

TO: Ima Editor, Big City Times
FROM: Gregory Gadow, Rent-An-Actuary Consulting Actuaries
DATE: December 6, 2017
SUBJECT: Life Subscriptions

1. EXECUTIVE SUMMARY

This report is a summary of the work of Rent-An-Actuary Consulting Actuaries and is presented to Big City Times ("the Times") in consideration of offering their readers a lifetime subscription to their newspaper.

We considered lifetimes of 30, 40, and 50 years under two different investment strategies. From that, we are recommending the following rates:

30 years	\$11,230.00
40 years	\$14,450.00
50 years	\$17,540.00

2. INTRODUCTION

The Times asked us to investigate a price for offering life subscriptions to its readers. This would allow a reader to pay a single amount upfront and receive the Times in perpetuity.

The current rate for a one-year subscription is \$452, payable in advance. Our model is to calculate the future cost for a specific year based on projected inflation, and then discount it using two possible investment strategies for collected subscriptions. We then sum these results to get the present value of subscriptions for the next 30, 40, and 50 years.

3. ASSUMPTIONS

To conduct this analysis, we made two primary assumptions: the expected return on monies paid for the lifetime subscriptions, and the expected inflation of production costs. In addition, we considered alternatives to home carrier delivery and the impact of subscriber life expectancy on our calculations.

3.1 EXPECTED RETURN ON HOLDING FUND

When subscribers purchase a life subscription, the subscription price will be deposited into a holding fund, with monies withdrawn periodically to cover the production costs of the subscription. The return on this fund will help to offset future costs, allowing for a lower, more attractive subscription price. While a high rate of return is desirable, it is just as important that this fund be a safe investment, which means accepting a lower rate of return than might otherwise be available. For the purpose of this analysis, we considered two broad categories of investment funds and looked at their impact separately. We of course recommend strongly that the Times consult with a registered financial representative to consider their options before committing to an investment strategy. Recommendations for financial service providers are available on request.

The first consideration is a municipal bond fund. Backed by a government's power of taxation, municipal bonds are generally quite safe. While interest rates tend to be low, they have the advantage of being tax-free, which improves their yield rates. Accounts in most municipal bond funds can be opened with a low initial investment, which means the Times will be able to enter the fund quickly without having to accumulate cash first. Ideally, we would have access to forecasts of future yield rates, but that information is proprietary and beyond the budget of this analysis. So instead, we took the average 3-year yield of funds invested in long-term municipal bonds drawn from around the United States to be our select rate, currently 3.24% (Morningstar.) For the ultimate rate, we used the average 5-year yield of those funds, currently 2.65% (Morningstar.) While past performance does not indicate future performance, we believe that these rates accurately reflect what could reasonably be expected.

The second consideration is a large value fund. These funds invest primarily in stocks from large, established companies considered to be undervalued in the current market environment. While such funds typically have a higher yield than municipal bond funds, they are more prone to market fluctuations and therefore have a greater potential for negative returns. The returns are also subject to capital gain and other federal, national, and local taxes, which decreases their yield. Many large value funds are intended for corporate or institutional investors and may require larger initial investments to open an account. Similarly to the municipal bond fund, we took the 3-year yield of funds invested in large value corporations drawn from around the United States, currently 7.39% (Morningstar) as the select rate, and the average lifetime yield rate of those funds, currently 13.50% (Morningstar) as the ultimate rate.

3.2 EXPECTED RATE OF INFLATION

To find the projected rate of inflation, we looked to Statista, a web service that gathers statistical information. Their projection of US inflation has rates fluctuating between 2.18% and 2.65% (Statista). For the purposes of this analysis, we used the projected inflation rate for 2018 (2.38%) as the select rate and the projected inflation rate for 2022 (2.27%) as the ultimate rate.

3.3 OTHER DELIVERY MODELS

For the purpose of this analysis, we will assume that the cost of postage for mail delivery, and the per-subscriber costs for maintenance of internet infrastructure, are and will remain comparable to the cost of contracting carrier delivery. Thus, the mode of content delivery will not change the projected life subscription rates.

3.4 LIFE EXPECTANCIES

A complete projection model would factor in the average age of Times subscribers and the expected life times of those subscribers. For this preliminary analysis, however, we will ignore these factors and look only at the present value of subscriptions lasting 30, 40, and 50 years.

4. ANALYSIS

4.1 PROJECTED ANNUAL RENEWAL

Under the assumptions given in section 3, we first calculate a projected cost to the subscriber who stays with the inflation adjusted annual subscription:

30 years	\$19,210.10
40 years	\$29,077.96
50 years	\$41,429.06

That is to say, a subscriber who buys a one year subscription at the current rate today, and renews that subscription at the inflation-adjusted annual rate 29 more times, would pay \$19,210.10 over the course of 30 years. Annual renewal for 40 and 50 years would cost \$29,077.96 and \$41,429.06, respectively.

4.2 PROJECTED LIFE SUBSCRIPTION, MUNICIPAL BOND FUND

If the monies collected from life subscriptions are invested in a safe, low return mutual fund such as a municipal bond fund, we project that life subscriptions could be offered at these rates:

	Cost	Savings
PV, 30 years	\$12,881.73	\$6,328.37
PV, 40 years	\$16,876.22	\$12,201.74
PV, 50 years	\$20,725.28	\$20,703.78

So a subscriber expected to have their life subscription for 30 years would need to pay \$12,881.73 for that subscription, a savings of more than \$6000 over the annual subscription renewal.

4.3 PROJECTED LIFE SUBSCRIPTION, LARGE VALUE MUTUAL FUND

If the monies collected from life subscriptions are invested in a somewhat less safe, but higher return mutual fund such as a large value fund, we project that life subscriptions could be offered at these rates:

	Cost	Savings
PV, 30 years	\$4,582.39	\$14,627.72
PV, 40 years	\$4,712.78	\$24,365.19
PV, 50 years	\$4,758.78	\$36,670.28

So a subscriber expected to have their life subscription for 30 years would need to pay \$4,582.39, a savings of more than \$14,500 over the annual subscription renewal.

5. CONCLUSIONS AND RECOMMENDATIONS

The pricing of life subscriptions will depend heavily on your choice of investment strategy. We can offer general information, but please consult with a registered financial representative for specific advice.

That said, it would not be unreasonable to take a balanced approach. To calculate our recommended life subscription rates, we used a weighted combination of 80% the safer municipal bond fund rate and 20% of the higher return large value mutual fund. By increasing the risk slightly, you can provide a lower, more attractive lifetime subscription rate. These were then rounded up to next even ten's place, giving these rates:

	Rec. Rate	Savings
30 years	\$11,230.00	\$7,980.10

40 years	\$14,450.00	\$14,627.96
50 years	\$17,540.00	\$23,889.06

We believe these reflect a reasonable strategy for providing life subscriptions to your readers.

6. SOURCES

Morningstar. *Morningstar.com.*

Muni National Long yields as of 11/17/2017.

U. S. Equity Large Value yields as of 11/17/2017.

Statista.com

Projected annual inflation rate in the United States from 2010 to 2022, released April, 2017.