

ISSUE BRIEF

The Scarlet Letter in the Municipal Bond Market *A Cost of Illinois' Poor Fiscal Reputation*

Martin J. Luby, *DePaul University and the University of Illinois Institute of Government and Public Affairs*
Tima Moldogaziev, *University of South Carolina*

The state of Illinois over the last decade experienced severe fiscal stress due to unfunded pension and retiree healthcare liabilities, an underlying structural operating budget deficit, and the downturn in housing, financial and labor markets. This has resulted in numerous credit rating downgrades on Illinois debt. As of February 2014, the State of Illinois credit rating is the lowest of the 50 states with ratings of A3, A- and A- from Moody's, Standard and Poor's and Fitch, respectively.

Such a low credit rating makes it more expensive for a state to borrow money in the capital markets compared to higher rated states. Investors demand higher interest rates to purchase municipal securities that carry greater "default risk" (i.e., a greater likelihood that they will not receive timely and full repayment of their investment) as reflected in the lower credit ratings of the state. The higher the likelihood of default, the greater the "risk premium" a state government will have to pay on its municipal securities of which such risk premium is directly reflected in the state's interest rates.

However, some observers have argued that Illinois pays a "risk premium" on its debt that is not commensurate with its actual default risk. For example, Joffe argues that Illinois is not anywhere near the point of defaulting on its bonds as measured by the state's current ratio of future interest and pension costs to total revenues.¹ Based on Joffe's analyses and the default risk levels he forecasts, he concludes that the state of Illinois is paying an unjustified risk premium.²

This issue brief attempts to "unpack" the state of Illinois' risk premium using multi-state market trading data on general obligation bonds for the period 2005 through 2010. We seek to determine whether, in addition to its creditworthiness, there is a reputational aspect associated with Illinois debt reflected in the state's bond prices. From a policy perspective, we seek to better understand Illinois' higher risk premium and determine the extent to which it is attributable to factors beyond credit ratings and the other fiscal, economic and financial characteristics normally associated with state and local government borrowing costs.

Exploration of such risk premium is important since it will help policymakers understand how much state spending on other priorities such as education, healthcare and infrastructure is crowded out by additional interest costs solely attributable to the state's poor reputation. Perhaps equally important, although admittedly more speculative, the existence of a significant reputational risk premium may have implications on other state transactions. For example, although difficult to measure, it is entirely possible that workers and suppliers seek similar reputational risk premium

¹Joffe, Marc. D. (2013). Modeling state credit risks in Illinois and Indiana. Working Paper, Mercatus Center, George Mason University

²Joffe, Marc. D. (June 28, 2013). Don't sweat the threat of Illinois Default. *Chicago Tribune*. Available at http://articles.chicagotribune.com/2013-06-28/opinion/ct-perspec-0628-default-20130628_1_illinois-bonds-bond-investors-default

compensation. If that is the case, the cost of Illinois' reputational deterioration could be many times as high as the cost to its bond market financings.

BOND CREDIT RATINGS AND ILLINOIS' REPUTATION RISK PREMIUM

Bond credit ratings are indicators of the overall credit risk of the government entity. Credit ratings take into account many factors of the bond issuing government including current and future expected economic conditions in the region, current and future expected population demography, financial condition and the political environment. Table 1 illustrates the credit rating history of the state of Illinois over the last 15 years as rated by the three major credit rating agencies (Standard and Poor's, Moody's and Fitch). During our period of study, the state was downgraded once by Standard and Poor's and Moody's and three times by Fitch (receiving one upgrade by Fitch as well). While the 2005 through 2010 era clearly represented a time period of credit deterioration, the state's credit has further weakened since 2010 with multiple downgrades from the credit rating agencies as shown in the table.

The credit deterioration of the state of Illinois has resulted in the state having to pay a significant risk premium on its bonds vis-à-vis higher-rated governments. For example, on its April 2013 general obligation bond sale, market participants estimated that the state of Illinois paid an interest rate 1.41 percentage points higher on its 10-year bond maturity compared to a top-rated government entity.³ Thus, if the top rated government carried an interest rate of 1.80 percent on its 10-year bond maturity, Illinois would have to pay a 3.21 percent interest rate on a similar bond. Such a sizeable risk premium results in significant extra interest costs for the state of Illinois compared to higher rated government bond issuers.

The question we explore in this issue brief is whether that risk premium entirely reflects the difference in Illinois bonds taking into account market, bond issue and bond issuer factors commonly associated with municipal bond pricing. Or, whether there is a reputational element contributing to the driving down of the price (interest rates up) on Illinois debt.⁴ Anecdotally, we would expect a limited impact of such reputation premium if we observed similar bond prices for Illinois and another low-rated state such as California. That has not been the case as noted in the financial press. For example, in September 2012 prior to its recent credit rating downgrades, Illinois had a higher credit rating than the state of California yet it received

³Shields, Yvette. (April 12, 2013). Illinois holds its ground in big GO sale. *The Bond Buyer*.

⁴In the municipal bond market, municipal securities are quoted in terms of both price and yield. A bond's price is inversely related to its yield. That is, as the price of a bond drops, its yield goes up and vice versa. However, in this issue brief, we will use the term "interest rate" for yield as it is more commonly understood than the more technical "yield" term. We will also use the terms interest rate and price interchangeably (but noting their different directional impacts).

Table 1: Recent history of state of Illinois General Obligation Bond credit ratings (Red = Downgrade; Green = Upgrade)

| Year | S&P | Moody's | Fitch |
|------|----------------------|----------------------|----------------------|
| 1998 | AA | Aa2 | AA |
| 1999 | AA | Aa2 | AA |
| 2000 | AA | Aa2 | AA+ |
| 2001 | AA | Aa2 | AA+ |
| 2002 | AA | Aa2 | AA+ |
| 2003 | AA | Aa3 | AA |
| 2004 | AA | Aa3 | AA |
| 2005 | AA | Aa3 | AA |
| 2006 | AA | Aa3 | AA- |
| 2007 | AA | Aa3 | AA |
| 2008 | AA | Aa3 | AA- |
| 2009 | A+ | A2 | A |
| 2010 | A+ | A2 | A |
| 2011 | A+ | A1 | A |
| 2012 | A | A2 | A |
| 2013 | A- (neg. outlook) | A3 (neg. outlook) | A- (neg. outlook) |

significantly lower prices on its bonds at that time.⁵

Moreover, we believe such exploration is even more warranted now after recent comments made by several market participants related to investor demand for Illinois bonds related to the state's steeply declining reputation among capital market participants. For example, Richard Ciccarone, former managing director and chief research officer at McDonnell Investment Management, stated:

Many investors don't want any names in their portfolio that have made headlines for negative reasons, like Illinois. The state has a constitutional provision that guarantees it will make its debt payments, but investors also see cities like Detroit reneging on debts or considering filing for bankruptcy and get jittery.

Brian Battle, director of trading at Performance Trust Capital Partners, offered a more blunt assessment:

There are investors who won't buy Illinois or bonds with Illinois labels at any price. They just see it as toxic. That means the state pays the biggest penalty by a long, long shot.⁶

Using a literature metaphor, we seek to answer whether Illinois bonds carry a "scarlet letter" affecting its bond

⁵Chappatta, Brian and Michael Marois. (September 3, 2012). California beating Illinois shows pension gap cost. *Bloomberg*.

⁶Both quotes from McLelland, Edward. (June 27, 2013). The Illinois effect. *NBC 5 Chicago*. Available at <http://www.nbcchicago.com/blogs/wardroom/The-Illinois-Effect-213131281.html>

pricing in the negative. We use the “scarlet letter” metaphor to note the hypothesized incremental risk premium demanded by investors on bonds that carry the name “Illinois” due to the perceived extreme fiscal challenges facing the state.

However, it should be noted, our analysis does not estimate the *total* cost of Illinois’ fiscal struggles as reflected in the bond markets. That is a much larger cost estimate that consists of the difference between the actual price/interest rates of Illinois bonds and what that price/interest rate would be if its fiscal struggles were reduced to previous levels. Rather, we are trying to estimate the *portion* (if any) of this cost related to the steep decline in the fiscal reputation of the state of Illinois in the eyes of municipal bond buyers beyond the normal fiscal, economic and financial factors that affect bond prices.

METHODOLOGY AND RESULTS

We collected data on all fixed rate state general obligation bonds sold in the primary market between 2005 through 2010 and followed these bonds in the secondary market tracking their market prices.⁷ We constructed a sample of 37,540 weekly prices in the secondary market for 13,083 state general obligation bonds for the period of interest.⁸ To estimate the determinants of cross-state and over-time differences in municipal bond prices, we also collected control variables found in other studies to be associated with municipal bond pricing. These control variables reflect market, bond issue and bond issuer characteristics.⁹ Finally, to test our hypothesis that Illinois bond prices include a

⁷It should be noted that municipal bonds are traded in both the primary and secondary markets. The primary market represents the initial sale of the municipal security from the government entity to investors. The secondary market exists to provide liquidity for the municipal bond market whereby investors can trade state and local government securities among themselves. While this issue brief focuses on secondary market pricing, the three types of factors discussed affect the bond’s price in both markets. Since most state and local governments only sell debt in the primary market a couple times a year or less, secondary market pricing provides a more timely assessment of the value of a government’s debt as viewed by the municipal investor community.

⁸We collected data on all fixed rate state general obligation bonds issued between 2005 through 2010 as reported to *Bloomberg*. This resulted in 900 state general obligation bond issues from 39 states that included 13,083 serial bonds (i.e., most municipal bond issues include multiple serial bonds that mature in different years). We then followed each serial bond in the secondary market after the issuance date for the first 150 days through Municipal Securities Rulemaking Board’s (MSRB) *Electronic Municipal Market Access* (EMMA) data-port from January 31, 2005 to May 31, 2011. We collected data on over 600,000 transactions in the over-the-counter broker dealer markets for municipal securities for our sample of 13,083 state GO serial bonds. Using broker-dealer transaction prices, we constructed our measure of secondary market weekly price, which is the midpoint between the lowest customer sell price and the highest customer buy price for every week since the date of bond issuance (i.e. weekly round-trip price spread). Municipal bonds are thinly traded securities and often do not trade on a daily basis. Therefore, following Downing and Zhang (2004), we are focusing our attention on weekly secondary prices.

⁹Some examples of market factors are the overall level of interest rates, market volatility and the aggregate amount of demand from investors for municipal bonds. Some examples of bond issue factors are the maturity date, issue size, call provisions, and bond tax status (i.e., federal and state exempt, just state exempt, just federal exempt or neither federal or state exempt).

risk premium over and above what can be explained by the control variables, we included a variable to indicate whether the bond was issued by the state of Illinois.

We employed a regression model to estimate the association between our variable of interest, the Illinois issue indicator, as well as our various control variables and our outcome of interest, the secondary market bond price. Our “Illinois Reputation” variable was statistically significant as were most of our control variables and the overall statistical equation. Our statistical analysis showed that Illinois general obligations bonds carried interest rates between seven and 21 basis points higher than non-Illinois general obligation debt.¹⁰ Specifically, all held equal, Illinois general obligation bonds carried interest rates 21, 12, and seven basis points higher for bonds maturing in five, 10, and 20 years, respectively. Thus, the portion of the Illinois risk premium associated with a bond solely bearing the name “State of Illinois GO” in the secondary market was statistically and economically significant. Once again, this is not an estimate of the total cost of Illinois’ fiscal struggles as reflected in the bond markets but an estimate of the portion of this cost that we suggest is related to the decline in its fiscal reputation.

DISCUSSION

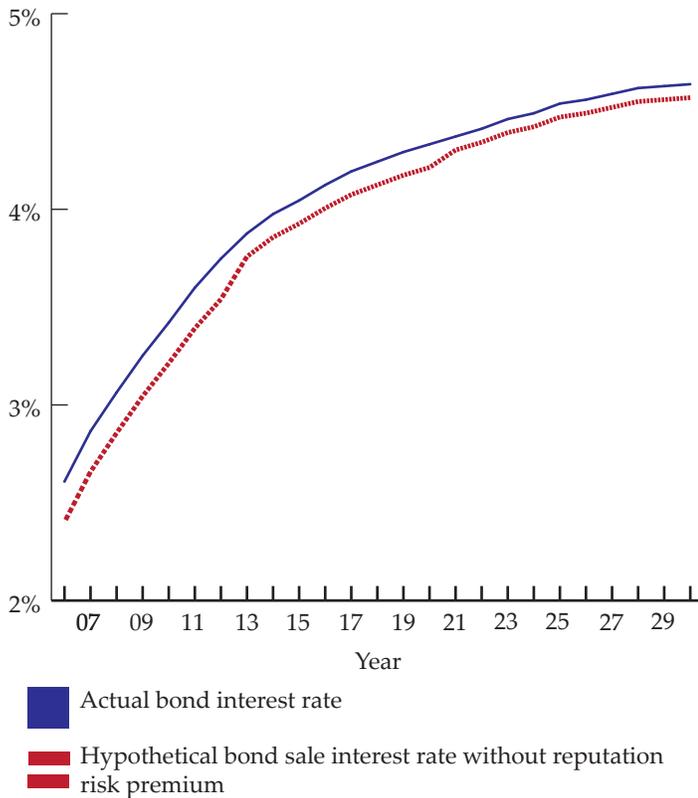
To get a better sense of the dollar cost implications of the risk premium that we suggest is associated with the state’s poor reputation, Figure 1, and the Appendix to Figure 1 (see page 6) present a bond proceeds calculation analysis for a representative state of Illinois general obligation bond issue as sold in the primary market.¹¹ Figure 1 compares the actual yield curve for the representative transaction comparing it to the yield curve if the bonds were sold without the estimated reputation risk premium (i.e., 21, 12, and seven basis points for five, 10, and 20-year maturity bonds, respectively). The Appendix to Figure 1 details the bond proceeds actually raised for this representative bond issue and compares it to the amount of proceeds that would have been raised hypothetically. Thus, Figure 1 and the Appendix to Figure 1 essentially represent the “counterfactual” had the state of Illinois not incurred a reputational risk premium. Moreover, the Appendix to Figure 1 represents the present value of this reputational risk premium, as this is the difference between what investors would be willing to pay at the time of sale for Illinois general obligation bonds with and without the reputation risk premium.

As shown in the Appendix to Figure 1, the state of Illinois sold \$315 million in general obligation bonds in April

¹⁰A basis point is one hundredth of a percentage point. For example, a 10 basis point increase in an interest rate of 4.67 percent would result in a 4.77 percent interest rate.

¹¹Technically, the price of a bond that the investor pays/government issuer receives is a function of the issue date, bond’s face value, maturity date, call provisions, coupon interest rate, and stated yield. Thus, in determining how much a state and local government will receive in proceeds from a bond sale, we can calculate the price of the issue taking into account all those factors for all the bonds in the issue.

Figure 1: State of Illinois GO bonds series of April 2005, Bond Interest Rate Comparison. *Maturity-by-Maturity: Actual vs. Hypothetical without reputational risk premium*



(See data for graph in Appendix.)

2005. The bonds matured over 25 years ranging from 2006 through 2030 in equal principal installments of \$12,660,000. The total proceeds the state of Illinois actually received from the bond sale were \$331.074 million. The counterfactual, after adjusting the interest rates on each bond maturity downward by 21, 12 or seven basis points, produces total bond sale proceeds of \$333.486 million. This represents approximately \$2.4 million more that the state would have received from bond sale if it were not penalized by this reputation risk premium. This is just one, relatively small bond sale. Given that the state sold over \$10.4 billion in general obligation bonds during the study period alone, a rough estimate of the present value dollar cost of the reputation risk premium could be well over \$80 million on state of Illinois general obligation bonds sold between 2005 and 2010.¹²

The bond proceeds analysis provides an order of magnitude approximation of the actual dollar cost of the state carrying such a large negative reputation among

¹²This is very rough but likely conservative estimate. \$315 million in bonds as a percent of \$10.4 billion in bonds is roughly 3.1 percent. If the \$2.4 million in extra cost was applied on a pro-rata basis for all the bonds, there would be roughly \$80 million (\$2.4 million / 3.1 percent) more in bond sale proceeds for all \$10.4 billion in bonds. Again, this only takes into account the bonds sold between 2005 and 2010. The state sold hundreds of millions more in bonds since 2010 at a likely higher reputational risk premium as the state's credit has further deteriorated. Thus, the dollar cost implications of the reputational risk premium are likely well over \$100 million.

municipal bond market participants, beyond the actual credit ratings that the rating firms assigned to the state as well as all other fiscal, economic and financial factors. It is one thing for the state to incur a risk premium penalty due to a reduction in its creditworthiness. This happens to all state and local governments when their credit deteriorates. It is an entirely different situation when your credit rating sinks so much that you become the lowest rated state in the nation and, thus, incur a risk premium penalty that is not commensurate with your actual creditworthiness but rather due to the market's (perhaps) irrational perception that your credit is so much worse than all 50 states. Importantly, this study's analysis only includes general obligation bonds sold through 2010. The state's fiscal situation has deteriorated since the end of 2010 as reflected in the recent credit downgrades of the state. As such, one could expect that the portion of the Illinois risk premium associated with the state's negative reputation in the market has grown larger in the last three years.

Our findings suggest that the investors in the municipal secondary markets demand a risk premium for Illinois general obligation debt that is greater than the financial, economic, and fiscal conditions warrant. We suggest this portion of the Illinois risk premium is the result of investor flight away from Illinois bonds due to concerns related to the budgetary politics enveloping the state in recent years. The previously cited quotes made by market participants Ciccarone and Battle seem to support this assertion. Another comment made recently by Michael Pietronico, CEO of Miller Tabak Asset Management, also supports this notion:

Everybody involved in the municipal market understands that things are getting worse, not better for Illinois. There's been a cascade of news from Illinois, none of which seems good for the longer term... The only way they could get investors to change their minds is to change their spending habits. The market will pay what the market wants to pay. They aren't going to be able to jawbone the market higher. They have to act.¹³

Regardless of the exact cause of this reputation risk premium, the analysis above suggests it is present and demonstrates the urgent need for the state to make headway in addressing its fiscal challenges. As observed by Mr. Pietronico, the only way to change investors' minds towards Illinois debt is to get the state's fiscal house in order. Moreover, one should not conclude that this reputational risk premium is confined to the bond markets. Rather, it is wholly possible and probably likely that state workers and suppliers demand a similar risk premium in their transactional compensation from the state. While this study does not quantify these costs, one could speculate that such additional compensation could be many times as high as the reputational risk premium on the state's debt as estimated in the analysis.

¹³Merrion, Paul. (February 11, 2013). Will Illinois flunk its next bond test? *Crain's Chicago Business*.

Given the sizeable risk premium on Illinois debt, future progress ameliorating that premium by improving the state's fiscal reputation in the eyes of municipal market participants could yield tremendous benefits to the citizens of Illinois in the form of much lower relative borrowing costs. The state's recent public pension law changes evidences the bond market benefits the state could receive by making structural fiscal improvements. Specifically, compared to its April 2013 taxable general obligation bond issue, the state sold its December 2013 general obligation bond issue at interest rates that produced \$20 million in interest cost savings.¹⁴ On the other hand, the pending legal challenges to the pension reform law show the precariousness of such financial benefits. These legal

¹⁴No author. (December 12, 2013). Pension reform law gives Illinois bonds a boost. *Reuters*. Available at <http://www.reuters.com/article/2013/12/12/usa-illinois-bonds-idUSL1N0JR1YS20131212>.

challenges, if fully or partially upheld, likely will result in greater interest costs due to both the state's actual default risk increasing and its fiscal reputation declining.

On a more positive note, fiscal improvements do not necessarily have to be immediately dramatic to be efficacious. For example, the state of California has credit ratings only slightly better than Illinois but pays interest rates significantly lower than the state of Illinois.¹⁵ Thus, additional fiscal improvements in concert with the legal implementation of the pension reform law could raise Illinois' fiscal reputation in line with California, which would likely produce significant financial benefits resulting from lower interest costs on future state bond issues. •

¹⁵No author. (April 11, 2013). Illinois bond sale results reflects state financial woes. Civic Federation.



The Fiscal Futures Project began in 2008 out of concern that the state of Illinois lacked sufficient capacity to project its fiscal demands and revenue streams into the future. A longer term perspective is needed due to:

- The structural deficit: state expenditures have been growing faster than revenue
- The serious consequences of making policy choices while ignoring the impact on the budget in future years
- The relentless pressure on future budgets from an aging population and continuing increases in the cost of health care



The Institute of Government and Public Affairs (IGPA) is a public policy research organization based in all three University of Illinois campus cities. IGPA's mission is to improve public policy and government performance by: producing and distributing cutting-edge research and analysis, engaging the public in dialogue and education, and providing practical assistance in decision making to government and policymakers. The institute's work not only advances knowledge, but also provides real solutions for the state's most difficult challenges. IGPA plays an important role in assisting government to better serve the public good. IGPA provides access to top-quality University of Illinois research to improve decision making at every level of government.

To learn more, visit igpa.uillinois.edu

APPENDIX

Data for Figure 1: State of Illinois General Obligation Bonds, Series of April 2005. *Actual Bond Sale Proceeds vs. Bond Sale Proceeds without reputation risk premium (counterfactual)*

| Maturity date | Principal Amount | Actual, with reputation risk premium | | | Counterfactual, without reputation risk premium | | |
|-------------------|--------------------|--------------------------------------|---------|--------------------|---|------------------|--------------------|
| | | Interest rate | Price | Bond sale proceeds | Interest rate | Price | Bond sale proceeds |
| 2006 | 12,600,000 | 2.60% | 100.626 | 12,678,876 | 2.39% | 100.830 | 12,704,580 |
| 2007 | 10,800,000 | 2.86% | 104.097 | 11,242,476 | 2.65% | 104.510 | 11,287,080 |
| 2007 | 1,800,000 | 2.86% | 100.267 | 1,804,806 | 2.65% | 100.671 | 1,812,078 |
| 2008 | 10,320,000 | 3.06% | 105.490 | 10,886,568 | 2.85% | 106.106 | 10,950,139 |
| 2008 | 2,280,000 | 3.06% | 100.537 | 2,292,243 | 2.85% | 101.135 | 2,305,878 |
| 2009 | 12,600,000 | 3.25% | 106.488 | 13,417,488 | 3.04% | 107.300 | 13,519,800 |
| 2010 | 12,600,000 | 3.42% | 107.182 | 13,504,932 | 3.21% | 108.182 | 13,630,932 |
| 2011 | 12,600,000 | 3.60% | 107.475 | 13,541,850 | 3.39% | 108.652 | 13,690,152 |
| 2012 | 12,600,000 | 3.75% | 107.616 | 13,559,616 | 3.54% | 108.962 | 13,729,212 |
| 2013 | 12,600,000 | 3.88% | 107.625 | 13,560,750 | 3.76% | 108.482 | 13,668,732 |
| 2014 | 12,600,000 | 3.98% | 107.640 | 13,562,640 | 3.86% | 108.584 | 13,681,584 |
| 2015 | 12,600,000 | 4.05% | 107.736 | 13,574,736 | 3.93% | 108.764 | 13,704,264 |
| 2016 | 12,600,000 | 4.13% | 107.058 | 13,489,308 | 4.01% | 108.078 | 13,617,828 |
| 2017 | 12,600,000 | 4.20% | 106.468 | 13,414,968 | 4.08% | 107.481 | 13,542,606 |
| 2018 | 12,600,000 | 4.25% | 106.049 | 13,362,174 | 4.13% | 107.058 | 13,489,308 |
| 2019 | 12,600,000 | 4.30% | 105.632 | 13,309,632 | 4.18% | 106.636 | 13,436,136 |
| 2020 | 12,600,000 | 4.34% | 105.300 | 13,267,800 | 4.22% | 106.300 | 13,393,800 |
| 2021 | 12,600,000 | 4.38% | 104.969 | 13,226,094 | 4.31% | 105.549 | 13,299,174 |
| 2022 | 12,600,000 | 4.42% | 104.640 | 13,184,640 | 4.35% | 105.217 | 13,257,342 |
| 2023 | 12,600,000 | 4.47% | 104.229 | 13,132,854 | 4.40% | 104.804 | 13,205,304 |
| 2024 | 12,600,000 | 4.50% | 103.984 | 13,101,984 | 4.43% | 104.557 | 13,174,182 |
| 2025 | 12,600,000 | 4.55% | 103.577 | 13,050,702 | 4.48% | 104.148 | 13,122,648 |
| 2026 | 12,600,000 | 4.57% | 103.415 | 13,030,290 | 4.50% | 103.984 | 13,101,984 |
| 2027 | 12,600,000 | 4.60% | 103.172 | 12,999,672 | 4.53% | 103.740 | 13,071,240 |
| 2028 | 12,600,000 | 4.63% | 102.930 | 12,969,180 | 4.56% | 103.496 | 13,040,496 |
| 2029 | 12,600,000 | 4.64% | 102.849 | 12,958,974 | 4.57% | 103.415 | 13,030,290 |
| 2030 | 12,600,000 | 4.65% | 102.769 | 12,948,894 | 4.58% | 103.334 | 13,020,084 |
| TOTAL | 315,000,000 | | | 331,074,147 | | | 333,486,853 |
| DIFFERENCE | | | | | | 2,412,706 | |