

# SAMPLE Executive Summary - Pension vs Lump Sum Trade-Offs

Prepared for: George and Lorraine McFly

Current ages: 65 and 55 (All values are totally hypothetical and are for educational purposes only)

- I. What are the "implicit earnings rates" (IRR) of your pension payments?
- II. What lump sum (NPV) invested into your current investment portfolio is needed to replicate your pension payments?
- III. Survivor benefit IRR?
- IV. Survivor benefit NPV?
- V. Single Premium Immediate and Deferred Income Annuities?
- VI. Pension Max?
- VII. Is the pension guaranteed by PBGC?
- VIII. Tax, inflation, legacy, and other considerations?

## I. Internal Rate of Return (IRR) of the monthly pension payments for 20 years and for 30 years.

These can be thought of as "hurdle rates." Can a competing investment portfolio match or exceed these returns?

N=20 YR		N=30 YR	
PV	-233500	PV	-233500
PMT	1403	PMT	1403
N	240 (12 x 20)	N	360 (12 x 30)
Solve for i	3.89% (.32 x 12)	Solve for i	6.01% (.50 x 12)

As you can see, life expectancy is a key driver. It probably goes without saying that required rates of return from an investment portfolio are fairly modest over a 20 year time frame, but higher the longer you or Lorraine live.

The assumption is that if taken, the lump sum will be added to your existing portfolio, which has returned approximately 6.6%. The long term forecast you gave me is 4%.

At 20 years, the pension IRR approximately equals your current retirement forecast of 4%.

At 30 years, which is approximately your life expectancy (age 95), the pension IRR exceeds your forecast (without any stock market risk).

## II. Looking at the "Dollars and Cents" (Net Present Value).

A series of cash flows discounted back to get a present value.

We can calculate a Present Value (PV) for the pension payments and then compare that to what it "cost" you, what you gave up. In this case, the lump sum of \$233,500 is what you gave up in favor of the payments.

The discount rate (The denominator in the discounted cash flow formula) we're using, is your forecast of 4%. We can recalculate using any return assumption, by simply changing the "i" variable in the formula.

What Present Value is needed to replicate the \$1,403 monthly payment invested at the forecast rate for 20 and 30 years?

<b>N=20 YR</b>	
PMT	1403
N	240 (12 x 20)
i	.333% (4%/12)
Solve for PV	233,606

For 20 years at 4%, the PV needed is roughly equivalent to the lump sum.

What about a 30 years timeframe, which would be closer to your life expectancy?

<b>N=30 years</b>	
PMT	1403
N	360 (12 x 30)
i	.333% (4%/12)
Solve for PV	294,016

The PV needed to generate \$1,403 per month for 30 years at 4% is \$294,016. The lump sum of \$233,500 won't meet this need.

However, if you recalculate using 6.6%, the PV would be \$219,679. The lump sum would exceed the need. I think these calculations emphasize the inherent variability of potential outcomes based on the investment return and life expectancy assumptions.

### III. Survivor Options IRR

**These calculations are perhaps more relevant.**

100% = \$1,150, then upon George's death, \$1,150 to Lorraine for her lifetime.

50% = \$1,262, then upon George's death, \$631 to Lorraine for her lifetime.

Starting with the 100% option going out to Lorraine's life expectancy (40 years) because this amount will be paid as long as one of you are alive.

Lorraine's current age is 55. Her life expectancy is age 95.

PV	-233500
PMT	1150
N	480 (12 x 40)
Solve for i	5.14% (.429x12)

At 5.14%, this is in the ballpark of what you might potentially earn in your investment portfolio (4%-6%).

Looking now at the 50% survivor option. Worse case scenario, George dies the day after the pension paperwork is submitted and the \$631 pays to Lorraine's life expectancy.

PV	-233500
PMT	631
N	480 (12 x 40)
Solve for i	1.36% (.113x12)

At 1.36%, this is far lower than what your lump sum might earn if invested.

#### IV. Survivor Options "Dollars and Cents" (NPV).

100% = \$1,150 being paid out as long as one person living. Therefore assuming Lorraine's life expectancy, 40 years.

PMT	1150
N	480 (12 x 40)
i	.333% (4%/12)
solve for PV	550,585

The PV needed to replicate the \$1,150 monthly payment is roughly \$275,323. The lump sum won't meet this need. However, if you assume a 6.6% investment return, the PV needed would be \$194,061. The lump sum exceeds this need.

50%=\$631 to Lorraine when George dies. Worse case scenario, George dies the day after the paperwork is submitted and the \$631 pays to Lorraine's life expectancy.

PMT	631
N	480 (12 x 40)
i	.333% (4%/12)
solve for PV	151,069

The PV needed to generate \$631 per month for 40 years is \$151,069. The lump sum exceeds this need.

## V. Is the pension guaranteed by PBGC?

Yes, according to the documentation that your company gave you.

Here is a link to the PBGC website that addresses the question of what happens if PBGC has to take over a pension:

<https://www.pbgc.gov/about/faq/pg/general-faqs-about-pbgc>

Also, here is a link on a possible way to determine the funding status of a company's pension, by requesting and reviewing its Form 5500. Of course, this is no guarantee of future funding patterns.  
<http://www.pensionrights.org/publications/fact-sheet/how-well-funded-your-pension-plan>

## VI. Single Premium Immediate and Deferred Income Annuities?

Taking a look at what the insurance "marketplace" would pay you for your lump sum. According to [immediateannuities.com](http://immediateannuities.com), \$233,500 deposited into a SPIA for George's single life, would result in monthly payments of: \$1,174.

Same lump sum, but adding Lorraine for joint income, \$956 per month.

DIA, waiting 5 years for the income: \$1,590 for single life.

DIA, waiting 5 years for income and adding Lorraine: \$1,131

A variation of this idea would be to take the lump sum, invest for 5 years and then deposit into a SPIA.

However, that scenario would imply a time horizon of less than 5 years, therefore investing the funds in the stock market would not be prudent.

The SPIAs, DIAs, and pension are level lifetime payments. They do not increase to compensate you for inflation (inflation risk).

If you decided to select a pension option, I would suggest that during months where you did not need to spend all of the monthly amount, put a portion (or all) of that payment in a separate account for conservative growth to mitigate this inflation risk.

Despite the SPIAs not being as attractive as your pension options, it would be a possible approach to mitigate the company specific "default risk."

The risk now has been transferred to an insurance company. Insurance companies are heavily monitored by state regulators and there is a procedure in place to protect policy holders in the event of a default by the insurance company. More information on this procedure can be found at the Tennessee Life & Health Insurance Guaranty Association website ([www.tnlifega.org](http://www.tnlifega.org)).

## VII. Pension Max?

An approach that I did not explore in this project is a life insurance strategy called "Pension Max."

It would involve you selecting the Single Life pension option and purchasing life insurance on yourself (George).

At your death, the pension stops, but the insurance pays its full death benefit to Lorraine, tax free.

This approach has its own pros and cons and costs. Namely the monthly premium cost of an insurance policy for you.

Affordable life insurance with a large enough death benefit may not even be a possibility. As you know, the premium cost is determined by medical underwriting by the insurance company. There is really no way to know what your premium cost would be until you complete an application with an insurance company and they determine the premium cost based on your medical history, age, and current health, etc. This option can be explored more thoroughly with the assistance of an insurance specialist, if you would like. Another insurance approach would be a variable annuity. However, a SPIA was favored due to the "income now" nature of our comparison to the pension payments.

### **VIII. Tax, inflation, legacy, and other considerations?**

Both the lump sum IRA rollover and the pension payments will be subject to ordinary income taxes when distributed. At least with the lump sum rollover, you would be able to control distributions (and taxation), only taking when you want until the age of 70.5 years old, when Required Minimum Distributions apply.

Many of the above calculations assume that you will invest the entire lump sum into an investment portfolio. However, are there other "buckets of money" into which some of the lump sum might be directed? For example, is there adequate: emergency funds, insurance protections, debt that could be paid off? Most credit cards or consumer debt charge interest that is typically greater than what an investment portfolio might reliably generate. The credit card interest that is eliminated might be considered a "return".

The pension payments are of a level amount for life. On the other hand, if the lump sum is rolled to an IRA, RMDs would be due at age 70.5 and would potentially be taxed on a growing distribution amount.

As you probably already know, RMDs are calculated based on age and the previous year-end value of the IRA. Perhaps you might even consider converting small portions of the rollover to a ROTH IRA, paying the income taxes on the conversions as you go. You do not need earned income to make a ROTH conversion. Perhaps fill up unused tax brackets? As you know, ROTH IRAs are not subject to RMDs, income taxes, or taxation to your beneficiaries under certain conditions. Another planning strategy would be that you use a portion of the lump sum to fund long term care needs for you and Lorraine. There are "asset based" life/long term care insurance strategies that might be evaluated. As we discussed, there really is no legacy planning to be done with the pension. Once you and Lorraine have passed away, the pension stops.

Inflation Considerations: Assuming a 3% inflation rate, how long would it take for the Present Value of the inflation-discounted pension payments, to equal what you could have in hand today with a lump sum of \$233,500?

Single life option: Approximately 18 years.

Joint, 100% survivor option: Approximately 24 years.

Hopefully, this report helps you evaluate your options against your goals, risk tolerance, life expectancy assumptions,

and legacy wishes.

Thank you, Jerry

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Attached if appropriate: Riskalyze illustrations for various stock and bond allocations with income immediately or delaying.

These simulations are not sophisticated enough to model uneven distributions, just constant withdrawals.

Other scenarios that this software can't model:

ROTH partial conversions should you decide to convert some of the lump sum, and the potential taxes those conversions might trigger. And conversely, the long term tax benefits of the ROTH ownership.

Stopping withdrawals from the portfolio after you begin taking your Social Security to let the investment account build back up.

Regarding your Social Security benefits, I generally suggest that if possible, let the larger Social Security benefit continue to grow until age 70, at which point it reaches its maximum.

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