'Risk aversion does not mean that people and institutions are not willing to take risks. However, they need to be compensated for taking risk.' Explain and discuss

Risk aversion can be defined as the avoidance of risk. Risk averters are those who do not wish to take risks, when facing choices of comparable returns they tend to chose the less risky alternative.

In any financial system varying degrees of risk exist so there is no way to successfully avoid it altogether, but the principle that transactors seek to minimise risk forms the basis of risk aversion. It is important to understand the economic characteristics of the risk averter before assessing their actions within the financial market. Individuals and institutions have different appetites for risks. Risk avertors are at one end of the scale avoiding risk, risk lovers at the other and risk neutrals sit in the middle[1].

Financial intermediaries channel funds from one set of agents to another[2], and seek to invest the capital they receive in the most profitable way. They take full advantage of the problems and uncertainties faced by investors, the main one being that of asymmetric information. This exists because different people and institutions have different levels of knowledge and information about financial markets and future expectations. Financial intermediaries not only have considerable experience in investing, they are also better equipped to investigate potential investments and are more skilled in judging premiums and interest levels that correctly reflect the rate of risk. It is this lack of information on the part of the borrower that increases the risk they take.

Agents with surplus funds seek to invest for reasons of protection and capital gain. Within the financial market there are three main groups of contracts that the investor can enter in to. In every case the risk must be borne by someone, it is the averter's choice to ensure his role in this is minimal.

The first of these contracts is debt. The simplest example is a bank loan, where the borrower is required to repay the loan on specified terms, usually a pre arranged interest rate and assurance of loan repayment on request. The risk to the lender is known as default risk- that is 'the risk that the borrower will default on his obligations'[3]. This risk, measured as probability of default and the loss that the bank may need to absorb if default does occur, known as the LGD[4]. The probability measurement can be kept reasonably close to zero through arrangement of terms in advance and the acquisition of collateral- some form of capital (often property) which lessens the loss should default occur. The level of interest charged reflects the risk of loss considered by the lender, and does not depend on how successful the borrower is in using the funds profitably. For the risk averting lender debt appears a favourable form of contract as the risks that must be taken can be compensated simply through interest rates and fixed terms that must be met. The main risk faced by the lender is that of asymmetric information, that 'lenders may be less

[1] Pilbeam Chpt 2.8
[2] Llewellyn, D Lecture Notes
[3] A.D. Bain P 51
[4] Loss Given Default

informed than borrowers about the contingencies under which borrowers operate'[5]. Credit history of the borrower can be investigated to a certain point but there is no certainty that the past is an accurate reflection of the future, or that the borrower will fulfill his obligations. Lenders try to ensure the probability of any individual loan going into default is low. They consider the purpose of the loan and whether they consider it legitimate. They also look at the borrower's income in order to be satisfied that the borrower has sufficient income to meet the terms of the loan. Other than taking collateral, the lender can protect against risk by writing 'covenants' into the agreement, to enable him to demand immediate repayment if the loan is in serious risk of being defaulted. All of these ways of protecting against risk makes the debt contract very attractive to the risk averse lender.

Once the loan is made, the borrower who invests their loan bears the risk alone. If investment is unsuccessful the loan must still be repaid. The lender does not share in the costs of failure, but equally shares in no benefits of success. The choice to use a debt contract in this situation may be more complicated to decide. The averter must consider the benefits gained from the investment. If returns are likely to be very high indeed the risk may be worth taking but a less risky alternative with slightly lower returns may be preferred.

An alternative would be the equity contract. The key to equity risk lies in spreading assets across a number of holdings[6]. A company issuing shares (known as equities) deals in such contracts. The return to the lender is determined by the performance of the borrower. With shares, the return takes the form of dividends, the value of which is determined by the success of the company in each time period. If the company is successful the investors share in the success, and equally failure is borne by both parties. The equity risk surrounding this contract is derived from the uncertainty around income and performance of the business assets. The risk to the lender is less than within a debt contract, as the risk is shared, lessening cost of failure. However, the borrower is never required to repay equity capital to shareholders, so a break down of any company may see loss not only of capital gain, but also the initial capital invested, so in this way risk remains high.

The equity contract uses the principle of syndication to encourage investors into taking the risk of buying shares in the company. No one investor exists that will lend money to the company by buying all the shares at once. However, the risk can be spread across a large number of investors, who jointly provide capital to the company. To the risk averter this contract appeals as the risk is never solely on their back. If the company fails the loss is distributed across all shareholders, minimizing potential losses and therefore reducing the level of risk taken by the individual. The investor will take higher risks by buying more shares only if the potential dividends are high enough to justify the additional responsibility brought about by owning a higher stake, and therefore risk, in the company.

[5] Identified by Keynes
[6] A. D. Bain P56

The third type of contract is the insurance contract, designed to help avoid the financial consequences of risk[7]. The risk adverse transactor pays a premium in order to shift the risk to another party. The best example is insurance company premiums, paid in return for possible compensation if the risk fails. The risk borne by the lender remains high, as they are the party taking responsibility for a probability of failure. To the lender the benefits of this would be the potential profits gained if success is achieved, if the insurance policy is never called in. The risk borne by the borrower or transactor is initially high, but immediately shifted onto the lending agent when contract is accepted. For the risk averter this type of contract is a direct reflection of the theory that risk may be considered if the compensation is high enough. The bearer of the risk, the agent, is paid heavily for removing that responsibility from transactor. The agents may be averters of risk, but if potential capital gain is high enough the risk is taken.

The value of insurance can be determined through examining the utility function of the transactor. This will show the level of compensation needed in order to encourage the investor to take the risk. In the case of the risk averse, this function is convex and upward sloping, reflecting diminishing marginal utility as risk increases. By taking out an insurance policy the investor increases his total utility, through avoiding the risk of total loss. The insurance policy simply charges the difference between maximum utility with no insurance and the higher utility that carries lower risk with insurance.

Insurance and debt contracts hold the same ability to incorporate expected default risk in the charge made for the loan or the insurance. However, while a premium is charged for expected risk, no such charge can be made for unexpected risk. This risk is taken from the borrower through the rates he pays, but is born by the insurer or lender. The premium level must reflect this shift of risk in order to make accepting the risk potentially worthwhile. No matter how well the risk is valued the danger of unexpected losses will exist. The lender or insurer is compensated for this uncertainty through higher premiums.

The lender or insurer averts his risk through diversification. He uses the capital gained from borrowers, takes responsibility for the risk and averts from that risk through spreading it across a wide number of investments. Insurance policies attract averters, despite the fact that the risks involved are often high because the compensation is also high. The borrower is compensated through insurance, paying a premium to remove the risk. The lender is compensated through potential capital gain if failure is avoided and through spreading the risk from himself by investing its capital in a range if projects, across a range of industries and economic sectors.

Diversification plays a very important role through which deposit taking institutions limit the risk of loss in all types of contract. It can be defined as ‘the spreading of business risks by reducing dependence on one product or market’[8]. It is undertaken in order to improve prospects of a high rate of return and reduce prospects of loss. Diversification appeals to the risk averter as it reduces risk. An investor will chose to spread his capital across more than one of the contracts discussed. His risk appetite may vary between each

[7] P.F. Smith P42
[8] Wall, Marcouse, Lines & Barry p 90

type of contract, depending on the capital involved and the expected return. Highly averse to risk, the bulk of capital may be placed in an insurance contract. With what is left risk appetites may increase and equity or debt contracts used. With more certain returns on most of his capital, the averter maybe more willing to accept risks on the smaller part of capital. In this way diversification allows overall risk to be reduced, with maximum possible returns. Achieving an adequate spread of risk is achieved not only by making a large number of loans, but also by trying to ensure loans are not concentrated to heavily in any single activity or sector.

The appetite of the risk averter and need for portfolio diversification can be explained by looking at the theory of liquidity preference. This theory explains that investors require extra return for lending in the long-term compared to short term. This is because the level of unexpected risk increases with the length of the investment. The developed theory supports the need to diversify risk and illustrates why uncertainty may be avoided.

In Keynesian analysis investors were treated as holding confident expectations on potential gain on risky assets[9]. The decision to hold in risky or safe assets depended simply on which gave a greater return. This gives no explanation of portfolio diversification, undertaken to spread a risk that the certainty in Keynes theory eliminated. The choice of asset depended on the investor's expectations rather than uncertainty. Keynes assumed that investors expected future rises in rates, and therefore capital losses, encouraging them towards safer assets. This explained the downward sloping liquidity preference curve. With such certainty in the future there appeared no reason to diversify in order to spread risk, as in the long term safe assets will provide a 'normal' level of return.

The assumption of certainty clearly can not hold true, so Tobin reformed the liquidity theory to make it more general and link it firmly to uncertainty about future asset prices. This provides a theoretical support for the idea of portfolio diversification. In this theory diversification is the result of different investor's future expectations, particularly at the individual level. The certainty of Keynes, based on the past, can only be short term, so the long term remains uncertain. This being the case, Tobin is consistent with the practice that those averse to risk will diversify across as wide a portfolio as possible in order to lessen the risk in risky assets.

The principle underlying our discussion is that the risk averter requires an increasing return to compensate for an increase in risk. This is represented in the upwards sloping indifference curves and convex utility function[10]. The indifference curve shows a set of combinations of risk and return that is acceptable to the investor[11]. The positive slope of this curve reflects the fact risk averse investors will only accept an increase in risk if there is sufficient increase in expected return; they have a diminishing marginal utility for money. The greater the investor's absolute risk aversion, the steeper the indifference curve. The indifference curve of a business is likely to be shallower than that of an

[9] Goodhart p 69
[10] Known as the von Neumann-Morgenstern utility function.
[11] Wall, Marcouse, Lines & Barry p152

individual, as businesses tend to own more capital, enabling them to absorb any loss caused by taking risks. The utility function is similar, representing preferences over distribution of risk and return. The convex shape reflects the reluctance to increase risk as returns increase

It is a necessary condition of any potentially profitable investment that risk exists. People and institutions can not eliminate this risk and expect any reasonable return, but those averse to it can ensure they are compensated increasingly and fairly for the risks they do choose to take. Many different options exist for an investor entering the financial market, depending on the risk they are willing to take. For those averse to risk the attractiveness of each contract depends upon the probability of potential losses occurring, and the compensation they receive for taking that risk. All investors seek to make maximum returns, so even the risk averse will take the necessary risks to ensure money is made.

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