Session 4: Life Insurance and Liability Risk

1. Richard, age 45, is married with two children in high school. He estimates that his average annual earnings over the next 20 years will be $60,000. He estimates that one-third of his average annual earnings will be used to pay taxes, insurance premiums, and the costs of self-maintenance. The remainder will be used to support his family. Richard wants to calculate his human life value and believes a 6 percent discount rate is appropriate. The present value of $1 payable for 20 years at a discount rate of 6 percent is $11.47. Calculate Richard's human life value with and without taking time value of money into consideration.
   Answer: Richard has average annual earnings of $60,000. One-third of his earnings, or $20,000, is used for taxes, insurance premiums, and the costs of self-maintenance. His family receives the remaining $40,000. The present value of $1 payable for 20 years at a discount rate of 6 percent is $11.47. Richard has a human life value of $458,800 ($40,000 × $11.47).

2. a. The human life value is one method for estimating the amount of life insurance to own. Keeping all other factors unchanged, explain the effect, if any, of each of the following:
      1. The amount of average annual income going to the family is increased.

   Answer: If the amount of average annual income going to the family is increased, the human life value is increased. More money is needed to provide a higher amount of income to the family.

      2. The period over which income is paid to the family is reduced.

   Answer: If the period over which income is paid to the family is reduced, the human life value is also reduced. Less money is needed to provide the desired family income.

   b. Explain the limitations of the human life value approach as a method for determining the amount of life insurance to own.
   Answer: The human life value has several defects. First, other sources of income to survivors, such as Social Security, are ignored. Second, earnings and expenses are assumed to remain constant over time, and employee benefits are ignored. Third, the amount of money allocated to the family can change quickly because of a birth, death, or divorce. Also, the discount rate used is critical because the human life value can be substantially increased by assuming a lower rate. Finally, the effects of inflation on earnings and expenses are ignored.

3. Kelly, age 35, is a single parent and has a one-year old son. She earns $45,000 annually as a marketing analyst. Her employer provides group life insurance in the amount of twice the employee's salary. Kelly also participates in her employer's 401(k) plan. She has the following financial needs and objectives:

■ Funeral costs and uninsured medical bills	$ 10,000
■ Income support for her son	$2,000 monthly for 17 years
■ Pay off mortgage on home	150,000
■ Pay off car loan and credit card debts	15,000
■ College education fund for son	150,000

Kelly has the following financial assets:

■ Checking account	$ 2,000
■ IRA account	8,000
■ 401(k) plan	25,000
■ Individual life insurance	25,000
■ Group life insurance	90,000

a) Ignoring the availability of Social Security survivor benefits, how much additional life insurance, if any, should Kelly purchase to meet her financial goals based on the needs approach? (Assume that the rate of return earned on the policy proceeds is equal to the rate of inflation.)

Answer: Kelly needs $583,000 of new life insurance, excluding Social Security. She has the following cash needs:

Funeral costs and uninsured medical bills	$ 10,000
Pay off mortgage	150,000
Pay off car loan and credit card debts	15,000
College education fund for son	150,000
Total cash needs	$325,000

Kelly also has the following income needs:

Monthly income support of $2000 for 17 years for her son	$408,000
Total needs	$733,000
Less existing resources (checking account, IRA, 401K plan, individual and group life insurance)	–150,000
	$583,000
	new life insurance needed, excluding Social Security

b) How much additional life insurance, if any, is needed if estimated Social Security survivor benefits in the amount of $800 monthly are payable until her son attains age 18?

Answer: Kelly needs $419,800 of new life insurance if Social Security benefits are considered. Cash needs remain the same. If Social Security benefits of $800 monthly are considered, only $1200 monthly for 17 years, or $244,800, is needed.

	$325,000	cash needs
	244,800	income needs, including Social Security
Total needs	$569,800	
Less existing resources	–150,000	
	$419,800	new life insurance needed

4. Janet, age 28, is married and has a son, age 3. She wants to determine how much life insurance she should own based on the capital retention approach. She would like to provide $30,000 each year before taxes to her family if she should die. She owns a house jointly with her husband that has a current market value of $250,000 and a mortgage balance of $100,000. She also owes $16,000 on a car loan and credit cards. She would like to have the mortgage, car loan, and credit card debts paid off if she should die. She has no investments, and her checking account balance is only $1000. She owns an individual life insurance policy in the amount of $100,000 that her parents purchased for her when she was a baby. Estimated Social Security survivor benefits are $10,000 annually. Janet assumes the life insurance proceeds can be invested at 5 percent interest. Based on the capital retention approach, how much additional life insurance, if any, should Janet purchase to meet her financial goals?

   Answer: Janet needs an additional $15,000 of life insurance to pay off the mortgage, credit cards, and car loan debts. She also needs $400,000 of new life insurance to attain her income objective of $2000 monthly for her family.

   The capital retention approach requires three steps. First, prepare a personal balance sheet.

Assets	
House	$250,000
Checking account	1,000
Individual life insurance	100,000
Total	$351,000

Liabilities	
Mortgage payoff	$100,000
Credit cards and car loan	16,000
Total	$116,000

   Second, determine the amount of income producing capital.

Total assets	$351,000
Less:	
Mortgage payoff	$100,000
Credit cards and car loan	16,000
Non income-producing capital (value of home)	250,000
Total	–$15,000

   Janet has no income-producing capital. In fact, she will need an additional $15,000 of life insurance just to pay off her debts.
   Finally, determine the amount of additional capital needed.

Income objective for family	$ 30,000 yearly
Capital now available for income	0
Social Security survivor benefits	10,000
Income shortage	$ 20,000
Total new capital required to meet income objective ($20,000/.05)	$400,000

5. Megan, age 32, is married and has a son, age 1. She recently purchased a cash-value life insurance policy that has the following characteristics:
    - The frequency and amount of premium payments are flexible.
    - The insurance and saving components are separate.
    - The interest rate credited to the policy is tied to current market conditions, but the policy guarantees a minimum interest rate.
    - The policy has a back-end surrender charge that declines to zero over some time period.

   Based on the above characteristics, what type of life insurance did Megan purchase? Explain your answer.
   Answer: Megan purchased a universal life insurance policy.

6. Todd, age 28, would like to save money for a comfortable retirement. He is considering purchasing a cash-value life insurance policy that has the following characteristics:
    - The premiums are invested in separate investment accounts selected by the policyholder.
    - Interest income and capital gains are not currently taxable to the policyholder.
    - The frequency and amount of premium payments can be changed as financial circumstances change.
    - A mortality and expense (M&E) charge is periodically deducted from the cash value account.

   Based on the above characteristics, what type of life insurance is Todd considering purchasing? Explain your answer.
   Answer: Todd is considering the purchase of a variable universal life insurance policy.

7. Life insurance policies have different characteristics. For each of the following, identify the life insurance policy that meets the description:
    a. A policy where the face amount of insurance increases if the investment results are favorable

   Answer: The face amount of insurance under a variable life insurance policy will increase if the investment results are favorable. Variable universal life insurance and indexed universal life insurance are also acceptable answers.

    b. A policy that can be used to insure the human life value of an individual, age 35, at the lowest possible annual premium

   Answer: Decreasing term insurance equal to the individual's human life value can be used to insure the individual at the lowest possible annual premium.

    c. A policy that permits the policyholder to determine how the premiums are to be invested

   Answer: A variable universal life insurance policy allows the policyholder to determine how the premiums will be invested.

    d. A policy that allows cash withdrawals for a down payment on a home or payment of college tuition

   Answer: A universal life policy allows cash withdrawals, such as a down payment on a home or payment of college tuition.

e. A policy that is sold to applicants whose mortality experience is expected to be lower than average

Answer: A preferred risk policy is sold to individuals with favorable mortality experience. Premiums are relatively lower under a preferred risk policy.

f. A policy in which premiums are lower for the first three to five years and higher thereafter, which may appeal to insureds whose incomes are expected to increase

Answer: Under a modified life insurance policy, premiums are lower for the first three to five years and higher thereafter.

g. A policy designed to pay estate taxes upon the death of the last surviving spouse

Answer: A second-to-die policy is designed to pay estate taxes when a surviving spouse dies.

8. Richard, age 35, is married and has two children, ages 2 and 5. He is considering the purchase of additional life insurance. He has the following financial goals and objectives:
   - Pay off the mortgage on his home, which has 25 years remaining
   - Accumulation of a sizeable retirement fund
   - Payment of monthly income to the family if he should die
   - Withdrawal of funds from the policy when the children reach college age

   For each of the following life insurance policies, indicate which of the above financial goals, if any, could be met if the policy is purchased. Treat each policy separately.

   a. Decreasing term insurance

   Answer: Decreasing term insurance can be used to pay off the remaining mortgage balance; it can also be used to provide monthly income payments to his family. However, because term insurance has no cash values, decreasing term cannot be used to accumulate a retirement fund or to pay college expenses of the children.

   b. Ordinary life insurance

   Answer: Ordinary life insurance can be used to pay off the mortgage, to accumulate a retirement fund, and to pay monthly income payments to the family. The cash values could be borrowed to pay college expenses when the children reach college age. The policy could also be surrendered for its cash value to pay college expenses.

   c. Universal life insurance

   Answer: Universal life insurance can be used to pay off the mortgage, to accumulate a sizable retirement fund, and to pay monthly income to the family. In addition, universal life insurance allows cash withdrawals that could be used to pay college expenses.

   d. Variable universal life insurance

   Answer: Variable universal life insurance can be used to pay off the mortgage, to accumulate a sizable retirement fund, and to pay monthly income to the family. A variable universal life insurance policy also allows the withdrawal of funds that could be used to pay college expenses.

9. Smith Construction is building a warehouse for Raymond. The construction firm routinely leaves certain construction equipment at the building site overnight and on weekends. Late one night, Fred, age 10, began playing on some of Smith's construction equipment. Fred accidentally released the brakes of a tractor on which he was playing, and the tractor rolled down a hill and smashed into the building under construction. Fred was severely injured in the accident. Fred's parents sued both Smith Construction and Raymond for the injury.

    a. Based on the elements of negligence, describe the requirements that must be met for Smith Construction to be held liable for negligence.

    Answer:
    (1) Existence of a legal duty. Smith Construction has an obligation to protect others from harm, including harm from the machinery used in construction.
    (2) Failure to perform that duty. Since the machines are an attractive nuisance that can injure children, Smith Construction failed to perform the duty required by law to protect others from harm. From examination of the facts, it appears that reasonable measures to prevent access to the construction equipment were not taken.
    (3) Damages or injury to the claimant. This requirement is met, since Fred was injured.
    (4) Proximate cause relationship. This requirement may not be met. The brakes on the tractor were released, which caused the tractor to roll down the hill. The tractor would have remained in the same position if the brakes had not been released. Fred's actions could be viewed as a new intervening cause.

    b. Describe the various classes of persons that are recognized by the law with respect to entering upon the property of another. In which class of persons would Fred belong?

    Answer: There are three legal classes: (1) trespassers, (2) licensees, and (3) invitees. Fred technically is a trespasser, but because of his age he would be considered an invitee in many jurisdictions.

    c. What other legal doctrine is applicable in this case because of Fred's age? Explain your answer.

    Answer: The attractive nuisance doctrine would apply here. Smith Construction could be held legally liable for the injury to Fred under this doctrine.

10. a. Parkway Distributors is a wholesale firm that employs several outside salespersons. Emily, a salesperson employed by Parkway Distributors, was involved in an accident with another motorist while she was using her car to make regular sales calls for Parkway Distributors. Emily and the motorist are seriously injured in the accident. The motorist sues both Emily and Parkway Distributors for the injury based on negligence.

    1. Describe the requirements that the motorist must establish to show that Emily is guilty of negligence.

    Answer: The injured motorist would have to establish the following requirements:
    (i) Existence of a legal duty
    (ii) Failure to perform that duty
    (iii) Damages or injury to the claimant
    (iv) Proximate cause relationship

    The motorist would have to show that Emily was responsible for the accident and that the four elements of negligence were satisfied. From the facts given, it cannot be determined conclusively that Emily is guilty of negligence.

2. On what legal basis might Parkway Distributors be held legally liable for the injury to the motorist? Explain your answer.

Answer: Under the doctrine of *respondeat superior*, an employer can be held liable for the negligent acts of employees who are acting on the employer's behalf. Also, under a vicarious liability law, the employer can be held responsible for the negligent acts of an employee while operating an automobile. Emily's negligence could be imputed to Parkway Distributors, who is responsible for Emily's actions while she is acting on the company's behalf.

b. Tom asks his girlfriend, Megan, to go to a supermarket and purchase some steaks for dinner. While driving Tom's car to the supermarket, Megan failed to stop at a red light and seriously injured a pedestrian. Does Tom have any legal liability for the injury? Explain your answer.

Answer: Tom could be held legally liable for the accident caused by Megan. The owner of an automobile could be held liable for the driver's negligence if an agency relationship exists. A court may rule that Megan was acting as an agent on behalf of Tom. Tom could also be held liable under a vicarious liability law in which the negligence of the driver of an automobile is imputed to its owner. Finally, under a permissive use statute, the owner of an automobile could be held liable for the negligence of a driver who is operating the automobile with the owner's permission.