EXPERT REPORT OF MARK CRAWSHAW Ph.D., FCAS, MAAA

March 3, 2014

Filed Under Seal

Table of Contents

I. SCOPE OF REPORT

A. Scope of Assignment

The Consumer Financial Protection Bureau ("CFPB" or "Bureau") requested that I, Mark Crawshaw Ph.D., FCAS, MAAA of Madison Consulting Group, prepare this 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).[1]

My understanding is that the Bureau has alleged that PHH violated Section 8 of the Real Estate Settlement Procedures Act, 12 U.S.C. § 2607, through its use of captive mortgage reinsurance arrangements and related activities conducted by PHH through Atrium, a company that entered into "reinsurance" agreements with certain non-affiliated mortgage guaranty insurance companies ("MIs").

I was specifically asked to assess and form actuarial opinions concerning the following questions:

1. Did the particular captive reinsurance arrangements at issue in this case transfer significant risk from the MIs to Atrium?

2. If so, were the premiums paid by the MIs commensurate with the benefits received?[2]

As part of responding to both questions, I was also asked to assess analyses of risk transfer and pricing under Atrium's captive arrangements performed by the actuarial consulting firm Milliman, Inc. ("Milliman") on behalf of Atrium and its MI partners.

---

[1] 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.

[2] In addition to these two specific issues, I was also asked more generally whether any mortgage or insurance industry norms are relevant to the issues in this proceeding.

B. Limitations

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. Documents on which I relied are attached as exhibits to my report.[3]

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.

II. QUALIFICATIONS AND COMPENSATION

I, Mark Crawshaw Ph.D., FCAS, MAAA, prepared this report. The opinions expressed in this report are mine. I am a consulting actuary with, and President of, Madison Consulting Group ("MCG"), an independent actuarial consulting firm based in Madison, Georgia. I have been a principal of MCG and/or its predecessor firm since 1989. I am a Fellow of the Casualty Actuarial Society ("FCAS") and a Member of the American Academy of Actuaries ("MAAA"). I hold a BA degree in Mathematics from Oxford University, England (1980); and a Ph.D. degree in Mathematics from the California Institute of Technology, Pasadena, California (1984). I have almost thirty years of property/casualty actuarial consulting experience and extensive experience in evaluating traditional and captive

[3] Documents Mr. Crawshaw considered in forming his opinions, but that are not explicitly referenced in his Report, have been tendered via email to Respondents via FTP file transfer, as electronic service by email was not possible due to the large file size.

reinsurance arrangements on behalf of regulators, insurance companies and reinsurance companies. Attachment 1 is a copy of my Curriculum Vitae.

The Bureau is compensating MCG for this engagement based on an hourly rate of $325.

III. EXECUTIVE SUMMARY

My opinions and conclusions are summarized as follows:

The captive mortgage "reinsurance" arrangements between Atrium and its MI partners United Guaranty, Genworth, CMG and Radian had many features that enabled Atrium to avoid any risk of sustaining a significant loss of its capital. These included: (1) the limitation of liability to the funds in Trust Accounts established for each MI; (2) the segregation of risk by MI through separate Trust Accounts; (3) Atrium's low initial capitalization of the Trust Accounts; (4) the establishment of a high liability "attachment point" for Atrium that was unlikely to be reached in the first several years of the arrangements; (5) Atrium's ability to build a substantial "buffer" of premiums during those first few years that would protect its capital contributions to the Trust Account from loss, before deciding whether or not to continue with the arrangement by contributing additional capital; (6) Atrium's ability to simply not make required capital contributions and instead force termination of the programs and so shift any risk Atrium may have assumed back to the MIs when economically advantageous to do so; (7) the coverage of multiple book years, which further reduced risk and, (8) Atrium's apparent ability to persuade the MIs to retrospectively rewrite contractual terms that were more favorable to Atrium. I discuss these common risk-avoiding features in Section V below.

As a result of these features, the risk of loss to Atrium's capital was limited to such an extent that, in my view, each of Atrium's four "reinsurance" arrangements did not result in any significant transfer of risk from the MIs to Atrium. I discuss my analysis of risk transfer with respect to each specific arrangement in Section VI below.

In light of the above, I do not believe that the MIs obtained a genuine reinsurance service through their captive arrangements with Atrium. Rather, those arrangements were designed to yield large profits to Atrium. The compensation paid to Atrium in the form of premiums ceded by the MIs was extremely high relative to any risk assumed by Atrium. The resulting profit margins that Atrium and the MIs expected to accrue to Atrium through those arrangements were in the range of 40% of ceded premiums, which cannot be justified in light of the insignificant risk transferred to Atrium. I am unable to discern any reasonable and legitimate insurance-based rationale for the compensation Atrium received under its captive arrangements. These opinions are discussed in Section VII below.

Finally, the analyses of risk transfer and pricing under Atrium's captive arrangements performed by Milliman are flawed in many respects. Those flaws are detailed in Section VIII below.

IV. BACKGROUND

The purpose of this section of the report is to discuss background facts and principles to provide context for the discussion of the actuarial and other insurance-related issues that follow.

A. Characteristics of Mortgage Guaranty Insurance

Mortgage guaranty insurance is purchased to protect lenders against the loss of all or a portion of the principal amount of a mortgage loan upon default of the mortgagor.[4]

Mortgage guaranty insurance differs from most other types of property casualty insurance in that coverage is long-term and may run for the term of the mortgage. The policy terminates when the mortgage is satisfied or when the lender elects to cancel or non-renew the policy. All policies are renewable at the discretion of the lender. The mortgage guaranty insurer does not have the option to cancel or non-renew polices (except in cases of fraud or non-payment of premium). Premiums are generally level (*i.e.*, a fixed amount until expiration) and are often paid on a monthly basis.

Mortgage guaranty insurance is influenced by risk factors which distinguish it from some other types of insurance. This includes the risk of infrequent but widespread defaults caused by severe downturns in the U.S. economy.[5]

For accounting purposes, mortgage guaranty insurance policies can be grouped into "book years" based on the date that coverage first became effective (in many cases this will be the date the loan was made). For example, in a typical contract, mortgage guaranty insurance policies effective from January 1, 2005 through December 31, 2005 would be grouped within the 2005 book year. Insurance policies for a given book year will then give rise to premium and claim transactions for a number of subsequent calendar years until such time as all policies have expired and all related claims transactions have finally settled.

[4] SSAP # 58, ¶ 2 (Ex. 1).
[5] *Id.* ¶¶ 9, 11 (Ex. 1).

B. Captive Mortgage Reinsurance

In general, "reinsurance" is the assumption by an insurer ("reinsurer") of all or a part of the risk undertaken originally by another insurer ("primary insurer" or "ceding entity").[6] A "captive" is an insurance company established and owned by one or more companies to insure the risks of its owner (or owners).

There are four captive "reinsurance" arrangements at issue in this proceeding, one for each of the following primary MIs:

- United Guaranty Residential Insurance Company ("UGI");
- Genworth Mortgage Insurance Corporation ("Genworth");
- Radian Guaranty Incorporated ("Radian"); and,
- CMG Mortgage Insurance Company ("CMG").

Atrium was the reinsurer in each of these arrangements. Each of these four arrangements covered loans originated by PHH Corporation (or an affiliated company). Thus, these were "captive" arrangement in that PHH was both the originator of the loans insured by the MIs and also (via Atrium) the reinsurer of the MIs.

Atrium's agreements with the MIs provided for purported reinsurance coverage for "book years" of primary insurance policies, each of which would be in effect for ten calendar years. The agreements provided for coverage on an aggregate "excess-of-loss" basis, meaning that Atrium's liability to pay claims was triggered once the MI's aggregate claims as a percentage of total insured risk reached a contractually-specified "attachment point" or "entry percentage," and its liability continued until the MI's aggregate claims reached a contractually-specified "detachment point" or "exit percentage." The layer of exposure

[6] SSAP #62, ¶ 2 (Ex. 2).

between the "attachment point" and the "detachment point" is called the "risk corridor." The MI was responsible for claims below and above the "risk corridor."

With some exceptions, most of the agreements provided for a "4/10/40" structure, meaning that the MI would be required to "cede" to Atrium 40% of the premium for a book year,[7] and Atrium would be liable to pay claims when the MI's aggregate claims were between 4% and 14% of the total original amount at risk (such that the "risk corridor" was 10% of the total original amount at risk).

C. "Transfer of Risk" Under Reinsurance Agreements

Industry Guidelines for Assessing Risk Transfer

Under relevant industry standards, an agreement between a reinsurer and a primary insurer can reflect a genuine reinsurance service to the primary insurer only if it results in the transfer of insurance risk from the primary insurer to the reinsurer. As explained by the National Association of Insurance Commissioners ("NAIC") in its Statement of Statutory Accounting Principle 62 ("SSAP # 62"):

> *The essential ingredient of a reinsurance contract is the shifting of risk.* The essential element of every true reinsurance contract is the undertaking by the reinsurer to indemnify the ceding insurer (i.e., reinsured company), *not only in form but in fact*, against loss or liability by reason of the original insurance."[8]

---

[7] Some of the contracts or their amendments specified that Atrium would pay a "ceding commission" to the MI (for administrative and other expenses), which would essentially return a portion of the ceded premium back to the MI. The 40% ceding percentage referenced above is net of the ceding commission. UGI, for example, was required to cede 45% of the premium on a gross basis, but Atrium was required to pay a ceding commission of 11.1% of the 45% ceding percentage (11.1% x 45% = 5%), such that the net payment from the MI to Atrium was 40% of the premium (45% - 5% = 40%).

[8] SSAP # 62, ¶ 9 (Ex. 2). The Statements of Statutory Accounting Principles ("SSAPs") issued by the NAIC form the foundation of the regulation of insurance by the various states. The NAIC publishes a manual called "Accounting Practices and Procedures Manual" that sets forth these SSAPs. MIs are subject to many of the same SSAPs that are applicable to property and casualty insurers generally.

For there to be a true shifting of risk to the reinsurer, the possibility of loss must be more than remote and the potential loss cannot be insignificant. The Statement of Financial Accounting Standards No. 113 ("FAS 113") published by the Financial Accounting Standards Board ("FASB") in 1992 provides useful guidance.[9] FAS 113 "establishes the conditions required for a contract with a reinsurer to be accounted for as reinsurance" and states that contracts that "do not result in the *reasonable possibility that the reinsurer may realize a significant loss* from the insurance risk assumed generally do not meet the conditions for reinsurance accounting and are to be accounted for as deposits."[10] FAS 113 provides the following tests – both of which should be satisfied in order to conclude that a contract results in risk transfer:

> "a. The reinsurer assumes significant insurance risk under the reinsured portions of the underlying reinsurance contracts.
>
> b. It is reasonably possible that the reinsurer may realize a significant loss from the transaction." [11]

Thus, Paragraph 9 of FAS 113 includes two separate tests for "risk transfer" – which are sometimes referred to as "Test 9a" and "Test 9b." Test 9a requires a basic consideration of the nature of the contract. Test 9b is more technical and generally involves a probabilistic evaluation of loss. For example, one commonly used standard under Test 9b is that the reinsurer must have at least a 10% chance of sustaining, on a present value basis, a loss equal to or greater than 10% of the premiums ceded by the primary insurer (that is, the present-value of total claims paid by the reinsurer must exceed the present value of total premiums

[9] As of July 1, 2009, the Statements of Financial Accounting issued by FASB were codified and replaced with FASB Accounting Standards Codification ("ASC"). FAS 113 codified to ASC 944 (Insurance) as primary topic and to ASC 420 (Exit or disposal of cost obligations) as secondary topic. Because these arrangements were executed before that date, I refer to FAS 113, rather than the corresponding ASCs.

[10] Statement of Financial Accounting Standards No. 113, at 4 (Ex. 3) (emphasis added).

[11] *Id.* at 5, 7 (Ex. 3). These standards were also codified in SSAP # 62 issued by the NAIC.

collected by 10% or more, such that the reinsurer sustains a loss). The 10/10 test is sometimes described as requiring a present-value "loss ratio" of 110% or more, where "loss ratio" refers to the ratio of claims paid over premiums ceded.

The 10/10 test, however, is not definitive, and can be overly stringent or lenient depending on how it is applied and the circumstances of the reinsurance transaction being analyzed.[12] There are other ways to evaluate risk transfer, including considering important factors which are not captured by the 10/10 test (many of which I discuss throughout this report). According to a "Guidance Statement" regarding FAS 113 issued by the Casualty Actuarial Society[13] ("CAS Guidance Statement"): "Regardless of the model employed or the risk metric used, judgment is still required as to where to establish the threshold or critical values for what constitutes risk transfer and what does not."[14]

The CAS Guidance Statement provides discussion of how the FAS 113 standard in Test 9b keeps "reasonably possible" and "significant loss" intertwined and states "it seems completely consistent with these paragraphs to require a stricter standard for *reasonably possible* when *significant loss* is interpreted more broadly, and vice versa. Thus a 5% chance of a loss of 100% of premium might provide as much or more *reasonable possibility of a probable loss* as a 10% chance of a loss of 25% of premium, for example."[15] The CAS Guidance Statement summarizes: "Test b requires an examination of possible outcomes. To

[12] For example, as I discuss below, because Atrium was expected to have an unusually high profit margin from the arrangement, in the range of 40% of ceded premiums, a possibility of a mere 10% loss is not sufficient to demonstrate risk transfer. *See infra* 70.
[13] The Casualty Actuarial Society ("CAS") is the premier professional organization for property/casualty actuaries in the U.S. The CAS administers a series of professional examinations that it requires for membership. The CAS also publishes actuarial papers and professional guidelines.
[14] CAS Guidance Statement, at 308 (Ex. 4).
[15] *Id.* at 312 (Ex. 4).

meet this test, at least some of the outcomes have to produce a loss for the reinsurer, where a loss is determined using present values of all cash flows. The significance of losses is to be evaluated relative to the present value of all payments to the reinsurer. The test is of reasonable possibility of significant loss, and it would be appropriate though not required, to evaluate reasonability and significance conjointly."[16]

The CAS Guidance Statement also states that "the criteria for risk transfer does not look at whether or not the ceding insurer reduces its risk. Rather, the test a & b is on *whether or not the reinsurer assumes risk*."[17]

For the reinsurer to assume risk, the potential "loss" to the reinsurer must be a payment by the reinsurer to the primary insurer that *exceeds* the premiums ceded by the primary insurer on a present-value basis. If the claim payments by the reinsurer amount to nothing more than a return of some or all of the premiums previously collected from the primary insurer, or if the reinsurer pays only an insignificant amount above the premiums, the reinsurer has not sustained a real "loss." In that scenario, rather than ceding a portion of the premiums to the reinsurer, the primary insurer could have fared just as well by depositing those funds into a savings account. The primary insurer could have used those funds, and accrued interest, to pay for the claims and ended up in the same – or possibly a better – position.

In addition to the amount of potential loss to the reinsurer, the timing of potential loss should be considered in assessing risk transfer. FAS 113 states: "A reinsurer shall not be

[16] *Id.* at 313 (Ex 4).

[17] *Id.* at 311 (Ex. 4) (emphasis added). The CAS Guidance Statement also explains that "risk transfer" under FAS 113 should not account for taxes and other expenses incurred by the reinsurer. *Id.* at 307 (FAS 113 "requirements preclude consideration of income taxes, reinsurer expenses, brokerage, or credit risk in the determination of risk transfer").

considered to have assumed significant insurance risk under the reinsured contracts if the *probability of a significant variation* in either the amount or *timing of payments by the reinsurer is remote*."[18]

FAS 113 also states that a risk transfer assessment should consider "contractual features that … limit the amount of insurance risk to which the reinsurer is subject (such as through … cancellation provisions, adjustable features …)."[19]

In practice, risk transfer is typically assessed on a prospective basis, particularly when entities are using a risk transfer analysis to decide whether to enter into an insurance or reinsurance arrangement. However, it is possible to analyze an arrangement that has concluded to determine whether significant risk was actually transferred through that arrangement. Such an analysis can be based on information available at the time the arrangement was entered into, but cannot ignore conduct of the parties at any point during that arrangement that may have reduced or eliminated the risk to the reinsuring entity. A risk transfer analysis for such an arrangement that was performed at the outset but failed to account for subsequent conduct by one party or the other that reduced risk would not be particularly useful. In addition, the conduct of the parties throughout the arrangement, even viewed in retrospect, can inform an analysis of the parties' intentions with regard to risk transfer at the outset of the arrangement.

[18] FAS 113 at 7 (Ex. 3).
[19] *Id.* at 6, 7 (Ex. 3).

V. COMMON FEATURES OF ATRIUM'S CAPTIVE ARRANGEMENTS THAT RESULTED IN INSIGNIFICANT TRANSFER OF RISK FROM THE MI COMPANIES TO ATRIUM

Atrium's four captive arrangements shared the following common features that resulted in insignificant transfer of risk from the MIs to Atrium:

A. Limitation of Atrium's Liability to Funds in the Applicable Trust Account.

Each of Atrium's captive arrangements with its MI partners included a separate Trust Account dedicated to that MI. Each such Trust Account was funded solely by premiums ceded by the MI and capital contributions provided by Atrium. The Trust Account also contained investment income earned on the assets in the Trust Account from those two funding sources. Funds in the Trust Account were available to pay claims under the reinsurance agreement, as well as in some circumstances, income taxes and overhead expenses of the program, and dividends to Atrium.[20]

For each captive arrangement, premiums ceded by the MI for policies written in any book year were pooled into a single Trust Account established for that MI, so that the Trust Account held premiums from multiple book years. Because premiums associated with multiple book years were pooled in this manner, premiums ceded from one book year could be used to pay claims associated with another book year.

It is my understanding that Atrium's liability to pay claims under each of its reinsurance arrangements was limited to the funds in the corresponding Trust Account. This understanding is based on the following:

[20] The Trust Account was also available to satisfy statutory accounting requirements so that the MI could take credit on its statutory balance sheet for certain amounts ceded to Atrium.

First, Sam Rosenthal of PHH, who managed all of Atrium's captive relationships with the MIs, testified that Atrium's exposure was limited to "all the capital that in, in that trust" because "the most it could lose was the money, all the premiums and all the capital it initially put in the trust . . . ."[21] Mr. Rosenthal also testified that "*if capital falls below a certain minimum threshold*, then Atrium is no longer permitted to receive its portion of the premium and it could choose to put a capital infusion in to the trust, but *it's not a contractual obligation that it must put a capital infusion in to the trust*."[22] Thus, in the event that sufficiently large claim payments exhausted the funds in the Trust Account, the MI could not reach Atrium assets outside of the trust or any assets of PHH to pay for such claims.

Second, in numerous of its reports prepared for both Atrium and its MI partners, Milliman stated: "*Atrium has no liability beyond funds available in the trust*."[23] The reports state that Milliman relied on information provided by the client (either Atrium or the MI).[24] The fact that Milliman addressed the interpretation of the scope of liability in plain terms and in reports prepared on behalf of both Atrium and the MIs is, in my opinion, particularly significant because it shows clearly that both parties to each arrangement understood Atrium's liability to be limited to the amount in the applicable Trust Account. It is also my understanding that Milliman was retained by Atrium to provide the Annual Actuarial Statement of Opinion that Atrium was required to file in support of its statutory financial

[21] Transcript of Investigational Hearing Testimony of Sam Rosenthal of PHH ("Rosenthal IH Tr.") at 42:21-43:19 (Ex. 5).
[22] *Id.* at 43:8-13 (Ex. 5).
[23] *See, e.g.*, Milliman Report on UGI-Atrium Program, Sept. 21, 2005 (Ex. 6, CFPB-PHH-00112442, at CFPB-PHH-00112451); Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex. 7, CFPB-PHH-00052221, at CFPB-PHH-00052230); Milliman Report on Radian-Atrium Program, July 1, 2004 (Ex. 8, MILL-PHH-E000236, at MILL-PHH-E000245).
[24] *See, e.g.*, Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex. 7, CFPB-PHH-00052221, at CFPB-PHH-00052242).

statement. As the opining actuary, Milliman had responsibility to fully understand the scope of Atrium's potential liability under its reinsurance arrangements.

Third, as I discuss in more detail below, each of the four captive arrangements was eventually terminated, or "commuted," with a final payment made to the MI from the Trust Account. *See infra* 31, 44, 51, 56. In each case, the amount of payment to the MI did not exceed the total funds in the applicable Trust Account. The final payments that CMG and Radian received were the exact amount of the funds in their respective Trust Accounts, which strongly suggests that Atrium's liability was capped by the amounts in the Trust Account. *See infra* 51, 56.

Fourth, Atrium representatives referred to funds being "at risk" in the Trust Accounts, which means that funds outside of the Trust Account were not at risk. For example, in a February 18, 2009 email, Mark Danahy (PHH's President and CEO) explained that he did not want to "put additional capital at risk with this trust."[25]

The use of a Trust Account in property and casualty reinsurance is common; however, it is unusual for liability to be limited to the funds in the Trust Account. This feature of the Atrium captive arrangements significantly limited Atrium's risk because Atrium's maximum exposure under each of those arrangements was the capital it had put into the Trust Account. As discussed below, that capital contribution was often small, particularly in the early years of the program.

B. Segregation of Risk by MI

Because there was a single Trust Account established for each MI and Atrium's liability was limited to the amount in each Trust Account, funds from the Trust Account

[25] Email from Danahy (PHH) to Bogansky (PHH) (Ex. 48, CFPB-PHH-00002954).

established for one MI could not be used to pay claims incurred by another MI. In other words, Atrium's premiums, claims and risk were segregated by MI.

One of the fundamental principles of insurance is the pooling of risk among multiple insured entities. As the American Academy of Actuaries explained in a 2009 article, "The pooling of risk is fundamental to insurance."[26] Similarly, a 1998 presentation by the Mortgage Insurance Companies of America (an insurance company trade group, which included MGIC, a leading MI) to the Arizona Department of Insurance refers to "*the basic insurance principle that an insurer's liabilities should be supported by all of its assets.*"[27] The segregation of premiums by MI substantially reduced the probability and extent of potential recovery for each MI compared to a situation in which premiums from all MIs were pooled together and available to pay claims incurred by any MI. When risk is pooled among multiple insured entities, a given insured entity's recovery is not limited by the premiums paid by that entity. If the insured entity's own premiums and associated capital contributions from the insurance or reinsurance company are insufficient to pay claims incurred by that entity, premiums paid by other insured entities would be available to pay those claims.

In addition to decreasing the likelihood that there would be sufficient funds to pay claims of any given MI, segregation of premiums by MI also reduced the risk to Atrium because Atrium could withdraw capital from the Trust Account of one MI (through a dividend payment), but that capital was safely protected from the claims from another MI. This was demonstrated in 2009, when Atrium declined to add capital to the CMG Trust Account to rectify a deficiency in that Trust Account and effectively forced the program to

[26] American Academy of Actuaries, "Risk Pooling," July 2009, at 1 (Ex. 9).
[27] "Captive Reinsurance and Other Risk Sharing Arrangements," Arizona Department of Insurance, Jan. 22, 1998 (Ex. 10, MGIC-CFPB00190633, at MGIC-CFPB00190648-49) (emphasis added).

terminate, limiting Atrium's risk, and increasing CMG's risk, during the financial crisis.[28] CMG received a commutation payment limited to the funds in the Trust Account. Between 2005 and 2007, however, Atrium had previously withdrawn $94 million in dividend payments from the UGI Trust Account.[29] Even though the present value of CMG's expected claim payments (minus ceded premiums) almost certainly exceeded the amount in its Trust Account and would have supported a larger commutation payment, CMG could not access any of the $94 million. Nor could CMG access any of the more than $100 million that Atrium took from other Trust Accounts after the CMG arrangement was commuted.[30] Instead of using those assets to pay CMG, Atrium was able to shield those assets from CMG and take them for itself.

Finally, while each MI's risk was increased because its potential recovery and thus its ability to mitigate its risk through its captive arrangement was limited by the segregation of premiums by MI, Atrium's losses on one captive arrangement could be countered by profits from another arrangement. Thus, the segregation of risk by MI only harmed the MIs.

C. Low Initial Capital Contributions

With the arguable exception of Genworth, Atrium's initial capital contribution to each Trust Account was small both in absolute dollar value and relative to the amount of premiums ceded by the MIs. 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,[31] in comparison

[28] I discuss the circumstances that led to the commutation of the CMG arrangement in Section VI.C below. *See infra* 53-55.
[29] *See* Table 1, *infra* 33.
[30] Declaration of Michael Bogansky at Exhibit A (Ex. 11).
[31] UGI and Atrium originally entered into a captive arrangement in November 1995. It is possible that this $460,000 amount was the only capital that Atrium contributed to the UGI Trust Account from 1995 through 2000 – more than four years of the arrangement. I have

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. *See infra* 33. 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. *See infra* 57.

These small initial capital contributions skewed the relative risk positions of the MIs and Atrium heavily in Atrium's favor. As previously discussed, because Atrium's liability was limited to the funds in each Trust Account, Atrium's capital contribution represented the maximum loss to Atrium. It also represented the maximum gain that the MIs could realize from the captive arrangement. By placing such small amounts into the Trust Accounts, Atrium had the opportunity to gain much larger potential profits represented by the premiums ceded by the MIs. Conversely, at the outset of the programs, the MIs gave up substantial expected profits in return for the uncertain prospect of obtaining Atrium's small capital contribution – which could only occur if the attachment point was pierced and claim payments exceeded all of the premiums previously ceded by the MI.

D. Attachment Point Set at Level above Expected Losses

The "attachment points" in Atrium's captive arrangements (the contractually-specified level of MI losses at which Atrium's liability is triggered) were set at a sufficiently high level, above expected claims, such that no claims were expected to be paid by Atrium in the majority of years. Atrium's contracts with three of its MI partners (UGI, Genworth and

---

seen no evidence that Atrium made any capital contribution in 1995 or 1996. Further, the Declaration of Michael Bogansky states that it identifies all capital contributions under the UGI agreement, but he did not identify any capital contributions in 1995 of 1996. Declaration of Michael Bogansky, ¶ 14 & Exhibit A (Ex. 11). However, it is not clear whether the data in his Declaration covers the period before January 1, 1997 (when UGI and Atrium executed a new agreement).

Radian) specified a 4% attachment point for most or all of the book years covered. In a 1998 article on captive arrangements, Michael Schmitz of Milliman, Inc. (the actuary who performed risk transfer analyses for Atrium's captive arrangements) wrote: "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. For example, the reinsurer may be expected to be loss-free for three out of four years of mortgage originations."[32] Likewise, in a 2005 internal memorandum on captive mortgage reinsurance arrangements, [redacted]

E. Low Probability of Claim Payments by Atrium in Initial Few Years

Although Atrium was not expected to pay claims in the majority of book years, the risk that Atrium would have to pay any claims was particularly low in the initial few calendar years of those arrangements. The reason for this is two-fold. First, as discussed, the risk corridor was set at a level sufficiently above expected claims, reducing the likelihood and extent of any claim payments by Atrium in any calendar year. Second, Atrium's liability under its contracts with its MI partners was based on *cumulative* claims incurred by the MI on loans covered by a book year, calculated from the inception of that book year to date.[34] In

[32] Michael C. Schmitz, "Investigating captive mortgage reinsurance," *Mortgage Banking*, Feb. 1, 1998, at 4 (Ex. 12).

[33] [redacted]

[34] For example, Atrium's agreement with UGI provided that Atrium was liable for claims when the "Policy Year Paid Claims Ratio" for that book year exceeded the attachment point.

the first few years of the arrangement, even under adverse circumstances, any claims incurred by the MI would not have had sufficient time to accumulate to a level that could pose any significant risk that the attachment point would be pierced.

As a result of this structure, even if an MI incurs claims in the first year of a given book year, Atrium is not likely to have to pay for those claims because there has only been one year for claims to accumulate, so the attachment point is unlikely to be reached. Milliman recognized this phenomenon in a report prepared for Atrium, in which it stated: "Loss exposure is greatest later in the run-off for a book year *once primary losses have had a chance to erode the aggregate excess loss attachment point.* As a note, primary insurers incur the majority of their losses three to seven years into the run-off of a book year."[35]

Accordingly, in its analyses of Atrium's captive arrangements, Milliman ran numerous scenarios to project potential claims for each book year that it analyzed, and consistently projected that for each such book year, there would be *no claims* paid by Atrium in the first three calendar years of coverage for that book year.[36] This was true even in

---

Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1997, § 3 (Ex. 14, CFPB-PHH-0073180, at CFPB-PHH-0073185) (emphasis added). The "Policy Year Paid Claims Ratio," calculated by dividing cumulative net claims for a book year by the total insured risk for that book year, is "a *cumulative* number, calculated on an inception to date basis whenever calculated." *Id.* at CFPB-PHH-0073183 (emphasis added). Likewise, Atrium's contract with Genworth provided that Atrium was liable once Genworth's "*Aggregate* Net Losses" exceed the attachment point. Reinsurance Agreement Between Genworth and Atrium, Oct. 9, 2000, § 2.02 (Ex. 15, CFPB-PHH-000131093, at CFPB-PHH-000131098) (emphasis added).

[35] Milliman Report titled "Atrium Insurance Corporation: Unpaid Claim Liabilities as of December 31, 2007," (Ex. 16, CFPB-PHH-00096103, at CFPB-PHH-00096112) (emphasis added).

[36] *See, e.g.*, Milliman Report on UGI-Atrium Program, Mar. 23, 2007 (Ex. 17, CFPB-PHH-00942620, at CFPB-PHH-00942646) (single-book year analysis on bottom half of table shows zero "Paid Losses" in calendar years 12-14, which are the first three years of the book year under analysis); Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex. 7, CFPB-PHH-00052221, at CFPB-PHH-00052246) (single-book year analysis on bottom half

Milliman's so-called "stress scenario" (the scenario that reflected a projected loss ratio to Atrium at the highest 10% probability level, meaning that 90% of the scenarios run by Milliman had a lower projected loss ratio to Atrium).[37] The logical extension of Milliman's analysis is that it was highly unlikely that there would be any claims paid by Atrium in the first three calendar years of a captive arrangement because no book year was more than three years old during that time (and thus, the attachment point was not likely to be reached for any of the three book years covered by the arrangement in those years, even in a stress scenario).

The extremely low risk to Atrium in the first few years of its captive arrangements is shown most clearly by the real-life example of the CMG arrangement, which commenced on December 1, 2006.[38] Atrium paid *no claims* to CMG, even in 2008 and 2009 during the height of the financial crisis.[39] It is significant to me that the attachment point was not reached for any book year during the first 2.5 years of the arrangement before it was commuted in August 2009, even though the market was undergoing a severely "stressed" scenario. It is also notable that the CMG arrangement had a 2.25% attachment point,[40] indicating that the much higher 4% attachment points in Atrium's arrangements with the other three MIs (United Guaranty, Genworth and Radian) were even less likely to be reached in a three-year time frame.

---

of table shows zero "Paid Losses" in calendar years 5-7, which are the first three years of the book year under analysis).

[37] Transcript of Investigational Hearing Testimony of Michael Schmitz on behalf of Milliman ("Milliman IH Tr.") at 63:15-64:1, 72:9-18, 99:1-17 (Ex. 18) (describing single-book year analysis in Milliman report for UGI, Ex. 17, as reflecting stress scenario).

[38] Reinsurance Agreement Between CMG and Atrium, Dec. 1, 2006 (Ex. 19, CFPB-PHH-00091715).

[39] Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11).

[40] Reinsurance Agreement Between CMG and Atrium, Dec. 1, 2006 (Ex. 19, CFPB-PHH-00091715, at CFPB-PHH-00091742).

The low likelihood of claims in the initial few years of a captive arrangement is an important factor in analyzing risk transfer because the capital contributed by Atrium was largely protected from any real risk of loss in those early years. This structure afforded Atrium time to build substantial funds in the Trust Account through the collection of premiums, even without the need to contribute much, if any, additional capital. In later years, when the probability that the attachment point would be reached increased with the accumulation of MI claims, the Trust Accounts had already accumulated substantial amounts of ceded premiums, which served as a "buffer" against the risk of loss of Atrium's contributed capital, including any additional capital Atrium might decide to commit.

F. Atrium's Ability to Force Termination of its Captive Arrangements to Minimize Risk to its Capital

As I will discuss below, I believe Atrium's captive arrangements were structured as long-term arrangements, intended to cover multiple book years, and that the long-term nature of those arrangements was, in all likelihood, expected to result in substantial benefits to Atrium, including low overall risk and large profits over their lifetime. *See infra* 26-29. Nonetheless, Atrium could terminate its agreements with the MIs at any time if it believed this favorable expected outcome was threatened.

The contract between Atrium and Genworth allowed for "Unilateral Termination": "Either party may terminate its participation in this Agreement as of 11:59 p.m., Eastern Time by providing at least ninety (90) days' prior written notice thereof to the other party…."[41] That contract also provided that "[e]ither party may terminate this Agreement at any time if … any payment to be made hereunder by the other party is more than ninety (90)

[41] Reinsurance Agreement between Genworth and Atrium, § 2.02 (Ex. 15, CFPB-PHH-000131093, at CFPB-PHH-000131102).

days overdue, and said payment has not been made within thirty (30) days after written notice to pay has been served upon the party not paying."[42]

The contract between UGI and Atrium also included a provision giving either party the right to "terminate this Agreement at any time" if the other party failed to make a payment required under the contract.[43] The UGI contract further clarified that "the only consequence of [Atrium's] failure to deposit any required amounts into the Trust Agreement will be the termination of the Agreement pursuant to Section 5.4."[44]

The contracts between Atrium and Radian and CMG, respectively, included similar provisions. The Radian contract allowed unilateral termination upon written notice and the right to terminate if Atrium failed to "maintain adequate capital and reserves as required by its state or country of domicile" or failed to "pay any amount owing by it hereunder when due."[45] The CMG contract allowed for unilateral termination upon written notice and the right to terminate for "[f]ailure to [m]ake [t]rust deposits."[46]

Generally, a termination can be either on a "run-off" basis or a "cut-off" basis. A "run-off basis" termination means that the reinsurer's liability under policies already covered by the arrangement would continue until the natural expiration of each policy (or the end of the 10 year period covered by the arrangement), but no new policies would be reinsured. A "cut-off" basis termination means that the reinsurer has no liability whatsoever, even under policies that were previously covered by the arrangement. My understanding of the UGI

[42] *Id.*
[43] Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1997 (Ex. 14, CFPB-PHH-0073180, at CFPB-PHH-0073186).
[44] *Id.* at CFPB-PHH-0073194 (Ex. 14).
[45] Reinsurance Agreement Between Radian and Atrium, July 26, 2004 (Ex. 20, CFPB-PHH-00091615, at CFPB-PHH-00091627).
[46] Reinsurance Agreement Between CMG and Atrium, Dec. 1, 2006 (Ex. 19, CFPB-PHH-00091715, at CFPB-PHH-00091726).

agreement is that it allowed Atrium to obtain a "commutation of all remaining liability" (a cut-off termination) over UGI's objection.[47] I also understand that the CMG agreement provided for a cut-off termination in the event of Atrium's failure to adequately fund the Trust Accounts.[48] All of the contracts allowed the parties to mutually agree to a cut-off termination.[49] In any event, all of Atrium's captive arrangements were terminated on a cut-off basis with either a negotiated split of the Trust Account between Atrium and the MI, or in cases where the Trust Account was, or was about to be, exhausted, all of the funds in the Trust Account were transferred to the MI. *See infra* 31, 44, 51, 56. In all cases, at the point of termination, all further liabilities for Atrium were eliminated, even if the Trust Account was insufficient to cover those liabilities.

Atrium could (and did) use the termination option to end its captive arrangements to its advantage, at the optimal time for Atrium. For example, because the initial required capital contribution was low, and Atrium's liability was limited to the funds in the applicable Trust Account, Atrium could choose to continue with a captive arrangement as long as it was

[47] UGI could provide notice to UGI of its intention to proceed under either of the following options: (a) "on a clean-cut basis with portfolio transferred to [UGI] and with [Atrium] receiving total control over the trust funds"'; or (b) "commutation all remaining liability based upon a good faith actuarial estimate" of applicable claims and premiums. But in the event that "no mutual agreement can be reached," commutation of all remaining liability would "be deemed to have been chosen by the parties." *See* Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1997, § 5.04 (Ex. 14, CFPB-PHH-0073180, at CFPB-PHH-0073186-187).

[48] Reinsurance Agreement Between CMG and Atrium, Dec. 1, 2006, § 9.03 (Ex. 19, CFPB-PHH-00091715, at CFPB-PHH-00091726).

[49] Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1997, § 5.04 (Ex. 14, CFPB-PHH-0073180, at CFPB-PHH-0073186-187); Reinsurance Agreement between Genworth and Atrium, Oct. 9, 2000, § 9.05 (Ex. 15, CFPB-PHH-000131093, at CFPB-PHH-000131103); Reinsurance Agreement Between Radian and Atrium, July 26, 2004, § 9.05 (Ex. 20, CFPB-PHH-00091615, at CFPB-PHH-00091627); Reinsurance Agreement Between CMG and Atrium, Dec. 1, 2006, § 9.06 (Ex. 19, CFPB-PHH-00091715, at CFPB-PHH-00091727).

profitable to Atrium, but then discontinue the arrangement if it was not profitable or once significant claims became more likely. In the early years of an arrangement, the maximum loss to Atrium would be its relatively low initial capital contribution (which was unlikely to be lost in those years due to the high attachment point, as discussed above).

But the loss of its capital contribution was not likely even beyond the initial years of an arrangement, because the contracts allowed the parties to terminate the arrangement and split the Trust Account based on the projected expected value of the MI's future premiums and claims (referred to as a commutation). Because the Trust Account in those later years had accumulated substantial premiums, the commutation payment to the MIs could be made from those premiums, resulting in no or insignificant loss to Atrium while placing the risk that the actual premiums and claims may differ from the amounts used to calculate the commutation payment back to the MI.[50]

Thus, Atrium's ability to terminate its agreements with its MI partners significantly reduced, or even eliminated, any risk of loss to Atrium's capital contributions already in the Trust Account. In addition, termination would also allow Atrium to avoid having to place additional capital into the Trust Account, if Atrium believed that significant claims were more likely and that continuing with the arrangement would place that capital at risk. For example, in a February 18, 2009 email, shortly before Atrium decided to commute the Radian program, Mark Danahy (PHH's President and CEO) wrote: "*At this point, I do not*

[50] The commutation payments to Genworth and UGI included no capital contributed by Atrium. *See* Attachment 2. The CMG and Radian commutation payments included a small amount of Atrium's contributed capital, but as I explain below, the amount did not reflect the transfer of significant risk to CMG and Radian, and Atrium avoided any further significant losses by commuting those programs. *See infra* 53-55, 58-59.

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."[51]

In addition to allowing Atrium to avoid having to infuse additional capital, termination and commutation also allowed Atrium to immediately obtain cash from the Trust Accounts that would otherwise have been available to pay MI claims in the future. Mr. Rosenthal referred to a potential Genworth commutation as "an effective method to raise immediate capital for PHH."[52]

In a submission to PHH, Genworth described Atrium's right to terminate and commute its contract with Genworth as follows: Protective Order [redacted] I have seen nothing that contradicts Genworth's assessment of the permissive nature of the termination right in its contract with Atrium.

Atrium's ability to reduce risk by timing its termination and commutation depending on business conditions was recognized by UGI. In a submission to PHH, UGI explained that "*[c]ommutation of books of business before they reach peak claim years can reduce risk transfer below required levels"* and that the commutation option in its contract with Atrium "allows Atrium adequate flexibility to request commutations *as business conditions dictate*."[54] The commutation option greatly limited Atrium's downside risk because it

[51] Email from Danahy (PHH) to Bogansky (PHH) (Ex. 48, CFPB-PHH-00002954) (emphasis added).
[52] Email from Rosenthal (PHH) to Bradfield (PHH), June 15, 2010 (Ex. 21, CFPB-PHH-00035724, at CFPB-PHH-00035726).
[53] Genworth Response to RFI, Oct. 2006 (Ex. 22, CFPB-PHH-00131337, at CFPB-PHH-00131361) (emphasis added).
[54] "Proposal for Mortgage Insurance Partnership Prepared for PHH Mortgage by AIG United Guaranty," Oct. 18, 2006 (Ex. 23, CFPB-PHH-00141748, at CFPB-PHH-00141763).

provided Atrium with what was effectively an "escape" option that enabled it to minimize any real risk of significant claims and to shift that risk back to the primary MI.

G. Long-Term Arrangements Covering Multiple Book Years

Despite the availability of the termination option discussed above, in my opinion, the most reasonable view of the captive arrangements from an insurance perspective is that the parties intended them to be long-term arrangements covering many book years and many calendar years. This opinion is based on the following:

First, as discussed above, the Trust Accounts established for each MI pooled premiums ceded from multiple book years, allowing cross-collateralization of claims across book years, meaning that premiums ceded from one book year could be used to pay claims from other book years. As explained by Milliman: "*Trust accounts are established for multiple book years*. Therefore, the reinsurer has the ability to utilize capital and retained earnings from profitable book years to satisfy losses of unprofitable book years."[55]

Second, the arrangements were generally structured to allow a low initial capital contribution from Atrium. It was only after several book years of favorable results and retained earnings (from Atrium's perspective) and/or additional capital contributions from Atrium that the Trust Accounts would have the resources to reasonably pay the claims for the aggregate coverage (without cut-off) they purported to provide.

[55] Milliman report titled "PMI Group Analysis of Deep Cede Excess-of-Loss Captive Reinsurance Programs" (Ex. 24, CFPB-PHH-00042266, at CFPB-PHH-00042278) (emphasis added). This report was prepared for the PMI Group, Inc. (PMI). PMI's website states: "Established in 1994 as a joint venture between PMI Mortgage Insurance Co. and CUNA Mutual Insurance Society, CMG MI's mission is to bring the best of the mortgage insurance industry to credit unions." *See* http://www.pmi-us.com/about_pmi/companies.html (visited Feb. 26, 2014).

Third, the agreements provided that Atrium would maintain a contingency reserve, as required by state insurance regulations. The purpose of the statutory contingency reserve is to smooth claims over ten-year periods,[56] which implies that the arrangement should be long-term. This point was also made by Michael Schmitz of Milliman (who prepared many of the Milliman reports for Atrium) in the 1998 article "Investigating 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.*"[57]

Fourth, my understanding is that the MIs viewed the arrangements as long-term relationships that would cover many book years. [redacted] Similarly, in a section of a 2006 presentation to PHH discussing its captive

[56] In its financial statements, Atrium accurately describes the contingency reserve as a "special statutory reserve designed to protect policyholders against loss during a period of extreme economic contraction" and which requires insurers to "set aside fifty cents of each premium dollar earned and *maintain the contingency reserve for a period of ten years*, regardless of the length of coverage of the particular policy for which premium was paid …." Atrium Reinsurance Statutory Financial Statements as of and for the Year Ended December 31, 2010 (Ex. 25, CFPB-PHH-00103646, at CFPB-PHH-00103655) (emphasis added).

[57] Michael C. Schmitz, "Investigating captive mortgage reinsurance," *Mortgage Banking*, Feb. 1, 1998, at 5 (Ex. 12).

[redacted] Protective Order [redacted]

arrangement with PHH, UGI wrote: "Thinking Long-Term. The success of Atrium also points to the true *value of investing in long-term, well-managed partnerships*."[60]

Accordingly, an appropriate analysis of risk transfer under Atrium's captive arrangement should account for the reality that those arrangements were intended to cover multiple book years. The risk to Atrium is reduced in a multiple-book year arrangement in part due to diversification and the law of averages. 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. The volatility of results is higher with fewer loans covered. 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*."[61]

To illustrate this concept, consider a card player at a casino who might have reasonable chance of "beating the house" on any given day, due to the variability of results. But that player is much less likely to beat the house if he or she plays for 10 days. The more hands played, the less likely it is that the actual outcome will diverge from the expected outcome – which is an ultimate win for the house. Similarly, the MI (like the card player) might have a reasonable chance of "winning" the reinsurance bet against Atrium (the house) for a single book year, but when loan volume increases with additional book years and the portfolio becomes more diverse, the risk that Atrium will "lose" decreases. With more loans covered, the actual outcome is less likely to vary from the expected outcome. These captive

[60] "Proposal for Mortgage Insurance Partnership Prepared for PHH Mortgage by AIG United Guaranty," Oct. 18, 2006 (Ex. 23, CFPB-PHH-00141748, at CFPB-PHH-00141761).
[61] Michael C. Schmitz, "Investigating captive mortgage reinsurance," *Mortgage Banking*, Feb. 1, 1998, at 3 (Ex. 12) (emphasis added).

arrangements were expected to be profitable for Atrium over the long-run.[62] By covering enough book years, the arrangements were much more likely to achieve that expected result.

H. High Expected Underwriting Profit Margins for Atrium

Atrium's captive arrangements were expected to be extremely profitable for Atrium. Milliman consistently calculated a prospective expected underwriting profit margin to Atrium of around 40% of ceded premiums.[63]

In traditional insurance arrangements, the expected underwriting profit that the insured effectively pays the insurer is usually much smaller than the amount the insured can potentially recover from the insurer in a stress scenario. In the Atrium program, this was almost never the case – the capital contributed by Atrium (which was the maximum amount the MI could recover) was almost always significantly less than the 40% expected underwriting profit component of the premiums. This is another indication that the risk being transferred to Atrium was unusually low.

Atrium's high expected underwriting profit margin is also further evidence that the risk of loss to Atrium was insignificant in that the larger the expected gain, the less likely it is that Atrium would suffer a loss on the arrangement because a loss would require a greater

[redacted] Protective Order [redacted]

For example, Milliman's analysis of policy year 2004 under the Genworth arrangement indicates that claims were expected to amount to 52% of the ceded premium gross of ceding commission, or equivalently 58.5% of the ceded premium net of ceding commission. This means that 41.5% (=100% - 58.5%) of premium was available for expenses of the Trust Account and an underwriting profit margin. Since Atrium's underwriting expenses (excluding ceding commission and income taxes) were minimal – about 1% to 2% of premium (*see* Attachment 5), the expected underwriting margin was projected to be approximately 40%. *See* Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex. 7, CFPB-PHH-00052221, at CFPB-PHH-00052256).

deviation from the expected outcome. (By contrast, if Atrium's expected underwriting profit margin had been only 5%, a loss would have been much more likely.)

VI. ANALYSIS OF "RISK TRANSFER" UNDER ATRIUM'S SPECIFIC CAPTIVE ARRANGEMENTS

In this section, I discuss my analysis and conclusions regarding whether each of Atrium's four captive arrangements demonstrated true risk transfer to Atrium. I will begin with the two largest arrangements: UGI and Genworth. According to information provided in a declaration submitted by Michael Boganksy of PHH, the total premiums ceded by UGI and Genworth to Atrium over the life of their arrangements with Atrium were $304,729,028 and $136,312,066, respectively.[64] The CMG and Radian arrangements were smaller in comparison, with $3,845,544 and $2,776,097 in total ceded premiums, respectively.[65]

A. United Guaranty

Overview of UGI Arrangement

The captive arrangement between UGI and Atrium originally commenced on November 9, 1995 under Agreement No. 3-38.[66] The original contract was terminated back to its beginning and replaced by a new contract, Agreement No. 3-44, effective January 1, 1997.[67] Although Agreement 3-44 was effective January 1, 1997, it provided coverage for loans made and premium written on or after November 9, 1995. It also provided coverage for loans effective from October 1, 1993 to November 8, 1995 but only for renewal premiums

[64] Declaration of Michael Bogansky ¶ 14 & Exhibit A (Ex. 11).
[65] *Id.*
[66] Reinsurance Agreement No. 3-38 Between UGI and Atrium, Nov. 9, 1995 (Ex. 27, CFPB-PHH-00145125).
[67] Agreement of Termination of Reinsurance Agreement No. 3-38, Jan. 1, 1997 (Ex. 28, CFPB-PHH-00143064; Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1997 (Ex. 14, CFPB-PHH-0073180).

received on, or after, November 9, 1995.[68] Thus, from the start, the contract covered multiple book years.

The structure of the arrangement changed over time based on a series of amendments. Under a January 1, 2001 amendment, the parties agreed that for the loans covered after that date, UGI was required to cede 40% of the primary insurance premiums to Atrium, and Atrium was liable for claim payments between 4% and 14% of cumulative claims over the total insured risk.[69] This structure continued until March 1, 2009, when the ceding percentage was reduced to 25%, Atrium's attachment point was increased to 6.5% and Atrium's detachment point was reduced to 12.5%.[70]

On May 31, 2013, UGI and Atrium commuted their agreement.[71] UGI received a $48.6 million payment from the Trust Account, and Atrium received a $69.2 million payment from the Trust Account.[72] The parties were each relieved of all payment obligations and any other liability under the contract.[73]

According to PHH documents, over the life of the UGI arrangement, Atrium realized a monetary gain of approximately $127.3 million (*i.e.*, dividends of $104.9 million plus commutation payment to Atrium of $69.2 million, less capital contributions of $46.8

[68] Reinsurance Agreement No. 3-44 Between UGI and Atrium, Jan. 1, 1997, ¶¶ 1.23, 1.24 (Ex. 14, CFPB-PHH-0073180).
[69] Amendment #1 to Reinsurance Agreement Between UGI and Atrium (Ex. 14, CFPB-PHH-0073180, at CFPB-PHH-0073201); Amendment #2 to Reinsurance Agreement Between UGI and Atrium, Jan. 1, 2001 (Ex. 14, CFPB-PHH-0073180, at CFPB-PHH-0073205).
[70] Amendment #9 to Reinsurance Agreement Between UGI and Atrium, Mar. 1, 2009 (Ex. 29, CFPB-PHH-0046759).
[71] UGI and Atrium "Commutation Agreement and Mutual Release," May 31, 2013 (Ex. 30, CFPB-PHH-00142999).
[72] *Id*. at CFPB-PHH-00143000 (Ex. 30).
[73] *Id*. at CFPB-PHH-00143001 (Ex. 30).

million).[74] This represents a gain of about 42% of the $304.7 million of total premiums ceded by UGI.[75]

Table 1 below summarizes activity in the UGI Trust Account over the life of the arrangement.[76] I will refer to this table in discussing my opinions regarding risk transfer under the UGI arrangement. Column A shows, for each calendar year, the capital contributed to or removed from the UGI Trust Account by Atrium that year. Column B shows the *cumulative* capital contributed by Atrium in the Trust Account, from the inception of the arrangement to the end of each calendar year. Column C shows the premiums ceded by UGI on an annual basis. Column D shows the cumulative amount of premiums in the Trust Account, from the inception of the arrangement to the end of each calendar year. Column E shows the cumulative capital contributed by Atrium as a percentage of the total premiums in the Trust Account at each year. Column F shows the claims paid to UGI each year.

[74] *See* Attachment 2; Declaration of Michael Bogansky ¶ 14 & Exhibit A (Ex. 11).
[75] 42% = 127.3 / 304.7.
[76] In this table and throughout this report, I cite and rely on data about capital contributions, dividend payments, premiums, claims paid, and other information contained in documents called "cession statements" that are prepared by the MIs for each arrangement. *See* Ex. 31 ("UGI cession statement"); Ex. 32 ("Genworth cession statement no. 1"); Ex. 33 ("Genworth cession statement no. 2"); Ex. 34 ("Radian cession statement"); Ex. 35 ("CMG cession statement"). I also rely on Exhibit A to the Declaration of Michael Bogansky, which he states "for each reinsurance agreement, the capital contributions that were made and the dividends that were earned by Atrium, as well as the distributions made when each of the reinsurance agreements was commuted." Declaration of Michael Bogansky ¶ 14 & Exhibit A (Ex. 11). I have assumed that the data in the cession statements and Mr. Bogansky's Exhibit A are accurate, but have not audited them and reserve the right to modify my opinions if I become aware of contradictory information.

TABLE 1: UNITED GUARANTY TRUST ACTIVITY

	[A]	[B]	[C]	[D]	[E]=[B]/[D]	[F]
Year	***Annual*** **Capital Contributed or Removed from Trust by Atrium**	***Cumulative*** **Contributed Capital (Net of Dividends)**	***Annual*** **Premiums Collected from UGI**[77]	***Cumulative*** **Premiums Collected from UGI**	***Cumulative*** **Capital Contributed as Percentage of Cumulative Premiums**	***Annual*** **Claims Paid to UGI**
1995		$0		$0		
1996		$0		$0		
1997	$460,000	$460,000		$0		
1998		$460,000	$8,486,472	$8,486,472	5%	
1999		$460,000	$16,659,402	$25,145,874	2%	
2000	$17,000,000	$17,460,000	$26,948,055	$52,093,929	34%	
2001	$11,510,000	$28,970,000	$33,842,336	$85,936,265	34%	
2002	$15,500,000	$44,470,000	$32,003,734	$117,939,999	38%	
2003		$44,470,000	$23,829,686	$141,769,685	31%	
2004		$44,470,000	$19,671,369	$161,441,054	28%	
2005	($11,000,000)	$33,470,000	$21,313,515	$182,754,569	18%	
2006	($16,800,000)	$16,670,000	$20,161,106	$202,915,675	8%	
2007	($66,563,805)	($49,893,805)	$18,213,252	$221,128,927	-23%	
2008		($49,893,805)	$19,480,633	$240,609,559	-21%	
2009		($49,893,805)	$21,148,628	$261,758,188	-19%	($2,250,676)
2010		($49,893,805)	$15,460,698	$277,218,886	-18%	($30,401,796)
2011		($49,893,805)	$12,757,100	$289,975,986	-17%	($52,673,152)
2012[78]	($6,800,000)	($56,693,805)	$9,957,751	$299,933,737	-19%	($33,454,202)
2013	($70,669,499)	($127,363,304)	$4,795,291	$304,729,028	-42%	($8,951,986)

[77] The premium amounts in this table are net of ceding commissions.

[78] The most recent UGI cession statement includes information through September 30, 2012. UGI cession statement (Ex. 31). Therefore, the cession statement does not include premiums collected and claims paid between this date and the effective date the agreement between UGI and Atrium was commuted, May 31, 2013. The premiums and claims paid for this period were estimated by using the totals indicated in Exhibit A to Mr. Bogansky's Declaration. Declaration of Michael Bogansky ¶ 14 & Exhibit A (Ex. 11).

During the First Several Years of the Arrangement, Atrium Faced No Real Risk Due to its Low Initial Capital Contribution.

FAS 113 states that there is risk transfer under a contract with a reinsurer when "the reinsurer assumes significant insurance risk" (Test 9a) and "it is reasonably possible that the reinsurer may realize a significant loss from the transaction" (Test 9b).[79] Another guideline for assessing risk transfer is described in a 1997 letter from Nicholas Retsinas of the Department of Housing and Urban Development to another lender ("HUD letter"): the reinsurer's exposure must be "such that a reasonable business justification would motivate a decision to reinsure that band."[80]

In my opinion, the UGI arrangement in its early years of operation clearly fails both FAS 113 and the guideline described in the HUD letter because the amount of capital Atrium contributed was extremely low relative both to the premiums ceded and to the underwriting profit expected from that premium. Atrium's initial capital contribution, made in 1997, was just $460,000. That was the only capital contribution from 1997 through May of 2000, and possibly the only capital contribution from 1995 through May of 2000.[81]

Because Atrium's liability was limited to the funds in the Trust Account, the $460,000 initial capital contribution represented the maximum potential financial "gain" to UGI from the captive arrangement, from its inception through May of 2000 (when Atrium made an additional capital contribution). $460,000 was also the maximum amount Atrium could "lose" in those years. This amount was so small relative the premiums in those years (on either a book or calendar year basis) that the captive arrangement fails Test 9a of FAS

[79] FAS 113 at 4-8 (Ex. 3).
[80] Letter from Retsinas (HUD) to Samuels (Countrywide), Aug. 6, 1997 (Ex. 36).
[81] *See supra n.* 31.

113. In other words, in my opinion, Atrium's initial capital contribution was so small that it cannot be considered to have "assumed significant insurance risk" as required by Test 9a.

In addition, it was extremely unlikely that Atrium would lose even the small amount of its initial capital in the first few calendar years because Atrium's risk corridor was set at such a high level that there was little chance in those initial few calendar years that the attachment point for any book year would be reached, for the reasons explained above. *See supra* 17-21. Even if the attachment point was reached, it was more likely that any claim payments would be made from the substantial premiums already ceded by UGI, rather than the $460,000 capital contribution. As of May 2000, the premiums net of ceding commission amounted to $37 million.[82] Premiums from multiple prior book years were pooled and claims cross-collateralized across those book years, so that entire amount was available to pay claims before any contributed capital could be reached.

While the $460,000 represents the maximum possible "gain" to UGI and the maximum possible "loss" to Atrium until May of 2000, conversely, the net ceded premiums (or a portion thereof if claim payments are made from those premiums) represent the potential financial "loss" to UGI from the captive arrangement and the potential "gain" to Atrium during that time.

From an insurance perspective, there is no rational basis for UGI to stake a likely loss of tens of millions of dollars of ceded premium against a very unlikely gain of only $460,000. Nor was there any reasonable probability of Atrium incurring a significant loss from the inception of the contract until at least May of 2000. The $460,000 capital contribution is so low relative to the premiums that I do not believe it is possible to conclude

[82] UGI cession statement, "Trust Deposits" worksheet, "Premium Deposits" column (Ex. 31).

that Atrium could ever have a "significant loss" based on any reasonable test that defines "significant loss" in terms of some percentage of premiums. Thus, I believe the UGI arrangement during these years also fails the FAS 113 Test 9b (because it was not reasonably possible that the reinsurer could realize a significant loss) and the guideline in the HUD letter (because from an insurance perspective, there was no "reasonable business justification" for UGI to have entered into this arrangement).

After May of 2000, Any Risk to Atrium Was Limited Because Atrium Could Decide to Contribute Additional Capital or Terminate the Arrangement With the Benefit of Hindsight.

The UGI captive arrangement reduced any risk of loss of capital to Atrium after the first few years of the arrangement by allowing Atrium to contribute additional capital only if it determined that its capital was not at significant risk of loss. From May of 2000 through December of 2002, Atrium contributed substantial additional capital to the Trust Account – a total of $44 million in several separate installments.[83] However, it could safely make these contributions with the benefit of hindsight based on the performance of book years 1999 and prior. At the time it had to decide whether to make additional capital contributions, it had the benefit of being able to assess whether those contributions would be at real risk or not based on the projected profitability of the book years then covered by the arrangement. For example, in early 2000, it could assess the profitability of book years 1999 and prior. Those prior years had already been highly favorable for Atrium, resulting in substantial premiums and no claims to that time. This gain remained as a "buffer" in the Trust account, so the risk of losing the additional capital was small based on then-available information. In addition, premiums from new book years 2000 through 2002 would add to the buffer, because claims

[83] UGI cession statement, "Trust Deposits" worksheet, "Capital Deposit" column (Ex. 31).

on those book years were highly unlikely as they were all less than three years old during this period.

With the benefit of more than three years of claims experience, Atrium could also more accurately assess the ultimate profitability of those book years. While that assessment would have involved projections, the uncertainty of those projections was very much reduced compared to the uncertainty UGI faced at the inception of the arrangement. For example, with knowledge of the experience through May of 2000, Atrium could more accurately evaluate the exposure for those past book years, the type and amount of loans involved, the rate at which policies were being dropped, the amount of claims against the MI 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.[84] In other words, Atrium could better project the premiums and claims (if any) it could expect in the future from book years already covered by the arrangement.

In contrast, if Atrium had been confronted with poor results for book years 1999 and prior and/or believed based on the experience from the first few years of the program that the ultimate profitability of those book years was likely to be low, it could have decided that it was too risky to add capital and opted not to make additional contributions to the Trust Account and essentially force a termination of the reinsurance arrangement instead. As noted above, UGI described its contract with Atrium as allowing "adequate flexibility to request

[84] Although not known at the time, the net premiums for book years 1999 and prior amounted to over $106.6 million by the end of the arrangement. UGI cession statement, "WrittenPrem" worksheet (Ex. 31). While Atrium could not know the final premium for book years 1999 and prior until 2009, it had significantly more information than at the inception of the arrangement to make reasonable estimates of these amounts before deciding whether to commit more capital in mid-2000.

commutations as business conditions dictate." [85] Under the UGI contract, "the only consequence of [Atrium's] failure to deposit any required amounts into the Trust Agreement will be the termination of the Agreement pursuant to Section 5.4."[86] Indeed, even after making the $17 million contribution in May of 2008, it could have chosen at any time to terminate the arrangement if a market downturn occurred and significant claims were imminent. (This is, in fact, what Atrium did with its arrangements with CMG and Radian, *see infra* 53-55.)

The structure described above enabled Atrium to defer committing capital and to use hindsight to decide whether to continue with a book year. In contrast, the MI was committed, and its capital was at risk, for the entirety of the book year at inception.

From 2005 to 2007, Any Risk to Atrium Was Reduced and Ultimately Eliminated by its Removal of Capital from the Trust Account.

Atrium removed approximately $94 million from the UGI Trust Account from May 2005 through March 2007.[87] $27.8 million of that total was removed in 2005 and 2006, which caused the total contributed capital in the Trust Account to fall to $16.7 million by the end of 2006, compared to $275 million in total net ceded premiums by that date. In February and March 2007, Atrium completely eliminated its remaining capital contribution by withdrawing $14 million and $52.6 million from the Trust Account in those months, respectively. Atrium never contributed additional capital after that. Thus, from March 2007

[85] "Proposal for Mortgage Insurance Partnership Prepared for PHH Mortgage by AIG United Guaranty" (Ex. 23, CFPB-PHH-00141748, at CFPB-PHH-00141763).
[86] *Id.* at CFPB-PHH-0073194 (Ex. 14).
[87] UGI cession statement, "Trust Deposits" worksheet, "Excess Funds" column (Ex. 31). In May 2005, Atrium contributed $2.3 million to the Trust Account and then removed the same amount that month. Because the removal of the $2.3 million was simply a reversal of the contribution of that amount, I have not included it in the $94 million figure or in any of the other figures referenced in this paragraph.

on, the only money at risk in the Trust Account were the premiums ceded by UGI and investment income. And because Atrium's liability was limited to the funds in the Trust Account and Atrium would not infuse additional capital if the funds in the Trust Account fell below minimum levels[88], Atrium faced no risk of loss after March 2007.

Atrium paid claims to UGI for the first time ever in 2009, during the financial crisis, two years after it had removed the last of its own funds from exposure to claims by UGI. According to Mr. Bogansky's declaration, PHH paid over $127.7 million in claims to UGI from 2009 through 2012.[89] This entire amount was a return of a portion of the $304.7 million in premiums previously ceded by UGI. Atrium lost none of its capital even though the "reinsurance" arrangement was supposedly operational during the most severe economic crisis in decades.

All told, according to Mr. Bogansky's declaration, UGI ceded $304.7 million in premiums and obtained $176.3 million of payments from the Trust Account ($127.7 million in claim payments plus a $48.6 million commutation payment), for a net loss of more than $128 million, or more than 42% of the premiums it ceded to Atrium.[90] UGI would have been much better off had it placed those premiums into a savings account, rather than entering into a captive arrangement that resulted in a massive loss for UGI (and a massive gain for Atrium).

UGI's experience from the arrangement was markedly less favorable than the experience of the MI industry as a whole during approximately the same time period. My

[88] Rosenthal IH Tr. at 43:8-43:13 (Ex. 5).
[89] Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11).
[90] Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11); Attachment 2.

review of industry data shows that between 2000 and 2012, on a nationwide basis, all mortgage insurance companies had an aggregate loss ratio of approximately 101.3%, with total premiums of $64.1 billion and total claims paid of $65.0 billion.[91] In other words, each dollar of premiums received by the mortgage insurance industry as a whole during that period was used to pay for approximately a dollar of claims. By entering into a captive arrangement with Atrium, each dollar of premiums paid for only about 58 cents of claims. Thus, instead of helping UGI mitigate the catastrophic claims from 2007 to 2012, the reinsurance agreements put UGI in a far worse position by causing them to pay out far more in premiums than was received in benefits. Although in practice, risk transfer is typically assessed at the inception of an arrangement, because the ultimate result of the arrangement represents such a significant deviation from the industry average, it supports my conclusions that risk transfer at the inception of the arrangement was insignificant and that Atrium did not provide a genuine reinsurance service to UGI. Additionally, the ultimate result to Atrium – a significant transfer of funds from UGI to Atrium – is consistent with the underwriting profit margin implicit in Milliman's prospective analyses.

Any Risk to Atrium Could be Reduced or Eliminated by Atrium's Ability to Obtain Favorable Concessions from UGI.

Atrium had the ability to obtain favorable concessions from UGI that could reduce or eliminate its risk. The $52.6 million dividend payment that Atrium removed from the UGI Trust Account in March 2007, which eliminated all of its remaining capital from the Trust

[91] *See* Attachment 7.

Account, was apparently not permitted under the then-existing agreement.[92] UGI and Atrium agreed to an amendment to allow Atrium to take $52 million from the Trust Account.[93]

The discussion between UGI and Atrium that led to the amendment of the contract to allow the $52.6 million dividend reinforces my belief that Atrium did not provide genuine reinsurance services to UGI. Before Atrium took that dividend from the Trust Account, Atrium's total net capital contribution was less than $3 million.[94] If the arrangement reflected a real reinsurance service, I would have expected UGI to insist that Atrium add more capital, or at least resist any attempt to remove the small amount remaining. Instead, on January 4, 2007, Dan Walker of UGI proposed that the parties agree to amend the contract to allow Atrium to remove $44.9 million from the Trust Account. I can think of no rational explanation for this behavior within the realm of insurance.[95]

In response, Mr. Rosenthal requested that a "contingency reserve" for book years 1993 through 1996 – whose coverage under the arrangement had expired – "go to zero," and that the contingency reserve for those book years be released to Atrium.[96] The release of the contingency reserve to Atrium would allow Atrium to remove $52.7 million from the Trust Account (as opposed to $44.9 million).[97]

---

[92] Email from Rosenthal (PHH) to Walker (UGI), Jan. 10, 2007 (Ex. 37, CFPB-PHH-00059845); Amendment # 7 to Reinsurance Agreement Between UGI and Atrium, Feb. 1, 2007 (Ex. 14, CFPB-PHH-0073180, at CFPB-PHH-0073220).
[93] *Id.*
[94] UGI cession statement, "Trust Deposits" worksheet, "Premium Deposits" and "Excess Funds" columns (Ex. 31).
[95] Email from Walker (UGI) to Rosenthal (PHH), Jan. 4, 2007 (Ex. 37, CFPB-PHH-00059845).
[96] *Id.*
[97] *Id.*

The contingency reserve is a statutorily required reserve intended to smooth out claims caused by catastrophic events.[98] It must be funded with fifty cents for every dollar of premiums received, and as Atrium recognizes in its financial statements, the contingency reserve must be maintained "*for a period of ten years, regardless of the length of coverage of the particular policy for which premium was paid* …."[99] For example, if loans from book year 1996 produced ceded premiums in calendar year 2006, half of those premiums would have to be set aside and remain in the contingency reserve until calendar year 2016, even though book year 1996 was expired. As a result of this requirement, the vast majority of the contingency reserves for book years 1993-1996 could not be released, even though those book years were no longer covered under the arrangement.

However, Mr. Rosenthal's justification for releasing to Atrium 100% of the contingency reserve for those book years was that those older book years were "no longer our risk" and Atrium is "out of the transaction entirely."[100] This is contrary to basic insurance principles that the contingency reserve should be allocated between the primary insurer and reinsurer in proportion to the relative risk assumed by each. The "Mortgage Guaranty Insurance Model Act" by the National Association of Insurance Commissioners (NAIC) in effect in 2000 provided:

---

[98] The purpose of the statutory contingency reserve "is to protect policyholders against loss during periods of extreme economic contraction. The annual addition to the liability shall equal 50% of the earned premium for mortgage guaranty insurance contracts and shall be maintained for ten years regardless of the coverage period for which premiums were paid. With commissioner approval when required by statute, the contingency reserve may be released in any year in which actual losses exceed 35% of the corresponding earned premiums. Any such reductions shall be made on a first-in, first out basis." SSAP # 58, ¶ 22 (Ex. 1).

[99] Atrium Reinsurance Statutory Financial Statements as of and for the Year Ended December 31, 2010 (Ex. 25, CFPB-PHH-00103646, at CFPB-PHH-00103655) (emphasis added).

[100] *Id.*

> Whenever a mortgage guaranty insurance company obtains reinsurance from an insurance company that is properly licensed to provide reinsurance or from an appropriate governmental agency, the mortgage guaranty insurer and the reinsurer shall establish and maintain the reserves required in this Act *in appropriate proportions in relation to the risk retained by the original insurer and ceded to the assuming reinsurer* so that the total reserves established shall not be less than the reserves required by this Act.[101]

Mr. Rosenthal's view of the contingency reserve – a fund required to protect against catastrophic risks – as a potential source of cash for Atrium even when Atrium bore no risk is further evidence that the captive arrangement did not provide UGI with genuine reinsurance services.

In response to Mr. Rosenthal's request, Mr. Walker agreed that the contingency reserves for expired book years "seems unnecessary and redundant," but pointed out that most of the reserve nonetheless had to be maintained pursuant to statutory requirements.[102] However, Mr. Walker point out that UGI had "agreed to reduce the 20% required capital to zero."[103] With that concession, Mr. Rosenthal requested that UGI and Atrium proceed with "contract modifications required to accomplish this."[104]

Thus, while I have discussed above some factors that "reduced" any risk of loss to Atrium, Atrium's ability to obtain concessions from UGI was, in effect, a trump card that could further reduce any residual risk, including reducing Atrium's "required capital to zero."

---

[101] NAIC "Mortgage Guaranty Insurance Model Act" at 630-7, *available at* http://www.naic.org/store/free/MDL-630.pdf (visited Feb. 25, 2014) (Ex. 38) (emphasis added).
[102] Email from Walker (UGI) to Rosenthal (PHH), Jan. 4, 2007 (Ex. 37, CFPB-PHH-00059845).
[103] *Id.*
[104] *Id.*

B. Genworth

Overview of Genworth Arrangement

Genworth and Atrium entered into a captive agreement effective October 9, 2000.[105] Under that agreement, Genworth was required to cede to Atrium 40% of primary insurance premiums.[106] Atrium was responsible for claims on loans in a covered book year once cumulative claims reached 4% of the aggregate risk for that book year.[107] Atrium was responsible for the next 10% of total insured risk, until cumulative claims reached 14% of total insured risk, at which point Genworth would be responsible for any further claims on that book year.[108]

Pursuant to an amendment to their agreement effective June 1, 2008, Genworth and Atrium reduced the required ceding percentage from 40% to 25% of the primary insurance premium.[109]

On May 21, 2012, Genworth and Atrium terminated their captive agreement.[110] Genworth received a commutation payment of $37.1 million from the Trust Account, and Atrium received $24.1 million from the Trust Account.[111]

According to PHH documents, over the life of the Genworth arrangement, Atrium realized a monetary gain of approximately $32.5 million (*i.e.*, dividends of $13.9 million plus

---

[105] Reinsurance Agreement Between Genworth and Atrium, Oct. 9, 2000 (Ex. 15, CFPB-PHH-000131093).
[106] This percentage is net of an 11.1% ceding commission paid by Atrium to Genworth. *Id.* at CFPB-PHH-000131100 (Ex. 15).
[107] *Id.* at CFPB- PHH-000131098 (Ex. 15).
[108] *Id.*
[109] Fourth Amendment to Reinsurance Agreement Between Genworth and Atrium (Ex. 39, CFPB-PHH-00130729).
[110] Termination Agreement Between Genworth and Atrium (Ex. 40, CFPB-PHH-00051747).
[111] *Id.* at CFPB-PHH-00051749 (Ex. 40); Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11).

commutation payment to Atrium of $24.1 million, less capital contributions of $5.5 million).[112] This represents a gain of about 24% of the $136.3 million of total premiums ceded by Genworth.[113]

Table 2 below summarizes activity in the Genworth Trust Account over the life of the arrangement, based on data provided by PHH that I have assumed is correct.[114] I will refer to this table in discussing my analysis of risk transfer under the Genworth arrangement.

TABLE 2: GENWORTH TRUST ACTIVITY

	[A]	[B]	[C]	[D]	[E]=[B]/[D]	[F]
Year	***Annual*** **Capital Contributed or Removed from Trust by Atrium**	***Cumulative*** **Contributed Capital (Net of Dividends)**	***Annual*** **Premiums Collected from Genworth[115]**	***Cumulative*** **Premiums Collected from Genworth**	***Cumulative*** **Capital Contributed as Percentage of Cumulative Premiums**	***Annual*** **Claims Paid to Genworth**
2000		$0	$176	$176	0%	
2001	$5,000,000	$5,000,000	$2,325,119	$2,325,294	215%	
2002	$500,000	$5,500,000	$10,350,511	$12,675,805	43%	
2003		$5,500,000	$16,437,320	$29,113,126	19%	
2004		$5,500,000	$17,325,721	$46,438,847	12%	
2005		$5,500,000	$13,833,824	$60,272,672	9%	
2006		$5,500,000	$11,217,538	$71,490,209	8%	
2007		$5,500,000	$10,087,548	$81,577,758	7%	
2008		$5,500,000	$10,996,782	$92,574,539	6%	
2009		$5,500,000	$11,163,823	$103,738,363	5%	($671,192)
2010	($5,000,000)	$500,000	$9,360,448	$113,098,811	0%	($10,555,406)
2011	($8,900,000)	($8,400,000)	$7,347,284	$120,446,096	-7%	($12,674,990)
2012	($24,100,000)	($32,500,000)	$1,436,842	$121,882,937	-27%	($4,669,647)

[112] *See* Attachment 2.
[113] *Id.*
[114] Genworth cession statement no. 1 (Ex. 32); Genworth cession statement no. 2 (Ex. 33); Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11).
[115] The premium amounts in this table are net of ceding commissions. The total ceded premiums amount in Column D (which was based on the Genworth cession statements) differ from the total in Mr. Bogansky's declaration because the latter reflects net ceded premiums, whereas Mr. Bogansky's declaration appears to reflect gross premiums.

During the First Several Years of the Arrangement, Atrium Faced No Real Risk Due to the High Attachment Point.

Atrium contributed $5.5 million of capital to the Genworth Trust Account within the first three years of the arrangement. *See* Table 2 (Column A). While this was a significant amount of capital compared to the total premiums collected from Genworth in the first three years, *see* Table 2 (Column D), those were also the years in which Atrium faced the lowest risk that it would have to pay any claims because, as explained above, Atrium's liability was triggered when Genworth's aggregate claims (from inception to date) reached the attachment point, and in those early years, there was not sufficient time for any such claims to accumulate to a level that would pose a significant risk of piercing the attachment point. *See supra* 18-21. I refer back to the example of the CMG arrangement, in which Atrium paid no claims from its inception in December 2006 to August 2009 (when the arrangement was terminated), even though the years of operation of the contract largely coincided with the 2008 financial crisis, and Atrium's liability was triggered at a lower attachment point (2.25%) compared to the UGI and Genworth arrangement (4%). *See supra* 20. I also note again that Milliman consistently projected that Atrium would pay no claims in the first three calendar years of each book year covered by the Genworth arrangement, even in a "stress" scenario. *See supra* 19.

As of October 9, 2003 (three calendar years after the commencement of the Genworth arrangement), no book year covered by the arrangement was more than three years old,[116] so

[116] Under the Genworth contract, the 2000 "Underwriting Year" covered loans originated between October 9, 2000 and December 31, 2000. Each "Underwriting Year" after that commenced on January 1 and ended on December 31 (the last day of Genworth's fiscal

it was highly unlikely that aggregate claims associated with any of the then-covered book years would reach the attachment point. Thus, I believe that, from October 9, 2000 until at least October 9, 2003, Atrium faced a very low risk of losing any of its $5.5 million capital contribution.

After the First Several Years of the Arrangement, Any Risk to Atrium Was Reduced by a Rapidly Growing Premium Buffer.

Even after October 9, 2003, any risk of loss to Atrium was tempered by the fact that Atrium had already collected ceded premiums from Genworth for three years (around $29 million by the end of 2003), building a buffer against Atrium's risk of losing its capital. Additionally, in calendar year 2004, although the first *two* book years covered by the arrangement (2000 and 2001) were now more than three years old, and thus had an increased chance of aggregate claims reaching the attachment point, Atrium was then collecting premiums on loans from *five* book years (2000, 2001, 2002, 2003 and 2004). Because risk was cross-collateralized across book years, such that premiums associated with one book year could be used to pay claims associated with another book year, this ability to draw on premiums associated with five book years (collected in any calendar year) to pay potential claims that were likely limited (even in a stress scenario) to just two book years greatly reduced the chance that Atrium would have to use its own capital to pay any claims.

The same reasoning applies to later years. For example, in 2005, Atrium collected premiums associated with *six* book years (2000, 2001, 2002, 2003, 2004 and 2005), whereas only *three* book years (2000, 2001 and 2002) were three or more years old. Those premiums were pooled in the Trust Account, along with all premiums previously collected, and they

---

year). Reinsurance Agreement between Genworth and Atrium, § 1.39 (Ex. 15, CFPB-PHH-000131093, CFPB-PHH-000131098).

could be used to pay claims associated with any book year. Because Atrium was always collecting premiums from a greater number of book years than the number of book years likely to pierce the attachment point at any given time, any risk of loss to Atrium's capital was reduced.

Starting in 2005, Atrium Faced No Reasonable Possibility of a Significant Loss Because its Capital Contributions in the Trust Fell Below 10% of Total Ceded Premiums.

In 2005, Atrium's risk was further limited because in that year, Atrium's total capital contribution to the Trust Account fell below 10% of the total premiums collected to date. In the third quarter of 2005, the cumulative premiums ceded by Genworth to date reached $57 million, so Atrium's total capital contribution of $5.5 million was less than 10% of the total premiums.[117] Atrium never contributed any additional capital to the Trust Account after that, while premiums continued to accumulate, so Atrium's net capital contribution in and after the third quarter of 2005 was always less than 10% of the total premiums ceded by Genworth. *See* Table 2 (Column E). It was extremely unlikely that even the 10/10 test of "risk transfer" could be met after the third quarter of 2005, because Atrium's liability was limited to the funds in the Trust Account, and as Mr. Rosenthal testified, Atrium would not have infused any additional capital even if the funds in the Trust Account fell below certain minimum levels.[118] The 10/10 test could be passed only if Atrium faced at least a 10% probability of losing its own capital in an amount equal to or greater than 10% of the premiums ceded by Genworth, but starting in the third quarter of 2005, there was not that amount of contributed capital in the Trust Account to begin with.

[117] Genworth cession statement no. 1, "Settlement" worksheet (Ex. 32).
[118] Rosenthal IH Tr. at 43:8-43:13 (Ex. 5).

In 2009, after almost a decade of ceding premiums, and four years after Atrium's exposure had been permanently reduced to less than 10% of ceded premiums, Genworth received its first payment for claims under its captive arrangement with Atrium – a total recovery of $671,192.03 that year. *See* Table 2 (Column F). This payment did not result in a loss to Atrium because by the end of 2008, the Trust Account had accumulated more than $90 million of premiums ceded by Genworth. *See* Table 2 (Column D). In 2010, Genworth received a larger payment from the Trust Account – $10.6 million. *See* Table 2 (Column F). That same year, however, Atrium removed $5 million from the Trust Account, eliminating all but $500,000 of its $5.5 million capital contribution and rendering negligible any remaining risk to Atrium. *See* Table 2 (Columns A and B). In 2011, Genworth received $12.7 million of claim payments from the Trust Account, but that year, Atrium removed $8.9 million from the Trust Account, which entirely eliminated its capital contribution. *See* Table 2 (Columns A and F).

According to Mr. Bogansky's declaration, over the life of the arrangement, Genworth ceded a total of $136.3 million in premiums and obtained $65.7 million of payments from the Trust Account ($28.6 million in claim payments plus a $37.1 million commutation payment), for a net loss of more than $70 million, or more than 52% of the premiums it ceded to Atrium.[119] Like UGI, Genworth would have been much better off had it placed those premiums into a savings account. And as with UGI, its captive arrangement substantially devalued Genworth's premiums, as each dollar of Genworth's premiums was worth only 48 cents of claim payments, compared to the approximately one-to-one ratio of claims to premiums experienced by the mortgage industry as a whole during the same time period. In

[119] Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11); Attachment 2.

light of these facts, I do not believe the arrangement resulted in the transfer of risk from Genworth to Atrium and conclude that Atrium did not provide a genuine reinsurance service to Genworth.

Atrium Could Avoid Significant Losses by Electing to Either Continue with the Arrangement or Terminate It Depending on Market Conditions.

Based on the facts described above, it appears that in an arrangement that lasted over 11 years, in only 1.5 years (fourth quarter of 2003 through second quarter of 2005) was Atrium's contributed capital in the Trust Account sufficiently large in comparison to total premiums and sufficiently exposed to potential loss such that the 10/10 test could potentially be met. FAS 113 states: "A reinsurer shall not be considered to have assumed significant insurance risk under the reinsured contracts if the *probability of a significant variation* in either the amount or *timing of payments by the reinsurer is remote*."[120] In my opinion, the factors discussed above resulted in Atrium assuming no significant risk in its arrangement with Genworth, because they limited significant variation in the timing of any potential loss to Atrium.

It is important to note that this brief 1.5 year window was during the housing boom, when Atrium could monitor the profitability of the arrangement and elect to continue with it as long as the risk of claim payments was sufficiently low. In a Management Discussion & Analysis accompanying its financial statements for fiscal year 2004, Atrium wrote: "*Management expects the surplus account to continue to grow with* new premiums, and low expenses and *no losses paid*."[121] However, if Atrium sensed that a market downturn and

[120] FAS 113, at 7 (Ex. 3).

[121] Atrium Insurance Corporation, Management's Discussion and Analysis For the Year Ended December 31, 2004 (Ex. 41, CFPB-PHH-00095564, at CFPB-PHH-00095564) (emphasis added).

significant claims were potentially imminent, it could then exercise its right to commute the contract and avoid most or all of those claims because, as Genworth stated, [redacted] Protective Order [redacted][122] Atrium could have, for example, simply refused to make payments required under its contract, which would have effectively forced Genworth to agree to a commutation. (As discussed below, this is what happened with the CMG arrangement.)

C. CMG

Overview of CMG Arrangement

Atrium and CMG entered into a captive agreement on December 1, 2006.[123] Under that agreement, CMG was required to cede to Atrium 25% of primary insurance premiums.[124] Atrium was responsible for claims on loans in a covered book year once aggregate claims reached 2.25% of the aggregate risk for that book year.[125] Atrium was responsible for the next 4% of total insured risk, until cumulative claims reached 6.25% of total insured risk, at which point CMG would be responsible for any further claims on that book year.[126]

Atrium and CMG commuted their agreement on August 31, 2009.[127] CMG received a commutation payment of $3,233,079, amounting to "all funds in the Trust Account."[128] The

---

[122] Genworth Response to RFI, Oct. 2006 (Ex. 22 CFPB-PHH-00131337, at CFPB-PHH-00131361) (emphasis added).
[123] Reinsurance Agreement Between CMG and Atrium, Dec. 1, 2006 (Ex. 19, CFPB-PHH-00091715).
[124] *Id.* at CFPB-PHH-00091742 (Ex. 19).
[125] *Id.*
[126] *Id.*
[127] CMG and Atrium "Commutation and Release Agreement," Aug. 1, 2009 (Ex. 42, CFPB-PHH-00086628).
[128] *Id.;* Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table" (Ex. 11).

parties were released from all liability and obligations under the agreement.[129] Thus, after the commutation, Atrium had no obligation to pay for any claims.[130]

Any Risk to Atrium Was Limited by a Structure That Resulted in No Claim Payments Despite the Financial Crisis.

Because the CMG arrangement commenced shortly before the financial crisis of 2008, it provides a useful "test case" to assess the value of Atrium's arrangements to the MIs.[131] Unlike the UGI and Genworth arrangements, which were in place for many years before the crisis and thus allowed Atrium to receive substantial ceded premiums without paying any claims, the CMG arrangement commenced on the cusp of the financial crisis. Similar to an individual who enrolls in health insurance and pays premiums for the first time shortly before learning that he/or she has an illness that will require significant medical expenditures, one would expect the timing of the CMG arrangement to have resulted in CMG "winning" the insurance bet against Atrium in convincing fashion, through a recovery much greater than the premiums it ceded to Atrium.

Instead, Atrium paid *no* claims to CMG, despite the financial crisis of 2008 and even though the CMG arrangement had a 2.25% attachment point (compared to 4% generally applicable for the other MIs).[132] As discussed above, this fact supports my opinions that: (1) the attachment point for all of Atrium's captive arrangements was set at a level above

[129] CMG and Atrium "Commutation and Release Agreement," Aug. 1, 2009 (Ex. 42, CFPB-PHH-00086628, at CFPB-PHH-00086629).
[130] *Id.*
[131] Reinsurance Agreement Between CMG and Atrium, Dec. 1, 2006 (Ex. 19, CFPB-PHH-00091715).
[132] Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11).

expected claims; and (2) it was extremely unlikely in the early years of any of those arrangements that Atrium would be liable for any claims.

Any Risk to Atrium Was Limited by Atrium's Ability to Commute the Contract by Failing to Fund the Trust to Required Levels.

The CMG contract was commuted in August 2009. The circumstances that led to the commutation of that contract reveal the illusory nature of any "risk transfer" that might appear to exist under any of Atrium's captive arrangements. My understanding is that CMG was effectively forced to terminate the agreement because Atrium refused to fund the Trust Account to required levels.

In a presentation to PHH in July 2009, CMG explained that the funds in the Trust Account were at least $1.7 million short of the minimum capital required by the contract.[133] The minimum capital requirement was $6,398,808.99, but the Trust Account contained only $3,232,860.88.[134] For some reason, even though CMG's presentation showed that the Trust Account did not contain sufficient funds to satisfy a "Contingency Reserve" amount of $1,381,034.44 required by the parties' contract and state regulations, CMG nonetheless stated that the minimum capital requirement could be reduced by $1,381,034.44 by releasing the amount of the contingency reserve to Atrium.[135] In any event, with that reduction in the minimum required capital, the Trust Account deficiency calculated by CMG was

[133] "Atrium Insurance Corporation: Presented to PHH Mortgage Corporation," July 2009 (Ex. 43, CFPB-PHH-00131056, at CFPB-PHH-00131061).
[134] *Id.*
[135] *Id.*

$1,784,913.67.[136] CMG requested that PHH remedy the deficiency by wiring funds into the Trust Accounts.[137] PHH apparently declined this request.

On August 13, 2009, Alan Bahr of CMG wrote to Mr. Rosenthal of PHH: "While we understand the economics behind PHH's choice not to fund the Atrium trust deficiency and concur that commutation of the captive is the resulting next step, *I must express CMG MI's deep disappointment in the decision. We had anticipated a resolution that would support the integrity of the structure in place*."[138]

According to PHH, Atrium made a $3.2 million commutation payment to CMG – all of the funds in the Trust Account, including $440,634 of capital contributed by Atrium.[139] The payment of this modest amount of contributed capital to CMG at the height of the financial crisis does not, in my opinion, show that this arrangement exhibited risk transfer to Atrium. In fact, to the contrary, the loss of capital is very modest relative to the insurance risk of CMG. It is much smaller than the liabilities CMG was forced to take back onto its books at the time of the commutation, let alone the total of all the liabilities incurred by CMG. The liabilities CMG took back are substantial relative to the amount of Atrium's capital contribution and include $1.7 million in unfunded claim costs, $1.4 million in contingency reserve and possibly additional claim liabilities associated with the formerly "reinsured" risk

---

[136] *Id.*

[137] *Id.* at CFPB-PHH-00131062 (Ex. 43).

[138] Email from Bahr (CMG) to Rosenthal (PHH), Aug. 13, 2009 (Ex. 44, CFPB-PHH-00065203) (emphasis added). Similarly, a 2010 internal memorandum from PMI (one of two joint venturers that established CMG) states: "[I]n the third quarter of 2009, CMG commuted its reinsurance agreement with Atrium/PHH after the captive's trust account had a deficiency of approximately $1.8 million in July 2009 and *Atrium/PHH declined to fund it*. Based on the captive reinsurance agreement, the lack of funding of the deficient trust account automatically terminated the agreement." *See* Internal PMI Memorandum, Feb. 16, 2010 (Ex. 45, PMI IN MN 123148, at PMI IN MN 123151) (emphasis added).

[139] Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11).

corridor. In my opinion, this demonstrates that the CMG Trust Account was too lightly capitalized for Atrium to be considered to have assumed significant insurance risk under FAS 113, Test 9a. The commutation also allowed Atrium to cut off all risk before the peak years of claim payments under its arrangement with CMG.[140]

For these reasons, I believe the CMG arrangement fails the FAS 113 risk transfer test. For similar reasons, I believe the CMG program fails the guideline for risk transfer stated in the HUD letter that the reinsurer's exposure must be "such that a reasonable business justification would motivate a decision to reinsure that band."[141]

D. Radian

Overview of Radian Arrangement

Radian and Atrium entered into a captive arrangement on July 26, 2004.[142] Under that agreement, Radian was required to cede to Atrium 40% of primary mortgage insurance premiums.[143] Atrium was responsible for claims on loans in a given book year once cumulative claims reached 4% of the original aggregate risk for that book year.[144] Atrium was responsible for the next 10% of the original aggregate risk, until cumulative claims

---

[140] It appears that Atrium may have expected the CMG commutation to provide another benefit – a potential $3.25 million dividend payment, possibly from Atrium to PHH. On September 14, 2009, shortly after the parties agreed to the commutation, Christopher Bowen-Ashwin of PHH wrote to Mike Bogansky of PHH: "I reran the stat entries for the Radian and CMG commutations. It looks like once we transfer the cash to CMG we may be able to get out another $3.25 million as a dividend before the losses eat up the surplus." Email from Bowen-Ashwin (PHH) to Bogansky (PHH), Sept. 14, 2009 (Ex. 46, CFPB-00013765). Although I do not know whether such a payment was in fact made, in certain circumstances, a commutation can reduce liabilities on a reinsurer's balance sheet, which may allow for a release of the resulting surplus.

[141] Letter from Retsinas (HUD) to Samuels (Countrywide), Aug. 6, 1997 (Ex. 36).

[142] *See* Reinsurance Agreement between Radian and Atrium, July 26, 2004 (Ex. 20, CFPB-PHH-00091615).

[143] *Id.* at CFPB-PHH-00091618, -620, -639 (Ex. 20).

[144] *Id.*

reached 14% of the original aggregate risk, at which point Radian would be responsible for any further claims on that book year.[145]

Atrium and Radian commuted their agreement on July 22, 2009.[146] Radian received a payment of $4,447,105, consisting of "all funds in the Trust Account."[147] The parties were released from all liability and obligations under the agreement.[148] Thus, after the commutation, Atrium had no obligation to pay for any claims.[149]

The Captive Arrangement Between Radian and Atrium Was Designed to Pose Insignificant Risk to Atrium.

It appears that the captive arrangement between Radian and Atrium was conceived from the start as one that would result in insignificant risk, but significant earnings, to Atrium. [redacted] Protective Order [redacted]

[145] *Id.*
[146] Radian and Atrium "Commutation and Release Agreement," July 22, 2009 (Ex. 47, CFPB-PHH-00113250).
[147] Declaration of Michael Bogansky at Exhibit A (Ex. 11); Radian and Atrium "Commutation and Release Agreement," July 22, 2009 (Ex. 47, CFPB-PHH-00113250).
[148] *Id.* at CFPB-PHH-00113251 (Ex. 47).
[149] *Id.*
[redacted] Protective Order [redacted]

Protective Order [redacted]

During the First Several Years of the Arrangement, Atrium Faced No Real Risk Due to its Low Initial Capital Contribution.

Atrium contributed just $16,120 of capital to the Radian Trust Account in the third quarter of 2004.[151] That was the only capital that Atrium contributed in the almost 3.5 years from the inception of the arrangement through the first quarter of 2008.[152] In comparison, cumulative premiums ceded by Radian amounted to $549,544 by the end of 2005, $1,348,215 by the end of 2006 and $2,289,113 by the end of 2007.[153] Much like the UGI arrangement, the Radian arrangement fails any reasonable test of risk transfer, because the maximum amount Atrium could lose and the maximum amount that Radian could gain was so minimal. It makes no rational business sense for Radian to risk the loss of millions of dollars of premium for the unlikely prospect of "winning" a $16,120 recovery.

During the Financial Crisis, Atrium Avoided Any Significant Risk by Terminating the Arrangement.

In the second and fourth quarters of 2008, Atrium contributed a total of $436,229 of additional capital to the Radian Trust Account.[154] On July 22, 2009, Atrium and Radian agreed to commute their contract.[155]

---

[151] Declaration of Michael Bogansky at Exhibit A, "Cash Return on Invested Capital by Trust" table (Ex. 11).
[152] *Id.*
[153] Radian cession statement, "Cendant ETD" worksheet (Ex. 34, CFPB-PHH-00130928).
[154] Declaration of Michael Bogansky at Exhibit A, "Cash Return on Invested Capital by Trust" table (Ex. 11).

Over the life of the arrangement, total paid claims amounted to just $4,750.[156] This small recovery, even during the financial crisis, shows that the arrangement in operation offered no real value to Radian.

As a result of the termination of their agreement in 2009 on a cut-off basis, all of the funds in the Trust Account were returned to Radian, including all of the premiums previously ceded and $452,349 of Atrium's contributed capital.[157] In my opinion, the loss of just $452,349 of contributed capital, against the $3,845,554 of total premiums ceded by Radian, does not represent a significant loss to Atrium considering the financial crisis. Rather, the Radian arrangement, like the CMG arrangement, illustrates how Atrium's downside risk, including any requirement to put additional capital at risk in the Trust Account, could be curtailed by a termination during a market downturn. For example:

- In a February 18, 2009 email, 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."[158]

- On July 14, 2009, Mr. Rosenthal of PHH wrote to representatives of Radian seeking confirmation of his understanding that as a result of the termination, "*Atrium does not add any additional capital* to the Trust; & Radian releases Atrium from any future claims, obligations …."[159]

This presents a useful contrast to Atrium's decision to continue with the UGI arrangement in 2000, after the first few years of operation. In that case, the housing market

---

[155] Radian and Atrium "Commutation and Release Agreement," July 22, 2009 (Ex. 47, CFPB-PHH-00113250).
[156] Declaration of Michael Bogansky at Exhibit A, "Summary of Certain Trust Activity" table (Ex. 11).
[157] *Id.*
[158] Email from Danahy (PHH) to Bogansky (PHH) (Ex. 48, CFPB-PHH-00002954) (emphasis added).
[159] Email from Rosenthal (PHH) to Eckard (Radian) *et al.*, July 14, 2009 (Ex. 49, CFPB-PHH-00073901, at CFPB-PHH-00073902) (emphasis added).

was strong and Atrium could predict with a reasonable degree of confidence that it was safe to contribute additional capital, based on the premiums collected to date and three years of information about the claims experience and likely profitability of book years 1999 and prior. In contrast, continuing with the Radian arrangement and making additional capital contributions to the Trust Account after the first several years was not worth the risk to Atrium.

As a final comment on the Radian arrangement, as stated previously, it is interesting to me that Radian would agree to terminate its agreement with Atrium during the financial crisis. Atrium was permitted to end the program before claim payments peaked under its arrangement with Radian.

VII. ANALYSIS OF ATRIUM'S COMPENSATION

A. The Level of Premiums Ceded to Atrium Anticipated an Expected Prospective Underwriting Profit Margin to Atrium of 40%.

An underwriting profit margin is the percentage of premiums received by an insurer or reinsurer left over after claim payments and all other expenses have been deducted. The Milliman reports imply that on a prospective basis, claims under the captive agreements and underwriting expenses were expected, over the long term and on a prospective basis, to amount to about 60% of the premiums (net of ceding commissions) that the MIs paid to Atrium. The remaining amount of about 40% of the net premium was expected to provide an underwriting profit to Atrium.[160]

[160] Milliman's analysis of book year 2006 for UGI illustrates why Atrium's expected underwriting profit margin is about 40%. Specifically, the report shows Atrium's expected claims are 54% of its premium gross of ceding commission, or equivalently 60% of net premium. This means that 40% (= 100% - 60%) of net premium provides for expenses and underwriting profit margin. Since expenses are minimal the expected underwriting profit is

B. Atrium's Expected Underwriting Profit Margin of 40% is Unusually High.

In my experience, an expected underwriting profit margin of 40% is unusually high. It is much higher than the profit loads typical of most types of property/casualty businesses, which are usually 10% or less.

Actuarial principles and standards of practice[161] imply that the expected underwriting profit to the insurer should be set so that the resulting return on capital (after investment and other income are considered) is reasonable considering the risks taken on by the insurer or reinsurer. In normal reinsurance transactions, premium ceding levels are set such that the expected underwriting profit margin to a reinsurer is commensurate with the risk that reinsurer assumes in the deal. Transactions that result in a higher risk to the reinsurer's capital are correlated with higher profit margins to the reinsurer, because additional compensation is required to induce the reinsurer to enter into a deal that is more likely to result in a substantial loss of its capital.

This is why, for example, the expected underwriting profit for property catastrophe contracts are usually much higher than for other types of business. Although a catastrophic event may be infrequent, should such an event occur the amount of capital that may be lost is so high that the insuring company must be compensated with sufficiently high profit margins to take on that risk. It is important to emphasize that the insurance companies in these contracts typically have the resources to actually pay high claim amounts because they have

---

about 40%. *See* Milliman Report on UGI-Atrium Program, Feb. 10, 2009 (Ex. 50, CFPB-PHH-00140063, at CFPB-PHH-00140090).

[161] Statement of Principles Regarding Property and Casualty Ratemaking (Ex. 51); Actuarial Standard of Practice No. 30 (Ex. 52)..

access to large amounts of capital. For example, their liability is not limited to funds in a Trust Account.

A 40% underwriting profit margin is reasonably comparable to profit margins I have encountered for such reinsurance contracts that cover catastrophic property claims (*e.g.*, a reinsurance contract providing aggregate excess coverage for an insurance company writing in a hurricane prone state). However, while Atrium purported to provide coverage for risks of a catastrophic nature (infrequent but high claims to the MIs during market downturns), it in fact assumed insignificant risk to its capital due to the multitude of risk-avoiding mechanisms I discussed above. From an actuarial perspective, it is questionable whether Atrium was reasonably entitled to any underwriting profit considering that its capital was exposed to insignificant risk.

VIII. FLAWS IN MILLIMAN'S ANALYSES OF ATRIUM'S CAPTIVE ARRANGEMENTS

Milliman prepared a number of reports on behalf of Atrium, as well as some of the MIs, that analyzed the captive arrangements in reference to the following questions raised in the HUD letter: (1) Does the reinsurance arrangement result in a "real" risk transfer? (2) Is the compensation paid to Atrium commensurate with the risk (and where warranted administrative costs)?

Milliman concluded, as to each Atrium captive arrangement it analyzed, that there was real risk transfer and that the compensation paid was commensurate with the risk. In my opinion, Milliman's methodology and resulting conclusions are flawed for several reasons.

A. Milliman's "Risk Transfer" Analysis was Limited to a Single Book Year.

In the reports available to me, Milliman used as its standard for risk transfer the 10/10 test. The 10/10 test generally involves the calculation of a present value loss ratio – defined as projected claim payments divided by projected premiums on a present value basis. If there is at least a 10% chance that the present value loss ratio will be 110% or more, the 10/10 test is passed.

As I understand it, Milliman's risk transfer analysis relied on its calculation of the present value loss ratio for a *single prospective book year* in a "stress scenario," which is the scenario in which 10% of the simulated scenarios run by Milliman generate higher loss ratios and 90% of the simulated scenarios generate lower loss ratios. Milliman also referred to the "stress scenario" as the scenario at the "10% probability level."[162] If the loss ratio for that single book year was greater than or equal to 110%, such that claim payments would exceed premiums collected for that book year by 10%, Milliman concluded that there was a transfer of risk. In all of the reports I reviewed, Milliman calculated a single book year loss ratio that exceeded 110%.

To the extent Milliman's reliance on the present value loss ratio for a single book year was used to assess risk transfer for the arrangement as a whole, that methodology is flawed in my view. It can be appropriate in some circumstances to determine the loss ratio for a single book year in a multi-book year arrangement, depending on the purpose of the calculation.[163] But if the purpose of the loss ratio calculation is to assess the actual realistic value of the arrangement as a whole to the MI and Atrium, it follows that the methodology

[162] *See, e.g.*, Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex. 7, CFPB-PHH-00052221, at CFPB-PHH-00052228).

[163] For example, in a multi-book year arrangement, it may be useful for accounting purposes to determine the loss ratios for each individual book year.

should reflect the reality of the situation. The basic issue of risk transfer involves assessing the likelihood of Atrium incurring a significant loss of capital under an arrangement (that is, paying claims that significantly exceed the premiums collected through that arrangement). The reality was that from the outset each arrangement was intended to cover multiple book years and pool premiums and claims from multiple book years (and in fact, in every instance actually did), and so a loss ratio limited to a single book year simply does not provide a valid basis for such an assessment.

Indeed, for a multi-book year arrangement, a single book year loss ratio of 110% says little about the actual risk of Atrium sustaining a loss of its capital. A single book year loss ratio of 110% only means that the amount of Atrium's paid claims *for that book year* exceed the premiums ceded *for that book year* by 10%. It does not mean that Atrium used any of its own funds to pay claims, because the 10% excess can, and in practice did, come from the MI's own ceded premiums on other book years. Thus, to assess the actual risk of loss of Atrium's capital under the arrangement and the value of the arrangement to the MI and Atrium, it would be more appropriate, at a minimum, to calculate a multi-book year loss ratio that aggregates the projected claims and projected premiums for all book years expected to be covered by the arrangement.

My opinion is supported by [redacted] Protective Order

[redacted]

Milliman itself routinely calculated loss ratios for Atrium (*i.e.*, ratios of claims to premiums) that aggregated multiple book years. For example, in a 2007 report for Atrium, Milliman "projected *ultimate losses incurred* and ultimate premium earned by the Company *for all book years* with each ceding Company in order *to calculate ultimate loss ratios* (ultimate losses divided by ultimate premium)."[165] And in a June 30, 2010 report for Atrium, Milliman performed a loss ratio analysis for all of Atrium's MIs combined, across all book years, concluding: "Overall, *for all book years combined*, the projected ultimate loss ratio as of June 30, 2010 is 48.4%"[166] Finally, most of the Milliman reports I analyzed include a calculation of a multi-book year loss ratio. This multi-book year loss ratio was usually well under 100%. For example, in its 2005 report for the UGI program, Milliman calculated a "For All Book Years" projected loss ratio of 36% (as compared to a projected loss ratio of 226% for the single book year under analysis).[167] Likewise, in its 2005 report for the Genworth program, Milliman calculated a "For All Book Years" projected loss ratio of 58%

[164] Radian "Captive Mortgage Reinsurance Presentation," Dec. 16, 2003 (Ex. 26, RGI 02740 at RGI 02751-53) (emphasis added).
[165] Milliman Report titled "Atrium Insurance Corporation: Unpaid Claim Liabilities as of December 31, 2007," (Ex. 16, CFPB-PHH-00096103, at CFPB-PHH-00096109) (emphases added).
[166] Milliman Report titled, "Reinsurance Performance Metrics for Atrium Insurance Corporation" (Ex. 53, CFPB-PHH-00138816, at CFPB-PHH-00138820).
[167] Milliman Report on UGI-Atrium Program, Sept. 21, 2005 (Ex. 6, CFPB-PHH-00112442, at CFPB-PHH-00112467).

(as compared to a projected loss ratio of 195% for the single book year under analysis).[168] Milliman's ultimate risk transfer opinion, however, did not rely on these multi-book year loss ratios.

Additionally, as discussed previously, because the attachment point triggering Atrium's liability under each of its agreements was set at a level that was unlikely to be reached at least in the first three or so years, it was unlikely that Atrium would seek to terminate the agreement in those years. Thus, at the outset, the most likely scenario is that the arrangements would cover three book years at a minimum.

Nonetheless, Mr. Schmitz of Milliman testified that the risk transfer analysis appropriately relied on a single book year, because "each book stands on its own," and because the decision whether to extend a purported reinsurance arrangement to cover an additional book year is made prospectively before each such book year is covered.[169] There are several flaws with this rationale. First, I do not believe it is accurate to state that "each book stands on its own" because, as discussed, premiums were pooled and claims cross-collateralized across multiple book years.[170] Thus, claims for a particular book year are

[168] Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex. 7, CFPB-PHH-00052221, at CFPB-PHH-00052246).
[169] Milliman IH Tr. at 69:21-70:8, 192:3-14 (Ex. 18).
[170] 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, Sept. 21, 2005 (Ex. 6, CFPB-PHH-00112442, at CFPB-PHH-00112455). 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 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.

potentially supported by premiums for previous and future book years in addition to premiums for that particular book year.

The artificial nature of allocating funds between book years is most evident in a situation when claims exceed the total funds in the Trust. In that scenario, it is often only possible to definitely determine the *total* amount of claims that can be paid, and any allocation among book years would be arbitrary. The problems inherent in a single-book year analysis when the Trust Account is not adequately funded to provide for claims can be illustrated by considering the circumstances of the CMG arrangement, which was terminated in July 2009. At that time, the amount in the Trust account ($3.2 million) was not sufficient to pay for about $6.4 million in liabilities. The loss ratios by book year can be arbitrarily varied depending on how the available funds ($3.2 million) are allocated to each book year to partially offset the aggregate liabilities.

With respect to Mr. Schmitz's statement that the decision to continue the arrangement is made on an individual book year basis, as discussed above, the structure of the arrangements, including the reserve requirements intended to smooth out claims over many years and the pooling of premiums from multiple book years in the Trust Accounts, suggest that those arrangements were meant to cover multiple book years, even if the parties had a contractual right to commute each year, or even each day. In addition, as discussed, [redacted]

Protective Order

[redacted]

Similarly, in describing its captive arrangement with Atrium, UGI emphasized the value of a "long-term, well-managed partnership."[171]

Because the arrangements appear to have been intended to cover multiple book years, to assess the *actual* worth of the arrangement as a whole to the MI, one cannot limit the risk transfer analysis to a single book year because, in reality, Atrium's *actual* risk of losing any of its own capital was not restricted to a single book year. Relatedly, as discussed, the insurance risk for a single book year is not likely to be the same as the insurance risk for multiple book years. As discussed above, the multi-book year risk is very likely to be lower. *See supra* 28.

Optimally, a multi-book year analysis of risk transfer under Atrium's captive arrangements would involve some consideration of the future actions of the parties based on alternative simulated economic scenarios, including the possibility of termination. As discussed previously, a termination was not likely in the first three or so years of the arrangements, but whether Atrium would thereafter want to continue with the arrangement or not depended in part on business conditions at the time. A realistic analysis would accept this reality and then consider likely future actions of the parties under alternative scenarios. In a simulation of a succession of favorable years, the projections should reasonably anticipate that Atrium would continue the program and make any minimum capital contributions required for this to occur. Alternatively, in a simulation of an economic downturn, the projections should account for the likelihood that Atrium would force a termination of program when economically advantageous.

[171] "Proposal for Mortgage Insurance Partnership Prepared for PHH Mortgage by AIG United Guaranty," Oct. 18, 2006 (Ex. 23, CFPB-PHH-00141748, at CFPB-PHH-00141761).

B. The 10/10 Test is Overly Generous to Atrium in Light of its High Expected Profit Margin.

As discussed above, the appropriate profit margin for an insurer or reinsurer should be commensurate with the risk assumed by that entity. *See supra* 60. A reinsurance company that is expected to make an extremely high profit would normally be expected to be exposed to a large loss of capital in a major claim event and certainly to a loss of capital well in excess of the 10 standard used in the 10/10 rule. In other words, the high expected underwriting profit load in Atrium's premiums implies that the interpretation of "significant loss" in the FAS 113 standard used in Milliman's 10/10 rule (i.e., that "significant loss" means a claims ratio of 110%) is overly generous to Atrium.

The 10/10 test of risk transfer, which requires only a 110% loss ratio, is thus overly lenient to Atrium. It does not make sense to conclude that merely a 10% chance of a 10% loss to Atrium balances out the expected 40% underwriting profit upside.

C. Milliman did not Account for the Possibility that Atrium Would Not Adequately Fund the Trust.

The Milliman reports I reviewed include a caveat that, as part of its risk transfer analysis, it did not address the following requirement stated in the HUD letter: "The reinsurer must post capital and reserves satisfying the laws of the state in which it is chartered and the reinsurance contract between the primary insurer and *the reinsurer must provide for the establishment of adequate reserves to ensure that, when a claim against the reinsurer is made, funds will exist to satisfy the claim*."[172]

The Milliman risk transfer analyses for the Atrium captive arrangements are flawed to the extent they do not account for the possibility that Atrium would fail to adequately fund

[172] *See, e.g.*, Milliman Report on UGI-Atrium Program, Sept. 21, 2005 (Ex. 6, CFPB-PHH-00112442, at CFPB-PHH-00112444-447).

the Trust Accounts to required levels, an event that would clearly affect any risk of loss to Atrium. Mr. Rosenthal testified that he believed PHH had no obligation to "put a capital infusion in to the trust" in the event that "capital falls below a certain minimum threshold."[173] This is consistent with PHH's response to CMG's request in 2009 that PHH fund a Trust Account deficiency.[174] CMG informed PHH that the "Required Reserves" under the contract were the "sum of (a) Contingency Reserve; (b) Loss Reserves; and (c) Unearned Premium Reserves."[175] CMG calculated the "Required Reserves" to be approximately $6.3 million, whereas the Trust Account held only $3.2 million.[176] My understanding is that, rather than meeting the 'Required Reserves" (including the statutory contingency reserve) by infusing additional funds, PHH opted to commute the contract. CMG expressed that it was disappointed that PHH would not "support the integrity of the structure in place."[177]

D. Milliman Did not Account for the Impact of Commutation on Risk Transfer.

Milliman's risk transfer analysis did not account for the fact that Atrium could limit its risk by commuting or terminating its contract at the optimal time. As UGI explained in its 2006 submission to PHH, the "independent actuarial consulting firms that review captive agreements for risk transfer and pricing commensurate with the risk assume no commutations for the duration of the captive reinsurance contract - usually 10 years."[178] Milliman recognized that this limitation could be material. In a report for Radian, Milliman wrote:

---

[173] Rosenthal IH Tr. at 43:8-43:13 (Ex. 5).
[174] "Atrium Insurance Corporation: Presented to PHH Mortgage Corporation," July 2009 (Ex. 43, CFPB-PHH-00131056, at CFPB-PHH-00131061).
[175] *Id.*
[176] *Id.*
[177] Email from Bahr (CMG) to Rosenthal (PHH), Aug. 13, 2009 (Ex. 44, CFPB-PHH-00065203) (emphasis added).
[178] "Proposal for Mortgage Insurance Partnership Prepared for PHH Mortgage by AIG United Guaranty," Oct. 18. 2006 (Ex. 23, CFPB-PHH-00141748, at CFPB-PHH-00141763).

"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*."[179]

This failure to account for the commutation option is a serious flaw in the Milliman analyses. I note again UGI's statement in the same 2006 submission to PHH that "*[c]ommutation* of books of business before they reach peak claim years *can reduce risk transfer below required levels*."[180] Milliman's failure to account for commutation undermines the validity of its risk transfer analysis because, as explained above, Atrium could significantly limit its downside risk through a termination or commutation.

The timing of commutation also has important implications for risk transfer. Atrium could decide to commute after several years of receiving premiums while paying little to no claims, but (as UGI recognized) before the "peak years" of claim payments. Atrium could thus lock in the gains accrued from those profitable years by capturing the remaining assets in the Trust Account (which were likely to be comprised largely of premiums ceded by the MIs) and depriving the MIs of any ability to recover more than the expected value of its claims. The ability to commute turned the captive arrangements into a significantly more one-sided bet in favor of Atrium, increasing the risk of loss to the MIs. By commuting, Atrium could also avoid the need to make substantial additional capital contributions to the Trust Account (and potentially lose that capital) at the point such a decision had to be made, as shown by the example of the CMG and Radian commutations.

---

[179] Milliman Report on Radian-Atrium Program, July 1, 2004 (Ex. 8, MILL-PHH-E000236, at MILL-PHH-E000259).
[180] *Id.*

E. Milliman's Analysis of the Radian Arrangement Reveals the Unreliability of its Methodology.

The problems inherent in Milliman's methodology for analyzing risk transfer are illustrated by its conclusions about the Radian arrangement. Atrium and Radian executed their captive agreement on July 1, 2004, with an "Effective Date" of January 1, 2004.[181] The first book year covered was 2004. Milliman prepared a report for Atrium dated March 23, 2007 that analyzed risk transfer for the 2005 book year, which was the second book year under the Radian arrangement.[182] This report utilizes much the same methodology and assumptions as Milliman's reports for the other captive arrangements.

Milliman's conclusions are noteworthy for two reasons. First, Milliman assumed that Atrium's *total* capital contributed to the Trust Account for the 11 calendar years covered by the report was just $16,000.[183] That $16,000 contribution was made in 2004, the first year of the arrangement, but Milliman assumed no further contributions for the next 10 calendar years. Milliman also assumed, as it did in all of the other reports I reviewed, that "Atrium has no liability beyond the funds available in the trust."[184] In my opinion, the $16,000 total contribution is so low (both in absolute terms and in relationship to the expected cost of the arrangement to Radian) that it is not possible to reasonably conclude that by putting this amount of capital "at risk" Atrium provided an actual reinsurance service to Radian. That Milliman nonetheless concluded that there was a reasonable probability of significant loss to

[181] Reinsurance Agreement Between Radian and Atrium (Ex. 20, CFPB-PHH-00091615, at CFPB-PHH-00091620).
[182] Milliman Report on Radian-Atrium Program, July 1, 2004 (Ex. 8, MILL-PHH-E000236).
[183] Milliman Report on Radian-Atrium Program, July 1, 2004 (Ex. 8, MILL-PHH-E000236, at MILL-PHH-E000265) (the "Cash Capital Support / (Dividend)" row of Exhibit 3 shows $16,000 for Year 1 and zeroes for Years 2 through 11).
[184] Milliman Report on Radian-Atrium Program, July 1, 2004 (Ex. 8, MILL-PHH-E000236, at MILL-PHH-E000245).

Atrium brings into focus the flaws and limitations in Milliman's approach and methodology.[185]

Second, Exhibit 1 of the report shows Milliman's calculation of two loss ratios. The bottom part of the table shows a loss ratio of 117% for just the 2005 book year.[186] The top part of the table shows a *combined* loss ratio of 91% for both the 2004 book year and the 2005 book year.[187] This means that Milliman calculated a loss ratio for the 2004 book year of less than 35%.[188] Considering the long-term nature of mortgage guaranty insurance, the reasonableness of a prospective stress scenario that has a present value loss ratio of 35% for book year 2004 followed by a loss ratio of 117% for the next book year is questionable.

F. Flaws in Milliman's Analyses of Whether Atrium's Compensation was Commensurate with Risk

In addition to analyzing risk transfer, Milliman also analyzed whether the compensation paid to Atrium was commensurate with the "risk" transferred to Atrium. These compensation analyses compared the projected financial results of Atrium with those of the primary mortgage insurance industry, including internal rates of return and loss ratios.[189] If Milliman's projections showed that the expected financial results of Atrium and the primary mortgage insurance industry were similar, Milliman concluded that the compensation paid to Atrium (the ceded premiums) was reasonable. For example, in its

---

[185] *Id.* at MILL-PHH-E000249-250.
[186] *Id.* at MILL-PHH-E000263.
[187] *Id.*
[188] The premium and loss cash flows for book year 2004 equal the premium and loss cash flows for combined book years less the premium and loss cash flows for book year 2005 as shown in the Milliman Report on the Radian-Atrium Program (Ex. 8, at MILL-PHH-E000263). Taking the present value of these premium and loss cash flows to the beginning of the contract (January 1, 2004) yields a loss ratio of 35% for the 2004 book year.
[189] *See, e.g.*, Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex. 7, CFPB-PHH-00052221, at CFPB-PHH-00052237-241).

analysis of the Genworth arrangement for book year 2004, Milliman concluded: "We believe that the projected returns under the reinsurance structure are reasonable given that they are consistent with those experienced by the industry" and "the reinsurance premium is reasonable in relation to the reinsured risk since the projected expected loss ratios for Atrium are reasonable in relation to the loss ratios for the primary insurer."[190]

Milliman's compensation analysis is flawed for at least two reasons. First, it presumes that the risks faced by Atrium are similar to those faced by the primary mortgage industry. This presumption is erroneous for all the same reasons that the captive arrangements do not represent significant risk transfer. Milliman's comparison of financial results of Atrium to those of the primary mortgage insurance industry is thus not appropriate because the risks faced by the primary MI's and Atrium are not similar. In fact, as explained above, because Atrium was not a true risk-bearing enterprise, even a small amount of compensation is not justified. *See supra* 61.

Second, one of the metrics Milliman used to assess the reasonableness of Atrium's compensation was a comparison of the prospective loss ratio of Atrium and the primary MI. The standard definition of "loss ratio" is the ratio of claims to premium. If this is in fact the definition that Milliman used in its reports, then its loss ratio comparison is misleading because it only considers claim costs, but ignores the fact that the MIs have much greater operational responsibility and consequent overhead expenses than Atrium. Even if Atrium were a genuine risk-bearing enterprise, such that comparing projected financial results between Atrium and the MIs were appropriate, the analysis would have to take into account

[190] *Id.* at CFPB-PHH-00052239-240 (Ex. 7).

differences in overhead expenses, not just claim costs. When expenses are included, Atrium had much higher expected underwriting profit margin than the primary MIs.

More specifically (and again assuming for the remainder of this section that Milliman is using the standard definition of "loss ratio" in its reports), the following provides an approximate comparison of Atrium's expected underwriting profit margin with Genworth's. The purpose of this analysis is simply to use the expected profit margin of a true-risk bearing entity such as Genworth as a baseline of comparison to show that Atrium's profit margin would be highly unreasonable and excessive *even if Atrium were also a true-risk bearing entity that assumed a similar amount of risk as Genworth* (it did not, for the many reasons I have discussed). However, I must emphasize at the outset that any attempt to compare projected financial results of Atrium against those of the MIs to establish the *reasonableness* of Atrium's compensation is not appropriate because Atrium is essentially a risk-free enterprise, with virtually guaranteed profits, whereas the MIs are genuine risk-bearing businesses, with potentially significant claims and risk of loss to their capital. As a result, even a miniscule underwriting profit margin for Atrium represents unearned free money, whereas a relatively large underwriting profit margin for the MI is likely appropriate considering the risks it faced.

In my analysis, I will provide a break-down on a percentage basis of the net premiums allocated to Genworth and Atrium, respectively, into three components: (1) expected claims incurred by the entity; (2) underwriting expenses incurred by the entity; and (3) the expected underwriting profit margin retained by the entity.

The Milliman report for policy year 2004 under the Genworth arrangement indicates that the claims retained by Genworth were projected to be 56.0% of its premiums gross of

ceding commission or 51.3% of its net premium.[191] Thus, under Milliman's projections, Genworth was expected to have 48.7% (=100% - 51.3%) of its net premium to pay for its expenses and provide for an underwriting profit. Genworth's expenses amounted over the long term to about 20% (or more) of gross premium[192] or about 33.3% of Genworth's net premium. This would result in an expected underwriting profit to Genworth of approximately 15.4% (= 48.7% - 33.3%) of its net premium. Thus, Genworth's net premium (i.e., its 60% share of gross premium) can be approximately decomposed as follows: (1) 51.3% for expected claims; (2) 33.3% for expected expenses; and (3) 15.4% for expected underwriting profit.

The Milliman report for policy year 2004 under the Genworth arrangement indicates that the claims retained by Atrium were projected to be 52.0% of its premium gross of ceding commission, or 58.5% of its net premiums.[193] Thus, under Milliman's projections, Atrium was expected to have 41.5% (=100% - 58.5%) of its net premium to pay for its expenses and provide for an underwriting profit. Atrium's underwriting expenses (excluding ceding commission) amounted over the long term to about 1.5% of Atrium's premium.[194] This would result in an expected underwriting profit to Atrium of approximately 40% (= 41.5% - 1.5%) of its net premium. Thus, Atrium's net premium (*i.e.*, its 40% share of the gross premium) can be approximately decomposed as follows: (1) 58.5% for expected claims; (2) 1.5% for expected expenses; and (3) 40% for expected underwriting profit.

---

[191] *Id.* at CFPB-PHH-00052256 (Ex. 7).
[192] *See* Attachment 6.
[193] Milliman Report on Genworth-Atrium Program, Sept. 21, 2005 (Ex. 7, CFPB-PHH-00052221, at CFPB-PHH-00052256).
[194] *See* Attachment 6.

Atrium's expected underwriting profit of approximately 40% is therefore substantially higher than Genworth's expected underwriting profit of approximately 15.4%. From an actuarial perspective, even if Genworth and Atrium bore the same amount of risk, this disparity of underwriting profit would be unreasonable and inequitable. But Atrium assumed insignificant risk under its arrangement with Genworth, so even a 15.4% profit margin would be unjustified.

I have highlighted just one example above, but while the exact percentages vary somewhat from analysis to analysis, the same general conclusions apply to each of the programs and policy years for which I have a copy of Milliman's report.[195]

[195] *See* Attachment 6.

Executed on this 3rd day of March, 2014:

Mark Crawshaw Ph.D., FCAS, MAAA

CURRICULUM VITAE

Mark Crawshaw
Madison Consulting Group, Inc.
200 North Second Street
Madison, Georgia 30650
(706) 342-7750
mark.crawshaw@madisoninc.com

Education

California Institute of Technology, Pasadena, California (1980-84) Ph.D., (Mathematics) Special Institute Scholarship.

Oxford University, Oxford, England (1977-1980) B.A. (Highest Honors), M.A. (Mathematics). Scholarship student and recipient of several academic prizes.

Professional Qualifications

Fellow, Casualty Actuarial Society
Member, American Academy of Actuaries

Professional Employment History

Rolls Royce Aerospace Ltd. (Bristol, England)
Summer Intern (1979)

California Institute of Technology (Pasadena, California)
Teaching Assistant (1981-83)
Lecturer, Summer Program (1983)
Lecturer, Advanced Placement Program (1984)

Milliman & Robertson (Los Angeles, California)
Actuarial Analyst (1984-86)
Assistant Actuary (1986-88)

Madison Consulting Group, Inc. (Madison, Georgia)
(formerly Property/Casualty Division, Wakely and Associates, Inc.)
Vice President of Wakely and Associates, Inc. (1989-1999)
Secretary-Treasurer of Madison Consulting Group, Inc. (1999-2008)
President of Madison Consulting Group, Inc. (2008-present)

Professional Experience

Experience in a wide variety of assignments in property/casualty actuarial consulting, including:

- Loss and Loss Expense Reserve Analysis
  Workers' Compensation, General and Professional Liability, Personal and Commercial Lines, Reinsurance

- Ratemaking Studies for Personal and Commercial Lines

- Testimony in Rate Hearings, before Legislative Committees, reinsurance arbitrators, and in legal proceedings

- Self-Insurance Programs
  - Funding Analyses
  - Cost Allocation Procedures
  - Feasibility Studies

- Proforma Financial Projections of Insurance Operations

- Analysis of Reinsurance and Excess Insurance Proposals

- Actuarial Valuation of Property/Casualty Insurance Companies

- Statistical Analyses

- New Product Development

- Special Studies Relating to Workers' Compensation, including a Comparative Study of Benefit Entitlement and Estimation of Cost Impact of Benefit Changes and Proposed Reforms

- Assistance to State Insurance Regulators in Evaluating Rate Filings and Financial Condition of Insurance Companies

- Assistance in Strategic Planning for Insurance Companies, Including Analysis of Financial Condition and Rating Practices of Market Competitors

- State Insurance Programs

Professional Activities

- Society of Actuaries and Casualty Actuarial Society Joint Committee on Examinations:
  Member (1990-1992), Parts 1 and 2. (Calculus, Linear Algebra, Probability and Statistics)

- Casualty Actuaries of the Southeast Seminar:
  Instructor, CAS Part 7 Examination (Three-day Seminar on Loss Reserving)

- President (1993-1994) - Casualty Actuaries of the Southeast

- Casualty Actuarial Society Meeting
  Dallas, Texas 1993, Panelist - Current Texas Insurance Issues

- Texas Automobile Insurance Services Office
  Dallas, Texas 1993, Speaker: Mid-Year Property/Casualty Insurance Symposium

- Conference of Consulting Actuaries
  San Diego, California 1996, Speaker: Catastrophe Pooling

- Casualty Actuarial Society
  Course on Professionalism, Montreal Canada 2004
  Facilitator

Professional Organizations

Casualty Actuarial Society, Fellow
American Academy of Actuaries, Member
International Actuarial Association, Member
Casualty Actuaries of the Southeast, Member

References

Client, other professional and personal references will be made available upon request.

EXPERT TESTIMONY

Santa Fe, New Mexico, November 2013
New Mexico Insurance Division
2013 Title Hearing
Expert Report; Rebuttal Testimony; Testimony at Hearing

Orlando, Florida, October 2012
Arbitration between AUL Reinsurance Management Services LLC (AULRMS), (Claimant) And Florida Birth-Related Neurological Injury Compensation Association ("NICA"), (Respondent)
Rebuttal

Santa Fe, New Mexico, November 2011
New Mexico Insurance Division
2011 Title Hearing
Expert Report; Testimony at Hearing

Brooklyn, New York, March 2011
Ferguson v. Hannover Re
Supreme Court State of New York, County of Kings
Expert Report, Deposition, Testimony

Chicago, Illinois, March 2011
XL Syndicates, Et Al v. ReliaStar Life Insurance Co.
Arbitration
Expert Report, Deposition

Los Angeles, California, February 2011
Clarendon v. Lizardi, et al.
U.S. Bankruptcy Court, Central District of California
Expert Report, Testimony

Santa Fe, New Mexico, November 2009
New Mexico Insurance Division
2009 Title Hearing
Expert Report; Testimony at Hearing

Austin, Texas, September 2009
Texas Department of Insurance Real Property Title Hearing
State Office of Administrative Hearings
Expert Report; Testimony at Hearing

Austin, Texas, May 2009
State Farm Lloyds v. Texas Department of Insurance
Appeal of Determination of Residential Property Insurance Rates
Docket No. 2562-A
Expert Report, Deposition, Testimony at Hearings

January, 2008
Certain London Based Reinsurers v. ReliaStar Life Insurance Company
Arbitration Hearing
Expert Report, Deposition

Tallahassee, FL, January 2008
Florida Farm Bureau Casualty Insurance Company and Florida Farm Bureau General Insurance Company v. Office of Insurance Regulation (OIR)
Division of Administrative Hearings, Case No: 07-3947
Expert Report, Testimony

Austin, Texas, January 2008
Texas Department of Insurance Real Property Title Hearing
State Office of Administrative Hearings
Expert Report, Testimony at hearing

Austin, Texas, December 2007
Texas Department of Insurance Personal Property Title Hearing
Administrative Hearing
Expert Report, Testimony

Tallahassee, FL, October 2007
National Council on Compensation Insurance
Florida Workers Compensation Rate Filing Effective 1/1/2008
Expert Report, Rebuttal Testimony

Houston, Texas, June 2007 - 2009
Steadfast Insurance Company v. SMX 98, Inc. and SpawMaxwell Company, L.P.
United State District Court for the Southern District of Texas Houston Division
Civil Action No. 4:06-cv-2736
Expert Report, Deposition

Austin. Texas, May 2007
State Farm Lloyds v. Texas Department of Insurance
State Office of Administrative Hearings
No. 454-06-3176.F
Expert Report; Testimony

New York, New York, December 2006
Ferguson v. Hannover Re
U.S. District Court, Southern District of New York
No. 4 Civ. 9254 (PKL)
Expert Report; Testimony

Austin, Texas, August 2006
Texas Department of Insurance Biennial Title Insurance Rate Hearing
Administrative Hearing
Expert Report, Testimony

New York, New York July 2006
Gulf Insurance Company v. Trans Atlantic Re
Supreme Court of the State of New York
No. 601602/03
Expert Report; Deposition

Atlanta, Georgia**,** June 2006
Florida Windstorm Underwriting Association v. United States of America
United States District Court for the Northern District of Florida
No. 4:05cv338-WS/WCS (N.D. Fla.)
Expert Report; Deposition

Columbus, Ohio, April 2006
Benjamin v. Grant Thornton, LLP
Court of Common Pleas
01 CVG-10-10711
Expert Report; Deposition

Orlando, Florida, December 2005
Florida Birth-Related Neurological Injury Compensation Association (Nica) v. American United Life Risk Management Services, Et Al (Aulrms)
Expert Report; Deposition; Testimony at Hearing

Austin, Texas, October 2005
Texas Department of Insurance v.Allstate Texas Lloyds Homeowner
No. 454-05-3075.F
Administrative Hearing
Expert Report, Testimony

Minnesota, July 2005
Benjamin (Creditor) v. NuCorp, Ltd. (Debtor)
U.S. Bankruptcy Court, District of Minnesota
Expert Report; Deposition

New York, New York, June 2005
Deposition, Expert Report, Testimony
Confidential Reinsurance Arbitration

Austin, Texas, July 2004
Texas Department of Insurance v. Medical Protective Company
Administrative Hearing
Expert Report, Testimony

New York, New York, June 2004
Deposition, Testimony
Confidential Reinsurance Arbitration
Kansas, February 2004
ERC v. Clarendon
U.S. District Court, District of Kansas
Expert Report; Deposition

Austin, Texas, December 2003
Texas Department Of Insurance Biennial Title Insurance Rate Hearing
Administrative Hearing

Oklahoma City, Oklahoma, September 2003
Oklahoma Board for Property and Casualty Rates
NCCI Workers Compensation Rate Hearing
Administrative Hearing

Austin, Texas, September 2003
Texas Department of Insurance v. Farmers Insurance Exchange Homeowner
Administrative Hearing
Expert Report; Testimony

Austin, Texas, September 2003
Texas Department of Insurance v. State Farm Lloyds Homeowners
Administrative Hearing
Expert Report, Testimony

District of Columbia, Washington, May 2003
Deposition, Testimony
Confidential Reinsurance Arbitration

San Francisco, California, April 2003
HIH in Liquidation; Metcalf v. Castro, Superior Court of State of California
County of San Mateo

Raleigh, North Carolina, July 2002
North Carolina Dept. of Ins. v. Auto Insurance
Administrative Hearing
Expert Report, Testimony

Austin, Texas, February 2002
Biennial Title Insurance Rate Hearing
Administrative Hearing

Oklahoma City, Oklahoma, August 2001
Oklahoma Board for Property and Casualty Rates
NCCI Workers Compensation Rate Hearing
Administrative Hearing

Austin, Texas, April 2001
Texas Auto Insurance Plan Association Rate Hearing
Administrative Hearing

Austin, Texas, March 2001
Texas Auto Benchmark Rate Hearing
Administrative Hearing

Jacksonville, Florida, February 2001
Labor Ready v. Gates McDonald
U.S. District Court, Middle District of Florida, Jacksonville Division

Oklahoma City, Oklahoma, September 2000
Oklahoma Board for Property and Casualty Rates
NCCI Workers Compensation Rate Hearing
Administrative Hearing

Austin, Texas, December 2000
Property Insurance Benchmark Rate Hearing
Administrative Hearing

Attachment 2

CONSUMER FINANCIAL PROTECTION BUREAU
SUMMARY OF FUNDS CONTRIBUTED TO, AND PAID OUT FROM, THE TRUST ACCOUNTS
OVER THE LIFE OF ATRIUM'S REINSURANCE PROGRAMS

		Program				
		UGI	Genworth	Radian	CMG	Total
	Summary of Funds Contributed To Trust Accounts					
(1)	Atrium Capital Contribution	$ 46,779,849	$ 5,500,000	$ 452,349	$ 440,634	$ 53,172,832
(2)	Premiums Collected	304,729,028	136,312,066	3,845,554	2,766,097	447,652,745
(3)	Interest/Expenses/Taxes	(1,041,711)	(38,090,961)	153,952	26,348	(38,952,372)
(4)	Total	$ 350,467,166	$ 103,721,105	$ 4,451,855	$ 3,233,079	$ 461,873,205
	Summary of Funds Paid Out From Trust Accounts					
(5)	Claims Paid	$ 127,731,812	$ 28,571,236	$ 4,750	$ -	$ 156,307,798
(6)	Dividends to Atrium	104,973,654	13,900,000	-	-	118,873,654
(7)	Commutation Payments to Atrium	69,169,499	24,100,000	-	-	93,269,499
(8)	Commutation Payments to Primary MI Company	48,592,201	37,149,869	4,447,105	3,233,079	93,422,254
(9)	Total	$ 350,467,166	$ 103,721,105	$ 4,451,855	$ 3,233,079	$ 461,873,205
	Outcome for Atrium					
(10)	Profit (Loss) To Atrium [(6)+(7)-(1)]	$ 127,363,304	$ 32,500,000	$ (452,349)	$ (440,634)	$ 158,970,321
(11)	Profit (Loss) as a % of Premium [(10)÷(2)]	42%	24%	-12%	-16%	36%
	Outcome for MIs					
(12)	Premiums Paid to Atrium [(2)]	$ 304,729,028	$ 136,312,066	$ 3,845,554	$ 2,766,097	$ 447,652,745
(13)	Amounts Received from Atrium [(5)+(8)]	176,324,013	65,721,105	4,451,855	3,233,079	249,730,052
(14)	Net Gain(Cost) to MI [(13)-(12)]	(128,405,015)	(70,590,961)	606,301	466,982	(197,922,693)
(15)	Net Gain(Cost) as a % of Premium [(14)÷(2)]	-42%	-52%	16%	17%	-44%

Source: Based on information from Exhibit A of the Declaration of Michael Bogansky dated September 5th, 2013 (Document 86, Page 142).

Attachment 3

CONSUMER FINANCE PROTECTION BUREAU

CALCULATION OF UNDERWRITING EXPENSE RATIOS FOR UGI

	Calendar Year:																	
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total	1997-2009
Premiums Written																		
(1) Direct	306,731	333,657	366,597	415,578	479,974	528,121	536,823	541,572	576,211	581,994	606,561	695,143	794,313	738,148	640,790	673,504	8,815,717	6,763,275
(2) Assumed	612	487	391	353	317	165	179	179	230	9,380	19,691	33,898	47,688	51,547	48,640	48,429	262,186	113,570
(3) Ceded	(20,288)	(29,877)	(49,706)	(86,397)	(123,208)	(154,829)	(186,846)	(207,939)	(230,274)	(281,406)	(268,312)	(302,376)	(369,069)	(349,726)	(263,690)	(199,518)	(3,123,461)	(2,310,527)
(4) Net [(1)+(2)+(3)]	287,055	304,267	317,282	329,534	357,083	373,457	350,156	333,812	346,167	309,968	357,940	426,665	472,932	439,969	425,740	522,415	5,954,442	4,566,318
Underwriting Expense Incurred																		
Ceding Commission																		
(5) Direct	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	2	2
(6) Assumed	-	-	1	1	5	14	16	24	1,419	3,013	5,214	7,309	7,875	7,424	7,378	7,469	47,162	24,891
(7) Ceded	(6,472)	(9,679)	(17,903)	(23,264)	(22,901)	(24,629)	(24,468)	(27,032)	(32,319)	(30,771)	(34,066)	(44,074)	(34,319)	(29,630)	(27,254)	(26,734)	(415,515)	(331,897)
(8) Net [(5)+(6)+(7)]	(6,472)	(9,679)	(17,902)	(23,263)	(22,896)	(24,614)	(24,452)	(27,008)	(30,899)	(27,758)	(28,852)	(36,765)	(26,444)	(22,206)	(19,876)	(19,265)	(368,351)	(307,004)
(9) *Other Expense*	86,125	109,781	116,254	108,742	112,819	124,901	127,394	124,657	115,486	116,842	109,580	88,859	94,106	90,183	130,615	163,645	1,819,989	1,435,546
(10) Total [(8)+(9)]	79,653	100,102	98,352	85,479	89,923	100,287	102,942	97,649	84,587	89,084	80,728	52,094	67,662	67,977	110,739	144,380	1,451,638	1,128,542
Premiums Written																		
(11) Direct [(1)]	306,731	333,657	366,597	415,578	479,974	528,121	536,823	541,572	576,211	581,994	606,561	695,143	794,313	738,148	640,790	673,504	8,815,717	6,763,275
(12) Direct+Assumed [(1)+(2)]	307,343	334,144	366,988	415,931	480,291	528,286	537,002	541,751	576,441	591,374	626,252	729,041	842,001	789,695	689,430	721,933	9,077,903	6,876,845
Underwriting Expense Incurred																		
(13) Direct [(5)+(9)]	86,125	109,781	116,254	108,742	112,819	124,902	127,394	124,657	115,487	116,842	109,580	88,859	94,106	90,183	130,615	163,645	1,819,991	1,435,548
(14) Direct+Assumed [(5)+(6)+(9)]	86,125	109,781	116,255	108,743	112,824	124,916	127,410	124,681	116,906	119,855	114,794	96,168	101,981	97,607	137,993	171,114	1,867,153	1,460,439
Underwriting Expense Ratio																		
(15) Direct [(13)÷(11)]	28%	33%	32%	26%	24%	24%	24%	23%	20%	20%	18%	13%	12%	12%	20%	24%	21%	21%
(16) Direct+Assumed [(14)÷(12)]	28%	33%	32%	26%	23%	24%	24%	23%	20%	20%	18%	13%	12%	12%	20%	24%	21%	21%

Source: UGI financial statements shown in 1997-2012 Annual Statements; accessed at www.snl.com. See Ex. 66 and Ex. 68 - 73.

Attachment 4

CONSUMER FINANCE PROTECTION BUREAU
CALCULATION OF UNDERWRITING EXPENSE RATIOS FOR GENWORTH

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total	2000-2011
Premiums Written															
(1) Direct	647,386	666,102	639,375	615,913	586,059	546,827	552,470	735,359	833,273	655,449	603,662	568,710	524,016	8,174,601	7,650,585
(2) Assumed	1,494	1,690	2,211	9,520	9,669	26,572	58,126	72,850	87,688	88,905	84,161	61,326	34,464	538,676	504,212
(3) Ceded	(78,592)	(100,730)	(133,714)	(174,595)	(180,446)	(175,536)	(178,232)	(237,363)	(263,990)	(201,899)	(164,319)	(147,073)	(103,149)	(2,139,638)	(2,036,489)
(4) Net [(1)+(2)+(3)]	570,288	567,062	507,872	450,838	415,282	397,863	432,364	570,846	656,971	542,455	523,504	482,963	455,331	6,573,639	6,118,308
Underwriting Expense Incurred															
Ceding Commission															
(5) Direct	3	-	-	-	-	4	7	13	58	8	8	8	21	130	109
(6) Assumed	33	36	54	146	233	857	2,497	2,678	3,152	2,479	3,806	1,501	1,235	18,707	17,472
(7) Ceded	(5,233)	(9,179)	(11,364)	(9,903)	(8,273)	(7,205)	(6,540)	(6,620)	(7,418)	(6,022)	(5,127)	(4,033)	(2,184)	(89,101)	(86,917)
(8) Net [(5)+(6)+(7)]	(5,197)	(9,143)	(11,310)	(9,757)	(8,040)	(6,344)	(4,036)	(3,929)	(4,208)	(3,535)	(1,313)	(2,524)	(928)	(70,264)	(69,336)
(9) *Other Expense*	133,528	149,412	156,325	176,530	213,381	199,445	194,413	187,060	216,833	210,379	222,581	194,598	154,225	2,408,710	2,254,485
(10) Total [(8)+(9)]	128,331	140,269	145,015	166,773	205,341	193,101	190,377	183,131	212,625	206,844	221,268	192,074	153,297	2,338,446	2,185,149
Premiums Written															
(11) Direct [(1)]	647,386	666,102	639,375	615,913	586,059	546,827	552,470	735,359	833,273	655,449	603,662	568,710	524,016	8,174,601	7,650,585
(12) Direct+Assumed [(1)+(2)]	648,880	667,792	641,586	625,433	595,728	573,399	610,596	808,209	920,961	744,354	687,823	630,036	558,480	8,713,277	8,154,797
Underwriting Expense Incurred															
(13) Direct [(5)+(9)]	133,531	149,412	156,325	176,530	213,381	199,449	194,420	187,073	216,891	210,387	222,589	194,606	154,246	2,408,840	2,254,594
(14) Direct+Assumed [(5)+(6)+(9)]	133,564	149,448	156,379	176,676	213,614	200,306	196,917	189,751	220,043	212,866	226,395	196,107	155,481	2,427,547	2,272,066
Underwriting Expense Ratio															
(15) Direct [(13)÷(11)]	21%	22%	24%	29%	36%	36%	35%	25%	26%	32%	37%	34%	29%	29%	29%
(16) Direct+Assumed [(14)÷(12)]	21%	22%	24%	28%	36%	35%	32%	23%	24%	29%	33%	31%	28%	28%	28%

Source: Genworth financial statements shown in 2000-2012 Annual Statements; accessed at www.snl.com. See Ex. 56 - 62.

Attachment 5

CONSUMER FINANCE PROTECTION BUREAU
CALCULATION OF UNDERWRITING EXPENSE RATIOS FOR ATRIUM

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
(1) Net Premiums Written	$ 1,599	$ 4,232	$ 12,461	$ 24,369	$ 34,620	$ 45,859	$ 48,378	$ 36,542	$ 45,023	$ 41,902	$ 36,103	$ 32,444	$ 37,918	$ 26,271
(2) Other Underwriting Expense Incurred	378	512	1,976	5,229	6,377	7,170	7,071	4,027	5,667	5,224	4,578	3,945	4,738	5,014
(3) Ceding Commission	0	0	1,712	4,244	6,155	6,880	6,647	3,670	5,320	4,733	4,048	3,461	3,955	3,296
(4) Underwriting Expense Less Ceding Commission	378	512	264	985	222	290	424	357	347	491	530	484	783	1,718
(5) Net Underwriting Gain (Loss)	795	2,709	8,003	19,054	24,799	33,849	36,161	43,621	34,620	32,060	29,861	13,113	(17,857)	(6,025)
(6) Ceding Commission Ratio = (3)÷ (1)	0%	0%	14%	17%	18%	15%	14%	10%	12%	11%	11%	11%	10%	13%
(7) Other Expense Ratio = (4) ÷ (1)	24%	12%	2%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%	7%
(8) Underwriting Profit Margin = (5)÷ (1)	50%	64%	64%	78%	72%	74%	75%	119%	77%	77%	83%	40%	-47%	-23%

Source : Atrium Insurance Corporation's 1996-2009 Underwriting and Expense Exhibits, accessed through www.snl.com. See Ex. 54 and Ex. 74.

CONSUMER FINANCE PROTECTION BUREAU
ANALYSIS OF RELATIVE RISK POSITIONS
ATRIUM VERSUS GENWORTH, ASSUMING 20% GROSS EXPENSE RATIO
BOOK YEAR 2004

		Loss Ratio at Nominal Value			Loss Ratio at Present Value		
		Gross (Genworth)	Ceded (Atrium)	Net (Genworth)	Gross (Genworth)	Ceded (Atrium)	Net (Genworth)
(1)	Expected Loss Ratio (a)	0.540	0.520	0.560	0.500	0.460	0.530
(2)	Premium (b)	1.000	0.450	0.550	1.000	0.450	0.550
	Breakdown of Premium - Gross of Ceding Commission Basis (1.0 = Gross Premium)						
(3)	Expenses (c)	0.200	0.050	0.150	0.200	0.050	0.150
(4)	Loss [(1) x (2)]	0.540	0.234	0.308	0.500	0.207	0.292
(5)	Underwriting Profit [(2)-(3)-(4)]	0.260	0.166	0.092	0.300	0.193	0.108
(6)	Total	1.000	0.450	0.550	1.000	0.450	0.550
	Breakdown of Premium - Net of Ceding Commission Basis (1.0 = Gross Premium)						
(7)	Expenses (d)	0.200	-	0.200	0.200	-	0.200
(8)	Loss = (4)	0.540	0.234	0.308	0.500	0.207	0.292
(9)	Underwriting Profit = (5)	0.260	0.166	0.092	0.300	0.193	0.108
(10)	Total	1.000	0.400	0.600	1.000	0.400	0.600
	Expected Expense, Loss and Underwriting Profit Ratios - Net of Ceding Commission Basis						
(11)	Expense [(7)/(10)]	20.0%	0.0%	33.3%	20.0%	0.0%	33.3%
(12)	Loss [(8)/(10)]	54.0%	58.5%	51.3%	50.0%	51.8%	48.7%
(13)	Underwriting Profit [(9)/(10)] *	26.0%	41.5%	15.3%	30.0%	48.3%	18.0%
(14)	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: (a) Illustrative value taken from Milliman report for book year 2004 (Ex. 7, CFPB-PHH-00052221 at CFPB-PHH-00052256)
(b) Assumes Gross Premium = 1.0 with split reflecting 45% premium ceded to Atrium and 55% retained by Genworth.
(c) Gross selected based on Attachment MC-4.
Ceded equals 11.1% ceding commission applied to 45% premium.
(d) Removes impact of ceding commission.
* Note Atrium Underwriting Profit may be overstated by 1.0-2.0% due to underwriting expenses excluding ceding commission.

CONSUMER FINANCE PROTECTION BUREAU
ANALYSIS OF RELATIVE RISK POSITIONS
ATRIUM VERSUS UGI, ASSUMING 20% GROSS EXPENSE RATIO
BOOK YEAR 2004

		Loss Ratio at Nominal Value			Loss Ratio at Present Value		
		Gross (UGI)	Ceded (Atrium)	Net (UGI)	Gross (UGI)	Ceded (Atrium)	Net (UGI)
(1)	Expected Loss Ratio (a)	0.620	0.630	0.620	0.590	0.570	0.600
(2)	Premium (b)	1.000	0.450	0.550	1.000	0.450	0.550
	Breakdown of Premium - Gross of Ceding Commission Basis (1.0 = Gross Premium)						
(3)	Expenses (c)	0.200	0.050	0.150	0.200	0.050	0.150
(4)	Loss [(1) x (2)]	0.620	0.284	0.341	0.590	0.257	0.330
(5)	Underwriting Profit [(2)-(3)-(4)]	0.180	0.116	0.059	0.210	0.143	0.070
(6)	Total	1.000	0.450	0.550	1.000	0.450	0.550
	Breakdown of Premium - Net of Ceding Commission Basis (1.0 = Gross Premium)						
(7)	Expenses (d)	0.200	-	0.200	0.200	-	0.200
(8)	Loss = (4)	0.620	0.284	0.341	0.590	0.257	0.330
(9)	Underwriting Profit = (5)	0.180	0.116	0.059	0.210	0.143	0.070
(10)	Total	1.000	0.400	0.600	1.000	0.400	0.600
	Expected Expense, Loss and Underwriting Profit Ratios - Net of Ceding Commission Basis						
(11)	Expense [(7)/(10)]	20.0%	0.0%	33.3%	20.0%	0.0%	33.3%
(12)	Loss [(8)/(10)]	62.0%	71.0%	56.8%	59.0%	64.3%	55.0%
(13)	Underwriting Profit [(9)/(10)] *	18.0%	29.0%	9.8%	21.0%	35.8%	11.7%
(14)	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: (a) Illustrative value taken from Milliman report for book year 2004 (Ex. 6, CFPB-PHH-00112442, at CFPB-PHH-00112477).
(b) Assumes Gross Premium = 1.0 with split reflecting 45% premium ceded to Atrium and 55% retained by UGI.
(c) Gross selected based on Attachment MC-3.
Ceded equals 11.1% ceding commission applied to 45% premium.
(d) Removes impact of ceding commission.
* Note Atrium Underwriting Profit may be overstated by 1.0-2.0% due to underwriting expenses excluding ceding commission.

CONSUMER FINANCE PROTECTION BUREAU
ANALYSIS OF RELATIVE RISK POSITIONS
ATRIUM VERSUS UGI, ASSUMING 20% GROSS EXPENSE RATIO
BOOK YEAR 2005

		Loss Ratio at Nominal Value			Loss Ratio at Present Value		
		Gross (UGI)	Ceded (Atrium)	Net (UGI)	Gross (UGI)	Ceded (Atrium)	Net (UGI)
(1)	Expected Loss Ratio (a)	0.600	0.580	0.620	0.550	0.500	0.590
(2)	Premium (b)	1.000	0.450	0.550	1.000	0.450	0.550
	Breakdown of Premium - Gross of Ceding Commission Basis (1.0 = Gross Premium)						
(3)	Expenses (c)	0.200	0.050	0.150	0.200	0.050	0.150
(4)	Loss [(1) x (2)]	0.600	0.261	0.341	0.550	0.225	0.325
(5)	Underwriting Profit [(2)-(3)-(4)]	0.200	0.139	0.059	0.250	0.175	0.075
(6)	Total	1.000	0.450	0.550	1.000	0.450	0.550
	Breakdown of Premium - Net of Ceding Commission Basis (1.0 = Gross Premium)						
(7)	Expenses (d)	0.200	-	0.200	0.200	-	0.200
(8)	Loss = (4)	0.600	0.261	0.341	0.550	0.225	0.325
(9)	Underwriting Profit = (5)	0.200	0.139	0.059	0.250	0.175	0.075
(10)	Total	1.000	0.400	0.600	1.000	0.400	0.600
	Expected Expense, Loss and Underwriting Profit Ratios - Net of Ceding Commission Basis						
(11)	Expense [(7)/(10)]	20.0%	0.0%	33.3%	20.0%	0.0%	33.3%
(12)	Loss [(8)/(10)]	60.0%	65.3%	56.8%	55.0%	56.3%	54.2%
(13)	Underwriting Profit [(9)/(10)] *	20.0%	34.8%	9.8%	25.0%	43.8%	12.5%
(14)	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: (a) Illustrative value taken from Milliman report for book year 2005 (Ex. 17, CFPB-PHH-00942620, at CFPB-PHH-00942656).
(b) Assumes Gross Premium = 1.0 with split reflecting 45% premium ceded to Atrium and 55% retained by UGI.
(c) Gross selected based on Attachment MC-3.
Ceded equals 11.1% ceding commission applied to 45% premium.
(d) Removes impact of ceding commission.
* Note Atrium Underwriting Profit may be overstated by 1.0-2.0% due to underwriting expenses excluding ceding commission.

CONSUMER FINANCE PROTECTION BUREAU
ANALYSIS OF RELATIVE RISK POSITIONS
ATRIUM VERSUS UGI, ASSUMING 20% GROSS EXPENSE RATIO
BOOK YEAR 2006

		Loss Ratio at Nominal Value			Loss Ratio at Present Value		
		Gross (UGI)	Ceded (Atrium)	Net (UGI)	Gross (UGI)	Ceded (Atrium)	Net (UGI)
(1)	Expected Loss Ratio (a)	0.540	0.540	0.540	0.500	0.480	0.510
(2)	Premium (b)	1.000	0.450	0.550	1.000	0.450	0.550
	Breakdown of Premium - Gross of Ceding Commission Basis (1.0 = Gross Premium)						
(3)	Expenses (c)	0.200	0.050	0.150	0.200	0.050	0.150
(4)	Loss [(1) x (2)]	0.540	0.243	0.297	0.500	0.216	0.281
(5)	Underwriting Profit [(2)-(3)-(4)]	0.260	0.157	0.103	0.300	0.184	0.119
(6)	Total	1.000	0.450	0.550	1.000	0.450	0.550
	Breakdown of Premium - Net of Ceding Commission Basis (1.0 = Gross Premium)						
(7)	Expenses (d)	0.200	-	0.200	0.200	-	0.200
(8)	Loss = (4)	0.540	0.243	0.297	0.500	0.216	0.281
(9)	Underwriting Profit = (5)	0.260	0.157	0.103	0.300	0.184	0.119
(10)	Total	1.000	0.400	0.600	1.000	0.400	0.600
	Expected Expense, Loss and Underwriting Profit Ratios - Net of Ceding Commission Basis						
(11)	Expense [(7)/(10)]	20.0%	0.0%	33.3%	20.0%	0.0%	33.3%
(12)	Loss [(8)/(10)]	54.0%	60.8%	49.5%	50.0%	54.0%	46.8%
(13)	Underwriting Profit [(9)/(10)] *	26.0%	39.3%	17.2%	30.0%	46.0%	19.8%
(14)	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: (a) Illustrative value taken from Milliman report for book year 2006 (Ex. 50, CFPB-PHH-00140063, at CFPB-PHH-00140090).
(b) Assumes Gross Premium = 1.0 with split reflecting 45% premium ceded to Atrium and 55% retained by UGI.
(c) Gross selected based on Attachment MC-3.
Ceded equals 11.1% ceding commission applied to 45% premium.
(d) Removes impact of ceding commission.
* Note Atrium Underwriting Profit may be overstated by 1.0-2.0% due to underwriting expenses excluding ceding commission.

Attachment 7

CONSUMER FINANCIAL PROTECTION BUREAU
MORTGAGE GUARANTY INSURANCE INDUSTRY LOSS RATIOS

Year	Direct Earned Premium (a)	Direct Incurred Loss (a)	Direct Incurred Loss Ratio
(1)	(2)	(3)	(4) = (3) ÷ (2)
2000	$ 3,710,674,991	$ 842,090,629	22.7%
2001	4,130,838,467	1,063,858,248	25.8%
2002	4,572,236,225	1,320,493,378	28.9%
2003	4,904,339,507	1,876,157,574	38.3%
2004	5,039,867,657	2,007,660,323	39.8%
2005	5,091,222,080	1,833,062,273	36.0%
2006	5,361,589,961	2,209,733,688	41.2%
2007	5,877,178,668	5,518,993,529	93.9%
2008	6,384,299,729	13,586,037,661	212.8%
2009	5,632,448,522	12,013,484,517	213.3%
2010	4,901,303,401	7,837,605,443	159.9%
2011	4,489,676,231	8,736,945,968	194.6%
2012	4,025,025,873	6,108,786,165	151.8%
2000-2012	$ 64,120,701,312	$ 64,954,909,396	101.3%

(a) Source: Data compiled from statutory Annual Statement state page submissions for all mortgage guaranty insurance writers. Annual Statement data accessed through www.snl.com. See Ex. 64.
Note that industry loss data excludes allocated loss adjustment expense, which are covered by the contracts. Including allocated loss adjustment expense would increase the loss ratio by at least another 1%.

Certificate of Service

I hereby certify that on this 3rd day of March 2014, I caused a copy of the foregoing "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:

Mitch Kider
kider@thewbkfirm.com

David Souders
souders@thewbkfirm.com

Sandra Vipond
vipond@thewbkfirm.com

Roseanne Rust
rust@thewbkfirm.com

/s/ Donald R. Gordon
Donald R. Gordon