

Yale University

EliScholar – A Digital Platform for Scholarly Publishing at Yale

YPFS Documents

[Browse by Media Type](#)

2-28-2008

AIG PWC Valuation Process and Oversight of the AIGFP SuperSenior Credit Default Swap Portfolio

Peter Munter

Henry Daubeney

Justin Keane

Brian Williamson

Follow this and additional works at: <https://elischolar.library.yale.edu/ypfs-documents>

Recommended Citation

Munter, Peter; Daubeney, Henry; Keane, Justin; and Williamson, Brian, "AIG PWC Valuation Process and Oversight of the AIGFP SuperSenior Credit Default Swap Portfolio" (2008). *YPFS Documents*. 5365.
<https://elischolar.library.yale.edu/ypfs-documents/5365>

This Document is brought to you for free and open access by the Browse by Media Type at EliScholar – A Digital Platform for Scholarly Publishing at Yale. It has been accepted for inclusion in YPFS Documents by an authorized administrator of EliScholar – A Digital Platform for Scholarly Publishing at Yale. For more information, please contact elischolar@yale.edu.

Critical Matter

Entity Name: American International Group, Inc.
Engagement Name: American International Group 2007
Period End: 12/31/2007

Completed By: Brian D. Williamson/US/ABAS/PwC
02/28/2008
Reviewed By: James J Scanlan/US/ABAS/PwC 02/29/2008
Cleared By: Tim Ryan/US/ABAS/PwC 02/28/2008

Status: Cleared

Title: New MW - Valuation Process and Oversight of the AIGFP SuperSenior Credit Default Swap Portfolio
Parent Link: [Overview of Remediation](#)

Details

Description:

As of December 31, 2007, controls over the AIGFP super senior credit default swap portfolio valuation process and oversight thereof were not effective. Management concluded, and PwC concurred, that this deficiency was a material weakness as of December 31, 2007. See memo below for description of the material weakness. For additional information, see separate critical matter covering the Super Senior Valuation within this database.

Note: A new material weakness is a required consultation with the National Office. As well as the Item 9A and PwC Integrated Audit Report. See [link](#) for the critical matter containing our National Consultation regarding the material weakness.

Response:



Attachments:

Categorisation

Area 6100 - Remediation

Status & Maintenance

Status: Cleared
Maintenance

Edit History:

Brian D. Williamson/US/ABAS/PwC on: 28 February 2008
Peter Munter/US/ABAS/PwC on: 28 February 2008

Tim Ryan/US/ABAS/PwC on: 28 February 2008
Tim Ryan/US/ABAS/PwC on: 28 February 2008
Tim Ryan/US/ABAS/PwC on: 28 February 2008
James J Scanlan/US/ABAS/PwC on: 29 February 2008

Memo

To: / Location: AIG workpaper files / New York - 300 Madison Avenue

From: / Location: Peter Munter, Henry Daubeney, Justin Keane and Brian Williamson / New York - 300 Madison Avenue

Date: February 24, 2008

Subject: **American International Group, Inc.
Sarbanes Oxley evaluation of the control deficiency relating to the valuation process and oversight of the AIG Financial Products super senior credit default swap portfolio**

This memo addresses the evaluation of the control deficiency relating to the valuation process and oversight of the AIG Financial Products (AIGFP) super senior credit default swap (CDS) portfolio as of December 31, 2007.

Background

As of December 31, 2007, AIGFP's super senior credit default swap portfolio comprised over 200 individual transactions with a net notional exposure of approximately \$527 billion. AIGFP has four types of super senior credit default swaps:

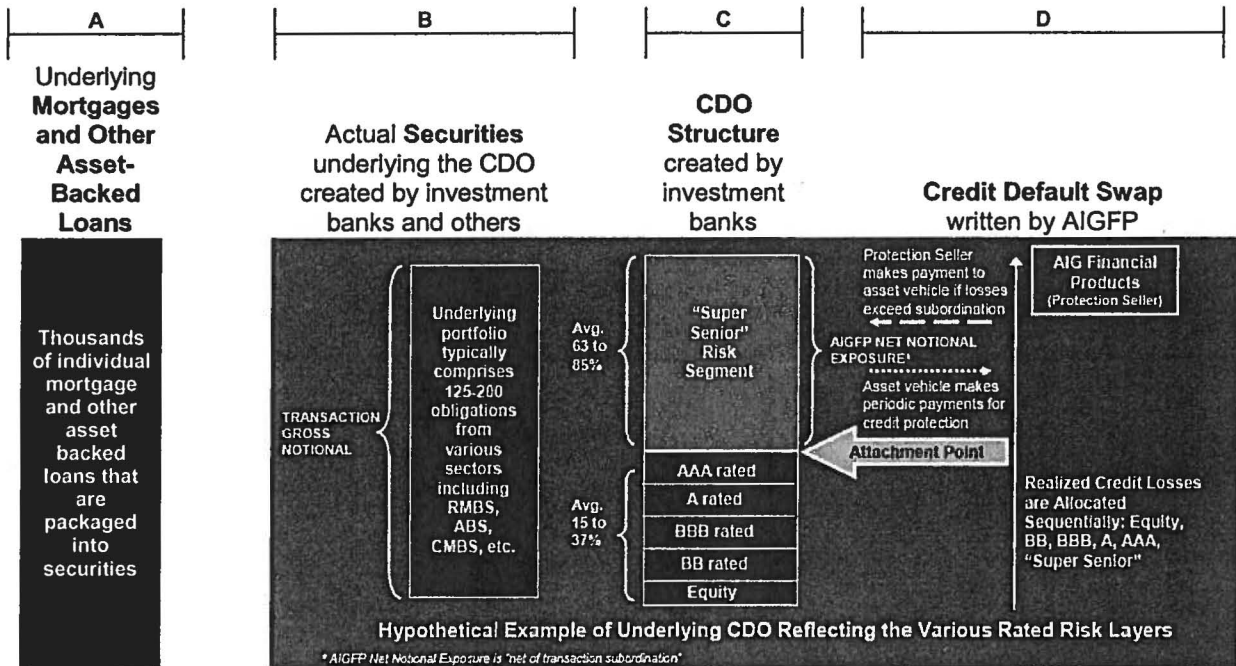
	Net Notional Exposure at December 31, 2007
Unrated Corporate Loans*	\$230 billion
European Residential Mortgages*	\$149 billion
Corporate Debt/CLOs	\$70 billion
Multi-Sector Asset Backed	\$78 billion

* Also referred to as Regulatory CDS

As a writer of credit protection, selling credit default swaps to sophisticated counterparties, AIGFP's transactions typically require the counterparty to pay a premium based on the credit exposure over which protection is written for a specified reference portfolio of assets or collateralized debt obligation bond/tranche. There are two mechanisms by which AIGFP makes payments when an event of default occurs. For the regulatory CDSs (comprising unrated corporate loans and European residential mortgages), the Corporate Debt and approximately 10% of the multi-sector asset backed, AIGFP's contracts operate on a "pay as you go" basis. In other words, if interest or principal payments do not occur, AIGFP is obligated to make up the differences. For CLOs (approximately \$1.5 billion) and 90% of the Multi-Sector Asset Backed CDSs, in the event of a default, the counterparty will submit the bond to AIGFP who is required to purchase it at par.

AIGFP believes that the transactions were structured at inception to ensure that the likelihood that cash payments will be made under the CDS contracts is remote, due to the high quality of underwriting and

the high attachment points or thresholds above which AIGFP's credit protection or "insurance coverage" applies. The diagram below illustrates how AIG's transactions are structured.



Source: Tailored from AIG's Investor presentation on December 5, 2007

Q4 2007 Developments

- During the fourth quarter, the structured finance markets experienced further deterioration, more severe than developments in the third quarter. The fourth quarter experienced effects from:
 - Significant widening of credit spreads on ABS and CDO securities and
 - Downgrades of thousands of RMBS and CDO securities which further depressed the value of AIG's instruments.
- AIGFP continued to refine its valuation methodologies, including the implementation of a Monte Carlo simulation to quantify the effect of the cash flow diversion features on the fair value of its instruments.
- AIGFP was also able to obtain prices on the majority of the securities inside the CDOs from the CDO collateral managers.
- AIGFP was also able to collect third party prices on the super senior CDO securities it wrapped. In AIG's final determination of fair value, prices provided by third parties, including counterparties to AIG's derivatives, were compared to the BET values and adjustments were made to the BET values as deemed necessary.
- AIG's final valuations of the super senior credit default swaps on multi-sector CDOs do not adjust for the fact that cash and synthetic instruments generally trade at different levels. Given the lack of trading in the current environment, it was not possible to collect sufficient objective evidence to

support such an adjustment. Hence, the mark-to-market losses reported in the 10-K for 2007 represent the decline in fair value of the super senior CDO security and not the credit derivative written on such security.

After considering the additional information learned in the fourth quarter, management believes, and PwC concurs, that the unrealized mark to market loss reported in the third quarter remains its best estimate for that period and it has not identified any errors in that valuation.

Multi-sector asset backed CDS process to estimate fair value at December 31, 2007

AIG's Super Senior multi-sector asset backed credit default swaps are required to be carried at fair value under GAAP. AIG has recorded mark-to-market losses of \$10.9 billion in the fourth quarter of 2007 (\$11.3 billion full year). As discussed in PwC's report to the Audit Committee on "Accounting and Valuation Considerations Relating to AIG" dated October 4, 2007, the estimation of the fair value of these CDS is highly judgmental. Specifically, the customized nature of each CDS (i.e. no two transactions are alike) and the limited amount of reliable and observable market information to similar transactions at December 31, 2007 have posed significant challenges for market participants.

AIG arrived at its final super senior credit default swap fair value estimate after considering the information from several different market data points relevant in estimating fair value including those described in the table below:

Part of the structure referenced on page 2	Instrument/ approach	Market data points	December 31, 2007 fair value estimate
D	Super senior multi-sector asset backed credit default swap	<ul style="list-style-type: none"> AIG is not aware of and has not been able to identify similar CDS transactions in the marketplace (i.e. no reliable market prices/quotes or observable transactions) 	Not applicable
C	Third party approach using bonds in the CDO structures covered by the CDS	<ul style="list-style-type: none"> Third party quotes on the actual CDO structures underlying AIG's CDS from investment banks Market value information from collateral calls made by counterparties on AIG's transactions. Collateral calls are based on changes in fair value of the CDO structure (i.e. cash price) 	\$11.5* to \$13.1 billion* (* Where no third party price, the BET value was used)
B	BET approach using securities underlying the CDO structure	<ul style="list-style-type: none"> Values of the underlying securities are input to the Company's modified BET model which incorporates the specifics of each AIG CDS (i.e. attachment points and other important contractual terms) and arrives at an estimated fair value (i.e. cash price) Over 9,000 security prices 	\$8 to \$8.9 billion* (* BET value capped at 95%)

Part of the structure referenced on page 2	Instrument/ approach	Market data points	December 31, 2007 fair value estimate
		obtained from multiple CDO managers on the actual securities underlying CDOs are used as key inputs to the BET model. Prices verified for reasonableness to third party pricing service	
A	Mortgage and other asset-backed loans underlying the securities (bonds)	<ul style="list-style-type: none"> Analysis of cash flows based upon estimates from performance of the underlying loans were not done as AIG does not have access to the actual loan data underlying the securities 	Not applicable

Key judgment #1 - cash versus derivative

As can be seen above, AIG could not obtain reasonable evidence to estimate the actual CDS (approach D). As a result, management estimated a cash price (see approach B) and then attempted to adjust this cash price to arrive at a CDS valuation. This adjustment has been referred to as "negative basis." However, after an extensive effort, sufficient evidence was not available to support such an adjustment. Based upon these efforts, management concluded, and we agree, that "negative basis" would not be realizable in the marketplace at December 31, 2007. As such, a critical judgment in the valuation process is that, in the current market, it is not possible to obtain reasonable evidence that negative basis is observable and that it can be reliably quantified. Accordingly, given the current uncertainties in the marketplace regarding CDO structures and subprime and related securities, AIG's valuation estimate assumes that a market participant would require the cash price in order for AIG to exit the derivative position.

Key judgment #2 - BET versus third party estimates on CDO structure

Using these data points, AIG then reviewed the fair value estimate provided by the BET approach (approach B) (\$8.9 billion), the fair value estimates using the third party approach on the CDO structure indicated by the third party quotes and fair values implied by the collateral calls (approach C) and arrived at an overall fair value estimate of \$11.5 billion. The \$11.5 billion was arrived at by analyzing, for each individual transaction, the price differences between the BET approach and the available third party quotes and collateral.

Key considerations

During our audit, we raised to management several concerns associated with AIG's Super Senior credit default swap valuation process, which, when resolved, led to material changes. These concerns associated with and material changes in AIG's Super Senior credit default swap valuation process and estimate of fair value are summarized below (with further details provided in minutes of client and Audit Committee meetings in the year end workpapers) in qualitative and quantitative factors:

The model and process

- During our year end audit, PwC identified approximately \$900 million (\$600 million, net) of errors in AIGFP's model to calculate the fair value estimate of the super senior credit default swaps. These errors included the incorrect conversion of spreads to bond price equivalents from market

data as well as some data input areas in connection with the underlying RMBS values and the creation of the pricing matrix used for individual securities for which no direct price was obtained from the collateral managers. There were also errors in connection with the calculation of the fair value of the Corporate super senior portfolio related to the application of market spreads (not applying term structure to the pricing and data errors related to the characteristics of the underlying transactions) resulting in approximately a \$90 million adjustment.

We considered the \$900 million and \$90 million to be audit adjustments. As a result of our audit procedures performed, AIG management was required to make refinements to the model inputs. These model input refinements impacted the way that prices and credit spreads were derived from the information obtained from the underlying collateral managers resulting in approximately \$690 million net adjustments, with over \$990 million of absolute adjustments identified by PwC. In addition, given the notional amount of these derivatives and the sensitivity of credit spreads on the valuation, the adjustments could have been larger than \$990 million. While certain members of management have expressed their belief that ERM would have identified these adjustments; the Company has concluded, and we concur, that the \$990 million are audit adjustments.

- During our audit of management's proposed negative basis valuation adjustment of approximately \$3 billion at December 31, 2007, it was apparent to us and later to management that the evidence management had collected was not sufficient to demonstrate the existence of the "negative basis" for these specific positions in the current market conditions. (Note: Negative basis adjustment is the differential between spreads implied from cash CDO prices and credit spreads implied from the pricing of credit default swaps on the CDOs). As a consequence, AIG decided not to include any adjustment to reflect the spread differential (the negative basis adjustment which was estimated at \$3.6 billion as of November 30th) in determining the fair value of AIGFP's super senior credit default swap portfolio as of December 31, 2007.

We considered the \$3.6 billion negative basis adjustment to be an audit adjustment. In PwC's view, without PwC's audit work, AIG management would have made the \$3.6 billion negative basis adjustment. The basis for our view includes (a) PwC initiated the questions, dialogue and concern regarding the negative basis adjustment, (b) AIG Corporate Finance and ERM's initial assessment was not comprehensive and was lacking in scope and breath, and (c) not until PwC forced the issue of negative basis did management do sufficient work to conclude that the negative basis adjustment was not supportable in the current market conditions.

Third party information

- As reported to the Audit Committee on November 6, 2007 and December 13, 2007, AIGFP had received a number of collateral calls from counterparties which we believed could be informative to management's fair value estimates and which appeared to be below the value that AIGFP had recorded for the Super Senior CDS on their books. During the fourth quarter, PwC became increasingly concerned about the size and number of the collateral disputes. We discussed at length with senior management at AIG the need to understand these data points and how they may impact AIG's valuation methodology and approach.

At PwC's request, AIG Corporate management met with Goldman Sachs in late January 2008. In connection with the debrief on the GS meeting between management and PwC, it became apparent that obtaining additional third party quotes from other market principals for the specific cash bonds was an approach that AIG should pursue further. As such, we requested AIG to, wherever possible, obtain such quotes themselves. Via this exercise and using the data from the collateral counterparty valuations AIG was able to obtain a high level of coverage (approximately

80%) from third party sources as to the value of the specific cash positions on which AIG had written credit protection.

As the information on this was gathered by management it became apparent that a range in values for the portfolio could be inferred to be between \$8.0 billion (BET value) and \$13.7 billion (based on the lowest of the unadjusted third party data).

We considered the adjustment in fair value estimate, approximately \$2 - \$3 billion as a result of the use of third party information to an audit adjustment. In PwC's view, without PwC's continuous requesting, and insistence, AIG management would not have made obtained the third party information that resulted in the \$2 - \$3 billion adjustment. The basis for our view includes (a) AIGFP did not obtain third party information, (b) AIG Corporate Finance and ERM did not insist upon obtaining third party information and following-up on collateral calls, (c) We requested that the Company take steps to better understand what the collateral calls were informing them about their fair value estimates. Management did not initially take appropriate action to address these requests. We informed AIG that if they would not talk with their counterparties then PwC would. Once AIG realized that PwC was insistent on obtaining third party information, AIG held a conference call with Goldman Sachs in late January 2008. As a result of this conference call and a follow-up call with Goldman Sachs, AIG became better informed on the relevance of Goldman Sachs' valuations and the availability of other third party information in the market place. Subsequent due diligence along with information from the Goldman Sachs' and other third party collateral calls resulted in the \$2 - \$3 billion adjustment.

Oversight

- Prior to the December 5, 2007 Investor Meeting ("Investor Meeting"), PwC requested a meeting with Martin Sullivan and Steve Bensinger to discuss the collateral and control issues with the valuation of the super senior credit default swaps. At the meeting, Joe Cassano stated that the fair value estimate, as of the end of November 2007, of the super senior credit default swaps could be as high as \$3.5 billion at November 30, 2008. At the Investor Meeting, AIG stated that the cumulative loss relating to the super senior credit default swaps was \$1.5 billion at November 30, 2008.

During and, in large part, as a result of our audit, it was later determined that the \$1.5 billion estimate used was net of structural benefits of \$700 million and a negative basis adjustment of \$3.6 billion which was, apparently, not known by ERM or senior management until early February 2008.

- In February 2008, after questions had been raised by PwC, AIGFP informed ERM and AIG Corporate that they determined in late December that the \$1.5 billion reported to the market during the Investor Meeting had an approximate \$1.4 billion error which would have made the loss that much higher. AIGFP fixed this error in their December 31, 2007 model.

We understand that AIGFP believes that while there was a modelling error, that since they were running two models at that time (end of November) that this error would have been detected in calibration efforts.

- We discussed several examples with management including the above instances, as well as the February 4, 2008 meeting where AIGFP did not tell, on a timely basis, Bensinger and Sullivan that

the ERM analysis attempting to support negative basis was flawed (see below) or the late notification to AIG Corporate and ERM of the regulatory trade collateral call on the BNP Paribas trade on February 23, 2008.

Furthermore, AIG senior management and ERM determined that a specific piece of analysis around the correlation between prices for the underlying RMBS bonds and CDS credit spread information on these bonds, each of which was obtained from different sources, would provide a key data point in their view and support of the "negative basis" concept. After PwC evaluated the pricing correlation and determined that it did not actually support negative basis, AIGFP stated that they had known previously that the ERM analysis of pricing correlation was not supportive of negative basis.

- In PwC's view, AIG has a deficiency in the oversight of the AIGFP super senior credit default swap portfolio valuation process. The basis for our view includes (a) There was inadequate follow-up by AIG management on the collateral calls, as previously stated. There was no visible action on collateral calls (informing of value) by AIG Corporate Finance until late January 2008 after the Goldman Sachs conference call and after AIG Corporate Finance's realization that PwC was insistent on obtaining the available third party information, (b) AIGFP informed AIG Corporate Finance and ERM to not get involved with their valuation until AIGFP was finished. Bob Lewis and Elias Habayeb have acknowledged to Tim Ryan, Henry Daubeney, and Brian Williamson that the valuation process in the fourth quarter was less than ideal. Not only did AIGFP not have enough resources, but more importantly, the Company did not benefit from having all their resources (i.e. from AIG Corporate Finance and ERM) involved in the development and oversight of the model at its inception, and (c) When PwC continued to question and evaluate the concept of negative basis, it is our belief that AIG Corporate Finance and ERM did not objectively evaluate negative basis or all available data to assess its applicability. We believe that the examples, as listed above, demonstrate the deficiency in the oversight of the valuation process which contributed to the audit adjustments, as described previously.

Evaluation

Evaluation framework

AS5.A7 defines a material weakness as "... a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis."

AS5.A11 defines a significant deficiency as "... a deficiency, or combination of deficiencies, in internal control over financial reporting that is less severe than a material weakness, yet important enough to merit attention by those responsible for oversight of the company's financial reporting."

In accordance with PCAOB AS5.62 - AS5.68, and the PwC *Practice Aid for Evaluating Control Deficiencies* issued in July 2007, the table below outlines the evaluation process for deficiencies.

Control deficiency encompasses several themes

In assessing the primary drivers of the deficiency in controls over the fair value estimate of AIGFP's super senior credit default swaps and oversight thereof, we considered the three overarching themes described above:

- *Models and process* - Controls relating to the model, including model inputs and outputs and the overall valuation process, were not sufficient
- *Third party information* - Controls relating to the appropriate consideration and analysis of relevant and available fair value data points to better inform management's fair value judgments - including 3rd party information such as collateral calls and 3rd party pricing
- *Oversight* - Controls relating to the appropriate oversight and monitoring of the super senior credit default swap valuation process - including the timely sharing of information at the appropriate levels of the Company.

Evaluation question	Response	Explanatory narrative
Box 1. Does the deficiency relate directly to the achievement of one or more financial statement assertions (e.g., deficiencies in controls such as pervasive ELCs and certain ITGCs may relate only indirectly to financial statement assertions)?	Yes (Continue to Box 2)	As described above, the deficiency in the fair value valuation process and in the oversight of the valuation process resulted in adjustments to other income and unrealized loss on swaps, options and forward transactions.
Box 2. Is the likelihood of a misstatement resulting from the deficiency (or combination of deficiencies) at least reasonably possible? (AS 5.64 - .65)	Yes (Continue to Box 3)	The likelihood of a misstatement resulting from the deficiency is at least reasonably possible. This is evidenced by the known adjustments, including the \$900 million gross errors identified by PwC, the \$3.6 billion negative basis adjustment and the approximate \$2 - \$3 billion adjustment in fair value estimate as a result of the use of third party information.
Box 3. Is the magnitude of the potential misstatement, which is at least reasonably possible (considering quantitative and qualitative factors), material to either interim or annual financial statements? (AS 5.66 - 6.7)	Yes (Continue to Box 5)	The current fair value estimate is \$11.3 billion as of December 31, 2007. In addition to the known adjustments, we considered the potential significance for what could happen given the nature of the deficiency.
Box 4. Is the deficiency (or combination of deficiencies) important enough to merit attention by those responsible for oversight of the company's financial reporting? (AS 5.A11)	N/A	
Box 5. Do compensating controls exist and operate effectively at a level of precision sufficient to prevent or detect a misstatement that could be material to either interim or annual financial statements? (AS 5.68)	No (Continue to Box 6)	While effective compensating controls were not operating prior to December 31, 2007, AIG has indicated that they have taken the following steps specifically to address the control deficiency: <ul style="list-style-type: none"> • Assigned additional senior level Enterprise Risk Management and AIG Corporate Financial personnel to AIGFP to participate in and oversee the super senior credit default swap valuation process.

Evaluation question	Response	Explanatory narrative
		<ul style="list-style-type: none"> Implemented procedures whereby collateral calls made against AIG on super senior credit default swaps as well as other market data points are evaluated and analyzed to help better inform management's quarterly valuation judgments. Implemented additional model review and validation procedures to ensure that model changes and enhancements as well as model input and outputs are independently reviewed on a timely basis. <p>These steps were not in place as of December 31, 2007, and thus did not identify the \$900 million in model errors, or the inadequacy of the evidence purporting to support the application of "negative basis".</p>
<p>Box 6. Can a conclusion be reached that the situation (e.g., material audit adjustment, restatement of previously issued financial statements) does not represent a control deficiency after considering all facts and circumstances, including qualitative factors?</p>	<p>No (Material weakness - based on AS5.A7)</p>	<p>Based on the qualitative and quantitative considerations outlined above, the likelihood of a misstatement resulting from the deficiency is at least reasonably possible. This is evidenced by the known adjustments - including the \$900 million gross errors identified by PwC, the \$3.6 billion negative basis adjustment and the approximate \$2 - \$3 billion adjustment in fair value estimate as a result of the use of third party information - as well as the qualitative factors previously discussed.</p>
<p>Box 7. Would a well informed competent and objective individual (i.e., prudent official) conclude the deficiency (or combination of deficiencies) is a material weakness? (AS 5.70)</p>	<p>Yes</p>	<p>Based on the above factors, a well informed, competent and objective individual would conclude that the deficiency is a material weakness.</p> <p>Our final analysis, which we discussed with Bensinger and Sullivan, as well as the Audit Committee, is that as a result of our work, there were material adjustments to management's fair value estimates.</p>

Conclusion

In accordance with AS5.A7, a material weakness is "... a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis."

As described in Management's Report in Internal Control Over Financial Reporting appearing under Item 9A in AIG's 2007 Form 10-K, AIG management has concluded that "As of December 31, 2007, controls over the AIGFP super senior credit default swap portfolio valuation process and oversight thereof were not effective. AIG had insufficient resources to design and carry out effective controls to prevent or detect errors and to determine appropriate disclosures on a timely basis with respect to the processes and models introduced in the fourth quarter of 2007. As a result, AIG had not fully developed its controls to assess, on a timely basis, the relevance to its valuation of all third party

information. Also, controls to permit the appropriate oversight and monitoring of the AIGFP super senior credit default swap portfolio valuation process, including timely sharing of information at the appropriate levels of the organization, did not operate effectively. As a result, controls over the AIGFP super senior credit default swap portfolio valuation process and oversight thereof were not adequate to prevent or detect misstatements in the accuracy of management's fair value estimates and disclosures on a timely basis, resulting in adjustments for purposes of AIG's December 31, 2007 consolidated financial statements. In addition, this deficiency could result in a misstatement in management's fair value estimates or disclosures that could be material to AIG's annual or interim consolidated financial statements that would not be prevented or detected on a timely basis."

Accordingly, AIG management has concluded, and we concur, that the deficiency over the AIGFP super senior credit default swap portfolio valuation process and oversight thereof constitutes a material weakness as of December 31, 2007.