Testimony of

Arturo Cifuentes, Ph. D.

Department of Industrial Engineering

University of Chile

Santiago, CHILE

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Chairman Levin, Ranking Member Coburn, and Members of the Committee: thank you for the invitation to participate in this hearing.

My name is Arturo Cifuentes and I am a professor of finance at the University of Chile. My professional background is described more fully in Appendix A. I recently moved back to Chile after working thirty years in the U.S., of which, the last fifteen, were in a segment of the fixed income market known as structured products. Some of my views regarding the role of the rating agencies in the *subprime* crisis were expressed in a previous appearance before Congress, so I will not repeat them here. See Reference (1).

BACKGROUND

Broadly speaking, the recent financial crisis was triggered by one single factor: many Americans bought real estate with loans that eventually they were unable to repay. Unfortunately, the ratings agencies exacerbated the magnitude of this crisis by making three significant negative contributions:

[1] They misjudged the quality of these loans; that is, they made very optimistic assessments of the credit risk associated with these loans (*subprime* mortgages). Specifically, the default probabilities attributed to these loans (very low) were completely at odds with the performance that was observed later.

[2] They misjudged the risk associated with the securitization (re-packaging) of such loans (RMBS) as well as the risk associated with other securitizations (for example, CDOs, that is, securitizations supported by corporate debt); and

[3] They misjudged the risk associated with the re-securitizations, that is, re-packaging of debt issued by previous securitizations. These instruments are known as CDO-squared or CDOs of CDOs. These pools of assets were not as diversified as the agencies assumed them to be.

All in all, the combined effect of these three unfortunate actions was that a colossal number of securities previously known as “investment grade,” which, until recently, was a synonym of “low probability of defaulting,” have either defaulted or been downgraded. More troubling is the number of so-called triple-A securities that have been impaired. That is, securities that until the onset of the crisis were thought to be “foolproof.”

IMPORTANCE OF RATINGS

This massive ratings failure has inflicted an important damage on the U.S. capital markets. On one hand, the credibility of the ratings system has been shattered, for nobody believes in the ratings anymore, and also, the reputation of some well-know rating agencies appears to be broken beyond repair. This is serious since many investors, especially retail and less-sophisticated investors, used to consider a credit rating an important and trustworthy piece of information; but not anymore, especially after the dismal performance of many triple-A securities.

On the other hand, an important part of the U.S.-regulatory framework is ratings-dependent. In short, market participants are constrained in their actions by the opinions of institutions that do not inspire confidence.

What has been the result of this unhealthy situation? A securitization market that is more or less paralyzed.

It is important to realize that the idea behind the securitization concept is sound. In fact, in the past many well-structured securitizations have brought benefits to both, investors and originators. Not only that, an important part of the financing that was required by the U.S. economy was obtained not from the conventional banking system, but from the securitization market. Therefore, the importance of reviving this market is critical if the U.S. economy is to return to a healthy level of growth.

However, for as long as the securitization market (and to some extent the fixed income market) remains hostage of the opinions of the ratings agencies, it is unlikely to recover. The effect of this situation on the U.S. economy could be severe and lasting.

HOW ARE RATINGS DETERMINED

Generally speaking, a rating is an opinion that reflects the credit risk associated with a given security and is based on the interplay of two factors: (1) some input data; and (2) a computational model.

More precisely, in the context of a securitization, we have the following situation:

Input data. Three pieces of information are required to estimate a rating:

(a) The default probability of the assets in the pool to be securitized, in essence, an estimate of the credit risk associated with these assets;

(b) The recovery rate of the assets, that is, how much are they worth in the event that they default; and

(c) The correlation level in the pool, that is, the likelihood that the assets in the pool might (or might not) default together. If the correlation is high, the assets might exhibit several defaults at "almost the same time." Alternatively, if the defaults are not "clustered together" (happen "independently") the pool is said to exhibit "low correlation."

Computational model. The input data described before is normally fed into a computer model that, ideally, will capture two things, the structural characteristics of the transaction (securitization) in question and the probabilistic dimension of the environment. In a way, the model is nothing but a simplified representation of reality (in this context, reality refers to the way the credit markets operate and behave).

However, things can go wrong with the "rating process." One possibility is that the input data could be "inaccurate" (a bad estimate of the true value). Additionally, the structure of the model could be deficient, failing to capture the relevant features of reality. In either of these cases, the outcome could be an unreliable or inaccurate rating. Worse yet, if both data and model are too imperfect**,** disaster might ensue. This situation is demonstrated in Figure 1.

It is worth mentioning that the rating agencies have hinted that the sorry performance of the ratings associated with *subprime* securitizations (such as RMBS transactions) has been the result of inaccurate information provided by the bankers, and, therefore, not their fault. This argument does not hold any water: first, any analyst or modeler should know that, if the data are unreliable, the results will be useless (garbage in/ garbage out); and second, if that had been the case, namely, that the ratings were based on information that was not verified for accuracy, the ratings should have included a clear disclaimer to that effect.

A BIT OF HISTORY

In the early 2000s even a casual observer of the structured products market (CDOs, ABS, RMBS, etc.) would have noticed something unusual. The rating agencies were making too many modifications to their methodologies in what seemed an unusually short period of time. These changes affected both, the input data, as well as the structure of their computational models. One possible interpretation is that they did not know what they were doing and they were following a trial-and-error approach to get things right.

Alternatively, one might be tempted to suspect that they were "improving" their methodologies (making them more flexible or forgiving) to maintain or increase their market share. A presentation that I gave in September 2006 at a CDO conference (see Reference (2)) addressed this issue.

In any event, any back-of-the envelope analysis of some of the transactions rated in that time-frame (2001-2006) leaves one with the impression that more "forgiving" assumptions were being introduced in terms of the key input data used in the rating process (namely, default probabilities and correlation assumptions).

Moreover, a modeling technique called Gaussian copula, which around that time was more or less adopted by the majority of market participants, probably magnified the potential inaccuracy of ratings. This technique has serious theoretical flaws. This topic is beyond the scope of this testimony but the curious reader can examine References (3) and (4).

Finally, it is fair to conclude that the result of all these changes in the methodologies that were implemented in the 2001-2006 period were behind the dismal performance of the ratings. In fact, all the corrections to their assumptions that the rating agencies have incorporated lately validate this perception.

THINGS TO WORRY ABOUT

In light of the previous considerations, a number of very legitimate concerns arise:

(1) Moody´s and S&P claim to give ratings based on different benchmarks (Expected Loss versus Probability of Default) and using different methods (computational models). How can we explain then that when it comes to CDOs (or CDO-related products) both agencies give suspiciously similar ratings? Are their ratings truly "independent"?

A rigorous statistical analysis should be done to test the hypothesis that the rating agencies actually give independent ratings. There are well-established statistical methods to do this. It is just a matter of getting all the relevant data from the rating agencies.

(2) Moody´s used to employ a method called The Binomial Expansion Technique (BET) in combination with the so-called Diversity Score (DS) to analyze CDOs. In the early 2000s a new method (a variation of a Monte Carlo) was introduced to deal mostly with synthetic CDOs. Later, close to the

end of 2004, a new set of correlation assumptions were incorporated. I strongly suspect that many of the synthetic CDOs would have appeared much riskier (received lower ratings) had they been analyzed with the old BET approach. The reason is that the new approach "relaxed" some of the assumptions employed in conjunction with the old BET method.[1]

Again, it would be interesting to examine this hypothesis in a rigorous fashion (analyzing in detail a few synthetic deals rated in the 2002-2005 time frame).

(3) It might be argued that the rating agencies lacked enough historic data to make accurate estimates of the credit risk (namely, default probability) of the so-called *subprime* loans. After all, *subprime* loans were "different" (given with more relaxed standards than previous loans, and therefore, presumably, whatever data the agencies had did not apply.) However, reason and prudence dictate, that under those circumstances, more conservative assumptions should have been employed. In fact, there was a precedent for that. For instance, in the late 90s, CDOs including emerging market assets were done for the first time. To address the "lack of data" issue, conservative assumptions were made to mitigate the lack of reliable information. The result was that those CDOs did fairly well (from a ratings point of view) during all the crises that affected these markets later.

(4) At some point, the disastrous performance of so many *subprime* securitizations forced the rating agencies to modify their methods of analyses (use stricter standards). However, for the most part, the old transactions were not re-rated after introducing the new standards. One can speculate that the reason was that they lacked sufficient staff to undertake this effort. Or perhaps, it was "better" to allocate more analysts to the more lucrative business of rating new deals (higher fees) than to monitoring old deals, an activity that does not generate new revenue. Had the old transactions been re-rated (and most certainly downgraded) when the methods were modified, that

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[1] At the risk of sounding too technical: in 2004 Moody's switched from "default correlation" to "asset correlation" to assess the degree of diversification of a pool of assets. Although the two concepts (asset correlation and default correlation) are related, they are, conceptually and numerically, different. In all likelihood, most market participants, except for some highly sophisticated players, probably missed the significance of this new approach. But the bottom line was clear: the new correlation assumptions were quite forgiving compared to the old ones: in some cases, the new correlations could be as low as one-half or one-third the old values. This discrepancy was more acute when it came to investment grade assets, which, ironically, were the bulk of the assets behind the synthetic CDOs. One could argue that these unfortunate correlation assumptions were one of the culprits behind the sorry performance of synthetic CDOs.

would have probably removed some of the energy that fueled the *subprime* securitization impetus. Granted, perhaps that would have not been sufficient to prevent the crisis, but it certainly would have contributed to reduce its magnitude.

(5) A careful examination of the Exhibits[2] allows one to identify some common themes that affected both, S&P and Moody's: (i) they did not have enough staff to monitor adequately "old" (previously rated) transactions; (ii) their analysts were overworked and overstressed at the peak of the *subprime* securitization wave (roughly, the 2004-2006 period); (iii) they failed to acknowledge the impact of the deteriorating standards in *subprime* lending, in spite of the fact that, as early as 2004, and clearly in 2005, there was enough evidence of fraud reported even in the mainstream media; and (iiii) there is evidence that "market share targets" and market share concerns played an important role in setting rating standards.

Two final observations: first, a few analysts, at both, Moody's and S&P, expressed concern regarding some rating practices at different points. However, these dissenting voices were, for the most part, ignored. In short, not everybody at the rating agencies contributed to what Douglas Lucas, a fairly well-respected CDO research analyst once described as the biggest ratings disaster.

And second, there is a very disturbing, but illuminating, Moody's e-mail written by a managing director in 2007: she wanted to know the reason Moody's had "failed" to rate certain transactions (in other words, not called to rate these transactions) presumably, because of the implications that this could have on their market share targets. One can only guess what could have happened if the rating agencies had monitored the *subprime* market with the same level of care that they seemed to have employed to monitor their market share.

[2] Exhibits, in the context of this testimony, refers to the documents provided by the Permanent Subcommittee on Investigations (PSI) in relation to the role played by the Rating Agencies in the subprime crisis.

CONCLUSION

The situation described before is serious. First, it has implications for the U.S. economy: an impaired securitization market will delay the recovery and slow down the growth of the economy. And second, this situation is calling into question the legitimacy of the U.S. capital markets: the fact that the rating agencies keep on issuing ratings and collecting fees, as if nothing had happened, is shameful.

Finally, it might be tempting to put all the blame associated with this crisis on the rating agencies. But one has to be realistic --the rating agencies are only taking advantage of a unique business environment that would be the dream of every for-profit corporation: a flawed regulatory framework that, at the same time, makes them necessary, fails to sanction them, and prevents competition by erecting almost insurmountable barriers to newcomers.

I believe that token initiatives, such as limiting the gifts that rating agency analysts can receive to US$ 25 per annum, or focusing on who pays for the ratings, are distracting non-issues. The same can be said about the numerous and bogus calls for "transparency" that are frequently made, since CDOs are extremely transparent instruments.

Therefore, I would like to suggest two initiatives:

(1) A serious debate should take place to examine the benefits of having versus not-having rating agencies. In short, should they exist or not?

(2) Assuming one concludes that it is better to have rating agencies it is not obvious that the existing rating agencies should continue to exist. In other words, what can be done to replace the existing rating agencies by a more capable group of new agencies? In this context, two suggestions come to mind: (i) the implementation of a fast-track approach to approve new entrants to the ratings market (and the elimination of the three-years-in-operation requirement to gain NRSRO status), and (ii) the creation of a free and easy-to-access universal database with all the information regarding ratings and ratings performance.

These two suggestions might appear bold. In fact, they are, but in my opinion, anything less drastic is unlikely to make an improvement. The current situation is critical; a radical solution is the only way out.

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APPENDIX A

Arturo Cifuentes, Ph. D.

Professor

Department of Industrial Engineering

University of Chile

Santiago, CHILE

Professional background

Dr. Cifuentes joined the faculty of the University of Chile in March 2010 to spearhead the formation of a soon-to-be-established financial studies center.

He has extensive experience in several sectors of the fixed income market (investment banking, asset management, research, re-insurance and rating agency). Additionally, he has contributed to the development of many analytical techniques that are widely used in the financial industry.

He has also written numerous articles on financial topics for academic journals, trade publications and the international press. Furthermore, he has lectured internationally to a fairly diverse set of audiences (university students, senior professionals, regulators, and government officials) and done consulting for private institutions as well as government entities. In April 2008, at the request of the U.S. Senate Banking, Housing and Urban Affairs Committee, he testified before congress as an expert witness in relation to the *subprime* crisis.

He holds a Ph.D. in applied mechanics and a M. S. in civil engineering from the California Institute of Technology (Caltech); an MBA in finance from New York University (Stern scholar award); and a civil engineering degree from the University of Chile.

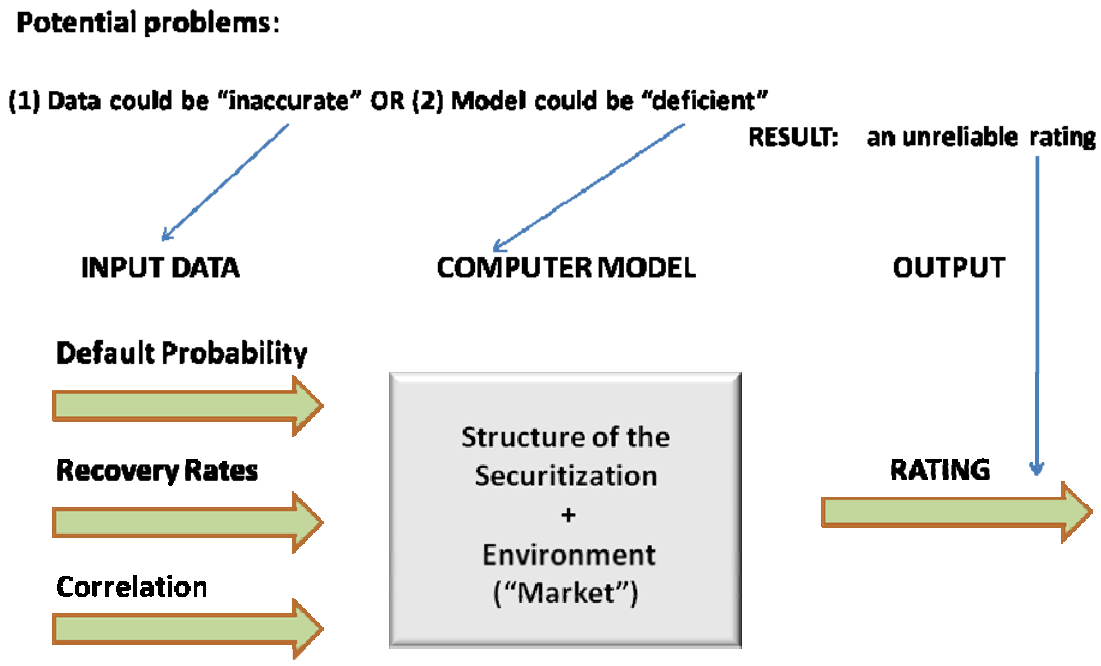

Figure 1. Modeling a Securitization, Overview of the Rating Process