STATE OF WISCONSIN
Department of Employee Trust Funds
Robert J. Conlin
SECRETARY

Wisconsin Department
of Employee Trust Funds
PO Box 7931
Madison WI 53707-7931
1-877-533-5020 (toll free)
Fax 608-267-4549
etf.wi.gov

Correspondence Memorandum

Date: May 24, 2019

To: Employee Trust Funds Board

From: Jim Guidry, Director
Benefit Services Bureau
Division of Retirement Services

Subject: Duty Disability Program Reserve Policy

ETF recommends the Employee Trust Funds Board (Board) approve the attached Duty Disability Program Reserve Policy.

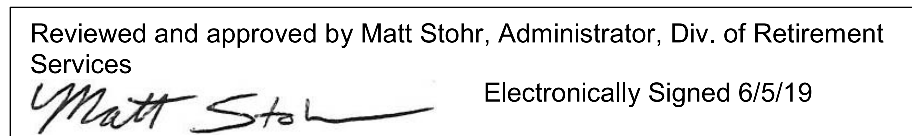
ETF recommends the Board approve a fund reserve target of 130%, establishing a reserve fund range of 125% to 135% of the total actuarial liability for the Duty Disability program.

The Duty Disability program is a lifetime income replacement program. Duty disability benefits are payable to protective occupation participants injured while performing their protective occupation duties. This program is funded entirely by contributions paid by employers, and contribution rates are based on an experience rated tier schedule. While the contribution rate tier structure remains constant, the actual contribution rates for each tier are adjusted to meet the plan’s current funding needs.

The Duty Disability program had a fund balance of $642 million, actuarial liabilities of $454.6 million, and an actuarial surplus of $187.4 million as of December 31, 2018. This surplus is 41% of liabilities.

Prior to 2017 the valuation of the program was performed in accordance with Government Accounting Standards Board (GASB) Statement No. 43 (GASB 43). Beginning with the 2017 valuation, the valuation was performed according to GASB 10 – Accounting and Financial Reporting for Risk Financing and Related Insurance Issues.

Reviewed and approved by Matt Stohr, Administrator, Div. of Retirement Services



Electronically Signed 6/5/19

Board	Mtg Date	Item #
ETF	6.20.19	4D

The biggest impact of this shift was that under GASB 10 the valuation no longer included a calculation of a liability for active lives. This contributed to a decline in the overall liability from 2016 to 2017 of $93.5 million, and an increase in the surplus from $57 million to $192.1 million.

The goal of this policy proposal is to establish a reserve balance target to guide the Board in making informed contribution decisions that are sufficient to fund plan liabilities, protect the fiscal integrity of the program, and maintain contribution rates that are adequate, stable, and equitable.

ETF's disability actuaries, Milliman, Inc. (Milliman) performed an analysis using Duty Disability claim and demographic data to calculate a target reserve balance. The attached letter from Milliman describes the approaches they used to arrive at a recommendation.

Duty Disability Program Reserve Policy

The proposed policy that accompanies this memo contains two components. The first component addresses the characteristics of the reserve target. Those characteristics include:

- ETF Board will establish a reserve target described as a percentage of total liabilities;
- A surplus target range that is five percentage points above and below the target surplus level recommended by the program actuaries and approved by the Board;
- Contribution rate adjustments can be phased in over multiple years if the Board determines that it is necessary to preserve the integrity of the fund or ease the impact of contribution rate changes; and
- Provides that the Board may, upon the advice of program actuaries, establish contribution rates that fall outside the target range if circumstances warrant an alternative approach.

The policy's targeted percentage range assists the Board by providing context to any variances from the target, which can guide the Board in determining how to address those variances. The policy does not prescribe how to handle any identified variances but leaves that determination to the discretion of the Board.

The policy allows the Board to phase in contribution adjustments if doing so would preserve the integrity of the fund. This will assist the Board in maintaining rate stability by providing additional time for employers to adjust to significant rate changes.

Under the policy, the Board can set contribution rates beyond of the reserve target range if the Board determines doing so is in the best interest of the fund. The policy establishes that while the reserve target range is the ideal path, it recognizes that there can be situations that call for an alternative to strict adherence to the policy.

An example of such a situation is 2017 Assembly Bill 434, which created a presumption that a diagnosis of post-traumatic stress disorder in a public safety employee arises out of the employee's employment for purposes of worker's compensation. While this bill was aimed at worker's compensation benefits, it is not unreasonable to anticipate that similar legislation could be introduced affecting the Duty Disability program.

If legislation were enacted, the resulting increase in Duty Disability claims would create a significant impact to program liabilities going forward. Under this scenario it may be advisable for the Board to consider a contribution rate increase that falls outside of the target range.

Additionally, there have been recent actions on appeals of Duty Disability denials for non-traumatic mental illness claims that indicate our reliance on previous court decisions to deny these claims is evolving. As the standards for these types of claims change, there is a possibility of an increase in the number of approved claims as well as a potential for an increase in claim volume. This could lead the Board to a reasonable assumption that targeting a fund balance differently than what the policy suggests would be the prudent course to follow.

The second component provides that the policy is reviewed every three years. This ensures that the policy reflects the most recent experience of the program.

Duty Disability Fund Reserve Target

The recommendation by Milliman is that 30% of the program's actuarial liabilities is a reasonable surplus target for the Duty Disability program. Based on the policy guidance, using Milliman's recommendation as the midpoint, the reserve target range would therefore be 125% to 135% of program liabilities.

The Duty Disability program continues to be in a healthy financial position. As noted above, the program's surplus as of December 31, 2018, was 41% of actuarial liabilities. In other words, the program's fund balance is 141% of program liabilities, which is above the high end of the recommended target range.

Staff and actuaries from Milliman will be at the Board meeting to answer any questions.

Attachment A: Reserve Policy for the Duty Disability Program
B: Milliman May 13, 2019 Letter

Reserve Policy for the Duty Disability Program

The Duty Disability Insurance Program is a lifetime income replacement program. Duty disability benefits are payable to protective occupation participants injured while performing their protective occupation duties. In some instances, death benefits are also available for surviving spouses or children. Protective occupation participants include law enforcement, fire suppression, correction officers and other occupations as defined in Wis. Stat. § 40.02 (48). Duty Disability benefits are payable to eligible protective occupation participants who have been permanently injured while performing work-related duties or contracted a disease due to the participant's protective occupation that resulted in a permanent reduction in pay or position; a permanent assignment to light duty; retirement; or an adverse effect on promotional opportunities if employer rules, ordinances, policies or written agreements specifically prohibit promotion because of the disability.

The Duty Disability Insurance Program is funded entirely by contributions paid by employers. The reserve target established by the Employee Trust Funds Board (Board) under this policy is used to determine the annual required contribution for the program. Duty Disability contribution rates are based on an experience-rated tier schedule. Annually, an actuarial adjustment rate is applied to every tier in the schedule. While the contribution rate tier structure remains constant, the actual contribution rates for each tier are adjusted to meet the plan's current funding needs.

OBJECTIVE

This reserve policy is intended to guide the Board in establishing a Duty Disability Program fund reserve target sufficient to fund plan liabilities, protect the fiscal integrity of the program, and maintain contribution rates that are adequate, stable and equitable.

DUTY DISABILITY RESERVE TARGET

The Board will, in consultation with Duty Disability Program actuaries, establish a reserve target for the program that is expressed as 100% of the total program liability, plus an additional target surplus percent. This policy establishes the reserve target range as five percentage points above and five percentage points below the reserve target approved by the Board.

To preserve fund integrity and ease the impact of contribution rate changes, the Board may decide to spread recommended rate adjustments so that the surplus target is reached over a period of two or more years rather than in one year.

This policy does not prohibit the Board from, upon the advice of ETF and program actuaries, setting contribution rates that set a reserve balance that is outside the reserve target range if the program's financial condition, claim experience, and other factors or trends indicate that a different target is necessary.

RESERVE TARGET REVIEW PERIOD

The Board will review this policy at least every three years.

121 Middle Street, Suite 401
Portland, ME 04101-4156
USA

Tel +1 207 772 0046
Fax +1 207 772 7512

milliman.com

May 13, 2019

Jim Guidry
Director
Benefit Services Bureau
Wisconsin Department of Employee Trust Funds
P.O. Box 7931
Madison, WI 53707

RE: Target Surplus Analysis for Duty Disability as of December 31, 2018

Dear Jim,

Thank you for asking Milliman for assistance in analyzing target surplus for the Duty Disability insurance program. We took two different approaches for calculating target surplus for Duty Disability. The first approach involved calculating surplus according to the Risk Based Capital (RBC) formula adopted by the National Association of Insurance Commissioners (NAIC). This formula is used by insurance companies to determine target surplus for disability insurance business, and takes into consideration current liabilities, asset allocations, asset balances, and premium contributions.

Our second approach involved projecting future claims and expenses for 1,000 random scenarios, and determining the level of surplus that would provide adequate funding for at least 99% of the scenarios (i.e., for 990 of the 1,000 random scenarios). This approach was useful for evaluating Duty Disability claim runout risks, such as volatility in claim termination rates. It is an approach known as "Value at Risk" analysis, and is used by firms in the financial sector for determining the assets needed to cover unexpected future losses.

In both cases, we reflected risk surplus and premium deficiency in our target surplus calculations. The risk surplus component is intended to provide protection against volatility in asset values and benefit costs, assuming that the underlying liability is fully funded. The premium deficiency component represents the expected shortfall in premium contributions to fully fund future Duty Disability liabilities. In our analysis, we assumed that current premium rates on a standalone basis (i.e., excluding other revenue such as investment earnings) will not provide complete funding for claims incurred during the next three years. We also assumed that the current premium rates would remain level for the next three years, then will be adjusted in the fourth year to fully fund future liabilities beyond that point. Based on financial information from December 31, 2018, we did not see a deficiency in current premium contributions; therefore, the premium deficiency component is zero in the results shown below. Note that the premium deficiency component could be different in future years, depending on financial experience at that time.

According to the results from these analyses, we believe a reasonable target surplus level would be an additional 30% of the total liability for the Duty Disability program. A significant portion of this amount is related to potential volatility in the value of the assets used to back the liability, and the resulting uncertainty in annual investment returns. Table 1 below shows the amount of surplus calculated as 30% of the December 31, 2018 liability, along with the actual surplus reported on that date.

Table 1 Duty Disability Surplus Analysis Valuation Date: December 31, 2018 ($ millions)	
A. Duty Disability Liabilities	$454.6
B. Duty Disability Asset Balances	$642.0
C. Duty Disability Surplus (B – A)	$187.4
E. Target Surplus (30% x A)	$136.4

The surplus reported on December 31, 2018 ($187.4 million) is higher than the target surplus estimate ($136.4 million) shown above. Also, the surplus is expected to increase in future years according to the financial projections we developed in our most recent valuation of the program. While this may be viewed as a positive attribute from a funding perspective, it may also be perceived as excessive and could create challenges in managing the program.

The remainder of this letter provides documentation of our assumptions and methods for calculating target surplus for the Duty Disability program.

NAIC Risk Based Capital Formula

The NAIC Risk Based Capital formula is used by insurance companies for determining target surplus, and takes into consideration various risks related to premium contributions and the assets backing future liabilities. The formula has four components:

1. C1: (asset risk) The C1 component takes into consideration the types of assets backing the liabilities. Riskier and less liquid assets (such as real estate and equities) have higher capital factors, while less risky and more liquid assets (such as higher-rated bonds) have lower capital factors.

2. C2: (insurance risk) The C2 component takes into consideration premium contributions and liabilities, and is intended to capture risks related to inadequate funding for future liabilities.

3. C3: (disintermediation risk) The C3 component does not apply to group disability insurance.

4. C4: (operational risk) The C4 component takes into consideration miscellaneous business risks such as administrative expenses and other administrative services.

We used financial information from the Duty Disability program as of December 31, 2018 to compute target surplus according to the RBC formula. We made the following assumptions in our surplus calculation:

- Annual Premium: $10.2 million
- Liabilities: $454.56 million
- Core Fund Asset Allocation[1]:
    - Stocks: 44%
    - Fixed income: 23%
    - Inflation sensitive: 14%
    - Private equity: 8%
    - Real estate: 7%
    - Multi-asset: 4%

[1] Source for asset allocation of Core Fund: https://www.swib.state.wi.us/core-fund

Most disability insurers hold surplus equal to at least 300% of the RBC formula, but this is primarily to achieve higher ratings from rating agencies, and not solely for solvency purposes (although higher surplus levels certainly provide for greater confidence with regard to solvency). In our RBC analysis for the Duty Disability program, we applied a factor of 150% to the RBC formula. The details of our surplus calculation for Duty Disability are provided in Table 2 below:

Table 2 RBC Target Surplus for Duty Disability	
Item	Value
C1: Asset Risk	$86,707,672
C2: Insurance Risk	$23,272,574
C4: Operational Risk	$50,935
Subtotal (Sqrt(C1^2+C2^2)+C4)	$89,827,508
Additional RBC (50% of Subtotal)	$44,913,754
Total RBC	$134,741,262

The RBC surplus shown above represents an estimate of risk surplus—i.e., surplus intended to provide protection against volatility in asset values and benefit costs, assuming that the underlying liability is fully funded. According to the financial reports as of December 31, 2018, the current contribution rates appear adequate for funding future liabilities, and therefore we did not include an amount for premium deficiency.

The target surplus amount shown above ($134.7 million) is roughly 29.6% of the Duty Disability liability reported as of December 31, 2018 ($454.6 million). Note that the most significant portion of the RBC surplus amount shown above is the C1 component related to asset risk. This is because the Core Fund portfolio is comprised of high risk assets such as stocks and private equity. If the liability were backed solely by investment grade bonds, then the level of required surplus would be significantly lower, but the liability itself would be higher since the expected investment return would be much less.

Target Surplus Based on 99th Percentile Value at Risk

The C2 component of the RBC surplus calculation (insurance risk) is related to claim runout risks such as variations in claim termination rates, and hence variations in future benefit payments. We tested the C2 surplus amount shown above by performing a Value at Risk analysis of Duty Disability claim runoff patterns. Using an inventory of open Duty Disability claims as of December 31, 2018, we projected future benefit payments and expenses for 1,000 different random scenarios. Each of the scenarios represented a different claim runoff pattern in which the likelihood of a claim closing in the future was determined from a random process. Therefore, the projected future benefit payments and expenses were different in each of the 1,000 scenarios.

We calculated a liability corresponding to each of the 1,000 scenarios in the same way that the December 31, 2018 liability was determined—i.e., by calculating the present value of projected benefit payments and expenses, discounted at 7.0% interest. We also calculated a liability for claims incurred but not reported (IBNR) as of the valuation date.

We identified ten scenarios that represented the highest liability estimates (the 1% worst outcomes) from the process described above. The following table shows the estimated liabilities corresponding to the worst 3% of outcomes (outcomes with the highest liability estimates), in which the worst 1% are boldface:

Table 3 Estimated Liabilities Ordered from Largest to Smallest ($ Million)			
Percentile	Estimated Liability	Percentile	Estimated Liability
99.9%	**$472.3**	98.4%	$466.2
99.8%	**$470.5**	98.3%	$466.1
99.7%	**$470.1**	98.2%	$466.1
99.6%	**$469.7**	98.1%	$466.0
99.5%	**$469.2**	98.0%	$465.8
99.4%	**$468.6**	97.9%	$465.7
99.3%	**$467.9**	97.8%	$465.6
99.2%	**$467.8**	97.7%	$465.5
99.1%	**$467.7**	97.6%	$465.4
99.0%	**$467.5**	97.5%	$465.3
98.9%	$467.2	97.4%	$465.2
98.8%	$466.9	97.3%	$465.1
98.7%	$466.8	97.2%	$465.1
98.6%	$466.6	97.1%	$465.0
98.5%	$466.3	97.0%	$465.0

In the table above, the top percentile resulted in a liability estimate greater than or equal to $467.5 million. Therefore, according to this analysis, a fund balance of $467.5 million would provide sufficient funding for future liabilities with 99% confidence. This amount is approximately 3% higher than the actual liability reported on December 31, 2018 ($454.6 million).

In the RBC target surplus calculation described in the previous section, we included an amount equal to 5% of the Duty Disability liability for covering C2 risks. This is relatively close to the 3% result from the Value at Risk analysis. Also, the Value at Risk analysis may understate the actual volatility (and hence required surplus), because it assumes that future claim termination rates will follow a predetermined pattern that varies by attained age and gender, but in reality, actual termination patterns may be different.

Conclusion

We calculated target surplus for the Duty Disability program by taking into consideration various risks related to claim runout patterns, premium contributions, and the assets held in the Core Fund portfolio. Our target surplus estimate for claim runout risk is approximately 5% of the total liability. However, an overall target surplus of 30% of liabilities seems more appropriate for the Duty Disability program due to other risks, such as asset risk. The RBC surplus estimate for asset risk (i.e., the C1 component) is a significant portion of total surplus because a large proportion of the Core Fund is invested in high risk assets such as stocks.

General

The information in this letter is intended for the internal use of Wisconsin ETF and may not be distributed to other parties without the written consent of Milliman. In preparing this information, we have relied on data provided to us by Wisconsin ETF, including historical claim data, plan documents, insurance files and other information. To the extent this information is inaccurate or incomplete, the results of our work may be materially affected.

In order to provide this information, we have constructed several projection models and have made assumptions about future claim experience. Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. It is

nearly certain that actual experience will not conform exactly to the assumptions used in this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

I, Paul Correia, am a consulting actuary with Milliman and a member of the American Academy of Actuaries. I meet the qualification standards of the Academy to render the actuarial opinion contained herein.

We look forward to discussing these results with you at your earliest convenience. In the meantime, please let me know if you have any questions. Thank you.

Sincerely,

Paul Correia, FSA, MAAA
Principal & Consulting Actuary

cc: Cindy Klimke, Gina Fischer, Erin Esser, Megan Jeffers (ETF), Dan Skwire (Milliman)