PAGE ONE Economics®

October 2024

Baseball and the $700 Million Bet on the Time Value of Money

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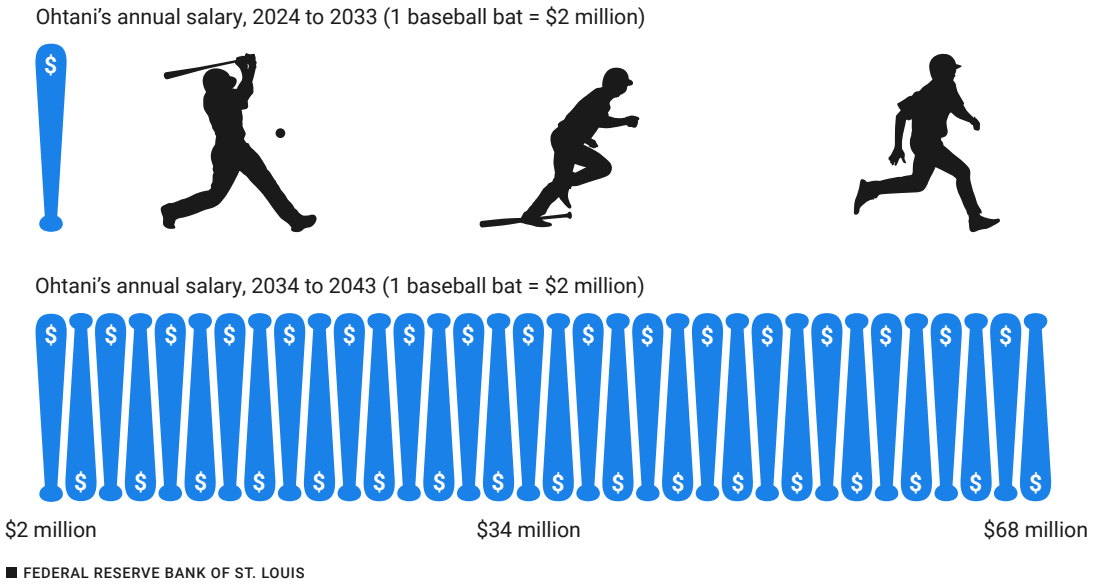
> "The first principle of contract negotiations is don't remind them of what you did in the past. Tell them what you're going to do in the future."
> —Stan Musial

Imagine someone wants to give you a job and offers to pay you $700 million over the next decade. Hardly anyone would turn down that offer. Now ask yourself how many people would make a counter-offer where they ask for only $2 million per year for the next 10 years and then the rest of the money paid in 10 equal installments, without interest, after the contract ends. While that idea may appear absurd, that's exactly what Major League Baseball superstar Shohei Ohtani agreed to with the Los Angeles Dodgers in December 2023.



The *Los Angeles Times* reported that Shohei Ohtani's Dodgers contract is for $700 million. For the first 10 years, 2024-2033, he'll receive $2 million per year. For the next 10 years, 2034-2043, he'll receive $68 million per year.

Ohtani is an elite ballplayer who pitches and hits at an all-star level and has been compared to Babe Ruth. Sports fans across the globe scratched their heads when he insisted that most of his salary be **deferred**. A December 2023 article from ESPN by Alden Rodriguez points out that paying only $2 million now frees up the Dodgers' payroll to build a supporting roster that could win multiple World Series titles. A January 2024 article at Forbes.com by Robert Wood suggests that, should he retire in 10 years at the contract's end, Ohtani could move out of California and avoid the state's income tax rate of approximately 14.4%.

Now that the ink is dry on one of the biggest contracts in professional sports, economists can use the details of Ohtani's contract as a vivid example of a very basic concept—the time value of money. In that light, both the Dodgers and their new player are making a very large bet on the future. Let's look at what the time value of money is, what role **interest rates** play, and how nearly three-quarters of a billion dollars now may not be that much by the time Shohei Ohtani walks off the field for the last time or collects his final paycheck in 2043.

What Is the Time Value of Money?

Time value of money is the concept that money has greater value now that it would it the future. If given the opportunity, would you rather take $100 today or a year from now? What if the offer was $100 today or $110 in a year? Because money has value, the essential question is, how much additional money would it take for you to agree to receive money later instead of right now? One way to answer this is to consider interest rates. If you received $100 today and immediately put it in a savings account earning 5% interest annually, you would have $105 a year from now. Suddenly that $110 offer looks a little more attractive if you aren't planning on spending the money immediately.

Economists created a formula to describe the time value of money using the following quantities—the **present value** of money, PV; the **future value** of money, FV; the interest rate at any given time, r; and the time period that is being calculated, n.

$$PV = FV / (1 + r)^n$$

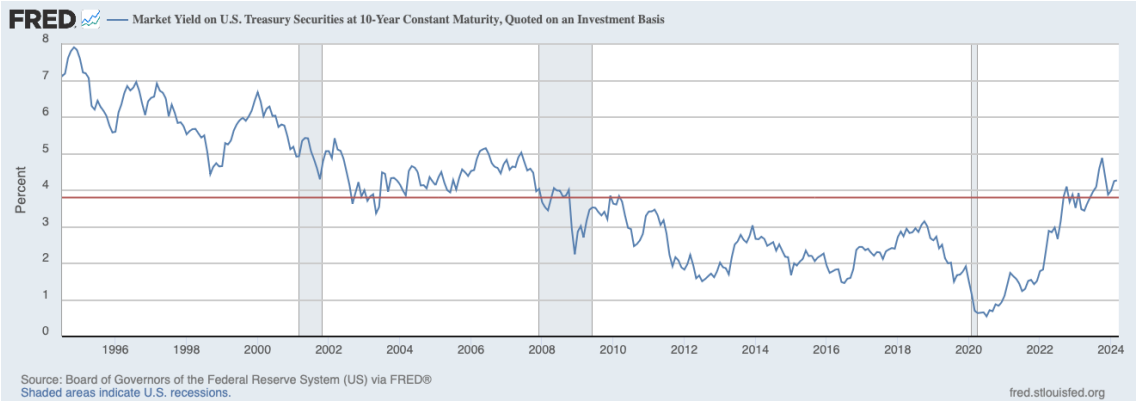
So, how much money would you need to be paid in 10 years to give you the same value as a payment of $100 today? With annual interest rates steady at 5%, this formula shows that you'd need to be paid $162.89. Taking compound interest into account raises this number to $171.05.

Why Would You Ever Wait to Get Paid?

If people understand the concept of time value of money, why would anybody, from a superstar athlete to an everyday student, ever defer getting paid? A potential answer can be found in part of the time value of money formula—interest. Depending on interest rates, and how patient you are in waiting, the cost of forgoing money can vary. That is, if interest rates are higher, the returns on your potential savings would be greater; so, the future value of money would need to be greater for someone to delay collecting a payment. Conversely, if interest rates are lower, the returns on your potential savings would be less; so, the future value of money would likely be an increase. Let's compare interest rates in the country where Ohtani currently resides—the United States—with rates in his homeland of Japan.

Bond **yields** tend to be a good measure of average interest rates. Figure 1, below, shows the yields on 10-year U.S. Treasury securities, or bonds, since July 1994, the time of Ohtani's birth. While these interest rates have fluctuated in the past 30 years, the red trendline shows the average rate is 3.8%.

Figure 1: **Market Yield on 10-year U.S. Treasury Securities**

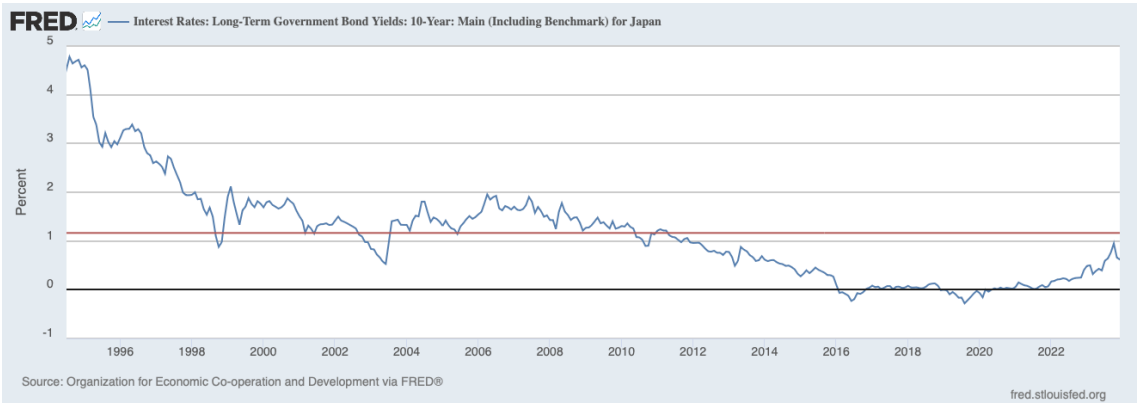


SOURCE: Market Yield on 10-year U.S. Treasury Securities, Board of Governors of the Federal Reserve System via FRED, Federal Reserve Bank of St. Louis; accessed September 5, 2024.

Japan, on the other hand, has struggled with a stagnant economy for over 25 years. Its central bank has made multiple attempts to spur economic growth and has maintained extremely low interest rates to encourage spending—even experimenting with negative interest rates in the past decade.

Figure 2, below, shows the yields on 10-year government bonds in Japan since 1994. The red trendline shows the average rate is 1.1%, much lower than the U.S. rate.

Figure 2: **Long-Term Government Bond Yields, 10-year, for Japan**



SOURCE: Long-Term Government Bond Yields, 10-year, for Japan, Organization for Economic Co-operation and Development via FRED, Federal Reserve Bank of St. Louis; accessed September 5, 2024.

Using the time value of money formula shows a dramatic difference if you compare interest rates between the U.S. and Japan. According to the contract, the Dodgers will pay Ohtani his first deferred

salary check of $68 million in 2034. Assume interest rates in both countries stay the same for that time and use the benchmark rate from both the U.S. and Japanese central banks:

Time Value of Money Using U.S. Interest Rates

$$PV = \$68M / (1 + 4.43\%)^{10}$$

$$PV = (\$68M / 1.543) + \$2M \qquad PV = \$46.06M$$

Time Value of Money Using Japanese Interest Rates

$$PV = \$68M / (1 + 0.62\%)^{10}$$

$$PV = (\$68M / 1.064) + \$2M \qquad PV = \$65.9M$$

Since Ohtani collects $2 million this year, we add that after the calculation to achieve his full present value.

From a U.S. interest rate perspective, the present value of Ohtani's contract is $46 million per year. Calculated with Japanese rates, his contract's present value is $65.9 million. In that sense, Ohtani might conclude that he is not giving up that much, can potentially allow his club extra salary space to build a baseball dynasty around him, and can still be known as one of the highest-compensated professional athletes in the world.

Not only might Ohtani be using the time value of money to make career decisions, but the Dodgers also are taking advantage of this concept. Major League Baseball's luxury tax rules allow the club to report this contract not in future value but in present value; so, instead of reporting $68 million in salary, the club claims to pay their slugger only $46 million.

Conclusion

Shohei Ohtani's contract may be an extreme case, but knowing the concept of time value of money can benefit everyone. In understanding interest rates, you can make informed decisions about spending today versus saving for tomorrow, such as when considering college costs or salary benefits or calculating how much money to set aside for retirement. And if you're wondering how the Dodgers' new star will survive on only $2 million per year, don't worry. As the December 2023 ESPN article notes, Shohei Ohtani is projected to earn $45 million in endorsement deals alone during 2024.

Glossary

Deferred: Postponed until a later time.

Future value: The value of an asset or cash at a specified date in the future that is equal in value to a specified sum today.

Interest rate: The percentage of the amount of a loan that is charged for a loan. Also, the percentage paid on a savings account.

Present value: The current value of a future sum of money, given a specified rate of return.

Yield: The average return from owning a bond. Yield depends on the price paid for the bond, its coupon payments, and the time to maturity.

Name_____ **Period**_____

Reading Q&A

Baseball and the $700 Million Bet on the Time Value of Money

After reading the article, complete the following:

1. What did Shohei Ohtani agree to in his contract with the Los Angeles Dodgers?
   a. Immediate payment of the entire $700 million
   b. $2 million annually for 10 years, then 10 equal installments of $68 million
   c. $70 million a year for 10 years starting in 2024
   d. $68 million annually for 10 years, then 10 equal installments of $2 million

2. What does the time value of money concept refer to?
   a. The fluctuation of currency exchange rates over time
   b. The concept of inflation affecting the purchasing power of money
   c. The stable value of money regardless of time
   d. The increasing value of money over time due to interest or investment

3. If Ohtani calculates the present value of his deferred money using average U.S. interest rates, the value is _____ than if he used Japanese interest rates.
   a. Higher
   a. Lower
   b. Equal
   c. Cannot be determined

4. How do the Dodgers benefit from reporting Ohtani's contract as future value?
   a. They pay less in luxury taxes on the contract amount.
   b. They attract more sponsors due to the lower reported salary.
   c. They secure a better position in the luxury tax regulations.
   d. They ensure Ohtani's commitment to the team for the long term.

5. How do interest rates affect the time value of money?
   a. Higher interest rates decrease the future value of money.
   b. Lower interest rates increase the future value of money.
   c. Interest rates have no impact on the time value of money.
   d. Interest rates only affect the present value of money.

6. What is the minimum amount of money an individual would require if they declined $1,000 today for a payment one year from now, with annual interest rates of 2.5%?
   a. $1,000
   b. $1,002.25
   c. $1,025
   d. $1,250