



Paper 2

Advanced Financial Management

Chapter-wise compilation
of RTP, MTP and PYP

May'24

11



*Modified as per
new scheme*



*Amended as per
May'24*

Attempts
Compilation



CA _____

(Once you print this write your name in this blank to give you the much-needed motivation. Remember what you see is what you achieve!)

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GETTING THE MOST FROM THIS BOOK

A QUICK GUIDE

1 INITIAL READING

After your initial reading of a particular chapter in your study material, go through the questions in our 3, 5, and 11 attempt's compilations, focusing on the chapter you've just covered. Make note of challenging questions for later reference.

2 FIRST REVISION

During your first revision, revisit the marked questions. If you still can't answer them, highlight them in red and review the related concepts to improve your understanding. This process helps you to grasp the key concepts and address your weak points

3 KEEP GOING WITH THE REVISIONS

Repeat the reading and revision process as often as possible before your exams. Each iteration will enhance your confidence and knowledge.

4 EXAMINERS COMMENTS

Pay attention to the examiner's comments in our compilations, as they highlight common mistakes. Learning from these errors will help you avoid them in your exams



Frequently Asked Questions

1. Why RTP's, MTP's and PYP's?

RTP's, MTP's, and PYP's are extremely important to ensure that you reproduce ICAI language. These questions train you to understand what is important and what is expected of you. At least 41% of questions* are asked from previous RTP's, MTP's and PYP's.

2. What is included?

In this compiler, all questions from the last 3, 5 or 11 attempts depending on the one you have selected will be available. There will be references to the marks and the attempt from which they were asked. Identical or similar questions have been removed and references for both attempts are mentioned.

3. What is the benefit of Chapter-wise?

We have categorized each and every question from all Old RTPs, MTP's, and PYP's into chapters. This means that you don't have to wait until you've completed your entire syllabus to tackle an RTP, MTP, or past paper. You can start solving these questions to check your conceptual clarity right after finishing a particular chapter.

4. What does amended for the latest attempt mean?

When we reviewed all the questions from the past 11 attempts of RTP, MTP, and PYP'S, we didn't just segregate them Chapterwise; we also updated them to reflect the latest provisions. All the answers provided in the compilation are applicable for the May 2024 examination. So, there's no need to stress about outdated or incorrect information.

5. How are Old RTP's, MTP's & PYP's beneficial for me?

All old RTPs, MTPs, and PYPs have been organized according to the new syllabus issued by ICAI. This means that if a specific chapter from the old scheme is not included in the new scheme, it has been omitted. If a particular chapter in the new scheme is based on concepts from two or more chapters in the old scheme, it has been adapted to align with how the chapter should be in the new scheme. If a chapter is only partially included in the new scheme, the questions related to those specific concepts are only included in the corresponding chapter of the new scheme. A comprehensive reconciliation of the chapters between the new scheme and the old scheme is provided on the following page.

6. What if a new attempt is added post my purchase?

If you have purchased materials for the May 2024 attempt, you will receive a file with the questions segregated Chapterwise specifically for that attempt.

7. What does N/A mean?

It could mean any of the following:

1. No questions from that chapter have been included in the selected attempts.
2. The chapter is newly introduced, and as a result, no questions have been previously asked in RTP's, MTP's, or PYP's.

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11 PYPs: May'18, Nov'18, May'19, Nov'19, Nov'20, Jan'21, July '21, Dec '21, May'22, Nov '22, May '23

12 RTPs: May'18, Nov'18, May'19, Nov'19, May'20, Nov'20, May'21, Nov '21, May '22, Nov '22, May '23, Nov '23



Chapter 1 Financial Policy & Corporate Strategy

Question 1

Discuss briefly the key decisions falling within the scope of financial strategy. (MTP 4 Marks Oct '19, Apr'21, PYP 4 Marks Nov '19, PYP 4 Marks Jan'21, RTP Nov '20)

OR

As a financial strategist you will depend on certain key financial decisions. Discuss. (MTP 4 Marks March '23)

Answer 1

The key decisions falling within the scope of financial strategy include the following:

1. **Financing decisions:** These decisions deal with the mode of financing or mix of equity capital and debt capital.
2. **Investment decisions:** These decisions involve the profitable utilization of firm's funds especially in long-term projects (capital projects). Since the future benefits associated with such projects are not known with certainty, investment decisions necessarily involve risk. The projects are therefore evaluated in relation to their expected return and risk.
3. **Dividend decisions:** These decisions determine the division of earnings between payments to shareholders and reinvestment in the company.
4. **Portfolio decisions:** These decisions involve evaluation of investments based on their contribution to the aggregate performance of the entire corporation rather than on the isolated characteristics of the investments themselves.

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

Most of the examinees attempted the theoretical question correctly and hence performance was very good.

Question 2

“Sustainable growth is important to enterprise long-term development”. Explain this statement in context of planning healthy corporate growth. (MTP 4 Marks Oct '20)

Answer 2

Sustainable growth is important to enterprise long-term development. Too fast or too slow growth will go against enterprise growth and development, so financial should play important role in enterprise development, adopt suitable financial policy initiative to make sure enterprise growth speed close to sustainable growth ratio and have sustainable healthy development. The sustainable growth rate (SGR) of a firm is the maximum rate of growth in sales that can be achieved, given the firm's profitability, asset utilization, and desired dividend payout and debt (financial leverage) ratios. The sustainable growth rate is a measure of how much a firm can grow without borrowing more money. After the firm has passed this rate, it must borrow funds from another source to facilitate growth. Variables typically include the net profit margin on new and existing revenues; the asset turnover ratio, which is the ratio of sales revenues to total assets; the assets to beginning of period equity ratio; and the retention rate, which is defined as the fraction of earnings retained in the business.

$SGR = ROE \times (1 - \text{Dividend payment ratio})$

Sustainable growth models assume that the business wants to:

- (1) maintain a target capital structure without issuing new equity;
- (2) maintain a target dividend payment ratio; and
- (3) increase sales as rapidly as market conditions allow.



Question 3

Explain the specific steps that make an organization sustainable. (MTP 4 Marks March '21)

Answer 3

The concept of sustainable growth can be helpful for planning healthy corporate growth. This concept forces managers to consider the financial consequences of sales increases and to set sales growth goals that are consistent with the operating and financial policies of the firm. Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth. Question concerning right distribution of resources may take a difficult shape if we take into consideration the rightness not for the current stakeholders but for the future stakeholders also.

Sustainable growth is important to enterprise long-term development. Too fast or too slow growth will go against enterprise growth and development, so financial should play important role in enterprise development, adopt suitable financial policy initiative to make sure enterprise growth speed close to sustainable growth ratio and have sustainable healthy development.

Sustainable growth models assume that the business wants to:

- (1) maintain a target capital structure without issuing new equity;
- (2) maintain a target dividend payment ratio; and
- (3) increase sales as rapidly as market conditions allow.

Since the asset to beginning of period equity ratio is constant and the firm's only source of new equity is retained earnings, sales and assets cannot grow any faster than the retained earnings plus the additional debt that the retained earnings can support. The sustainable growth rate is consistent with the observed evidence that most corporations are reluctant to issue new equity. If, however, the firm is willing to issue additional equity, there is in principle no financial constraint on its growth rate.

Question 4

Discuss on Balancing Financial Goals vis-a-vis Sustainable Growth. (MTP 4 Marks April '19, Aug'18, Sep'22, RTP May '20, Old & New SM)

OR

Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth. EXPLAIN. (MTP 4 Marks, March'22)

Answer 4

The concept of sustainable growth can be helpful for planning healthy corporate growth. This concept forces managers to consider the financial consequences of sales increases and to set sales growth goals that are consistent with the operating and financial policies of the firm. Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth. Question concerning right distribution of resources may take a difficult shape if we take into consideration the rightness not for the current stakeholders but for the future stakeholders also. To take an illustration, let us refer to fuel industry where resources are limited in quantity and a judicious use of resources is needed to cater to the need of the future customers along with the need of the present customers. One may have noticed the save fuel campaign, a demarketing campaign that deviates from the usual approach of sales growth strategy and preaches for conservation of fuel for their use across generation. This is an example of stable growth strategy adopted by the oil industry as a whole under resource constraints and the long run objective of survival over years. Incremental growth strategy, profit strategy and pause strategy are other variants of stable growth strategy.

Sustainable growth is important to enterprise long-term development. Too fast or too slow growth will go against enterprise growth and development, so financial should play important role in enterprise development, adopt suitable financial policy initiative to make sure enterprise growth speed close to sustainable growth ratio and have sustainable healthy development.

Sustainable Growth Rate

The sustainable growth rate (SGR), concept by Robert C. Higgins, of a firm is the maximum rate of growth in sales that can be achieved, given the firm's profitability, asset utilization, and desired dividend payout and debt (financial leverage) ratios. The sustainable growth rate is a measure of how much a firm can grow without borrowing more money. After the firm has passed this rate, it must borrow funds from another source to facilitate growth. Variables typically include the net profit margin on new and existing revenues; the asset turnover ratio, which is the ratio of sales revenues to total assets; the assets to equity ratio; and the retention rate, which is defined as the fraction of earnings retained in the business.

SGR = ROE x (1- Dividend payment ratio)

Sustainable growth models assume that the business wants to:

- 1) maintain a target capital structure without issuing new equity;
- 2) maintain a target dividend payment ratio; and
- 3) increase sales as rapidly as market conditions allow.

Since the asset to beginning of period equity ratio is constant and the firm's only source of new equity is retained earnings, sales and assets cannot grow any faster than the retained earnings plus the additional debt that the retained earnings can support. The sustainable growth rate is consistent with the observed evidence that most corporations are reluctant to issue new equity. If, however, the firm is willing to issue additional equity, there is in principle no financial constraint on its growth rate. Indeed, the sustainable growth rate formula is directly predicted on return on equity.

Economists and business researchers contend that achieving sustainable growth is not possible without paying heed to twin cornerstones:

- ❖ growth strategy and
- ❖ growth capability.

Companies that pay inadequate attention to one aspect or the other are doomed to fail in their efforts to establish practices of sustainable growth (though short-term gains may be realized). After all, if a company has an excellent growth strategy in place but has not put the necessary infrastructure in place to execute that strategy, long-term growth is impossible. The reverse is also true.

The very weak idea of sustainability requires that the overall stock of capital assets should remain constant. The weak version of sustainability refers to preservation of critical resources to ensure support for all, over a long-time horizon. The strong concept of sustainability is concerned with the preservation of resources under the primacy of ecosystem functioning. These are in line with the definition provided by the economists in the context of sustainable development at macro level.

Source: CIVICUS "Developing a Financing Strategy".

The sustainable growth model is particularly helpful in situations in which a borrower requests additional financing. The need for additional loans creates a potentially risky situation of too much debt and too little equity. Either additional equity must be raised, or the borrower will have to reduce the rate of expansion to a level that can be sustained without an increase in financial leverage.

Mature firms often have actual growth rates that are less than the sustainable growth rate. In these cases, management's principal objective is finding productive uses for the cash flows that exist in excess of their needs. Options available to business in such cases includes returning the money to shareholders through increased dividends or common stock repurchases, reducing the firm's debt load, or increasing possession of lower earning liquid assets. These actions serve to decrease the sustainable growth rate. Alternatively, these firms can attempt to enhance their actual growth rates through the acquisition of rapidly growing companies.

Growth can come from two sources: increased volume and inflation. The inflationary increase in assets



must be financed as though it were real growth. Inflation increases the amount of external financing required and increases the debt-to-equity ratio when this ratio is measured on a historical cost basis. Thus, if creditors require that a firm's historical cost debt-to-equity ratio stay constant, inflation lowers the firm's sustainable growth rate.

Question 5

Financial Resources, Financial Tools and Financial Goals are outcomes of Financial Planning. Do you agree with this statement? (MTP 4 Marks Nov 21, PYP 4 Marks May '22)

Answer 5

Financial planning is a systematic approach whereby the financial planner helps the customer to maximize his existing financial resources by utilizing financial tools to achieve his financial goals. Financial Resources, Financial Tools and Financial Goals are not the outcomes of Financial Planning rather these are components of Financial Planning.

Outcomes of the financial planning are as follows:

- ❖ **Financial objectives:** Financial objectives are to be decided at the very outset so that rest of the decisions can be taken accordingly. The objectives need to be consistent with the corporate mission and corporate objectives.
- ❖ **Financial decision making:** It helps in analyzing the financial problems that are being faced by the corporate and accordingly deciding the course of action to be taken by it.
- ❖ **Financial measures:** It includes ratio analysis, analysis of cash flow statement etc. to evaluate the performance of the Company. The selection of these measures again depends upon the corporate objectives.

Question 6

EXPLAIN what makes an organization financially sustainable. (MTP 4 Marks, April'22, RTP May '21)

Answer 6

To be financially sustainable, an organization must:

- ❖ have more than one source of income;
- ❖ have more than one way of generating income;
- ❖ do strategic, action and financial planning regularly;
- ❖ have adequate financial systems;
- ❖ have a good public image;
- ❖ be clear about its values (value clarity); and have financial autonomy.

Question 7

EXPLAIN outcomes of the Financial Planning. (MTP 4 Marks Oct '22)

Answer 7

Outcomes of the financial planning are the financial objectives, financial decision-making and financial measures for the evaluation of the corporate performance.

Financial objectives are to be decided at the very outset so that rest of the decisions can be taken accordingly. The objectives need to be consistent with the corporate mission and corporate objectives.

Financial decision making helps in analyzing the financial problems that are being faced by the corporate and accordingly deciding the course of action to be taken by it.

The financial measures like ratio analysis, analysis of cash flow statement is used to evaluate the performance of the Company. The selection of these measures again depends upon the corporate objectives.



Question 8

Explain the term Corporate Level Strategy and what are the three basic questions it answers? (MTP 4 Marks Sep '23)

Answer 8

Corporate level strategy fundamentally is concerned with selection of businesses in which a company should compete and with the development and coordination of that portfolio of businesses. Corporate level strategy should be able to answer three basic questions:

- (1) Suitability: Whether the strategy would work for the accomplishment of common objective of the company.
- (2) Feasibility: Determines the kind and number of resources required to formulate and implement the strategy.
- (3) Acceptability: It is concerned with the stakeholders' satisfaction and can be financial and non-financial.

Question 9

What makes an organization sustainable as well as financially sustainable? (MTP 4 Marks Oct '23, PYP 4 Marks May '23)

OR

Explain the various requirements that makes an organization sustainable. (MTP 4 Marks April '23)

Answer 9

In order to be sustainable, an organization must:

- ❖ have a clear strategic direction;
- ❖ be able to scan its environment or context to identify opportunities for its work;
- ❖ be able to attract, manage and retain competent staff;
- ❖ have an adequate administrative and financial infrastructure;
- ❖ be able to demonstrate its effectiveness and impact in order to leverage further resources; and
- ❖ get community support for, and involvement in its work.

To be financially sustainable, an organization must:

- ❖ have more than one source of income;
- ❖ have more than one way of generating income;
- ❖ do strategic, action and financial planning regularly;
- ❖ have adequate financial systems;
- ❖ have a good public image;
- ❖ be clear about its values (value clarity); and
- ❖ have financial autonomy.

Question 10

State the strategy at different hierarchy levels. (PYP 4 Marks July 21)

Answer 10

Strategies at different levels are the outcomes of different planning needs.

Three levels of Strategy – Corporate level; Business unit level; and Functional or departmental level.

- (1) **Corporate Level Strategy:** Corporate level strategy fundamentally is concerned with selection of businesses in which a company should compete and with the development and coordination of that portfolio of businesses.

Corporate level strategy should be able to answer three basic questions:

- ❖ **Suitability:** Whether the strategy would work for the accomplishment of common objective of the company.
 - ❖ **Feasibility:** Determines the kind and number of resources required to formulate and implement the strategy.
 - ❖ **Acceptability:** It is concerned with the stakeholders' satisfaction and can be financial and non-financial.
- (2) **Business Unit Level Strategy:** Strategic business unit (SBU) may be any profit center that can be planned independently from the other business units of a corporation. At the business unit level, the strategic issues are about practical coordination of operating units and developing and sustaining a competitive advantage for the products and services that are produced.
- (3) **Functional Level Strategy:** The functional level is the level of the operating divisions and departments. The strategic issues at this level are related to functional business processes and value chain. Functional level strategies in R&D, operations, manufacturing, marketing, finance, and human resources involve the development and coordination of resources through which business unit level strategies can be executed effectively and efficiently. Functional units of an organization are involved in higher level strategies by providing input to the business unit level and corporate level strategy, such as providing information on customer feedback or on resources and capabilities on which the higher-level strategies can be based. Once the higher - level strategy is developed, the functional units translate them into discrete action plans that each department or division must accomplish for the strategy to succeed.

Among the different functional activities viz production, marketing, finance, human resources and research and development, finance assumes highest importance during the top down and bottom-up interaction of planning. Corporate strategy deals with deployment of resources and financial strategy are mainly concerned with mobilization and effective utilization of money, the most critical resource that a business firm likes to have under its command. Truly speaking, other resources can be easily mobilized if the firm has adequate monetary base. To go into the details of this interface between financial strategy and corporate strategy and financial planning and corporate planning let us examine the basic issues addressed under financial planning.

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

Though overall above average performance has been noticed in this theoretical question but in some cases, students have mentioned different levels instead of strategies and even headings of strategies at different levels were correctly mentioned but explanation to these points were very generic in nature.

Question 11

What is sustainable growth rate?

(i) **What makes an Organization Sustainable?**

(ii) **Mr. X has submitted the following data:**

Particulars	(₹) in Lakhs
Total Assets	250
Total Liabilities	220
Net Income	12
Dividend Paid	4.5

Sales	100
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Mr. X wants to know to what extent sales can be increased without going for additional borrowings by using Sustainable Growth Rate (SGR) concept? (PYP 8 Marks Nov 22)

Answer 11

- (i) The sustainable growth rate is a measure of how much a firm can grow without borrowing more money. After the firm has passed this rate, it must borrow funds from another source to facilitate growth.
- (ii) In order to be sustainable, an organization must:
- have a clear strategic direction;
 - be able to scan its environment or context to identify opportunities for its work;
 - be able to attract, manage and retain competent staff;
 - have an adequate administrative and financial infrastructure;
 - be able to demonstrate its effectiveness and impact in order to leverage further resources; and
 - get community support for, and involvement in its work.

(iii)

Sl. No	Particulars	Amount in ₹ Lakhs
(a)	Total Assets	250.00
(b)	Total Liabilities	220.00
(c)	Net Income	12.00
(d)	Dividend Paid	4.50
(e)	Sales	100.00
(f)	Equity (a) – (b)	30.00
(g)	Return on Equity (ROE) (c) /(f)	40.00%
(h)	Dividend pay-out Ratio (d) /(c)	37.50%
(i)	SGR [g x (1-h)]	25.00%*
(j)	Additional Sales can be achieved without further borrowings (e) x (i)	25.00
(k)	Maximum sales can be achieved without further borrowings (e) + (j)	125.00

* Alternatively, it can also be computed as follows:

$$\text{SGR} = \frac{g(1-h)}{1-[g(1-h)]} = 33.33\% \text{ and then Additional Sales shall be ₹ 33.33 Lakhs and}$$

Maximum Sales can be achieved without further borrowings shall be ₹ 133.33 Lakhs

Question 12

Explain the Interface of Financial Policy and Strategic Management. (Old & New SM, PYP 4 Marks May'18)

Answer 12

The interface of strategic management and financial policy will be clearly understood if we appreciate the fact that the starting point of an organization is money and the end point of that organization is also money. No organization can run an existing business and promote a new expansion project without a suitable internally mobilized financial base or both i.e., internally and externally mobilized financial base.

Sources of finance and capital structure are the most important dimensions of a strategic plan. The need for fund mobilization to support the expansion activity of firm is very vital for any organization. The



generation of funds may arise out of ownership capital and or borrowed capital. A company may issue equity shares and/or preference shares for mobilizing ownership capital and debentures to raise borrowed capital. Public deposits, for a fixed time period, have also become a major source of short and medium-term finance. Organizations may offer higher rates of interest than banking institutions to attract investors and raise fund. The overdraft, cash credits, bill discounting, bank loan and trade credit are the other sources of short-term finance.

Along with the mobilization of funds, policy makers should decide on the capital structure to indicate the desired mix of equity capital and debt capital. There are some norms for debt equity ratio which need to be followed for minimizing the risks of excessive loans. For instance, in case of public sector organizations, the norm is 1:1 ratio and for private sector firms, the norm is 2:1 ratio. However, this ratio in its ideal form varies from industry to industry. It also depends on the planning mode of the organization. For capital intensive industries, the proportion of debt to equity is much higher. Similar is the case for high cost projects in priority sectors and for projects in underdeveloped regions.

Another important dimension of strategic management and financial policy interface is the investment and fund allocation decisions. A planner has to frame policies for regulating investments in fixed assets and for restraining of current assets. Investment proposals mooted by different business units may be divided into three groups. One type of proposal will be for addition of a new product by the firm. Another type of proposal will be to increase the level of operation of an existing product through either an increase in capacity in the existing plant or setting up of another plant for meeting additional capacity requirement. The last is for cost reduction and efficient utilization of resources through a new approach and/or closer monitoring of the different critical activities. Now, given these three types of proposals a planner should evaluate each one of them by making within group comparison in the light of capital budgeting exercise. In fact, project evaluation and project selection are the two most important jobs under fund allocation. Planner's task is to make the best possible allocation under resource constraints.

Dividend policy is yet another area for making financial policy decisions affecting the strategic performance of the company. A close interface is needed to frame the policy to be beneficial for all. Dividend policy decision deals with the extent of earnings to be distributed as dividend and the extent of earnings to be retained for future expansion scheme of the firm. From the point of view of long-term funding of business growth, dividend can be considered as that part of total earnings, which cannot be profitably utilized by the company. Stability of the dividend payment is a desirable consideration that can have a positive impact on share prices. The alternative policy of paying a constant percentage of the net earnings may be preferable from the point of view of both flexibility of the firm and ability of the firm. It also gives a message of lesser risk for the investors. Yet some other companies follow a different alternative. They pay a minimum dividend per share and additional dividend when earnings are higher than the normal earnings. In actual practice, investment opportunities and financial needs of the firm and the shareholders preference for dividend against capital gains resulting out of share are to be taken into consideration for arriving at the right dividend policy. Alternatives like cash dividend and stock dividend are also to be examined while working out an ideal dividend policy that supports and promotes the corporate strategy of the company.

Thus, the financial policy of a company cannot be worked out in isolation of other functional policies. It has a wider appeal and closer link with the overall organizational performance and

direction of growth. These policies being related to external awareness about the firm, especially the awareness of the investors about the firm, in respect of its internal performance. There is always a process of evaluation active in the minds of the current and future stake holders of the company. As a result, preference and patronage for the company depends significantly on the financial policy framework. Hence, attention of the corporate planners must be drawn while framing the financial policies not at a later stage



but during the stage of corporate planning itself. The nature of interdependence is the crucial factor to be studied and modelled by using an in-depth analytical approach. This is a very difficult task compared to usual cause and effect study because corporate strategy is the cause and financial policy is the effect and sometimes financial policy is the cause and corporate strategy is the effect.

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

In this theoretical question, performance was of above average level.





Chapter 2 Risk Management

Question 1

Explain the features of Value-at-Risk (VAR). (MTP 4 Marks Aug '18, Apr'18, Mar'22 & March'23, PYP 4 Marks July 21)

Answer 1

Following are main features of VAR

- (i) Components of Calculations: VAR calculation is based on following three components:
 - (a) Time Period
 - (b) Confidence Level – Generally 95% and 99%
 - (c) Loss in percentage or in amount
- (ii) Statistical Method: It is a type of statistical tool based on Standard Deviation.
- (iii) Time Horizon: VAR can be applied for different time horizons say one day, one week, one month and so on.
- (iv) Probability: Assuming the values are normally attributed, probability of maximum loss can be predicted.
- (v) Control Risk: Risk can be controlled by selling limits for maximum loss.
- (vi) Z Score: Z Score indicates how many standard Deviations is away from Mean value of a population. When it is multiplied with Standard Deviation it provides VAR.

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

Average performance was observed in this theoretical question as most of students not properly mentioned the features of VaR.

Question 2

Explain some of the parameters to identify the currency risk. (MTP 4 Marks, Oct '19, Oct '22 & April '23) (RTP Nov '18)

Answer 2

The various hints that may provide counter party risk are as follows:

- (a) Failure to obtain necessary resources to complete the project or transaction undertaken.
- (b) Any regulatory restrictions from the Government.
- (c) Hostile action of foreign government.
- (d) Let down by third party.
- (e) Have become insolvent.

The various techniques to manage this type of risk are as follows:

- (1) Carrying out Due Diligence before dealing with any third party.
- (2) Do not over commit to a single entity or group or connected entities.
- (3) Know your exposure limits.
- (4) Review the limits and procedure for credit approval regularly.
- (5) Rapid action in the event of any likelihood of defaults.
- (6) Use of performance guarantee, insurance or other instruments.



OR

Some of the parameters to identify the currency risk are as follows:

- (1) Government Action: The Government action of any country has visual impact in its currency. For example, the UK Govt. decision to divorce from European Union i.e., Brexit brought the pound to its lowest since 1980's.
- (2) Nominal Interest Rate: As per interest rate parity (IRP) the currency exchange rate depends on the nominal interest of that country.
- (3) Inflation Rate: Purchasing power parity theory impact the value of currency.
- (4) Natural Calamities: Any natural calamity can have negative impact.
- (5) War, Coup, Rebellion etc.: All these actions can have far reaching impact on currency's exchange rates.
- (6) Change of Government: The change of government and its attitude towards foreign investment also helps to identify the currency risk.

Question 3

Explain how Financial Risk can be viewed from different viewpoints.

OR

Explain Financial Risk from the point of view of Stakeholder, Company and the Government.

(MTP 4 Marks May'20, March'21, Oct'18, Mar'18, Oct'21, Sept'22 & Sep '23, Old & New SM, PYP 4 Marks Nov '18, RTP Nov 20)

Answer 3

The financial risk can be evaluated from different point of views as follows:

- (I) From stakeholder's point of view: Major stakeholders of a business are equity shareholders and they view financial gearing i.e., ratio of debt in capital structure of company as risk since in event of winding up of a company they will be least prioritized.
Even for a lender, existing gearing is also a risk since company having high gearing faces more risk in default of payment of interest and principal repayment.
- (II) From Company's point of view: From company's point of view if a company borrows excessively or lend to someone who defaults, then it can be forced to go into liquidation.
- (III) From Government's point of view: From Government's point of view, the financial risk can be viewed as failure of any bank or (like Lehman Brothers) down grading of any financial institution leading to spread of distrust among society at large. Even this risk also includes willful defaulters. This can also be extended to sovereign debt crisis.

Question 4

TRC Cables Ltd. (an Indian Company) is in the business of manufacturing Electrical Cables and Data Cables including Fiber Optics cables. While mainly it exports the manufactured cables to other countries it has also established its production facilities at some African countries' due availability of raw material and cheap labor there. Some of the major raw material such as copper, aluminum and other non-ferrous metals are also imported from foreign countries. Hence overall TRC has frequent receipts and expenditure items denominated in Non-INR currencies.

Though TRC make use of Long-Term Debts and Equity to meet its long term fund requirements but to finance its operations it make use of short-term financial instruments such as Commercial Papers, Bank Credit and Term Loans from the banks etc. If any surplus cash is left with TRC it is invested in interest



yielding securities. Recently due to stiff competition from its competitors TRC has relaxed its policy for granting credit and to manage receivables it has formed a separate credit division. Further to hedge itself against the various risk it has entered into various OTC Derivatives Contracts settled outside the Exchange.

Required:

Evaluate the major risks to which TRC Ltd. is exposed to. (MTP 6 Marks Oct '20)

Answer 4

Following are main categories of risks to which TRC Cables is exposed to:

- (i) Financial Risks: TRC is exposed to following financial risks:
- (1) Currency Risk: Since most of the Receipts and Payments of TRC are denominated in Non-INR currencies it is exposed to Currency Risk.
 - (2) Commodity Risk: As major constituents of production of TRC are commodities such copper, aluminum etc. it is subject to Commodity Risk.
 - (3) Interest Rate Risk: As TRC borrows and invest money in short-term instruments it is exposed to Interest Rate Risk.
 - (4) Counter Party Risk: Due to relaxation of norms for granting credits certainly the receivable amount must have increased resulting in increased in Credit Risk.
 - (5) Liquidity Risk: Since for short-term funding requirements TRC is using Commercial Papers etc. they are exposed to Liquidity Risk as in time of need if funds are not available from these sources then securities shall be sold at discounted price.
 - (6) Political Risk: As TRC is operating in various other countries it is also exposed to Political Risks such as Restriction on Conversion of local earnings into foreign currency, restrictions on remittance etc.
- (ii) Settlement Risk: The use of OTC Derivatives by TRC also expose it to the settlement risk as the parties with whom it has entered into the contract may not honor the same.

Question 5

Explain the term 'Cyber Risk'. (MTP 4 Marks Nov 21)

Answer 5

Cyber Risk can be defined as the risk of damages due to lawsuits / compensation on account of being a victim of cyber-attack, due to which data of customers, vendors or any other counter- party can be leaked to an unauthorized, malevolent entity.

Question 6

EXPLAIN the main risk that can be faced by an overseas investor. (MTP 4 Marks, April'22)

Answer 6

Mainly Political Risk is faced by an overseas investor, as the adverse action by the government of host country may lead to huge loses. This can be on any of the following form.

- Confiscation or destruction of overseas properties.
- Rationing of remittance to home country.
- Restriction on conversion of local currency of host country into foreign currency.
- Restriction as to borrowings.
- Invalidation of Patents
- Price control of products



Question 7

ABC Ltd. is considering a project X, which is normally distributed and has mean return of Rs. 2 crore with Standard Deviation of Rs. 1.60 crore.

In case ABC Ltd. loses on any project more than Rs. 1.00 crore there will be financial difficulties. Determine the probability the company will be in financial difficulty.

Given: Standard Normal Distribution Table (Z-Score) providing area between Mean and Z score

Z Score	Area
1.85	0.4678
1.86	0.4686
1.87	0.4693
1.88	0.4699
1.89	0.4706

(MTP 4 Marks April '21)

Answer 7

For calculating probability of financial difficulty, we shall calculate the area under Normal Curve corresponding to the Z Score obtained from the following equation (how many SD is away from Mean Value of financial difficulty):

$$\begin{aligned}
 Z &= \frac{X-\mu}{\sigma} \\
 &= \frac{-1.00 \text{ crore} - 2.00 \text{ crore}}{1.60 \text{ crore}} \\
 &= -1.875 \text{ say } 1.875
 \end{aligned}$$

Corresponding area from Z Score Table by using interpolation shall be found as follows:

Z Score	Area under Normal Curve
1.87	0.4693
1.88	0.4699
0.01	0.0006

The corresponding value of 0.005 Z score = $0.005 \times \frac{0.0006}{0.01} = 0.0003$

Thus, the Value of 1.875 shall be = $0.4693 + 0.0003 = 0.4696$

Thus, the probability the company shall be in financial difficulty is 46.96%

Question 8

What do you mean by term “Counter Party Risk”. Explain various hints that may provide an indicator of the same risk. (MTP 4 Marks Oct '23, Oct'19)

Answer 8

This risk occurs due to non-honoring of obligations by the counter party which can be failure to deliver the goods for the payment already made or vice-versa or repayment of borrowings and interest etc. Thus, this risk also covers the credit risk i.e., default by the counter party.

The various hints that may provide counter party risk are as follows:

- (a) Failure to obtain necessary resources to complete the project or transaction undertaken.
- (b) Any regulatory restrictions from the Government.
- (c) Hostile action of foreign government.
- (d) Let down by third party.
- (e) Have become insolvent.

Question 9

DESCRIBE Value at Risk and its application. (RTP May '18, PYP 4 Marks Nov'22)

Answer 9

VAR is a measure of risk of investment. Given the normal market condition in a set of periods, say, one day it estimates how much an investment might lose. This investment can be a portfolio, capital investment or foreign exchange etc., VAR answers two basic questions -

- (i) What is worst case scenario?
- (ii) What will be loss?

It was first applied in 1922 in New York Stock Exchange, entered the financial world in 1990s and become world's most widely used measure of financial risk.

Features of VAR

Following are main features of VAR

- (i) Components of Calculations: VAR calculation is based on following three components:
 - (a) Time Period
 - (b) Confidence Level – Generally 95% and 99%
 - (c) Loss in percentage or in amount
- (ii) Statistical Method: It is a type of statistical tool based on Standard Deviation.
- (iii) Time Horizon: VAR can be applied for different time horizons say one day, one week, one month and so on.
- (iv) Probability: Assuming the values are normally attributed, probability of maximum loss can be predicted.
- (v) Control Risk: Risk can be controlled by selling limits for maximum loss.
- (vi) Z Score: Z Score indicates how many standard Deviations is away from Mean value of a population. When it is multiplied with Standard Deviation it provides VAR.

Application of VAR

VAR can be applied

- (i) to measure the maximum possible loss on any portfolio or a trading position.
- (ii) as a benchmark for performance measurement of any operation or trading.
- (iii) to fix limits for individuals dealing in front office of a treasury department.
- (iv) enable the management to decide the trading strategies.
- (v) as a tool for Asset and Liability Management especially in banks.

Question 10

Briefly discuss the concept of Purchasing Power Parity. (RTP Nov '19)

Answer 10

Purchasing Power Parity (PPP): Purchasing Power Parity theory focuses on the 'inflation – exchange rate' relationship. There are two forms of PPP theory: -

The ABSOLUTE FORM, also called the 'Law of One Price' suggests that "prices of similar products of two different countries should be equal when measured in a common currency". If a discrepancy in prices as measured by a common currency exists, the demand should shift so that these prices should converge.

The RELATIVE FORM is an alternative version that accounts for the possibility of market imperfections



such as transportation costs, tariffs, and quotas. It suggests that 'because of these market imperfections, prices of similar products of different countries will not necessarily be the same when measured in a common currency.' However, it states that the rate of change in the prices of products should be somewhat similar when measured in a common currency, as long as the transportation costs and trade barriers are unchanged.

The formula for computing the forward rate using the inflation rates in domestic and foreign countries is as follows:

$$F=S \frac{(1+i_D)}{(1+i_F)}$$

Where F= Forward Rate of Foreign Currency and S= Spot Rate

i_D = Domestic Inflation Rate and

i_F= Inflation Rate in foreign country

Thus, PPP theory states that the exchange rate between two countries reflects the relative purchasing power of the two countries i.e., the price at which a basket of goods can be bought in the two countries.

Question 11

What is Value at Risk? Identify its main features. (RTP May 20)

Answer 11

VAR is a measure of risk of investment. Given the normal market condition in a set of periods, say, one day it estimates how much an investment might lose. This investment can be a portfolio, capital investment or foreign exchange etc., VAR answers two basic questions

- (i) What is worst case scenario?
- (ii) What will be loss?

It was first applied in 1922 in New York Stock Exchange, entered the financial world in 1990s and become world's most widely used measure of financial risk.

Following are main features of VAR

- (i) Components of Calculations: VAR calculation is based on following three components:
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- (iv) Probability: Assuming the values are normally attributed, probability of maximum loss can be predicted.
- (v) Control Risk: Risk can be controlled by selling limits for maximum loss.
- (vi) Z Score: Z Score indicates how many standard Deviations is away from Mean value of a population. When it is multiplied with Standard Deviation it provides VAR.

Question 12

What is Financial Risk? (RTP Nov 20)

Answer 12

Financial Risk is referred as the unexpected changes in financial conditions such as prices, exchange rate, Credit rating, and interest rate etc. Though political risk is not a financial risk in direct sense but same can



be included as any unexpected political change in any foreign country may lead to country risk which may ultimately result in financial loss.

Question 13

List the main applications of Value At Risk (VAR).(PYP 4 Marks May '19, Old & New SM)

Answer 13

Applications of Value at Risk (VAR)

VAR can be applied

- (a) to measure the maximum possible loss on any portfolio or a trading position.
- (b) as a benchmark for performance measurement of any operation or trading.
- (c) to fix limits for individuals dealing in front office of a treasury department.
- (d) to enable the management to decide the trading strategies.
- (e) as a tool for Asset and Liability Management especially in banks.

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

In this question, performance was average as application of Value at Risk (VAR) was not answered well by most of the examinees. Instead of writing application of VAR, some examinees have written techniques of VAR.

Question 14

On Tuesday morning (before opening of the capital market) an investor, while going through his bank statement, has observed that an amount of Rs. 7 lakhs is lying in his bank account. This amount is available for use from Tuesday till Friday. The Bank requires a minimum balance of Rs. 1000 all the time. The investor desires to make a maximum possible investment where Value at Risk (VaR) should not exceed the balance lying in his bank account. The standard deviation of market price of the security is 1.5 per cent per day. The required confidence level is 99 per cent.

Given

Standard Normal Probabilities										
z	0.00	.01	.02	.03	0.04	.05	.06	.07	.08	.09
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9998	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9923	.9925	.9929	.9931	.9932	.9934	.9936

You are required to determine the maximum possible investment. (PYP 4 Marks Nov '20)

Answer 14

Particulars	Amount (Rs.)
Amount available in bank account	7,00,000
Minimum balance to be kept	1,000
Available amount which can be used for potential investment for 4 days	6,99,000
Maximum Loss for 4 days at 99% level	6,99,000
Maximum Loss for 1 day at 99 % level = Maximum Loss for 4 days / $\sqrt{\text{No. of days}} = 699000 / \sqrt{4}$	3,49,500
Z Score at 99% Level	2.33
Volatility in terms of Rupees (Maximum Loss/ Z Score at 99% level) = $349500 / 2.33$	1,50,000



Maximum Possible Investment (Volatility in Rupees/Std Deviation) = 150000/.015	1,00,00,000
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Question 15

Risks are inherent and integral part of the market. Discuss. (PYP 4 Marks Jan '21)

Answer 15

Yes, Risk is an integral part of market and this is a type of systematic risk that affects prices of any particular share move up or down consistently for some time periods in line with other shares in the market. A general rise in share prices is referred to as a bullish trend, whereas a general fall in share prices is referred to as a bearish trend. In other words, the share market moves between the bullish phase and the bearish phase. The market movements can be easily seen in the movement of share price indices such as the BSE Sensitive Index, BSE National Index, NSE Index etc.

Question 16

Which type of risk covers the default by the counterparty? List out the ways to manage this type of risk. (PYP 4 Marks Dec '21)

Answer 16

This risk occurs due to non-honoring of obligations by the counter party which can be failure to deliver the goods for the payment already made or vice-versa or repayment of borrowings and interest etc. Thus, this risk also covers the credit risk i.e., default by the counter party.

The various techniques to manage this type of risk are as follows:

- (1) Carrying out Due Diligence before dealing with any third party.
- (2) Do not over commit to a single entity or group or connected entities.
- (3) Know your exposure limits.
- (4) Review the limits and procedure for credit approval regularly.
- (5) Rapid action in the event of any likelihood of defaults.
- (6) Use of performance guarantee, insurance or other instruments.

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

Overall students have performed at an above average level but in some cases, students were not able to identify type of risk asked in the question, so could not explain correct techniques.

Question 17

Briefly explain:

(a) Compliance risk and

(b) Operational risk

(PYP 4 Marks May '22)

Answer 17

- (a) Compliance Risk: Every business needs to comply with rules and regulations. For example, with the advent of Companies Act, 2013, and continuous updating of SEBI guidelines, each business organization has to comply with plethora of rules, regulations and guidelines. Noncompliance leads to penalties in the form of fine and imprisonment. However, when a company ventures into a new business line or a new geographical area, the real problem then occurs. For example, a company pursuing cement business likely to venture into sugar business in a different state but laws applicable to the sugar mills in that state are different. So, that poses a compliance risk. If the company fails to comply with laws related to a new area or industry or sector, it will pose a serious threat to its survival.



(b) Operational Risk: This type of risk relates to internal risk. It also relates to failure on the part of the company to cope with day-to-day operational problems. Operational risk relates to ‘people’ as well as ‘process’. We will take an example to illustrate this.

For example, an employee paying out ₹1,00,000 from the account of the company instead of ₹10,000. This is a people as well as a process risk. An organization can employ another person to check the work of that person who has mistakenly paid ₹1,00,000 or it can install an electronic system that can flag off an unusual amount.

Question 18

Neel holds Rs. 1 crore shares of XY Ltd. whose market price standard deviation is 2% per day. Assuming 252 trading days in a year, determine maximum loss level over the period of 1 trading day and 10 trading days with 99% confidence level. Assuming share prices are normally for level of 99%, the equivalent Z score from Normal table of Cumulative Area shall be 2.33.(PYP 4 Marks May ‘18)

Answer 18

Assuming share prices are normally distributed, for level of 99%, the equivalent Z score from Normal table of Cumulative Area is 2.33.

Volatility in terms of rupees is: 2% of Rs. 1 Crore = Rs. 2 lakhs

The maximum loss for 1 day at 99% Confidence Level is

Rs. 2 lakh x 2.33 = Rs. 4.66 lakh, and expected maximum loss for 10 trading days shall be:

$\sqrt{10} \times \text{Rs. 4.66 lakh} = 14.73 \text{ lakhs or } 14.74 \text{ lakhs}$

EXAMINERS’ COMMENTS ON THE PERFORMANCE OF EXAMINEES:

Overall performance was above average. However, some examinees could not properly apply the required formula.

Question 19

Following is the information about Mr. J's portfolio:

Investment in shares of ABC Ltd.	Rs. 200 lakhs
Investment in shares of XYZ Ltd.	Rs. 200 lakhs
Daily standard deviation of both shares	1%
Co-efficient of correlation between both shares	0.3

Required:

Determine the 10 days 99% Value at Risk (VAR) for Mr. J's portfolio. Given: The Z score from the Normal Table at 99% confidence level is 2.33. (Show your calculations up to four decimal points). (PYP 4 Marks Nov ‘19)

Answer 19

Volatility (standard deviation) of the daily change in the investment in each share in terms of rupees-

1% of Rs. 200 lakhs = Rs. 2 lakhs

The variance of the portfolio’s daily change – $V = 2^2 + 2^2 + 2 \times 0.3 \times 2 \times 2 = 10.4 \text{ lakh}$

Standard Deviation of the portfolio’s daily change = $\sqrt{10.4} = \text{Rs. 3.2249 Lakhs}$

The standard deviation of the 10-day change

= $\text{Rs. 3.2249 lakhs} \times \sqrt{10} = \text{Rs. 10.1981 lakhs}$

Therefore, the 10-days 99% VAR = 2.33 × Rs. 10.1981 lakhs

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

Despite the fact the question was from ICAI Study Material, overall, below average performance has been observed in this question as calculation of Standard Deviation and 10-day VAR calculation was not done up to the required decimal place mentioned in the question itself. Even at some places, the examinees have even shown lack of awareness of the concept of VAR. Further, most of the examinees were unable to calculate the variance of the portfolio's daily change.

Question 20

Mr. Bull is a rational risk taker. He takes his position in a single stock for 4 days in a week. He does not take a position on Friday to avoid weekend effect and takes position only for four days in a week i.e. Monday to Thursday. He transfers the amount on Monday morning and withdraws the balance on Friday morning. He desires to make a maximum investment where Value At Risk (VAR) should not exceed the balance lying in his bank account. The position by his manager, as per standing instructions, is taken on the free balance lying in the bank account in the morning on each Monday.

On Monday morning (before opening of the capital market) he has transferred an amount of ₹11 Crore to his bank account. A fixed deposit also matured on this Monday. The maturity amount of ₹63,42,560 was also credited to his account by the bank in the morning of the Monday. However, Mr. Bull received the intimation of the same in the evening. The bank needs a minimum balance of ₹1,000 all the time. The value of Z score, at the required confidence level of 99 percent is 2.33.

The other information with respect to stocks X and Y, which are under consideration for this week, is as under:

X		Y	
Return	Probability	Return	Probability
6	0.10	4	0.10
7	0.25	6	0.20
8	0.30	8	0.40
9	0.25	10	0.20
10	0.10	12	0.10

You are required to recommend a single stock, where maximum investment can be made. (PYP 8 Marks May '23)

Answer 20

Working Notes:

(1) Security X

Return (1)	Prob. (2)	(1) x (2)	Dev.	Dev. ²	Dev. ² x Prob.
6	0.10	0.60	-2	4	0.40
7	0.25	1.75	1	1	0.25
8	0.30	2.40	0	0	0
9	0.25	2.25	1	1	0.25
10	0.10	1.00	2	4	0.40
		8.00			1.30

Expected Return (Rx) = 8.00%

Variance (σ_x^2) = 1.30

Standard Deviation (σ_x) = $\sqrt{1.30} = 1.14$



(2) Security Y

Return (1)	Prob. (2)	(1) x (2)	Dev.	Dev. ²	Dev. ² x Prob.
4	0.10	0.40	-4	16	1.60
6	0.20	1.20	-2	4	0.80
8	0.40	3.20	0	0	0
10	0.20	2.00	2	4	0.80
12	0.10	1.20	4	16	1.60
		8.00			4.80

Expected Return (RY) = 8.00%

Variance (σ^2x) = 4.80

Standard Deviation (σ_y) = $\sqrt{4.80} = 2.19$

	No. of days	X	Y
Amount Transferred		₹110000000	₹110000000
Maturity Proceeds of Fixed Deposit		₹6342560	₹6342560
Amount available in bank account		₹116342560	₹116342560
Minimum balance to be kept		₹1000	₹1000
Available amount which can be used for potential investment for 4 days		₹116341560	₹116341560
Maximum loss for 4 days at 99% level	4	₹116341560	₹116341560
Maximum loss for 1 day at 99% level =			
Maximum loss for 4 days/ $\sqrt{\text{No. of days}}$	1	₹58170780	₹58170780
= 116341560/ $\sqrt{4}$			
Z Score at 99% level		2.33	2.33
Volatility in terms of ` (Maximum Loss/Z Score at 99% Level)		₹24966000	₹24966000
Standard Deviation		0.0114	0.0219
Maximum Investment (Volatility in terms of ₹/SD)		₹2190000000	`1140000000

Recommendation: Position should be taken in X.



Chapter 3

Advanced Capital Budgeting Decisions

Question 1

DISCUSS Various Sources of Risk. (MTP 4 Marks, March'18)

Answer 1

Various Sources of Risk are:

Risk arises from different sources, depending on the type of investment being considered, as well as the circumstances and the industry in which the organization is operating. Some of the sources of risk are as follows

1. Project-specific Risk-Risks which are related to a particular project and affects the project's cash flows, it includes completion of the project in scheduled time, error of estimation in resources and allocation, estimation of cash flows etc. For example, a nuclear power project of a power generation company has different risks than hydel projects.
2. Company specific risk- Risk which arise due to company specific factors like downgrading of credit rating, changes in key managerial persons, cases for violation of Intellectual Property Rights (IPR) and other laws and regulations, dispute with workers etc. All these factors affect the cash flows of an entity and access to funds for capital investments. For example, two banks have different exposure to default risk.
3. Industry-specific risk- These are the risks which effects the whole industry in which the company operates. The risks include regulatory restrictions on industry, changes in technologies etc. For example, regulatory restriction imposed on leather and breweries industries.
4. Market risk – The risk which arise due to market related conditions like entry of substitute, changes in demand conditions, availability and access to resources etc. For example, a thermal power project gets affected if the coal mines are unable to supply coal requirements of a thermal power company etc.
5. Competition risk- These are risks related with competition in the market in which a company operates. These risks are risk of rival, product dynamism and change in taste and preference of consumers etc.
6. Risk due to Economic conditions – These are the risks which are related with macro- economic conditions like changes monetary policies by central banks, changes in fiscal policies like introduction of new taxes and chess, inflation, changes in GDP, changes in savings and net disposable income etc.
7. International risk – These are risks which are related with conditions which are caused by global economic conditions like restriction oln free trade, restrictions on market access, recessions, bilateral agreements, political and geographical conditions etc. For example, restriction on outsourcing of jobs to overseas market.

Question 2

STATE the disadvantages of the Certainty Equivalent Method. EXPLAIN its differences with Risk Adjusted discount rate. (MTP 4 Marks, Oct'18)

Answer 2

Disadvantages of Certainty Equivalent Method

1. There is no Statistical or Mathematical model available to estimate certainty Equivalent. Assumption of risk being subjective, it varies on the perception of the risk by the management because of bias and individual opinions involved.
2. There is no objective or mathematical method to estimate certainty equivalents. Certainty Equivalent are subjective and vary as per each individual's estimate.
3. Certainty equivalents are decided by the management based on their perception of risk. However, the risk perception of the shareholders who are the money lenders for the project is ignored. Hence it is not used often in corporate decision making.

Risk-adjusted Discount Rate Vs. Certainty-Equivalent

Certainty Equivalent Method is superior to Risk Adjusted Discount Rate Method as it does not assume that risk increases with time at constant rate. Each year's Certainty Equivalent Coefficient is based on level of risk impacting its cash flow. Despite its soundness, it is not preferable like Risk Adjusted Discount Rate Method. It

is difficult to specify a series of Certainty Equivalent Coefficients but simple to adjust discount rates.

Question 3

Invest Corporation Ltd. adjusts risk through discount rates by adding various risk premiums to the risk free rate. Depending on the resultant rate, the proposed project is judged to be a low, medium or high risk project.

Risk level	Risk free rate (%)	Risk Premium (%)
Low	8	4
Medium	8	7
High	8	10

DEMONSTRATE the acceptability of the project on the basis of Risk Adjusted rate. (MTP 4 Marks April '19)

Answer 3

Calculation of Risk Adjusted rate

Risk level	Risk free rate (%)	Risk Premium (%)	Risk adjusted rate (%)
Low	8	4	12
Medium	8	7	15
High	8	10	18

The cash flows of the project considered are as following:

Point in time (yearly intervals)	0	1	2
Cash flow (Rs. in crore)	(100)	45	80

If the project is judged to be Low risk

Years	0	1	2
PV (Rs. in crore)	(100)	$\frac{45}{1+0.12} = 40.18$	$\frac{80}{1+0.12^2} = 40.18$

NPV = 40.18 + 63.78 – 100 = 3.96: Accept

If the project is judged to be medium risk

Years	0	1	2
PV (Rs. in crore)	(100)	$\frac{45}{1+0.15} = 39.13$	$\frac{80}{1+0.15^2} = 60.49$

NPV = 39.13 + 60.49 – 100 = (0.38): Reject

If the project is judged to be High risk

Years	0	1	2
PV (Rs. in crore)	(100)	$\frac{45}{1+0.18} = 38.14$	$\frac{80}{1+0.18^2} = 57.45$

NPV = 38.14 + 57.45 – 100 = (4.41): Reject

Question 4

Probabilities for net cash flows for 3 years of a project of Ganesh Ltd are as follows:

Year 1		Year 2		Year 3	
Cash Flow (Rs.)	Probability	Cash Flow (Rs.)	Probability	Cash Flow (Rs.)	Probability
2,000	0.1	2,000	0.2	2,000	0.3
4,000	0.2	4,000	0.3	4,000	0.4
6,000	0.3	6,000	0.4	6,000	0.2
8,000	0.4	8,000	0.1	8,000	0.1

CALCULATE the expected net cash flows and the present value of the expected cash flow, using 10 per cent discount rate. Initial Investment is Rs. 10,000 (MTP 5 Marks, April '19)

Answer 4

Year 1			Year 2			Year 3		
Cash Flow (Rs.)	Probability	Expected Value (Rs.)	Cash Flow (Rs.)	Probability	Expected Value (Rs.)	Cash Flow (Rs.)	Probability	Expected Value (Rs.)
2,000	0.1	200	2,000	0.2	400	2,000	0.3	600
4,000	0.2	800	4,000	0.3	1200	4,000	0.4	1,600
6,000	0.3	1,800	6,000	0.4	2400	6,000	0.2	1,200
8,000	0.4	3,200	8,000	0.1	800	8,000	0.1	800
ENCF		6,000			4,800			4,200

The present value of the expected value of cash flow at 10 per cent discount rate has been determined as follows

Present Value of cash flow

$$= \frac{ENC_1}{(1+k)^1} + \frac{ENC_2}{(1+k)^2} + \frac{ENC_3}{(1+k)^3}$$

$$= \frac{6000}{(1.1)^1} + \frac{4800}{(1.1)^2} + \frac{4200}{(1.1)^3}$$

$$= (6,000 \times 0.909) + (4,800 \times 0.826) + (4,200 \times 0.751)$$

$$= 12,573$$

Expected Net Present value = Present Value of cash flow - Initial Investment

$$= \text{Rs. } 12,573 - \text{Rs. } 10,000 = \text{Rs. } 2,573.$$

Question 5

CALCULATE Variance and Standard Deviation on the basis of following information:

Possible Event	Project A		Project B	
	Cash Flow (Rs.)	Probability	Cash Flow (Rs.)	Probability
A	80,000	0.10	2,40,000	0.10
B	1,00,000	0.20	2,00,000	0.15
C	1,20,000	0.40	1,60,000	0.50
D	1,40,000	0.20	1,20,000	0.15
E	1,60,000	0.10	80,000	0.10

(MTP 8 Marks, Oct'19)(Same concept different figures Old & New SM)

Answer 5
Calculation of Expected Value for Project A and Project B

Project A				Project B		
Possible Event	Net Cash Flow (Rs.)	Probability	Expected Value (Rs.)	Cash Flow (Rs.)	Probability	Expected Value (Rs.)
A	80,000	0.10	8,000	2,40,000	0.10	24,000
B	1,00,000	0.20	20,000	2,00,000	0.15	30,000
C	1,20,000	0.40	48,000	1,60,000	0.50	80,000
D	1,40,000	0.20	28,000	1,20,000	0.15	18,000
E	1,60,000	0.10	16,000	80,000	0.10	8,000
ENCF			1,20,000			1,60,000

Project A

$$\begin{aligned} \text{Variance } (\sigma^2) &= (80,000 - 1,20,000)^2 \times (0.1) + (1,00,000 - 1,20,000)^2 \times (0.2) + (1,20,000 - 1,20,000)^2 \times (0.4) \\ &+ (1,40,000 - 1,20,000)^2 \times (0.2) + (1,60,000 - 1,20,000)^2 \times (0.1) \\ &= 16,00,00,000 + 8,00,00,000 + 0 + 8,00,00,000 + 16,00,00,000 \\ &= 48,00,00,000 \end{aligned}$$

$$\text{Standard Deviation } (\sigma) = 21,908.90 \sqrt{\text{Variance}(\sigma^2)} = \sqrt{48,00,00,000}$$

Project B

$$\begin{aligned} \text{Variance}(\sigma^2) &= (2,40,000 - 1,60,000)^2 \times (0.1) + (2,00,000 - 1,60,000)^2 \times (0.15) + (1,60,000 - 1,60,000)^2 \times (0.5) \\ &+ (1,20,000 - 1,60,000)^2 \times (0.15) + (80,000 - 1,60,000)^2 \times (0.1) \\ &= 64,00,00,000 + 24,00,00,000 + 0 + 24,00,00,000 + 64,00,00,000 \\ &= 1,76,00,00,000 \end{aligned}$$

$$\text{Standard Deviation } (\sigma) = \sqrt{1,76,00,00,000} = 41,952.35$$

Question 6

A&R Ltd. has undertaken a project which has an initial investment of Rs. 2,000 lakhs in plant & machinery and Rs.800 lakhs for working capital. The plant & machinery would have a salvage value of Rs. 474.61 lakhs at the end of the fifth year. The plant & machinery would depreciate at the rate of 25% p.a. on WDV method. The other details of the project for the five-year period are as follows:

Sales	10,00,000 units p.a.
Selling price per unit	Rs.500
Variable cost	50% of selling price
Fixed overheads (excluding depreciation)	Rs.300 lakh p.a.
Corporate tax rate	35%
Rate of interest on bank loan	12%
After tax required rate of return	15%

Required:

CACULATE net present value (NPV) of the project and DETERMINE the viability of the project.

- (i) DETERMINE the sensitivity of project's NPV under each of the following condition:
- Decrease in selling price by 10%;
 - Increase in cost of plant & machinery by 10%.

PV factor	Year-1	Year-2	Year-3	Year-4	Year-5
12%	0.892	0.797	0.711	0.635	0.567
15%	0.869	0.756	0.657	0.571	0.497

(MTP 10 Marks, May'20) (Same concept different figures MTP 10 Marks Oct '23)

Answer 6
Calculation of Net Present Value (NPV):

	Year-1	Year-2	Year-3	Year-4	Year-5
Sales volume (Qty. in lakh)	10	10	10	10	10
Contribution per unit (Rs.) (Selling price – variable cost)	250	250	250	250	250
Total contribution (Rs.in lakh)	2,500	2,500	2,500	2,500	2,500
Less: Fixed overheads (Rs. In lakh)	300	300	300	300	300
PBDT	2,200	2,200	2,200	2,200	2,200
Less: Depreciation (Rs. in lakh) (Working note-1)	500	375	281.25	210.94	158.20
PBT	1,700	1,825	1,918.75	1,989.06	2,041.80
Less: Tax @ 35%	595	638.75	671.56	696.17	714.63
PAT	1,105	1,186.25	1,247.19	1,292.89	1,327.17
Add: Depreciation	500	375	281.25	210.94	158.20
Add: Salvage value of plant & machinery	-	-	-	-	474.61
Add: Working capital	-	-	-	-	800
Net Cash inflow	1,605	1,561.25	1,528.44	1,503.83	2,759.98
P.V factor @15%	0.869	0.756	0.657	0.571	0.497
P.V of cash inflows	1,394.74	1,180.31	1,004.18	858.68	1,371.71

Net Present Value = P.V of cash inflows – P.V of cash outflows

= Rs. (1,394.74+1,180.31+1,004.18+858.68+1,371.71) – (Rs. 2,000 + Rs. 800)

= Rs. 3,009.62 lakh

The NPV of the project is positive, hence, the project is viable.

Working note-1:

	Year-1	Year-2	Year-3	Year-4	Year-5
Opening balance	2,000	1,500	1,125	843.75	632.81
Depreciation @25%	500	375	281.25	210.94	158.20
Closing WDV	1,500	1,125	843.75	632.81	474.61

(ii) Determination of sensitivity of NPV w.r.t.
a. Decrease in selling price by 10%

	Year-1	Year-2	Year-3	Year-4	Year-5
Sales volume (Qty. in lakh)	10	10	10	10	10
New Selling price	450	450	450	450	450
Variable cost	250	250	250	250	250
Contribution per unit (Rs.) (Selling price – variable cost)	200	200	200	200	200
Total contribution (Rs.in lakh)	2,000	2,000	2,000	2,000	2,000
Less: Fixed overheads (Rs. In lakh)	300	300	300	300	300

PBDT	1,700	1,700	1,700	1,700	1,700
Less: Depreciation (Rs. in lakh) (Working note-1)	500	375	281.25	210.94	158.20
PBT	1,200	1,325	1,418.75	1,489.06	1,541.80
Less: Tax @ 35%	420	463.75	496.56	521.17	539.63
PAT	780	861.25	922.19	967.89	1,002.17
Add: Depreciation	500	375	281.25	210.94	158.20
Add: Salvage value of plant & machinery	-	-	-	-	474.61
Add: Working capital	-	-	-	-	800
Net Cash inflow	1,280	1,236.25	1,203.44	1,178.83	2,434.98
P.V factor @15%	0.869	0.756	0.657	0.571	0.497
P.V of cash inflows	1,112.32	934.61	790.66	673.11	1,210.18

NPV = Rs. (1,112.32+934.61+790.66+673.11+1,210.18) – (Rs. 2,000 + Rs. 800)

= Rs. 4,720.88 – Rs. 2,800 = 1,920.88 lakh

10% reduction in selling price reduces the NPV by 36.18% (3,009.62-1,920.88/3,009.62)

b. Increase in project cost by 10%

	Year-1	Year-2	Year-3	Year-4	Year-5
PBDT	2,200	2,200	2,200	2,200	2,200
Less: Depreciation (Rs. in lakh) (Working note-2)	550	412.5	309.37	232.03	174.03
PBT	1,650	1,787.50	1,890.63	1,967.97	2,025.97
Less: Tax @ 35%	577.50	625.63	661.72	688.79	709.09
PAT	1072.50	1,161.87	1,228.91	1,279.18	1,316.88
Add: Depreciation	550	412.5	309.37	232.03	174.03
Add: Salvage value of plant & machinery	-	-	-	-	474.61
Add: Working capital	-	-	-	-	800
Net Cash inflow	1,622.50	1,574.37	1,538.28	1,511.21	2,765.52
P.V factor @15%	0.869	0.756	0.657	0.571	0.497
P.V of cash inflows	1,409.95	1,190.22	1,010.65	862.90	1,374.46

NPV = Rs. (1,409.95+1,190.22+1,010.65+862.90+1,374.46) – (Rs. 2,200 + Rs. 800)

= Rs. 5,848.18 – Rs. 3,000 = 2,848.18 lakh

10% increase in project cost reduces the NPV only by 5.36% (3,009.62 - 2,848.18/3,009.62)

Working note-2:

	Year-1	Year-2	Year-3	Year-4	Year-5
Opening balance	2,200	1,650	1,237.50	928.13	696.10
Depreciation @25%	550	412.5	309.37	232.03	174.03
Closing WDV	1,650	1,237.50	928.13	696.10	522.07