines in the chart show how the delinquency levels for each vintage have progressed over time. The lines show that the overall mortgage loan performance has been quite good in recent years; all the vintages have delinquencies of less than 1%. This is to be expected from the overall condition of the economy.

But, one weakness in examining performance in this way is that it just shows the "overall" or "average" performance of a whole vintage. It can be misleading because it smoothes over individual pools that might have been performance outliers.

Recent vintages are still arguably too young to have demonstrated very poor performance. But, there are slightly older vintages which contain pools that ended up performing far worse than originally expected, even during the good times of the 1990s.[1]

1 Although the 1990s have been good times on a national scale, southern California experienced a material regional recession in the early 90s. Other recent regional recessions occurred in New Englad in the late 80s and in the oil patch states in the mid-80s. A geographically concentrated pool may run the risk of high losses during a regional recession.

Slide 3

But There Have Been Some Pockets of Disappointing Performance . . .

Deal Name	Losses
Citicorp Mtg 1991-05 (COFI)	9.16%
Pru Home 1988-5 (FRM 30)	6.77%
Pru Home 1991-10 (7yr balloon)	5.14%
RFC 1990-5 (FRM 30)	4.55%
RFC 1991-S11 (GPM)	7.60%
Securitized Asset Sales 1994-04 (40yr COFI)	7.65%
Western Fed 1991-02 (Neg Am ARM)	8.93%

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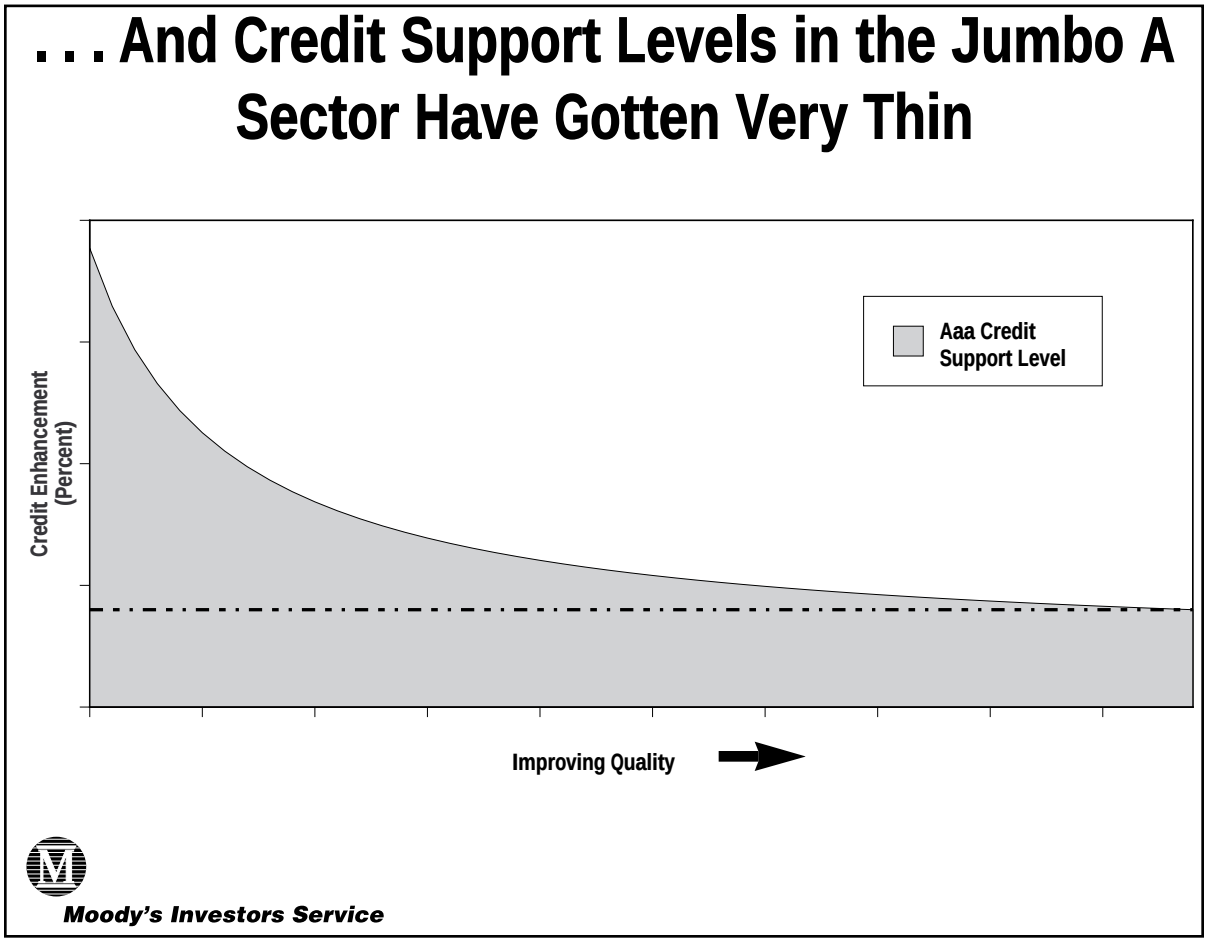
Slide 3 lists a variety of jumbo mortgage deals and the level of losses realized on the pools underlying those deals, as of earlier this year. As you can see, some of the deals listed have experienced extremely high losses.

These deals are performance outliers from their vintages – the deals that have had some of the lousiest performance. These deals are ones that performed poorly even through fairly good national economic times. And, they illustrate how there can be dramatic performance variability within a vintage.

There is another interesting fact about these deals. They were done during times when credit enhancement levels tended to be higher on jumbo mortgage deals than they are today. Over the past few years, credit enhancement levels for new jumbo mortgage deals have gotten much lower.

If some of today's deals experience poor performance like the ones listed here, it could be touch-and-go as to whether there would be enough enhancement to protect the highly rated classes.

Slide 4



Slide 4 shows how improving loan quality can reduce the level of credit enhancement needed for a private label mortgage deal to attain a rating of **Aaa**. As loan quality improves, shown by moving to the right on the horizontal axis, the necessary level of credit enhancement declines. However, improving quality is subject to decreasing marginal returns: as credit enhancement levels get to very low levels, it becomes increasingly difficult for them to keep on getting lower.

The evolutionary downward trend of credit enhancement levels for jumbo mortgage deals reflects a variety of factors. Among those factors is the practice of separating "alternative-A" and "A minus" mortgage loans from traditional "A" quality loans. Today's jumbo pools are arguably cleaner and reflect a somewhat better average loan quality. They have benefited from (i) the proliferation of "best practices" in mortgage originations, (ii) the widespread use of deep primary mortgage insurance, and, until recently, (iii) generally stronger geographic diversity[2]. In addition, with the passage of time analytic methods have been refined and there is somewhat more certainty about how pools of jumbo mortgage loans would perform under highly stressful conditions.

But, of course, there is more to the story: many jumbo deals are now going to market with credit support levels too thin to achieve Moody's ratings of **Aaa**. You cannot observe our

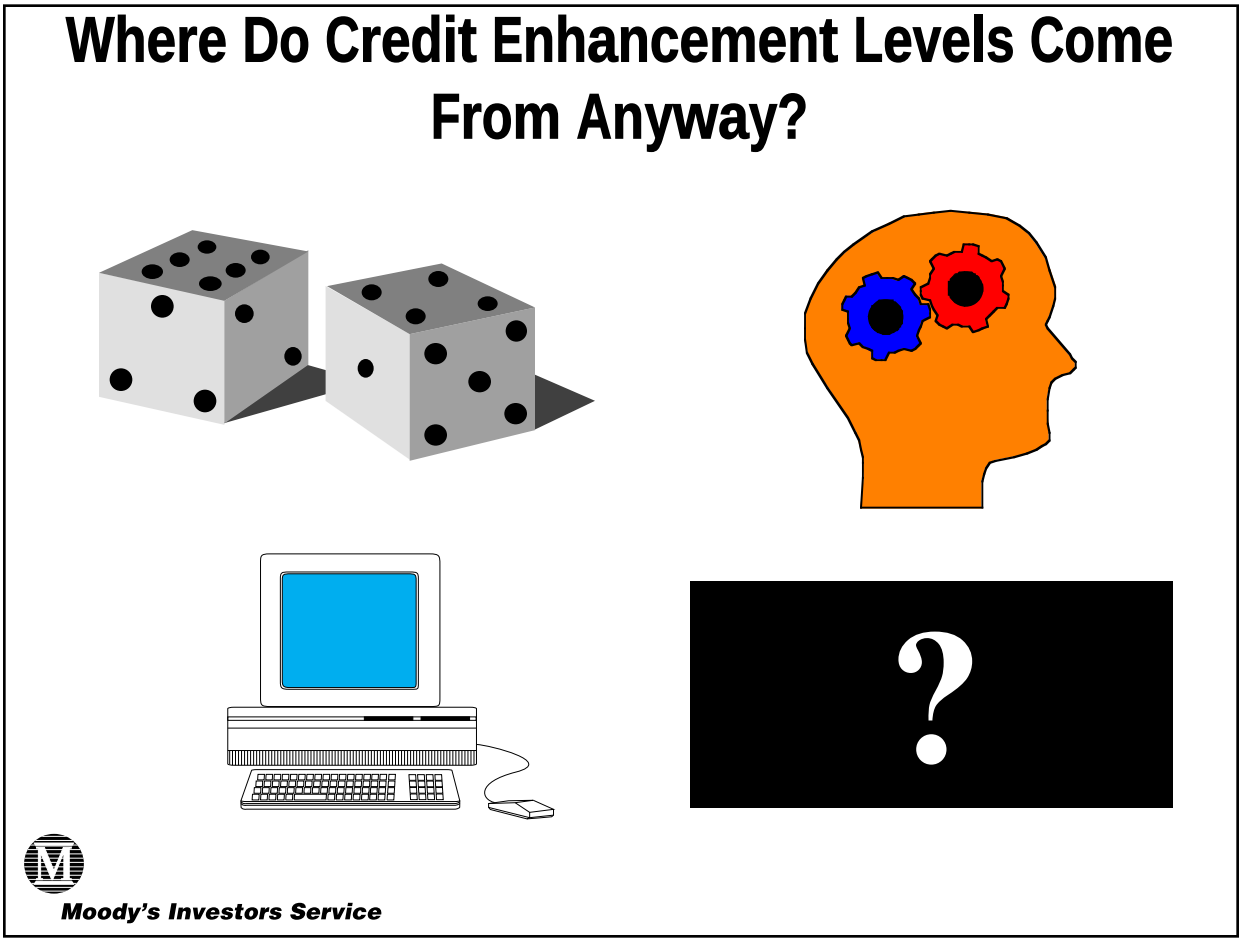
2 Countervailing trends include loan-to-value ratios, increased use of "low documentation" or "alternative documentation" programs, increased use of old appraisals, and over-reliance on automated underwriting systems.

opinion directly on these deals, but you can often detect it indirectly from the absence of a Moody's rating. Last time I checked, we are rating less than one quarter of the new jumbo A deals hitting the market.

So, some of you might ask: where in heck do I get off saying that triple-A credit enhancement levels are too low? Some might ask: where in heck do Moody's credit enhancement levels come from anyway?

Some market participants phrase that question in terms of a challenge, asserting that our credit enhancement levels seem too unpredictable; or that our analytic process is either "random" or based on a mysterious "black box" (*see Slide 5*).

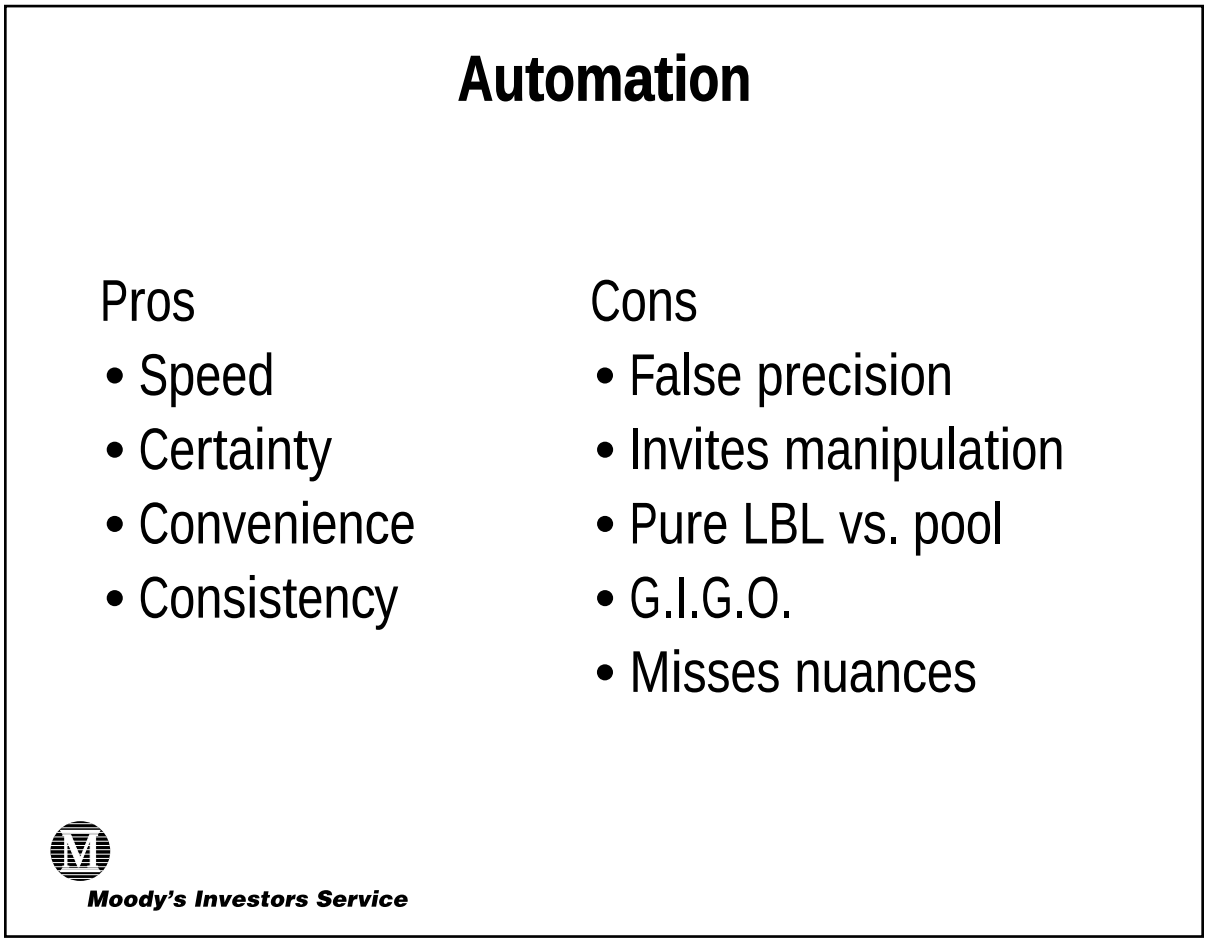
Slide 5



What those folks really seem to want is a process of determining credit enhancement levels that is highly predictable and fast – they want it to be automated. Computerized automation is one way to approach the problem, but we think that we can produce more accurate and reliable conclusions through a process that incorporates the benefits of human judgment and experience, and which uses computers as a tool but not as the "be all and end all."

Let's take a closer look at automation . . . .

Slide 6



Let's start with the positive aspects of automation as a means of determining credit enhancement levels in mortgage securitizations. The main ones are speed, certainty, convenience, and consistency. They are clearly desirable features and they speak for themselves — there's no argument there (*see Slide 6*).

But the positive aspects of automated systems come at a cost. There are negative aspects as well and they outweigh the positive ones:

False Precision: There is a misconception that credit enhancement levels should be figured in infinitely fine increments. When a computer does all the work, it can certainly deliver the results of its calculations to any arbitrarily selected degree of precision. But the process itself relies on predictions which are burdened by uncertainty. The increments should not be smaller than the degree of uncertainty.

Manipulation: A fully automated system for determining credit enhancement levels must rely on a set of fairly rigid rules. Such a system therefore inevitably becomes susceptible to the same challenges as the income tax system – armies of lawyers and bankers trying to figure out how to beat it.

Pure Loan-by-Loan (LBL) vs. Pooling: A system based simply on the aggregation of individual credit enhancement levels figured on individual loans misses the important effects that come from pooling. Most particularly, such systems miss the impact of geographic diversification and the economic correlations between different parts of the country. For example: Texas and Alaska are highly correlated because each has a significant oil economy. Although our computer models address these factors, not all models do.

G.I.G.O: "Garbage in, garbage out." This is arguably the most important weakness of automated systems. They accept "data" as being accurately representative of the things it is supposed to describe. This is not always the case. For example, depending on the situation, reported loan-to-value ratios may be more or less reliable as measurements of collateral coverage. Prudent appraisal practices are likely to yield reliable LTVs. Conversely, loose or sloppy appraisals may over value properties and hence understate LTVs.

Another example of dancing data is FICO scores. When scores are used, do they come from queries of all three major repositories or from just a "preferred" repository? If multiple scores are used, which is reported: the higher of two, the middle of three, the highest of three, ... or something else entirely.

Misses Nuances: For now, let's just note that automated systems have difficulty handling factors which are not readily quantifiable or which have not been in place long enough to generate meaningful coefficients from regression analysis of historical performance data. We'll return to this point later.

Slide 7

Key Indicators of Mortgage Loan Credit Quality

- Loan characteristics – data items
- Pedigree – performance history of loans from the same seller/servicer
- Origination process – quality control, staffing, risk modeling, pricing, strategy

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So, stepping back, if automated systems fall short, what should we be looking at to make the best possible credit evaluations?

At Moody's, we believe that the best way to analyze the credit risk of a pool of mortgage loans is to look beyond the "measurable" characteristics of the loans. All relevant factors must be considered.

Broadly speaking, we focus on three main areas:

- The "measurable" characteristics of the loans: LTVs, DTIs, FICO score distributions, geographic concentrations
- The loans' pedigree: whether the historical performance of similar loans originated by the same company has been good or poor
- The process through which the loans were originated: underwriting guidelines, the strictness with which the guidelines are applied, retail vs. wholesale channels, and other company specific idiosyncrasies

All three areas are important in developing an opinion about the loans' expected performance under both normal conditions and under hard times. All three areas are important in assessing which of two pools is riskier.

For example, two pools with identical "measurable" characteristics may have been originated by two companies with very different track records or very different practices. An analysis of all relevant factors reasonably may conclude that the pool from the company with a better track record or with superior practices is less risky. A more narrow analysis might fail to make a distinction. A more narrow analysis would miss the nuances.

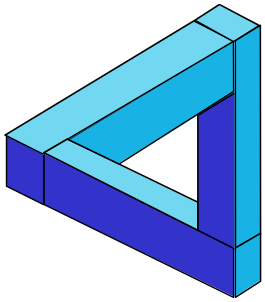
Judgment is a critical factor in all three areas:

- Judgment is key for understanding the "data" on loan characteristics. We touched on LTVs and FICO scores earlier.
- Second, judgment is a factor in interpreting trends shown by historical performance. Have conditions stayed stable so that trends implied by the data are likely to continue?
- Third, judgment is the only way to incorporate the impact of originator-specific situations that have not yet been reflected in historical performance data. Examples include risk based pricing, special modeling or credit scoring, staff turnover, staff experience, work load, hours of operation, volume growth, and quality control procedures.

Slide 8

Conclusion

- Mortgage credit risk is a fact of life
- Understanding and measuring mortgage credit risk is not merely a math or statistics exercise
- There are traps for the unwary



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So, there you have it. There's no getting around the fact that credit risk is present in pools of mortgage loans. The performance of some pools from the late 1980s and early 1990s clearly teaches us that. In addition, the task of analyzing mortgage pool credit risk is not a simple one and it clearly can benefit from human judgment and experience. It is not merely a math or statistics problem that a computer can reliably solve by itself.

And lastly, there are traps: the good overall performance of recent vintages can lull the unwary into forgetting about performance outliers.

Investors invest in mortgage loans one pool at a time. The average performance of a vintage is of no solace to the investor who holds the dogs from that origination year.