REBUTTAL EXPERT REPORT OF
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The Consumer Financial Protection Bureau (Bureau) requested that I, Mark Crawshaw Ph.D., FCAS, MAAA, prepare this Rebuttal Expert Report in connection with the Bureau's administrative enforcement proceeding against PHH Corporation and its subsidiaries, PHH Mortgage Corporation, PHH Home Loans, Atrium Insurance Corporation, and Atrium Reinsurance Corporation (File No: 2014-CFPB-0002). I was specifically asked to consider and analyze the opinions and conclusions expressed in the March 3, 2014 Expert Report of Michael Cascio FCAS, MAAA in this proceeding, to consider whether his opinions affect my own, and to provide responses to his opinions.

This report has been prepared for use only in the administrative proceeding referenced above (File No: 2014-CFPB-0002). The facts and data on which I relied in forming the opinions expressed in this report are cited throughout the report. The documents on which I relied or considered are attached as exhibits to my report.[1] The opinions expressed herein are based on information currently available to me. It is possible that new information may become available in the future that materially impacts my analysis and/or conclusions. Should this occur, I may revise my analysis and/or conclusions.[2]

I. EXECUTIVE SUMMARY

I have reviewed and considered the opinions expressed by Mr. Cascio in his Expert Report submitted on March 3, 2014. Nothing in his report causes me to revise the opinions I stated in my initial report and during my hearing testimony. For the reasons explained in my

[1] The exhibits attached to this report are cited herein as "Ex. ___." I have also indicated the corresponding hearing exhibit number, if any, as "ECX __" (for Enforcement Counsel's exhibits) or "RX ___" (for PHH's exhibits).

[2] I previously submitted an Expert Report in this proceeding, dated March 3, 2014, in which I described my employment, qualifications and experience, as well as my rate of compensation by the Bureau. References to my initial Expert Report are cited as "Crawshaw Rpt. at ___."

initial report and throughout this report, I continue to believe that Atrium's captive arrangements with United Guaranty (UGI), Genworth, Radian and CMG did not result in Atrium facing any reasonable possibility of a significant loss of its capital, and that those arrangements were designed to yield large profits to Atrium.[3] Accordingly, my conclusion that Atrium did not provide any genuine reinsurance service to those mortgage insurance companies (MIs) remains the same.

Mr. Cascio's report contains many statements and arguments that are incorrect, unsupported and/or illogical. I address those statements and arguments in this rebuttal report, and briefly summarize my rebuttal opinions below.

In Section II below, I address Mr. Cascio's characterization of Atrium's captive arrangements as catastrophe excess of loss coverage. I show that Atrium did not provide true catastrophe reinsurance coverage, although it charged a price as if it did. In true catastrophe arrangements, the reinsurer's potential losses are typically many multiples of ceded premiums, and the reinsurer has capital on hand to fund losses of that magnitude. The high expected underwriting profit margin to Atrium, a function of the ceding rate and low likelihood of claims, might have been appropriate had Atrium provided true catastrophe coverage, with exposure to severe potential loss. However, the combination of a massive inflow of premiums and a low 14% detachment point that capped Atrium's liability virtually ensured that it would not suffer any significant loss of capital, even if there had been multiple crises in the real estate market throughout the entire period of the arrangements, and Atrium did not exercise its right to

[3] My understanding is that Atrium Insurance's captive reinsurance business was transferred to Atrium Reinsurance Corporation in 2010. Throughout this report, these entities are referred to as "Atrium." The references in this report to "PHH" include all of the above-named entities.

terminate its arrangements to prevent such an extreme adverse scenario from ever unfolding to its full extent.

Second, in Section III, I address Mr. Cascio's conclusion that significant risk was transferred under the Atrium arrangements. I show that the methodology he uses to analyze risk transfer – consisting of two types of loss ratio comparisons – is fundamentally flawed and deficient for a number of reasons. Most significantly, his methodology does not address the basic test for risk transfer – namely, whether Atrium assumed significant insurance risk and whether it was reasonably possible for Atrium to realize a significant loss. The "loss" that is the focus of a proper risk transfer analysis is an economic loss to the reinsurer – that is, a loss of Atrium's own capital above and beyond a return of premiums previously collected from the MI. Mr. Cascio, however, did not analyze what level of risk or what magnitude of loss is "significant" in light of Atrium's high underwriting profit margin and the amount of coverage Atrium purported to provide, or consider whether Atrium actually contributed sufficient capital to pay all claims in an adverse scenario.

Third, in Section IV, I address Mr. Cascio's approval of Milliman's conclusions that the Atrium arrangements resulted in significant risk transfer. Mr. Cascio does not describe any independent analysis he performed of Milliman's methodology for analyzing risk transfer, nor does he state that he relied on Milliman's risk transfer analysis in forming his own opinions. However, because Mr. Cascio's methodology and Milliman's methodology share some common flaws, my analysis of Mr. Cascio's opinions further reveals the unreliability of the Milliman reports as they relate to the Atrium arrangements. I also cite a Milliman 2012 analysis for UGI, which is available on Milliman's website and unrelated to the Atrium arrangements. This Milliman report generally supports my opinion that a proper risk transfer analysis must evaluate

the probability of loss of the insurance provider's contributed capital, and that a multi-book year analysis is preferable to a single-book year approach when consistent with the operational reality of the arrangement.

In Section V, I respond to Mr. Cascio's opinion that Atrium's ability to terminate its arrangements through commutation (a form of termination involving settlement of future claims through a payment) has no effect on risk transfer. His opinion is contradicted by statements from UGI and Milliman that commutation can materially reduce risk transfer. I explain in this section several ways in which Atrium's ability to terminate its arrangements enabled it to reduce or avoid significant risk transfer.

In Section VI, I respond to Mr. Cascio's suggestion that Atrium's captive arrangements must have resulted in significant risk transfer because they were subject to regulation by state insurance departments. This suggestion is incorrect because state insurance regulation is generally focused on issues other than whether a particular arrangement meets risk transfer standards. But even if a regulator had analyzed risk transfer under Atrium's arrangements, any such analysis would have been incomplete for purposes of the issues here. First, the analysis would have been limited by the difficulty of ascertaining the intention of parties to reduce or eliminate risk transfer. Second, regulators do not generally police the parties' day-to-day adherence to their contracts, and in fact there were instances in which Atrium did not contribute the amount of capital required under its captive agreements, which certainly reduced risk transfer. Had a state regulator analyzed risk transfer, it would have been reasonable to assume that Atrium would meet the minimum required funding levels under its captive agreements. Any opinion of risk transfer would have been wrong if it were based on this erroneous assumption.

In Section VII, I respond to Mr. Cascio's assertion that the MIs may have purchased coverage from Atrium for various other purposes – for example, to smooth their financial results, to obtain access to Atrium's supposed expertise, or obtain "surplus relief." Mr. Cascio's speculation about the MIs' reasons for entering into captive arrangements with Atrium makes no financial sense, is unsupported by contemporaneous evidence or financial results, and is inconsistent with information I have reviewed. For example, Mr. Cascio believes that the MIs may have decided to cede 40% of premiums to Atrium to achieve "stable financial results," Cascio Rpt. at 5 (¶ 4.E), but he ignores evidence that, before the widespread proliferation of deep-cede captive arrangements, the MIs were concerned that ceding so much of their premiums to lenders would impair the stability of the entire MI industry.

In Section VIII, I respond to Mr. Cascio's belief that Atrium's liability was not limited to the funds in the Trust Accounts. In my initial report, I explained the basis of my assumption that its liability was so limited. In this section, I describe the result of a risk transfer analysis for the UGI and Genworth arrangements in which I assume that Atrium's liability was not limited to the Trust Accounts. This alternative analysis shows that even if Mr. Cascio were correct about the extent of Atrium's liability, there would not have been significant risk transfer under the Atrium arrangements.

II. ATRIUM DID NOT PROVIDE CATASTROPHE COVERAGE, ALTHOUGH IT CHARGED A PRICE AS IF IT DID.

A. The MIs Were Responsible for Much of the Catastrophe Layer.

In his report, Mr. Cascio refers to Atrium's captive arrangements as providing "catastrophe" coverage to the MIs. For example, he describes Atrium's captive arrangements as "catastrophe excess-of-loss ('XOL') reinsurance agreements" and calls Atrium an "XOL

catastrophe reinsurer." Cascio Rpt. at 10 (¶¶ 15, 16). He also states that he believes the MIs entered into captive arrangements with Atrium to obtain the benefit of coverage for "catastrophic exposures." Cascio Rpt. at 2 (¶ 4).

In my initial report, I explained how Atrium provided no genuine reinsurance coverage to the MIs due to multiple risk-avoiding features of its captive arrangements. It certainly did not provide any coverage to the MIs that could be characterized, even nominally, as "catastrophe" protection, which is coverage for infrequent but severe events and which presents a risk of extreme economic loss to the coverage provider. [redacted]

[redacted]

[redacted]

Protective Order

[redacted]

[redacted]

Atrium's coverage of the layer from 4% to 14% cannot be described as catastrophe protection because Atrium's potential liability was capped at a sufficiently low level that, in the event of a severe real estate crisis, the MIs were likely to have to bear a substantial portion, or even most, of the ensuing losses (*i.e.*, claims above 14% of aggregate risk). As explained by the American Academy of Actuaries in a 2001 report, catastrophe protection poses "significant financial hazards to the insurer, including the risk of insolvency, an immediate reduction in earnings and statutory surplus, the possibility of forced asset liquidation to meet cash needs, and the risk of a ratings downgrade."[5] Atrium was never remotely in danger of significant financial hazard as a result of its captive arrangements.

Before I explain in more detail how the 14% limit prevented Atrium from providing catastrophe coverage, I will provide, in the following subsection, some examples of *true* catastrophe coverage, and the amounts of capital that providers of catastrophe coverage typically have exposed to potential loss.

[5] "Catastrophe Exposures and Insurance Industry Catastrophe Management Practices," American Academy of Actuaries Catastrophe Management Work Group, June 10, 2001, p. 1 (Ex. 3).

B. Under True Catastrophe Arrangements, the Coverage Provider's Potential Losses Are Typically Many Multiples of the Premiums Ceded.

In a 2006 paper titled "Risk Transfer Testing of Reinsurance Contracts: Analysis and Recommendations" (a document that Mr. Cascio relied on), the Casualty Actuarial Society provided a typical example of "Property Catastrophe Excess of Loss Reinsurance," reflected in the following table appearing in that paper.[6] The four scenarios depicted demonstrate a typical catastrophic reinsurer's loss experience, from top to bottom, ranging from no losses up to the full limit of the reinsurer's policy:

TABLE 3

Catastrophe Loss Distribution for Example 3.1

Loss as % of Limit	Loss as % of Premiums	Probability of Given Loss
0%	0%	67%
5%	50%	20%
10%	100%	10%
100%	1000%	3%

The first column ("Loss as % of Limit") shows, for each of four scenarios, the amount of claims to the reinsurer as a percentage of the reinsurer's maximum possible claims, known as the reinsurer's "limit."[7] The last scenario (reflected in the row within the rectangle) reflects claims

[6] "Risk Transfer Testing of Reinsurance Contracts: Analysis and Recommendations," Casualty Actuarial Society Forum, Winter 2006, pp. 292-293 (Ex. 4).

[7] I believe that the term "loss" used in this table refers to *claims*. As I discussed in my initial report, incurring a "claim" is not the same thing as incurring a "loss." A "claim" is simply a

reaching 100% of the reinsurer's limit, which means the reinsurer has incurred the maximum possible claims.

The second column ("Loss as % of Premiums") shows, for each scenario, the reinsurer's claims as a percentage of total premiums. The last scenario (reflected in the row within the rectangle) shows that when the reinsurer incurs the maximum possible claims (100% of its limit), its *loss ratio is 1000%*, which means that the *claims payable by the reinsurer are ten times the total premiums received by the reinsurer*.[8]

The Casualty Actuarial Society noted that this example of catastrophe excess-of-loss arrangement has a "rate on line" of 10%.[9] The term "rate on line" refers to total ceded premiums as a percentage of the maximum amount of coverage in the reinsurer's layer. The maximum loss ratio of an arrangement can be calculated by dividing 1 by the rate on line. Thus, a 10% "rate on line" equates to a maximum loss ratio of 1000%, reflecting claims payments of ten times the ceded premiums.

This last (*i.e.*, 1000% loss ratio) scenario has a 3% chance of occurring (as shown in the third column), but catastrophe coverage is intended to provide coverage for massive, albeit

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payment required to be made under an insurance or reinsurance policy. But if the amount of claims does not exceed the amount of premiums received (and investment income), the coverage provider will not suffer a loss of its capital. Generally, I use the term "loss" in this report and my initial report to refer to an *economic loss* to the coverage provider – that is, a loss of capital due to claims exceeding premiums (and investment income). However, in the insurance industry, sometimes the term "loss" is used to mean "claim," as in the table above. Another example is the term "loss ratio," which is usually meant to refer to the ratio of *claims* to premiums, not the ratio of economic loss to premiums. It would be more accurate to say "claims ratio." However, because the term "loss ratio" is commonly used, I also use that term in my reports, rather than the more accurate term "claims ratio."

[8] Because reinsurer's "loss ratio" is the ratio of *claims* to total ceded premiums, a loss ratio of 1000% means that claims are 10 times the size of premiums. The reinsurer's economic loss, however, is nine times the total ceded premiums, because economic loss reflects the excess of claims over premiums.

[9] *Id.* at 292 n.7 (Ex. 4).

infrequent, claims. The Casualty Actuarial Society explains: "Catastrophe reinsurance contracts, especially for higher layers, run loss free or have small losses in most years but occasionally have a total limit loss. *Id.* at 292 (Ex. 4).

The second and third scenarios also reflect claim payments by the reinsurer, which means that the attachment point is pierced in those scenarios. The second scenario reflects total claim payments equaling half of ceded premiums (indicated by the 50% figure in the second column). The third scenario reflects total claim payments equaling ceded premiums (indicated by the 100% figure in the second column). The probabilities of the second and third scenarios occurring are 20% and 10%, respectively. Thus, under this example of catastrophe coverage, there is a 20% chance of the reinsurer's claims consuming half of its premiums, and a 10% chance of the reinsurer's claims consuming all of its premiums. There is a 33% chance of the attachment point being pierced (20% plus 10% plus 3%).

From public records, I identified several property excess-of-loss reinsurance programs that provide catastrophe coverage and illustrate that the Casualty Actuarial Society's exemplary catastrophe excess-of-loss agreement is reasonably representative of actual programs. The programs I identified are: (1) Allstate's excess-of-loss catastrophe reinsurance program applicable to its nationwide personal property and automobile insurance business; (2) an excess-of-loss catastrophe reinsurance arrangement operated by the Florida Hurricane Catastrophe Fund and sold (on a mandatory basis) to property insurance companies in Florida; (3) a catastrophe reinsurance program purchased by the Texas windstorm insurance association (a quasi-public insurance entity that provides windstorm insurance in coastal areas of Texas); and (4) a catastrophe reinsurance arrangement purchased by the California Earthquake Authority (a public program providing earthquake insurance in California). Table 1 below provides a summary of

key parameters for each of these property excess-of-loss catastrophe reinsurance programs, including the limit of coverage provided by the program, the rate on line, and the maximum loss ratio.

TABLE 1

[A]	[B]	[C]	[D]	[E]	[F]
Program	**Effective Period**	**Limit ("Risk Corridor") ($M)**	**Premium ($M)**	**Rate on Line (D / C)**	**Maximum Loss Ratio (C / D)**
Allstate[10]	2013	$3,250	$363	11%	896%
Florida Hurricane Cat Fund[11]	2013	$17,000	$1,272	7%	1337%
Texas Windstorm Association[12]	2011-12	$636	$100	16%	636%
California Earthquake Authority[13]	2013	$100	N/A	5.6%	1786%

Much like the example in the Casualty Actuarial Society's 2006 paper, the rates on line for each of these programs (the total ceded premiums as a percentage of the maximum amount of coverage in the reinsurer's layer) are all lower than 20% and mostly in the range of 10%. Likewise, the maximum loss ratios are all extremely large, all above 600% and two well over

[10] Allstate Insurance Group Property Lines Maryland: 2013 Reinsurance Contract Summary (Ex. 5).
[11] Paragon Benfield website re Florida Hurricane Catastrophe Fund (Ex. 6).
[12] Texas Windstorm Insurance Association Press Release, "Texas Windstorm Insurance Association Purchases Reinsurance," June 10, 2011 (Ex. 7).
[13] Trading Risk website, "California Earthquake Authority obtains longer reinsurance terms" *available at* http://www.trading-risk.com/california-earthquake-authority-obtains-longer-reinsurance-terms (visited April 21, 2014) (Ex. 77).

1000%. In my experience, the agreements shown in Table 1 are typical of property excess-of-loss contracts that provide true catastrophe coverage.[14]

In addition, contracts like these are typically designed so that the limit represents a maximum claim scenario with a realistic probability of occurring.[15] These true catastrophe contracts are the types of contracts that typically involve high underwriting profits. They stand in sharp contrast to the Atrium arrangements, which were designed with a relatively narrow band of coverage (a high attachment point and a low detachment point) after which the MI was responsible for additional catastrophic claims.

C. Atrium's Potential Losses Were Truncated by a Relatively Low Detachment Point Which Limited Atrium's Exposure to Catastrophic Claims.

The effect of the 14% detachment point, which cut off Atrium's liability before it could reach the full extent of the catastrophe layer, can be seen from the historical experiences of the Atrium arrangements. Because those arrangements were in place during a severe real estate crisis, if Atrium had truly provided catastrophic coverage, it should have suffered substantial

[14] Even for insurance that does not provide catastrophe coverage, it is not uncommon for potential claims to be multiples of the premiums paid. *See*, *e.g.*, Jonathan Glater and Joseph Treaster, *The New York Times*, Sept. 7, 2002, "Insurers Scale Back Corporate Liability Policies" (Ex. 8) (quoting AIG official regarding expected claims under corporate liability policies: "The expected claims paid out are going to be *multiples of the premiums* that have been collected.") (emphasis added); "Growing Family Benefits" website (Ex. 9), *available at* http://www.growingfamilybenefits.com/short_term_disability/ ("The benefits paid to the policyholder for this planned medical event can be *several multiples of the premiums* paid by the policyholder.") (emphasis added).

[15] Even contracts that do not provide catastrophe coverage per se can have actual loss ratios approaching or exceeding 1000% when a catastrophic event occurs. *See*, *e.g.*, 2000 Profitability Report for Florida (Ex. 78) (showing loss ratio off *990%* for Homeowners Multiperil coverage as a result of Hurricane Andrew); 2005 Profitability Report for Louisiana (Ex. 79) (showing loss ratio of *833%* for Homeowners Multiperil coverage as a result of Hurricane Katrina); 2005 Profitability Report for New York (Ex. 80) (showing loss ratio *2468%* for Allied Lines coverage as a result of 9/11 terrorist attacks).

losses under those arrangements. Instead, Atrium made substantial profits on its arrangements with UGI and Genworth, at their expense – obtaining total underwriting returns of 42% and 24%, respectively, over the life off those arrangements.[16] *See* Crawshaw Rpt. Attachment 2. While Atrium lost some capital as a result of its arrangements with Radian and CMG, the amount of its loss – and conversely, the amount of gain to Radian and CMG – was not significant compared to the premiums ceded by Radian and CMG. The amount of Atrium capital gained by Radian and CMG reflected a total return on the premiums they ceded to Atrium of 16% and 17%, respectively, over the life of their arrangements. *Id.* That is comparable to the return they could have obtained had they just placed those funds into a savings account[17], rather than ceding them to Atrium. *Id.* Because the Radian and CMG arrangements commenced relatively close to the financial crisis (in 2004 and 2006, respectively), and thus unlike the UGI and Genworth arrangements did not have as long a period of time to accumulate premiums in the Trust Accounts, the outcomes of the Radian and CMG arrangements approximate a "best-case scenario" to the MI for all of Atrium's captive arrangements, and a "worst-case scenario" for Atrium. Given the timing of those arrangements, if they were genuine reinsurance arrangements they should have instead resulted in a substantial loss to Atrium, even more so if they were catastrophe programs. The loss to Atrium should have been on the order of nine times the premiums ceded by Radian and CMG. In my opinion, an arrangement that, in a best-case scenario, provides a return to the MI that is not materially better than a savings account and, in its expected scenario, results in the MI losing a substantial amount of ceded premiums to Atrium

[16] These amounts are in nominal dollars and are cumulative across the entire period of each arrangement, rather than annualized.

[17] During the period of the Radian arrangement (2004-2009) and the CMG arrangement (2006-2009), common benchmarks for interest rates averaged up to 5.5% to 6.0% per year. *See* Attachment 8.

(unlike a savings account which presents virtually no risk of loss to the accountholder) cannot be called a genuine reinsurance program, much less a catastrophe reinsurance program.

Regardless of this, Mr. Cascio attempts to support his conclusion that Atrium provided catastrophe coverage by focusing on the select few book years for which he asserts Atrium "suffer[ed] a full limit loss of 10%." Cascio Rpt. at 4 (¶ 4.D.a-b). Those are book years 2005 through 2008.[18] First, Atrium did not "suffer" any "loss" as a result of the claims experience under those four book years, because it was able to pay all of those claims using premiums from other book years. In any case, even as to those book years, it was UGI – not Atrium – that had to pay much of the catastrophic claims. The table below is taken from a July 2013 report prepared by Milliman for Atrium and shows the claims (referred to as "losses") under the UGI arrangement as of March 31, 2013.[19]

		Atrium Reinsured Layer			
Book Year	Gross Losses Incurred by UGC as of 03/31/13	Layer Attachment Point	Projected Ultimate Losses in Layer	Incurred Losses in Layer as of 03/31/13	Projected Future Losses in Layer
2001	10,070	43,677	0	0	0
2002	14,249	36,335	0	0	0
2003	18,931	20,208	253	0	253
2004	64,527	33,795	37,060	30,732	6,328
2005	68,410	18,521	46,303	46,303	0
2006	47,686	8,762	21,905	21,905	0
2007	78,392	14,947	37,367	37,367	0
2008	27,222	9,525	23,812	17,697	6,115
2009	1,119	4,672	1,693	0	1,693
Total	330,605		168,393	154,004	14,389

I added the rectangle to focus on book years 2005 through 2008. The second column ("Gross Losses Incurred by UGC as of 3/31/13") shows the total claims for each of those book years (as

[18] Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 24 (Ex. 10, ECX 0839).
[19] *Id.* at 12 (Ex. 10, ECX 0839).

of March 2013).[20] The fourth column ("Projected Ultimate Losses in Layer") shows claims payable by Atrium for those book years. Because claims consumed Atrium's entire 10% "risk" corridor for those years, the figures in this column also represent the *maximum* claims payable by Atrium. UGI's claims are the difference between the second column (total claims) and the fourth column (Atrium's claims).[21]

As a result of the 14% detachment point, even for the few book years most exposed to the impact of the financial crisis, the claims incurred by Atrium could not *possibly* reach a level that would result in a loss of capital to Atrium. Atrium's total claims incurred under those "worst" book years amounted to only approximately $129,387,000. This was the *maximum* amount of claims Atrium could pay in those book years. By the end of calendar year 2008, UGI had already ceded over $240 million of net premiums to Atrium, *see* Crawshaw Rpt. at 33 (Table 1), and Atrium's total net premiums ceded from book years 1994 through 2008 ultimately amounted to over $301 million.[22]

While the 14% liability cap allowed Atrium to escape the financial crisis with no loss of capital under the UGI arrangement, UGI was responsible for substantial catastrophic claims on the very book years that Mr. Cascio relies on to support his assertion that Atrium's arrangements were "emblematic" of catastrophe protection. Cascio Rpt. at 2-5 (¶¶ 4.B, 4.D.b). UGI incurred at

[20] Although this column is titled "Gross *Losses* Incurred by UGC," based on my review of the UGI cession statement, I believe the amounts refer to the total *claims* under each of those book years, including both claims payable by UGC and those payable by Atrium.

[21] The total claims figures ("Gross Losses Incurred by UGC") are amounts as of March 31, 2013, but would have increased over time as long as the policies covered by the book year remained in effect. For some book years, total claims are less than the attachment point even though Atrium was projected to incur claims on those book years because the total claims amount was expected to increase.

[22] UGI cession statement, Sept. 30, 2012, "WrittenPrem" worksheet (Ex. 11, ECX 0198). This figure is calculated by subtracting the sum of cells D13-D55 from the sum of cells C13-C55.

least $92,323,000 in claims for those four book years[23], and its claims exceeded the claims incurred by Atrium for two of those book years (2006 and 2007). That is not catastrophe protection.

It is important to understand that UGI's losses were not limited to just the claims it paid. UGI's losses also included every dollar of premiums it ceded to Atrium that was not returned to it as either a claim or commutation payment by Atrium. UGI's net loss as a result of its captive arrangement with Atrium was $128,405,015.[24] Crawshaw Rpt. Attachment 2. This loss was in addition to the tens of millions of dollars of claims it paid, which were not covered by Atrium's so-called catastrophe protection. So while Mr. Cascio considers the $129,387,000 of claims incurred by Atrium for book years 2005 through 2008 to be so large as to be worthy of being called "catastrophe" coverage (even though that amount was just a return of premiums and thus resulted in no benefit to UGI), UGI's net loss of $128,405,015 as a direct and sole result of Atrium's "reinsurance" could also, by his standard, be considered a "catastrophic" outcome for UGI. UGI experienced a catastrophic event in the form of Atrium's "reinsurance."

To further illustrate the impact of the 14% detachment point, I modeled a hypothetical scenario in which Atrium's claims consume its entire "risk" corridor in *ten* of the sixteen book years under the UGI arrangement, instead of just *four* book years, and analyzed whether Atrium would have suffered any loss of capital in that scenario. This is reflected in Table 2 below.

[23] The $92,323,000 figure is the result of subtracting the amounts in "Projected Ultimate Losses in Layer" from the amounts in "Gross Losses Incurred by UGC as of 3/31/13" for book years 2005 through 2008, then adding the resulting differences. Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 24 (Ex. 10, ECX 0839).

[24] Crawshaw Rpt. Attachment 2, Row 15. This figure is in nominal dollars. If this amount were expressed in present value terms, it would be much larger because the premiums ceded by Atrium occurred, on average, farther back in time than the claim payments and commutation payment it received from Atrium.

Column B shows the maximum claims that could possibly be incurred by Atrium for each book year (which is based on the attachment point, the detachment point, and the aggregate risk for the book year).[25] Column C shows the actual claims incurred by Atrium.[26] The shaded figures for book years 2005 through 2008 in Column C represent actual claims that consumed Atrium's entire "risk" corridor. Column D represents my hypothetical scenario. In that scenario, claims consume Atrium's entire "risk" corridor in the following additional book years: 1994, 1995, 1996, 1997, 2003 and 2004. Those hypothetical "full limit" amounts are shaded in Column D.

TABLE 2

[A]	[B]	[C]	[D]
Book Year	***Maximum*** **Possible Claims Incurred by Atrium**	***Actual*** **Claims Incurred by Atrium**	***Hypothetical*** **Claims Incurred by Atrium**
1994	$13,677,750	$0	$13,677,750
1995	$17,163,521	$0	$17,163,521
1996	$28,043,010	$0	$28,043,010
1997	$47,988,895	$0	$47,988,895
1998	$119,913,891	$0	$0
1999	$149,805,360	$0	$0
2000	$129,476,974	$0	$0
2001	$109,192,700	$0	$0
2002	$90,836,600	$0	$0
2003	$50,520,300	$253,000	$50,520,300
2004	$84,487,700	$37,060,000	$84,487,700
2005	$46,303,000	$46,303,000	$46,303,000
2006	$21,905,300	$21,905,300	$21,905,300
2007	$37,366,500	$37,366,500	$37,366,500
2008	$23,812,300	$23,812,300	$23,812,300
2009	$11,679,100	$1,693,000	$1,693,000
Total	**$982,174,901**	**$168,393,100**	**372,961,276**

[25] *See* Attachment 1, Column (5).

[26] Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," pp. 5, 24 (Ex. 10, ECX 0839).

My hypothetical scenario – in which almost two out of every three book years results not only in some claims incurred by Atrium, but the maximum amount of claims in those book years – reflects the type of claims experience that might occur if there were two crises in the real estate market in close succession. It represents an outcome that was, at most, extraordinarily unlikely at the time the UGI arrangement commenced. Mr. Cascio recognizes that the nature of the mortgage industry is to have "many successive years of loss-free experience" and that a "loss trigger" would occur "very seldomly." Cascio Rpt. at 10 (¶¶ 15, 17). Indeed, despite what Mr. Cascio correctly refers to as a "complete meltdown" of the real estate market, Cascio Rpt. at 11 (¶ 19), cumulative claims did not even reach 2% of aggregate risk for the majority of book years (10 out of 16) under the UGI arrangement. *See infra* 50 (Table 6).

While the hypothetical example above represents an extremely unlikely and unfavorable scenario, the outcome for Atrium is claims totaling $372,961,276 (more than double Atrium's actual claims of $168,393,100) and total premiums of approximately $326,974,000.[27] On a nominal basis, the resulting loss ratio for this hypothetical pessimistic scenario is 114% (= $372,961,276 / $326,974,000). On a present value basis, this loss ratio is about 103%.[28] Because

[27] Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 5 (Ex. 10, ECX 0839). As of March 31, 2013, Milliman projected that Atrium's "Projected Ultimate Written Premium" for all book years under the UGI arrangement would be approximately $326,974,000. This amount includes premiums already collected as of that date, as well as estimated premiums yet to be collected under the arrangement. I have included premiums yet to be collected because, if Atrium exercised its right to terminate the arrangement on a run-off basis at any time, it would continue to collect premiums under book years less than ten years old until coverage expired. Atrium ultimately received less than $326 million of premiums because the UGI arrangement was commuted in 2013 on a cut-off basis, but the negotiated commutation payment presumably reflected the parties' estimates of future premiums that would have been ceded had the arrangement continued.

[28] The loss ratio on a present value basis is less than the loss ratio on a nominal basis because the premium is generally received earlier than any claims are paid out. I used a factor of 90% to

the present value loss ratio is only a little higher than 100%, even in this extremely unlikely pessimistic scenario, Atrium does not suffer a significant loss over the arrangement—and certainly not a loss that approaches the type of loss typically incurred by catastrophe insurers when there is just one catastrophe. A greater loss to Atrium could only occur if there were also substantial claims incurred by Atrium under book years 1998 through 2002 – in other words, in the extremely unlikely scenario that the real estate market had been in almost perpetual "meltdown" throughout the entire arrangement. This analysis shows that the price Atrium charged to the MIs – the main driver of the rapid growth of ceded premiums – was grossly excessive, even if one assumes that Atrium's captive arrangements resulted in the transfer of some risk to Atrium (which I disagree with).

Finally, to determine whether it was possible under *any* permutation of outcomes for Atrium's loss ratio to approach 1000%, I modeled a hypothetical "doomsday" scenario in which Atrium's claims consume its entire "risk" corridor in *all sixteen* book years under the UGI arrangement. In other words, if Atrium's actual claims amounted to the total of Column B of Table 3 above. This scenario, which reflects the maximum total claims Atrium could possibly incur under the UGI arrangement, would only occur if the real estate market suffered multiple successive crises over the entire decade-and-a-half period (uninterrupted by even temporary upswings). I believe that the chance of this doomsday scenario occurring was close to zero. Nonetheless, under this near-impossible scenario, Atrium's loss ratio would be 300% (=$982,174,901 / $326,974,000) on a nominal basis, or about 270% on a present value basis.[29]

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discount the loss ratio to present value. The factor of 90% is based on Milliman's calculations of nominal and discounted loss ratios in stress scenarios.

[29] *Id.*

I performed similar calculations to examine the effect of a hypothetical doomsday scenario on the Genworth arrangement. For book years 2000 through 2008, the maximum possible amount of claims payable by Atrium was approximately $369,300,100.[30] For those book years, Atrium's total ceded premiums were projected to be $126,329,000.[31] If Atrium incurred the maximum amount of claims under all of those book years, on a nominal basis, the resulting loss ratio would be 292% (= $369,300,100 / $126,329,000). On a present value basis, this loss ratio would be about 263%.

So while Atrium's maximum *theoretical* loss under the UGI and Genworth arrangements was multiples of the premiums it received, the maximum loss ratios of 270% and 263%, resulting in losses to Atrium of less than twice the total ceded premiums[32], are far lower than the loss ratios in the examples of genuine catastrophic reinsurance arrangements discussed above. And in those examples, the maximum loss ratios reflected an outcome that was realistically possible – generally, a single catastrophic event (such as a hurricane or earthquake) that could trigger a loss ratio approaching or exceeding 1000%. In contrast, the doomsday scenarios I have modeled would require multiple crises throughout the entire period of the arrangement, so it is almost inconceivable that those lower maximum loss ratios would even be reached. This is another indication that, even if one assumes that some risk was transferred (which I disagree with), the price Atrium charged the MIs was vastly in excess of any value received by the MIs.

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[30] *See* Attachment 2. I was unable to ascertain the maximum possible claims amount for book year 2009.

[31] *See* Attachment 3.

[32] A loss ratio is the ratio of *claims* to premiums, not the ratio of economic loss to premiums. A loss ratio of 270% means there are 270 dollars of claims for every 100 dollars of premium. That means in the hypothetical "doomsday" scenario, Atrium's economic loss is 170 dollars for every 100 dollars of premium.

Finally, for all of the reasons discussed in my initial report and throughout this report, even if there had been multiple, successive crisis in the real estate market over the course of the entire UGI or Genworth arrangements, there was no chance that the maximum loss ratios would ever translate into an actual significant economic loss to Atrium. For example, incurring such a loss would require Atrium to have sufficient capital to support such a loss. As discussed in my initial report, it did not. Crawshaw Rpt. at 33.[33] It may also have been possible that Atrium could have used its leverage over the MIs to obtain an amendment to its agreement to minimize or avoid such a loss. Crawshaw Rpt. at 40. In addition, it is inconceivable that Atrium would have continued the captive arrangements through such long periods of sustained meltdown. Atrium could have terminated the arrangements at the first sign of trouble, as it did with the Radian and CMG arrangements, avoiding all but nominal losses.

D. Atrium Charged the MIs a Price Potentially Appropriate for a Provider of True Catastrophe Coverage, Even Though It Provided No Genuine Reinsurance At All.

In the example of catastrophe excess-of-loss reinsurance provided in the Casualty Actuarial Society's 2006 paper referenced above, *see supra* 8-9, in which the maximum loss to the reinsurer was nine times the total ceded premiums, the pricing of such an arrangement was described as follows: "A property catastrophe reinsurance contract paying a premium equal to 10% of the limit is *typically priced to a loss ratio of around 50%*. That implies an expected loss

[33] As discussed in my initial report, there was not sufficient capital in the UGI Trust Account for Atrium to ever suffer a significant loss. *See* Crawshaw Rpt. at 16-17, 33-36. My analysis in Section VIII shows that the same is true if one includes capital contributions outside of the Trust Accounts.

of 5% of the limit."[34] Assuming that the reinsurer's expenses are around 5% of its premiums, a loss ratio of around 50% equates to an underwriting profit margin for the reinsurer of roughly 45% of ceded premiums. This indicates that when a reinsurer provides true catastrophe coverage, in which the magnitude of its potential loss of capital can be in the range of nine times as large as the total premiums paid by the ceding insurer, the reinsurer can demand a price that results in a large expected underwriting profit margin to compensate it for assuming a tremendous downside risk.

The approximately 45% profit margin reflected in the example above is consistent with my experience with catastrophe coverage. It is also supported by literature regarding the pricing of catastrophe coverage. For example, in a 2009 article titled "Profit Margins Using Co-Measures of Risk," the author (a member of the Casualty Actuarial Society) discussed a hypothetical example of pricing for a layer of catastrophe coverage which provided "an underwriting *profit margin of 31.5%*." In contrast, his hypothetical example of pricing for a layer of non-catastrophe coverage provided "an underwriting *profit margin of 8.3%*."[35]

An insurer or reinsurer can only provide the type of catastrophe coverage reflected in the Casualty Actuarial Society's example and the actual examples I identified from public records if it actually has sufficient capital available to satisfy all of its obligations in the event that a catastrophe strikes. In the Casualty Actuarial Society's example, the amount of the reinsurer's capital that is exposed to potential loss should be at least *nine times* the total premiums ceded to the reinsurer.

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[34] "Risk Transfer Testing of Reinsurance Contracts: Analysis and Recommendations," Casualty Actuarial Society Forum, Winter 2006, p. 292 (Ex. 4) (emphasis added).
[35] Mark Homan, "Profit Margin Using Co-Measures of Risk," Casualty Actuarial Society E-Forum, Winter 2009, p. 229 (Ex. 14) (emphasis added).

That capital must actually be available to support potential losses under the arrangement flows from the mechanics of insurance and reinsurance pricing. When parties are negotiating the price of an insurance or reinsurance contract, one of the key determinants of the price is the "cost of capital" associated with the risk transferred under the contract. Actuarial Standard of Practice No. 30 (ASB 30), developed by "a Task Force on Rate of Return of the Casualty Committee of the Actuarial Standards Board" and adopted by the Actuarial Standards Board in 1997, explains: "Property/casualty insurance *rates should provide for* all expected costs, including the *appropriate cost of capital associated with the specific risk transfer*."[36] "Cost of capital" is defined in ASB 30 as the "*rate of return* that capital could be expected to earn in alternative investments of *equivalent risk*; also known as *opportunity cost*."[37] An opportunity cost can be incurred by the insurer or reinsurer only if the capital is devoted to the arrangement at hand, rather than some other investment. Further, the cost of capital (*i.e.*, the opportunity cost) that is built into the price is based on the rate of return that could be expected if the capital was devoted to an investment of "equivalent risk." Thus, the riskier the arrangement, the greater the cost of capital, and the greater the price. The riskiness of an arrangement reflects both the probability and magnitude of potential loss. Although catastrophic claims have a low probability of occurring, the magnitude of potential loss is so great that the catastrophe coverage is very risky.[38] A purchaser of catastrophe coverage may be willing to pay a price that results in a 30% to 40% profit margin to the coverage provider because the opportunity cost of making the necessary

[36] Actuarial Standards Board, Actuarial Standard of Practice No. 30, ¶ 3.1 (Ex. 15) (emphasis added).
[37] *Id.* ¶ 2.3 (Ex. 15) (emphasis added).
[38] Additionally, even though the probability of a catastrophic event occurring is low, there is high volatility of claims – that is, whether an event will occur that triggers catastrophic claims is highly unpredictable, as is the amount of those claims. As a result, providers of catastrophe coverage typically expect a high underwriting profit for assuming that volatility.

amount of capital available to fund the risk transferred under the arrangement is very large, and because the loss of that capital could be financially devastating. In other words, when such a large profit margin is provided, the downside risk cannot be merely theoretical; it requires capital in an amount that is commensurate with the full extent of the potential loss. As explained in the 2009 article titled "Profit Margins Using Co-Measures of Risk": "Profit margins are based on risk."[39]

In his 1998 article on captive mortgage reinsurance, Michael Schmitz of Milliman included a section titled "Capital required," in which he recognized that the captive reinsurer must commit an adequate amount of capital to support the amount of risk assumed. He wrote: "*Lenders must be prepared to contribute capital to the captive to support the risk* of reinsuring a coverage as volatile as mortgage insurance. *The capital must be committed to the reinsurer on a long-term basis* due to the lengthy runoff period associated with the exposure."[40] He also stated: "Mortgage insurance is a capital-intensive business."[41]

As I explained in my initial report, the 40% ceding percentage required by Atrium's captive arrangements translated to an expected underwriting profit margin for Atrium of approximately 40% of ceded premiums. Crawshaw Rpt. at 29. This type of underwriting profit margin might have been appropriate if Atrium had provided true catastrophic coverage, with potential losses (along with capital contributions to meet such losses) that were many multiples of the premiums collected. In other words, it is conceivable that, in a normal arm's-length reinsurance arrangement, the MI might agree to hand over 40% of its revenues to a reinsurer who

[39] Mark Homan, "Profit Margin Using Co-Measures of Risk," Casualty Actuarial Society E-Forum, Winter 2009, p. 232 (Ex. 14).
[40] Michael C. Schmitz, "Investigating captive mortgage reinsurance," Mortgage Banking, Feb. 1, 1998 (Ex. 12, ECX 0635, CFPB-PHH-00611005, at CFPB-PHH-00611009) (emphasis added).
[41] *Id.* (Ex. 12, ECX 0635).

has agreed to provide coverage for a claims layer with a substantially higher limit than the 4-14% layer that Atrium covered – and unencumbered by the various risk-avoidance mechanisms that Atrium employed. Atrium, however, charged a price with an expected underwriting profit margin appropriate for catastrophic coverage, even though it did not offer any genuine reinsurance coverage at all, even at the narrow lower end of the catastrophe layer.

In my experience, profit margins typical of most types of property and casualty insurance agreements are usually 10% or less. *Id.* at 60. Atrium, however, assumed no significant risk, so I do not believe any amount of compensation would have been appropriate. In fact, as I stated in my hearing testimony, I believe an appropriate price would have been less than zero, given that the expected result of the arrangements to the MIs was a loss of a significant portion of their premiums, which would fund Atrium's expected 40% profit margin, and the best case scenario was comparable to the returns that could be expected from a savings account. It costs little to nothing to open a savings account. The Atrium arrangements were a worse bet for the MIs than a savings account, because they required the MIs (particularly UGI and Genworth) to incur a substantial opportunity cost by devoting immense amounts of *their* capital to an investment with tremendous downside risk and a minimal upside. Therefore, it would have made much more sense had Atrium compensated the MIs, rather than vice versa.

What is also strange is that even though PHH (via Atrium) had so little of its own capital at stake, the MIs seemed to encourage PHH and Atrium to minimize capital contributions. In its response to PHH's 2006 Request for Proposal, UGI included a section on "Captive Capital" in which it stated to PHH that "a reinsurer such as Atrium, with over 10 years of ceded premiums,

is generating more than enough capital from older books that mature to fund new books of business."[42]

UGI concluded this section by informing Atrium that it would "work together with PHH to address any developing capital issues."[43] In a genuine arm's-length reinsurance deal, the ceding company and the reinsurance company have adverse interests with respect to the amount of the reinsurer's capital exposed to loss. The ceding company wants more capital available to fund claims, whereas the reinsurance company wants less. This language appears to indicate that UGI was willing to work with PHH to pre-emptively avoid situations in which Atrium's capital would actually face a risk of loss – that is, a scenario in which ceded premiums were not enough to fund the books of business under the arrangement.

E. Atrium's Minimal Operating Expenses Contributed to its Large Expected Underwriting Profit Margin.

Atrium's expected underwriting profit margin was so high mainly because its expected claims were projected to be much lower than ceded premiums. Milliman consistently projected that Atrium's expected loss ratio on each book year would be in the range of 50% and sometimes much lower.[44] An example can be seen in the following table from Milliman's report on the 2004 book year under the Genworth arrangement.[45]

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[42] "Proposal for Mortgage Insurance Partnership Prepared for PHH Mortgage by AIG United Guaranty," Oct. 18, 2006 (Ex. 68, ECX 0032, CFPB-PHH-00141748, at CFPB-PHH-00141762).
[43] *Id.*
[44] *E.g.*, Milliman Report on UGI-Atrium Program, Feb. 2, 2007 (Ex. 67, ECX 0177, CFPB-PHH-00871509, at CFPB-PHH-00871544) (projecting Atrium loss ratio for 2006 book year of 41%); Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex.65, ECX 0466, CFPB-PHH-00052221, at CFPB-PHH-00052256) (projecting Atrium loss ratio for 2004 book year of 52%); Milliman Report on UGI-Atrium Program, Mar. 23, 2007 (Ex.18, ECX 0193, CFPB-PHH-00112614, at CFPB-PHH-00112628) (projecting Atrium loss ratio for 2004 book year of 58%).
[45] Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex.65, ECX 0466, CFPB-PHH-00052221, at CFPB-PHH-00052256).

ATRIUM INSURANCE CORPORATION
(Genworth Financial, Inc. -- Ceding Company)
Expected Loss Ratio Comparison
45% Gross Premium with 11.1% Ceding Commission - 40% Net Premium

	Gross	Ceded [1]	Net
Premium - Nominal	$22,592	$10,166	$12,425
Premium - Present Value [2]	$19,671	$8,852	$10,819
Expected Losses - Nominal	12,249	5,305	6,945
Expected Losses - Present Value [2]	9,840	4,068	5,771
Expected Loss Ratio - Nominal	54%	52%	56%
Expected Loss Ratio - Present Value [2]	50%	46%	53%

[1] Ceded premium is gross of ceding commission
[2] Based on a 4% assumed yield

Milliman projected that Atrium's expected loss ratio (*i.e.*, ratio of claims to premiums) , on a nominal basis and gross of ceding commission, would be 52% (the figure within the rectangle in the "Ceded" column.) That is equivalent to a loss ratio of 58.5%, based on the ceded premium net of the 11.1% ceding commission.[46] This means that 41.5% (=100% - 58.5%) of premium net of ceding commission would be available for Atrium's expenses, with the remainder providing an underwriting profit margin to Atrium.

In addition to the low amount of expected claims (compared to premiums), another driver of Atrium's expected underwriting profit margin was Atrium's low operating expenses. [redacted]

Protective Order

[redacted]

[46] The calculation of the 58.5% figure is as follows. The 52% loss ratio figure requires claims of $23.4 for every $45 of ceded premiums, gross of ceding commission ($23.4 / $45 = 52%). Because Atrium has to return $5 in ceding commission for every $45 of gross premiums, retaining $40 of premium, the equivalent loss ratio figure net of ceding commissions is the result of dividing $23.4 by $40. Reducing the denominator as such from $45 to $40 to reflect the payment of the ceding commission results in a 58.5% loss ratio.

[redacted] In my initial report, I explained that Atrium's underwriting expenses (excluding ceding commission and income taxes) were in fact minimal – about 1% to 2% of premium. Crawshaw Rpt. at 29 n. 63 and Attachment 5. This is well below expense ratios typical of insurance and reinsurance companies, which are usually above 5%.

During my cross examination at the hearing, PHH's counsel suggested that Atrium's expenses were much higher than what I have assumed by pointing to a 17.54% ratio of "Other underwriting expenses incurred" over the five-year period from January 1, 1997 through December 31,2001, which appears in a 2001 examination report from the New York Insurance Department.[48] The total "Other underwriting expenses incurred" for that five year period is indicated as $21,263,729.[49]

That $21,263,729 amount, and the corresponding 17.54% ratio, *includes the ceding commission that Atrium paid to the MIs*.[50] However, the approximately 40% expected underwriting profit margin is based on premiums net of ceding commission – that is, the *ceding commission was already removed* from gross premiums in calculating the 40% expected

[redacted] Protective Order [redacted]

Report on Examination of the Atrium Insurance Corporation as of December 31, 2001 (Ex. 42, RX 0129, CFPB-PHH-0094687, at CFPB-PHH-0094700).

[49] *Id.* (Ex. 42, RX 0129).

[50] Exhibit 64 is a spreadsheet containing data from Atrium's publicly available annual statements. In the "Ratios" worksheet, the sum of the figures in the "Underwriting Expenses Incurred" row for years 1997 through 2001 is $21,264,000. That is the exact same number (with rounding) as the $21,263,729 expense figure in the New York Insurance Department's examination report, which covers the period from January 1, 1997 through December 31, 2001. The "Underwriting Expenses Incurred" figures in Exhibit 64 include the ceding commission. For example, the "Underwriting Expenses Incurred" amount for 2001 is indicated as $7,170,000 (Ex. 64, "Ratios" worksheet, cell G10). Atrium's 2001 financial statement shows $7,169,883 of total expenses, which *includes $6,879,518 of ceding commissions*, $111,432 of payroll expenses, and $178,933 of other expenses. *See* Atrium's Audited Financial Statements, Dec. 31, 2001, p. 4 (Ex. 56).

underwriting profit figure.[51] Because the ceding commission has already been subtracted once to arrive at net premiums, accounting for it again (as PHH's counsel has suggested) as part of the expense ratio would result in effectively double counting the ceding commission, and thus understate the underwriting profit margin (by the amount of the ceding commission).[52]

The vast majority of the $21,263,729 expense figure over the 1997 to 2001 period consists of ceding commission. For example, that figure includes $7,169,883 of total expenses that Atrium incurred in 2001.[53] $6,879,518 of the $7,169,883 in total expenses incurred by Atrium in 2001 – or *96% of the total* – was the ceding commission.[54] As shown in Attachment 5 of my initial report, Atrium's underwriting expense ratio, excluding ceding commission, was consistently 1% to 2%.

Setting aside the math, it does not make sense as a practical matter to consider the ceding commission an Atrium operating expense. The purpose of the ceding commission is to compensate the MI for *its* operating expenses, including administrative expenses, relating to the primary insurance policy that is then reinsured.[55]

Thus, my calculation of Atrium's 40% expected underwriting profit margin, which simply flows from Milliman's projections, remains accurate. It is actually more likely an underestimate. My calculation was based on *nominal* loss ratios projected by Milliman, but the *present value* loss ratios were significantly lower, as shown in the Genworth example above (the

[51] The underwriting profit margin should be calculated based on the premiums net of ceding commission because that amount is actually the premiums that Atrium will receive.
[52] If ceding commission is included in the expense figure, then gross premiums (which include ceding commission) should be used to calculate Atrium's expected underwriting profit margin.
[53] *See supra* n. 50.
[54] Atrium's Audited Financial Statements, Dec. 31, 2001, p. 4 (Ex. 56).
[55] Transcript of Investigational Hearing Testimony of Michael Schmitz on behalf of Milliman ("Milliman IH Tr.") at 133:25-134:8 (Ex. 22) (testifying that the purpose of the ceding commission is to compensate the MI for its administrative expenses relating to the direct insurance policy).

expected loss ratio on a present value basis was 46%, compared to the 52% expected loss ratio on a nominal basis). The reason is that premiums are expected to be paid earlier in time than claims, so premiums have more time to grow through investment. Had I used the lower present value loss ratios from Milliman's reports, the expected underwriting profit margin would have been higher than 40%.

Finally, I should emphasize that, while I have referred to the 40% figure as an *expected* underwriting profit margin, which may suggest that there was some significant risk that the actual result would deviate substantially from the expected result, Atrium was able to greatly increase the chance of obtaining the expected result by running its captive programs over such a long period of time and by covering so many book years across multiple MIs. When a greater number of loans are covered, the law of averages and diversification reduces the chance of deviating substantially from the expected result. The American Academy of Actuaries has explained: "By writing larger volumes of business, the occurrence of claims becomes more predictable."[56] Similarly, at his deposition, Mr. Cascio explained: "Usually what happens if -- when you start to lump years together, the more years you lump together, *you just start to drift towards your expected case*." Cascio Dep. Tr. at 304:2-4 (Ex. 16) (emphasis added).[57] Thus, not only was there insignificant risk that Atrium would suffer a *loss* of its capital, there was not much risk that it would fail to attain its expected *profit*.

[56] "Catastrophe Exposures and Insurance Industry Catastrophe Management Practices," American Academy of Actuaries Catastrophe Management Work Group, June 10, 2001, p. 6 (Ex. 3).

[57] *See also* Michael C. Schmitz, "Investigating captive mortgage reinsurance," *Mortgage Banking*, Feb. 1, 1998, at 3 (Ex. 12, ECX 0635) (emphasis added) ("As a lender's mortgage origination *volume increases*, the portfolio becomes more diverse and the *risk* of insuring (and reinsuring) the portfolio *decreases*.") (emphases added).

That Atrium could greatly minimize the risk of failing to attain its expected profit is shown by the historical results of its captive arrangements. The real estate crisis of 2007 was more severe than almost anyone expected. In a 2009 article, Mr. Schmitz wrote: "In better economic times, it was difficult to envision the current strained scenario as part of what could really happen."[58] Because the 40% *expected* underwriting profit margin was estimated during those "better economic times," one would have expected Atrium's *actual* underwriting profit margin to be much worse than expected (*i.e.*, lower than 40%) as a result of the real estate crisis. As shown in Attachment 2 to my initial report, its actual underwriting profit margin was approximately 36% on a nominal basis – not too far off the expected result.

III. THE METHODOLOGY MR. CASCIO USED TO ASSESS RISK TRANSFER UNDER THE ATRIUM ARRANGEMENTS IS FUNDAMENTALLY FLAWED AND DEFICIENT.

Mr. Cascio concludes that the Atrium arrangements resulted in the transfer of significant risk from the MIs to Atrium based on two loss ratio (*i.e.*, ratio of claims to premiums) comparisons. Cascio Rpt. at 3-5 (¶ 4.D). First, he concludes that risk was transferred to Atrium because it was possible under a 4/10/40 structure for Atrium's loss ratio to exceed the MI's loss ratio for a single book year. *Id.* at 3-5 (¶¶ 4.D.a-b). Second, he concludes that there was risk transfer based on a calculation he performed comparing the aggregate loss ratio for UGI and Genworth with their arrangements with Atrium to what their aggregate loss ratio would have been without those arrangements. *Id.* at 5 (¶ 4.D.c). He asserts that "the loss ratio for all book years in the aggregate of the ceding companies (UGI & Genworth) is 23% higher without the protection of the reinsurance provided by Atrium." *Id.*

[58] *See* Michael C. Schmitz, Neal Dihora & Kyle Mrotek, "Quantifying Risk in Mortgage Backed Securities," *Tradecraft*¸ July 2009, *available at* us.milliman.com/insight/.../Quantifying-risk-in-mortgage-backed-securities/ (visited April 15, 2014) (Ex. 17).

These two comparisons constitute the entire basis of his conclusion that Atrium assumed significant risk under the arrangements.[59] At his deposition, Mr. Cascio admitted that his loss ratio comparisons show nothing about risk transfer and therefore should not be used to analyze risk transfer. When asked whether those comparisons "say anything about risk transfer," he testified: "No. No, not if you really – if you want to be very, very specific, I wouldn't -- I wouldn't hang my hat on this for risk transfer. ***I would never use this as a risk transfer calculation.*** No."[60] Cascio Dep. Tr. at 201:3-202:8 (Ex. 16) (emphasis added).

I agree with the opinion stated by Mr. Cascio at his deposition that the loss ratio comparisons in his report are not proper methods for analyzing risk transfer. In the subsections below, I will explain why this is so.

A. Mr. Cascio's Loss Ratio Calculations Do Not Establish That Atrium Faced a Reasonable Probability of a Significant Loss of Capital.

As discussed above, in his report, Mr. Cascio concludes that Atrium assumed significant risk under its captive arrangements because it was possible for Atrium to have a higher loss ratio than the MI under a 4/10/40 structure. Cascio Rpt. at 4-5 (¶ 4.D). Specifically, he explains that Atrium has a higher loss ratio than the MI on a book year for which Atrium "suffers a full limit loss of 10%," and that because the MI has 50% more premium than Atrium (60% of premiums for the MI compared to 40% of premiums for Atrium), the MI's total losses on that book year

[59] Mr. Cascio also asserts that the Atrium arrangements may pass risk transfer under an "alternative method" provided for in Paragraph 67 of Financial Accounting Standard 113. Cascio Rpt. at 11 (¶ 19). I specifically address his "alternative method" in Section III.E below. *See infra* 57-62. As I will explain, Mr. Cascio's acknowledges that this alternative analysis relies on the same loss ratio comparison discussed above – that the MI's loss ratio could be less than Atrium's loss ratio. Additionally, the Atrium arrangements do not even qualify for the Paragraph 67 exception.

[60] Mr. Cascio testified that his loss ratio comparisons instead show that the MIs benefited from "smoothing" of financial results. *Id.* I address this opinion in Section VII.A below. *See infra* 110-116.

would have to reach 15% "for the loss ratios to be equivalent." *Id.* at 4 (¶ 4.D.a). The MI's total losses reach 15% when total claims reach 25% of aggregate risk for the book year. *Id.* Because, in retrospect, there were multiple book years in which Atrium incurred "a full limit loss of 10%," and no book years in which claims exceeded 25% of aggregate risk, he concludes that Atrium was in a "more tenuous risk" position than the MI. *Id.* at 5.

Mr. Cascio's analysis contains numerous serious flaws that render his conclusions about risk transfer completely unreliable. As I discussed in my initial report, a risk transfer analysis requires an assessment of whether there is a reasonable probability that the reinsurer may realize a significant loss. Crawshaw Rpt. at 8. The "loss" that is the focus of a proper risk transfer analysis is an economic loss to the reinsurer – that is, a loss of Atrium's own capital above and beyond a return of premiums previously collected from the MI. Indeed, Mr. Cascio recognizes that risk transfer focuses on the probability and magnitude of the reinsurer's "economic loss." Cascio Rpt. at 10 (¶ 16). Mr. Cascio, however, performs no analysis of whether Atrium has a reasonable probability of incurring a significant loss of its capital.

The mere fact that a reinsurer could have a higher loss ratio than the insurer for a given book year does *not* lead to the conclusion that there is a reasonable probability that the reinsurer will incur a significant loss of its capital. There are at least three reasons for this, which I will identify here and explain in detail in the following paragraphs.

1. First, even if the reinsurer's loss ratio could be higher than the insurer's loss ratio for a given book year, that does not mean there is a reasonable probability that the reinsurer's loss ratio for that single book year will exceed 100% – a necessary (but not sufficient) condition for the reinsurer to incur a loss of its capital.

2. Second, for the reasons explained in my initial report, even if there is a reasonable probability that the reinsurer's loss ratio for a given book year will exceed 100%, that does not mean the reinsurer will ever have to use any of its own capital to pay for claims. If the loss ratio for a given book year does exceed 100%, in a multi-book year arrangement, the reinsurer can avoid having to use its capital to pay claims if there are sufficient premiums in the trust account from other book years available to pay those claims. Crawshaw Rpt. at 26. For the reinsurer to incur a loss of capital, the loss ratio for that book year must be high enough to exceed all of the premiums collected and to be collected from other book years.
3. Third, even if premiums from other book years are not sufficient to pay claims under the book year in question, thereby requiring the reinsurer to use some of its own capital to pay those claims, the reinsurer will only suffer a significant loss of its capital if both of the following conditions are met: (1) the loss ratio for the book year in question is sufficiently high that the amount of claims the reinsurer must pay is significant; and (2) the reinsurer actually has that amount of capital exposed to potential loss.

I will illustrate each of these points with a hypothetical. As to the first point, suppose that for a given book year, the MI receives $1 million in premiums from borrowers and incurs $500,000 in claims. Without any reinsurance arrangement, the MI's loss ratio would be 50%.[61] Now suppose instead that the MI has an arrangement with Atrium requiring it to cede to Atrium 40% of its premiums for that book year ($400,000), in return for a certain payout by Atrium of $300,000 when the MI incurs claims. The MI's loss ratio for that book year would be reduced

[61] This is the result of dividing the $500,000 in claims by the $1 million in premiums.

from 50% to 33%, because its losses would be $200,000 and its retained premiums would be $600,000. Atrium's loss ratio for that book year would be would be 75%.[62]

Because Atrium's loss ratio (75%) is higher than the MI's loss ratio (33%), Mr. Cascio would apparently conclude that there was risk transfer. But in this hypothetical, Atrium has no risk whatsoever of losing any capital because the premiums ceded to it ($400,000) are guaranteed to exceed Atrium's payment of claims ($300,000). Rather than assuming any risk on this book year, Atrium will enjoy a certain profit of $100,000. Thus, any conclusion that risk was transferred, or that Atrium was in a more "tenuous" position than the MI[63] simply because Atrium's loss ratio is higher than the MI's loss ratio would be erroneous because it would fail to account for whether there was a reasonable probability that Atrium's loss ratio for the book year would exceed 100%. (In this hypothetical, that probability is zero, but there would not be significant risk transfer if the probability was remote, but not zero.)

As to the second point, suppose that the book year in question was part of a multi-book year arrangement and that there was some non-zero probability that Atrium's loss ratio for the book year would exceed 100%. Suppose that Atrium's loss ratio for that book year turned out to be 120%. Atrium would be required to pay $480,000 in claims – $80,000 more than the $400,000 in premiums it received for that book year. But if the trust account already had $100,000 in premiums collected from prior book years, Atrium could pay the full $80,000 excess using those premiums from other book years, without losing any of its capital.

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[62] This is the result of dividing the $300,000 in claims paid by Atrium by the $400,000 in premiums ceded to Atrium.

[63] In fact, despite lowering its loss ratio from 50% to 33% as a result of the reinsurance, the MI is in a *more* tenuous position with the reinsurance because its profits have fallen from $500,000 ($1 million - $500,000) without reinsurance to $400,000 ($600,000 - $200,000) with reinsurance.

As to the third point, suppose that Atrium's loss ratio for the book year in question turned out to be 400%. Atrium would be required to pay $1.6 million in claims – $1.2 million more than the $400,000 in premiums it collected for that book year. That amount could probably be considered significant[64], and $100,000 of premiums collected from other book years in the trust account would not be sufficient to pay the $1.2 million excess. As a result, Atrium would have to use its own capital to make up the $1.1 million shortfall. However, if Atrium does not have this amount of capital exposed to potential loss and instead only has an insignificant amount of capital exposed to potential loss, it cannot suffer a significant loss of capital no matter how large the loss ratio is.

To explain these points more concretely as applied to the Atrium captive arrangements, I will use the example of loss ratios calculated for the 2005 book year under the UGI arrangement, one of the book years for which claims consumed Atrium's entire "risk" corridor (what Mr. Cascio refers to as a "full limit loss"). Columns B and C in Table 3 below show the loss ratios for Atrium and UGI, respectively, at various hypothetical claim levels from 0% of aggregate risk to 25% of aggregate risk for the 2005 book year.[65]

[64] Whether claims paid under any given book year result in a significant loss to the reinsurer depends on the experience under other book years. Even a very high loss ratio for one book year may not result in a significant loss of capital if many other book years result in a gain to the reinsurer. Additionally, as explained in Section II.D, the magnitude of loss that can be deemed "significant" depends on the expected profit of the arrangement to the reinsurer. *See supra* 23.

[65] The loss ratios in Table 3 are based on net premiums, which are allocated 60% to UGI, rather than the 55% allocation of gross premiums to UGI. To simplify this analysis, I have included only claims and premiums in my calculation of loss ratios, but not expenses, even though expenses are typically included in a loss ratio calculation. This is conservative in Atrium's favor because the MI's expenses are significantly higher than Atrium's expenses. *See* Crawshaw Rpt. Attachments 3, 4 and 5. Including expenses would increase UGI's loss ratios.

TABLE 3

[A]	[B]	[C]
Cumulative Claims as Percent of Aggregate Risk	**Atrium's Loss Ratio**	**UGI's Loss Ratio**
0%	0%	0%
4%	0%	45%[66]
6.67%	45%[67]	45%
9.93%	100%[68]	45%
14%	168.7%[69]	45%
25%	168.7%	168.7%[70]

As shown in Table 3, in a prospective analysis of the 2005 book year, if cumulative claims for that book year reached the 4% attachment point, UGI's loss ratio for the book year

[66] For the 2005 book year, the total projected premiums retained by UGI as of March 31, 2013 were $41,169,000 (150% of the $27,446,000 in total projected premiums ceded to Atrium). *See* Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 5 (Ex. 10, ECX 0839). The total claims paid by UGI on the 0-4% layer for the 2005 book year were $18,521,200 (4% of the $463,030,000 of aggregate risk for that book year). *Id.* at 24. The 45% loss ratio is the result of dividing $18,521,000 by $41,169,000.

[67] The total projected premiums ceded by UGI to Atrium under the 2005 book year were $27,446,000. *Id.* at 5 (Ex. 10, ECX 0839). Atrium's loss ratio for the 2005 book year reached 45% when its claim payments for that book year reached $12,345,750 ($12,345,750 / $27,446,000 = 45%). At that point, total claims under the 2005 book year were $30,866,950 ($18,521,200 of which was paid by UGI on the 0-4% layer, and $12,345,750 of which was paid by Atrium above that layer). $30,866,950 in total claims represents 6.67% of the $463,030,000 aggregate risk for that book year. *Id.* at 24.

[68] Atrium's loss ratio for the 2005 book year reached 100% when its claim payments for that book year reached $27,446,000 (equivalent to the total projected premiums ceded to Atrium on that book year). *Id.* at 5 (Ex. 10, ECX 0839). At that point, total claims under the 2005 book year were $45,967,200 ($18,521,200 of which was paid by UGI on the 0-4% layer, and $27,446,000 of which was paid by Atrium above that layer). $45,967,200 in total claims represents 9.93% of the $463,030,000 aggregate risk for that book year. *Id.* at 24.

[69] At the 14% claim level, Atrium must pay $46,303,000 (or 10%) of the $463,030,000 aggregate risk for the 2005 book year. *Id.* at 5, 24 (Ex. 10, ECX 0839). Because the total projected premiums ceded by UGI to Atrium under the 2005 book year were $27,446,000, Atrium's loss ratio at this point was 168.7% ($46,303,000 / $27,446,000).

[70] At the 25% claim level, UGI's total claim payments would be 15% of the $463,030,000 aggregate risk for the 2005 book year, or $69,454,500. *Id.* at 24 (Ex. 10, ECX 0839). At that point, UGI's loss ratio would be 168.7% ($69,454,500 / $41,152,500). *Id.* at 5.

would be 45%. UGI's loss ratio would be fixed at 45% through the entire 10% risk corridor while Atrium covered claims in that risk corridor. Atrium's loss ratio, which started at 0%, would match UGI's 45% loss ratio if cumulative claims reached 6.67% of aggregate risk. Atrium's loss ratio for the 2005 book year would reach 100% if cumulative claims reached 9.93% of aggregate risk. At the 14% detachment point, Atrium's loss ratio would be 168.7% – which is Atrium's *maximum* loss ratio for the 2005 book year because Atrium pays no claims above the detachment point. UGI's loss ratio would match Atrium's maximum loss ratio if cumulative claims reached 25% of aggregate risk. UGI's loss ratio would exceed Atrium's maximum loss ratio if cumulative claims exceeded 25% of aggregate risk.

Mr. Cascio concludes that there was risk transfer under the entire captive arrangement because Atrium's loss ratio for a single book year could, if losses reached a certain level, exceed UGI's loss ratio for that book year. As described above, Atrium's loss ratio would exceed UGI's loss ratio if cumulative claims exceeded 6.67% of aggregate risk. However, at the 6.67% claim level, Atrium's loss ratio for the 2005 book year would be only 45%, so premiums would still be more than double the claims for that book year and those claims would have no impact on Atrium's capital. In fact, as long as cumulative claims were below 9.93%, Atrium's claims for the 2005 book year would be less than Atrium's premiums. Atrium would face no conceivable loss of capital from covering the 2005 book year, even though its loss ratio in this range would be higher than UGI's loss ratio.

Mr. Cascio's loss ratio analysis does not even acknowledge the need to prospectively assess and account for the probability that claims payable by Atrium for any book year would ever exceed the premiums for that book year (for the 2005 book year, when cumulative claims

reached approximately 9.93% of aggregate risk).[71] Nor does he acknowledge the need to assess the probability that claims payable by Atrium under any book year would exceed premiums collected or to be collected from other book years by the time those claims become payable. For the 2005 book year, even if cumulative claims exceeded 9.93% of aggregate risk, Atrium would still not incur any loss of capital due to the premiums from other book years that provided a very large buffer against the loss of Atrium's capital. By the end of calendar year 2004, UGI had already ceded over $161 million of net premiums to Atrium, *see* Crawshaw Rpt. Table 1, and total net premiums ceded from book years 1994 through 2004 ultimately amounted to over $240 million.[72] As a result of this premium buffer, cumulative claims under the 2005 book year would have to reach a level *far* higher than 9.93% of aggregate risk for Atrium to suffer a loss of its capital.

However, because Atrium's liability ceased at the 14% detachment point, it was impossible for Atrium to incur such a loss. To illustrate this, suppose there was no 14% cap, such that Atrium's liability was unlimited after 4%. The total amount of premiums ceded or to be

[71] For related reasons, Mr. Cascio's loss ratio calculations also cannot be used to measure risk transfer because they do not consider *when* cumulative claims under a given book year might reasonably be expected to exceed total premiums from that book year. This is a highly important factor because Atrium's ability to employ certain risk-avoidance mechanisms increased with the passage of time. For example, the longer the arrangement could persist without claims for any book year substantially exceeding the premiums for that book year, the more time Atrium had to build a buffer of premiums from other book years that could shield Atrium's capital from loss. Atrium would also have more time to obtain historical information about the loans covered under the arrangement to assess their riskiness before deciding whether or not to commit additional capital or to terminate the arrangement. Moreover, the captive agreements prohibited Atrium from removing dividends from the trust for a certain number of years, so the longer the arrangement could persist without significant claims above the attachment point, the more likely it was that Atrium could reduce its net capital contribution to zero by removing dividends before it had to pay any claims.

[72] UGI cession statement, Sept. 30, 2012, "WrittenPrem" worksheet (Ex. 11, ECX 0198). The $240 million figure is calculated by subtracting the sum of cells D13-D43 from the sum of cells C13-C43.

ceded to Atrium under the 2005 book year was approximately $27,446,000.[73] Even if claims payable by Atrium under the 2005 book year had reached $82,338,000 – *triple* the premiums for that book year – Atrium would still not have come close to incurring a loss of its capital because it could have paid the *entire* $54,892,000 excess using a fraction of the $240 million of premiums collected or due under book years 1994 through 2004, with over $185 million to spare to pay for any claims under other book years or to withdraw for itself in the form of dividends. At that point, cumulative claims for the 2005 book year would have been approximately 21.8% of aggregate risk (more than double 9.93%) and Atrium's loss ratio for that book year would have been 300%.[74] But because of the cap on liability imposed by the 14% detachment point, even this situation could never occur. Claims payable by Atrium under the 2005 book year could never reach $82,338,000 because its maximum liability for that book year was just $46,303,000.[75] Likewise, Atrium's loss ratio for book year 2005 could never reach 300% because its maximum loss ratio for that book year was just 168.7%.[76]

The combination of rapid premium growth and the 14% detachment point had a similar truncating effect on claims under all other book years for which claims consumed Atrium's entire "risk" corridor – book years 2006, 2007 and 2008.[77] For each book year as to which a reinsurer pays no claims (because the attachment point is not pierced) or pays less in claims than

[73] Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 5 (Ex. 10, ECX 0839).

[74] The total claims paid by UGI on the 0-4% layer for the 2005 book year were $18,521,200 (4% of the $463,030,000 of aggregate risk for that book year). *Id.* at 24. Thus, cumulative claims would be $100,859,200 ($18,521,000 of which is paid by UGI and $82,338,000 of which is paid by Atrium) – or 21.8% of the $463,030,000 aggregate risk for the 2005 book year.

[75] *Id.* (Ex.10, ECX 0839). The $46,303,000 is the total amount of claims payable by Atrium if cumulative claims reached at least 14% of aggregate risk for the 2005 book year.

[76] *Id.* at 5, 24 (Ex. 10, ECX 0839).

[77] *Id.* at 24 (Ex. 10, ECX 0839). The "Selected Loss Rate in the Layer" column on page 24 of this report shows that Atrium's entire "risk" corridor of 10% was consumed for book years 2005, 2006, 2007 and 2008.

it receives in premiums, the ceded premiums (or the excess over claims) for that book year become funds that can be used to pay claims under other book years, with the remainder ultimately accruing as a profit to the reinsurer. The greater the number of book years for which cumulative claims do not pierce the attachment point or exceed the attachment point only minimally, the faster the premium buffer will grow, and thus, for any single book year in which the attachment point is pierced and claims accumulate beyond the point at which Atrium's loss ratio for that book year reaches 100% (9.93% of aggregate risk for the 2005 book year), the larger the claims must be for that premium buffer to be depleted and for the reinsurer to be forced into a position of economic loss. At the outset of the arrangement, if it is likely that multiple book years will be covered, a risk transfer analysis should assess the probability that claims for any given book year will pierce the attachment point. For example, if it is expected that claims in the majority of book years will not pierce the attachment point, for the minority of book years in which claims do exceed the attachment point, there must be a reasonable possibility that those claims will be large enough to: (1) deplete the premiums collected from that book year as well as the majority of book years in which Atrium incurs no liability; and (2) result in a significant loss of Atrium capital.

Thus, for example, if the reinsurer is expected to incur liability in only one out of four book years of comparable magnitude, then the claims in each such adverse book year would have to be approximately four times as large as the ceded premiums from that book year for the arrangement to be even conceivably reasonable for the MI to enter into. In other words, unless the few "bad" book years are sufficiently severe to counterbalance the greater number of "good" years, the arrangement will simply result in a transfer of funds from the MI to the reinsurer (the opposite of a loss of capital by the reinsurer).

I believe the probability at the outset of the UGI arrangement that the attachment point for any given book year would be pierced was likely no greater than 1 in 3. Cumulative claims significantly exceeded the attachment point in five of the sixteen book years under the UGI arrangement.[78] The actual historical experience was at least as severe (and probably more severe) than what was expected at the outset of the arrangement,[79] so it is reasonable to assume that, when the arrangement commenced, at most 1 in 3 book years was expected to result in liability for Atrium. This is consistent with Mr. Schmitz's assessment in his 1998 article on captive mortgage reinsurance arrangements:

> Regardless of how the reinsurer's layer of risk is specified, it is typically set at a level sufficiently higher than expected losses so that the reinsurer is expected to incur no losses in the majority of years.[80] For example, ***the reinsurer may be expected to be loss-free for three out of four years of mortgage originations.*** However, the reinsurer's losses may be expected to consume the entire reinsured layer roughly 1 out of every four years.[81]

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[78] *Id.* at 24 (Ex. 10, ECX 0839). These are book years 2004 through 2008. The other book years resulted in no claims, or insignificant claims, payable by Atrium.

[79] In a 2009 article, Mr. Schmitz wrote: "In better economic times, it was difficult to envision the current strained scenario as part of what could really happen." *See* Michael C. Schmitz, Neal Dihora & Kyle Mrotek, "Quantifying Risk in Mortgage Backed Securities," *Tradecraft*¸July 2009, *available at* us.milliman.com/insight/.../Quantifying-risk-in-mortgage-backed-securities/ (visited April 15, 2014) (Ex. 17).

[80] Michael C. Schmitz, "Investigating captive mortgage reinsurance," *Mortgage Banking*, Feb. 1, 1998 (Ex. 12, ECX 0635, CFPB-PHH-00611005, at CFPB-PHH-00611008). Based on how Milliman uses the term "loss" in its reports for the Atrium arrangements, and the context of that term in his article, I believe Mr. Schmitz's reference to "loss" means claims.

[81] The 1 in 4 rate cited by Mr. Schmitz is comparable to the rate in the Casualty Actuarial Society's example of catastrophe excess-of-loss coverage, in which there is a 1 in 3 chance that the reinsurer will incur any claims. *See supra* 10. However, Mr. Schmitz estimates that the reinsurer's layer will be *entirely* consumed 1 out of every 4 years, whereas in the Casualty Actuarial Society's example, there is only a 3% chance that the reinsurer's layer will be entirely consumed. That does not mean that captive reinsurers assume more risk than the reinsurer in the Casualty Actuarial Society's example. It is only possible to assume that a captive reinsurer's layer must be entirely consumed in every year in which the attachment point is pierced because reinsurer's risk corridor is so narrow (with a high attachment point and low detachment point).

As further support for the prospective expectation that 1 book year in 3 would result in liability for Atrium, I note that the Milliman analyses generally indicate a prospective probability of about 25% (*i.e.*, 1 year in 4) that Atrium would experience a single book year loss ratio in excess of 100%.[82]

Assuming that 1 in 3 book years (at most) was expected to result in significant liability for Atrium, for each such adverse book year, cumulative claims would have to be approximately three times the total premiums from that book year for the arrangement to even conceivably be reasonable from UGI's perspective. That would reflect a loss ratio of around 300% for those adverse book years. However, due to the 14% liability cap, the maximum possible loss ratio for Atrium for those book years was far below 300%, as shown in Table 4.

TABLE 4

[A]	[B]
Book Year	**Maximum Atrium Loss Ratio[83]**
2005	168.7%
2006	163.5%
2007	153.6%
2008	167.8%

The reason the catastrophe coverage provider's layer is not consumed every time the attachment point is pierced is that the layer is not limited by a low detachment point; the layer is ten times as large as premiums in the Casualty Actuarial Society's example.

[82] For example, the Milliman report for the 2005 book year under the UGI arrangement shows that Milliman estimated a 70% chance that Atrium's loss ratio would be 74% or below, and an 80% chance that Atrium's loss ratio would be 123% or below. *See* Milliman Report on UGI-Atrium Program, Mar. 23, 2007 (Ex.18, ECX 0193, CFPB-PHH-00112614, at CFPB-PHH-00112634). This implies a roughly 75% chance that Atrium's loss ratio for the 2005 book year would be below 100%, or equivalently, the loss ratio was expected to exceed 100% about once every four years.

[83] These amounts are calculated by dividing the maximum claim amount (Column (5) of Attachment 1) by the corresponding premium for the book year (Column (2) of Attachment 3).

Mr. Cascio's loss ratio analysis ignores these factors. He analyzes hypothetical loss ratios for each book year in isolation, and even then he focuses only on the handful of the worst book years, essentially ignoring the others. He does not consider whether and to what extent premiums from other book years shielded Atrium's capital. And he fails to consider whether it was even possible for claims in the few adverse book years to reach a level that would result in an economic loss to Atrium.

Finally, even assuming that the loss ratio for any given book year could be high enough that claims exceed the premiums from all book years, thereby forcing Atrium to incur some loss of its capital, a proper risk transfer analysis would have to consider what amount of loss is "significant" and whether Atrium even had that amount of capital exposed to potential loss. Mr. Cascio's loss ratio analysis also fails to consider these factors. As I explained in my initial report, the level of capital that reflects a "significant" loss to the insuring entity (either the insurer or reinsurer) cannot be determined without considering the insuring entity's potential underwriting profit. Crawshaw Rpt. at 60. In normal insurance or reinsurance transactions, high expected underwriting profit margins to the insuring entity are provided only when there is a commensurately high potential loss to the insuring entity. When parties are negotiating a potential arrangement, the high expected underwriting profit is provided to induce the insuring entity to enter a deal that might result in a massive loss of that entity's capital. In other words, the insuring company must be compensated with sufficiently high underwriting profit margins to agree to take on that large risk.

As I further explained in my initial report and above, in my experience, Atrium's expected underwriting profit margin of approximately 40% is unusually high, and much higher than the profit loads typical of most types of property/casualty businesses, which are usually

10% or less. *Id.* at 60. An expected underwriting profit margin in the range of 40% is reasonably comparable to expected underwriting profit margins I have encountered for reinsurance contracts that cover catastrophic property claims. In those types of contracts, the reinsurer typically faces a potential loss of capital that is many multiples – not a fraction – of the premiums ceded. *See supra* 8-12.

Because Mr. Cascio does not analyze what level of loss is "significant" in light of Atrium's very high expected underwriting profit margin and whether Atrium has such capital exposed to loss, his conclusion that there was risk transfer is not reliable. As discussed in my initial report, at no point did Atrium's capital contributions to the Trust Accounts (or even its assets outside of the Trust Accounts) even approach the total premiums ceded to Atrium, a necessary condition for potential losses of capital to equal the premiums ceded (*i.e.*, a multiple of only one). *See* Crawshaw Rpt. 33, 45 (Tables 1 & 2); Section VIII, *infra* 125-142.

B. Mr. Cascio's Assertion That the MI's Loss Ratios Were Reduced as a Result of their Captive Arrangements Does Not Establish That Atrium Faced a Reasonable Probability of a Significant Loss of Capital.

In his report, Mr. Cascio asserts that risk was transferred to Atrium because UGI and Genworth's loss ratios for the loans covered under their captive arrangements with Atrium would have been "23% higher without the protection of the reinsurance provided by Atrium." Cascio Rpt. at 5 (¶ 4.D.c). He describes this purported 23% loss ratio reduction as the "benefit of the reinsurance provided by Atrium." [84] *Id.* He concludes: "To suggest that Atrium was not assuming risk when it was in a more tenuous position than UGI or Genworth defies logic." *Id.*

[84] As a general matter, the ultimate results of an arrangement, based on the actual development of claims under the arrangement, are not themselves used to establish the existence or absence of

Mr. Cascio does not explain how he calculated the 23% figure, and he cites no source data or supporting documents. When asked at his deposition to explain his assertion in more detail, he stated that if UGI and Genworth had not entered into captive arrangements with Atrium, their loss ratios "would have been … higher by 23 percent … because it's about 50 [percent] … 23 percent higher would be, roughly, you know, 61 percent." Cascio Dep. Tr. at 199:15-200:11 (Ex. 16).

I could not reproduce Mr. Cascio's calculations. However, I can state with certainty that a reduction in a primary insurer's loss ratio in no way establishes (or even suggests) that risk was transferred to the reinsurer. A reinsurer can take a share of the primary insurer's profit, without assuming any risk of loss of capital, even though the primary insurer's loss ratio decreases as a result of the deal. I will illustrate this with a hypothetical that uses the loss ratio figures referenced by Mr. Cascio at his deposition.

Suppose that without any reinsurance, a primary insurer receives $1 million in premiums, and incurs $615,000 in claims. The primary insurer's loss ratio is 61.5%, and its profit is $385,000. Now suppose instead that the primary insurer has a reinsurance arrangement that requires it to cede $400,000 of premiums to the reinsurer, and the reinsurer pays $315,000 in claims. The primary insurer's loss ratio is reduced by 11.5 percentage points to 50%. (Using Mr. Cascio's math, the primary insurer's 61.5% loss ratio without reinsurance is 23% higher than 50%.) Despite the reduction in its loss ratio, the primary insurer's profit decreases from $385,000

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risk transfer. Risk transfer analyses are typically performed prospectively. However, the ultimate result of an arrangement can provide some evidence that tends to support or undermine the accuracy of a prospective risk transfer analysis. For example, if historical results turn out to be equally or more severe than what was expected at the outset of an arrangement, and the reinsurer nonetheless makes a massive profit from the arrangement while the insurer recovers nothing but a fraction of its ceded premiums, that would tend to support a conclusion that, prospectively, there was no risk transfer.

to $300,000 ($600,000 of retained premiums minus $300,000 in claims). The $85,000 of lost profit is transferred to the reinsurer. These figures are summarized in Table 5 below.

TABLE 5

[A]	[B]	[C]	[D]
	No Reinsurance Arrangement	**Reinsurance Arrangement**	
	Primary Insurer	**Primary Insurer**	**Reinsurer**
Premiums	$1,000,000	$600,000	$400,000
Claims	$615,000	$300,000	$315,000
Loss Ratio	61.5%	50%	78.8%
Profit	$385,000	$300,000	$85,000

Because the ratio of the primary insurer's claims to its premiums without reinsurance is 61.5 to 100, for each dollar of ceded premiums taken by the reinsurer, the reinsurer just has to give back 61.5 cents in claim payments *to preserve the 61.5% loss ratio*. For each dollar of ceded premiums, the reinsurer would make 38.5 cents of profit, and the primary insurer's profit would decrease by 38.5 cents.

If instead, the reinsurer gives back claim payments of any amount between 61.5 cents and 99.9 cents for each dollar of ceded premiums, the primary insurer's *61.5% loss ratio will be reduced* even though the reinsurer still obtains a profit and the primary insurer's profit decreases.

My hypothetical shows that a reduction in the primary insurer's loss ratio does not mean that the reinsurer was "in a more tenuous position than" the primary insurer. In my hypothetical, the reinsurer returns 78.8 cents for each dollar of ceded premiums ($315,000 divided by $400,000), making a profit of 21.2 cents on each dollar of ceded premiums. 78.8 cents per dollar of ceded premiums is comfortably below the 99.9 cents limit that would still allow the reinsurer

to obtain a profit while reducing the primary insurer's loss ratio. Even if the reinsurer's claim payments is as high as $400,000 (so that it returns $1 dollar in claims per dollar of ceded premiums), the reinsurer breaks even and incurs no loss while the primary reinsurer's loss ratio is reduced, from 61.5% to 35.8%.[85] Thus, Mr. Cascio's comparison between MI loss ratios with and without an arrangement with Atrium fails to measure risk transfer because it does not assess whether there is a reasonable probability of Atrium incurring a significant loss of its capital.

Finally, I do not see how anyone can possibly conclude, based on the results of the UGI and Genworth arrangements (expressed as loss ratios or some any other metric), that UGI or Genworth obtained a "benefit" from their arrangements, given that they lost $128,405,015 and $70,590,961, respectively.[86] Crawshaw Rpt. Attachment 2.

C. Mr. Cascio's Belief that the MIs Preferred a Higher Attachment Point is Illogical and Incorrect.

Mr. Cascio posits that United Guaranty and Genworth "retained the first 4% of the layer, likely to avoid what is commonly referred to in the industry as dollar swapping." Cascio Rpt. at 4 (¶ 4.D.a). He continues: "Stated differently, since the reinsurance premium required to cover the first 4% of losses would likely require a premium dollar amount roughly equal to the dollar amount of the primary 4% of coverage, then the insurer is no better off by purchasing reinsurance for expected loss activity." *Id.* at 4. He then concludes that the MIs were *better* off with *less* coverage, because an excess of loss arrangement with a 4% attachment point "would be a preferred structure" to a quota share arrangement on the primary layer. *Id.* at 4. Mr. Cascio's

[85] If the reinsurer pays $400,000 in claims, the primary insurer's claims are reduced from $615,000 to $215,000. The 35.8% loss ratio is the result of dividing $215,000 in claims by $600,000 in retained premiums.

[86] These figures are in nominal dollars. As explained in footnote 24, those amounts would be much larger if they were expressed in present value terms.

attempt to explain the reason for the 4% attachment point and his conclusion that less coverage was beneficial to the MIs are logically flawed and not consistent with the evidence I have reviewed.

Generally speaking, "dollar swapping" refers to insurance coverage in which the amount of premiums paid by the insured entity for the coverage is equal to the amount of the insured's recovery.[87] Dollar swapping can occur when insurance is obtained to cover costs that the insured entity is certain to incur. When the covered costs are certain to be incurred, the appropriate amount of premiums for such coverage is approximately equivalent to the insurance payout to cover that cost. However, there is typically no reason to enter into such an arrangement in the first place, because the insured would be in the same position without the insurance as with the insurance.[88] Rather than giving the premiums to the insurer only to get the same amount back, the insured would be equally well off by just holding onto those funds.

In contrast, when the occurrence and amount of costs covered by an insurance arrangement are uncertain and variable, the arrangement cannot be characterized as "dollar swapping" because the insurance payout will almost never match the premiums paid. Mr. Cascio's belief that the attachment point was set at 4% of aggregate risk to avoid dollar swapping cannot be correct because MI claims reaching all the way up to 4% of aggregate risk were highly variable and far from certain to occur, which means the attachment point could have been set at a much lower level without dollar swapping.

[87] This is consistent with Mr. Cascio's understanding of the term. Cascio Dep. Tr. at 157:23-158:2 (Ex. 16).

[88] This is why, for example, automobile insurance typically excludes routine maintenance costs that the automobile owner is certain to incur. It would not make sense for an automobile owner to pay X dollars to his or her insurance company to cover the 10,000 mile maintenance cost, only to have the insurance company return X dollars to the automobile owner to pay for those costs when they are incurred. Additionally, it would not make sense for an insurer to enter into such an arrangement because it would not allow the insurer to recover its expenses or obtain a profit.

For example, as shown in Table 6 below, as of September 2012, for nine of the sixteen book years covered by its arrangement with Atrium, United Guaranty's losses incurred from inception to date were below 1% of the aggregate risk.

TABLE 6[89]

[A]	[B]
Book Year	**Claims as a Percentage of Aggregate Risk (Sept. 2012)**
1994	0.85%
1995	0.64%
1996	0.41%
1997	0.59%
1998	0.51%
1999	0.76%
2000	0.81%
2001	0.94%
2002	1.61%
2003	3.69%
2004	7.40%
2005	14.52%
2006	21.29%
2007	20.22%
2008	10.73%
2009	0.71%

Because MI losses reaching 4% were not certain to occur (and indeed, not likely to occur), setting the attachment point at that level cannot be explained as being due to a desire to avoid dollar swapping.[90] In other words, a significantly lower attachment point – for example,

[89] UGI cession statement, Sept. 30, 2012, (Ex. 11, ECX 0198). The percentages in the right column are calculated from data in the "Risk" worksheet. Specifically, those percentages are the result of dividing "UGI Incurred Losses Since Inception Plus Reserves" (Column E) by "UGI Original Risk" (Column F) for each Policy Year.

[90] It is possible that an extremely low attachment point, such as one set below 0.5%, would have resulted in dollar swapping, because some minimal amount of losses under each book year were certain to occur.

2% – would not have resulted in dollar swapping. Mr. Cascio's explanation for the 4% attachment point is thus incorrect. As I explained in my initial report, the actual explanation for the 4% attachment point is that it was set at a high level so that Atrium would not have to pay claims in most years, and thus, is one of multiple risk-avoidance features common to Atrium's captive arrangements. Crawshaw Rpt. at 17.

Despite the variability and uncertainty of losses in the 0-4% layer, Mr. Cascio nonetheless assumes that Atrium's coverage of some or all that layer would have required dollar swapping – that is, the "reinsurance premium required to cover the first 4% of losses" would necessarily have been "equal to the dollar amount" of that coverage. Cascio Rpt. at 4 (¶ 4.D.a). Then, based on that false premise, he proceeds to assume, also incorrectly, that the *only* way to avoid such dollar swapping is to exclude that layer from coverage altogether. Mr. Cascio presents a false choice because dollar swapping can also be avoided simply by agreeing to provide coverage at a reasonable price that does not result in dollar swapping – that is, by including some or all of the 0-4% layer under the arrangement, but at a price sufficiently low so that the MI has a reasonable probability of recovering more than the premiums ceded to Atrium.

As a matter of common sense, it is not reasonable to assume that the MIs were better off with less coverage. Of course, increased coverage at an exorbitant price would not make the MIs better off, but Mr. Cascio simply assumes without any analysis that such coverage could not be obtained at a reasonable price. Indeed, because the 40% net ceding percentage was already so excessive in light of the insignificant risk assumed by Atrium, I believe it would have been appropriate for Atrium to cover some portion of the 0-4% layer without any additional ceding of premiums by the MIs.

Moreover, Mr. Cascio's assumption that MIs were better off by not having coverage of any part of the 0-4% layer is contradicted by testimony at the hearing. Curt Culver, the CEO of MGIC, testified that MGIC has had quota share captive arrangements, which provides coverage of the primary layer. Hearing Tr. at 345:11-22, 349:5-17 (3/25/14). Additionally, Mr. Cascio appears to assume that the only structure available to cover the 0-4% layer is a quota share arrangement. He does not acknowledge in his report the possibility of an excess-of-loss structure with a lower attachment point.

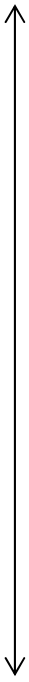
While I do not believe Mr. Cascio's specific use of the dollar swapping concept to attempt to justify the 4% attachment point is valid for the reasons discussed above, I agree with his more general view that it would make no sense for an MI to enter into a dollar swapping arrangement. I concur with Mr. Cascio's assessment that it would be "ridiculous" for an MI to enter into a dollar swapping arrangement. Cascio Dep. Tr. at 156:20-25 (Ex. 16). There would be no rational reason for an MI to enter into an arrangement requiring it to hand over its premiums to another company just so that it could have those premiums, in their entirety, returned to it at some later date, when the covered costs are incurred.

However, it is important to understand that, at inception, Atrium's captive arrangements presented an even worse bet for the MIs than dollar swapping. Unlike dollar swapping, in which all of the premiums are guaranteed to be returned, the Atrium captive arrangements presented a significant risk to the MIs that a substantial portion of the premiums they ceded to Atrium would not be returned by Atrium. That was the result of the United Guaranty and Genworth arrangements. Crawshaw Rpt. Attachment 2.

Table 7 below shows various potential alternatives for placing the funds that the MIs ceded to Atrium (in addition to the baseline comparison of ceding those funds to Atrium under

the arrangements). I have listed these alternatives in order from least favorable to the MIs to most favorable to the MIs at inception, and explain in the "Comments" column the rationale for that order.

TABLE 7

[A]	[B]	[C]
Least Favorable to MIs at Inception  **Most Favorable to MIs at Inception**	**Scenario**	**Comments**
	Atrium's captive arrangements	Atrium's captive arrangements were the least favorable to the MIs because the expected outcome was a loss of a substantial portion of the premiums ceded to Atrium, and the best case outcome for the MI was obtaining recovery of Atrium capital in an amount comparable to the interest they could have obtained from a savings account.
	Dollar swapping	Dollar swapping (assuming it is even possible) would have been a better bet than Atrium's captive arrangements because dollar swapping would have resulted in the guaranteed return of all premiums to the MIs, whereas under Atrium's captive arrangements, the MIs faced a significant risk of losing a substantial portion of the premiums ceded to Atrium.
	Savings account	Placing the funds in a savings account with a bank would have been preferable to dollar swapping because the MI could earn interest in the savings account.
	Legitimate (third-party) reinsurance	If the MIs actually needed some amount of reinsurance, it could have been useful to enter into a genuine arm's length reinsurance arrangement with a third-party.

Given that it would be "ridiculous" for the MI to enter into a dollar swapping arrangement with Atrium (as both Mr. Cascio and I believe), entering into a captive arrangement with Atrium was even less rational.[91]

[91] For purposes of these comparisons, I am disregarding any benefits to the MIs that may have resulted from referrals of MI business by Atrium or PHH, and associated increases in market share.

The order of the alternatives in Table 7 reflects the favorability of each alternative to the MIs at the time the MI was deciding whether to enter into a captive arrangement with Atrium. As shown by the final results of the Radian and CMG arrangements, it was possible that an Atrium captive arrangement would ultimately turn out to be better for the MI than dollar swapping. As I explained above, the returns obtained by Radian and CMG on their captive arrangements were comparable to the returns that can be expected from a savings account over the same period of time. *See supra* 13. However, at the time Radian and CMG were deciding whether to enter into a captive arrangement with Atrium, both a savings account and dollar swapping would have been a much better deal for those MIs because there would have been virtually no risk of losing funds in either arrangement, whereas in a captive arrangement there was a substantial risk of losing a large portion of premiums to Atrium and it was only fortuitous for Radian and CMG that they did not suffer this loss.

D. Mr. Cascio's Assertion That Financial Accounting Standard No. 113 Provides a "Higher Standard" That Atrium's Arrangements Need Not Meet is Incorrect.

Referring to excess-of-loss contracts designed to cover low frequency events, Mr. Cascio states that "it would be wrong to apply FASB 113 guidelines to these contracts, as clearly these covers are not expected to be pierced with any regularity, but rather may have a loss trigger very seldomly." Cascio Rpt. at 10 (¶ 17). He states that an "XOL catastrophe reinsurer" such as Atrium does not have to "satisfy the usual risk transfer criteria" because they cover events that are "truly of the low frequency variety." *Id.* (¶ 16). It appears that Mr. Cascio is conflating the accounting standard of FAS 113 with the 10/10 test. Apparently, his objection to applying the 10/10 test to contracts that cover low frequency events is that those events have less than a 10%

chance of occurring, so they will fail the 10/10 test even though they clearly should be regarded as transferring significant risk. Mr. Cascio then proceeds to assume that when a contract fails the 10/10 test, it fails the FAS 113 standard. That is not correct.

The FAS 113 accounting standard states generally that recognition of a contract as a reinsurance contract requires that the reinsurer assume significant insurance risk and that it be reasonably possible for the reinsurer to realize a significant loss. FAS 113 does not specify a formula for how to determine whether there is a reasonable possibility of a significant loss. The 10/10 test is one commonly used measure, but it is not definitive and far from universally applied. In some cases, the 10/10 test can be overly stringent. In particular, the true low frequency excess-of-loss contracts that Mr. Cascio refers to (which are presumably catastrophe excess-of-loss property coverage for earthquakes in California, a major terrorist event, a major hurricane, etc.) are widely regarded as meeting the FAS 113 standard (*i.e.*, that the reinsurer assumes significant insurance risk and that it is reasonably possible for the reinsurer to realize a significant loss from the transaction) even though they fail the 10/10 test. When a coverage provider assumes the risk of losing an extreme amount of its capital (for example, a maximum loss ratio of 1000% that is typical of true catastrophe reinsurers), the arrangement will usually pass risk transfer even though the likelihood of such a loss occurring is less than 10%. This does not mean that FAS 113 does not apply to such an arrangement; it only means that the 10/10 test is not the proper formulation for such an arrangement.

Mr. Cascio attempts to group Atrium with catastrophe coverage providers, apparently contending that the 10/10 test is likewise too stringent a measure of risk transfer for the Atrium arrangements because the probability of a catastrophic event (a real estate crisis) occurring was low in any given calendar year. As stated above, FAS 113 applies to catastrophe coverage

providers, and they satisfy risk transfer under FAS 113 because they assume the risk of incurring a massive loss of capital if a catastrophic event occurs, even if the probability of such an event is low. However, Atrium did not provide true catastrophe coverage due in large part to the low 14% detachment point that protected Atrium from significant catastrophic claims, and its low capital contributions that prevented any significant economic loss. As a result, the low likelihood of a loss to Atrium was not counterbalanced by an extreme magnitude of potential loss. Atrium therefore fails the test of risk transfer under FAS 113. In short, while Mr. Cascio is correct that the *mortgage insurance industry* is characterized by infrequent but high loss events, that does not mean that *Atrium* itself actually assumed the risk of such high losses.

Mr. Cascio also ignores the fact that, in some cases, the 10/10 test can be overly generous. For example, as I explained in my initial report and above, the level of loss that can be considered "significant" should take into account the expected underwriting profit margin of the reinsurer. A reinsurer that is expected to make an extremely high underwriting profit (such as Atrium) would normally be expected to be exposed to a very large potential loss of capital well in excess of 10% of premiums. Crawshaw Rpt. at 68. It would not be rational for a primary insurer to enter into an arrangement with a reinsurer that was expected to result in a substantial loss to the primary insurer (a corollary to the substantial expected underwriting gain to the reinsurer) if the potential upside to the primary insurer was only a 10% chance of a 10% gain. Even though they technically pass the 10/10 test, these types of arrangements may actually transfer insignificant risk because the distribution of potential outcomes is such that the vast majority of potential outcomes results in a large profit to the reinsurer. In other words, the 10/10 test is satisfied only by a "thin tail" in the probability distribution.

Finally, although Mr. Cascio promises that he "will demonstrate that PHH can be held to this higher standard" and states that he "will apply the 113 standard," Cascio Rpt. at 10-11 (¶¶ 16, 17), he never actually applies the FAS 113 standard. He acknowledges that the focus of FAS 113 is "economic loss" to the reinsurer, *id.* at 10 (¶ 16), but I see nothing in his report that in any way evaluates the likelihood or magnitude of potential economic loss to Atrium. Rather, he simply refers, without analysis or explanation, to Milliman's conclusion that the Atrium arrangements passed the 10/10 test. *Id.* at 11 (¶ 18). As I've explained in my initial report and in this rebuttal report, Milliman's methodology for analyzing risk transfer under FAS 113 was seriously flawed, and as a result, its conclusion was incorrect.

E. Atrium's Captive Arrangements Do Not Qualify for the Exception of Paragraph 67 of FAS 113.

Mr. Cascio states that the Atrium arrangements may have met the conditions of reinsurance accounting under an "alternative method" provided in paragraph 67 of Financial Accounting Standard No. 113 (FAS 113). According to Mr. Cascio, under paragraph 67, a reinsurer "'need not be exposed to the reasonable possibility of significant loss for a contract to meet the conditions for reinsurance accounting' if the reinsurer's exposure to loss is essentially the same as the insurer's." Cascio Rpt. at 11 (¶ 19).

The Atrium arrangements do not fall within the exception of paragraph 67. The full paragraph states:

> *Under very limited circumstances*, the reinsurer need not be exposed to the reasonable possibility of significant loss for a contract to meet the conditions for reinsurance accounting. For example, applying the "reasonable possibility of significant loss" condition is problematic when the *underlying insurance contracts themselves do not result in the reasonable possibility of significant loss to the ceding enterprise*. The Board concluded that, when the

> *reinsurer has assumed substantially all of the insurance risk* in the reinsured portions of the underlying policies, even if that risk does not result in the reasonable possibility of significant loss, the transaction meets the conditions for reinsurance accounting. In this narrow circumstance, the reinsurer's economic position is virtually equivalent to having written the insurance contract directly. *The risks retained by the ceding enterprise are insignificant*, so that the reinsurer's exposure to loss is essentially the same as the insurer's.

This provision exempts from the usual FAS 113 test a very narrow category of reinsurance contract – namely a contract that applies to a portfolio of insurance policies that does not result in significant risk transfer to the ceding company in the first instance.[92] The provision applies only so long as the reinsurance company assumes virtually all of the insurance risk in the reinsured portion of the underlying policies that make up the portfolio. The intent of the provision was to allow reinsurance accounting in the instance when the reinsurer has taken all or virtually all of the exposure away from the original insurer, and thus is acting like the original insurer.

The Atrium arrangements clearly do not qualify for this limited exception because: (1) it is not possible to characterize the underlying insurance policies (*i.e.*, the MI's agreements to provide primary mortgage insurance) as not resulting in significant risk to the MIs; (2) Atrium did not assume substantially all of the insurance risk; and (3) the MIs retained significant risk.[93]

As to the first condition, the underlying mortgage insurance contracts obviously transferred significant risk to the MIs. In fact, I do not see how it is logically possible for Mr.

[92] This lack of risk could occur either because the individual policies within the portfolio do not have significant risk or because the pooling of risk results in a portfolio with insignificant risk.

[93] Thus, the condition that Mr. Cascio states is sufficient to qualify for the paragraph 67 exception – the "reinsurer's exposure to loss is essentially the same as the insurer's" – only applies if there is insignificant risk to both the reinsurer and the insurer.

Cascio to conclude that significant risk from the underlying contracts was transferred from the MIs to Atrium, while at the same time concluding that the MIs were not at significant risk to begin with (which he would have to conclude if he believes paragraph 67 applies).

As to the second and third conditions, there is no reasonable basis to conclude that Atrium assumed substantially *all* of the insurance risk and that the MIs were virtually risk-free as a result of the arrangements. Atrium agreed to provide coverage for a narrow band with a high attachment point and a low detachment point. For this exception to qualify, Atrium would have had to cover most or all of the primary layer (0-4%) and the layer above the 14% detachment point.

Even though paragraph 67 obviously does not apply, Mr. Cascio attempts to support his opinion that Atrium's "exposure to loss is essentially the same as the insurer's" by asserting that the Atrium had a greater chance of being in a "net loss position" than the MIs. Cascio Rpt. at 11 (¶ 19). Specifically, he states that Milliman projected that UGI would be in a "net loss position" for only two book years despite the real estate crisis, whereas Atrium was "in a net loss position for the majority of the book years, i.e., in a worse position than the ceding companies." *Id.* He clarified at his deposition that these assertions are the same as his opinion that Atrium's loss ratio could theoretically be higher than the MIs: "My point there is, as long as – as long as losses stay below from ground up the 25 percent level, as long as they're less than that, the *loss ratio of the insurer will be less than the loss ratio of the reinsurer*." Cascio Dep. Tr. at 288:20-289:3 (Ex. 16) (emphasis added). I have already explained why the possibility that the MI's loss ratio will be less than Atrium's loss ratio does not establish risk transfer.

In any case, Mr. Cascio assertion that Atrium was "in a worse position" than the MIs because it was "in a net loss position for the majority of the book years" is just not true. I am not

sure what specific Milliman projections Mr. Cascio is referring to (he did not cite any), but I find it difficult to believe that any projection would support his assertion.

At his deposition, he stated that a "net loss position" occurs when the insurer or reinsurer is no longer "in profit" on a book year. Cascio Dep. Tr. at 287:2-23 (Ex. 16). I believe his reference to "net loss position" means a loss ratio on a single book year exceeding 100% (which would occur when claims exceed premiums for that book year). But Milliman's analysis from March 2013 shows that Milliman projected that Atrium would have single book year loss ratio exceeding 100% in only *four* out of the sixteen book years under the arrangement (2005 – 2008).[94] That is not a majority.[95]

Although Milliman projected that UGI's claims would exceed its retained premiums in two book years[96], one cannot rationally conclude that the arrangement put Atrium in a "worse position" than the MIs just because Atrium was projected at this point to have a single-book year loss ratio exceeding 100% for more book years (four) than UGI (two). Narrowly focusing on those few book years (2005 through 2008) fails to consider the many other book years in which Atrium paid no claims, which collectively resulted in a tremendous profit to Atrium, at UGI's expense. In fact, in nine of those other book years (1994 through 2002), Atrium was projected to incur no claims at all (the attachment point was not pierced), which means *all* of the premiums for those book years would be pure profit to Atrium. The total premiums ceded to Atrium for book years 1994 to 2002, all without any claims paid by Atrium, was projected by Atrium to be a

[94] Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 5 (Ex. 10, ECX 0839).
[95] For the Genworth arrangement, Milliman projected that Atrium would have a loss ratio exceeding 100% for five of the ten book years. See Milliman Report titled "Atrium Reinsurance Corporation Reinsurance Performance Metrics – 1st Quarter 2012" (Ex. 19, ECX 0656, CFPB-PHH-01236493, at CFPB-PHH-01236499).
[96] *Id.* at 5, 12 (Ex. 10, ECX 0839).

staggering $182,532,000.[97] To put this amount in perspective, Atrium's total projected loss on the four book years in which Milliman projected that Atrium would have a loss ratio greater than 100% (book years 2005 through 2008) was $129,387,000 and the premium for those years was $79,377,000.[98] In other words, the claims under book years 2005 through 2008 exceeded the premium from those book years by about $50 million. These were the book years most exposed to the real estate crisis. The pricing of the arrangement (that is, the 40% ceding percentage) was so favorable to Atrium and so out of proportion to the risk band that Atrium purported to reinsure that even if the deal had been restructured in 2002 so that Atrium *stopped* receiving premiums under any book year after 2002 but would be liable for claims on those future book years (as well as past book years), it would still have made a profit.

Additionally, I note that Mr. Cascio's loss ratio analysis relies on historical results. Even though he insists in his report that "'[r]isk transfer' is determined at the inception of the contract" and "is not performed with the benefit of hindsight and actual loss experience," Cascio Rpt. at 13, he acknowledged at this deposition that his loss ratio-based risk transfer analyses were "absolutely" retrospective.[99] Cascio Dep. Tr. at 285:19-20 (Ex. 16). While I do not believe that a loss ratio comparison is relevant to risk transfer, if Mr. Cascio believes historical loss ratios must be considered, then he should also consider the fact that UGI's loss ratio was higher than

[97] *Id.* at 5 (Ex. 10, ECX 0839). The $182,532,000 figure is the sum of $157,931,000 and $24,601,000, which appear under the column labeled "Projected Ultimate Written Premium" as of March 31, 2013. According to footnote 1 of this table, the $157,931,000 premium figure for 2001 also "includes reinsurer written premium for book years 1994 – 2000."

[98] *Id.* at 5 (Ex.10, ECX 0839). The $129,387,000 figure is the sum of $46,303,000, $21,905,000, $37,367,000 and $23,812,000, which appear under the column labeled "Projected Ultimate Paid Losses" as of March 31, 2013. The $79,377,000 figure is the sum of $27,446,000, $13,401,000, $24,335,000 and $14,195,000, which appear under the column labeled "Projected Ultimate Written Premium" as of March 31, 2013.

[99] The projections incorporated historical results to date as well as future results for each book year.

Atrium's in ten of the sixteen book years.[100] Finally, he must consider the ultimate historical result of the arrangement: UGI lost a total of $128,405,015, and Atrium made a 42% return. Crawshaw Rpt. Attachment 2.[101]

IV. MILLIMAN DID NOT PROPERLY ANALYZE RISK TRANSFER.

Mr. Cascio states that, although he has "not performed any independent analysis of Milliman's calculations," he believes that "Milliman properly applied FASB 113 in reaching its conclusion of a reasonable probability of loss to the reinsurer." Cascio Rpt. at 11 (¶ 18).

It is not clear to me why Mr. Cascio has cited Milliman's conclusions. He does not state that he relied on Milliman's analysis to support his own opinions. He refers to Milliman's conclusions, but he does not discuss Milliman's methodology. It appears to me that his purpose for referencing Milliman is to suggest that Atrium's arrangements must have resulted in risk transfer because an actuary reached that conclusion, and that by supporting Milliman, he supports Atrium's reliance on Milliman.

While I believe it is generally appropriate for companies to hire outside actuaries and rely in part on their work, in my experience, the client's management takes ownership of the actuary's analysis and conclusions, including monitoring the work and taking appropriate steps to ensure that the analysis is sound, the key assumptions including contract interpretations and source data are accurate and the results are reasonable. It is typical, for example, to have in-house actuaries rigorously vet the outside actuary's analysis, and to have in-house legal,

[100] Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," pp. 5, 12, 24 (Ex. 10, ECX 0839); Cascio Dep. Tr. at 289:13-25 (Ex. 16).

[101] UGI ceded a total of $304,729,028 in premiums (net of ceding commission), but Atrium returned only $176,324,013 (including claim payments and the commutation payment).

financial, marketing, underwriting and accounting specialists review the actuary's interpretation of underlying data, accounting conventions, business intent and contract interpretations. It is also common practice in my experience for actuaries to first provide their reports in draft form so that the client can perform such a review and the report can be revised as necessary before it is finalized. The American Academy of Actuaries has explained: "Management may obtain expert advice from third parties" as support in satisfying the requirements of the Reinsurance Attestation regarding risk transfer, but "management must select the appropriate parties to advise them" and "must take ownership of the results of the analysis."[102] The American Academy of Actuaries has cautioned: "These responsibilities cannot be delegated to an outside entity."[103]

In any case, with regard to the substance of the Milliman reports, I have already expressed in my initial report the multiple grounds for my disagreement with Milliman's analysis. Nothing in Mr. Cascio's report has caused me to change my opinions about Milliman's analysis. Rather, Mr. Cascio's opinions reinforce my belief that Milliman's analysis was flawed because their respective methodologies suffer from many of the same severe limitations.

For example, Mr. Cascio and Milliman both rely exclusively on loss ratios to conclude that there was risk transfer[104], but their methodologies are flawed because, among other reasons:

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[102] "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Nov. 2005, p. 23 (Ex. 20, ECX 0632).

[103] *Id.* (Ex. 20, ECX 0632).

[104] Although they both rely on loss ratios, there are significant differences between their respective methodologies, which Mr. Cascio does not address. Mr. Cascio's risk transfer analysis compares hypothetical single-book year loss ratios for Atrium and the MI, whereas Milliman's risk transfer analysis focuses on a single-book year loss ratio for Atrium. Under Mr. Cascio's analysis, the fact that Atrium's loss ratio could be higher than the MI's loss ratio for a given book year is enough to establish risk transfer, without the need to assess the probability that Atrium's loss ratio for that book year will exceed any particular threshold. Milliman's risk transfer analysis requires a 110% Atrium loss ratio for the book year under analysis, without any comparison to the MI's loss ratio.

(1) they do not assess whether Atrium has a reasonable probability of losing any significant amount of capital; (2) they are based entirely on single book year loss ratios; and (3) their analyses do not account for the risk-reducing impact of the very high 40% premium ceding percentage.

This is directly inconsistent with the methodology that Milliman used in an October 22, 2012 report it prepared for UGI, which is available on Milliman's website.[105] In that report, which was authored by Michael Schmitz and Kenneth Bjurstrom (the same individuals who prepared the Milliman reports at issue in this case), Milliman projected UGI's required capital contributions under both single-book year and multiple-book year scenarios. Milliman explained that it was "*retained to simulate a probability distribution of the amount of capital required above cumulative earned premium to cover future obligations* for a mortgage insurer that insures only Qualified Mortgages."[106] Milliman defined "contributed capital" as the "*amount of capital contributed in excess of premium* to meet future obligations with consideration for the timing of cash flows."[107] This shows that Milliman and UGI each understand that a risk transfer analysis should assess the probability that the insuring company will have to pay claims using its own capital.

In addition to performing a single-book year analysis to project UGI's required capital contributions, Milliman performed a multiple-book year analysis because the "*single-book analysis does not take into consideration the operating aspects of a mortgage insurance*

[105] Milliman Client Report, "United Guaranty Corporation, Basel III Risk-Weighted Assets Comment Letter: Mortgage Insurance Analysis as of March 2012," Oct. 22, 2012, *available at* http://www.milliman.com/uploadedFiles/Solutions/Services/Resources/Mortgage/Report-Basel%20III%20Qualified%20Mortage%20-%20March%202012-FINAL.pdf (visited April 4, 2014) (Ex. 21).
[106] *Id.* at 3(Ex. 21).
[107] *Id.* (Ex. 21).

company such as the starting capital position of the company, investment income, expenses, taxes, or diversification."[108] Milliman further explained: "A mortgage insurance company obtains a diversification benefit through writing business across many book years. *These aspects are important because mortgage insurers accumulate capital from low ultimate default rate books that may be used to offset capital drain during high ultimate default rate books*."[109] Milliman thus performed a "multiple-book simulation model that takes these aspects into consideration" and which "projects the performance of 15 consecutive books of business over a period of 15 projection years."[110] Milliman explained that the multi-book year analysis reflects the fact that the "mortgage insurer receives *temporal diversification* across 15 books of business."[111]

Both Mr. Schmitz and Mr. Cascio have testified that they believe it is appropriate to analyze risk transfer under the Atrium arrangements by looking exclusively at the loss ratio for a single book year solely because the parties' contract does not require coverage of multiple book years. Mr. Schmitz testified that he believes it was appropriate to focus on a single book year because the parties' contracts allowed the MI or Atrium to either add a new book year or terminate the arrangement on a run-off basis.[112] Similarly, at his deposition, Mr. Cascio testified that, in his opinion, the only time it is appropriate to conduct a multiple-book year risk transfer analysis is when the parties' contract expressly requires coverage of multiple book years. Cascio Dep. Tr. at 260:16-261:7 (Ex. 16). In fact, he testified that, if a contract does not require

[108] *Id.* at 15 (Ex. 21). Milliman also stated that "[t]he single book year analysis was designed to measure how frequently capital was required in addition to premium to support paid losses *for an individual book of business without consideration of the operating aspects of a mortgage insurance company*." *Id.* (emphasis added).
[109] *Id.* (Ex. 21) (emphasis added).
[110] *Id.* at 3 (Ex. 21).
[111] *Id.* at 7 (Ex. 21) (emphasis added).
[112] Milliman IH Tr. at 192:3-193:15 (Ex. 22).

coverage of multiple book years but the parties almost certainly intend to proceed with coverage of multiple book years, he would still ignore the intention of the parties and conduct a single-book year analysis. He testified at his deposition:

> Q: If -- *suppose a contract did not require multiple book years but that the parties -- but that you knew that the parties were 95 percent likely to have their arrangement cover multiple book years*. In that situation, if you were one of the parties evaluating the actual likelihood of the reinsurer losing its capital, would you rely on a single-book-year loss ratio or would you rely on a multiple-book-year loss ratio?
>
> …
>
> A: I would look at it one year at a time.

Cascio Dep. Tr. at 303:1-22 (Ex. 16). He also testified that, under this hypothetical with a 95% probability of covering multiple book years, even if he could calculate a multiple-book year loss ratio, he would completely disregard that data in analyzing whether it makes sense for a party to enter into a potential arrangement. *Id.* at 303:23-19 (Ex. 16). I find this insistence on a single book year to be extraordinary for a number of reasons.

First, my understanding, which I have assumed for purposes of my analysis, is that the agreements at issue in this case do not compel a single-book year analysis. My understanding is that while the contracts do not require coverage of multiple book years, they also do not require coverage of only a single book year. Additionally, certain features of the arrangements expressed in the contracts make sense only if the arrangement covers multiple book years. For example, as I explained in my initial report, the agreements provided that Atrium would maintain a contingency reserve, as required by state insurance regulations, and the purpose of the statutory

contingency reserve is to smooth claims over ten-year periods, which implies that the arrangement should be long-term.[113] Crawshaw Rpt. at 27.

Second, I am unaware of any industry practice or principle that would support disregarding the intentions of the parties to have a multiple-book year arrangement just because the contract does not literally require coverage of multiple book years. In the 2012 analysis he performed for UGI, Mr. Schmitz recognized that, when quantifying the risk that the insuring company will lose its capital on an arrangement, it is "important" to consider the "operating aspects" of the company, including the fact that insuring multiple book years reduces risk through diversification and that "mortgage insurers accumulate capital from low ultimate default rate books that may be used to offset capital drain during high ultimate default rate books" – in other words, the insuring company does not necessarily incur a loss of capital under the arrangement as a whole just because claims exceed premiums under some specific book years.[114] These "operating aspects" reflect the practical reality of the arrangement, rather than looking solely at whether the parties' contract requires coverage of multiple book years. I agree with the logic of the statements in the 2012 report prepared by Mr. Schmitz. When I advise my clients as to whether to enter into a potential arrangement, while the contract is a critical document, it is

[113] This point was also made by Mr. Schmitz in his 1998 article on captive mortgage reinsurance, in which he explained that "the contingency reserve and capital requirements emphasize the long term commitment required to reinsure mortgage insurance risk." Michael C. Schmitz, "Investigating captive mortgage reinsurance," *Mortgage Banking*, Feb. 1, 1998 (Ex. 12, ECX 0635, CFPB-PHH-00611005, at CFPB-PHH-00611008).

[114] Milliman Client Report, "United Guaranty Corporation, Basel III Risk-Weighted Assets Comment Letter: Mortgage Insurance Analysis as of March 2012," Oct. 22, 2012 (Ex. 21) (emphasis added). As I explained in my initial report, focusing on a single book is a deeply flawed methodology that is inconsistent with the reality of the arrangement, which was structured to cover multiple book years, and in fact did so. Crawshaw Rpt. at 26-29. The fact that claims might exceed premiums under a single book year does not mean that Atrium has a reasonable probability of suffering any loss of its capital under the arrangement, because claims under any given book year could be paid using premiums from other book years. Crawshaw Rpt. at 62-67.

also necessary to consider the intentions and motivations of the parties. With regard to the hypothetical posed at Mr. Cascio's deposition, if I knew at the time I was conducting a risk transfer analysis that the parties were 95% likely to proceed with coverage of multiple book years, it would make no sense to assume that the arrangement would be a single-book year arrangement.

Such an assumption would be even more removed from reality if the parties' arrangement has *already* covered multiple book years, and there is no reason to believe that the parties will suddenly cease the relationship after the next book year. Yet this is the assumption that Milliman adopted in performing its risk transfer analyses for each book year. For example, Milliman's analysis of risk transfer under the 2005 book year of the captive arrangement between UGI and Atrium relied entirely on its projected loss ratio for that specific book year, even though the arrangement had been in place since 1995 and already covered eleven book years (book years 1994 through 2004).[115] Although it was not 100% certain that the arrangement would cover additional book years after the 2005 book year, in light of the parties' history, it clearly would have been more accurate to assume that it would, rather than assuming that the parties would terminate the arrangement after the 2005 book year.

Nonetheless, Mr. Cascio attempts to address his flawed single-book year approach to risk transfer by suggesting that his methodology is somehow conservative because "the 'cross collateralization' of the book years for purposes of the payment of losses actually *enhances risk transferred* in subsequent policy years …." Cascio Rpt. at 9 (¶ 13) (emphasis added). This

[115] Milliman Report on UGI-Atrium Program, Mar. 23, 2007 (Ex.18, ECX 0193, CFPB-PHH-00112614, at CFPB-PHH-00112628).

mirrors a statement in the Milliman reports that risk transfer would be greater if cross-collateralization were considered.[116]

It is true that a multi-book year arrangement *without* cross-collateralization across book years, in which premiums and capital contributions for each book year are segregated (for example, into separate trust accounts devoted to each book year), would transfer less risk to the reinsurer than a multi-book year arrangement *with* cross-collateralization across book years. If Atrium had taken the additional risk-avoidance step of segregating each book year into a separate trust account, and limited its liability under each book year to the assets in the corresponding trust account, the maximum amount of Atrium capital that the MI could recover for claims under any specific book year would be limited to the Atrium capital in the trust account for that specific book year. For example, if the claims exceeded premiums under the 2001 book year, and there was not sufficient Atrium capital in the trust account for the 2001 book year to pay the excess, the MI would not be able to recover Atrium capital residing in the trust account for another book year to make up the shortfall. Thus, cross-collateralization *by itself* increases risk transfer in a multiple-book year arrangement. Conversely, segregation of risk by book year would further reduce risk transfer.

However, Mr. Cascio fails to consider that cross-collateralization across multiple book years cannot even occur *unless there are multiple book years under the arrangement in the first place*, and, all else equal, the coverage of multiple book years significantly *reduces* risk transfer compared to an arrangement that covers only a single book year Thus, Mr. Cascio accounts for the risk-enhancing effect of cross-collateralization across book years, but he totally ignores the

[116] *See, e.g., id.* at CFPB-PHH-00112628 (Ex. 18, ECX 0193).

greater risk-reducing impact of covering multiple book years, which is a prerequisite to cross-collateralization across book years.

As I explained in my initial report, an arrangement that covers only a single book year will cover fewer loans, and a less diverse set of loans in a less diverse set of economic environments, than an arrangement that covers multiple book years; thus, the volatility of results is higher with fewer loans covered. Crawshaw Rpt. at 28. Mr. Schmitz of Milliman recognized the risk reducing effect of increasing the number of loans insured or reinsured in his 1998 article on captive arrangements: "As a lender's mortgage origination volume increases, the portfolio becomes more diverse and the *risk* of insuring (and reinsuring) the portfolio *decreases*."[117] And as discussed above, in its 2012 analysis performed for UGI, Milliman recognized the "diversification benefit through writing business across many book years."[118] Due to this diversification benefit, that analysis showed a substantially lower risk of loss of capital in the multi-book year scenarios compared to the single-book year scenarios.[119]

Similarly, all of the Milliman reports concerning the Atrium arrangements I reviewed included Milliman's calculation of a projected multi-book year loss ratio that was lower than the single-book year loss ratio it relied on to conclude there was risk transfer. For example, in its 2007 report for the UGI captive reinsurance program with Atrium, Milliman calculated a "For All Book Years" projected stress-scenario loss ratio of just 24%, compared to a projected stress-scenario loss ratio of 213% for the single book year under analysis.[120]

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[117] Michael C. Schmitz, "Investigating captive mortgage reinsurance," *Mortgage Banking*, Feb. 1, 1998 (Ex. 12, ECX 0635, CFPB-PHH-00611005, at CFPB-PHH-00611007) (emphasis added).
[118] Milliman Client Report, "United Guaranty Corporation, Basel III Risk-Weighted Assets Comment Letter: Mortgage Insurance Analysis as of March 2012," Oct. 22, 2012, p. 15 (Ex. 21).
[119] *Id.* at 6-7 (Ex. 21).
[120] Milliman Report on UGI-Atrium Program, Mar. 23, 2007 (Ex. 18, ECX 0193, CFPB-PHH-00112614, at CFPB-PHH-00112640).

To summarize, Table 8 below shows each of the following three structures in order from most risk transfer to least risk transfer:[121] (1) a single-book year arrangement; (2) a multiple-book year arrangement *with* cross-collateralization; and (3) a multiple-book year arrangement *without* cross-collateralization.

TABLE 8

	Structure of Arrangement
Most risk transfer ↕	Single book year
	Multiple book years *with cross-collateralization*
Least risk transfer	Multiple book years *without cross-collateralization* (*i.e.*, each book year is segregated into separate trust account)

All other things equal, a single-book year arrangement results in the most risk transfer because there is no diversification benefit. Although Mr. Cascio and Milliman shoehorn the Atrium arrangements into the first category (single-book year)[122], those arrangements clearly fall

[121] Here, risk transfer refers to the likelihood of the reinsurer suffering a significant loss of capital. In each of the scenarios, I have assumed the amounts of premium and the capital are constant.

[122] Milliman only partially accounted for cross-collateralization. Milliman stated that it "projected the performance for the previous book years due to the trust fund providing cross-collateralized security for both the previous and prospective book years" and that "the performance of previous book years affects the ability of the trust to meet reinsured obligations for the 2004 book year and thus affects risk transfer on the 2004 book year." *See, e.g.*, Milliman Report on UGI-Atrium Program, Mar. 23, 2007 (Ex. 18, ECX 0193, CFPB-PHH-00112614, at CFPB-PHH-00112627). Thus, Milliman accounted for cross-collateralization by assuming that the availability of premiums from other book years would reduce the chance of the trust running out of funds, thus increasing the claims paid for the single book year under analysis. This

in the middle category: arrangements covering multiple-book years with cross-collateralization. There is no question that Atrium's risk was reduced by covering multiple book years, even though it did not take the additional step to further reduce its risk by segregating those book years into separate accounts.

Finally, Milliman's 2012 analysis for UGI also highlights one additional major flaw in Mr. Cascio's risk transfer opinions, as well as the risk-transfer analyses that Milliman performed for Atrium and the MIs. In its 2012 analysis for UGI, the rate of premium accumulation was a major determinant of the probability and magnitude of capital loss. Milliman assumed two premium rates: 0.75% and 0.70% (presumably a percentage of original risk).[123] The higher rate of premium accumulation (0.75%) resulted in a lower probability and magnitude of capital loss, and vice versa.[124] This is a matter of simple logic. The "probability distribution of the amount of capital required above cumulative earned premium to cover future obligations" (Milliman's description of its analysis) will obviously show lower projected capital required *above* cumulative earned premium if the rate of premium accumulation is higher.

Milliman's 2012 analysis is consistent with my opinion, discussed in Section III.A, that the rate of premium accumulation must be considered when analyzing risk transfer. *See supra* 39-44. All else equal, a higher ceding percentage causes the premium buffer to grow at a faster rate, which reduces the probability and magnitude of any loss of capital because Atrium cannot lose capital unless claims exceed all premiums. As discussed above, *supra* 39-44, Mr. Cascio's

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resulted in a higher loss ratio for that book year. However, that analysis still focused on only one book year. It is not the same as performing a multiple-book year analysis which considers claims paid and ceded premiums for more than one book year.

[123] Milliman Client Report, "United Guaranty Corporation, Basel III Risk-Weighted Assets Comment Letter: Mortgage Insurance Analysis as of March 2012," Oct. 22, 2012, pp. 6-7 (Ex. 21).

[124] *Id.* (Ex. 21).

loss ratio analysis fails to account for the very high 40% premium ceding percentage and its impact on risk transfer.

V. MR. CASCIO'S ASSERTION THAT ATRIUM'S ABILITY TO TERMINATE OR COMMUTE ITS CAPTIVE ARRANGEMENTS HAD NO EFFECT ON RISK TRANSFER IS INCORRECT.

Mr. Cascio's believes that the "ability to commute an agreement has no effect on whether or not there is risk transferred in connection with the reinsurance agreement …." Cascio Rpt. at 12 (¶ 23). I do not agree. First, I refer to the following:

- In UGI's response to PHH's 2006 Request for Proposal, UGI explained: "*Commutation of books of business before they reach peak claim years can reduce risk transfer below required levels.*" It stated that the commutation provisions of its contract with Atrium "allows Atrium adequate flexibility to request commutations *as business conditions dictate*."[125]
- In a report prepared for the Radian arrangement, Milliman wrote: "Our analysis assumes Atrium's books of business terminate at their natural expiration … and does not take into account any possible commutation of insured books. It is possible that a commutation *could materially impact Milliman's opinions with regard to the transfer of risk and the compensation commensurate with risk.*"[126]

[125] "Proposal for Mortgage Insurance Partnership Prepared for PHH Mortgage by AIG United Guaranty," Oct. 18, 2006 (Ex. 68, ECX 0032, CFPB-PHH-00141748, at CFPB-PHH-00141763).
[126] Milliman Report on Radian-Atrium Program, March 23, 2007 (Ex. 69, ECX 0124, MILL-PHH-E000236, at MILL-PHH-E000259). That Milliman did not consider the impact of commutation in its risk transfer analyses is confirmed by UGI's statement in its 2006 submission to PHH that the "independent actuarial consulting firms that review captive agreements for risk

- A recent article on Milliman's website states: "Commutation agreements discharge future liability associated with an insurance policy or reinsurance agreement, thus eliminating the (re)insurer's future exposure … *commutations send the risk 'back to where it came from.*'"[127]

I agree with UGI and Milliman that commutation – and more generally, termination[128] – can significantly reduce risk transfer. This is so for the following reasons. First, as I have explained above, the coverage of multiple book years reduces the risk to the reinsurer by increasing the number of loans covered, thereby diversifying the loan portfolio. Atrium could take advantage of the risk-reducing impact of covering multiple book years by continuing to agree to cover additional book years as long as the real estate market appeared to be healthy. However, if a real estate crisis occurred, Atrium could reduce the number of book years that would be significantly impacted by the crisis by terminating or commuting the agreement, which would allow Atrium to refuse to cover any additional book years.[129] Upon such a termination, there would be some book years exposed to claims as a result of the crisis (the ones covered closest in time to the crisis), but the number of such book years would be fewer than otherwise

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transfer and pricing commensurate with the risk assume no commutations for the duration of the captive reinsurance contract - usually 10 years." *See* "Proposal for Mortgage Insurance Partnership Prepared for PHH Mortgage by AIG United Guaranty," Oct. 18, 2006 (Ex. 68, ECX 0032, CFPB-PHH-00141748, at CFPB-PHH-00141763).

[127] Christine Kogut, "Risk assumption vehicles: To take or to transfer," *available at* http://us.milliman.com/insight/2014/Risk-assumption-vehicles--To-take-or-to-transfer/ (visited April 20, 2014).

[128] A commutation is a type of termination. Termination simply refers to the ending of an insurance or reinsurance agreement. Commutation typically refers to a termination in which the parties discharge and settle their obligations by valuing expected future cash flows, such as premiums and claims, and providing for a payment based on that valuation.

[129] To the extent Atrium was able to refuse to agree to add new book years without terminating the arrangement, that would also be a risk-limiting mechanism for reasons similar to what I have outlined in this paragraph with respect to termination. However, a cut-off termination provided an additional benefit of allowing Atrium to lock in gains from previous book years.

would have been the case without a termination or commutation option. Thus, Atrium's ability to terminate or commute its arrangements tilted the playing field even more in its favor because it increased the likelihood that its arrangements would cover many more "good" years than "bad" years.

Consider the example of the Radian arrangement, which commenced on July 26, 2004, 2006 and was commuted on July 22, 2009 – in the midst of the financial crisis. By terminating the arrangement in 2009, Atrium was able to ensure that there would not be more than a few book years exposed to a potentially significant amount of claims as a result of the crisis. Had the arrangement instead required Atrium to cover ten book years, with no termination option, Atrium would have been required to provide reinsurance coverage through book year 2013, and it is likely that there would have been some additional book years exposed to claims from the financial crisis.

In contrast, when the real estate market was healthy, Atrium could continue to add book year after book year to its arrangements to maximize the risk-reducing effect of covering multiple book years – as was the case with the UGI and Genworth arrangements. Even though coverage of each book year lasted for ten calendar years, so there was no guarantee that any single book year among the many would not ultimately be impacted a crisis, the point of covering so many book years during a strong economy was precisely to buffer Atrium should a crisis – or merely a downturn – occur, because a crisis or downturn would be unlikely to have an equally severe impact on *every* book year covered, or may not have any impact at all on some book years. As Milliman explained in its 2012 report for UGI (a report unrelated to the Atrium

arrangements), its multi-book year analysis of required capital contributions reflected the fact that the "mortgage insurer receives temporal diversification across 15 books of business."[130]

For example, with respect to the UGI arrangement, the real estate crisis of 2007, as severe as it was, resulted in only four book years having a single-book year loss ratio for Atrium that exceeded 100%.[131] Book years 1994 through 2002 had loss ratios of 0% (that is, Atrium paid no claims under those book years), and book year 2003 had a single-book year loss ratio of only 1.2%. Notably, Atrium incurred no claims, or minimal claims, under some book years whose 10-year coverage period had not expired when the financial crisis occurred (book years 2000-2002).

To be sure, the MIs also had a right to terminate or commute their arrangements with Atrium, as Mr. Cascio emphasizes. Cascio Rpt. at 13 (¶ 24). It is surprising to me, however, that all of the MIs agreed to a termination of their arrangements only after the real estate crisis occurred in 2008, when the value of real reinsurance should have been most evident, rather than at some earlier time. Nonetheless, Mr. Cascio asserts, without citing evidence, that the "likely motivator for UGI and Genworth to commute" was "the need of one party to improve its cash position" as "the Atrium Trust would have had a reasonable level of cash." *Id.* But if Atrium's captive arrangements were genuine reinsurance arrangements, claim payments by Atrium should have provided far more cash flow to UGI and Genworth than the commutation payments they received, which were just a fraction of the total premiums they had ceded. UGI received a commutation payment of only $69,169,499 (compared to $304,729,028 of total ceded premiums) and Genworth received a commutation payment of only $24,100,000 (compared to $121,882,937 of total ceded premiums. *See* Crawshaw Rpt. (Tables 1 & 2). Those amounts are very small

[130] Milliman Client Report, "United Guaranty Corporation, Basel III Risk-Weighted Assets Comment Letter: Mortgage Insurance Analysis as of March 2012," Oct. 22, 2012, p. 7 (Ex. 21).
[131] Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 5 (Ex. 10, ECX 0839).

compared to the claim payments they would have received from a genuine reinsurance provider after a real estate crisis. Those claim payments should have been multiples of ceded premiums, and should have included a very sizable amount of Atrium's contributed capital, particularly given Atrium's large underwriting profit margin. I refer back to the examples of true catastrophe coverage in Section II, in which the coverage providers suffer loss ratios that approach or exceed 1000%.

Second, Atrium's ability to reduce risk transfer through a termination or commutation of its arrangements was particularly significant and unique because it was *combined with very low initial capital contributions*. Although terminations and commutations are common in the insurance industry, the risk-reducing effect of a termination or commutation may be less significant if the reinsurer or insurer has substantial amounts of capital *already* contributed and committed to the arrangement. Moreover, with many other types of property and casualty insurance arrangements, the adverse events that will require the coverage provider to use its own capital usually begin and end quickly, and occur without notice – for example, an earthquake, a terrorist event, or a hurricane. When an adverse event strikes, claims must be paid using the large amount of capital that has already been committed to the arrangement, and those obligations cannot be avoided simply by terminating or commutating the arrangement.

As I discussed in my initial report, Atrium's initial capital contributions were very low, particularly for the UGI and Radian arrangements. Crawshaw Rpt. at 16-17. For example, Atrium's total contributed capital in the UGI Trust Account from January 1, 1997 to May of 2000 was just $460,000 of capital, in comparison to more than $8 million of total premiums that UGI ceded by 1998 and more than $26 million of total premiums that UGI ceded by 2000. *Id.* Similarly, Atrium contributed just $16,120 of capital to the Radian Trust Account from the

inception of the program in 2004 to the first quarter of 2008, even though Radian's total ceded premiums exceeded $1.3 million by the end of 2006. *Id.* During the real estate crisis, when significant claims appeared more likely, Atrium could avoid having to place any additional capital at risk in the Trust Accounts. Moreover, while the real estate crisis of 2007 occurred suddenly, its full impact was not evident on the first day or even the first week that real estate prices began to fall. In considering whether to contribute additional capital to the Radian Trust Account, PHH had some time to make its decision as the crisis unfolded, and it could use that time to more accurately evaluate the severity of the crisis and the risk that any additional capital contributed to the Trust Account would actually be called upon. Thus, in an email written on February 18, 2009, shortly before Atrium decided to commute the Radian program but well after real estate market's decline began, Mark Danahy (PHH's President and CEO) wrote: "*At this point, I do not want to put additional capital at risk with this trust* …. If we choose not to fund additional capital Radian can take back the trust and re-assume the risk."[132]

Third, the risk-reducing effect of the termination option was amplified by Atrium's ability to use the knowledge it obtained from the historical experience of prior book years to more accurately estimate the ultimate profitability of those book years (and thus, the arrangement as a whole) before deciding whether to cover an additional book year or to contribute additional capital to the Trust Account. For example, in early 2000, before deciding whether to contribute additional capital into the UGI Trust Account beyond the $460,000 initial contribution, Atrium had already gained substantial information about the performance of prior book years (particularly the first few book years) that it could use to more accurately estimate the ultimate profitability of those book years. This information included the type and amount of loans

[132] Email from Danahy (PHH) to Bogansky (PHH), Feb. 15, 2009 (Ex. 70, ECX 0254)

involved, the rate at which policies were being dropped, the amount of claims to date (which would indicate the remaining distance to the attachment point) and other factors that could refine a projection of final book year outcomes. If, based on the experience to date, Atrium determined that it was sufficiently likely that the prior book years would turn out to be favorable, with premiums ultimately exceeding claims and thereby providing a buffer against the loss of capital, a decision to cover an additional book year or contribute additional capital could be made with far more certainty that Atrium would not suffer an economic loss than if Atrium had been confronted with the decision without any such prior experience (for example, if the decision were being made for the first book year under the arrangement or the first capital contribution to the Trust Account).

Mr. Cascio, however, ignores these practical realities in asserting that Atrium had no ability to forecast the ultimate profitability of past book years before committing to cover additional book years. He states that it is "worth noting and emphasizing that the profitability of a particular underwriting is not immediately known" because there "exists a significant time lag, or 'tail' in insurance vernacular, in which it takes losses to manifest themselves in the way of paid claims." Cascio Rpt.at 3 (¶ 4B). Thus, according to Mr. Cascio, "the insurer (and reinsurer) will not know at the time of renewal (1/1/2005) if the prior underwriting year (or more) was (were) profitable and may be committed to cover losses on successive years before remedial action can be taken." *Id.*

Although he fails to consider the knowledge that Atrium could gain from the experience of prior book years, Mr. Cascio is correct that there is a significant time lag between the date that any given book year is covered and the date that claims, if any, are paid by Atrium for that book year. As I discussed in my initial report, this lag is the result of the high attachment point and the

fact that claims under any specific book year need time to accumulate to reach the attachment point, let alone exceed it by a significant amount. Crawshaw Rpt. at 18-21. As a result, it was extremely unlikely that Atrium would have to pay any claims in the first three years of coverage for each book year, and perhaps longer. And because no single book year was more than three years old during the first three calendar years of an arrangement, it was also very unlikely that Atrium would pay any claims in those first three calendar years. This time lag is significant to risk transfer because, when combined with the low initial capital contributions, it afforded Atrium a minimal-cost "tryout period" lasting at least three years before it had to decide whether to continue with the arrangement or terminate it. During that try-out period, Atrium could gain knowledge about the performance of the first few book years before it had to make such a decision. The ante required to play this game – the low initial capital contribution – was very low in comparison to the enormous potential payoff to Atrium.

PHH has suggested that what I have called a "tryout period" is shorter than what I have described because claims are incurred before they are paid. While it is true that claims are incurred before they are paid, the difference is not significant to my analysis. This can be seen by examining when claims were incurred by Atrium for book years 2004 through 2006 under the UGI arrangement. Because the housing market declined precipitously starting in early 2007[133], those book years were among the most exposed to the real estate crisis, as coverage commenced when the market was at or near its peak. As explained below, Atrium did not incur claims on those book years until the third to fifth year of coverage, even though the first few years of coverage coincided with the most stressed housing market in recent history.

[133] *See, e.g.*, Federal Reserve Bank of St. Louis website, *available at* https://research.stlouisfed.org/fred2/graph/?s%5B1%5D%5Bid%5D=USSTHPI (visited April 20, 2014) (Ex. 75).

- For the 2004 book year under the UGI arrangement, claims incurred by Atrium as of December 31, 2008 were only $390,177, less than 1% of Atrium's risk band for that book year ($84,487,700).[134] Thus, by the end of the fifth year of coverage for the 2004 book year and approximately two years into the housing market decline, Atrium's incurred claims barely exceeded the attachment point.
- For the 2005 book year under the UGI arrangement, Atrium still had no claims incurred as of March 31, 2008. [135] Thus, well into the fourth year of coverage for the 2005 book year and during the second year of the housing market decline, incurred claims had not pierced the attachment point. Even as late as December 31, 2008, in the fourth year of coverage, Atrium's incurred claims for the 2005 book year were only $13,876,971, less than one-third of Atrium's risk band for that book year ($46,303,000).[136]
- For the 2006 book year under the UGI arrangement, Atrium had incurred claims of $2,548,690 for that book year as of March 31, 2008, only 11% of its risk band ($21,905,300).[137] Even as late as December 31, 2008, the end of the third year of coverage for that book year, Atrium's incurred claims were $13,946,207, only 64% of its risk band.[138]

[134] UGI cession statement, Dec. 31, 2008, "Risk" worksheet, cell M39 (Ex. 74, ECX 0801).
[135] UGI cession statement, Mar. 31, 2008, "Risk" worksheet, cell M41 (Ex. 73, RX 0862).
[136] UGI cession statement, Dec. 31, 2008, "Risk" worksheet, cell M41 (Ex. 74, ECX 0801).
[137] UGI cession statement, Mar. 31, 2008, "Risk" worksheet, cell M43 (Ex. 73, RX 0862).
[138] UGI cession statement, Dec. 31, 2008, "Risk" worksheet, cell M43 (Ex. 74, ECX 0801).

VI. THE REGULATION OF ATRIUM'S CAPTIVE ARRANGEMENTS BY STATE INSURANCE DEPARTMENTS DOES NOT MEAN SIGNFICANT RISK WAS TRANSFERRED.

Mr. Cascio asserts that state insurance regulators exercised "significant control" and "oversight" over Atrium's captive arrangements. Cascio Rpt. at 6 (¶ 6).[139] He refers to regulation by the New York State Department of Insurance (Atrium Insurance's state regulator), the Vermont Department of Insurance (Atrium Reinsurance's state regulator), and the North Carolina Commissioner of Insurance (UGI's and Genworth's state regulator) with respect to various aspects of those arrangements.[140] He assumes that their purported control and oversight over Atrium's captive arrangements means those arrangements must have resulted in risk transfer. For example, at his deposition, he stated that it would "surprise" him that a state regulator "would allow a reinsurance agreement that did not pass risk transfer."[141]

The mere fact that a captive arrangement is subject to regulation by a state and has not been found to be in violation of any state insurance regulation does not establish that the arrangement resulted in risk transfer or is otherwise valuable to the ceding company (or that it is

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[139] In his report, Mr. Cascio wrote that a provision of the Atrium captive agreements that required the consent and approval of the Commissioner of Insurance of North Carolina "reflects the significant control exercised by both the ceding company and the reinsurer, as well as oversight that is exercised by the North Carolina Commissioner of Insurance with respect to the UGI agreement." Cascio Rpt. at 6 (¶ 6). At his deposition, he testified that he intended to write that the provision reflects the "significant control exercised *over* both the ceding company and the reinsurer" by Commissioner of Insurance of North Carolina. Cascio Dep. Tr. at 209:16-210:10 (Ex. 16) (emphasis added).

[140] For example, in addition to the reference to the Commissioner of Insurance of North Carolina described in footnote 109, Mr. Cascio states that he saw "no evidence that any dividends were not permitted by Atrium's regulator, the New York Department of Insurance, or Atrium Reinsurance Corporation's ('Atrium Re') regulator, the Vermont Department of Insurance." Cascio Rpt. at 15 (¶ 29.D). In addition, he cites among the documents he relied on various documents that reflect state regulation of Atrium, including Atrium's Vermont Captive Business Plan. Cascio Rpt. Attachment B.

[141] Cascio Dep. Tr. at 210:3-10 (Ex. 16).

worth the price paid). For example, most captive mortgage reinsurance companies were domiciled in Vermont, and thus regulated by the Vermont Department of Insurance. As noted in a report on "Risk Transfer in Mortgage Reinsurance Captive Arrangements" prepared by an Emerging Issues Task Force (EITF) of the American Institute of Certified Public Accountants: "Most of the major US mortgage lenders with reinsurance captives have domiciled the captive in the State of Vermont."[142] This report further explains that "[c]aptives domiciled in Vermont maintain $250,000 in shareholder capital by regulatory mandate."[143] Vermont's low minimum capitalization requirement raised concerns among insurance regulators in other states as early as 1997. In a November 24, 1997 letter to the Commissioner of the South Dakota Department of Insurance, the Commissioners of the Wisconsin and North Carolina Departments of Insurance expressed support for imposing more stringent requirements on captive mortgage reinsurance. One of the concerns they cited was the low capitalization requirements for captives in some states. They noted: "*Captive reinsurers can be incorporated with as little as $250,000,* as opposed to a minimum of $2 million for primary insurers. The more liberal the terms, the *less likely there will be sufficient capital to meet the reinsurance obligations in a period of stress* …."[144] I do not believe it is a coincidence that most captive mortgage reinsurance companies chose to domicile in Vermont.[145]

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[142] "Proposed EITF Issue" on "Risk Transfer in Mortgage Reinsurance Captive Arrangements," p. 3 (Ex. 23, RX 0809). This report was attached as Exhibit 2 to PHH's Notice and Opportunity to Respond submission.

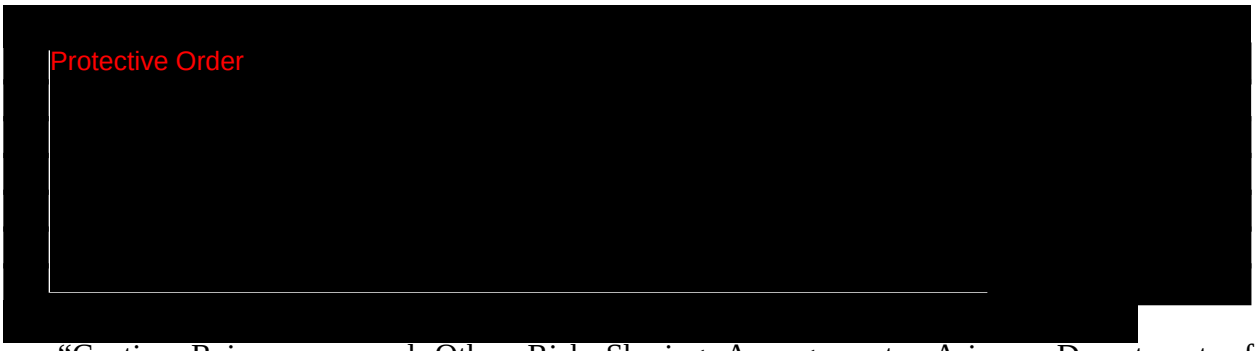
[143] *Id.* (Ex. 23, RX 0809)

[144] Letter from Long and Musser to Lyon, Nov. 24, 1997 (Ex. 24, ECX 0583, at UG001680). The Commissioners of the Wisconsin and North Carolina Departments of Insurance also advocated imposing a limit on ceding to 25% of gross premiums. *Id.* at UG001679 (Ex. 24, ECX 0583) (emphasis added).

[redacted] Protective Order

[redacted]

In the 1998 presentation by the Mortgage Insurance Association of America to the Arizona Department of Insurance, the MIs similarly advocated for more stringent requirements on captive mortgage reinsurance companies. One of the concerns they expressed related to "Capital Adequacy."[146] They requested that the Arizona Department of Insurance adopt a regulation prohibiting MIs licensed in Arizona from entering into any captive arrangement unless the captive's risk-to-capital ratio and reserves, including its contingency reserves, met *each* of the following conditions: (1) "satisfy the laws of its state of domicile"; (2) "not be less than what is required by the NAIC Model Mortgage Guaranty Insurance Act; (3) "be segregated and dedicated solely to the reinsurance obligations of the captive"; (4) "consist of cash, cash equivalents or marketable, nonaffiliated, investment-grade securities"; and (5) "be adequate to pay projected claims."[147] Thus, in 1998, the MIs did not believe their concerns could be resolved merely by "satisfy[ing] the laws of [the captive's] state of domicile," as that was just one of several requirements they sought. Satisfying the laws of the state of the captive's domicile would not, for example, necessarily mean that the captive's capital was actually "adequate to pay projected claims." Otherwise, it would have been unnecessary for the MIs to request the latter as a separate requirement.



"Captive Reinsurance and Other Risk Sharing Arrangements, Arizona Department of Insurance, Jan. 22, 1998 (Ex. 25, ECX 0035, MGIC-CFPB00190633, at MGIC-CFPB00190649-650) (emphasis added).

[147] *Id.* at MGIC-CFPB00190650 (Ex. 25, ECX 0035).

In their presentation, the MIs also requested that the Arizona Department of Insurance adopt the following requirements for MIs licensed in Arizona who participate in captive mortgage reinsurance arrangements: (1) "There must be a legitimate transfer of risk of loss from the primary insurer to the captive"; (2) "Reinsurance premiums must be commensurate with the risk transferred, and not materially greater than the cost of comparable coverage with an unrelated reinsurer"; and (3) "The requirements of FASB 113 must be satisfied."[148] It would not have made sense for the MIs to request these requirements if the existing state insurance regulations (either of the state of domicile of the MIs or that of the reinsurer) were already sufficient to establish risk transfer and that the price was commensurate with any such risk.

Even Mr. Schmitz, in his 1998 article on captive mortgage reinsurance, recognized that capital contributions that merely meet the minimum capital requirements of a particular state are not necessarily sufficient. He wrote: "While minimum capital levels vary by state of domicile, statutory minimum capitalization for a Vermont captive is $250,000. However, lenders must be willing to contribute additional capital to provide a cushion for adverse years when losses exceed premiums."[149]

Although the MIs' participation in captive arrangements increased over the next decade, I am unaware of any event or development that mooted the concerns expressed by the Commissioners of the Wisconsin and North Carolina Departments of Insurance in their 1997 letter or by the MIs in their 1998 presentation. For the reasons I will explain below, the MIs correctly viewed state insurance regulations as basic requirements to conduct business, rather

[148] *Id.* (Ex. 25, ECX 0035).
[149] Michael C. Schmitz, "Investigating captive mortgage reinsurance," *Mortgage Banking*, Feb. 1, 1998 (Ex. 12, ECX 0635, CFPB-PHH-00611005, at CFPB-PHH-00611009).

than an ultimate affirmation of the overall legitimacy of captive arrangements or their value to MIs as risk transfer mechanisms (much less a finding of compliance with RESPA).

A. Any Assessment of Risk Transfer by State Regulators Would Be Limited by the Difficulty of Ascertaining the Motivation and Intent of the Parties to the Arrangement.

I am not aware of any risk transfer analysis performed by a state insurance regulator for any of Atrium's captive arrangements. Mr. Cascio has not cited any. However, even if a state insurance regulator had conducted some type of risk transfer analysis for the Atrium arrangements, I believe it would have been very difficult for any regulator to make an accurate assessment in part because the parties' intentions to minimize or avoid risk transfer – whether through tacit understandings or the combination of risk-avoiding mechanisms discussed in my initial report – could avoid detection.[150]

In a 2006 paper titled "Risk Transfer Testing of Reinsurance Contracts: Analysis and Recommendations" (a document that Mr. Cascio relied on), the Casualty Actuarial Society explained:

> *Regulators and auditors face a difficult but necessary task in ferreting out the motives and intent of the producers of financial statements.* Actuaries are important partners in the area, especially in areas such as risk transfer. But *it would be a mistake to think that actuaries or any other quantitative expert can provide a formula that reduces the analysis of intent, good or bad, to a simple (or even complex) calculation*. This is important, because many of the alleged acts that have topped recent headlines are in fact much more about bad intent than risk transfer. No matter how good this working party's work, *the methodologies developed here would not likely have prevented many*

[150] It is more likely that that state insurance regulators accepted the reports prepared by Milliman without further independent analysis. The Milliman reports are flawed for the reasons set forth in my initial report.

> *of the alleged abuses*, at least not without other efforts to discern the intent of the transactions.
>
> *At the same time, it is important to remember that in most reinsurance transactions the parties are acting in good faith and their intentions are good.* Just as a mathematical test cannot identify bad intent, it cannot by itself discern the likely good intent of the parties.[151]

The Casualty Actuarial Society prepared this paper to provide additional guidance on determining whether reinsurance contracts meet risk transfer requirements of FAS 113, following "some widely publicized cases of alleged abuse of finite reinsurance and related accounting principles" which led to "renewed scrutiny of reinsurance contracts."[152] Finite reinsurance is a type of reinsurance that transfers only a finite or limited amount of risk to the reinsurer.[153] Finite reinsurance agreements are distinguished from traditional reinsurance agreements, in which risk transfer is reasonably self-evident.

As explained by the American Academy of Actuaries: "Risk transfer is reasonably self-evident in most traditional per-risk or per-occurrence excess of loss reinsurance contract," in which "a predetermined amount of premium is paid and the *reinsurer assumes nearly all or all of the potential variability in the underlying losses*, and it is evident from reading the basic terms of the contract that the reinsurer can incur a significant loss."[154] The American Academy of

[151] "Risk Transfer Testing of Reinsurance Contracts: Analysis and Recommendations," Casualty Actuarial Society Forum, Winter 2006, p. 279 (Ex. 4) (emphases added).
[152] *Id.* at 277 (Ex. 4).
[153] NAIC website re "Finite Reinsurance" *available at* http://www.naic.org/cipr_topics/archive_topic_finite_re.htm (visited April 5, 2014) (Ex. 26).
[154] "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Nov. 2005, p. 10 (Ex. 20, ECX 0632).

Actuaries has explained that a characteristic of such contracts is that the "potential loss to the reinsurer is much larger than the premium for the coverage provided."[155]

Around this time, a number of major insurance companies were found to have improperly accounted for transactions as reinsurance. For example, in 2006, an internal investigation of Ace Limited revealed that it had incorrectly accounted for certain deals as reinsurance transactions even though, as Ace was forced to admit, they "did not meet the applicable risk transfer requirements of FAS 113 … and should have been recorded as deposits."[156] Several other insurance or reinsurance companies, under scrutiny from the Securities and Exchange Commission, had to issue restated financial statements after finding insufficient risk transfer in certain non-traditional reinsurance products, including American International Group Inc., Converium Holding Ltd., MBIA Inc., Odyssey Re Holdings Corporation and RenaissanceRe Holdings.[157] These examples show that the mere fact that a transaction was accounted for as reinsurance does not make it so.[158]

To prevent these types of abuses, in 2005, the National Association of Insurance Commissioners (which is an organization consisting of insurance regulators from all states) enacted a requirement that the Chief Executive Officer and Chief Financial Officer of any company with ceded reinsurance programs (as opposed to assumed reinsurance programs) sign

[155] "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Jan. 2007, p. 12 (Ex. 76, RX 0793).
[156] "Ace Forced to Restate Results," *ReActions*, Aug. 1, 2005 (Ex. 27).
[157] "Max Re restates after accounts probe," *Business Insurance*, June 5, 2006 (Ex. 28).
[158] Despite increased scrutiny by the SEC starting in the mid-2000s, these types of abuses persisted even at some of the nation's most prominent insurance companies. In 2008, five former senior insurance executives from General Reinsurance Corporation and AIG were found guilty of securities fraud for what prosecutors alleged was a "sham finite reinsurance deal that purported to transfer $500 million of loss reserves to AIG without AIG assuming any real risk." *See* David Dwanka, "Future impact: the use of finite reinsurance is tied to federal guilty verdicts," *Best's Review*, April 1, 2008 (Ex. 29).

and file by March 1 of each year the following "Attestation" under penalty of perjury (Reinsurance Attestation):

1. "There are *no separate written or oral agreements* between the reporting entity and the assuming reinsurer that would *reduce, limit, mitigate, or otherwise affect any actual or potential loss to the parties* under the reinsurance contract;
2. For each such reinsurance contract entered into, renewed, or amended on or after January 1, 1994, for which risk transfer is not reasonably considered to be self-evident, *documentation concerning the economic intent of the transaction and the risk transfer analysis* evidencing the proper accounting treatment is available for review;
3. The reporting entity complies with the requirements set forth in SSAP 62; and
4. The reporting entity has appropriate controls in place to monitor the use of reinsurance and adhere to the provisions of SSAP 62."[159]

The NAIC's Reinsurance Attestation requirement – which was applicable to Atrium's MI partners because they ceded reinsurance programs – is significant because it reflects the recognition of state insurance regulators that the ceding company's senior management must be responsible for determining whether its ceded reinsurance agreements resulted in risk transfer. State insurance regulators and other third parties may have limited ability to determine whether there are separate agreements between the ceding company and the purported reinsurer to limit risk transfer. For many contracts for which risk transfer is not reasonably self-evident, state insurance regulators and other third parties may not be able to ascertain the true economic intent

[159] "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Nov. 2005, pp. 1-2 (Ex. 20, ECX 0632) (emphasis added).

of the arrangement simply by reviewing the terms of the contract or looking at the company's overall financials.

In a "Risk Transfer Testing Practice Note" discussing the Attestation Requirement, the American Academy of Actuaries noted that the following items would constitute "documentation concerning the economic intent of the transaction and the risk transfer analysis for certain contracts" (the second statement in the Attestation):

1. "Relevant correspondence between the ceding company and assuming entities. This usually includes any related agreements, including but not limited to interlinked reinsurance contracts or trust agreements.
2. A copy of each draft of the reinsurance slip and contract;
3. A memorandum from management describing the business purpose and economic intent of the reinsurance cession.
4. A statement regarding risk transfer, either that the risk transfer is considered to be reasonably self-evident or a copy of the analysis that displays the possible outcomes, their likelihood, and their economic impact.
5. Signoff from management that risk transfer has been demonstrated or is believed to be reasonably self-evident.
6. Copy of signoff from an external auditor or other party as to risk transfer, if available."[160]

Such documentation must be available for review by regulators upon request.[161] I do not know what documentation the MIs kept concerning the economic intent of the arrangements.

[160] *Id.* at 8 (Ex. 20, ECX 0632).
[161] The Reinsurance Attestation states that such documentation must be "available for review." *Id.* at 2 (Ex. 20, ECX 0632). The American Academy of Actuaries Practice Note states: "For

However, to the extent there was any "[r]elevant correspondence between the ceding company and assuming entities" showing that the economic intent of the arrangements was something other than risk transfer (for example, emails or other documents reflecting that the MIs entered into the arrangements to obtain referrals of business), such information would be relevant to a risk transfer analysis. Likewise, if the "business purpose and economic intent of the reinsurance cession" was not risk transfer, a memorandum describing the true business purpose would be relevant as well. Without reviewing this type of documentation, a state insurance regulator would not normally be able to ascertain such information. That is why the ceding company's management, not the state insurance regulator, is required to make the Attestation regarding risk transfer and the intent of the arrangement.

On at least one occasion, a state regulator did explicitly seek more detailed information about the purpose of Atrium's arrangements to ensure that they were not in fact mechanisms to pay Atrium for business referrals. On February 3, 2006, the New York Insurance Department wrote a letter to Terry Edwards, the President of Atrium, with the following request:

> The provisions of Section 6504(b) of the NYIL prohibit the payment of consideration, directly or indirectly, by the insurer to the insured as an inducement or compensation for placement of the business. With respect to cessions to reinsurers owned by banks, it is clear that premiums paid to the reinsurer are consideration for the reinsurance agreement. *Please provide documentation and a description of the due diligence the company used in the selection of the reinsurer that one could use to deflect any assertion that the payment was used as inducement or compensation for the placement of the primary business by the originating bank* and/or bolster any claim that it is difficult or

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contracts where risk transfer is not deemed to be reasonably self-evident, management will need to have documentation supporting risk transfer available for regulatory review." *Id.* at 13.

> impossible to obtain mortgage reinsurance from non-captive reinsurers.[162]

In its response, rather than assuming that the "reinsurer" owned by a bank referenced in the question was Atrium, and that the "originating bank" was PHH, Atrium deflected the question by responding as if *it* were the MI, not the captive reinsurer. It stated to the New York Insurance Department:

> *Atrium does not have any reinsurance agreements with reinsurers owned by banks.* Atrium's reinsurance agreements are with the United General Insurance Company ("UGI"), GE Capital Mortgage Insurance Company ("GEMICO"), and Radian Group, Inc. ("Radian"). *None of UGI, GEMICO or Radian is a subsidiary, affiliate or otherwise related insurance company of the lending institution where Atrium has issued a policy covering a mortgager of the lending institution.*[163]

Atrium, of course, had no reinsurance agreements with a captive of a lender "where Atrium issued a policy covering a mortgager of the lending institution," because Atrium, not being a mortgage insurance company, did not issue *any* policies covering mortgagers. Likewise, Atrium did not have to explain whether it had any reinsurance agreement with a captive reinsurer, given that Atrium itself was the captive reinsurer in question. Nor was Atrium's statement that UGI, Genworth and Radian were not captive reinsurers (*i.e.*, "a subsidiary, affiliate or otherwise related insurance company of a lending institution where Atrium has issued a policy covering a mortgager of the lending institution) responsive to the question. Notwithstanding Atrium's failure to respond, the New York Insurance Department's question shows that it was largely reliant on the truthful representations and disclosures of the parties' senior management to confirm that their captive arrangements were (or were not) for a legitimate

[162] Letter from DeRobertis (New York Insurance Department) to Edwards (Atrium), Feb. 3, 2006 (Ex. 30).
[163] Letter from Zaitzeff to DeRobertis, Mar. 30, 2006 (Ex. 31, ECX 0011).

purpose. State regulators do not, as a matter of course, analyze specific arrangements for risk transfer.

Indeed, as a general matter, state regulators have not required that risk transfer testing be performed at all (by anyone) for traditional reinsurance contracts, for which risk transfer is deemed to be reasonably self-evident. The "Risk Transfer Testing Practice Note" issued by the American Academy of Actuaries states:

> Since the adoption of the current accounting rules surrounding risk transfer, it has been common practice that risk transfer analyses and related documentation be completed only for contracts considered to be 'finite' or 'structured' …. *Further, risk transfer cash flow tests generally have not been required for traditional contracts by auditors or financial examiners performing regulatory testing*.[164]

The reason for this is that "risk transfer was deemed to be self-evident" under traditional reinsurance contracts. The decision as to whether a reinsurance contract is a traditional reinsurance contract (for which risk transfer testing need not be performed) or one for finite reinsurance (for which risk transfer testing should be performed) must be made by company management. The Practice Note states that in completing the Attestation Supplement, "management would need to decide if risk transfer is self-evident."[165] And in a 2007 update to the Practice Note, the American Academy of Actuaries stated that in determining whether risk transfer is reasonably self-evident under its contracts such that risk transfer testing need not be performed, "company management must consider the specifics of its own business and reinsurance program in order to develop an appropriate categorization and documentation

[164] "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Nov. 2005, p. 9 (Ex. 20, ECX 0632) (emphasis added).
[165] *Id.* at 10 (Ex. 20, ECX 0632).

procedure."[166] Thus, because company management decides whether its contracts are traditional reinsurance contracts or finite reinsurance contracts, company management can avoid any risk transfer testing requirement for an arrangement simply by attesting that risk transfer is reasonably self-evident (even if it is not).

The American Academy of Actuaries, which "works closely with state officials on issues related to insurance," also noted that "there are no universally accepted definitions of the terms 'finite' and 'traditional' reinsurance" and "there is no simple way to divide the groups."[167] The American Academy of Actuaries has issued some general guidelines to assist company management in determining whether risk transfer is reasonably self-evident, including noting generally that certain types of features or structures make it more likely that a contract will fall into one category or the other.[168] However, it has cautioned company management that "[i]n making this determination, important considerations include an evaluation of the substance of the arrangement, the existence, impact, and role of risk-limiting features and the use of professional judgment."[169] This discussion in the Practice Note suggests that the American Academy of Actuaries, and state regulators, understand that reinsurance contracts and the substance of a parties' "arrangement" (which is broader than just the contract) can be uniquely complex, with multiple features potentially working in combination to reduce risk transfer, even though the impact of those features may not be readily apparent to a third party.

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[166] "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Jan. 2007, p. 9 (RX 0793).
[167] "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Nov. 2005, pp. 9-10 (Ex. 20, ECX 0632).
[168] *Id.* at 10-11 (Ex. 20, ECX 0632); "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Jan. 2007, pp. 10-16 (RX 0793).
[169] *Id.* at 11 (RX 0793).

Indeed, I do not believe it would have been necessary at all for state insurance regulators to require company management to make these determinations, and ultimately to attest to risk transfer, if merely meeting a state's minimum capital requirements already established risk transfer. Thus, I disagree with the opinion of Mr. Cascio that "the unencumbered capital available and stipulated by state law in year one provides adequate liquidity to satisfy FASB 113." Cascio Rpt. at 9 (¶ 13). Protective Order [redacted]

Mr. Cascio's assumption that the arrangements at issue in this case must have resulted in risk transfer because they were regulated by the Departments of Insurance of North Carolina, New York and Vermont is thus based on the misconception of the role of state insurance regulation with respect to the issue of risk transfer. I agree with the observation of the Casualty Actuarial Society that state regulators (along with actuaries), while they may endeavor to determine "the motives and intent of the producers of financial statements," typically assume the good faith of the parties to purported reinsurance arrangements and cannot be expected to prevent abuse of those arrangements.

For example, to the extent that state regulators reviewed the Atrium agreements, I would expect them to have assumed that Atrium would meet the minimum capitalization requirements specified in those agreements. As I explain below, Atrium did not meet the minimum capitalization requirements provided in any of its contracts with the MIs. With the exception of CMG, I have not seen any evidence that the MIs objected to the shortfalls. Atrium's failure to

[redacted] Protective Order [redacted]

meet the minimum capitalization requirements of its contracts and the apparent lack of objection by the MIs reflects their intention to minimize risk transfer. Although capital deficiencies would have to be considered in any risk transfer analysis, those shortfalls may have eluded detection by state regulators. In my experience, state regulators do not generally police the parties' day-to-day compliance with the terms of their reinsurance agreements. Thus, even if state regulators reviewed the Atrium agreements, it would be up to the parties to ensure that they abided by the terms of those contracts.

United Guaranty

Section 13.2 of the UGI agreement provided that Atrium "shall maintain the capital fund portion of the Trust Account in an *amount equal to the greater of*: (a) *the total of all Policy Years of the amount determined for each Policy Year as follows: twenty percent times (Reinsurer Limit minus Reinsurer Attachment) times Total Original Risk in Force* or (b) the Contingency Reserve.[171]

In Attachment 4, I calculated for each Policy Year (*i.e.*, book year) the following amount: "twenty percent times (Reinsurer Limit minus Reinsurer Attachment) times Total Original Risk in Force." Then for each calendar year, I totaled those amounts for all Policy Years covered in that calendar year. Those totals represent the minimum required balance in the UGI Trust Account at the end of each calendar year.[172] My understanding and assumption is that, because Atrium was required to maintain this funding level, any shortfall was Atrium's responsibility.

[171] Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1997, ¶ 13.2 (Ex. 32, ECX 0584, CFPB-PHH-00116600, at CFPB-PHH-00116613) (emphasis added).
[172] It is possible that these amounts are less than the minimum required capitalization due to other contractual provisions which I have not considered.

For example, for Policy Year 1999, the Total Original Risk in Force was $1,498,053,602.[173] The "Reinsurer Limit" was 14% and the "Reinsurer Attachment" was 4%.[174] Multiplying the Total Original Risk in Force of $1,498,053,602 by 10% (which is "Reinsurer Limit" minus "Reinsurer Attachment") and 20% results in a minimum required funding amount of $29,961,072 for book year 1999. *See* Attachment 4.

The minimum required funding amount for prior Policy Years were: (1) $2,735,550 for book year 1994; (2) $3,432,704 for book year 1995; (3) $5,608,602 for book year 1996; (4) $9,597,779 for book year 1997; and (5) $23,982,778 for book year 1998. *See* Attachment 4. Thus, at the end of 1999, the minimum required balance in the Trust Account was $75,318,485 (the total of the amounts for Policy Years 1994-1999). The actual balance in the UGI Trust Account at the end of 1999 was $26,302,925.[175] Thus, the deficiency was $49,015,560.

As shown in Table 9 below, there was a deficiency of over $20 million each year from 1997 to 2000.[176]

[173] UGI cession statement, Sept. 30, 2012, "Risk" worksheet, cell F29 (Ex. 11, ECX 0198).
[174] Amendment No. 1 to Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1998, ¶ 4 (Ex. 32, ECX 0584, CFPB-PHH-00116600, at CFPB-PHH-00116622).
[175] *See* Attachment 6.
[176] Because the minimum funding requirement of Section 13.2 was agreed to in 1997, I have not calculated any deficiency for years 1994-1996. The amounts in Columns [B] and [C] are developed on Attachments 4 and 6.

TABLE 9

[A]	[B]	[C]	[D]
Calendar Year	**Required Minimum Balance in UGI Trust Account**	**Actual Balance in UGI Trust Account (Year End)[177]**	**Deficiency [B]-[C]**
1994	$2,735,550		
1995	$6,168,254		
1996	$11,776,856		
1997	$21,374,635	$460,000	$20,914,635
1998	$45,357,413	$9,040457	$36,316,956
1999	$75,318,485	$26,302,925	$49,015,560
2000	$101,213,880	$72,785,786	$28,428,094
2001	$123,052,421	$122,365,195	$687,226
2002	$141,220,413	$139,925,647	$1,294,766

Genworth

Section 12.06 of the Genworth agreement provided:

> At the end of each quarterly Accounting Period, the Company shall determine if the Trust Account is adequately funded with respect to the Company's liabilities reinsured hereunder. If the Company determines that the ***Trust Account is not adequately funded, i.e., the Trust Account contains less than the Capital Requirement Amount***, the Company shall send the Reinsurer a notice specifying the amount of the inadequacy and the Reinsurer shall deposit such amount in the Trust Account within thirty (30) days of receipt of such notice.[178]

[177] The UGI Trust Account balance is developed on Attachment 6 based on the cash value appearing on the UGI Cession statement. If the UGI Trust Balance were developed based on the market value appearing on the UGI Cession statement, the deficiencies would be slightly reduced and in the case of 2001, eliminated. *See* Attachment 7.

[178] Reinsurance Agreement Between Genworth and Atrium, Oct. 9, 2000, § 12.06 (Ex. 33, ECX 0503, CFPB-PHH-00126551, at CFPB-PHH-00126560) (emphasis added).

Pursuant to a January 1, 2001 amendment to the Genworth agreement, "Capital Requirement Amount" was defined as:

> with respect to each Book of Covered Business, all Reinsurer reserves in respect of unearned premiums, claims, Losses or loss adjustment expenses relating to each risk, determined in accordance with North Carolina law, *plus the greater of an amount (a) sufficient to ensure that, at all times, the* ***Capital Ratio*** *relating to such Book is* ***at least ten percent (10.0%)****,* and (b) equal to a contingency reserve equal to 50% of aggregate earned premiums in respect of the previous ten (10) Books of Covered Business.[179]

"Capital Ratio" was defined as "the ratio, expressed as a percent, of (i) the *Capital Reserves* to (ii) *Aggregate Risk Exposure*."[180]

"Capital Reserves" was defined as "the sum of the Reinsurer's paid-in capital, gross paid in and contributed surplus, contingency reserves and unassigned surplus (or their equivalent) held from time to time by the Reinsurer in respect of a Book of Covered Business."[181]

"Aggregate Risk Exposure" was defined as "with respect to a Book of Covered Business, an amount equal to ten percent *(10.0%) of the sum of the Risks Insured* in respect of such Book."[182] The "sum of the Risks Insured" is synonymous with "Aggregate Risk."[183] That is, Atrium's "Aggregate Risk Exposure" – its band of coverage – is 10% of the Aggregate Risk (the

[179] *Id.* § 1.08 (Ex. 33, ECX 0503) (emphasis added); Amendment No. 1 to Reinsurance Agreement Between Genworth and Atrium, Jan. 1, 2001, ¶ 1 (Ex. 33, ECX 0503, CFPB-PHH-00126551, at CFPB-PHH-00126555). Amendment No. 1, effective January 1, 2001, changed the required Capital Ratio from "eight percent (8%)" to "ten percent (10.0%)."

[180] Reinsurance Agreement Between Genworth and Atrium, Oct. 9, 2000, § 1.07 (Ex. 33, ECX 0503, CFPB-PHH-00126551, CFPB-PHH-00126560).

[181] *Id.* § 1.09 (Ex. 33, ECX 0503) (emphasis added).

[182] *Id.* § 1.04 (Ex. 33, ECX 0503) (emphasis added).

[183] "Aggregate Risk" is defined as "with respect to a Book of Covered Business, an amount equal to the *sum of the Risks Insured* with respect to the Reinsured Loans included in such Book." *Id.* § 1.03 (Ex. 33, ECX 0503) (emphasis added).

ten percent factor refers to the difference between 14% detachment point and the 4% attachment points).[184]

For each of book years 2001, 2002 and 2003, I calculated 10% of the Aggregate Risk for the book year to determine Atrium's Aggregate Risk Exposure for that book year.[185] Then, because the Capital Ratio (Capital Reserves / Aggregate Risk Exposure) must be at least 10%, I multiplied the Aggregate Risk Exposure by another 10% to determine the minimum Capital Reserves required in the Trust Account for each book year.[186]

In summary, in performing these calculations, I have assumed that the Capital Requirement Amount for each book year was, at a minimum, 10% times 10% times the Aggregate Risk for that book year. The results of these calculations are shown in Attachment 5 (Column 5). For each of calendar years 2001, 2002 and 2003, I determined the cumulative minimum Capital Requirement Amount by totaling the Capital Requirement Amount for all book years then covered.[187] To be conservative, I have not included "Reinsurer reserves in respect of unearned premiums, claims, losses or loss adjustment expenses relating to each risk" in my calculation of the Capital Requirement Amount, even though reserves are required as part of the definition of Capital Requirement Amount.[188]

Finally, I compared the minimum cumulative Capital Requirement Amounts for each calendar year with the actual funding level of the Genworth Trust Account at the end of each

[184] *Id.* § 2.02 (Ex. 33, ECX 0503) (emphasis added).
[185] *See* Attachment 5 (Column 5).
[186] *Id.*
[187] *Id.* (Column 6).
[188] I have also assumed, to be conservative, that the "contingency reserve equal to 50% of aggregate earned premiums in respect of the previous ten (10) Books of Covered Business" is less than the 10% Capital Ratio, even though that may not be the case.

calendar year. Table 11 shows a deficiency in the Trust Account balance from 2001 to at least 2003.[189]

TABLE 10

[A]	[B]	[C]	[D]
Calendar Year	**Required Minimum Balance in Genworth Trust Account**	**Actual Balance in Genworth Trust Account (Year End)[190]**	**Deficiency [B]-[C]**
2001	$6,957,940	$6,062,333	$895,607
2002	$16,748,870	$14,948,830	$1,800,040
2003	$27,303,000	$26,657,921	$645,070

Radian

Section 12.05 of the Radian agreement provides minimum capital requirements for the Radian Trust Account:

> At all times, the amount in the Trust Account shall be at least equal to the sum of: (i) ten percent (10%) of the Risk in Force assumed by the Reinsurer pursuant to this Agreement, plus (ii) loss reserves and unearned premiums reserves required by the Company's statutory accounting guidelines interpreted in good faith by the Company (the sum of (i) and (ii) is herein called the "Minimum Capital"). If the Trust Account balance is less than the Minimum Capital, then upon receipt of the report provided by the Company pursuant to Section 8.01 hereof setting forth the deficiency, the Reinsurer shall deposit into

[189] The sources for the amounts in the Genworth Trust Account are shown in Attachment 6.
[190] The Genworth Trust Account balances were inferred in Attachment 6 based on the total of all Trust Balances less the cash value of the UGI Trust Accounts. If this inference were made using the market value in lieu of cash value of the UGI Trust Account, the indicated deficiencies in the Genworth Trust Accounts would be somewhat larger than shown. *See* Attachment 7.

> the Trust Account such amounts as are necessary to attain a balance in the Trust Account equal to or greater than the Minimum Capital.[191]

On May 30, 2008, Mike Bogansky wrote an internal email stating: "*We never made the minimum capital requirements for Radian's trust from inception*, so we need to make the trust whole even though we meet the minimum requirements today."[192] Despite his statement that Atrium needed to make the "trust whole," it appears that a deficiency remained throughout 2009. A Radian cession statement from March 2009 indicates that the "Total Balance" in the Radian Trust Account as of March 31, 2009 was $3,109,927.22, and that the "Total Required Escrow Balance" as of that date was $5,219,227.62.[193] This statement calculated a deficit – labeled "Trust Contribution" – of $2,109,300.40.[194]

It does not appear that Radian contributed the required $2,109,300.40 to the Trust Account. A Radian cession statement from June 2009 shows a "Trust Balance" of only $3,285,209.28 (minimally higher than it was in March 2009).[195] This statement shows a "Total Required Escrow Balance" of $5,695,804.69 and a deficit of $2,410,595.42.[196]

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[191] Reinsurance Agreement between Radian and Atrium, July 26, 2004 (Ex. 34, ECX 0200, CFPB-PHH-00091615, at CFPB-PHH-00091631).
[192] Email from Bogansky (PHH) to Bowen-Ashwin (PHH) and Vorndran (PHH), May 30, 2008 (Ex. 35, ECX 0246, CFPB-PHH-00018549) (emphasis added).
[193] March 2009 Radian cession statement, "Cendant TRUST DISB" worksheet, cells F15 and F44 (Ex. 36, ECX 0648). The "Total Required Escrow Balance" figure was calculated using the formula specified in Section 12.05.
[194] *Id*., "Cendant TRUST DISB" worksheet, cell F49 (Ex. 36, ECX 0648).
[195] June 2009 Radian cession statement, "Cendant TRUST DISB" worksheet, cell F15 (Ex. 37, ECX 0650).
[196] *Id*., "Cendant TRUST DISB" worksheet, cells F44 and F49 (Ex. 37, ECX 0650).

CMG

Section 12.06(a) of the CMG agreement, regarding the "Amount to be Maintained," provides:

> *At all times, the value of the assets in the Trust Account shall not be less than the greater of*: (i) ten percent (10%) of the Risk in Force by the Reinsurer pursuant to this Agreement, or (ii) *the Required Reserves* (the "Minimum Capital"). If the Trust Account balance is less than the Minimum Capital, then upon receipt of the report provided by the Company pursuant to Section 8.01 hereof setting forth the deficiency, the Reinsurer shall promptly deposit into the Trust Account such amounts as are necessary to attain a balance in the Trust Account equal to or greater than the Minimum Capital.[197]

Section 1.37 of the agreement defines "Required Reserves" as "the sum of (a) Contingency Reserves, (b) Loss Reserves, and (c) Unearned Premium Reserves."[198]

The "Required Reserves" amount in July 2009 was $6,398,808.99.[199] The balance in the Trust Account was $3,232,860.88.[200] Thus, the deficiency in the Trust Account was $3,165,948.11. Although CMG requested that Atrium made up the shortfall, Atrium refused to do so.[201]

B. The Examinations of Atrium by State Regulators Were Likely Focused on Atrium's Solvency, Not Risk Transfer.

As a general proposition, state financial regulations applicable to reinsurance companies are concerned with the solvency of the reinsurance company under a liquidation theory of

[197] Reinsurance Agreement Between CMG and Atrium, Dec. 1, 2006, §12.06(a) (Ex. 38, ECX 0202, CFPB-PHH-00091715, at CFPB-PHH-00091732) (emphasis added).
[198] *Id.* §1.37 (Ex. 38, ECX 0202, CFPB-PHH-00091715, at CFPB-PHH-00091719).
[199] "Atrium Insurance Corporation: Presented to PHH Mortgage Corporation," July 2009, p. 6 (Ex. 39, ECX 0429).
[200] *Id.* (Ex. 39, ECX 0429).
[201] *Id*. at 7 (Ex. 39, ECX 0429); Email from Bahr (CMG) to Rosenthal (PHH), Aug. 13, 2009 (Ex. 40, ECX 0372, CFPB-PHH-00065203).

accounting.[202] The features of Atrium's captive arrangements that limited risk transfer also *enhanced* the solvency of Atrium. As a result, risk-limiting features, if they were considered at all, may have been viewed positively from the perspective of financial regulators charged with focusing on the solvency of Atrium.

That Atrium's state regulators were focused primarily on Atrium's solvency, and not risk transfer, can be seen from two reports prepared by the New York Insurance Department reflecting the results of their financial examinations of Atrium. It appears to me that PHH is arguing that these two documents show that the New York Insurance Department approved Atrium's arrangements as genuine risk transfer vehicles. The first of these reports (dated February 1, 2003) contains the results of their examination covering the five-year period from January 1, 1997 to December 31, 2001.[203] The second report (dated April 18, 2008) contains the results of their examination covering the six-year period from January 1, 2002 to December 31, 2007.[204] Both reports are focused on the integrity of the statutory financial statements as of a particular point in time. They each state: "This report is confined to financial statements and comments on those matters, which involve departures from laws, regulations, or rules, or which are deemed to require explanation or description."[205] Neither report contains any reference to a

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[202] Statutory accounting is generally concerned with ensuring that an insurance company can meet its obligations to its policyholders. To this end, assets and liabilities are generally valued based on consideration of their values should they have to be liquidated. For example, certain assets that under other accounting philosophies would be accounted for at their full value are instead considered to be non-admitted for statutory accounting purposes.

[203] Report on Examination of the Atrium Insurance Corporation as of December 31, 2001 (Ex. 41, RX 0129, CFPB-PHH-0094687, at CFPB-PHH-0094690).

[204] Report on Examination of the Atrium Insurance Corporation as of December 31, 2007 (Ex. 42, RX 0143, CFPB-PHH-00101909, at CFPB-PHH-00101910).

[205] Report on Examination of the Atrium Insurance Corporation as of December 31, 2001 (Ex. 42, RX 0129, CFPB-PHH-0094687, at CFPB-PHH-0094690); Report on Examination of the Atrium Insurance Corporation as of December 31, 2007 (Ex. 42, RX 0143, CFPB-PHH-00101909, at CFPB-PHH-00101910).

risk transfer analysis or discussion of any features of the arrangements that would either increase or reduce risk transfer. There is no mention of whether there is a reasonable probability of significant loss to Atrium under any of the arrangements.[206] In fact, the reports mention nothing about Atrium's specific captive arrangements other than providing a brief, high-level summary of Atrium's agreements with each MI.[207] I do not believe it is possible to conclude anything about risk transfer without conducting an analysis that is tailored to each arrangement and which accounts for specifics such as capital contributions to the trust, the likelihood and magnitude of potential claims compared to the premiums ceded by that MI, etc. There is no mention of this type of information in either report.

Notably, the high-level summary of the agreements in the first report contains a significant error. It states that the New York Insurance Department reviewed "the assumed reinsurance contracts in place as of the examination date," but the description of the UGI agreement describes a prior agreement between Atrium and UGI that had been terminated more than three years earlier, rather than the agreement in place at the time.[208] The description states that Atrium provides coverage when the loss ratio is between 75% and 120%, and that "the reinsurance premium for 2001 was 15% of gross premiums written (on applicable business) with

[206] While I disagree with the loss ratio comparison methodology that Mr. Cascio uses to conclude that the arrangement resulted in risk transfer (for the reasons discussed in Section III.A and III.B above), even if Mr. Cascio's methodology were correct (it is not), these reports do not even refer to loss ratios under the then-current agreements.

[207] Report on Examination of the Atrium Insurance Corporation as of December 31, 2001 (Ex. 41, RX 0129, CFPB-PHH-0094687, at CFPB-PHH-0094695-696, CFPB-PHH-0094700); Report on Examination of the Atrium Insurance Corporation as of December 31, 2007 (Ex. 42, RX 0143, CFPB-PHH-00101909, at CFPB-PHH-00101914-915).

[208] Agreement of Termination of Reinsurance Agreement (No. 3-38A) Between UGI and Atrium, April 1, 1997 (Ex. 43, ECX 0624).

an 11.1% ceding commission."[209] However, the agreement that had been in place since January 1, 1997 provided for coverage based on cumulative claims as a percentage of total original risk, and a January 1, 1998 amendment specified a 4% attachment point and a 14% detachment point.[210] The agreement also required, as of January 1, 1998, that UGI cede 45% of gross premium with an 11.1 percent ceding commission.[211]

An understanding of the most basic aspects of the structure of a reinsurance arrangement, including terms such as when Atrium's liability is triggered and the premium ceding percentage, is obviously a prerequisite for any risk transfer analysis. The failure of the examination report to cite the correct agreement suggests that the New York Insurance Department did not closely examine each specific arrangement, and that risk transfer was not of primary concern to the examiners.

The Casualty Actuarial Society has recognized that typical audit criteria used by insurance regulators are not necessarily suited for measuring risk transfer. According to the "Guidance Statement" regarding FAS 113 issued by the Casualty Actuarial Society: "Regulators

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[209] The erroneous description in its entirety is as follows: "Under the terms of one agreement, the ceding company retains an amount up to a cumulative loss ratio of 75%. The reinsurance coverage provided by Atrium provides for 100% assumption when the cumulative loss ratio is over 75% up to a maximum 120%. Reinsurance coverage stops at a cumulative loss ratio of 120%. The reinsurance premium for 2001 was 15% of gross premiums written (on applicable business) with an 11.1% ceding commission on ceded premiums written. Assumed premiums under this agreement totaled $43,688,000 for calendar year 2001." Report on Examination of the Atrium Insurance Corporation as of December 31, 2001 (Ex. 41, RX 0129, CFPB-PHH-0094687, at CFPB-PHH-0094695).

[210] Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1997, ¶ 3 (Ex. 32, ECX 0584, CFPB-PHH-00116600, at CFPB-PHH-00116605); Amendment No. 1 to Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1998, ¶ 4 (Ex. 32, ECX 0584, CFPB-PHH-00116600, at CFPB-PHH-00116621-622).

[211] Amendment No. 1 to Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1998, ¶ 3 (Ex. 32, ECX 0584, CFPB-PHH-00116600, at CFPB-PHH-00116621); Amendment No. 2 to Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 2000, ¶ 1 (Ex. 32, ECX 0584, CFPB-PHH-00116600, at CFPB-PHH-00116625).

… may want to evaluate whether or not a deal has enough risk transfer to meet FAS 113 criteria, and typical audit criteria may not suit their purposes."[212] Moreover, the statement encouraging regulators to evaluate risk transfer suggests that they were not doing so (at least not consistently) at the time the Guidance Statement was issued (in 2002).

C. It is Unlikely That the MIs' State Regulators Analyzed Risk Transfer under Their Captive Arrangements with Atrium.

As is the case with reinsurance companies, as a general proposition, state financial regulation of MIs is also concerned with their solvency under a liquidation theory of accounting. Thus, although I am unaware of any risk transfer analysis of the Atrium arrangements performed by the state regulators of the MIs, if such an analysis had been performed, the risk-limiting features of those arrangements would be more likely to have been perceived negatively. However, I do not believe it is likely that the MIs' regulators performed any type of in-depth risk-transfer analysis of the Atrium arrangements. First, from the narrow perspective of the solvency of the MI, the key issues with ceded reinsurance relate to the security of any amounts the ceding company is claiming as recoverable on its balance sheet as well as the proper matching of revenue and expenses. Neither of these items are issues with the Atrium arrangements, and do not depend on risk transfer. The Atrium arrangements may not have been subject to further rigorous analysis as the impact of alternative accounting approaches are likely to have been judged as not material to the solvency of the MIs. Second, the MIs had many more captive arrangements with other lenders than the one they each had with Atrium. For example, as

[212] "Accounting Rule Guidance Statement of Financial Accounting Standards No. 113 – Considerations in Risk Transfer Testing," Casualty Actuarial Society, p. 308 (Ex. 44).

of 2005, UGI had 77 captive agreements.[213] It is highly unlikely that the North Carolina Department of Insurance performed an in-depth risk transfer analysis on all 77 of those arrangements, or even a small number of them. Finally, even if one of the MI's state regulators had examined risk transfer under that MI's arrangement with Atrium, as discussed above, *see supra* 86-96, their ability to ascertain the actual motives of the parties and any informal agreements or understandings to limit or avoid risk transfer would have been limited, and any assessment by the regulators regarding risk transfer would have been largely dependent on information provided (or not provided) by the parties' management regarding risk transfer and the true business purpose of the arrangement.

D. The New York Insurance Department Warned That Captive Arrangements Were Illegal Under New York Insurance Law Unless They Legitimately Transferred Risk and Were Arm's-Length Arrangements.

In 1999, the New York Insurance Department issued a Circular Letter to all MI companies licensed in New York regarding captive mortgage reinsurance arrangements. The New York Insurance Department stated that it had reviewed Sections 2324(a) and 6504(c) of the [New York] Insurance Law and has determined that under certain circumstances lender captive reinsurance arrangements do not fall within the prohibitions articulated in those statutes.[214] The New York Insurance Department indicated that it was "in the process of developing guidelines and, if appropriate, a regulation which will articulate the parameters under which these reinsurance arrangements will be permitted" and that such "guidelines will insure that the

[213] United Guaranty Interoffice Memo, Jan. 4, 2005 (Ex. 2, ECX 0586, UG064263, at UG064265).

[214] New York Insurance Department, Circular Letter No. 2, Feb. 1, 1999 (Ex. 24, ECX 0583). The referenced laws are those of the State of New York. The New York Insurance Department did not comment on whether such arrangements were or were not permissible under RESPA.

transactions constitute a legitimate transfer of risk …."[215] The letter concluded: "*[T]he New York Insurance Department will permit legitimate risk sharing relationships* between mortgage guaranty insurers and lenders where such relationships are in the form of *arms length reinsurance agreements with properly capitalized reinsurer*. Other transactions … are violative of the New York Insurance Law."[216]

In my experience, the conclusion of this letter is the type of statement that is commonly understood to be a warning to insurance and reinsurance companies that they, not the state regulator, are responsible for ensuring compliance with the applicable state laws. It would not be reasonable to interpret the statement as the New York Department of Insurance's acceptance of that responsibility. Nor would it be logical for an insurance or reinsurance company to interpret the statement that captive arrangements are illegal under state law unless they are "legitimate risk sharing relationships" as a declaration that all captive mortgage reinsurance arrangements involving New York-licensed entities are automatically "legitimate risk sharing relationships" and thus legal under state law simply because those entities are licensed to conduct business in New York.

At least as of 2006 (more than seven years later), the New York Insurance Department never issued the more specific guidance indicated in the 1999 Circular Letter. Referring to the 1999 Circular Letter, Dan Walker of UGI noted in a March 10, 2006 letter to Rich Bradfield of PHH that "the Insurance Department did not follow through in developing specific regulations regarding captives."[217] I am not aware that any such guidelines or regulations were ever

[215] *Id.* (Ex. 24, ECX 0583).
[216] *Id.* (Ex. 24, ECX 0583) (emphasis added).
[217] Letter from Walker (UGI) to Bradfield (PHH), Mar. 10, 2006 (Ex. 45, ECX 0179, CFPB-PHH-00093455).

published. This suggests that risk transfer under captive arrangements may not have been a priority for New York's insurance regulators.

VII. MR. CASCIO'S SPECULATION THAT THE MI COMPANIES MAY HAVE PURCHASED COVERAGE FROM ATRIUM FOR VARIOUS OTHER PURPOSES IS ILLOGICAL AND UNSUPPORTED.

Mr. Cascio states that reinsurance coverage provides various benefits to the ceding company other than the transfer of risk, including: (1) smoothing of financial results; (2) utilization of the reinsurer's expertise; and (3) surplus relief. Cascio Rpt. at 2 (¶ 4). He then concludes that it is "reasonable to believe that UGI and Genworth purchased coverage from Atrium for" some or all those reasons. *Id.*

Mr. Cascio does not cite any evidence to support his belief that these factors actually led UGI and Genworth to decide to enter into deep-cede captive arrangements with Atrium, and to continue with those arrangements for so many years. For the reasons I expressed in my initial report and in this report, it is inconceivable to me that sophisticated companies like Genworth and UGI could rationally conclude that ceding 40% of their revenues (on the loans covered) was worthwhile from an insurance perspective, even if there were some other benefit as Mr. Cascio contends. But as I explain below, I do not believe it is logical to conclude that any of the factors that Mr. Cascio cites motivated UGI or Genworth to cede 40% of their premiums to Atrium.

A. Smoothing of Financial Results

Mr. Cascio states that the MIs may have been motivated to enter into captive arrangements with Atrium to obtain the "benefit" of "stable financial results." Cascio Rpt. at 5-6 (¶ 4.E). He also asserts that the "investment community is very focused on consistent quarterly

and annual financial results and does not like surprises" and that "more reliable historical underwriting results would likely result in a higher multiple to book value or earnings at the time of sale." Cascio Rpt. at 6 (¶ 4.E). I do not agree that the Atrium captive arrangements improved the quality or stability of the MIs' financial results.

First, Mr. Cascio fails to consider the fact that the ceding of so much of the MIs' revenues to lenders impaired the financial results of the MIs, and that the investment community recognized the negative impact of captive mortgage reinsurance arrangements on the profitability of MIs. For example, in a 2003 analyst report, Bear Sterns expressed concern that the proliferation of captive mortgage reinsurance, including the increasing use of deep-cede arrangements, was eroding the MI industry's financial results and would have a negative impact on the stock price of publicly-traded MIs. Bear Stearns stated:

- "The wider use of deep-cede, excess of loss structures should lead to lower returns for MIs as business subject to captive arrangements and revenue sharing account for an increasing share of total business. We estimate that the four publicly traded MIs may cede close to $2.5 billion of revenue and $1.5 billion of earnings over the next five years." [218]
- "Despite the fact that *the economics of these structures have been unfavorable to the MIs*, lenders have been able to pressure the industry into ceding very high percentages of premium recently while maintaining *relatively high attachment points*."[219]

[218] Bear Stearns, *Mortgage Finance*, "The Trouble with Captive Reinsurance: An Analysis of Excess of Loss Structures," March 2003, p. 1 (Ex. 46, ECX 0793).
[219] *Id.* at 9 (Ex. 46, ECX 0793) (emphasis added).

- "[B]y the time they start getting paid by *reinsurers* under excess of loss captive arrangements, it is too late, and *their returns have already been negatively affected by large premium cessions*."[220]
- "In our view, the negative impact of captives on *earnings* should have a *negative effect on stock market values* of the private mortgage insurance companies."[221]

Bear Stearns noted that, at the time it wrote its report, most of the MI companies were "ceding between 10% and 20% of the gross premiums they write."[222] Thus, ceding a much greater percentage (40%) would have an even greater negative impact on the MIs' financial results.

In September 2003, Bear Stearns published an equity research note, stating:

- "*GE confirmed to us, following publication of an article in a trade publication, that GE Mortgage Insurance has decided to limit its use of deep cede captive arrangements.* GE would be the second major MI, after MGIC, to publicly state it will limit these lower return business arrangements."
- "GE plans to phase out 4-10-40s by year end 2003, and, going forward, limit the amount of premium it will cede to lenders to 30%. *The change in strategy supports our view that the returns from deep-cede captive arrangements are too low* and that MGIC made the right decision to stop writing the business earlier this year. MGIC went a bit further than GE, limiting the amount of premium it cedes in excess of loss captives to 25%."

[220] *Id.* at 11 (Ex. 46, ECX 0793) (emphasis added).
[221] *Id.* at 18 (Ex. 46, ECX 0793).(emphasis added).
[222] *Id.* at 5 (Ex. 46, ECX 0793).(emphasis added).

- "It would now appear more likely that some other MIs will also begin to limit the amount of business they write in deep cede structures now that GE and MGIC will be limiting this business."
- "*To the extent other MIs become more rational and increase the profitability of the business they write, industry returns will rise, a change which should positively affect stock values*." [223]

The statements in this research note are inconsistent with the notion that deep-cede captive arrangements were beneficial to the MIs' financial results, that the "investment community" regarded them positively, or that Genworth wanted its arrangement with Atrium at all.

In addition to consistently reducing the MIs' revenues over many years, I believe that captive arrangements such as those at issue in this proceeding threatened, rather than enhanced, the stability of the MIs. By ceding 40% of their premiums to lenders, and by permitting Atrium to minimize the possibility that it would have to pay claims, the MIs assumed a significant risk that a substantial portion of those premiums would never be returned. And in fact, when the real estate crisis occurred, the MIs could have achieved far more stability had they simply funded a secure savings account and used those funds to pay claims, rather than ceding premiums that could be forfeited to Atrium. Had UGI not entered into a captive arrangement and instead kept the $304 million of premiums it ceded to Atrium in a savings account, it would have had much greater resources to weather the storm – the $304 million plus interest, rather than just the $176 million of payments (*i.e.*, returned premiums) from Atrium. Crawshaw Rpt. at Attachment 2. Likewise, had Genworth not entered into a captive arrangement with Atrium and kept the almost

[223] Bear Stearns, Equity Research Note, "MGIC Investment Corporation (MTG-55.17) – Peer Perform: GE Following MGIC and Limiting Deep Cede Captives," September 19, 2003 (Ex. 72, ECX 0794) (emphases added).

$122 million of premiums it ceded to Atrium, it would have been able to use that full amount plus interest to pay for claims during the crisis, rather than being limited to the $66 million of payments (*i.e.*, returned premiums) from Atrium. Crawshaw Rpt. at 45 (Table 2).[224] And a savings account could have achieved results comparable to those obtained by Radian and CMG from their arrangements with Atrium, without any risk of loss of the deposited funds.

Mr. Cascio's opinion that Atrium's captive arrangements enhanced the stability of the MIs is also not consistent with Freddie Mac's decision in 2008 to prohibit the use of deep-cede captive arrangements. On February 14, 2008, Freddie Mac announced that, effective June 1, 2008, MIs would not be permitted to cede any more than 25% of their gross premiums to captive mortgage reinsurers.[225] The rationale stated in the press release was that the change was intended to "allow mortgage insurers to retain more insurance premiums to pay current claims and re-build their capital base."[226] If deep-cede captive arrangements provided much-needed stability to the MIs by allowing them to recover substantial claim payments during a period of stress such as the real estate crisis of 2007, it would not have made any sense for Freddie Mac to ban them at that very time. I am not aware of Freddie Mac ever reversing its decision – for example, by allowing ceding rates above 25% once the MIs' capital bases had been rebuilt.

Finally, Atrium's captive arrangements undermined the financial stability of the MIs in one other key respect – they prevented the MIs from using the premiums ceded to Atrium to pay for claims on any loan other than the specific loans covered by the arrangement. Thus, for example, when Genworth ceded 40% of its premiums to Atrium, to the extent those ceded

[224] *See also* Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 47).
[225] Freddie Mac Press Release, Feb. 14, 2008, "Freddie Mac Changes Mortgage Insurer Eligibility Rules to Cap Premium Cedes on Captive Reinsurance," (Ex. 71, ECX 0031).
[226] *Id.*

premiums exceeded the claims under that arrangement (as they in fact did), Genworth was not allowed to use the surplus to pay for claims on loans that were not covered by its arrangement with Atrium, as they would have been able to do had they not entered into a captive arrangement. The ceded premiums were segregated from Genworth's other assets, usable only for claims covered by the arrangement, and any excess was taken by Atrium, rather than being available to reduce Genworth's other losses (which would have enhanced the stability of its financial results).

This destabilizing effect raised concerns among state insurance regulators and the MI industry in the late 1990s. On November 24, 1997, the Commissioners of the Wisconsin and North Carolina Departments of Insurance wrote a letter to the Commissioner of the South Dakota Department of Insurance, advocating that the ceding percentage on captive mortgage reinsurance arrangements be limited to 25%.[227] They asserted that a higher percentage would be "imprudent" for a variety of reasons, including the following:

> *The segmentation of the market by lenders would segregate premiums shared with good lenders from being used to offset losses on the rest of the mortgage insurance company exposure, shared or not. Assuming* that 10 or more of the top 25 largest lenders set up 50 percent share structures with the four largest mortgage guaranty insurance companies, *the current AA stability of the primary insurance industry could be undermined seriously*.
>
> …
>
> In their eagerness to gain market share and short-term revenue increases, some mortgage guaranty insurance companies may be willing to give up half or more of their premium income to earn new

[227] Letter from Long and Musser to Lyon, Nov. 24, 1997 (Ex. 24, ECX 0583, at UG001679) ("As the domicile for four of the country's eight mortgage guaranty insurance companies, North Carolina and Wisconsin support Vermont's decision to limit mortgage guaranty insurers from ceding more than 25% of risk and gross premium to captives associated with a mortgage lender …. In our opinion, treaties that exceed this percentage are imprudent for a number of reasons ….").

> business. *We need to be vigilant to ensure that such partnerships do not result in instability in the mortgage guaranty insurance industry* and the mortgage financing system generally." [228]

This same concern was echoed by the MI industry in a 1998 presentation by the Mortgage Insurance Association of America (a trade consortium consisting of the nation's major MI companies) to the Arizona Department of Insurance. The MIs explained:

> *Captive reinsurance results in the segregation of premiums pledged to support losses on limited segments of a primary mortgage insurer's overall insured portfolio.* Such segmentation runs counter to the basic insurance principle that an insurer's liabilities should be supported by all of its assets. If mortgage insurers are permitted to reinsure more than 25% of their business in captive reinsurance structures, *locking up those premiums, this degree of segmentation will be financially detrimental to the mortgage finance industry.*[229]

Thus, the MIs stated, while captive arrangements might offer potential benefits, "if not properly controlled, they also present a threat to the overall strength and claims-paying ability of the private mortgage insurance industry."[230]

B. Utilization of Reinsurer's Expertise

Mr. Cascio asserts: "Utilization of the reinsurer's expertise is often overlooked as a real positive, but ceding companies view this benefit as extremely valuable." Cascio Rpt. at 3 (¶ 4.C). He cites as "anecdotal evidence of such reliance" the fact that the MI's contracts with Atrium were amended many times, including instances in which "the amendments clearly were directed at the risks being assumed." *Id.* He specifically refers to amendments in which the MIs agreed to

[228] *Id.* at UG001680 (Ex. 24, ECX 0583) (emphasis added).
[229] "Captive Reinsurance and Other Risk Sharing Arrangements, Arizona Department of Insurance, Jan. 22, 1998 (Ex. 25, ECX 0035, MGIC-CFPB00190633, at MGIC-CFPB00190649) (emphasis added).
[230] *Id.* at MGIC-CFPB00190646 (Ex. 25, ECX 0035).

not include loans with low credit scores in the captive as an example of the "insurer and reinsurer trying to ameliorate the risks being collectively assumed." *Id.* I do not follow Mr. Cascio's logic at all.

First, the fact that the parties might subsequently amend their agreements, and in fact did so, does not answer the question of why they were motivated to enter into the agreement in the first place.

Second, I do not see how the MIs could have possibly have considered Atrium or PHH to be "experts" in the types of risks they were long in the business of underwriting. As I understand Mr. Rosenthal's testimony, Atrium and PHH wanted to learn from the MI's expertise, not the reverse. He testified:

> *We were very interested in learning from the mortgage insurance companies, because they've got a lot more market intelligence and insight* and they have a ton of intelligent people in their enterprises, we wanted to hear from them on, you know, what resources would you bring to the table to share with us information, what's going on in the mortgage market, and we wanted to understand their risk assessment models and understand the state of the economy and the real estate market … *we just wanted their insight, so how could they bring data to us and information and insight to us with all of their expertise and intelligence that they could share with us*.[231]

Third, my understanding is that the amendments that Mr. Cascio refers to did not "ameliorate the risks being collectively assumed." Cascio Rpt. at 3 (¶ 4.C). Mr. Rosenthal testified that they eliminated riskier loans from the captive.[232] I have seen nothing indicating that the amendments prohibited those loans from being offered in the first place or removed those

[231] Hearing Tr. at 571:21-572:17 (Rosenthal, Mar. 26, 2014) (emphasis added).
[232] Hearing Tr. at 452:5-24 (Rosenthal, Mar. 26, 2014).

loans from coverage by the MI. So while those amendments may have ameliorated Atrium's risk, I do not believe they ameliorated the MI's risk.

C. Surplus Relief

In his report, Mr. Cascio states that one factor that could have motivated UGI or Genworth to enter into a captive arrangement with Atrium was "surplus relief." Cascio Rpt. at 2 (¶ 4). However, at his deposition, he seemed to retract this statement and testified: "I don't believe, you know, there was a surplus issue with the – you know, either UGI or Genworth …. I haven't seen any evidence to suggest that that was a driver." Cascio Dep. Tr. at 97:10-19 (Ex. 16).

In any event, as I understand his explanation of "surplus relief" in his report, he appears to be using that term to refer to the ability of the MI to take credit on its balance sheet for liabilities ceded to Atrium under a legitimate reinsurance arrangement – that is, the MI may correspondingly reduce liabilities on its balance sheet – if there is sufficient security in place to ensure some level of recoverability.[233] *Id.* He is presumably referring to the liabilities for the unearned premium reserve, the claim reserve (a.k.a. loss reserve) and the contingency reserve.[234] Generally, state solvency laws and regulations allow a ceding company to take credit on its balance sheet for liabilities ceded to certain reinsurers if those liabilities are protected by some form of security, *e.g.* letters of credit, trust accounts, or other forms of acceptable collateral in

[233] As I explain below, this is not consistent with the normal usage of the term "surplus relief." *See infra* 20.

[234] Under Statutory Accounting, the contingency reserve has characteristics of being both "capital" and "liability." Depending on the context, the contingency reserve may be considered as part of capital or as part of liabilities.

order to avoid what is known as a "Schedule F penalty."[235] One of the purposes of the Trust Accounts in place between the MIs and Atrium was to provide this security. Atrium was required to maintain the aforementioned reserves in the Trust Accounts for the liabilities covered under its captive arrangements, which would ensure some amount of potential recovery for the MIs. Because some level of recovery was ensured (even if only from premiums the MI previously ceded), the MI's liabilities could be commensurately reduced.

Even if, as an accounting matter, the provision of such security allowed the MI to reduce liabilities on its balance sheet, entering into the arrangement also reduced the MI's assets over time by requiring the MI to cede 40% of its premiums to Atrium. Because the price charged by Atrium was excessive relative to the expected amount of claims, the ultimate negative impact on the MI's assets would likely exceed any reduction in liabilities.

It is not reasonable to conclude, as Mr. Cascio has, that Atrium somehow did the MIs a favor by posting sufficient security. If Atrium were actually providing a genuine reinsurance service to the MIs, as it claims, the least one should expect is that Atrium would provide some security for its obligations and allow the MI to reduce its liabilities accordingly, particularly because the MI's assets were also reduced as a result of the arrangement. It is certainly the case that the MIs preferred having security to a situation in which Atrium's "reinsurance" coverage was not secured at all, however it is absurd to suggest that avoiding an even worse situation (i.e., having no security) was the reason the MI's decided to cede 40% of their premiums to Atrium – when in fact they would have been better off by avoiding the arrangement altogether. In short,

[235] Schedule F is a supporting schedule in an MI's statutory financial statement that provides details on reinsurance assumed and ceded, reinsurance balances due, amount of collateral supporting reinsurance balances, etc. Mr. Cascio incorrectly refers to the Schedule F penalty as a "Schedule P penalty." In fact, a Schedule P penalty is something entirely different from what Mr. Cascio describes and in any case is not relevant to this case.

what Mr. Cascio describes as "surplus relief" in his report was not a benefit to the MI; rather, it was simply a minimum requirement for Atrium to secure its liabilities to the MI.[236]

At his deposition, Mr. Cascio provided another explanation of "surplus relief" that differs from the one provided in his report. At his deposition, he described "surplus relief" as follows: "In the event that the business is being written by the company, if they were to retain it a hundred percent, would overly leverage their balance sheet or financial statements, buying reinsurance would allow them to write more business, thus getting a better – a bigger share of the market, without having to inject capital into their company." Cascio Dep. Tr. at 100:2-13 (Ex. 16). This explanation is different from that presented in his report but is consistent with the normal usage of the term "surplus relief."

Insurance laws and regulations as well as rating agencies require an insurance company to maintain certain levels of capital (*e.g.*, in the case of MIs, a certain level of "policyholder surplus"[237] and "contingency reserve"). These requirements are often expressed as a maximum risk-to-capital ratio.[238] For example, the "Mortgage Guaranty Insurance Model Act" by the National Association of Insurance Commissioners (NAIC) in effect in 2000 provided that a "mortgage guaranty insurance company shall not at any time have outstanding a total liability, net of reinsurance, under its aggregate mortgage guaranty insurance policies exceeding twenty-

[236] For the same reasons, allowing the MIs to avoid a "Schedule F" penalty by posting adequate security is not a benefit to the MI. Avoiding a Schedule F penalty is simply a minimum requirement for the arrangement to even conceivably be regarded as useful reinsurance.

[237] Policyholder surplus is defined by statutory accounting rules to be the difference between a company's assets and its liabilities (including the contingency reserve). Policyholder surplus is also sometimes further broken down to "capital" and "surplus."

[238] In practice and depending on the context, one or more of the following ratios may be used as a proxy for the risk-to-capital ratio: (1) premium-to-capital; (2) liabilities-to-capital; (3) amount of insurance-to-capital; and (4) assets-to-capital.

five (25) times its capital, surplus, and contingency reserve."[239] This is often described as a "25-to-1 maximum risk-to-capital ratio." The NAIC Model Act further states that if the ratio exceeds 25-to-1, the MI shall "cease transacting new mortgage guaranty business until" the ratio no longer exceeds 25-to-1.[240] As of June 2011, 16 states required MI companies to maintain risk-to-capital ratios below 25-to-1.[241] Mr. Culver similarly testified that MGIC was subject to a 25-to-1 capital ratio.[242] Absent a waiver of this requirement from those states, the amount of business that MIs can write in those states is thus limited by their balance sheets – most significantly, the amount of policyholder surplus available. "Surplus relief reinsurance" usually refers to a reinsurance contract that increases the underwriting capacity of the MI either by increasing the amount of policyholder surplus on the MI's balance sheet and/or by transferring a portion of the risk to a reinsurer – thereby reducing the risk-to-capital ratio.

As an initial matter, because Atrium's captive arrangements did not in fact transfer risk, I do not believe it would have been appropriate for the MIs to reflect any reduction of risk in their financial statements as a result of entering into those arrangements. Because the MIs in reality retained virtually all of the risk, any reduction in their risk-to-capital ratio would have been illusory and not consistent with the purpose of maximum risk-to-capital requirements. Thus, I do not believe that "surplus relief" would have been a legitimate purpose even if the MIs actually sought to achieve it through the Atrium arrangements.

In any case, it seems unlikely that any of the MIs would decide to cede 40% of their premiums to Atrium year-after-year (on loans covered by the arrangement) to reduce its risk-to-

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[239] NAIC "Mortgage Guaranty Insurance Model Act," p. 630-4, *available at* http://www.naic.org/store/free/MDL-630.pdf (visited Feb. 25, 2014) (Ex. 48).
[240] *Id.*
[241] Brad Finkelstein and Paul Muolo, "Mixed Outlook for MI," *Origination News*, June 20, 2011 (Ex. 49).
[242] 3/25/2014 Hearing Tr. (Culver) 339:8-21.

capital ratio. First, it is important to understand that entering into a captive arrangement with Atrium would not necessarily reduce the MI's risk-to-capital ratio over time, and in fact, it could increase the risk-to-capital ratio in the long run. Ceding 40% of premiums would reduce the MI's assets, and thus reduce its policyholder surplus – a main component of capital – over time, and would do so in greater proportion than the reduction in risk achieved by ceding only 10% of aggregate risk (the 14% detachment point minus the 4% attachment point). Moreover, because the MI's contingency reserve – another component of capital – is a function of the premiums retained by the MI, ceding 40% of the premiums would reduce the MI's contingency reserve as well. Thus, while it is conceivable that a primary insurer might decide to enter into a single reinsurance arrangement at a given point in time to reduce its risk-to-capital ratio as a short-term measure (for example, if it is at or near the maximum risk-to-capital ratios allowed by statute), it would not make much sense for the MIs to do so on a long-term basis, given the ultimate impact discussed above. That the UGI and Genworth captive arrangements, for example, lasted more than a decade is inconsistent with the notion that those arrangements were driven by a short-run need to reduce their risk-to-capital ratios at a particular point in time.

Second, because the MIs' risk-to-capital ratios were already low for significant periods of time while the captive arrangements were in effect, it seems unlikely that the MIs were motivated to continue with those arrangements for so many years by any need to reduce the risk-to-capital ratio below 25-to-1. In its March 2003 report on captive mortgage reinsurance, Bear Stearns found that "private mortgage insurers do not have to be concerned about capital levels" because "they are very well capitalized" and have "excess capital."[243] As of September 30, 2007, the risk-to-capital ratios for United Guaranty, Genworth, Radian and CMG were only 13.9-to-1,

[243] Bear Stearns, *Mortgage Finance*, "The Trouble with Captive Reinsurance: An Analysis of Excess of Loss Structures," March 2003, pp. 9, 28 (Ex. 46, ECX 0793).

11.3-to-1, 9.7-to-1 and 14.5-to-1, respectively.[244] According to an October 2012 "Mortgage Insurance Industry Report" by zIngenuity, Inc. (mortgage consulting firm): "[G]oing into the crisis, most carriers had risk-to-capital ratios in the low double digits, approximately twice the levels mandated by regulators and well in excess of rating agency requirements."[245] The already low risk-to-capital level of MGIC was one of the several reasons that Mr. Culver cited to explain why MGIC did not enter into a captive arrangement for many years. [246]

Third, if the MIs faced any pressure to reduce their risk-to-capital ratios to a point well below 25-to-1, they had options to address the situation other than entering into a highly disadvantageous captive arrangement with Atrium. It was unlikely that UGI and Genworth, in particular, would have required "surplus relief" from Atrium, because both entities have a much larger capital base than Atrium and are part of large enterprises with access to large amounts of capital. For example, in late 2011, Genworth's risk to capital ratio breached the 25-to-1 limit.[247] By mid-2013, its parent company had implemented a "capital plan" in which it contributed $100 million to Genworth.[248] Under the capital plan, Genworth also had the option, in the event of adverse conditions, of implementing a "NewCo" structure that would allow it to continue writing business even in states with a maximum 25-to-1 risk-to-capital ratio.[249] Genworth stated that, as a result of the capital plan, it "expects that the risk-to-capital ratio of Genworth Mortgage

[244] "Fitch Announces Various Rating Actions on Mortgage Insurers," *BusinessWire*, Feb. 26, 2008 (Ex. 50).
[245] zIngenuity, "Mortgage Insurance Industry Report," October 2011, p. 2, *available at* http://www.zingenuity.com/publication_images/675102011_zIngenuity_zInsights_October2011.pdf (Ex. 51).
[246] 3/25/2014 Hearing Tr. (Culver) 339:8-21; 341:1-15.
[247] Rodger Nayak, "Genworth mortgage insurance subsidiary receives waiver from North Carolina," *SNL Insurance Weekly*, Mar. 5, 2012 (Ex. 52)
[248] Maitree Sharma, "Genworth Financial executes mortgage insurance capital plan," *SNL Insurance Mergers and Acquisitions*, April 9, 2013 (Ex. 53).
[249] *Id.* (Ex. 53).

Insurance will be reduced by approximately 15 points ….”[250] I believe these options would have been available even if Genworth was well under the 25-to-1 limit but wanted to further reduce its risk-to-capital ratio for some other reason.

Similarly, a July 2012 “Mortgage Insurance Industry Report” by zIngenuity, Inc. noted that, while other MIs were “facing capital pressures to varying degrees” and many were “through or approaching statutory capital limits,” only UGI “thanks to support from AIG, its parent, is capitalized at levels well below statutory limits.”[251]

The option to establish subsidiaries to write new business, such as Genworth’s “NewCo,” was used by several other MI companies when their risk-to-capital ratios approached or exceeded 25-to-1. According to a 2011 article: “Several of the private mortgage insurers have established subsidiaries to keep on writing new business in the event their main operation breaches the 25-to-1 risk-to-capital ratio or minimum policy position required by 16 states.”[252] For example, in 2011, when Radian’s risk-to-capital ratio increased past 20-to-1, it sought “government-sponsored enterprise approval for unit Radian Mortgage Assurance Inc.” which, according to its Chief Financial Officer, would provide “additional operations [that] would increase the company’s flexibility.”[253]

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[250] *Id.* (Ex. 53).

[251] zIngenuity, “Mortgage Insurance Industry Report,” July 2012, p. 1, *available at* http://www.zingenuity.com/publication_images/423072012_zInsights.pdf (Ex. 54).

[252] Brad Finkelstein and Paul Muolo, “Mixed Outlook for MI,” Origination News, June 20, 2011 (Ex. 49).

[253] Adam Cancryn, “Radian seeking risk-to-capital ratio waivers from 15 states,” SNL Insurance Mergers and Acquisitions, Dec. 6, 2011 (Ex. 55).

VIII. THE ATRIUM ARRANGEMENTS DID NOT TRANSFER SIGNIFICANT RISK EVEN IF ONE ASSUMES THAT ATRIUM'S LIABILITY WAS NOT LIMITED TO THE FUNDS IN THE TRUST ACCOUNTS.

Mr. Cascio disagrees with the statement in the Milliman reports prepared for both Atrium and the MIs that "Atrium has no liability beyond funds available in the trust." Cascio Rpt. at 8 (¶ 11). He bases his disagreement on his interpretation of provisions of Atrium's captive agreements that he does not specifically identify. *Id.* He asserts that Atrium's "balance sheet is at risk." *Id.* at 7 (¶ 8). In my initial report, I explained the bases for my assumption that Atrium's liability under each of its four captive arrangements was limited to the funds the applicable Trust Account. Crawshaw Rpt. at 12-14. At the hearing, I stated that it was inconceivable to me that Milliman could get an assumption so basic to any risk transfer analysis wrong, particularly when it prepared many reports for Atrium and the MIs over the course of many years and obtained its assumptions from those clients. The assumption that Atrium's liability was limited to the funds in the applicable Trust Account was not just stated in plain language in all of the reports that I reviewed, but also embedded in the calculations that Milliman performed.

I offer no opinion on the meaning of the contract provisions relevant to this issue. However, it is important to understand that even if Mr. Cascio were correct that the captive agreements themselves did not limit Atrium's liability to the funds in the Trust Accounts, if the parties were nonetheless willing to proceed under their arrangements with an informal agreement to limit Atrium's liability to the Trust Accounts, that must be considered in any risk transfer analysis. Paragraph 8 of FAS 113 states: "Determining whether a contract with a reinsurer provides indemnification against loss or liability relating to insurance risk *requires a complete understanding of that contract and other contracts or agreements* between the ceding enterprise and the related reinsurers." In addition, the Reinsurance Attestation that the ceding company's

CEO and CFO must file includes the following statement: "There are *no separate written or oral agreements* between the reporting entity and the assuming reinsurer that would *reduce, limit, mitigate, or otherwise affect any actual or potential loss to the parties* under the reinsurance contract."[254]

In my initial report, I described one very clear example of UGI offering a concession to Atrium that reduced or eliminated Atrium's risk – UGI's agreement to an amendment in 2007 allowing Atrium to remove a $52.7 million dividend from the Trust Account, which appears was not permitted under the then-existing agreement. Crawshaw Rpt. at 40-43. I explained that there was no reasonable insurance-based explanation for UGI to agree to such an amendment, particularly because it received nothing in return. *Id.* I concluded that the amendment reflected Atrium's leverage over the MIs. *Id.* For the same reasons, even if the agreements did not expressly limit Atrium's liability to the Trust Accounts, if the MIs were nonetheless willing to agree to such a limit without receiving anything from Atrium in return, that would have to be considered in any risk transfer analysis.

In any case, while the analysis in my initial report assumed that Atrium's liability was limited to the funds in the applicable Trust Account, I have analyzed the UGI and Genworth arrangements for risk transfer assuming that all of Atrium's contributed capital, including amounts outside the Trust Accounts, was available to pay UGI and/or Genworth's claims. I have concluded that even under Mr. Cascio's assumption, the UGI and Genworth arrangements did not transfer significant risk to Atrium.

[254] "Reinsurance Attestation Supplement 20-1: Risk Transfer Testing Practice Note," American Academy of Actuaries Committee on Property and Liability Financial Reporting, Nov. 2005, pp. 1-2 (Ex. 20, ECX 0632) (emphasis added).

A. Analysis of Gross Paid in Capital and Contributed Surplus

During my testimony at the hearing, PHH's counsel asked me whether I had considered in my initial report a line item in Atrium's financial statements called "Gross Paid in Capital and Contributed Surplus." This figure is indicated as $28,600,000 in Atrium's balance sheet for year-end 2001 and $80,816,004 in Atrium's balance sheet for year-end 2007.[255] I believe that essentially all of the capital that PHH contributed to Atrium apart from capital stock of $1,000,000 is reflected in this item, including capital inside the Trust Accounts and capital outside of the Trust Accounts.[256] For example, the 2001 examination report by the New York Department of Insurance shows that the $28,600,000 figure includes a $17,000,000 "Surplus Contribution" in May 2000.[257] Atrium contributed $17,000,000 to the UGI Trust Account in May 2000.[258]

In my initial report, I discussed dividends that Atrium removed from the Trust Accounts. Dividends were also removed from Atrium to PHH. These latter dividends, which transferred funds that were outside of the Trust Accounts to PHH, are not included in the "Gross Paid in

[255] Report on Examination of the Atrium Insurance Corporation as of December 31, 2001 (Ex. 41, RX 0129, CFPB-PHH-0094687, at CFPB-PHH-0094703); Report on Examination of the Atrium Insurance Corporation as of December 31, 2007 (Ex. 42, RX 0143, CFPB-PHH-00101909, at CFPB-PHH-00101919).

[256] In this discussion, I use "capital" in the sense that term is used in Atrium's financial statements. I recognize that at times PHH may have paid expenses and income taxes on behalf of Atrium that were at some later date reimbursed by Atrium and that could, in an economic sense, also be considered as "capital". However, due to the limitations of the data available to me, I have not included items such as these as "capital."

[257] Report on Examination of the Atrium Insurance Corporation as of December 31, 2001 (Ex. 41, RX 0129, CFPB-PHH-0094687, at CFPB-PHH-0094691).

[258] Declaration of Michael Bogansky at Exhibit A, "Cash Return on Invested Capital by Trust" table (Ex. 47); UGI cession statement, Sept. 30, 2012, "Trust Deposits" worksheet, cell F38 (Ex. 11, ECX 0198). Even if the $17,000,000 amount indicated in the 2001 NYID examination report reflects a contribution initially made outside of the Trust Accounts, when that amount was then deposited into the Trust Account, there was no corresponding deduction from the $28,600,000 total, which indicates that the total also includes Atrium capital in the Trust Accounts.

Capital and Contributed Surplus" line item; they are tracked separately in Atrium's financial statements.[259] Dividends from Atrium to PHH represent PHH's recovery of any capital it originally contributed to Atrium. In this analysis, I have assumed that PHH could not remove any dividends from Atrium beyond what it actually removed. If PHH could remove additional dividends, that would be an additional mechanism available to avoid risk (assuming Atrium's liability was not limited to the Trust Accounts).

Column B of Table 11 below shows, for each calendar year, changes to the "Gross Paid in Capital and Contributed Surplus." This reflects all the transactions between PHH and Atrium other than those tracked under "Dividend to Parent" in Atrium's audited financial statements. These include Atrium's initial sale of stock to PHH in 1996, various contributions PHH made to Atrium and Atrium's purchase of stock from PHH in 2010. Dividends from Atrium to PHH (*i.e.*, transactions tracked under "Dividend to Parent" in Atrium's audited financial statements) are shown in Column C.[260] The total Atrium contributed capital at the end of each calendar year is shown in Column D – these amounts are cumulative amounts based on the figures in Columns B and C for all prior years, and they include Atrium contributed capital whether inside or outside of the Trust Accounts. Columns E and F show the total Atrium contributed capital in the UGI and Genworth Trust Accounts, respectively. Column G shows the total Atrium contributed capital outside of the Trust Accounts.

[259] *E.g.*, Atrium Audited Financial Statements, Dec. 31, 2005, p. 4 (Ex. 59) ("Dividend to Parent" line item is separate from "Contributed Surplus" line item).
[260] For 2000 and subsequent, all amounts in Columns B and D are from Atrium's audited financial statements. For prior years the amounts are from the New York examination report as of December 31, 2001.

TABLE 11

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Year	**Gross Paid in Capital and Contributed Surplus (*i.e.*, From PHH to Atrium)[261]**	**Dividends from Atrium to PHH[262]**	**Total Contributed Capital (*i.e.*, (From PHH to Atrium)**	**Total Atrium Capital in UGI Trust**	**Total Atrium Capital in Genworth Trust**	**Total Contributed Capital Outside of Trusts [G]=[D]-[E]-[F]**
1996	$5,000,000	$0	$5,000,000	$0	N/A	$5,000,000
1997	$0	$0	$5,000,000	$460,000	N/A	$4,540,000
1998	$0	$0	$5,000,000	$460,000	N/A	$4,540,000
1999	$4,600,000	$0	$9,600,000	$460,000	N/A	$9,140,000
2000	$17,000,000	$0	$26,600,000	$17,460,000	$0	$9,140,000
2001	$3,000,000	$0	$29,600,000	$28,970,000	$5,000,000	($4,370,000)
2002	$17,500,000	$0	$47,100,000	$44,470,000	$5,500,000	($2,870,000)
2003	$0	$0	$47,100,000	$44,470,000	$5,500,000	($2,870,000)
2004	$0	$0	$47,100,000	$44,470,000	$5,500,000	($2,870,000)
2005	$34,716,004	($17,000,000)	$64,816,004	$33,470,000	$5,500,000	$25,846,004
2006	$0	$0	$64,816,004	$16,670,000	$5,500,000	$42,646,004
2007	$0	($16,500,000)	$48,316,004	$0	$5,500,000	$42,816,004
2008	$0	$0	$48,316,004	$0	$5,500,000	$42,816,004
2009	$0	($19,250,000)	$29,066,004	$0	$5,500,000	$23,556,004
2010	($29,266,000)	($17,000,000	($17,199,996)	$0	$500,000	($17,699,996)
2011	$0	($5,000,000)	($22,199,996)	$0	$0	($22,199,996)

Next, I calculated the total Atrium contributed capital exposed to potential claims under the UGI arrangement. Column B in Table 12 below shows the total Atrium contributed capital in the UGI Trust Account at the end of each calendar year. Column C shows the total Atrium

[261] Atrium Income Statement data from SNL (Ex. 64, "P&C Income Statement" worksheet, "Capital Changes & Surplus Adj" row (row 65); Atrium's Audited Financial Statements, Dec. 31, 2001, pp. 3, 6 (Ex. 56); Atrium's Audited Financial Statements, Dec. 31, 2002, p. 3 (Ex. 57); Atrium's Audited Financial Statements, Dec. 31, 2003, p. 2 (Ex. 58); Atrium's Audited Financial Statements, Dec. 31, 2005, p. 2 (Ex. 59); Atrium's Audited Financial Statements, Dec. 31, 2007, p. 3 (Ex. 60); Atrium's Audited Financial Statements, Dec. 31, 2008, p. 3 (Ex. 61); Atrium's Audited Financial Statements, Dec. 31, 2010, p. 3 (Ex. 62); Atrium's Audited Financial Statements, Dec. 31, 2011, p. 2 (Ex. 63).

[262] Atrium's Audited Financial Statements, Dec. 31, 2005, p. 5 (Ex. 59);Atrium's Audited Financial Statements, Dec. 31, 2007, p. 6 (Ex. 60); Atrium's Audited Financial Statements, Dec. 31, 2010, pp. 5, 13 (Ex. 62).

contributed capital outside of the Trust Account (identical to Column G in Table 11 above except that I set the amount equal to $0 when the amount in Column G in Table 11 was less than $0[263]). Column D is the sum of Columns B and C – that figure represents the maximum total Atrium contributed capital exposed to potential claims under the UGI arrangement. Column E shows the total amount of premiums already ceded *and yet to be ceded* for all of the book years then covered at the end of each calendar year. These amounts would have been available to pay claims (with any remainder ultimately accruing to Atrium as profit) if the arrangement were terminated on a run-off basis because, had Atrium exercised its right to terminate on a run-off basis, ceding of premiums would have continued under book years already covered until the end of the 10-year coverage period. For example, the $271,813,923 figure for 2005 includes the total premiums ceded by UGI for book years 1994 through 2005, including premiums ceded under those book years after December 31, 2005.

[263] In the period 2001 – 2004, the capital in the Trust Accounts exceeds the total capital contributed to Atrium by PHH, yet at the same time, no capital had been returned from Atrium to PHH. Based on the information currently available to me, I cannot determine for certain why this occurred but there are a number of possible reasons. For example, the assets associated with the capital outside the Trust Accounts may have been invested and increased in value before being placed into the Trust Accounts. Similarly, Atrium's balance sheet includes accruals for a number of transactions between the MI, Atrium and PHH. These accruals imply accruals against the Trust accounts but these accruals are not reflected in the Trust balance. For example, some or all of the income taxes and expenses associated with the arrangements may have been paid but not debited from the Trust balances at the time the various financial statements were prepared (similarly accruals for premiums due would not yet be reflected in the Trust account balances).

TABLE 12

[A]	[B]	[C]	[D]	[E]	[F]
Calendar Year	**Total Atrium Capital in UGI Trust**	**Total Atrium Capital Outside of Trust**	**Total Atrium Capital Exposed to UGI Claims [B] + [C]**	**Total UGI Premiums Under All Book Years Covered to Date**	**[D] / [E]**
1996	$0	$5,000,000	$5,000,000	$15,937,369	31%
1997	$460,000	$4,540,000	$5,000,000	$28,522,021	18%
1998	$460,000	$4,540,000	$5,000,000	$65,192,830	8%
1999	$460,000	$9,140,000	$9,600,000	$106,594,988	9%
2000	$17,460,000	$9,140,000	$26,600,000	$132,198,585	20%
2001	$28,970,000	$0	$28,970,000	$157,930,923	18%
2002	$44,470,000	$0	$44,470,000	$182,531,923	24%
2003	$44,470,000	$0	$44,470,000	$203,259,923	22%
2004	$44,470,000	$0	$44,470,000	$244,367,923	18%
2005	$33,470,000	$25,846,004	$59,316,004	$271,813,923	21%
2006	$16,670,000	$42,646,004	$59,316,004	$285,214,923	19%
2007	$0	$42,816,004	$42,816,004	$309,549,923	13%
2008	$0	$42,816,004	$42,816,004	$323,744,923	13%
2009	$0	$23,556,004	$23,556,004	$326,971,923	7%
2010	$0	$0	$0	$326,971,923	0%
2011	$0	$0	$0	$326,971,923	0%

Column F shows the total Atrium capital exposed to potential UGI claims as a percentage of total premiums under the book years then covered at the end of each calendar year. These percentages are all very low – 31% or lower. These percentages are almost certainly over-estimates because I have assumed 100% of the Atrium contributed capital outside of the Trust Accounts is available to pay UGI claims, which means that none of that capital would be available to pay Genworth (or other) claims. Because Atrium's contributed capital outside of the Trust Accounts would have to be shared by both UGI and Genworth (assuming Atrium's liability was not limited to the Trust Account under either arrangement) and anyone else who may have a

claim against Atrium, my assumption is very conservative as in reality 100% of those assets would not be available to pay *both* MI's claims.[264]

As discussed above and in my initial report, Atrium's expected profit margin of 40% might be appropriate for an insurer or reinsurer who provided true catastrophe coverage. Those insurers or reinsurers face a risk of extreme economic loss, with maximum loss ratios in the range of 1000% being typical (that is, claims that are ten times the premiums). The price they can demand, which results in such a high profit margin, largely reflects the opportunity cost of the capital that they must provide to pay such an extreme potential loss. An insurer or reinsurer who charges a price resulting in a 40% profit margin typically contributes capital of an amount that is many multiples of the premiums received. The percentages shown in Column F are small fractions of the total premiums.

I performed the same calculations for Genworth, shown in Table 13 below. With the exception of the year 2000, the total Atrium capital exposed to potential Genworth claims as a percentage of total Genworth premiums are all very low (Column F).

[264] Allocating 100% of those assets to both UGI and Genworth would require assuming that a real estate crisis disproportionately affects only one of those MIs, such that claims payable by Atrium exceed the funds in the Trust Account for only that MI, but not the other. I have seen nothing to indicate that the risk profiles between the two MIs were so vastly different as to support such an assumption.

TABLE 13

[A]	[B]	[C]	[D]	[E]	[F]
Calendar Year	**Total Atrium Capital in Genworth Trust**	**Total Atrium Capital Outside of Trust**	**Total Atrium Capital Exposed to Genworth Claims**	**Total Genworth Premiums Under All Book Years Covered to Date**	**[D] / [E]**
2000	$0	$9,140,000	$9,140,000	$2,000	457000%
2001	$5,000,000	$0	$5,000,000	$16,140,000	31%
2002	$5,500,000	$0	$5,500,000	$43,300,000	13%
2003	$5,500,000	$0	$5,500,000	$86,309,000	6%
2004	$5,500,000	$0	$5,500,000	$94,106,000	6%
2005	$5,500,000	$25,846,004	$31,346,004	$102,490,000	29%
2006	$5,500,000	$42,646,004	$48,146,004	$108,826,000	42%
2007	$5,500,000	$42,816,004	$48,316,004	$114,709,000	38%
2008	$5,500,000	$42,816,004	$48,316,004	$126,997,000	36%
2009	$5,500,000	$23,556,004	$29,066,004	$136,069,000	21%
2010	$500,000	$0	$500,000	$136,069,000	0%
2011	$0	$0	$0	$136,069,000	0%

Even setting aside the comparison to capital contributions made by true catastrophe reinsurers, it would still be my opinion that the estimated amounts of Atrium capital exposed to potential loss without trust caps are far too low to result in significant risk transfer to Atrium.

1997-1999 Period

During the period 1997 – 1999, the UGI arrangement was the only Atrium captive arrangement. This is period I have referred to as the "try-out" period of the UGI arrangement, because Atrium was extremely unlikely to incur any claims during these years. During these first few years, Atrium could review the progress of the arrangement and more accurately

forecast its likely profitability (based on substantial information it could obtain in the first few years) before deciding whether to continue with the arrangement or terminate. Under Mr. Cascio's assumption that Atrium's liability was not limited to the Trust Account, by the end of 1999, up to $9.6 million of total Atrium capital was exposed to potential loss. That is a very small amount compared to the **$**106,594,988 of total premiums that would be ceded under book years 1994 through 1999 under a run-off scenario.

While the $9.6 million represents the maximum possible "gain" to UGI and the maximum possible "loss" to Atrium during these first few years, conversely, the $106 million of total premiums amount represents the potential financial "loss" to UGI from the captive arrangement and the potential "gain" to Atrium during that time. The $9.6 million of capital is only about 9% of the premium of $106.6 million for book years 1999 and prior.[265] From an insurance perspective, it makes no sense for an MI to enter into an arrangement where its best case outcome (*i.e.*, its maximum recovery from Atrium), a scenario with a very low probability, is a gain of 9% of the ceded premiums, considering that the MI's expected outcome is a loss equal to about 40% of the ceded premium and the worst case outcome is a potential loss of 100% of the ceded premiums.

The $9.6 million amount is also small compared to the reinsurance Atrium purported to provide. Table 14 below shows Atrium's risk corridors for book years 1994 through 1999 under the UGI arrangement[266]:

[265] Book years 1999 and prior represent the exposure Atrium would take on in the 3 year "try-out" period. As explained in my initial report, this is the minimum exposure period the arrangement would realistically last.
[266] *See* Attachment 1.

TABLE 14

Book Year	Maximum Possible Claims Incurred by Atrium
1994	$13,677,750
1995	$17,163,521
1996	$28,043,010
1997	$47,988,895
1998	$119,913,891
1999	$149,805,360
Total	**$376,592,426**

The maximum amount of claims payable by Atrium under book years 1994 through 1999 ($376,592,426 in Table 15 above) was about $270 million greater than the total ceded premiums under those book years ($106,594,988 in Table 12 above under Column E for calendar year 1999). In other words, assuming it had capital available to pay all claims, Atrium's maximum possible loss under those book years was about $270 million. The $9.6 million of contributed capital, Atrium's maximum amount of capital exposed to potential UGI claims, is only about 3.5% of Atrium's maximum possible loss under those book years ($270 million). I stress that the $270 million represents only the maximum risk in the layer Atrium purported to reinsure in book years 1994 through 1999. The total risk faced by the MI, including the catastrophe risk beyond 14% of aggregate risk that Atrium did not reinsure, was several times larger than that amount, and Atrium's $9.6 million represented much less than 3.5% of the total insured risk. In other words, Atrium had nowhere near the resources to be able to pay losses in the layer that it purported to reinsure, and the resources it did have accounted for an even smaller portion of the risk faced by UGI. Considering that Atrium expected to receive approximately 40% of the premiums, yet had the resources to cover only a small portion of the risk above and beyond that which would be covered by UGI's own ceded premiums, it is not reasonable to conclude, even under Mr. Cascio's assumption that liability was not limited to the Trust Account, that Atrium

"assumed significant insurance risk" as is required under test 9a of FAS 113. Failure of test 9a of FAS 113 alone is sufficient to demonstrate that the arrangement did not transfer risk.

Because the UGI arrangement fails test 9a of FAS 113, the arrangement does not meet the FAS 113 standard for risk transfer, regardless of whether it passes test 9b or not (*i.e.*, that it should be reasonably possible for the reinsurer to realize a significant loss). However, if one chooses to apply the 9b test, one is confronted with the situation of a maximum realizable loss to Atrium equal to 9% of ceded premium and a low probability of this loss scenario ever occurring.[267] It is extremely doubtful that such a situation could pass a 10-10 test or variants of that test. First, as I have explained, the chance of Atrium incurring a loss in the early years of the arrangement was extremely low. Crawshaw Rpt. at 18. In any case, narrowly passing the 10/10 test (or a variant) is not the same as meeting the FAS 113 test 9b. As explained by the CAS Research Working Party on Risk Transfer Testing (a document cited by Mr. Cascio):

> The "10-10" benchmark arose as an informal method for testing whether purported reinsurance contracts contained sufficient risk transfer to meet the requirements of FAS 113 under the reasonable chance of loss criterion. *It was not intended to be a universally applicable risk transfer test*
>
> …
>
> In the wake of recent revelations of new accounting abuses related to "reinsurance contracts" apparently involving little or no risk transfer, the situation has changed. There is greater sentiment now that (a) more contracts should be routinely tested for significant risk transfer and (b) *"10-10" is not a stringent enough standard. The view that "10-10" may not be stringent enough arises in part from the fact that some highly structured contracts have been*

[267] The chance of a loss ever occurring is small based on reasons discussed in my initial report and in particular that the "try-out" period involves multiple book years (at least book years 1994 through 2000).

> *carefully engineered to allow for exactly a 10% probability of a 10% loss and little or no possibility of a loss greater than 10%.*[268]

Based on the above, I would maintain my previous conclusion that there was no significant risk transfer in the period from 1994 to 1999, even if Mr. Cascio were correct that Atrium's liability was not limited to the funds in the Trust Accounts.

2000 - 2004 Period

During the period from 2000 to 2004, the UGI arrangement was at its intermediate stage when Atrium could review the experience and decide whether to continue with the arrangement or terminate it. It can be seen in Table 12 above, throughout the period from 2000 to 2004, the total Atrium contributed capital exposed to potential claims from UGI (assuming no trust cap) was less than 24% of total premiums from all book years then covered. Again, it makes no sense for UGI to stake a likely loss of over one hundred million dollars of ceded premiums for the unlikely prospect of a maximum 24% gain.

It can also be seen in Table 13 above that during this period, Genworth, which was in its try-out period, had similarly low capital available to it compared to ceded premiums under the book years then covered under its arrangement with Atrium. Thus, there was no significant risk transfer during these years for the same reasons discussed above with respect to the first few years of the UGI arrangement.

[268] "Risk Transfer Testing of Reinsurance Contracts: Analysis and Recommendations," Casualty Actuarial Society Forum, Winter 2006, pp. 290-91 (Ex. 4) (emphases added).

Thus, even if Mr. Cascio were correct that Atrium's liability was not limited to the Trust Accounts, my analysis of the lack of risk transfer in this period is essentially the same as I presented in my initial report.

Post 2004 Period

By the end of 2004, a very significant premium buffer had amassed in both the UGI and Genworth Trust Accounts. Further, this buffer was guaranteed to grow as book years 2004 and prior ran off.

For UGI, the premium for book years 2002 and prior was over $180 million. This amount is greater than all the amounts Atrium was to ever pay UGI – including all the claims it paid during the financial crisis ($69,169,499) and the amount in the Trust Account it returned to UGI in the final commutation ($48,592,201).[269] In other words, by the end of 2002 the premium buffer already in the UGI Trust Account or to be received from the run-off of book years 2002 and prior, was already so large that Atrium's capital – whether inside or outside the Trust account – was not at significant risk of loss, even in the face of one of the worst meltdowns of the residential mortgage market.

For Genworth, the premium for book years 2003 and prior was over $86 million. This amount is greater than all the amounts Atrium was to ever pay Genworth – including all the claims it paid during the financial crisis ($28,571,236) and the amount in the Trust Account it returned to UGI in the final commutation ($37,149,869).[270] In other words, by the end of 2003 the premium buffer already in the Genworth Trust Account or to be received from the run-off of

[269] Crawshaw Rpt. Attachment 2.
[270] *Id.*

book years 2003 and prior, was already so large that Atrium's capital – whether inside or outside the Trust account – was not at significant risk of loss, even in the face of one of the worst meltdowns of the residential mortgage market.

While the consideration of risk transfer is intended to occur at contract inception, rather than with the benefit of hindsight, in this instance I consider hindsight to be instructive because the financial crisis represented a truly stressed scenario. That the premiums through book years 2002 (for UGI) or 2003 (for Genworth) – and ignoring all premiums from subsequent years - were more than sufficient to cover all of the claims or settlements Atrium ever paid to the MIs (on all book years), despite the occurrence of such a severe mortgage crisis, indicates that the risk that Atrium might have suffered a loss of its capital after 2004 was remote under any reasonable stress scenario. It also indicates that the price that Atrium charged the MIs was grossly excessive, even if the payment of claims during the financial crisis from premiums previously ceded could be considered to have some minimal value as compared to not entering into the arrangements in the first place (which I disagree with).

B. Analysis of Atrium's Total Assets

During my cross examination at the hearing, PHH's counsel pointed me to Atrium's total assets of $148,848,787 as of December 31, 2001, reflected in the December 31, 2001 New York Insurance Department Examination Report.[271] Mr. Cascio states that Atrium's "balance sheet [was] at risk," Cascio Rpt. at 7 (¶ 8), presumably to suggest that the magnitude of Atrium's total assets, as indicated on its balance sheet, is commensurate with the risk it assumed. One cannot assess whether Atrium could have incurred a significant loss of its contributed capital by looking

[271] Report on Examination of the Atrium Insurance Corporation as of December 31, 2001 (Ex. 41, RX 0129, CFPB-PHH-0094687, at CFPB-PHH-0094695-696, CFPB-PHH-0094702).

at a company's total assets, because that total includes assets other than contributed capital – such as ceded premiums residing in the Trust Accounts. Thus, the total assets amount does not indicate what portion constitutes capital contributed by Atrium or what portion constitutes funds locked away in another MI's trust account and thus inaccessible to the MI in question.

To illustrate this, I will use the $145,848,787 total assets figure for 2001 that PHH's counsel referred to during my cross examination. At the end of 2001, the total balance in the UGI and Genworth Trust Accounts was $128,427,528.[272] Thus, the total assets of Atrium outside of the Trust Accounts at the end of 2001 was just $17,421,259 (= $145,848,787 – $128,427,528).

Atrium's balance sheet shows that the $145,848,787 total assets figure included $15,701,035 of "Premiums in the Course of Collection."[273] These were premiums receivable that had not yet been collected and deposited into any Trust Account. Because risk transfer requires the reinsurer to face a reasonable probability of significant loss of its own capital, premiums ceded by the MIs cannot be counted as Atrium capital in a risk transfer analysis, whether they were inside or outside of a Trust Account. Because premiums in the course of collection were included in Atrium's total assets, they must be deducted from the $17,421,259 figure to determine the maximum possible amount of contributed capital outside of the Trust Accounts as of the end of 2001. That amount is *just $1,720,224* (= $17,421,259 – $15,701,035).

Even if the entire $1,720,224 amount was Atrium's contributed capital (and it does not appear that it was, in light of my analysis of "Gross Paid in Capital and Contributed Surplus" above), and assuming there was no limitation of liability to the Trust Accounts, that would not be enough to change the result of my risk transfer analysis.

[272] Atrium's Audited Financial Statements, Dec. 31, 2001, p. 15 (Ex. 56).
[273] *Id.* at 3 (Ex. 56).

Relying on total assets to evaluate risk transfer can also be problematic because the assets outside of the Trust Accounts may include premiums that were removed from the Trust Accounts via dividends. For example, Atrium's total assets at the end of 2007 were $299,391,263.[274] The total balance in the Trust Accounts at that time was $222,050,724.[275] The "Premiums in the Course of Collection" was $10,626,767.[276] Thus, under this methodology, the maximum possible amount of Atrium capital contributions outside of the Trust Accounts at the end of 2007 was $66,713,772. While this may seem substantial, it almost certainly includes a large amount of funds that originated from premiums ceded by UGI, which were removed through dividends from the Trust account to Atrium in 2007. Using the same methodology, the maximum possible amount Atrium contributed capital at the end of 2006 was $28,728,659.[277] What can explain the sudden increase in assets outside of the Trust Account (excluding premiums in the course of collection) – from $28,728,659 in 2006 to $66,713,772 in 2007? As shown in Table 11 above, there was no increase in "Gross Paid in Capital and Contributed Surplus" in 2006 or 2007, so there was not any additional capital contributed outside of the Trust Accounts that could account for the increase.

The increase in assets outside the Trust Accounts is likely explained by the fact that in 2007, Atrium withdrew a total of $66.6 million from the UGI Trust Account.[278] At the end of 2006, there was only $16.7 million of cumulative Atrium contributed capital in the Trust

[274] Atrium Audited Financial Statements, Dec. 31, 2007, p. 3 (Ex. 60).
[275] *Id.* at 12 (Ex. 60).
[276] *Id.* at 3 (Ex. 60).
[277] Atrium's total assets at the end of 2006 were $293,804,314. The total balance in the Trust Accounts was $253,350,939. *Id.* at 3 (Ex. 60). The "Premiums in the Course of Collection" was $11,724,716. *Id.* at 12. Thus, under this methodology, the maximum amount of capital contributions outside of the Trust Accounts was $28,728,659. *Id.* at 3.
[278] UGI cession statement, Sept. 30, 2012, "Trust Deposits" worksheet, cells L118 & L120 (Ex. 11, ECX 0198).

Account, so the $66.6 million that Atrium removed in 2007 necessarily required the removal of $49.9 million of funds that originated from premiums ceded by UGI (in addition to eliminating the entire $16.7 of remaining contributed capital). The transfer of premiums from inside the UGI Trust Account to outside the UGI Trust Account in 2007 is the likely reason that Atrium's assets outside of the Trust Accounts increased sharply in 2007.[279] Thus, any attempt to use total assets outside of the Trust Accounts in 2007 to assess whether Atrium could incur a significant loss of its *own* capital would therefore be misleading.

[279] PHH also withdrew a dividend of $16.5 million from Atrium in 2007 (almost the exact amount of remaining contributed capital in the UGI Trust Account before the 2007 withdrawals from that trust), reducing the assets outside of the Trust Accounts by that amount. *See* Atrium's Audited Financial Statements, Dec. 31, 2007, p. 5 (Ex. 60).

Attachment 1

CONSUMER FINANCIAL PROTECTION BUREAU
SUMMARY OF MAXIMUM CLAIM AMOUNT BY BOOK-YEAR
UGI ARRANGEMENT

Book Year	Original Risk in Force (a)	Reinsurer (a) Attachment	Reinsurer (a) Detachment	Maximum Claim Amount (b)
(1)	(2)	(3)	(4)	(5)
1994	$ 227,962,492	6.5%	12.5%	$ 13,677,750
1995	286,058,676	6.5%	12.5%	17,163,521
1996	467,383,501	6.5%	12.5%	28,043,010
1997	479,888,947	4.0%	14.0%	47,988,895
1998	1,199,138,913	4.0%	14.0%	119,913,891
1999	1,498,053,602	4.0%	14.0%	149,805,360
2000	1,294,769,736	4.0%	14.0%	129,476,974
2001	1,091,927,000	4.0%	14.0%	109,192,700
2002	908,386,000	4.0%	14.0%	90,838,600
2003	505,203,000	4.0%	14.0%	50,520,300
2004	844,877,000	4.0%	14.0%	84,487,700
2005	463,030,000	4.0%	14.0%	46,303,000
2006	219,053,000	4.0%	14.0%	21,905,300
2007	373,665,000	4.0%	14.0%	37,366,500
2008	238,123,000	4.0%	14.0%	23,812,300
2009	116,791,000	4.0%	14.0%	11,679,100
TOTAL				**$ 982,174,901**

Notes:

(a) Amounts for 2000 and prior are from the UGI Cession Statement, "Risk" worksheet, Column F (Ex. 11, ECX 198)
Amounts for 2001 and subsequent are from Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 24 (Ex. 10, ECX 839)

(b) (5) = (2) x [(4) - (3)]

Attachment 2

CONSUMER FINANCIAL PROTECTION BUREAU
SUMMARY OF MAXIMUM CLAIM AMOUNT BY BOOK-YEAR
GENWORTH ARRANGEMENT

Book Year	Original Risk in Force (a)	Reinsurer (a) Attachment	Reinsurer (a) Detachment	Maximum Claim Amount (b)
(1)	(2)	(3)	(4)	(5)
2000	$ 183,000	4.0%	14.0%	$ 18,300
2001	695,794,000	4.0%	14.0%	69,579,400
2002	979,093,000	4.0%	14.0%	97,909,300
2003	1,055,413,000	4.0%	14.0%	105,541,300
2004	195,710,000	4.0%	14.0%	19,571,000
2005	149,471,000	4.0%	14.0%	14,947,100
2006	114,551,000	4.0%	14.0%	11,455,100
2007	116,786,000	4.0%	14.0%	11,678,600
2008	224,651,000	4.0%	14.0%	22,465,100
2008.1	322,698,000	5.0%	10.0%	16,134,900
TOTAL				**$ 369,300,100**

Notes:

(a) Milliman Report titled "Atrium Insurance Corporation Reinsurance Performance Metrics
3rd Quarter 2009," CFPB-PHH-00138290, CFPB-PHH-00138337 (Ex. 13, ECX 646)

(b) (5) = (2) x [(4) - (3)]

Attachment 3

CONSUMER FINANCIAL PROTECTION BUREAU
SUMMARY OF CEDED PREMIUM BY BOOK-YEAR
ESTIMATED ON RUN-OFF BASIS
NET OF CEDING COMMISSION

Book Year	Projected Ultimate Premium Per Book Year		Cumulative Premium Through Book Year	
	UGI (a)	Genworth (b)	UGI (c)	Genworth (d)
(1)	(2)	(3)	(4)	(5)
1994	$ 3,098,059	$ -	$ 3,098,059	$ -
1995	4,626,148	-	7,724,207	-
1996	8,213,161	-	15,937,369	-
1997	12,584,652	-	28,522,021	-
1998	36,670,809	-	65,192,830	-
1999	41,402,158	-	106,594,988	-
2000	25,603,598	2,000	132,198,585	2,000
2001	25,732,338	16,138,000	157,930,923	16,140,000
2002	24,601,000	27,148,000	182,531,923	43,288,000
2003	20,728,000	43,012,000	203,259,923	86,300,000
2004	41,108,000	7,751,000	244,367,923	94,051,000
2005	27,446,000	8,447,000	271,813,923	102,498,000
2006	13,401,000	6,261,000	285,214,923	108,759,000
2007	24,335,000	5,768,000	309,549,923	114,527,000
2008	14,195,000	11,802,000	323,744,923	126,329,000
2009	3,227,000	8,800,000	326,971,923	135,129,000
TOTAL	$ 326,971,923	$ 135,129,000		

Notes:

(a) Amounts for 2001 and prior are from the UGI Cession Statement, "WrittenPrem" worksheet, Column F (Ex. 11, ECX 198)
Amounts for 2002 and subsequent are from Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 5 (Ex. 10, ECX 839)

(b) Milliman Report titled "Atrium Insurance Corporation Reinsurance Performance Metrics 1st Quarter 2012" (Ex. 19, ECX 0656, CFPB-PHH-01236493, at CFPB-PHH-01236499)

(c) (4) is the accumulation of amounts in (2).

(d) (5) is the accumulation of amounts in (3).

Attachment 4

CONSUMER FINANCIAL PROTECTION BUREAU
SUMMARY OF MINIMUM FUNDING AMOUNTS FOR *UGI TRUST*

Book Year	Original Risk in Force (a)	Reinsurer (a) Attachment	Reinsurer (a) Detachment	20% Funding Requirement (b)	Cumulative Minimum Funding Requirement (c)
(1)	(2)	(3)	(4)	(5)	(6)
1994	$ 227,962,492	6.5%	12.5%	$ 2,735,550	$ 2,735,550
1995	286,058,676	6.5%	12.5%	3,432,704	6,168,254
1996	467,383,501	6.5%	12.5%	5,608,602	11,776,856
1997	479,888,947	4.0%	14.0%	9,597,779	21,374,635
1998	1,199,138,913	4.0%	14.0%	23,982,778	45,357,413
1999	1,498,053,602	4.0%	14.0%	29,961,072	75,318,485
2000	1,294,769,736	4.0%	14.0%	25,895,395	101,213,880
2001	1,091,927,000	4.0%	14.0%	21,838,540	123,052,420
2002	908,386,000	4.0%	14.0%	18,167,720	141,220,140

Notes:

(a) Amounts for 2000 and prior are from the UGI Cession Statement, "Risk" worksheet, Column F (Ex. 11, ECX 198)
Amounts for 2001 and subsequent are from Milliman Report titled "Reinsurance Performance Metrics for Atrium Reinsurance Corporation: 1st Quarter 2013," p. 24 (Ex. 10, ECX 839)

(b) (5) = 20% x [(4) - (3)] x (2)

(c) (6) is accumulation of amounts in (5)

Attachment 5

CONSUMER FINANCIAL PROTECTION BUREAU
SUMMARY OF MINIMUM FUNDING AMOUNTS FOR *GENWORTH TRUST*

Book Year	Original Risk in Force (a)	Reinsurer (a) Attachment	Reinsurer (a) Detachment	10% Funding Requirement (b)	Cumulative Minimum Funding Requirement
(1)	(2)	(3)	(4)	(5)	(6)
2001	$ 695,794,000	4.0%	14.0%	$ 6,957,940	$ 6,957,940
2002	979,093,000	4.0%	14.0%	9,790,930	16,748,870
2003	1,055,413,000	4.0%	14.0%	10,554,130	27,303,000

Notes:

(a) Milliman Report titled "Atrium Insurance Corporation Reinsurance Performance Metrics 3rd Quarter 2009," CFPB-PHH-00138290, CFPB-PHH-00138337 (Ex. 13, ECX 646)

(b) (5) = 10% x [(4) - (3)] x (2)

Attachment 6

CONSUMER FINANCIAL PROTECTION BUREAU
DEVELOPMENT OF AMOUNTS IN TRUST ACCOUNTS
1997 THROUGH 2003

Calendar Year End	Total (a)	UGI (b)	Genworth
(1)	(2)	(3)	(4)
Development assuming UGI Balance based on Cash Value			
1997	$ 460,000	$ 460,000	$ -
1998	9,040,457	9,040,457	-
1999	26,302,925	26,302,925	-
2000	72,785,786	72,785,786	-
2001	128,427,528	122,365,195	6,062,333
2002	154,874,477	139,925,647	14,948,830
2003	181,843,232	155,185,311	26,657,921
Development assuming UGI Balance based on Market Value			
1997	$ 460,000	$ 460,000	$ -
1998	9,040,457	9,040,457	-
1999	26,302,925	26,302,925	-
2000	72,785,786	72,785,786	-
2001	128,427,528	123,346,654	5,080,874
2002	154,874,477	140,536,007	14,338,470
2003	181,843,232	155,619,097	26,224,135

Notes:

(a) From Atrium's Independent Auditor's Reports (Exs. 56-63, "Trust Deposits" section)

(b) For 1997-2000 all amounts in Trust Accounts are for UGI and are from Column (2)
For 2001 and subsequent, "cash value" and "market value" amounts are from the UGI cession statement "Trust Deposits" worksheet, Columns N and O (Ex. 11, ECX 0198)

(c) (4) = (2) - (3).

Attachment 7

CONSUMER FINANCIAL PROTECTION BUREAU
DEVELOPMENT OF DEFICIENCIES IN TRUST BALANCES

Year End	Required Minimum (a)	Actual Balance (b)	Deficiency [(2)-(3)]
(1)	(2)	(3)	(4)
Assuming UGI Trust Based on Cash Value			
UGI			
1994	$ 2,735,550	$ -	$ 2,735,550
1995	6,168,254	-	6,168,254
1996	11,776,856	-	11,776,856
1997	21,374,635	460,000	20,914,635
1998	45,357,413	9,040,457	36,316,956
1999	75,318,485	26,302,925	49,015,560
2000	101,213,880	72,785,786	28,428,094
2001	123,052,420	122,365,195	687,225
2002	141,220,140	139,925,647	1,294,493
Genworth			
2001	$ 6,957,940	$ 6,062,333	$ 895,607
2002	16,748,870	14,948,830	1,800,040
2003	27,303,000	26,657,921	645,079
Assuming UGI Trust Based on Market Value			
UGI			
1994	$ 2,735,550	$ -	$ 2,735,550
1995	6,168,254	-	6,168,254
1996	11,776,856	-	11,776,856
1997	21,374,635	460,000	20,914,635
1998	45,357,413	9,040,457	36,316,956
1999	75,318,485	26,302,925	49,015,560
2000	101,213,880	72,785,786	28,428,094
2001	123,052,420	123,346,654	(294,234)
2002	141,220,140	140,536,007	684,133
Genworth			
2001	$ 6,957,940	$ 5,080,874	$ 1,877,066
2002	16,748,870	14,338,470	2,410,400
2003	27,303,000	26,224,135	1,078,865

Notes: (a) See Attachments 4 and 5.
(b) See Attachment 6.

Attachment 8

CONSUMER FINANCIAL PROTECTION BUREAU

SUMMARY OF BENCHMARK INTEREST RATES BETWEEN 2004 AND 2009

	Alternative Benchmark Interest Rates (%)				
	T-Bill Constant Maturity			Moody AAA Corporate	Prime
Year	3 Month	12 Month	10 Year	Bond Index	Loan
(1)	(2)	(3)	(4)	(5)	(6)
2004	1.40	1.89	4.27	5.63	4.34
2005	3.22	3.62	4.29	5.23	6.19
2006	4.85	4.94	4.80	5.59	7.96
2007	4.48	4.53	4.63	5.56	8.05
2008	1.40	1.83	3.66	5.63	5.09
2009	0.15	0.47	3.26	5.31	3.25
Average 2004-09	2.58	2.88	4.15	5.49	5.81
Average 2006-09	2.72	2.94	4.09	5.52	6.09

Source: http://www.federalreserve.gov/releases/H15/data.htm
Visited 4/16/2014

Executed on this 21st day of April, 2014:

Mark Crawshaw, Ph.D., FCAS, MAAA

Certificate of Service

I hereby certify that on this 21st day of April 2014, I caused a copy of the foregoing "Rebuttal Expert Report of Mark Crawshaw Ph.D., FCAS, MAAA" to be filed with the Office of Administrative Adjudication and served by electronic mail on the following persons who have consented to electronic service on behalf of Respondents:

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