Risk is good word

We have been educated to look upon risk as a thing one should avoid. In other word we brought up to learn to hate risk. As we know without the word risk no finance concept could be explained. It is long story of how finance has formed its perspective on risk, but conclusion is that it mainly treats the risk as unwanted thing. Academic word for this behaviour is RISK AVERSION. Whether finance should consider assumptions based on behaviour is an issue that should be debated. But in finance this psyche analysis paved its way since Bernoulli derived the utility measure.

To quantify investor behaviour towards risk we need a function which take wealth as input to provide us the emotional/psychic value of that wealth as output. We can have different function to show if investor is risk averse or risk seeking. Simply we need to convert wealth value to some other numerical value which represent psychological weight that investor put on that value of wealth. Assume you have 100 bucks and you want to calculate corresponding psychological weight. We now need a function for conversion. Assume the required function is square root. Taking square root of 100 which is 10 represent now the psychological weight. Suppose now I have 10000 bucks so I derive 100 as psychological value. Looking both situations as continuously we can derive that though my wealth increase by 100 times, but my psychological value/happiness increase by 10 times only.

It means marginal value of utility is decreasing with increase in wealth. Note that utility is increasing not decreasing but at decreasing rate. Bernoulli derived above thought process and concluded that it would be rational for an investor to choose an investment which maximize anticipated utility. He further asserted that an investor having diminishing marginal utility of wealth will be Risk averse. Since then this concept of risk aversion became standard as investor behaviour.

Let's ponder inside Bernoulli mind to understand Risk aversion and its link to utility. He took an example of ship insurance. I will modify the example keeping the spirit alive. A trader must decide whether to insure his commodities while shipping them to Amsterdam? Insurance sucks up the risk of future loss and replace it with certainty, for which insurance company charges a premium. So, our trader is faced with two options Firstly go with risk of ship wreckage and opt for uncertainty. Secondly pay for insurance and opt for certainty. It can be showed by mathematics that Utility of first option will be less than second option for an investor having diminishing marginal utility. If our trader goes with Bernoulli theory, he will choose second option which give him maximum utility. In short, our trader avoids risk and opt for certainty and such a behaviour is called Risk aversion.

I will explain now what is risk aversion in modern context?

Assume investor behaviour towards risk based on Return and Risk. If an investor is willing to take a unit of risk to gain a unit of return, then he is risk neutral. If an investor prefers less than a unit of risk to gain a unit of return, then he is risk averse. If an investor prefers more than a unit of risk to gain a unit of return, then he is risk seeking.

I will try to see risk with one more perspective. An investor anticipates that he will get 20 percent return from one year from now. Any deviation from this estimate is define as risk. Note that this deviation can be positive or negative. A risk averse investor prefers less deviation to reach anticipated return. Therefore, he would be around estimate in both positive or negative deviation. A risk seeking investor prefers high deviation from anticipated return hence he would be far away from estimate in both positive and negative case. Imagine somehow if he can insure himself from negative deviation?

Finance Provided its complete Arsenal to address issues of risk averse investor and remained aloof to Risk seeker. So, Question for Finance is how to control risk to less than one unit for a corresponding one unit of return. Harry Markowitz suggested by employing diversification it could

be attained. It was Hurray moment for finance world because ancient wisdom of diversification was systematically proposed by using mathematics and economics.

Markowitz also linked return and risk to end wealth of an investor. Now one can interpret wealth in terms of utility following Bernoulli and other modern works on utility.

When we are discussing this topic it's impossible to avoid works of Mr. Daniel Kahneman and Mr. Amos Tversky. He presented that investor behaves different when faced with losses in comparison to profits. He proposed that utility theory fails to predict investor behaviour when faced with all bad options, on contrary in such a case he becomes risk seeking. Remember stories of greats like Alexandra-Napoleon-Lincoln. They all were Risk seekers. They kept on taking more risk when faced with most adverse conditions.

I will try to show importance of risk seeking in future articles. Stay in touch.