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Risk and Uncertainty in Production Economics

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Abstract

One of the most celebrated and feared concepts in the World today are risk which is the product of uncertainty. Risk and uncertainty are often used interchangeably by many economists as if they are the same thing, but it is not true. While risk can be measured and estimated, and even ensured, uncertainty cannot. Uncertainty is the complete ignorance of the future and there is no amount of technical adjustment or mathematically finesse that can change our basic ignorance of the future. However, risk and uncertainty cannot be separated because where there is uncertainty, there is risk. The probability of risk can be measured objectively, while that of the uncertainty can only be measured through the subjective probability depending on the marginal utility of money of an individual. For some individuals marginal utility of money will be increasing, for some others, it will be decreasing and yet for others it will be constant. Thus we have risk lovers or risk seekers with increasing marginal utility of money, followed by the risk averters with decreasing marginal utility of money and lastly the risk neutral with constant marginal utility of money. The investment decisions are based principally on the attributes of these three classes of decision makers because the higher the risk the higher is the returns and vice-versa. The paper also examines the causes of low investment in Nigeria by Nigerians as well as other nationals to include corruption and unfavourable macroeconomic environment in Nigeria. The paper is concluded with series of recommendations on how to curb corruption, enthrone good governance, transparency, accountability, Rule of Law and reducing risky environment existing in Nigeria so as to attract both local and foreign investors.

Introduction

There is no venture in life that does not involve risk, which exists because of uncertainty. Thus, all business decisions are taken under the condition of risk and uncertainty. Where there is uncertainty there is risk and they impact negatively and significantly on private investment decisions. Risk and uncertainty arise mainly due to uncertain behaviour of the market forces, changing business environments, emergence of competitors with highly competitive products, government policies, external influences on the domestic market and social and political changes in the country.

The complexity of the modern business world adds to complexity of business decision making. However, the degree of uncertainty and risk can be greatly reduced if market conditions can be predicted with a high degree of reliability. The prediction of the future course of business environment alone is not sufficient. What is equally important is to take appropriate business decisions and to formulate business strategy in conformity with the goals of the organization.

Business decision is essentially a process of selecting the best out of all the alternative opportunities open to the organization. Taking appropriate business decisions requires a clear understanding of the technical and environmental conditions under which business decisions are taken. Application of economic theories to explain and analyze the technical conditions and business environment contributes a great deal to the rational decision making process.

Economic theories have therefore gained a wide range of application in the analysis of practical problems of business. With the growing complexity of business environment, the usefulness of economic theory as a tool of analysis and its contribution to the process of decision making has been widely recognized.

Baumol (2003) has pointed out three main contributions of economic theory to production economics. First, one of the most important things which the economic theories can contribute to the management science is to build analytical models which will help to recognize the structure of managerial problems, eliminate some of the details which might obstruct decision making, and help to concentrate on the main issues.

Second, economic theory contributes to the business analysis, a set of analytical methods which may not be applied directly to specific business problems. Third, economic theories offer clarity to the various concepts used in business analysis, which enables the managers to avoid conceptual pitfalls. It is the existence of risk and uncertainty that decision making becomes a crucial function in production economics. Generally, there is direct correlation between risk and business decision, because the higher the risk, the higher the return in investments.

To be able to deal decisively with the impact of risk and uncertainty in production economics, this paper is divided into five parts including this introduction. Part 2 examines the concepts of risk and uncertainty. Part 3 discusses the risk attitudes and marginal utility of money. Part 4 ex-rays the determinants of low investment in Nigeria by Nigerians, while part five concludes the paper.

The concepts of risk and uncertainty

These two concepts are use interchangeably by some economists as if they are the same. The two concepts are not the same. Every human being faces uncertainty but only investors and the entrepreneurs face risk. Risk is the bye-product of uncertainty.

Risk is generally defined as the possibility of suffering damages or loss from an investment. Ahuja, (2010) defines risk as a situation which the outcome of a decision is uncertain but when the probability of each possible outcome is known or can be estimated. The analysis of decision making and choice involving risk requires that the individual knows all the possible outcomes and also have some idea of the probability of occurrence of each possible outcome. For example in tossing a coin there is equal 50:50 chance of getting either head or tail. Likewise, when an individual invests in the shares of a company the probability of outcome, that is how much dividend he will get can be estimated from the past experience.

Though there might be variation and the greater the variation the greater the risk involved in making investment decision. Uncertainty on the other hand refers to the situation where there is more than one possible outcome of a decision, but where the probability of occurrence of each particular outcome is not known or cannot even be estimated. Uncertainty is different from risk because while risk is a situation in which the probability of an outcome can be calculated or estimated that of uncertainty is not possible. For true risk to exist therefore, the probabilities of the various outcomes would have to be known, otherwise, the matter would add up to uncertainty which is another name for ignorance. Uncertainty is about complete ignorance of the future, therefore there is no amount of technical adjustment or mathematical finesse that can change our basic ignorance of the future (Koleade Oshisami, 1985).

However, Cyert and March (2000) distinguished, two types of uncertainty; market uncertainty and uncertainty of competitors reactions. Market uncertainty refers to possible changes in customers tastes and preferences or changes in the techniques of production. This form of uncertainty is inherent in any market structure. It can partly be avoided by research activity and information gathering, but it cannot be avoided completely. Given the market uncertainty, the managerial firm avoids long term planning and work within a short-run horizon. The behavioural theory postulates that the firm considers only the short-run and chooses to ignore the consequences of the long-run decisions.

The uncertainty arising from competitor's actions and re-actions, that is from oligopolistic interdependence to monopolistic competitions in which some firms will be producing at a decreasing costs while others will be producing at increasing costs, thereby causing the high cost firms to leave the market.

However, despite their theoretical differences, risk and certainty can not be treated separately they are different faces of the same coin since where there is uncertainty, there is risk. All investment decisions which have some elements of risk are taken in an uncertain environment, therefore what happens to risk affect uncertainty.

Risk attitudes and marginal utility of money

Individual's attitude toward risk depend on the marginal utility to be derived from consuming a product, be it tangible or intangible. Utility is the satisfaction one derives from consuming a product. It is an ordinal concept and not cardinal as some economists claimed. It is cardinal if it is measurable and ordinal if it can only be compared.

People's preferences toward risk greatly differ. Most individuals generally prefer the less risky situation, that is, the situation with less variability in outcome or rewards.

In other words, some individuals seek to minimize risk and these people are referred to as "risk averters" However, there are some others who prepare risk situation to non-risk ones, such people are called "risk lovers" or "risk seekers". Yet some others are indifferent towards risk and are called "risk neutral".

It is important to note that these different preferences towards risk depend on whether for an individual marginal utility of money diminishes, or increases or remain constant.

For risk averter his marginal utility of money diminishes as his income increases, while for risk lover or risk seeker his marginal utility of money increases as his income increases, in the case of risk neutral individual marginal utility of money remains constant as his income increases.

Thus, the theory of choice under risk and uncertainty is very important here. For instance, if an investor does not want to bear risk at all, he may go in to invest in a fixed deposit of the Central Bank of Nigeria (CBN) which carry fixed rate of interest. If he is prepared to take risk, he lay be interested in buying shares from the stock market whose values and dividend can vary a great deal. From these shares he can get much higher returns if the stock market price goes up, or his return will be low if price goes down.

We have earlier defined risk as the situation in which there are more than one possible outcomes of a decision and the probability of each outcome is either known or can be estimated. Therefore to measure the degree of risk, we need to know the probability of each possible outcome of the decision.

The probability means the likelihood of occurring of an event. Thus, if we throw a die which has six faces i.e 1, 2, 3, 4, 5, and 6, the probability of an outcome is 1/6 similarly if you tost a coin the probability is either head or tail which is ½ or 0.5. There are three concepts of probabilities depending on how it is measured. The first is the frequency concept of probability which is based on the past experience and if past information or data are available regarding occurrences of outcome of an event, the probability is generally known as Objective Probability (OP). This type of probability requires the use of market data, this means that adequate market research must be made to aid the arrival of good decision by individual investors under this objective probability, we can measure or estimate the outcome of an event. But in many cases, there are no similar situations which will help us to measure probability as we have done with objectives probability. Here we do not have market information and past experience does not exist. This is the second concept of probability which is known as "subjective probability" subjective probabilities are those calculated for specific investor. There is the probability from the investor's view point that will induce an individual to invest.

The probability is based principally on what the person feels or thinks. It is based on individual personal judgment, experience, or knowledge about the subject and not on the frequency with which outcome actually took place in the past. Obviously when probability is subjectively determined and not based on the past data, the different individuals will attach different probabilities to the occurrence of various outcome and therefore they will make different choices.

While objective probability can be linked to the concept of risk, the subjective probability can be linked to the concept of uncertainty.

The third concept of probability is the concept of equal probability in which the objective probability and subjective probability are equal and marginal utility of money is constant for an individual with neutral probabilities. Just as we have three concepts of probabilities, we also have three types of risk attitudes. The first is the risk lover or risk seeker. A risk lover or risk seeker is one who likes risk. He always looks for risky investment because of the belief that high risk attracts high reward the risk lover will only invest where he noticed that risk is involved. The risk lover's objective probability is greater than his subjective probability and his marginal utility of money is increasing. The second is the risk averter or one who hates risk.

A risk adverse individual is one who does not like risk and will do everything possible to avert risk.

A risk averter will only invest when his objectives probability is less than his subjective probability $OP < SP$ and his marginal utility of money is decreasing. Unfortunately, the majority of the people fall into this category of risk averters. This is evidenced by the increasing number of insurance companies all over the country.

The third category is the risk neutral. A risk neutral individual is indifferent that mean, he is neither risk lover nor risk averter and he will invest when his objective probability and subjective probability are equal and his marginal utility if money is constant $OP = SP$

Relationship Compared

Risk Attitude	Marginal Utility of Money	Objective And Subjective Probabilities
Averter	Decreasing	OP < SP
Neutral	Constant	OP = SP
Seeker	Increasing	OP > SP

The determinants of low investment in Nigeria by Nigerians

The Nigerians macroeconomic environment is in a serious dilemma. While foreigners are moving their investments from Nigeria, Nigerians themselves are not willing to invest in the country; the question is why it is so? The simple answer is that, there is fundamental problem of corruption and foreign mentality. On the issue of corruption is that most Nigerians who have the capacity to invest have no confidence investing in Nigeria because most of their wealth is acquired through illegal means. They, therefore prepare to go to countries where people do not know about the sources of their ill-gotten wealth.

Apart from corruption, the Nigerian economy we have today is largely characterized by a large uneducated population possessing low moral and hatred for each other to the extent that our mode of worship and our ethnic origin have turned out to be source of warfare and destruction of life and properties at the slightest provocations.

Furthermore, the economy is technologically backwards with very low degree of indigenous component in most of the nation's production technologies. There is complete absence of the Rule of Law where Justice and judiciary are operating at the opposite direction. The capital market is under developed, hence the difficulty in sourcing private capital. Government policies are ideologically driven and not base on the realities of the economy and they are insensitive to the plight of ordinary Nigerians. The life of ordinary Nigerian is cheaper than the life of a Fulani cow.

As result of bad governance, the dead Nigerians are happier than those they left behind. The situation of the Nigeria macroeconomic environment is so sympathetic that nothing seems to work as a vicious minority of elites is actively exploiting the majority with the collaboration of foreign investors.

Thus, there is fundamental difference in the operations of Nigerian economic system and economic systems of other decent countries.

While those economies are largely characterized by a well developed technological base, high quality human capital, excellent entrepreneurial capabilities, sophisticated infrastructure, a highly literate population, a well developed input and output market level of political stability, Nigeria is deficient in virtually all of these. “May God help us”. Amen

Conclusion and recommendations

Evaluating the concerns of risk and uncertainty raises many people’s blood pressure because economists and business managers looked at these concepts differently. While business managers regard risk and uncertainty as the same thing, economist viewed them as two faces of the same coin. These different opinions notwithstanding, risk and uncertainty are inherent in any venture in life. It can partly be avoided by research activity and information gathering but it cannot be avoided completely. The likelihood of risk can be measured and estimated by the application of probability theory especially with reference to past experiences while it is impossible to do so with uncertainty which is assumed to mean the absence of complete information or knowledge about the future events.

The existence of risk and uncertainty creates a situation where people are divided into three categories of risk attitudes such as risk averters, risk lovers or seekers and risk neutral with three different probabilities. The risk averter has diminishing marginal utility of money whose subjective probabilities is greater than his objective probability SP > OP, while risk lover or seeker has increasing marginal utility of money with his objective probability greater than his subjective probability OP > SP and risk neutral has constant marginal utility of money with his objective probability equal to his subjective probabilities OP = SP.

The paper also highlights some of the determinants of low investment in Nigeria by Nigerians. The paper observes that corruption and unfavourable macroeconomic environment in Nigeria compared to other countries are the major determinants of low investment in Nigeria. Even foreigners who have interest in Nigeria and who want to invest in Nigeria have changed their investments to other countries considered to be more investment friendly except investment in oil and gas. Given the enormous and detestable degree of corruption in Nigeria, we are constrained to make the following recommendations

1. Nigeria should vigorously pursue programmes and policies that will ensure adequate provision of conducive and business friendly macroeconomic environments.
2. Nigeria should enthrone good governance which is characterized by adequate Rule of Law, openness transparency and accountability. Also government officials and public servants should be transparently honest. They should refrain from corruption in all its ramifications.
3. Nigeria should devise strategies that will make it to be sufficiently technologically advanced and technologically independent, physical infrastructural facilities, as well as institutional capacities and financial markets must be developed to attract both local and foreign investors to the country.
4. Nigerians should be encouraged to engage in productive and profitable investment by reducing the risky environment existing in the economy.

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