Time value of money

Teaching time value of money seems to be very easy. Most of my students would quickly agree that if I were to give them Rs. 1,000 they would have it today rather than tomorrow. (I am sure this also has something to do with their suspicions of my ability to come to the same class the following day).

Extending this further we all agree that Rs 1,000 one year later would be far less valuable than if it is received next day, the following week, or following month. The interesting part of the discussion starts when we try and determine how much less that should be, and as expected the numbers vary.

We get into a discussion to figure out the reasons why the numbers vary – we end up discussion the urgency of watching that newly released movie, having a pizza, or taking a special friend out for a treat. We all agree that all these are "urgent" needs but some needs are more urgent than others. And typically people with these more urgent needs value the money far away much lower than the ones with less urgent needs.

Since we are all reducing the value of the Rs 1,000 we are going to receive, we agree to call it the **"discount rate"**. Surprisingly concept of discounting things comes intuitively to these young minds. And it's easy to agree that with more urgent needs will be will be using a higher discount rate as compared to the one with less urgent needs.

Surprisingly many students find it intuitive that if 2 people were giving money at 2 different times that they can discount these monies individually to current date and then add them up to estimate the current value of both future receipts. I guess it is more fun to add a pizza to a movie.

My task gets easy as I have to just connect the dots that valuing a business is similar we discounting the future profits appropriately and adding them up to come up with the value of business.

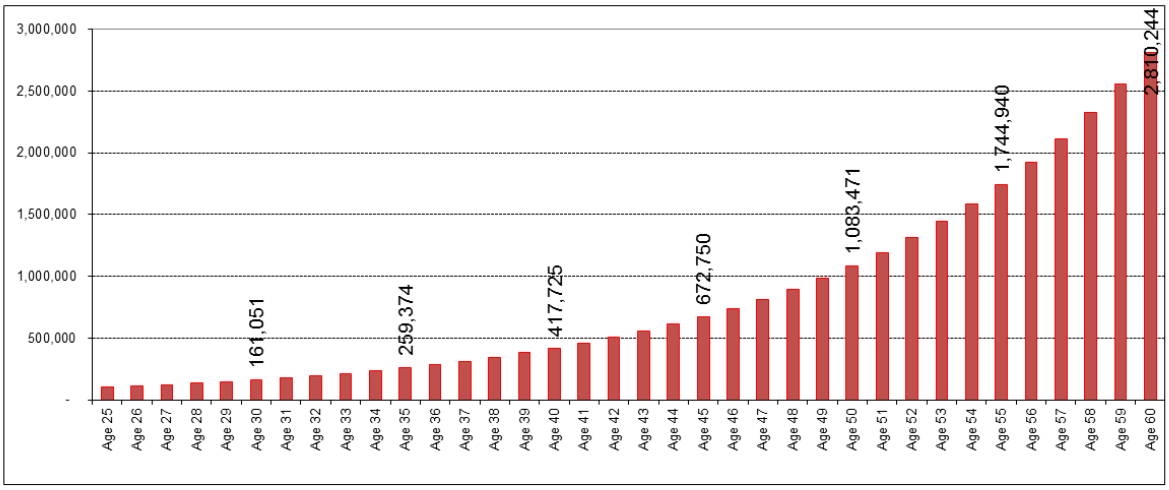
Glad that I have done my job I am about to get out of the class and some smart Ashok points out that 2 different people can come up with 2 different valuations for the company as they could have 2 different discount rates. It's now my turn to say… hmmm, good question… may be we will discuss it in the future. (I am sure they are discounting this answer).

Most of my students easily transition from the concept of discount rate to the concept of interest rate. If I borrowed Rs 1000 for a year, they invariably expected more money at the end of the year. Most justify that the pizza they buy today will become more expensive by the end of the year and hence they need more money at the end of the year to buy the same pizza. Some also call the interest as the "rent" they are charging letting me use their money. Some call it an "exchange rate" between today's money and tomorrow's money.

Most of them know the concept of compound interest from their school days but are always intrigued by the power of compounding when we discuss the following slides.

Compounding is the 8th wonder

- Ashok had 100,000 (1 lakh) gift for his 25th birthday and has invested getting a yearly 10% return
- He will have 2,810,244 (28 lakhs) when he is 60



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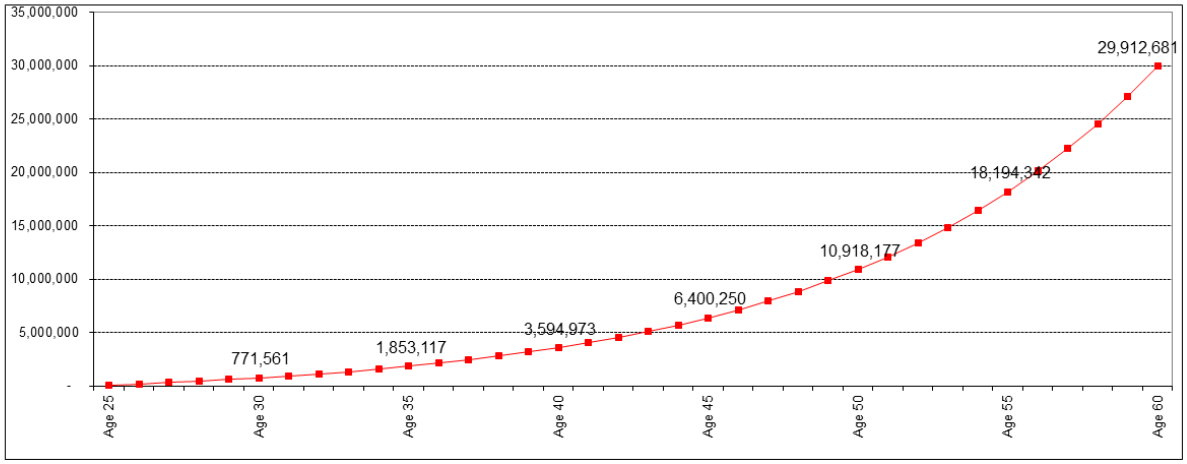
Regular investing makes one wealthy

- Aakash has been investing Rs 100,000 (1 lakh) a year since he was **25 till he is 60**, getting a yearly return of 10%
- He will have Rs 29,912,681 (3 crores) **when he is 60**



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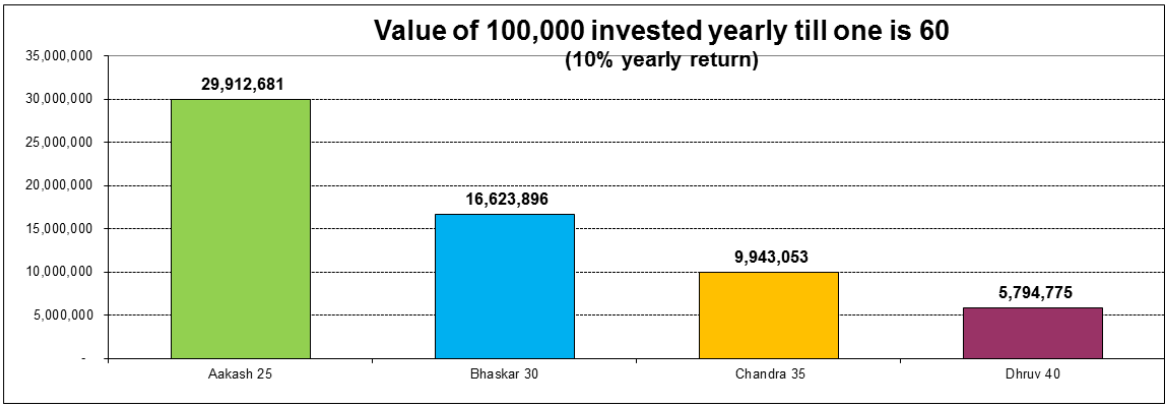
Investing earlier is the KEY to create wealth

- 4 friends have been investing 100,000 a year at 10% returns,
  - Aakash started when he was 25 ➔ he will have 3 crores when he is 60
  - Bhaskar stared when he was 30 ➔ he will have 1.6 crores when he is 60
  - Chandara started when he was 35 ➔ he will have 1 crore when he is 60
  - Dhruv started when he was 40 ➔ he will have 0.58 crore (58 lakhs) when he is 60



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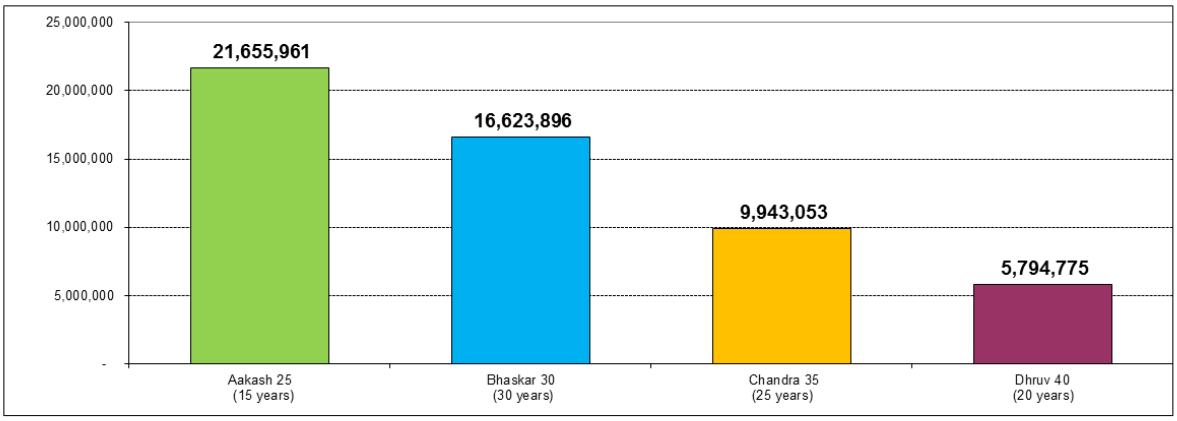
Investing earlier gives you MORE options

- 4 friends have been investing 100,000 a year at 10% yearly returns,
  - Aakash started when he was 25 and **stops investing at 40** ➔ he will have 2.1 crores when he is 60
  - Bhaskar stared when he was 30 and invests till 60 ➔ he will have 1.6 crores when he is 60
  - Chandara started when he was 35 and invests till 60 ➔ he will have 1 crore when he is 60
  - Dhruv started when he was 40 and invests till 60 ➔ he will have 0.58 crore (58 lakhs) when he is 60



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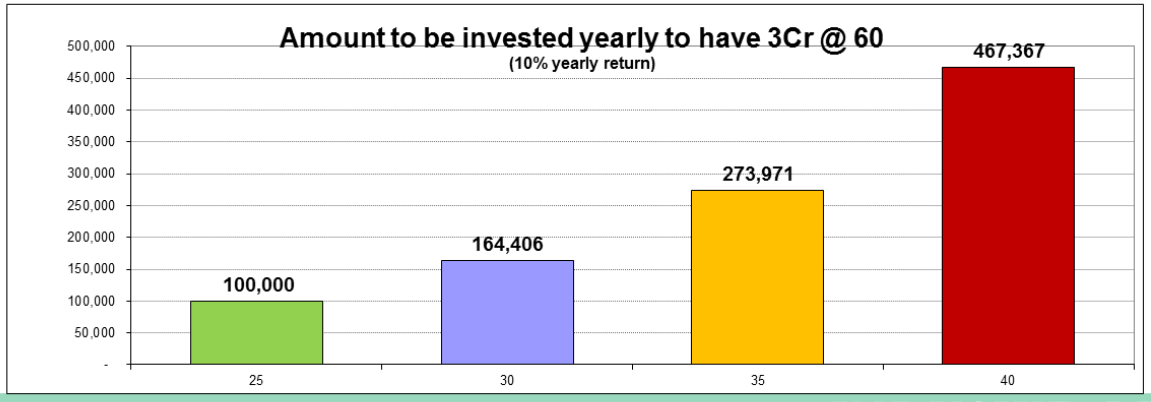
The later you start, the more you have to save

- 4 friends want to have 3 Crores when they are 60, their investment is giving 10% returns,
  - Aakash started when he was 25 ➔ he will be investing 1 lakh a year
  - Bhaskar stared when he was 30 ➔ he will be investing 1.6 lakhs a year
  - Chandara started when he was 35 ➔ he will be investing 2.7 lakhs a year
  - Dhruv started when he was 40 ➔ he will be investing 4.6 lakhs a year



Pay attention to the rate of return

- **Rate of return on your investment makes a huge difference**
- Rs 100,000 invested for 35 years at different rates will have significantly different returns
  - 1 lakh invested at 7% for 35 years will be 10 lakhs
  - 1 lakh invested at 10% for 35 years will be 28 lakhs
  - 1 lakh invested at 12% for 35 years will be 52 lakhs
  - 1 lakh invested at 14% for 35 years will be 98 lakhs