ADFIMI Seminar on Credit Modelling & Validation

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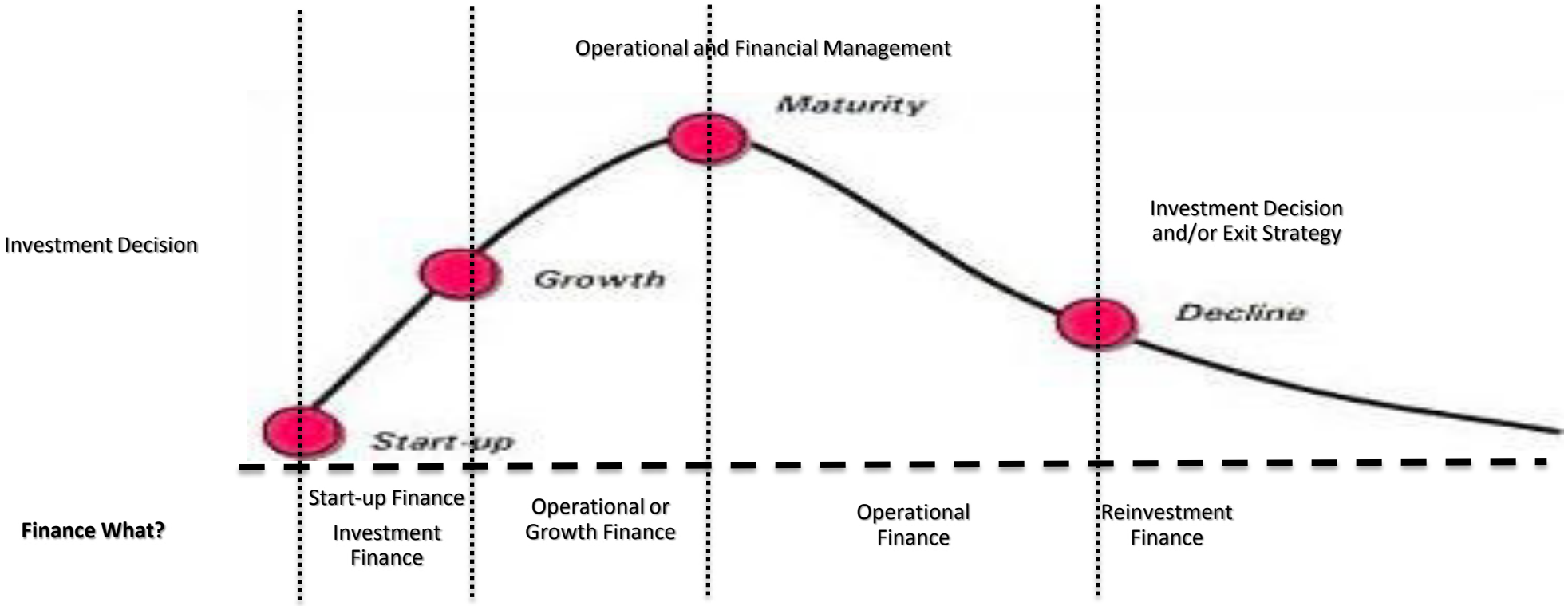
Structure and Approach to Seminar

- ✓ Interactivity
- ✓ Sharing
- ✓ Group working

General Approach to Company Lending

Business Life Cycle and Financing



Finance What?

Banker's Perspective
Evaulate What?

- Investment Cost
- Financial Requirements
- Financial Viability
- Debt Capacity

- Working Capital Requirement
- Financial Performance
- Growth strategy
- Projections
- Debt Capacity

- Working Capital Requirement
- Financial Performance
- Projections
- Debt Capacity

- Investment Cost
- Financial Requirements
- Financial Viability
- Debt Capacity

Loan Transactions

Extending Loans

Credit Risk

Risk is inherent in all loan transactions. It is not good business practice to reject all risks.

Analyzing what constitutes an acceptable degree / amount of risks involves finding answers to the following questions?

- Is the risk acceptable?
- If the risk is satisfactory, to what extent should loan be extended?
- Under what conditions or upon what terms shall be loan be extended?

Credit Risk

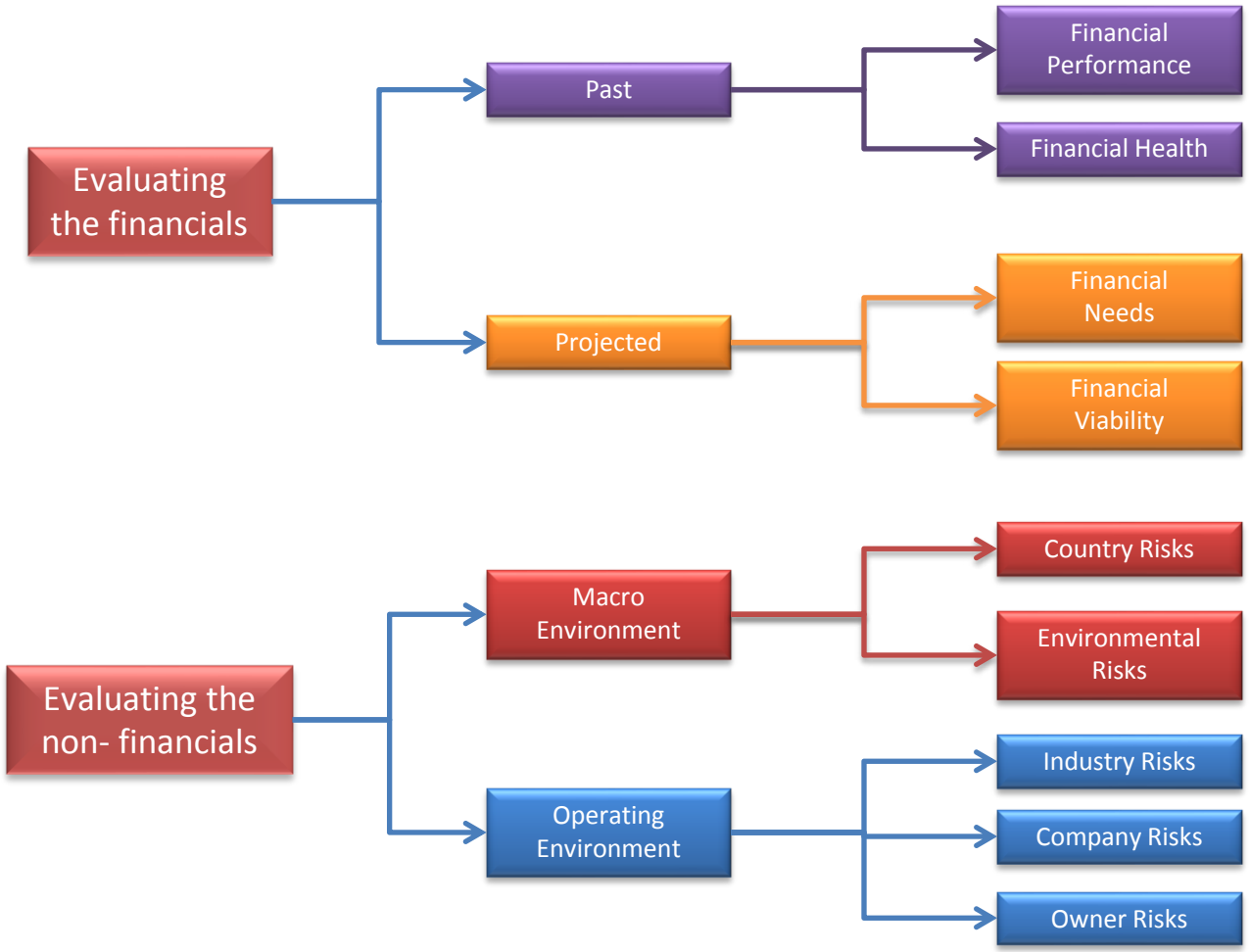
Non-payment

Late Payment

Unable to pay — Can the borrower pay?

Unwilling to pay — Will the borrower pay?

Credit Risk



- Analysis of Financial Statements
- Trends
- Success/failure
- Performance

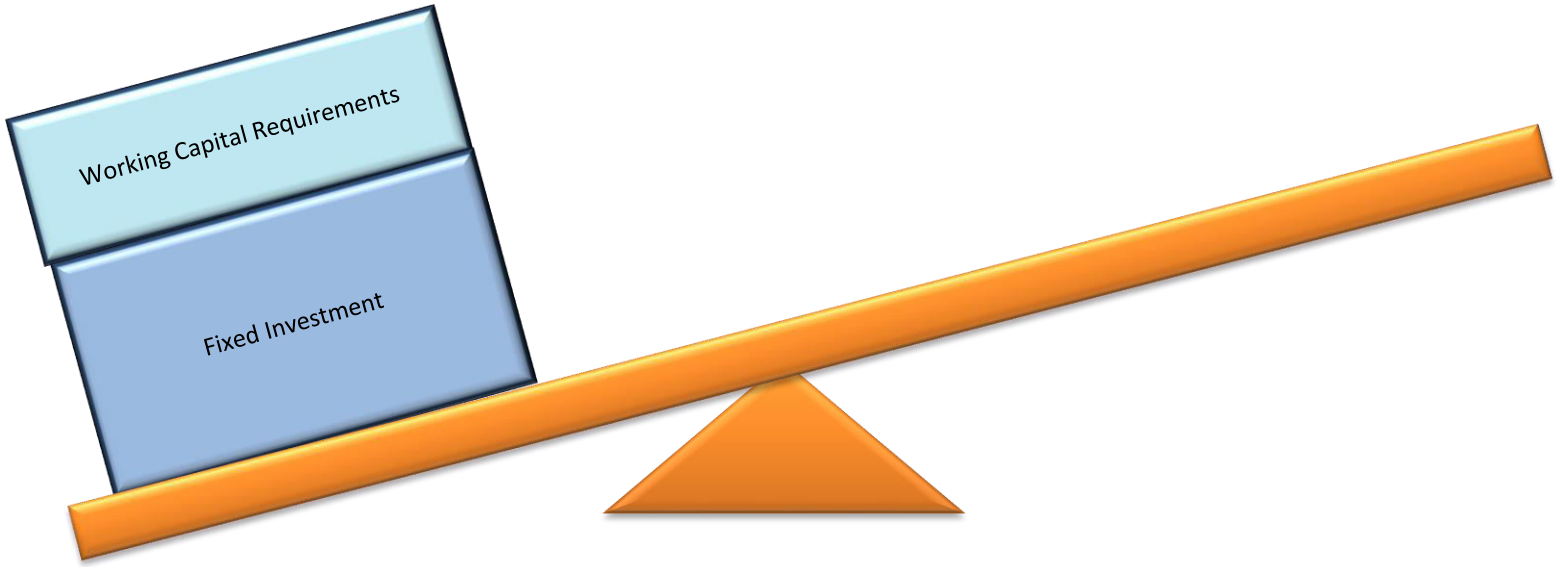
- Determining financial needs
- Financial projections/viability analysis
- Sensitivity analysis

- Determining external / general economic trends and
- Environmental Risks

- Determining sectoral and company risks
- Owners/Investors honesty, trade references, experiences
- Management and technical capability

Debt Capacity

Simple Balance of Finance



Debt Capacity

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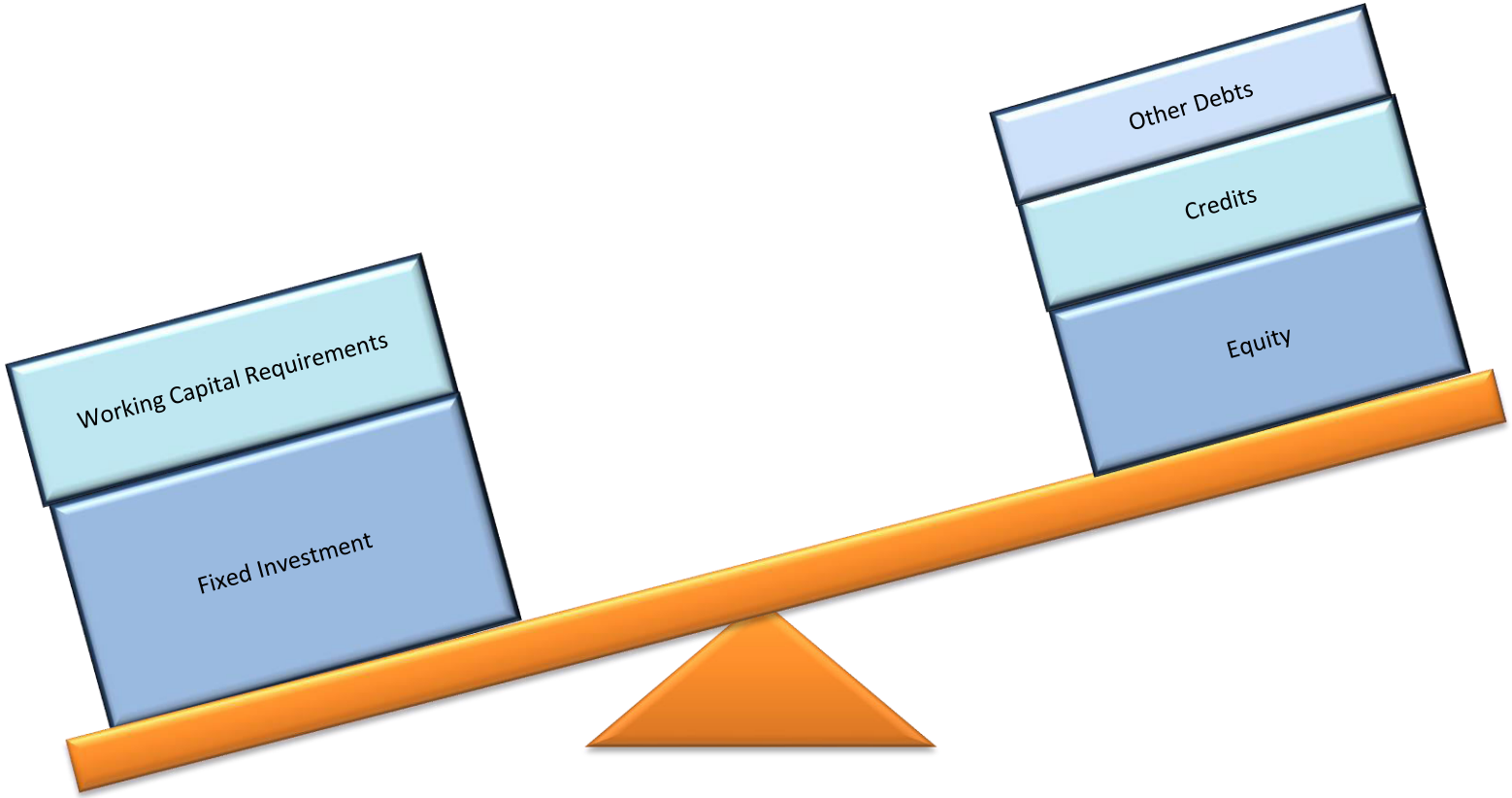
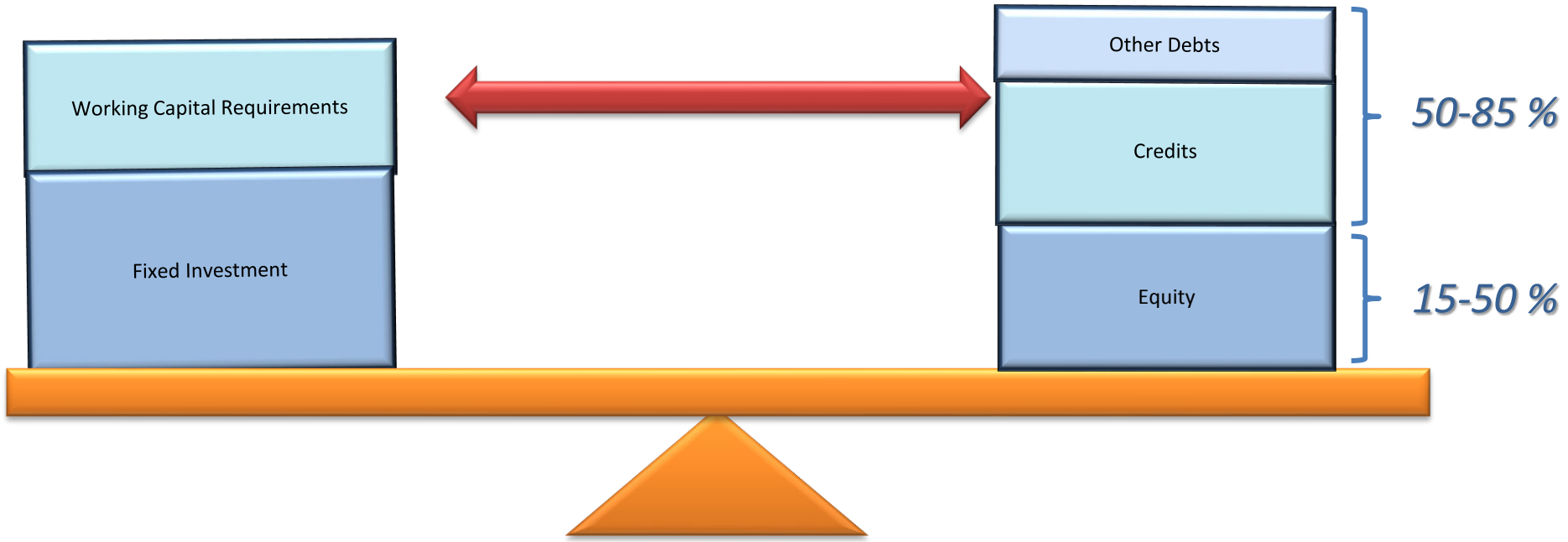


Debt Capacity

Simple Balance of Finance



Debt Capacity

Characteristics of Debt

- Commitment to make fixed payments of various combination of principle payments and interest payments in the future
- Interest payments are tax deductible
- Failure to make the payments can lead to either default or loss of control of the firm to the party to whom payments are overdue.

Debt Capacity

What is Debt Capacity?

- Appropriate debt limit

- Optimal debt level at;
  - which earnings per share is maximum
  - which average cost of sources minimum

- Ability to borrow

Debt Capacity

Optimal Debt Level/theory-approaches

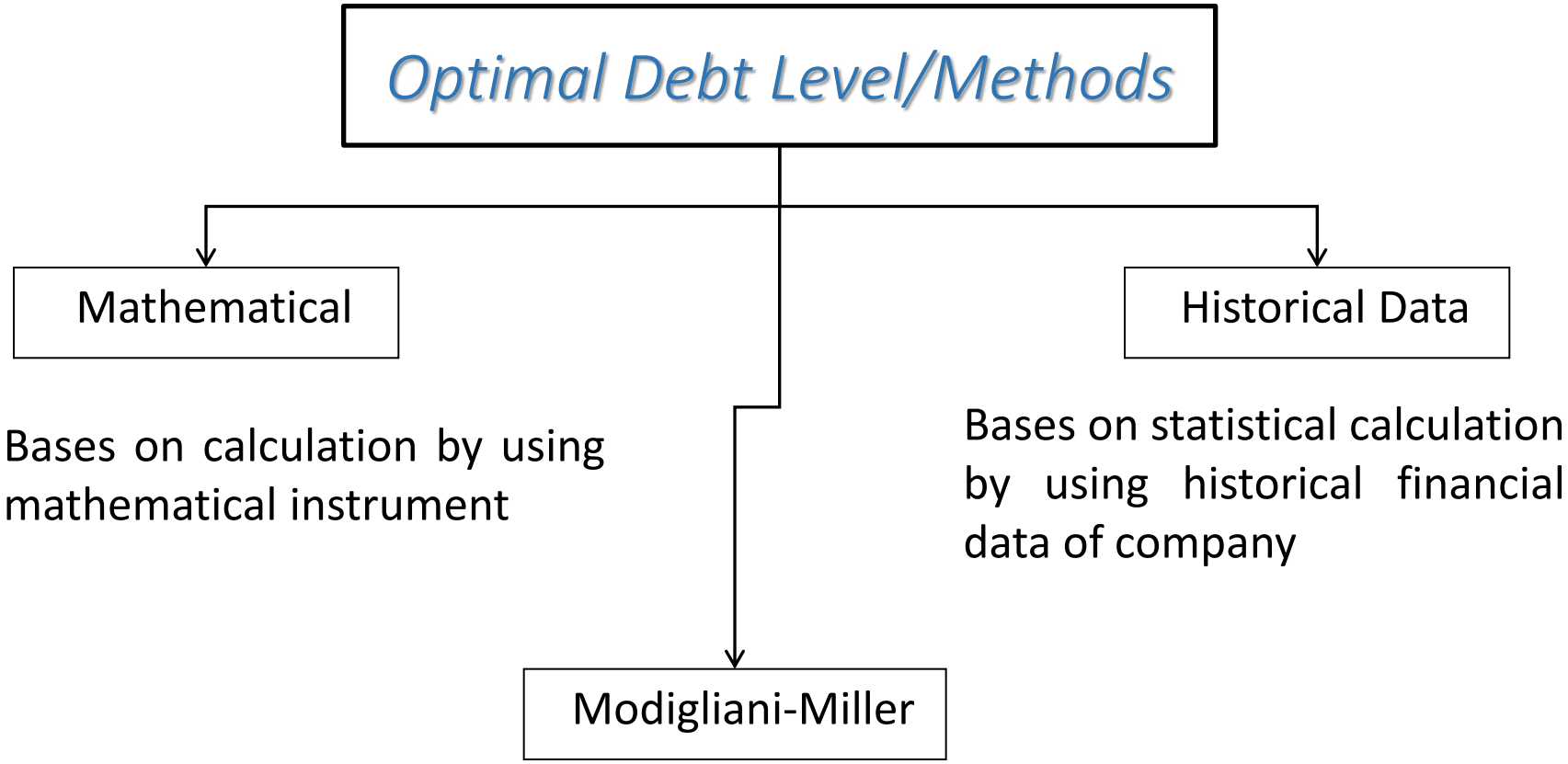
- The Cost of Capital Approach: The optimal debt ratio is the one that minimizes the cost of capital for a firm.
- The Adjusted Present Value Approach: The optimal debt ratio is the one that maximizes the overall value of the firm.
- The Sector Approach: The optimal debt ratio is the one that brings the firm closes to its peer group in terms of financing mix.
- The Life Cycle Approach: The optimal debt ratio is the one that best suits where the firm is in its life cycle.

Debt Capacity

Assumptions for Optimal Debt Level

- There are no taxes
- Managers have stockholders interest at hear and do what's best for stockholders.
- No firm ever goes bankrupt
- Equity investors are honest with lenders; there is no subterfuge or attempt to find loopholes in loan agreements
- Firms know their future financing needs with certainty

Debt Capacity



Debt Capacity

Appropriate debt level → Amount of debt that can be repaid

↓

Repayable debt level is smaller but nearest to optimum level

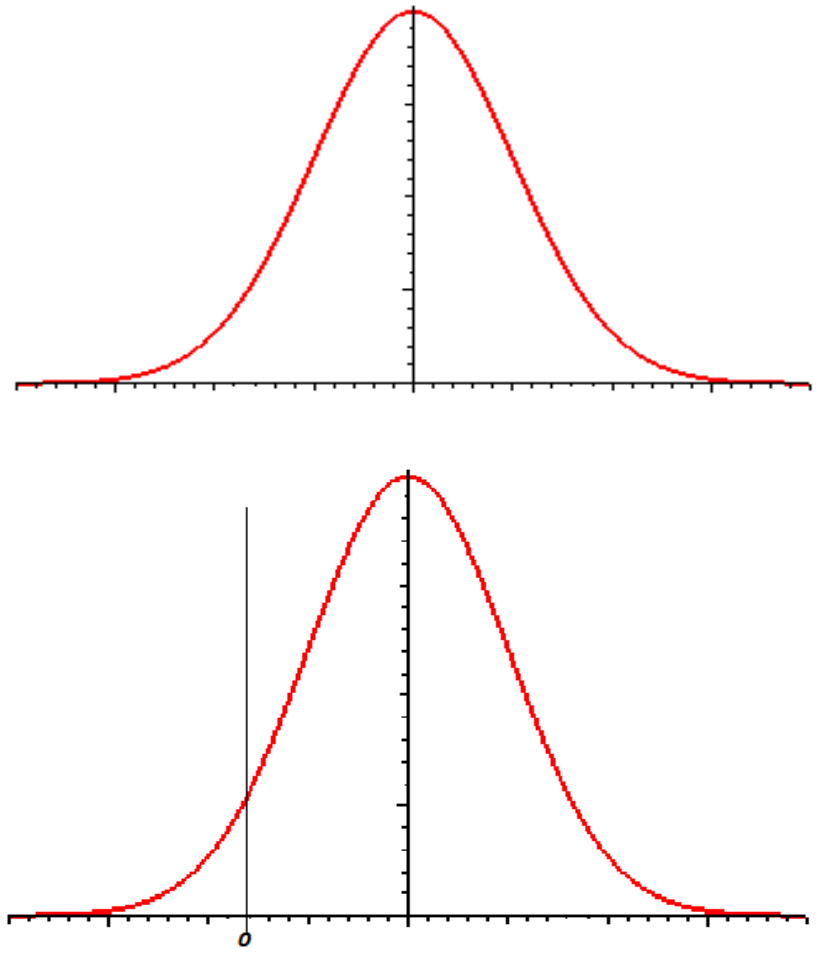
Debt Capacity

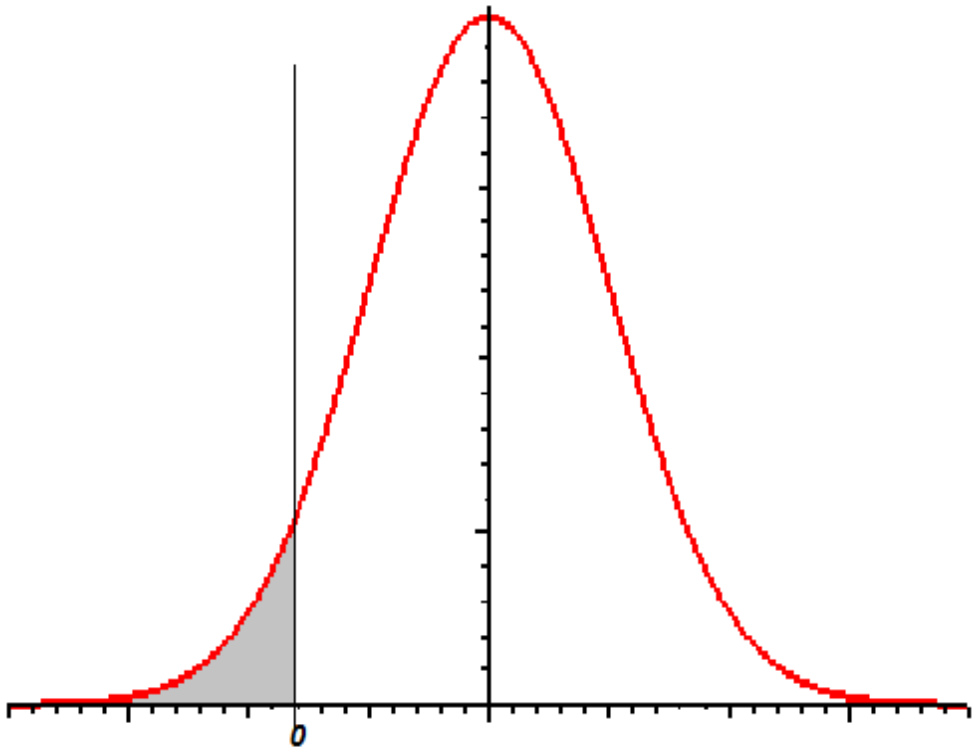
Total Financial Requirements	350
Loan Amount	200
Equity	150

Total Value of Collaterals	100

Possible Loan Amount	100
Equity	150
Possible Investment	250

Debt Capacity





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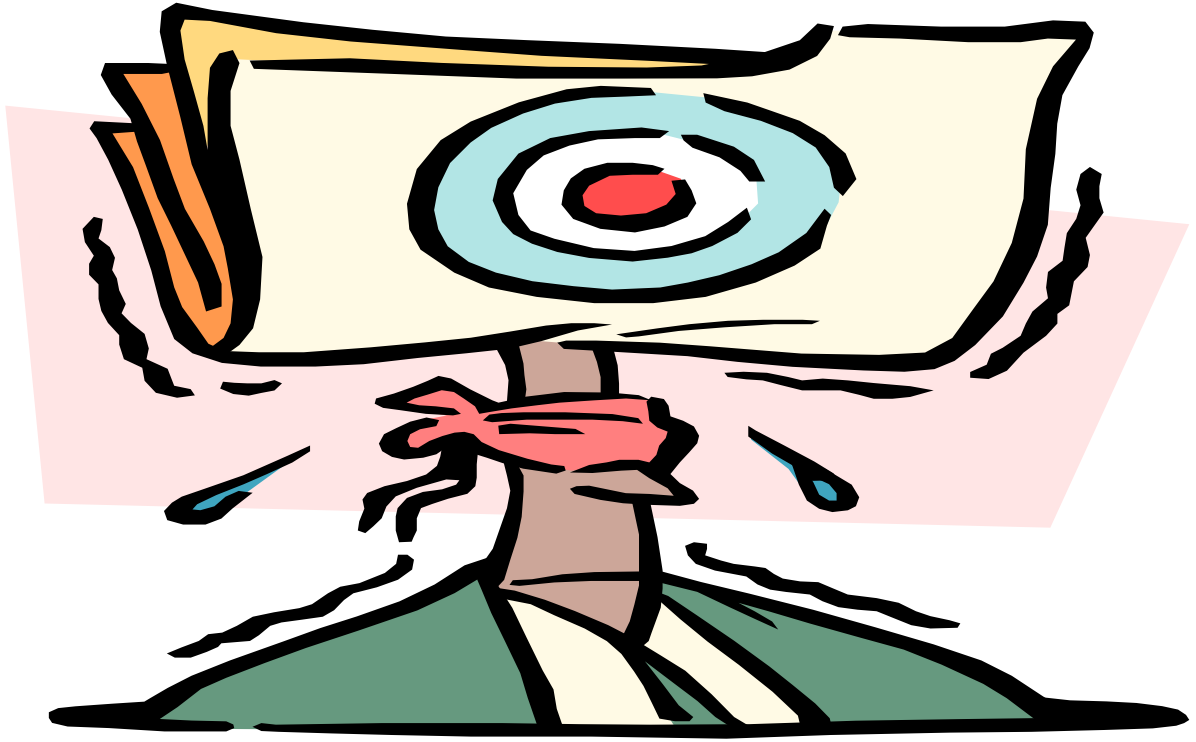
END OF SESSION I

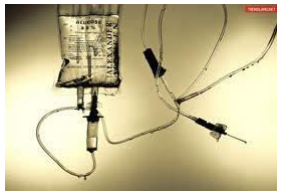
Comments ???

Questions ???



Description of Product(s) (*)




- The identification/definition of the product to be produced
- Application areas of the product (areas of usage)
- The detailed characteristics of the product (physical, chemical properties, related national and international quality standards, level of quality, appearance, composition, dimensions, tolerances etc.)
- Competing / substitute and complementary goods

(*) This session notes are prepared with the contribution of Mr. İbrahim Sevin, Director od Technology Monitoring and Research Departmant

Description of Product(s)

The definition of the sector and the product according to the different international classification (NACE, ISIC, STIC etc)

- To analyze the "right" sector
- To determine the substitute and/or complementary sectors
- To determine the demand analysis (derivative demand, intermediary demand, final demand etc)
- To determine the "final shape" of the product (packaging, assembling, distributing channels etc)

As an example let's think about $CaCO_3$ production; The definition of it in wikipedia is given below :

Calcium carbonate is a chemical compound with the formula $CaCO_3$. It is a common substance found in rocks in all parts of the world, and is the main component of shells of marine organisms, snails, coal balls, pearls, and eggshells. Calcium carbonate is the active ingredient in agricultural lime, and is usually the principal cause of hard water. It is commonly used medicinally as a calcium supplement or as an antacid.

Adhesives & Sealants	Construction	Animal & Pet Feeds	Environment	Fertilisers	Food & Household
fillers viscosity control	filler for concrete, grout & asphalt fillers in roofing materials	calcium source digestion aid	natural alkali source fire suppressant	calcium source filler	calcium source mild abrasive

Description of Product(s)

- **Frozen potato is the product obtained by freezing the (in order) washed, peeled, completely or appropriately sliced formed and the fried (boiled before) potatoes.**

- **Frozen potato can be produced in four types: "completely", "finger formed", "prism formed" or "cips formed".**

- **Our product is "finger formed potato" (generally known as French Fries or Pomme Frites). Frozen French Fries widely used in fast food restaurants, hotels, restaurants, food companies and houses after heating.**

Target Market: Domestic
Especially households and restaurants in the big cities where consumption and income level relatively higher.

Description of Product(s)

According to the NACE 2 economicy activity classification, "Frozen Potato" classified as below:

C - Manufacturing
C10 - Manufacture of food products
C10.1 - Processing and preserving of meat and production of meat products
C10.1.1 - Processing and preserving of meat
C10.1.2 - Processing and preserving of poultry meat
C10.1.3 - Production of meat and poultry meat products
C10.2 - Processing and preserving of fish, crustaceans and molluscs
C10.2.0 - Processing and preserving of fish, crustaceans and molluscs
C10.3 - Processing and preserving of fruit and vegetables
C10.3.1 - Processing and preserving of potatoes
C10.3.2 - Manufacture of fruit and vegetable juice
C10.3.9 - Other processing and preserving of fruit and vegetables
C10.4 - Manufacture of vegetable and animal oils and fats

Frozen potato is classified as given below according to the foreign trade classification (STIC Rev. 4).

Standard International Trade Classification, Revision 4

Group	Sub-group	Basic heading	Description	HS07
		056.47	Flour and meal of sago, roots or tubers of headings 054.81 and 054.83	1106.20
		056.48	Flour, meal and powder of the products of any heading of group 057	1106.30
	056.6		Vegetables prepared or preserved otherwise than by vinegar or acetic acid, n.e.s., frozen	
		056.61	Potatoes prepared or preserved otherwise than by vinegar or acetic acid, frozen	2004.10
		056.69	Other vegetables and mixtures of vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen	2004.90
	056.7		Vegetables, prepared or preserved, n.e.s.	
		056.71	Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid	2001.10, .90
		056.72	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid, whole or in pieces.	2002.10
		056.73	Tomatoes, prepared or preserved otherwise than by vinegar or acetic acid, n.e.s.	2002.90

Installed Capacity and Capacity Selection

Capacity is the maximum output rate of a facility for a given time period.

Capacity planning is deciding on the maximum output rate of a facility.

Importance of Capacity Decisions

- Impacts ability to meet future demands
- Affects operating costs
- Major determinant of initial costs
- Involves long-term commitment
- Affects competitiveness
- Affects ease of management

Installed Capacity and Capacity Selection

Capacity Measures and Related Concepts

- Design (Theoritical) capacity : Maximum output rate under ideal conditions.
- Effective capacity: Maximum output rate under normal (realistic) conditions.
- Actual output: Rate of output actually achieved—cannot exceed effective capacity
- Utilization: Actual or expected output as a percent of design capacity (Actual output / Design capacity)
- Efficiency: Actual or expected output as a percent of effective capacity (Actual output / Effective capacity)
- Optimum capacity: The capacity where unit cost (fixed+variable) is minimum. It is amount of production with minimum unit cost and assumed to be equal to effective capacity.
- Minimum capacity: The capacity that incomes cover costs.

Technology & Process - Technology Trends

Technology & Process Selection

Let's think about industrialized potato productions & technologies

Industrial Potato Products

Products For Human Consumption

Alcohol | **Starch** | **Animal Food**

Alcohol	Produced from potato residuary and wastes. Mainly ethanol. Used as petrol additive
Starch	Produced from potato peels, residuary and processing water. Advantages over corn & wheat starch are many but expensive. Approximately 1 kg is produced from 5 kgs potatoes.
Animal Food	Low quality whole potatoes , potato peels and potato wastes are used. But no income achieved, because main purpose is to eliminate those wastes.

Technology & Process Selection

Potato products for human consumption

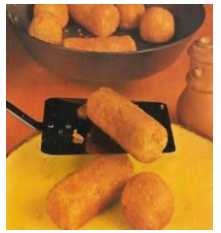
Washing → Peeling → Cutting → Boiling → Cooking → Pressing → Mixing → Drying

Flakes

Washing → Peeling → Cutting → Boiling → Cooking → Pressing → Mixing → Conditioning → Drying

Granules

Washing → Peeling → Cutting → Boiling → Cooking → Conditioning → Mixing → Pressing → Forming → Frying → Cooling → Freezing



Croquettes

Washing → Peeling → Cutting → Boiling → Cooking → Conditioning → Mixing → Pressing → Forming → Drying → Frying → Cooling → Freezing

French Fries

Washing → Peeling → Cutting → Boiling → Cooking → Spices Adding → Frying

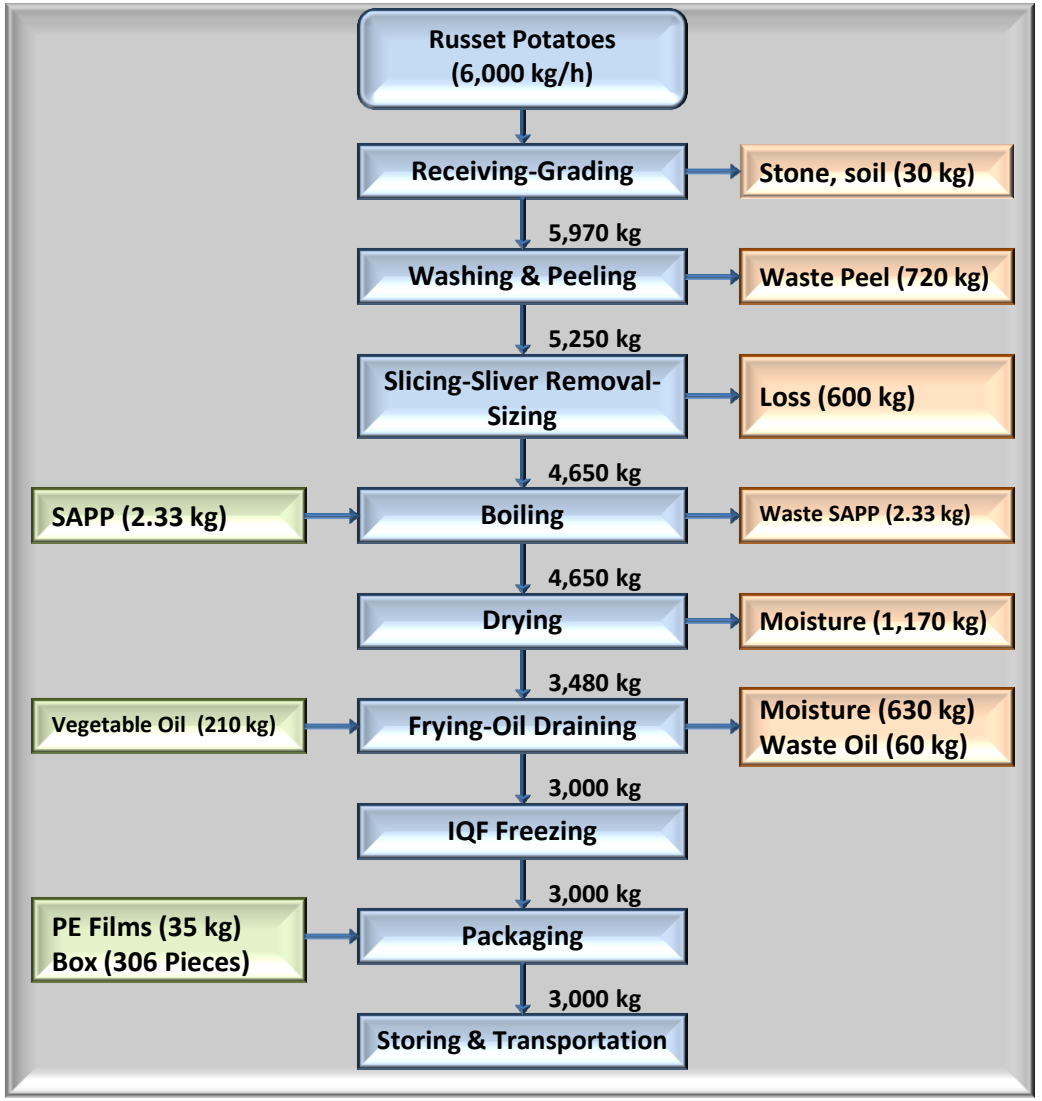
Chips

Technology & Process Selection

Technology & Process – Material Balance

- Russet potatoes with contract farming will be used
- They contain %80 water and %20 dry material and end product will be mc-fries quality with %64 water, %31 dry matter and %5 oil
- Through out july-october they processed frehsly and rest of the year stocked ones will be used
- As seen from material balance sheet to produce 1 kg frozen french fries 2 kgs fresh potato needed. This ratio increases 1 to 2.5 for stored potatoes (storage losses)
- At full capacity the plant will work 2 shifts per day 300 days/year and produce frozen french fries 3 tons/h
- **Need for stored potatoes :**
  $2.5\ tons * 3\ tons *$
  $16\ hrs/day * 300\ days/year\ *\ 8/12 = 24{,}000\ tons/year$
  Need for fresh potatoes :
  $2\ tons * 3\ tons *$
  $16\ hrs/day * 300\ days/year\ *\ 4/12 = 9{,}600\ tons/year$
  Total :
  33,600 $tons/year$ russet potatoes needed

Inputs	Production/hour	Production/year
Russet Potatoes	6.000,00 Kg/h	33.600 Tons/year
Fryer Vegetable Oil	210,00 Kg/h	1.008 Tons/year
Sodium Acid Pyro Phosphate	2,33 Kg/h	11,2 Tons/year
Polietilen Film	35,00 Kg/h	168 Tons/year
Carton Box	306,00 Boxes/h	1.468.800 Boxes/year
Output		
Frozen French Fries	3.000,00 Kg/h	14.400 Tons/year



Implementation & Total Investment Costs

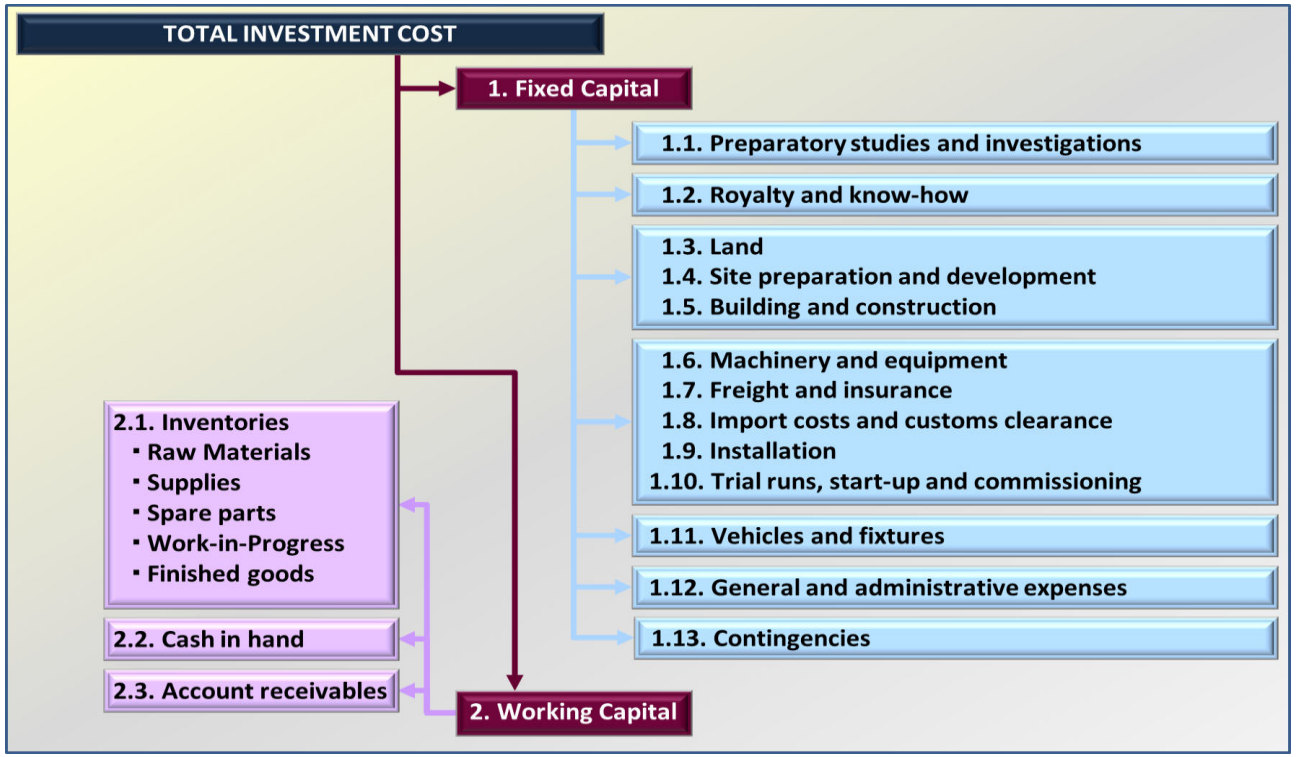
Frozen french fries implementation plan

Fixed Investment Items	1. Year												2.Year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
1. Land Acquisition																								
2. Pre invesment & Support Studies																								
3. Site Preparation & Development																								
4. Civil Works																								
5. Machinery & Equipment																								
6. Freight & Insurance																								
7. Erection																								
8. Vehicles & Fixtures																								
9. Start-Up																								

- Distribution of total investment costs troughout construction period is made according to the implementation plan .

- This distrubition is done with the assumption that financial resources are ready at the indicated time with the implementation plan. Mostly this is not the case so implementation plans are generally revised.

Implementation & Total Investment Costs



Implementation & Total Investment Costs

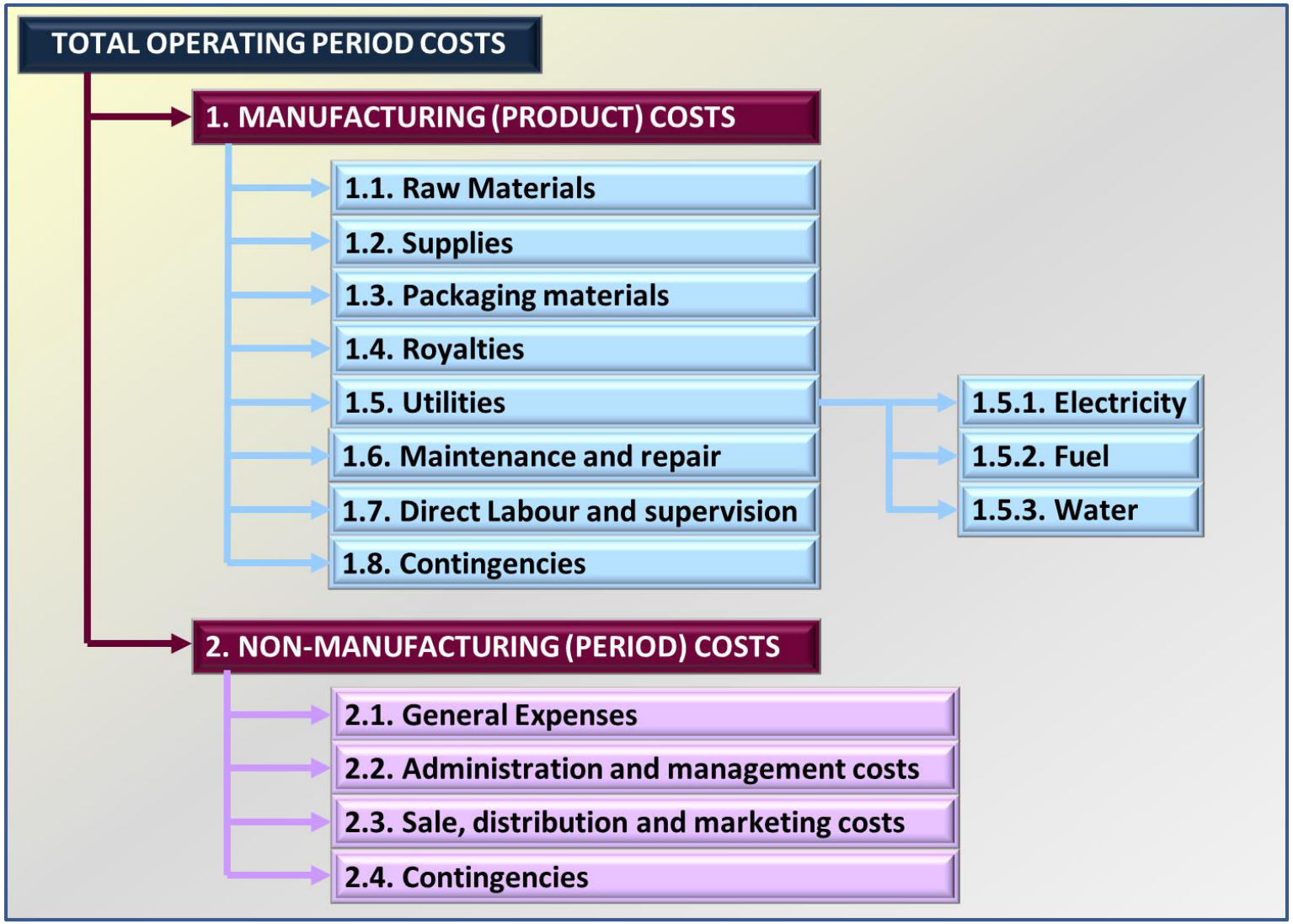
INVESTMENT ITEMS	TOTAL	1. YEAR	2. YEAR	3. YEAR	4. YEAR
A – Land Acquisition					
B – Fixed Invesments					
1 – Pre-investment and Support Studies					
2 – Technical Consulting, Royalty and Know-How					
3 – Site preparation and development					
4 – Civil Works					
5 – Machinery and Equipment					
6 – Freight and Insurance					
7 - Import Costs and Customs Clearence					
8 – Erection and Comissioning					
9 – Vehicles and Fixtures					
10 – Trial Runs and Start Up					
11 – General Expenses					
12 – Contingencies					
FIXED INVESTMENT COST (Land included)					
C – Working Capital Investment					
TOTAL INVESTMENT COST					

Implementation & Total Investment Costs

Frozen french fries production plant total investment cost and distrubition over years

YEARS	TOTAL (USD)			FIRST YEAR (USD)		SECOND YEAR (USD)	
INVESTMENT ITEMS	**TOTAL**	**DOMESTIC**	**FOREIGN**	**DOMESTIC**	**FOREIGN**	**DOMESTIC**	**FOREIGN**
A. Land Acquisition	**400.000**	**400.000**	**0**	**400.000**	**0**	**0**	**0**
B. Fixed Investment	**11.568.612**	**3.988.687**	**7.579.925**	**1.278.250**	**2.989.370**	**2.710.437**	**4.590.555**
1.Pre-investment and support studies	115.000	50.000	65.000	50.000	65.000	0	0
2. Know-How-Patent and Royalties	0	0	0	0	0		
3. Civil Works	1.311.000	1.311.000	0	983.250	0	327.750	0
4. Plant Machinery and Equipment (Inc.Auxiliary)	7.832.112	876.187	6.955.925	0	2.782.370	876.187	4.173.555
5.Freight and insurance	405.000	370.000	35.000	0	0	370.000	35.000
6.Import commissioning and customs clearence	70.000	70.000	0	0	0	70.000	0
7.Installation - erection	553.000	390.000	163.000	0	0	390.000	163.000
8. Vehicles and Fixtures	387.500	387.500	0	30.000	0	357.500	0
9. Start up	100.000	100.000	0	0	0	100.000	0
10.Overheads	225.000	225.000	0	135.000	0	90.000	0
11.Contingencies	570.000	209.000	361.000	80.000	142.000	129.000	219.000
TOTAL FIXED COST	**11.968.612**	**4.388.687**	**7.579.925**	**1.678.250**	**2.989.370**	**2.710.437**	**4.590.555**
B. WORKING CAPITAL	**3.008.249**	**3.008.249**	**0**	**0**	**0**	**3.008.249**	**0**
TOTAL INVESTMENT COST (USD)	**14.976.861**	**7.396.936**	**7.579.925**	**1.678.250**	**2.989.370**	**5.718.686**	**4.590.555**

Operational Costs at Full Capacity



Operational Costs at Full Capacity, Fixed & Variable Costs

Frozen french fries production plant annual operating cost

ANNUAL OPERATING COST AT FULL CAPACITY (USD)					
ITEMS	**AMOUNT**	**UNIT PRICE**	**TOTAL COST**	**FIXED COST**	**VARIABLE COST**
A. Production Cost					
1. Raw Materials			**6.508.800**	**0%**	**100%**
- Fresh Poteto	9.600 Tons	128	1.228.800		
- Stored Potato	24.000 Tons	220	5.280.000		
2. Auxiliary Materails			**1.486.800**	**0%**	**100%**
- Oil for fry up	1.008 Tons	1.275	1.285.200		
- Sodium acid pyro phosphate	11,2 Tons	18.000	201.600		
3. Supplies			**831.180**	**0%**	**100%**
- Polyethylene sheet	168 Tons	1.500	252.000		
- Cartoon Box	1.468.800 Box	0,35	514.080		
- Others			65.100		
4. Electricity	**4.560.000 Kwh**	**0,07**	**319.200**	**20%**	**80%**
5. Fuel	**1.900 Tons**	**235**	**446.500**	**10%**	**90%**
6. Water			**0**	**0%**	**100%**
7. Labour	**150 employee**		**730.800**	**40%**	**60%**
8. Repair and Maintenance			**254.300**	**30%**	**70%**
9.Overheads (1%)			**105.776**	**75%**	**25%**
10.Contingencies (1%)			**106.834**	**50%**	**50%**
TOTAL PRODUCTION COST			**10.790.190**	**609.849**	**10.180.341**
B. Marketing Cost			**215.804**		
- Sales and Marketing (2%)			215.804	**0%**	**100%**
TOTAL OPERATING COST			**11.005.994**	**609.849**	**10.396.145**

Sales and Income at Full Capacity

Frozen french fries production plant annual sales income at full capacity

SALES INCOME AT FULL CAPACITY (USD)			
Product	**Quantity**	**Unit Price**	**Sales Income**
Mc-Fries Frozen French Fries	**14.400 Tons**	**1.200**	**17.280.000**
TOTAL			**17.280.000**

Frozen french fries production plant salvage value

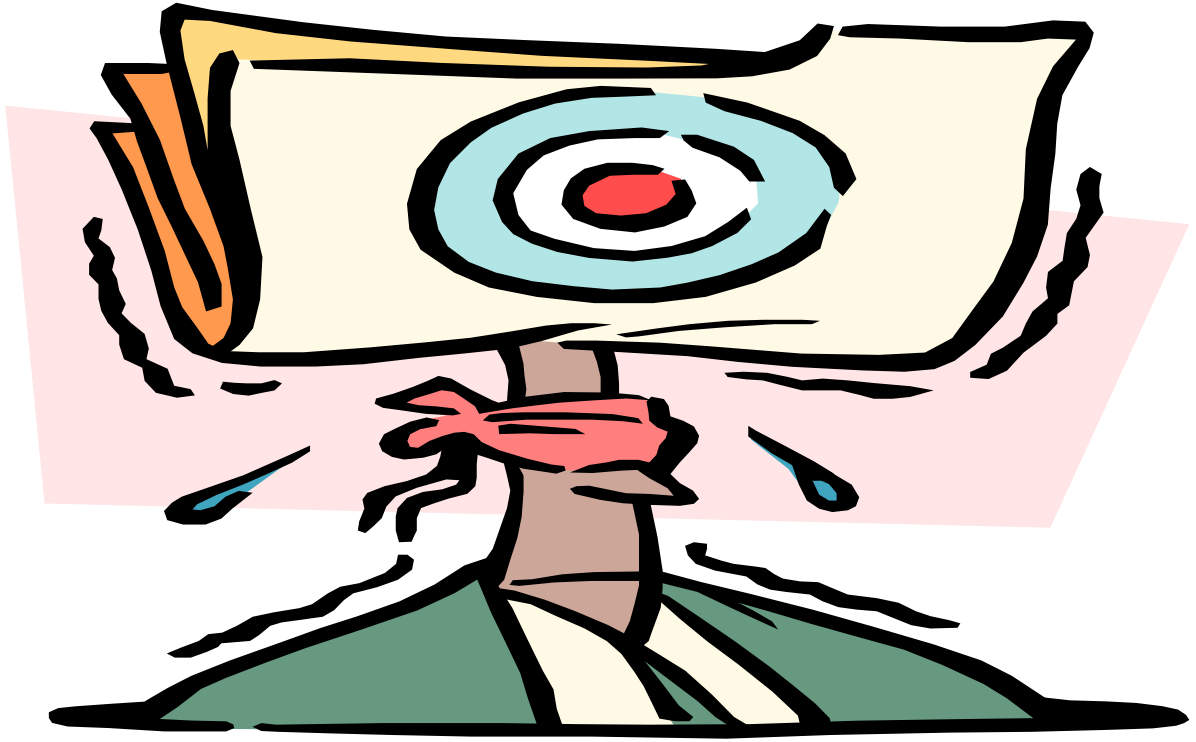
Investment Items	Costs (USD)	Salvage Value	
		(%)	(USD)
Land	400.000	100	400.000
Civil Works	1.311.000	50	655.500
Other Fixed Investments	10.257.612	10	1.025.761
TOTAL	**11.968.612**	**17**	**2.081.261**

Economical life of the plant was determined as 20 years

END OF SESSION II

Comments ???

Questions ???



Working Capital

What is Working Capital?

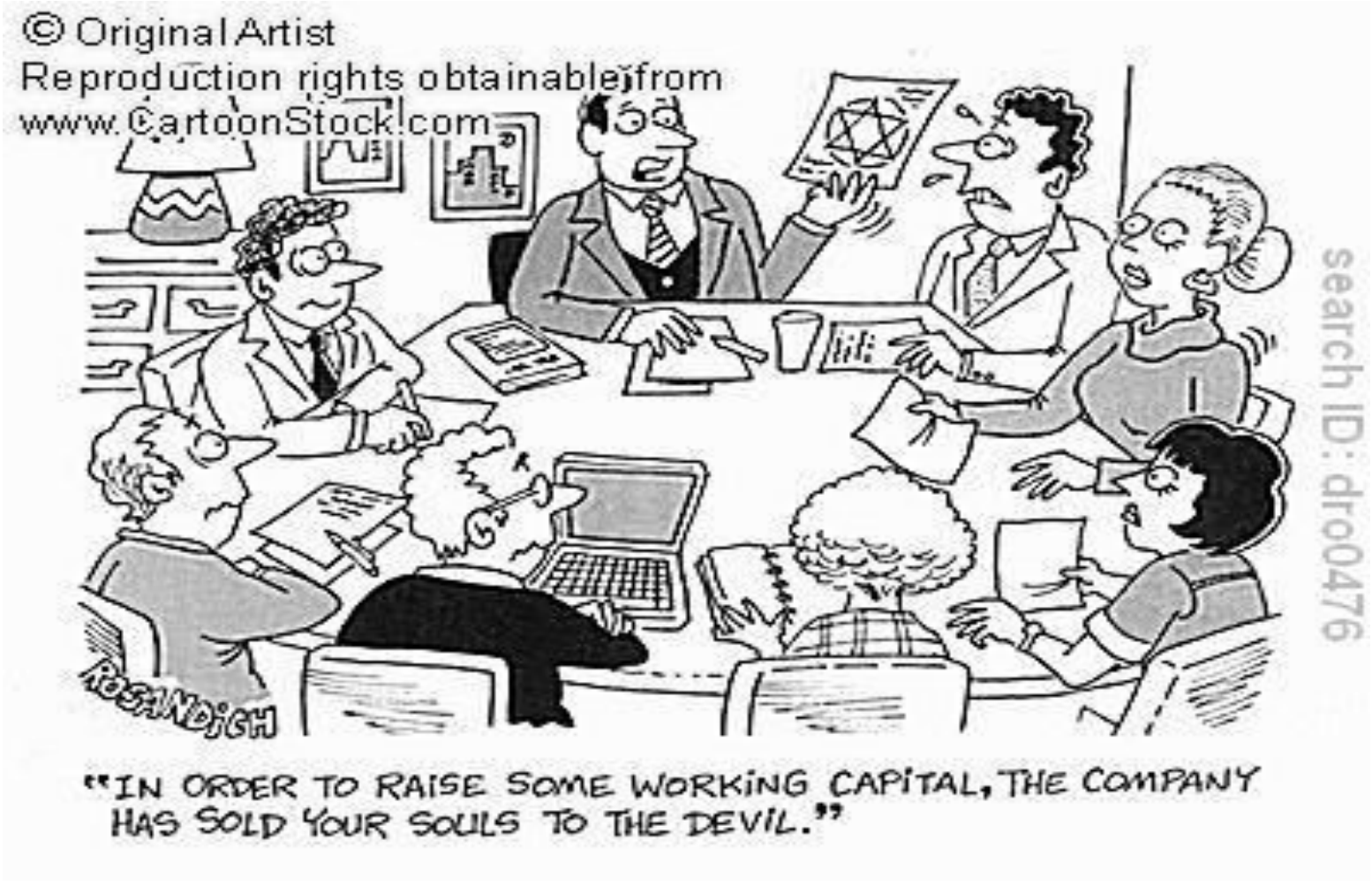
Working Capital

What is Working Capital?

- Working capital refers to current assets that sustain day to day business operations.
- These are also named as revolving or circulating capital or short-term capital.
- The relationship between current assets and current liabilities plays a majorr role in establishing financial management policies .
- Working capital management is usually described as involving the administration of cash, marketable securities, receivables, and inventories

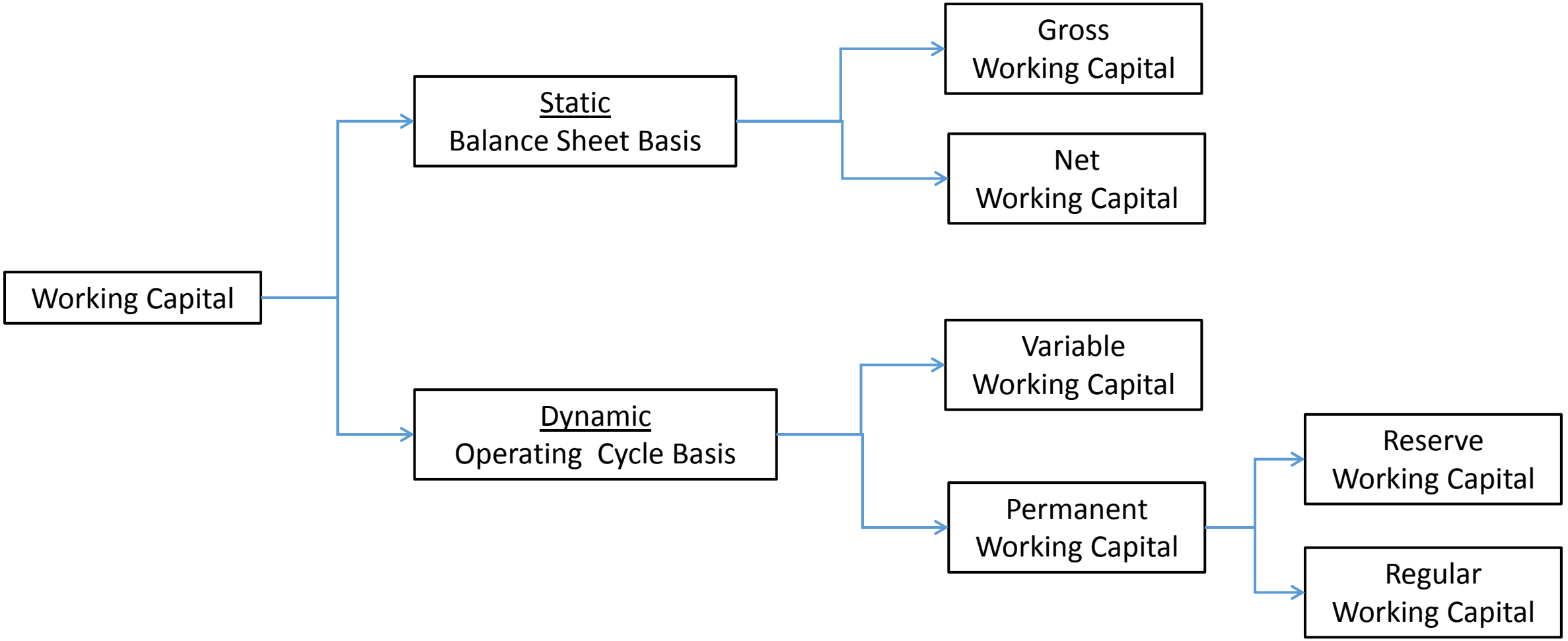
Working Capital

What is Working Capital?



Working Capital

Main Approaches to Working Capital



Working Capital

Main Approaches to Working Capital/Balance Sheet Basis

Current Assets (C.A.)

- Currents Assets
- Cash at Bank
- Cash in hand
- Prepayments
- Stocks
- Accounts receivable
- Others

Gross Working Capital

Net Working Capital

Current Liabilities (C.L.)

- Current Liabilities
- Suppliers
- Short term loans
- Dividents
- Accured Expenses
- Taxation
- Other debts

C.A. – C.L. = Positive ⇒ Working Capital Surplus

C.A. – C.L. = Negative ⇒ Working Capital Deficit

Working Capital

Main Approaches to Working Capital/Balance Sheet Basis

Current Assets	150	Short Term Liabilities	80

Gross working capital 150

Net working capital 70

If expected growth in business is 25%,

Additional working capital is 70*0,25= 17,5

Current Assets	80	Short Term Liabilities	150

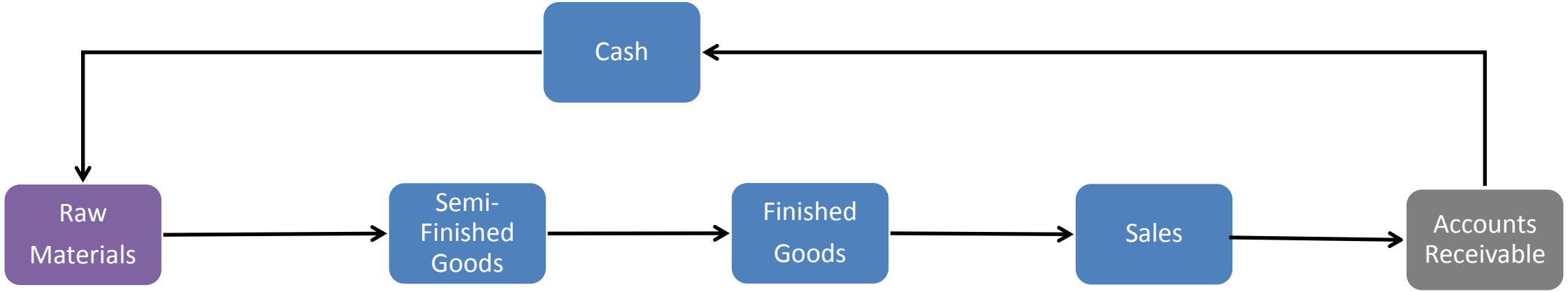
Gross working capital 80

Net working capital -70

If expected growth in business is 25%,

Additional working capital = ?

Working Capital



+ operating supplies
+ electricity
+ fuel
+ water
+ labor costs
+ Contingencies

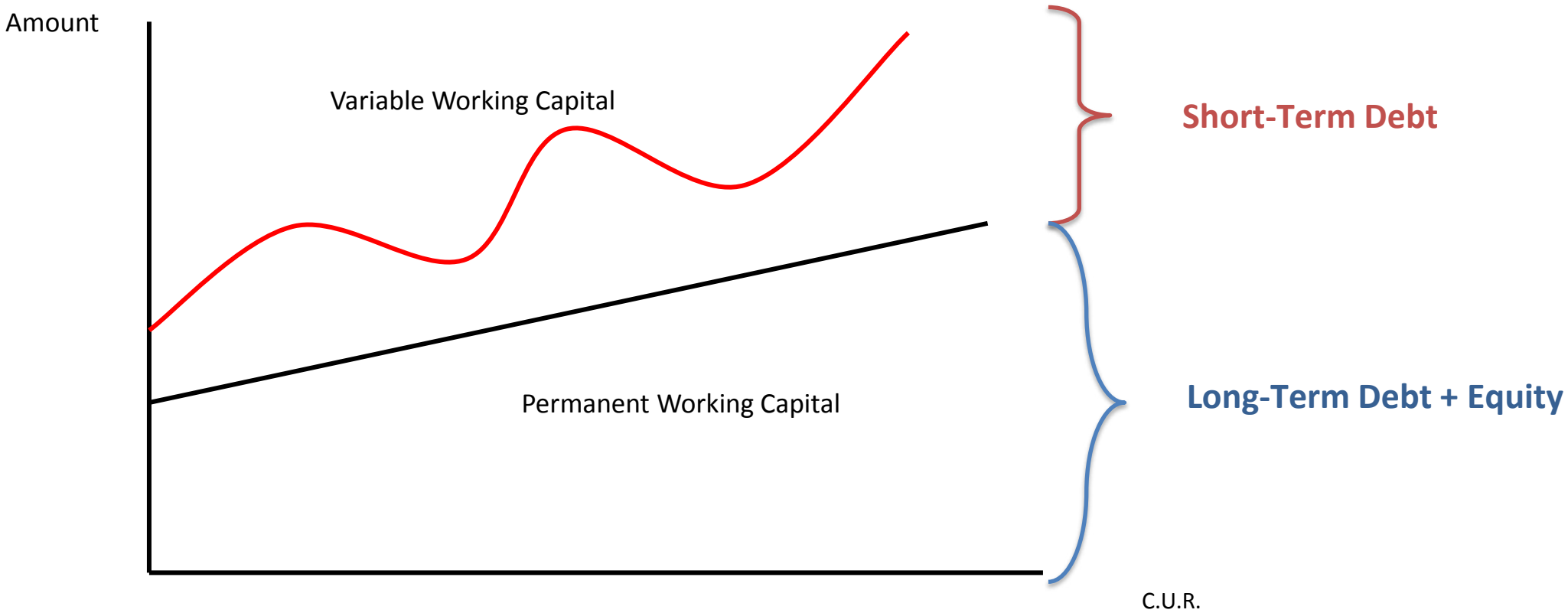
+

+ general expenses
+ administration expenses
+ general marketing costs
+ contingencies

Accounts Payable

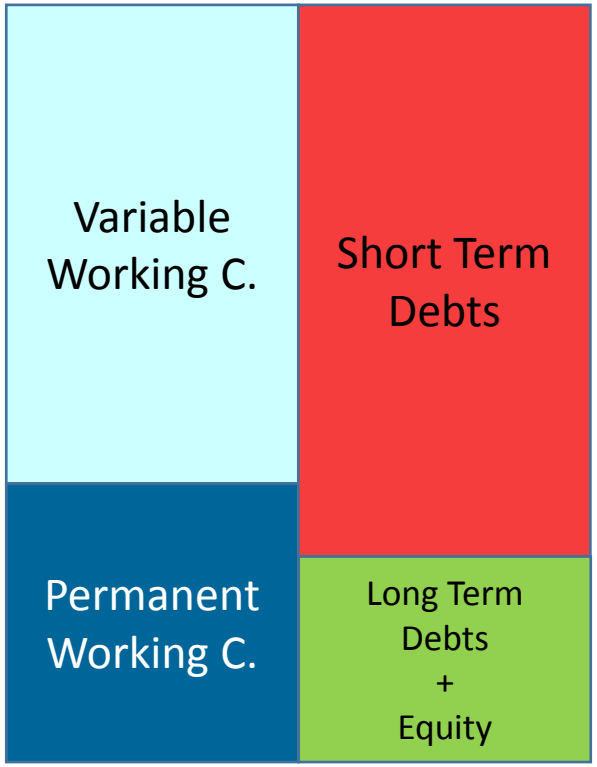
Working Capital

Main Approaches to Working Capital / Variable and Permanent Working Capital

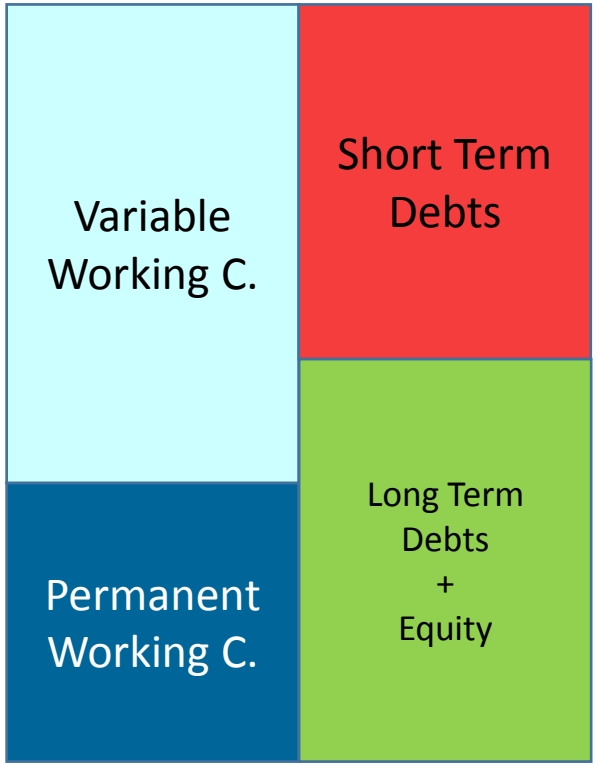


Working Capital

Main Approaches to Working Capital / Variable and Permanent Working Capital



Aggressive Policy



Conservative Policy

Working Capital

Calculation of Working Capital Requirements

Material Balance

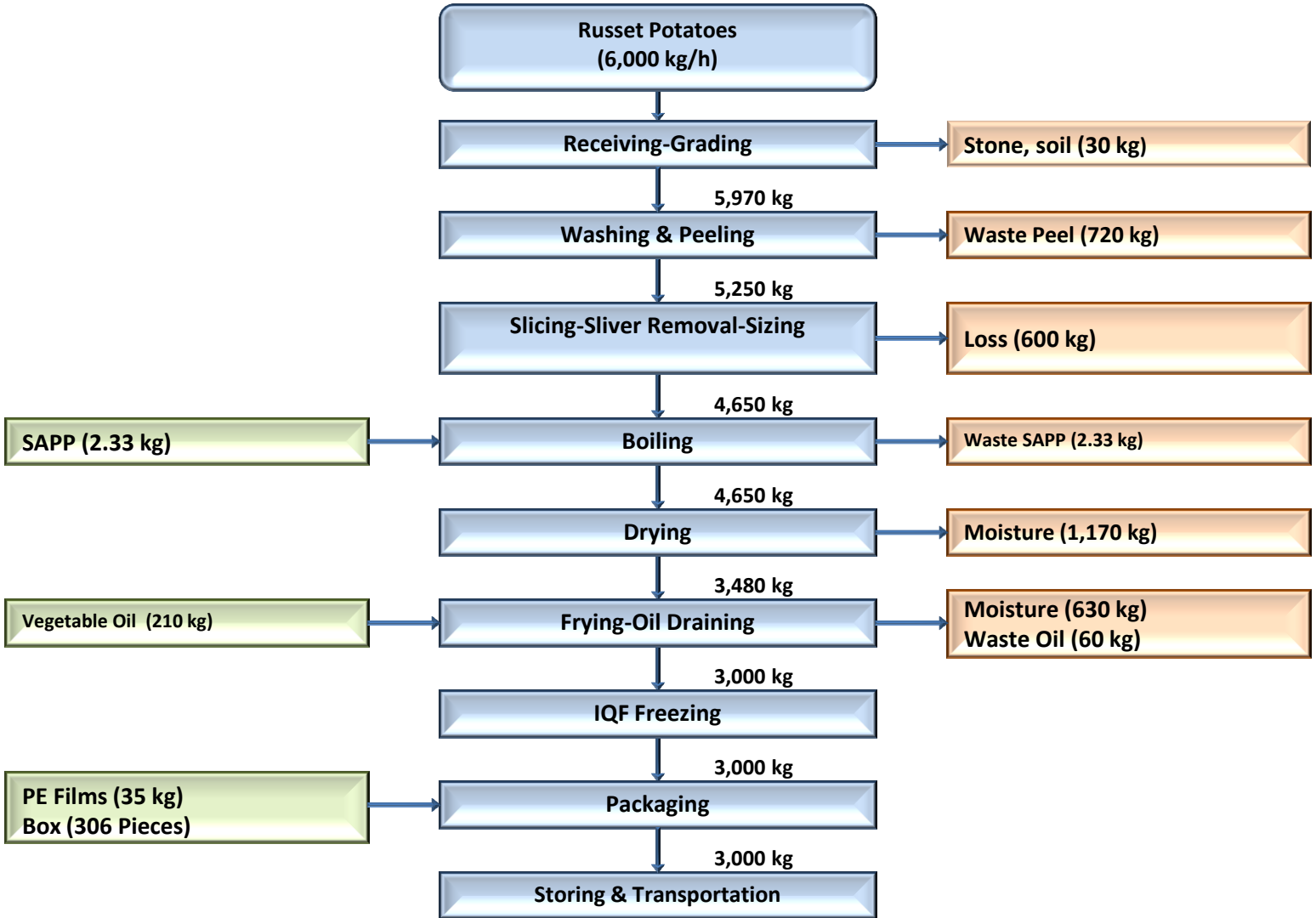
+ operating supplies
+ electricity
+ fuel
+ water
+ labor costs
+ contingencies

+ general expenses
+ administration expenses
+ general marketing costs
+ contingencies

Working Capital Calculation

Working Capital

Material Balance



Working Capital

Working Capital Requirement at Full Capacity

ANNUAL OPERATING COST AT FULL CAPACITY (USD)					
ITEMS	AMOUNT	UNIT PRICE	TOTAL COST	FIXED COST	VARIABLE COST
A. Production Cost					
1. Raw Materials			**6.508.800**	**0%**	**100%**
- Fresh Potato	9.600 Tons	128	1.228.800		
- Stored Potato	24.000 Tons	220	5.280.000		
2. Auxiliary Materials			**1.486.800**	**0%**	**100%**
- Oil for fry up	1.008 Tons	1.275	1.285.200		
- Sodium acid pyro phosphate	11,2 Tons	18.000	201.600		
3. Supplies			**831.180**	**0%**	**100%**
- Polyethylene sheet	168 Tons	1.500	252.000		
- Cartoon Box	1.468.800 Box	0,35	514.080		
- Others			65.100		
4. Electricity	**4.560.000 Kwh**	**0,07**	**319.200**	**20%**	**80%**
5. Fuel	**1.900 Tons**	**235**	**446.500**	**10%**	**90%**
6. Water			**0**	**0%**	**100%**
7. Labour	**150 employee**		**730.800**	**40%**	**60%**
8. Repair and Maintenance			**254.300**	**30%**	**70%**
9.Overheads (1%)			**105.776**	**75%**	**25%**
10.Contingencies (1%)			**106.834**	**50%**	**50%**
TOTAL PRODUCTION COST			**10.790.190**	**609.849**	**10.180.341**
B. Marketing Cost			**215.804**		
- Sales and Marketing (2%)			215.804	**0%**	**100%**
TOTAL OPERATING COST			**11.005.994**	**609.849**	**10.396.145**

ITEMS	MATURITY (DAYS)	ANNUAL COST (FIXED)	ANNUAL COST (VARIABLE)
1. RAW MATERIALS	150	0	6.508.800
2. AUXILIARY MATERIALS	30	0	1.486.800
3. SUPPLIES	30	0	831.180
4. FINISHED PRODUCT	15	609.849	10.180.341
5. WORK IN PROGRESS	0	0	0
6. FUEL	30	44.650	401.850
7. ACCOUNTS RECEIVABLE	45	609.849	10.396.145
8. CASH IN HAND	30	565.199	1.167.515
TOTAL (USD)		**1.829.546**	**30.972.630**

Working Capital

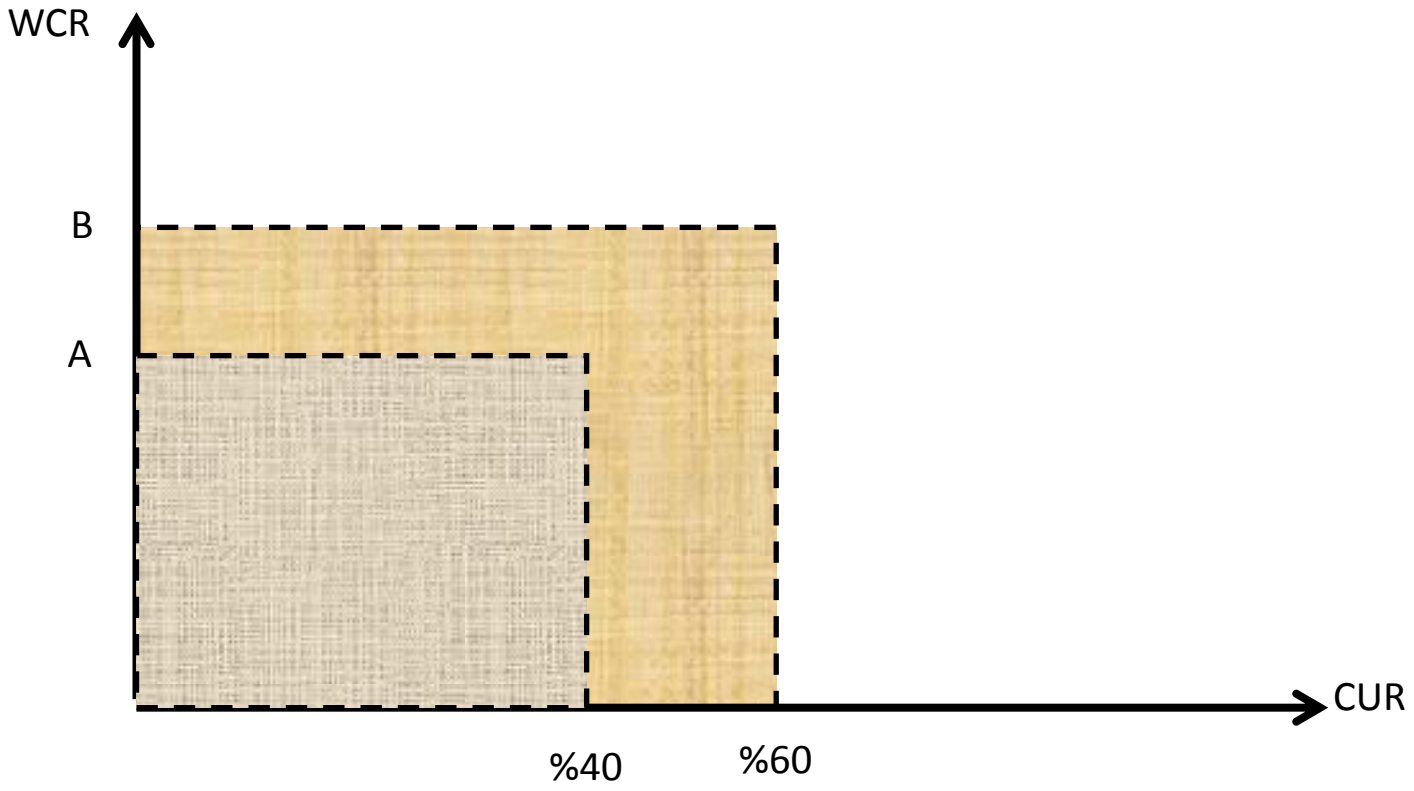
Working Capital Requirement at Full Capacity

ANNUAL WORKING CAPITAL AT FULL CAPACITY (USD)						
ITEMS	**MATURITY (DAYS)**	**ANNUAL COST (FIXED)**	**ANNUAL COST (VARIABLE)**	**WORKING CAPITAL (FIXED)**	**WORKING CAPITAL (VARIABLE)**	**TOTAL WORKING CAPITAL**
1. RAW MATERIALS	150	0	6.508.800	0	2.712.000	2.712.000
2. AUXILIARY MATERIALS	30	0	1.486.800	0	123.900	123.900
3. SUPPLIES	30	0	831.180	0	69.265	69.265
4. FINISHED PRODUCT	15	609.849	10.180.341	25.410	424.181	449.591
5. WORK IN PROGRESS	0	0	0	0	0	0
6. FUEL	30	44.650	401.850	3.721	33.488	37.208
7. ACCOUNTS RECEIVABLE	45	609.849	10.396.145	76.231	1.299.518	1.375.749
8. CASH IN HAND	30	565.199	1.167.515	47.100	97.293	144.393
TOTAL (USD)		**1.829.546**	**30.972.630**	**152.462**	**4.759.644**	**4.912.106**

(6.508.800/360)*150=2.712.000

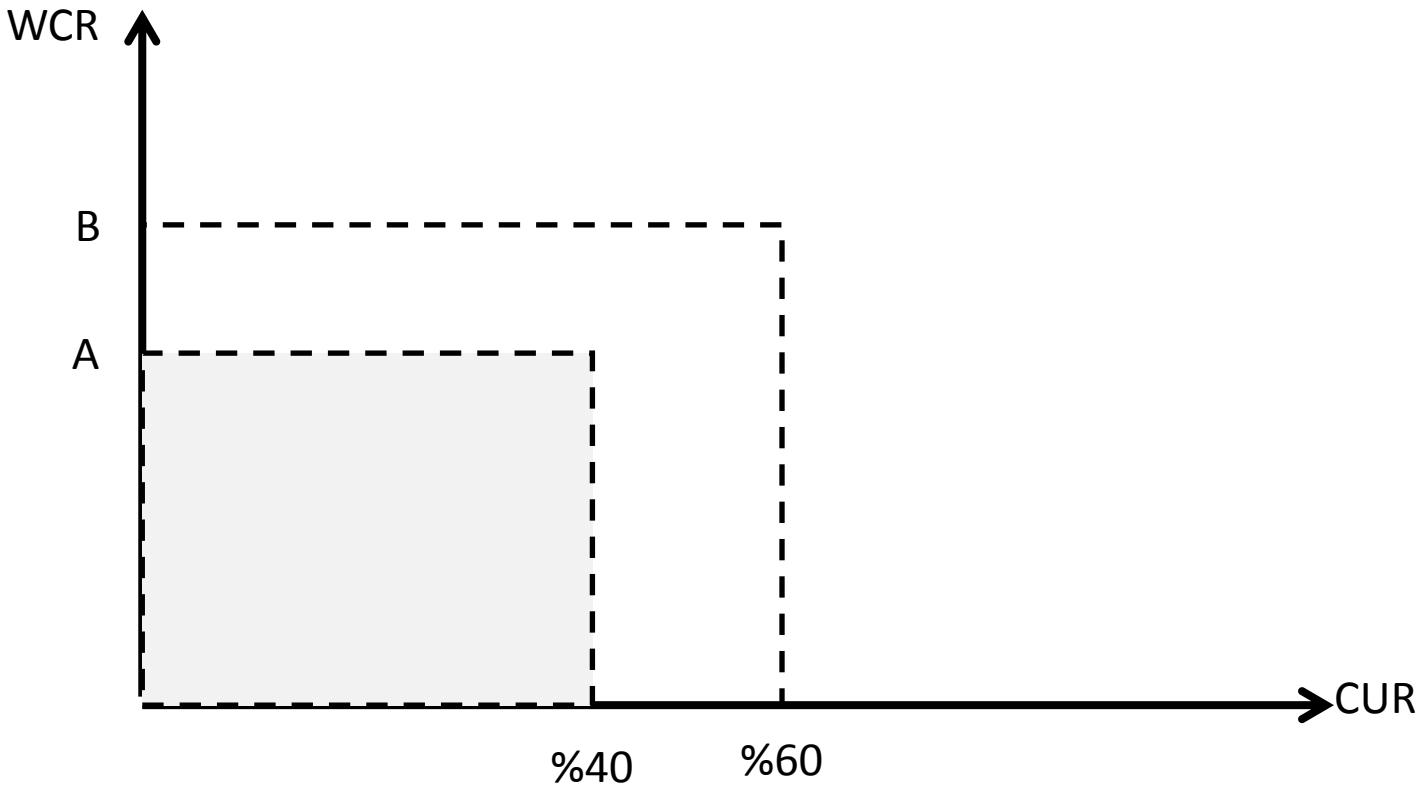
Working Capital

Calculation of Working Capital Requirements/Additional Working Capital



Working Capital

Calculation of Working Capital Requirements/Additional Working Capital



Working Capital

Calculation of Working Capital Requirements/Additional Working Capital

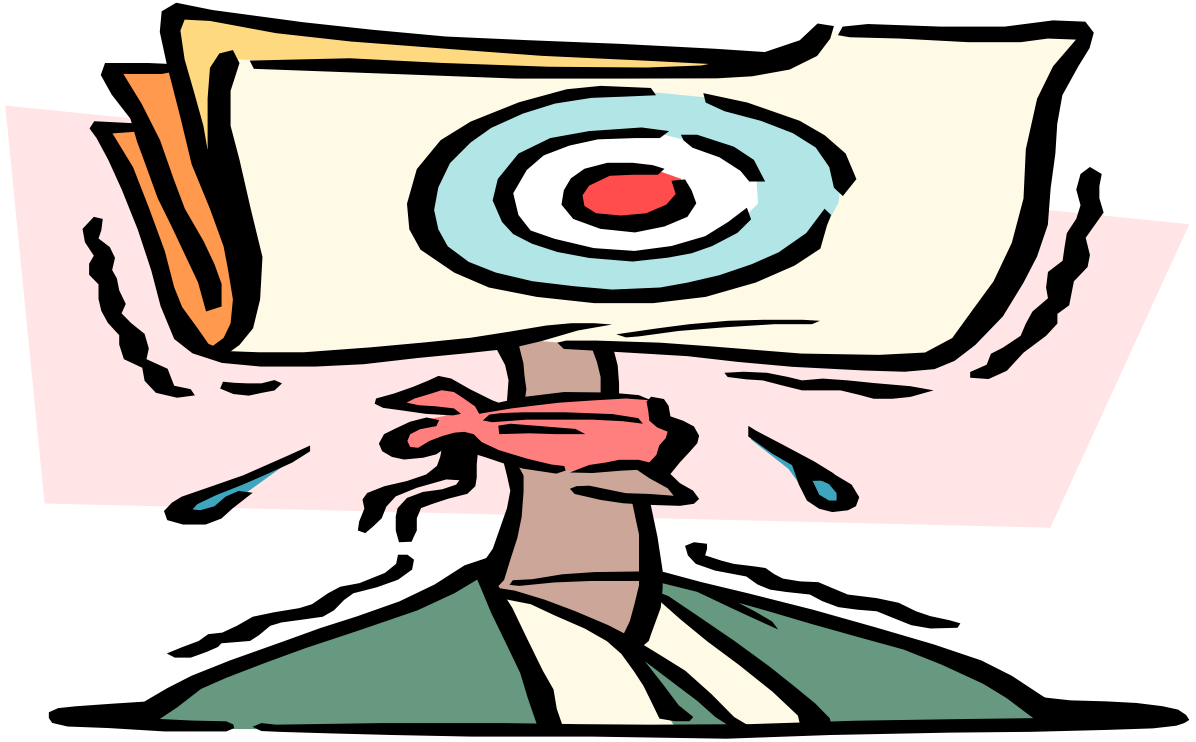
ANNUAL WORKING CAPITAL NEEDS (USD) (By Capacity Utilization Ratio)			
YEARS	**CAPACITY UTILIZATION RATIO**	**WORKING CAPITAL NEEDS**	**CUMULATIVE**
3	60%	**3.008.249**	**3.008.249**
4	65%	**237.982**	**3.246.231**
5	70%	**237.982**	**3.484.213**
6	75%	**237.982**	**3.722.105**
7	80%	**237.982**	**3.959.997**

(4.759.644*0.60)+152.462=3.008.248

END OF SESSION III

Comments ???

Questions ???



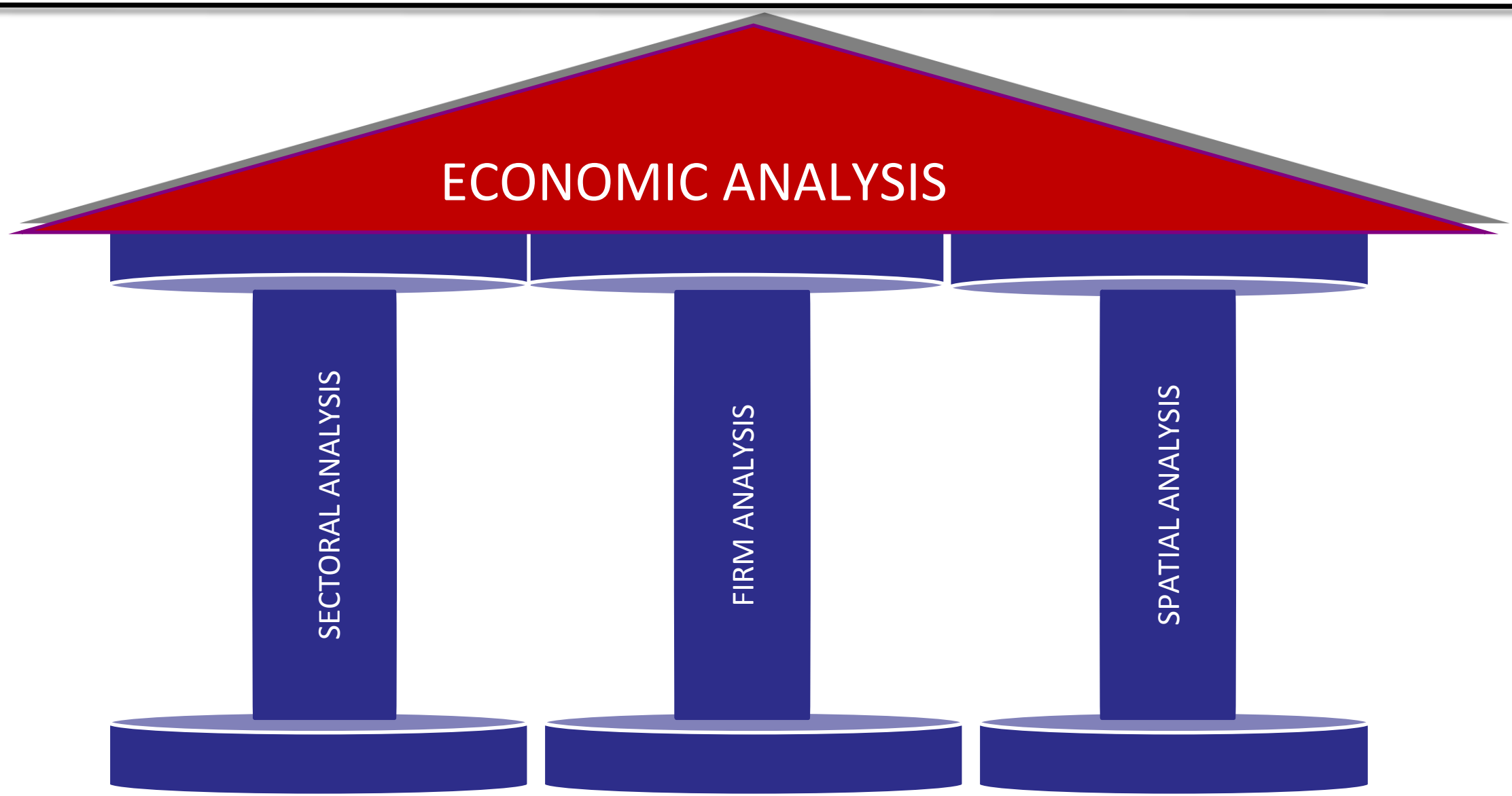
GROUP WORKING

Economic Analysis- Sector Appraisal

Objective

- Evaluate the competitiveness of the sector/product
- Assess the competitors and business environment (foreign&domestic)
- Predict the performance of the company
- Decide if the company would be operate effectively and efficiently

Economic Analysis – Sector Appraisal



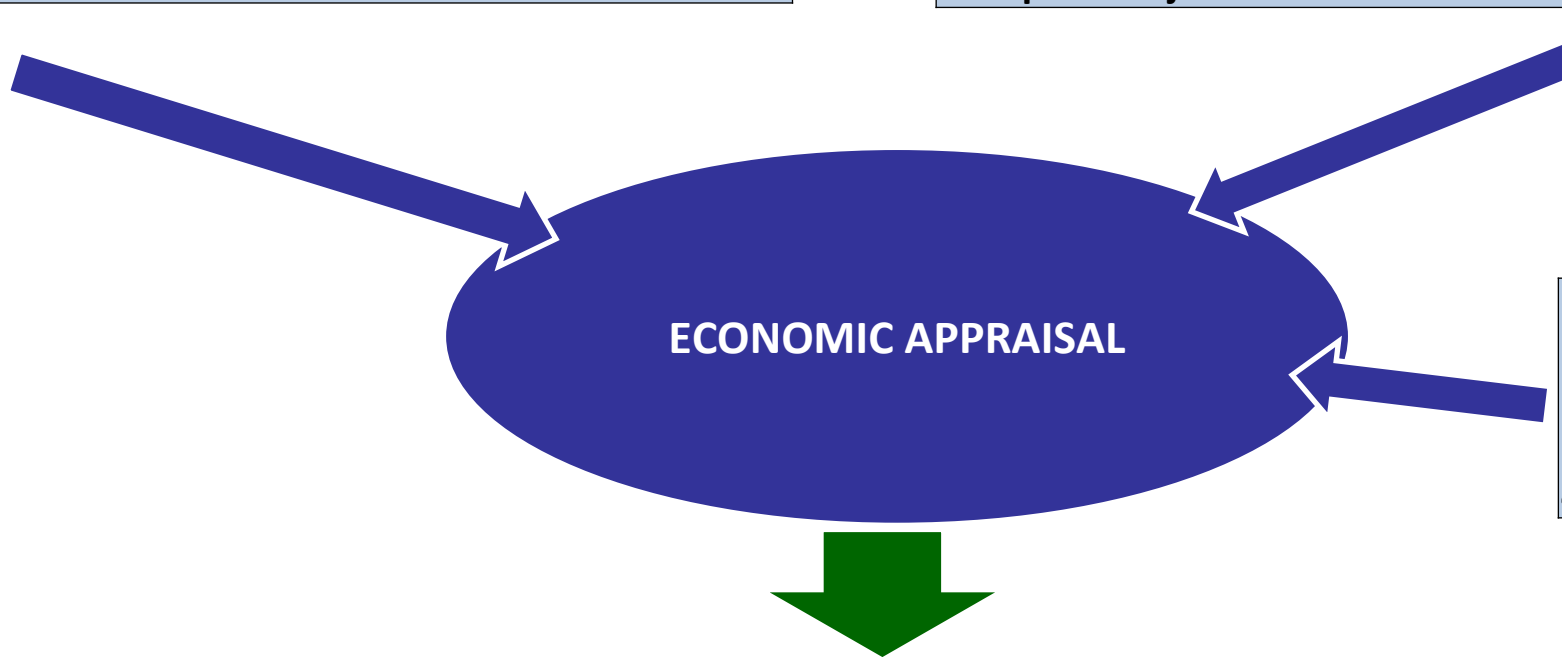
Economic Analysis – Sector Appraisal

CURRENT CONDITIONS OF SECTOR

1. # and Capacity of Producers (Ton, Number, Meter etc)
2. Production Amount
3. Capacity Utilization Ratios
5. Domestic Demand

POTENTIAL OF SECTOR

1. Expectation on Installed Capacity
2. Expectation on Domestic Demand
3. Import Projections
4. Export Projections



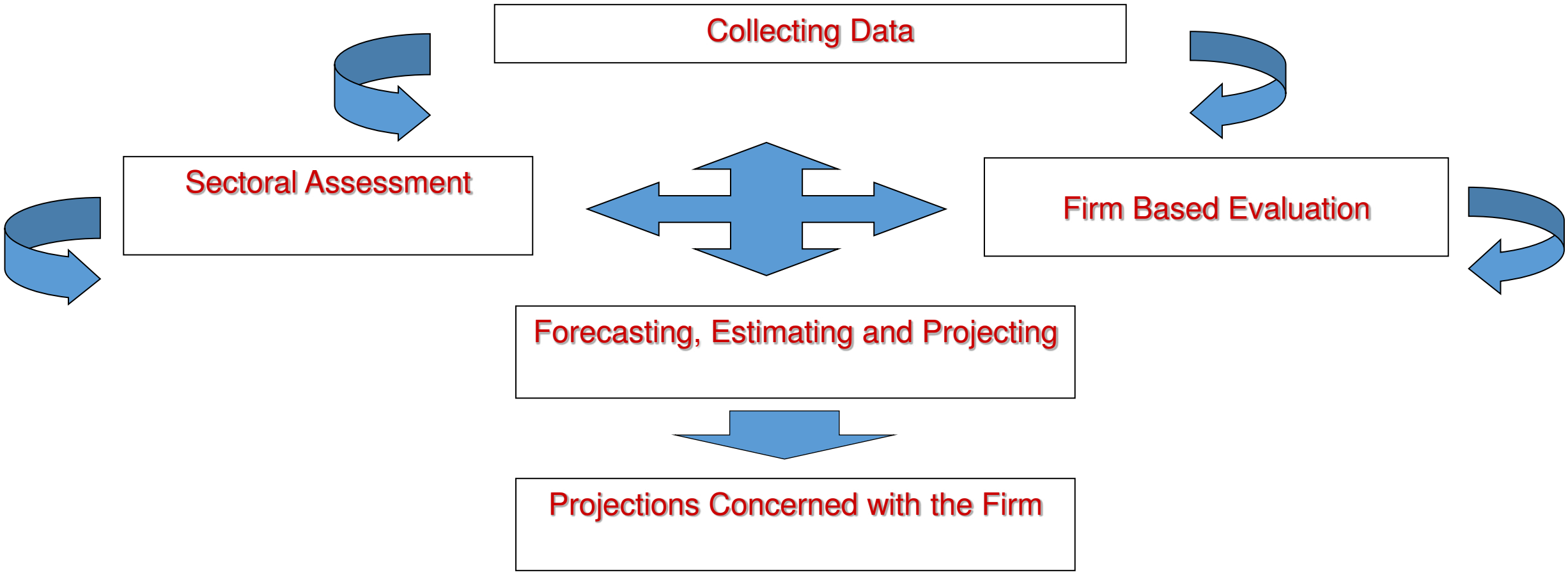
FIRM ANALYSIS

1. Current Position in Sector
2. Competition
3. Orders
4. Sales (production) Forecasting

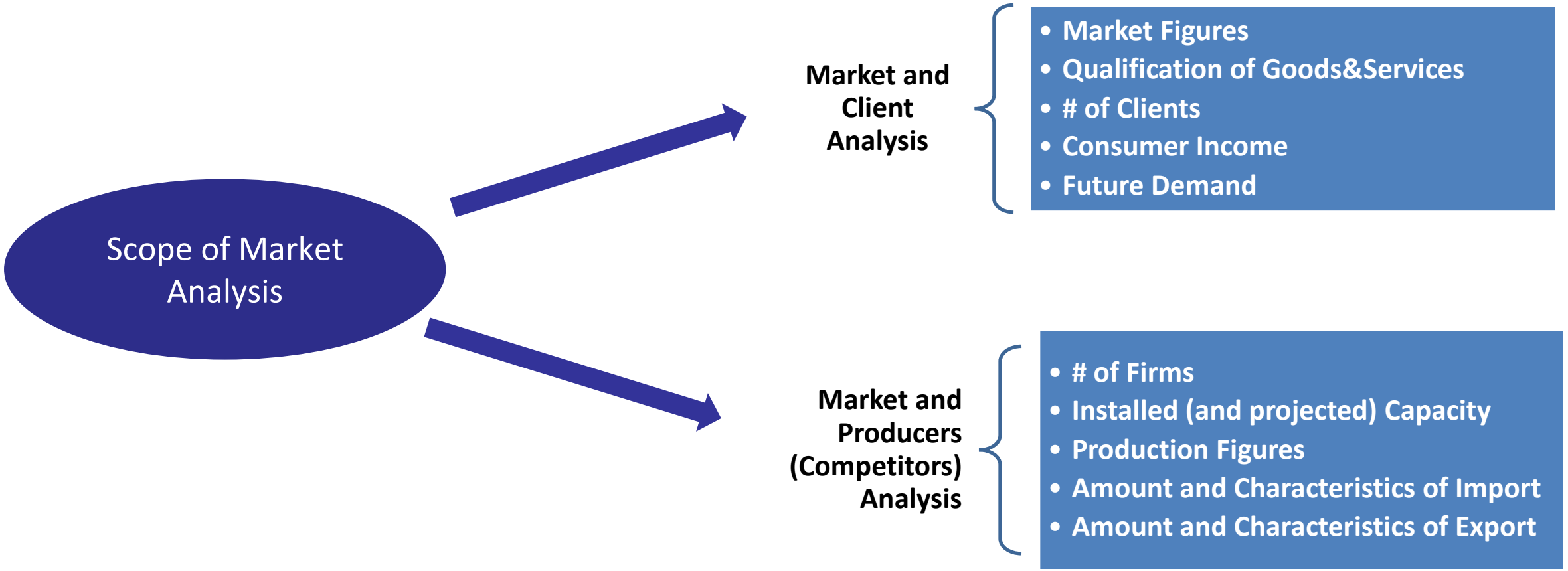
1. Input Prices and Input Conditions
2. Output Prices and Market Conditions
3. Projected CUR for the Firm

Economic Analysis – Sector Appraisal

Main Steps



Market Analysis



What We Produce and for Whom?

OUTPUTS

- Input Prices
- Input Supply Conditions
- Output Prices (Selling Prices)
- Selling Conditions (Maturity)
- Projected Capacity Utilization Ratios for the Firm

INPUTS

- Operating Costs at Full Capacity (Technical App.)
- Working Capital Requirement (Technical App.)
- Operating Income at Full Capacity (Technical App.)
- Cost of Goods Sold (Financial App.)
- Income Statement (Financial App.)
- Cash Flow Statement (Financial App.)

How We Do?

INPUTS

- Raw (Primary) Data
- Secondary Data
- Information from Entrepreneur
- Information from Market Actors
- Similar Reports
- Publication of Chambers, Professional Organizations

SOURCES

- National Statistics Agency
- International Organizations (UNIDO, UNDP, OECD, IBRD, IMF,…)
- Surveys, Articles, Journals
- Chambers of Commerce and Chambers of Industry

PROCESS

- Define
- Collect
- Verify
- Classify
- Interpret
- Analyze
- Conclude

Contents

Supply and Demand Analysis (S&D)

- **Both for current and future period**
- **The components of the supply and demand must be analyzed**
- **Both for domestic and foreign markets and clients**

Supply Analysis

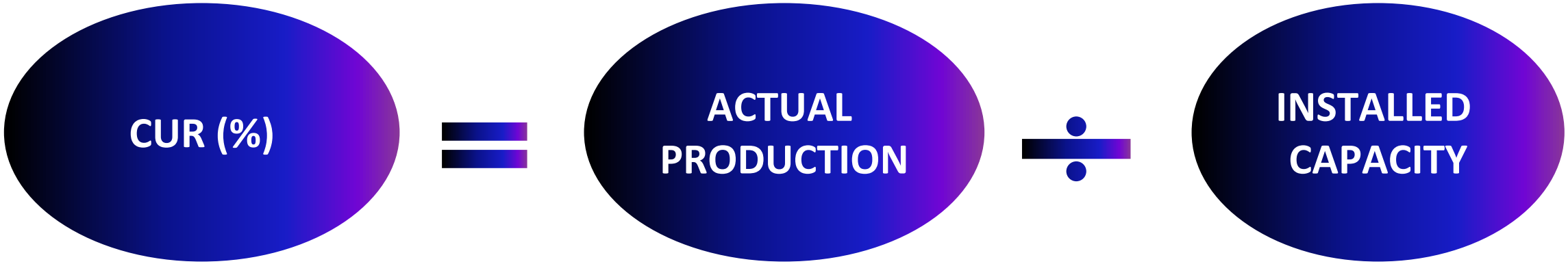
SUPPLY (INSTALLED CAPACITY, PRODUCTION, CUR, EXPECTATION ON INSTALLED CAPACITY)

- Scope: Obtaining actual and projected total potential supply figures

- **First Phase:** Defining actual total installed capacity of the firms in the sector
- **Second Phase:** Defining sectoral production and CUR for the current and past period
- **Third Phase:** Estimating future period installed capacity

Supply Analysis (For Market)

CAPACITY UTILIZATION RATIO (CUR)



Supply Analysis (Expected Installed Capacity)

❑ **Scope: Estimating installed capacity for the next period**

❑ **Method 1:** Calculating capacity increase by defining investment projects which have Investment Incentive Certificate

❑ **Method 2:** Estimating next period installed capacity by using past period trend

Data Source : Ministry of Economy, Directorate of Incentive Implementation and Foreign Investments

Number of Firms

The Union of Chambers and Commodity Exchanges of Turkey (TOBB), October 2012 Capacity Report Statistics

Potato, frozen

Capacities by Provinces

# of Registered Producer

Production Capacity, kg

Provinces

10.31.11-Patates, dondurulmuş
İllere Göre Üretim Kapasiteleri (TOBB)

M: Mühendis; T: Teknisyen; U: Usta;İ: İşçi; İD: İdari;
** Kayıtlı üretici sayısı 3 ve daha az ise üretim kapasitesi bilgileri verilmemektedir*
İl bazında üretim kapasitesi toplamları ürünün niteliğine bağlı olarak farklı birimlerde olabilir.

İl Adı	Kayıtlı Üretici	Personel Bilgileri						Üretim Kapasitesi
		M	T	U	İ	İD	Toplam	kilogram
AFYONKARAHİSAR	1	6	10	6	80	3	105	*
ANKARA	1	0	0	2	4	2	8	*
AYDIN	1	1	1	0	15	6	23	*
BOLU	1	2	4	0	22	11	39	*
BURSA	2	6	18	3	119	7	153	*
ÇANAKKALE	1	1	2	2	11	4	20	*
İZMİR	3	32	24	6	209	99	370	*
KOCAELİ	1	2	2	0	55	56	115	*
KONYA	1	13	1	1	68	7	90	*
MANİSA	1	1	0	2	7	5	15	*
MUĞLA	1	0	0	0	7	15	22	*
NEVŞEHIR	1	3	3	0	84	4	94	*
NİĞDE	1	0	0	1	16	2	19	*
YOZGAT	1	4	5	4	69	15	97	*
Toplam	**17**	**71**	**70**	**27**	**766**	**236**	**1,170**	**211,489,700**

Number of Firms

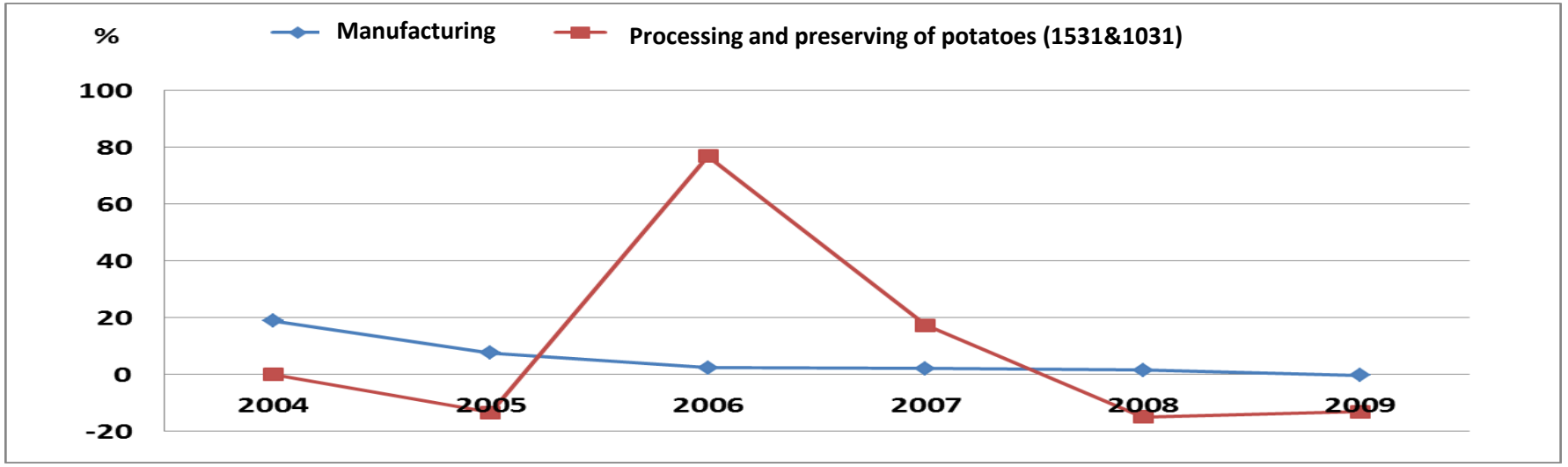
Number of Firms

	2003	2004	2005	2006	2007	2008	2009
Turkey	1,740,353	2,002,834	2,393,578	2,473,841	2,567,704	2,583,099	2,483,300
Manufacturing Industry	236,275	281,029	302,459	309,841	316,596	321,652	320,815
Food	27,618	32,187	30,717	36,728	31,069	34,781	39,579
Processing and preserving of potatoes (1531&1031)	**15**	**15**	**13**	**23**	**27**	**23**	**20**

Share of Sector in Manufacturing Ind. and Food Industry (%)

	2003	2004	2005	2006	2007	2008	2009
Manufacturing Industry	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Food	0.1	0.0	0.0	0.1	0.1	0.1	0.1

Changes in Number of Firms (%)



Number of Employee

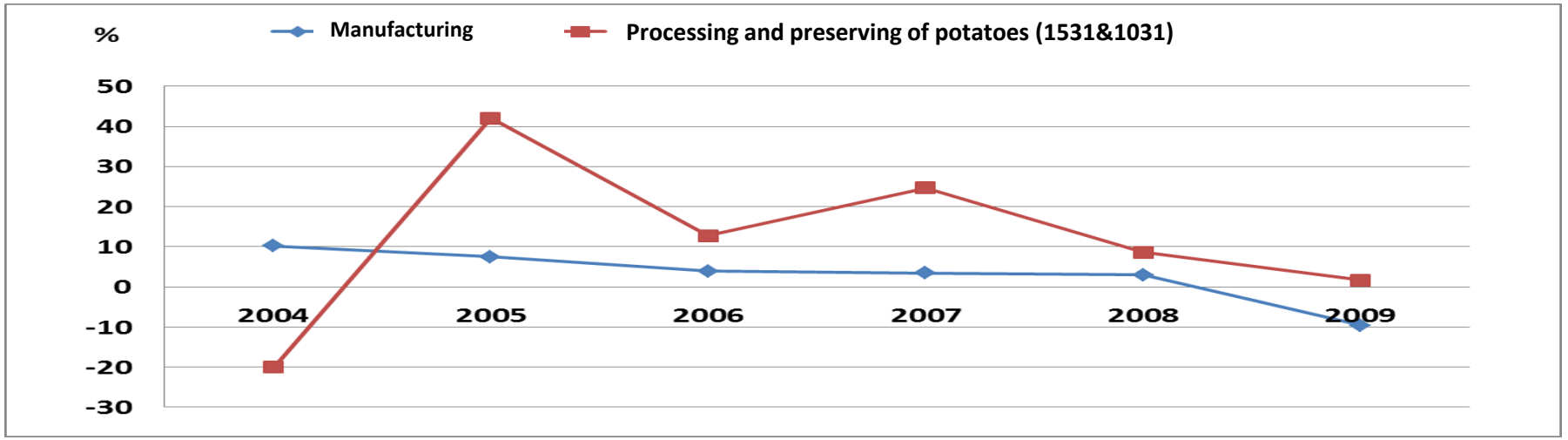
Total Employee

Turkey	2003	2004	2005	2006	2007	2008	2009
Manufacturing Industry	2,181,718	2,404,342	2,583,747	2,684,240	2,776,303	2,858,485	2,584,773
Food	275,773	285,073	290,810	315,196	311,791	328,653	337,176
Processing and preserving of potatoes (1531&1031)	**1,219**	**975**	**1,385**	**1,562**	**1,947**	**2,114**	**2,149**

Share of Sector in Manufacturing Ind. and Food Industry (%)

	2003	2004	2005	2006	2007	2008	2009
Manufacturing Industry	**0.1**	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Food	0.4	0.3	0.5	0.5	0.6	0.6	0.6

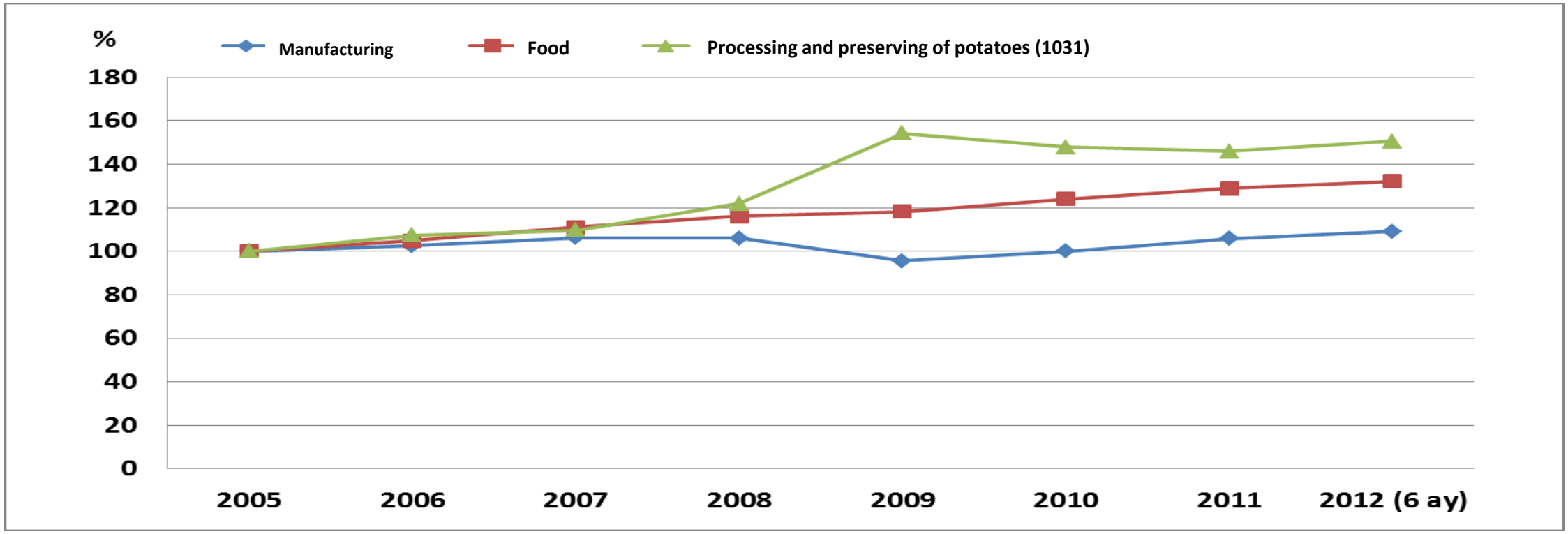
Changes in Number of Employee (%)



Employment Index by Years

Employment Index (2005=100)

	2005	2006	2007	2008	2009	2010	2011	2012 (6 m)
Manufacturing Industry	100.0	102.5	106.3	106.0	95.5	100.1	105.9	109.1
Food	100.0	104.8	111.0	116.1	118.3	124.1	128.8	132.2
Processing and preserving of potatoes (1031)	**100.0**	**107.4**	**109.8**	**122.0**	**154.3**	**147.8**	**146.0**	**150.5**



Production Value

Production Value (Million TRL)

	2003	2004	2005	2006	2007	2008	2009
Manufacturing Industry	224,285	285,330	311,885	379,215	414,733	477,137	420,381
Food	34,069	40,583	46,006	50,075	56,406	66,732	64,664
Processing and preserving of potatoes (1531&1031)	**(***)**	**380**	**(***)**	**459**	**623**	**665**	**714**

Share of Sector in Manufacturing Ind. and Food Industry (%)

	2003	2004	2005	2006	2007	2008	2009
Manufacturing Industry		**0.1**		**0.1**	**0.2**	**0.1**	**0.2**
10- Food Products		**0.9**		**0.9**	**1.1**	**1.0**	**1.1**

Development of Production Value and Production Amount of Frozen Potato

Years	# of Firms	Production		Production	
		(Ton)	Change (%)	(Million TL)	Change (%)
2005	**6**	42,756	-	61.2	-
2006	**6**	56,829	32.9	78.2	27.8
2007	**5**	73,172	28.8	112.5	43.9
2008	**5**	67,511	-7.7	112.7	0.2
2009	**8**	73,311	8.6	130.4	15.7
2010	**9**	101,264	38.1	182.5	40.0

Source : Turkish Statistical Institute, Business Statistics, Annual Business Statistics, Annual Industrial Products Statistics

Production Amount (Information)

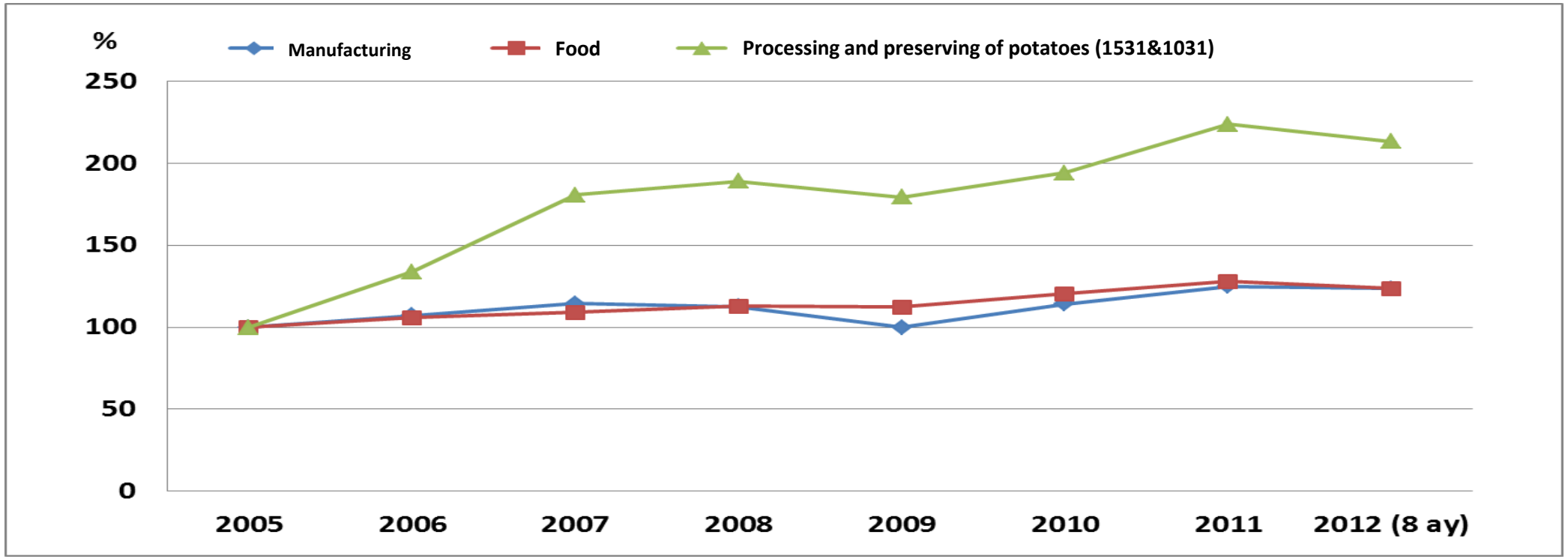
A biggest firm in Konya has the share of 25 % of total market volume by the brand of Pratiko, will increase its capacity.

This firm is the leader of the market. Last year (2011) it produced 25 K ton frozen potato, after capacity increasing this production amount will reached 50 K ton.

Development of Production Index

Production Index (2005=100)

	2005	2006	2007	2008	2009	2010	2011	2012 (8 m.)
Manufacturing Industry	100.0	107.2	114.4	112.7	99.9	114.3	124.8	123.5
Food	100.0	105.9	109.1	112.7	112.3	120.5	128.0	123.5
Processing and preserving of potatoes (1531&1031)	**100.0**	**133.8**	**180.6**	**189.1**	**179.2**	**194.0**	**223.6**	**213.1**



Turnover (Sales Revenue)

Turnover (Million TRL)

	2003	2004	2005	2006	2007	2008	2009
Manufacturing Industry	230,691	298,230	328,781	397,917	435,893	499,431	449,457
10- Food Products	34,355	42,024	48,155	52,410	58,306	69,918	68,524
Processing and preserving of potatoes (1531)		**446**	**449**	**507**	**629**		**731**

Share of Sector in Manufacturing Ind. and Food Industry (%)

	2003	2004	2005	2006	2007	2008	2009
Manufacturing Industry	**NA**	**0.1**	**0.1**	**0.1**	**0.1**	**NA**	**0.2**
10- Food Products	**NA**	**1.1**	**0.9**	**1.0**	**1.1**	**NA**	**1.1**

S&D- Demand Conditions

❑ **Scope: Defining actual level of demand and forecasting demand for the next years**

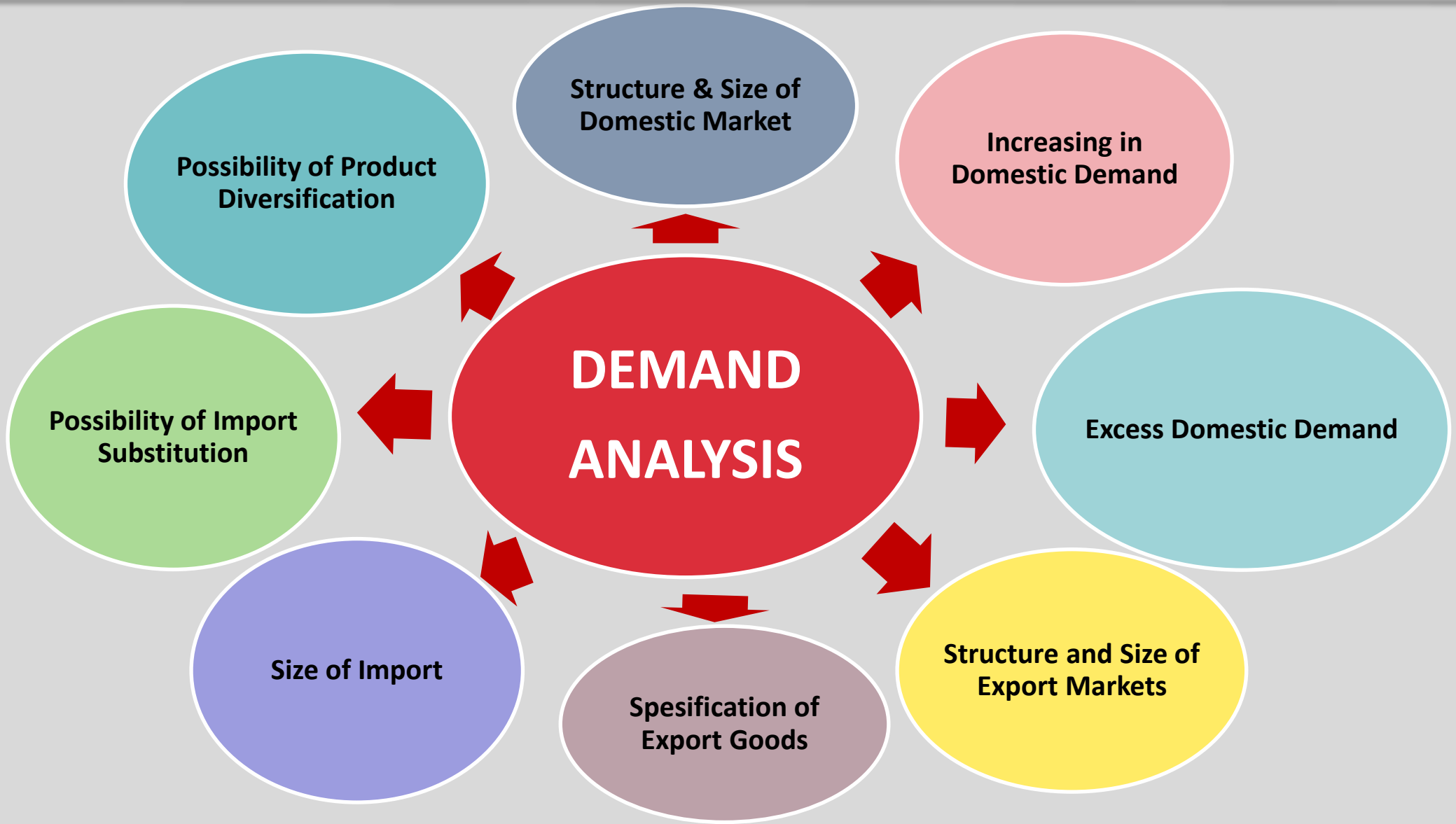
❑ **First Phase:** Determining demand components for both current and future period. In general, previous period production and foreign trade figures are used and domestic and total demands are calculated by assuming production is equal to sales.

❑ **Second Phase :** Forecasting demand for the future period by employing demand forecasting techniques.

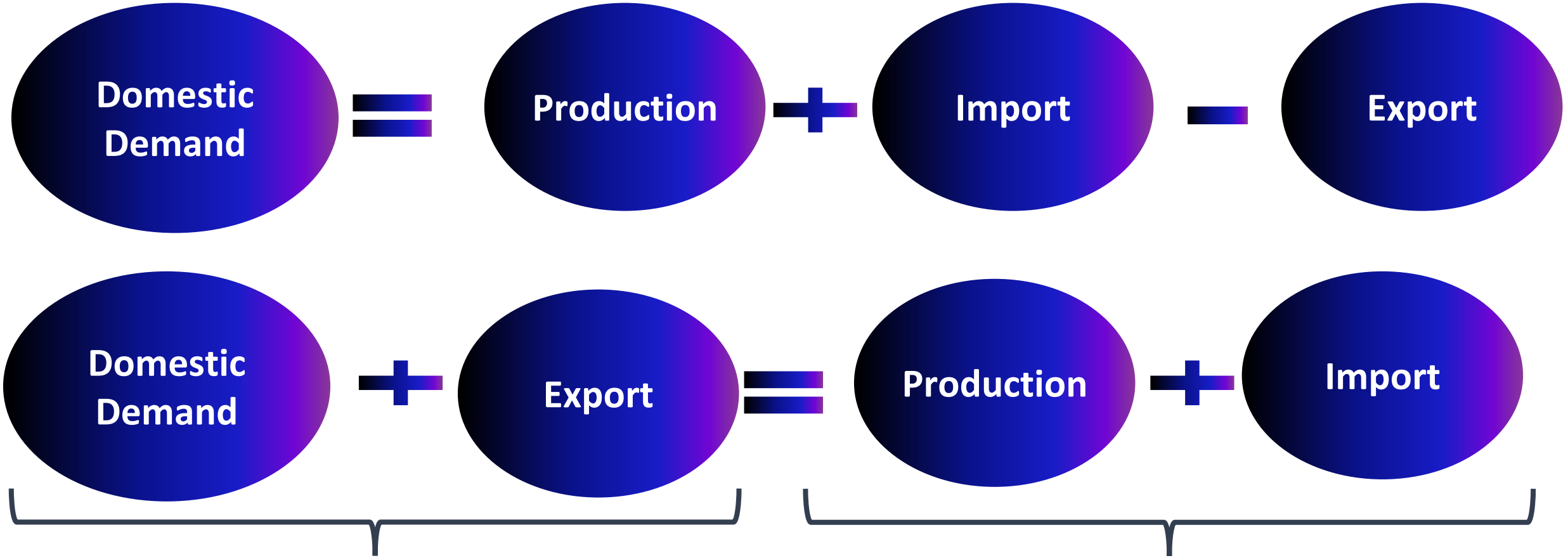
S&D- Demand Conditions

- Actual Consumption Level (production=sale, ΔInventory generally omitted)
- Domestic Market (size and structure)
- Foreign Markets (size, qualification of the goods, export figures, destination countries, target countries, selling price)
- Historical background of the demand
- Import Substitution Possibilities
- Product Diversification Possibilities

S&D- Demand Conditions



S&D- Demand Conditions



Factors Effect Frozen Potato Demand:

Frozen French Fries Demand

POSITIVE FACTORS:

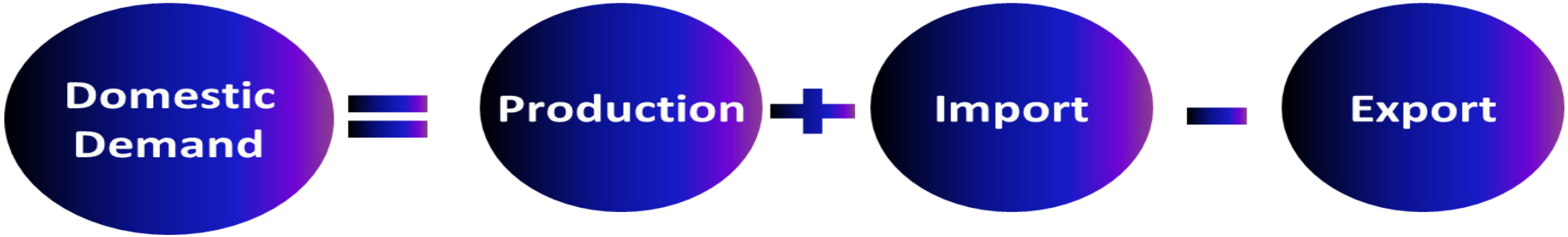
1. Increasing number of international fast-food chains
2. Developments of tourism sector
3. Increasing nıumber of tourists
4. Urbanization
5. Increasing number of working women
6. Development of frozen chain (increasing number of malls, supermarket chains)
7. Increasing Income level

NEGATIVE FACTORS:

1. Consuming habits
2. Possibility to get fresh potato every season
3. Income distribution

Domestic Demand

Production of frozen potato mainly targets domestic market, export values are negligible. Approximately 1-2 % of production is being exported, rest of production is consumed in domestic market. Import is also negligible.



Years	Production (Ton)	Import (Ton)	Export (Ton)	Domestic Consumption (Ton)	Change %
2005	42,756	505	1,842	41,419	-
2006	56,829	133	1,818	55,144	33.1
2007	73,172	299	5,411	68,060	23.4
2008	67,511	850	816	67,545	-0.8
2009	73,311	342	830	72,823	7.8
2010	101,264	212	686	100,790	38.4

Developments of Demand Factors

Years	Population	# of Tourist	Income Per Capita (USD)	Urbanization Rate (%)
1990	56,473,035	5,389,308	2,682	59.0
2000	67,803,927	10,428,153	4,129	64.9
2007	70,586,256	23,340,911	9,247	70.5
2010	73,722,988	28,632,204	10,003	76.3
2011	76,667,864	34,910,098	10,807	91.3

Whilst number of working woman 5.1 mio in 2004, it reached 7.5 mio in August 2012 (48 % increase).

TAB Gıda has 600 restaurants. They are serving under franchising agreement of international fast food chains such as Burger King, Popeyes, Sbarro ve Arby's.

KFC is operating 12 cities (61 restaurants), and Pizza Hut is active in 7 cities with 45 branches.

Developments of Demand Factors

Development of Number of Firms

NACE Classification	2003	2004	2005	2006	2007	2008	2009	Change in Period (%)
Hotels and Motels	6,854	8,413	8,737	10,560	10,616	10,771	11,038	61.0
Restaurants, patisseries, cafes etc.	54,153	66,038	67,361	75,147	76,148	76,903	79,103	46.1
Catering firms	1,096	1,110	1,282	1,367	1,540	1,962	1,745	59.2

S&D- Demand Forecasting Techniques

- **There is no "one fits all" technique**
- **Time Series Analysis vs Cross Section Analysis (or both?, Panel Data Analysis)**
- **Restriction of the chosen techniques (confidence level, accurate data, number of data, econometric and statistical problems)**
- ***"Driving the Car by Looking at Rear-View Mirror"* (Lucas Critique, Changes in Individual Behavioral Pattern and Expectation, Structure of the Production)**
- **Anyway, some mostly used techniques are;**

S&D- Demand Forecasting Techniques

S&D- Demand Forecasting Techniques (cont'd)

- **Decomposition Analysis of Time Series, is the decompose of the any time series into main four components, seasonal effects, trend, conjunctural effects (business cycle) and error term**
- **$Y_t = f(Tr_t, Sn_t, Cl_t, \varepsilon_t)$, where,**
  - Tr_t is trend component,
  - Sn_t is the seasonal component,
  - Cl_t is the conjunctural component
  - E_t is the error term.

- **While we assume Cl_t is constant (in fact, it is not, remember the Global Crisis) we may find appropriate form of the other three components**

S&D- Demand Forecasting Techniques (cont'd)

Trend Analysis by using OLS (demand is the function of the time, T)

Linear $(Y_t=\beta_0 + \beta_1 T_t)$

Quadratic $(Y_t=\beta_0 + \beta_1 T_t + \beta_2 T_t^2)$

Exponential $Y_t = \beta_0 \beta_1^T \Longrightarrow \ln Y_t = \ln \beta_0 + Ln\beta_1 T$

S&D- Demand Forecasting Techniques (cont'd)

Example : Triple Moving Average and Exponential Smoothing

Periods	Actual Value (V)	Triple Moving Average (F)	Exponential Smoothing (F)		
			α = 0.2	α = 0.5	α = 0.8
1	4,200				
2	4,100		4,200	4,200	4,200
3	4,300		4,180	4,150	4,120
4	3,800	4,200	4,204	4,225	4,264
5	3,500	4,067	4,123	4,013	3,893
6	3,700	3,867	3,999	3,756	3,579
7	3,400	3,667	3,939	3,728	3,676
8	3,300	3,533	3,831	3,564	3,455
9	3,800	3,467	3,725	3,432	3,331
10	4,200	3,500	3,740	3,616	3,706
11	4,400	3,767	3,832	3,908	4,101
12	4,450	4,133	3,946	4,154	4,340
Forecast	**??**	**4,350**	**4,046**	**4,302**	**4,428**

Selection Criteria: The method which has minimum sum (average) of squares of error (MSE) is preferred.

MSE = ∑(Actual Value – Estimated Value)^2

Triple Moving Average

Forecast $F_t = (V_{t-1} + V_{t-2} + V_{t-3}) / 3$

V: Actual Value, F: Forecast Value

F_{13} Forecast = (4,450+4,400+4,200)/3 =4,350

Exponential Smoothing

Forecast $F_t = Ft_{-1} + \alpha (Vt_{-1} - Ft_{-1})$

V: Actual Value, F: Forecast Value

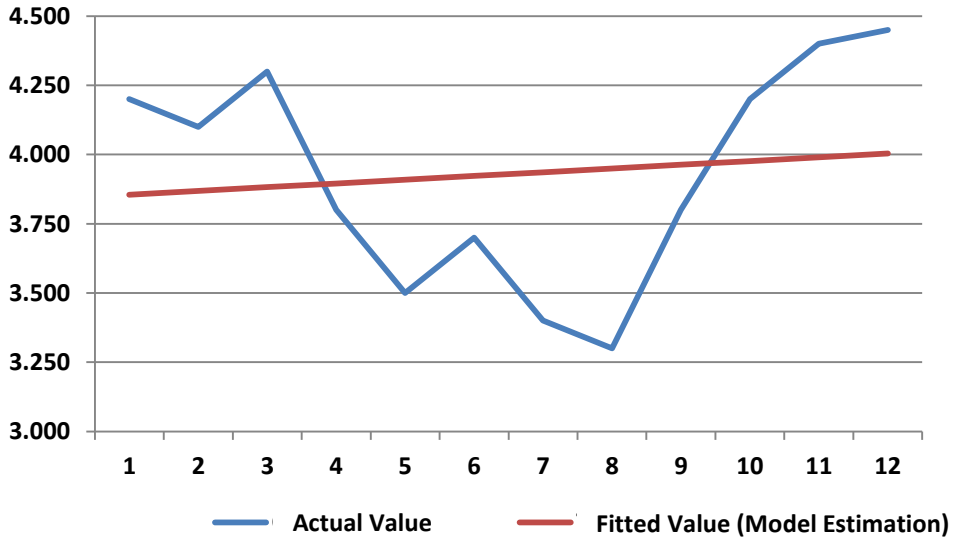
F_{13} Forecast = 3,946+0.2(4,450-3,946) =4,046

S&D- Demand Forecasting Techniques (cont'd)

Example ; Trend

Actual and Estimated Values

Periods	Actual Value	Estimation	Error
1	4,200	3,855	345
2	4,100	3,869	231
3	4,300	3,882	418
4	3,800	3,896	-96
5	3,500	3,909	-409
6	3,700	3,922	-222
7	3,400	3,936	-536
8	3,300	3,949	-649
9	3,800	3,963	-163
10	4,200	3,976	224
11	4,400	3,990	410
12	4,450	4,003	447



Regression Statistics	
Multiple R	0.121607264
R Square	**0.014788327**
Adjusted R Square	-0.083732841
Standard Error	415.4970764
Observation	12
F Statistics	**0.150103**
P Value	**0.706555**

1-α = 0.95 ⇒ P-Value must be < 0.05 (Confidence Interval)

	Coefficients	*Standard Error*	*t Stat*	*P-Value*
Intercept	3841.666667	255.7207732	15.0229	3.45E-08
t	13.46153846	34.74561103	0.387431	0.706555

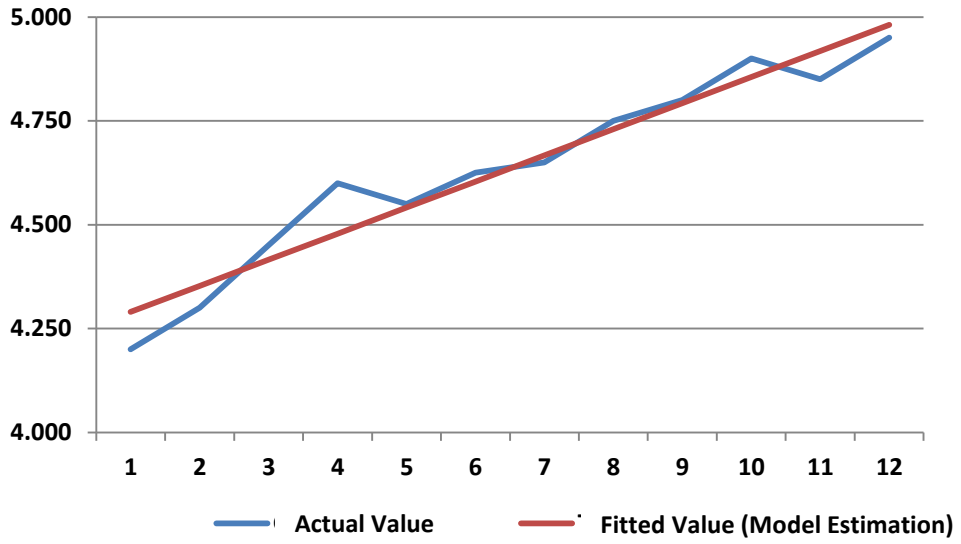
y= 3841.667+ 13.46154 t
(15.02) (0.39)

S&D- Demand Forecasting Techniques (cont'd)

Example ; Trend (2)

Actual and Estimated Values

Periods	Actual Value	Estimation	Error
1	4,200	4,290	-90
2	4,300	4,353	-53
3	4,450	4,415	35
4	4,600	4,478	122
5	4,550	4,541	9
6	4,625	4,604	21
7	4,650	4,667	-17
8	4,750	4,730	20
9	4,800	4,793	7
10	4,900	4,855	45
11	4,850	4,918	-68
12	4,950	4,981	-31



Regression Statistics	
Multiple R	0.969813026
R Square	**0.940537305**
Adjusted R Square	0.934591036
Standard Error	59.7592538
Observation	12
F Statistics	**158.1727**
P Value	**1.8766E-07**

1-α = 0.95 ⇒ P-Value must be < 0.05 (Confidence Interval)

	Coefficients	*Standard Error*	*t Stat*	*P-Value*
Intercept	4226.893939	36.77928	114.926	6.1E-17
t	62.84965035	4.99732	12.57667	1.88E-07

y= 4226.894+ 62.8497 t
(114.93) (12.57)

S&D- Demand Forecasting Techniques (cont'd)

- **Econometric Models, are built for three purposes;**
  - Structural Analysis (growth of GDP vs M1)
  - Forecasting (growth of GDP vs growth of manufacturing output)
  - Simulation (growth of GDP vs # of Incentive Certificates)

- **Commonly known and used technique is Regression Analysis (also using OLS and in different forms)**

- $Y_t=\beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t}$

- **Means that Y (dependent variable) is the function of X_1 and X_2 (explanatory-independent variables)**

S&D- Demand Forecasting Techniques (cont'd)

- **Survey (questionnaire)**
- **Leading Indicators**
- **Elasticity of demand (income and price elasticity)**
- **Benchmarking**
- **Non-parametric techniques (such as Delphi)**
- **Etc..**

Demand Estimation (Consumption per capita)

Consumption of the frozen potato (as well as per capita terms) has risen by years in Turkey.

Years	Mid Year Population (Thousand)	Domestic Cons. (Ton)	Per capita Consump. (Kg)
2005	68,566	41,419	0.6
2006	69,395	55,144	0.8
2007	70,215	68,060	1.0
2008	71,095	67,545	1.0
2009	72,050	72,823	1.0
2010	73,003	100,790	1.4

While average per capita consumption of frozen potato in EU countries is about 20 kg, it is 50 kg in US.

The reason of having lower per capita consumption figures in Turkey is, traditional nutrition habits.

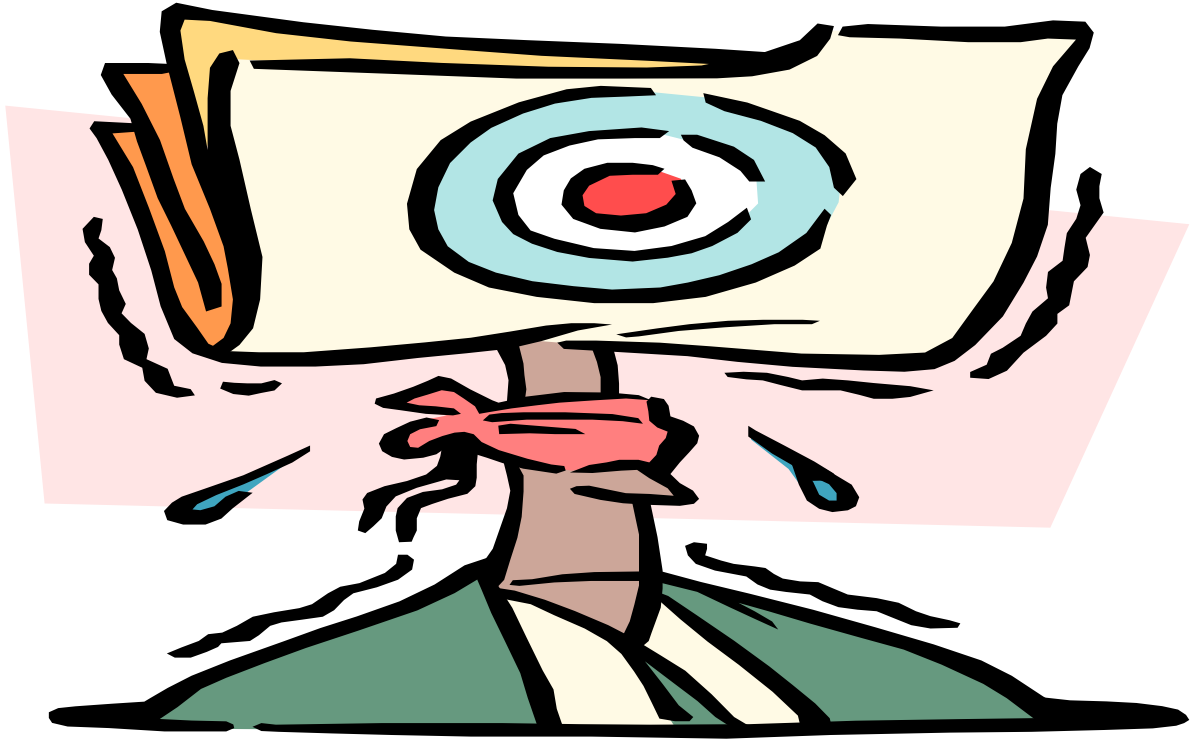
Demand Estimation (Consumption per capita)

	Mid Year Population (Thousand Person)	Per Capita Cons. (kg)	Domestic Cons. (ton)
2012	74,885	1.5	112,328
2013	75,811	1.5	113,717
2014	76,707	1.5	115,061
2015	77,601	1.5	116,402
2016	78,478	1.7	133,413
2017	79,337	1.7	134,873
2018	80,173	1.7	136,294
2019	80,983	1.7	137,671
2020	81,778	1.7	139,023

Domestic Demand = Mid Year Population Estimation X Per capita Consumption

END OF SESSION IV

Comments ???
Questions ???



Foreign Trade

- **Scope; Defining foreign trade components (Import&Export) which effect supply and demand**

- **Components:**
  - Import
  - Export
- **Import:** Imported goods are crucial and good indicator of market conditions in case of;
  - lack of domestic supply
  - Huge difference between domestic and imported goods in terms of price and/or quality

- **Export:** Export is important part of total demand and alternative market in case of volatile domestic demand

- **Method:** Analyzing import and export figures by volume and quality
- **Data Source:** Turkish Statistical Institute

Export

Export (000 USD) (ISIC REV. 3)

	2005	2006	2007	2008	2009	2010	2011	2012 (8 m)
Manufacturing Industry	68,813,408	80,246,109	101,081,873	125,187,659	95,449,246	105,466,686	125,962,537	94,299,792
10- Food Products	4,271,660	4,339,135	5,164,489	6,475,836	5,931,131	6,702,887	8,880,453	6,019,309
Processing and preserving of potatoes (STIC 20410)	**1,423**	**1,484**	**5,401**	**917**	**912**	**843**	**2,469**	**1,955**

Export amount and value of the frozen potato is as follows according to the TSI data:

	Export	
Years	**Ton**	**Thousand USD**
2005	1,842	1,423
2006	1,818	1,484
2007	5,411	5,401
2008	816	917
2009	830	912
2010	686	843
2011	2,251	2,469
2012	1,843	1,955

Source: TSI, Foreign Trade Statistics

Import

Import (000 USD) (ISIC REV. 3)

	2005	2006	2007	2008	2009	2010	2011	2012 (8 m)
Manufacturing Industry	94,208,255	110,378,826	133,938,136	150,252,335	111,030,525	145,366,975	183,930,287	117,034,287
10- Food Products	2,114,179	2,453,059	2,660,999	3,763,099	2,907,764	3,429,465	4,904,769	3,417,040
Processing and preserving of potatoes (STIC 20410)	**517**	**205**	**510**	**1,344**	**632**	**366**	**753**	**1,034**

Import amount and value of the frozen potato is as follows according to the TSI data:

	Import	
Years	**Ton**	**Thousand USD**
2005	505	517
2006	133	205
2007	299	510
2008	850	1,344
2009	342	632
2010	212	366
2011	345	753
2012	513	1,034

Source: TSI, Foreign Trade Statistics

Comparison of Supply and Demand

❑ **Scope: To determine the supply/demand balance by taking into account the current and future levels of them.**

❑ **Method:** Comparing the current and future installed capacity figures by current and projected demand figures.

❑ **Data Source:** Data obtained in the supply and demand sections.

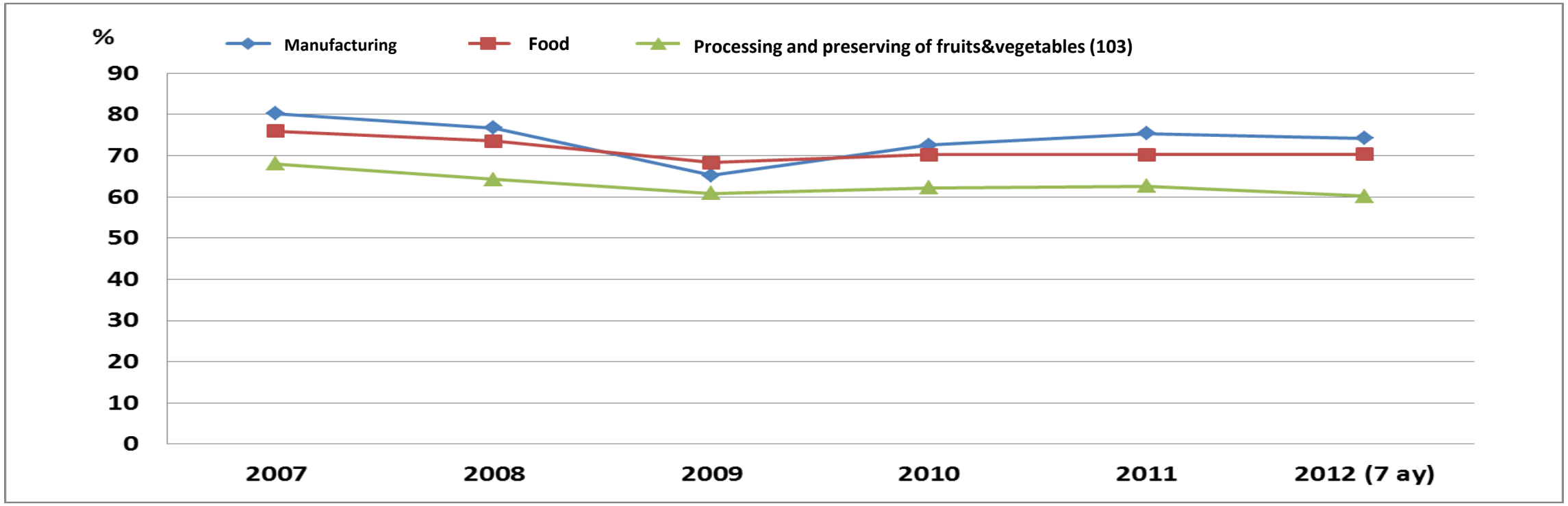
Comparison of Supply and Demand

- Past performance of the sector&product (comparison of historical figures of S&D and obtaining historical values of CUR)
- Do not forget foreign trade figures (import is the part of supply and export is the component of the demand)
- Combine two part of reports (expected supply and projected demand) and obtain near future scenario (forecasting of CUR)
- Sectoral CUR is an important indicator of demand/supply surplus and a good benchmark for the expected CUR for the firm

Development of Capacity Utilization Ratios

CUR (%)

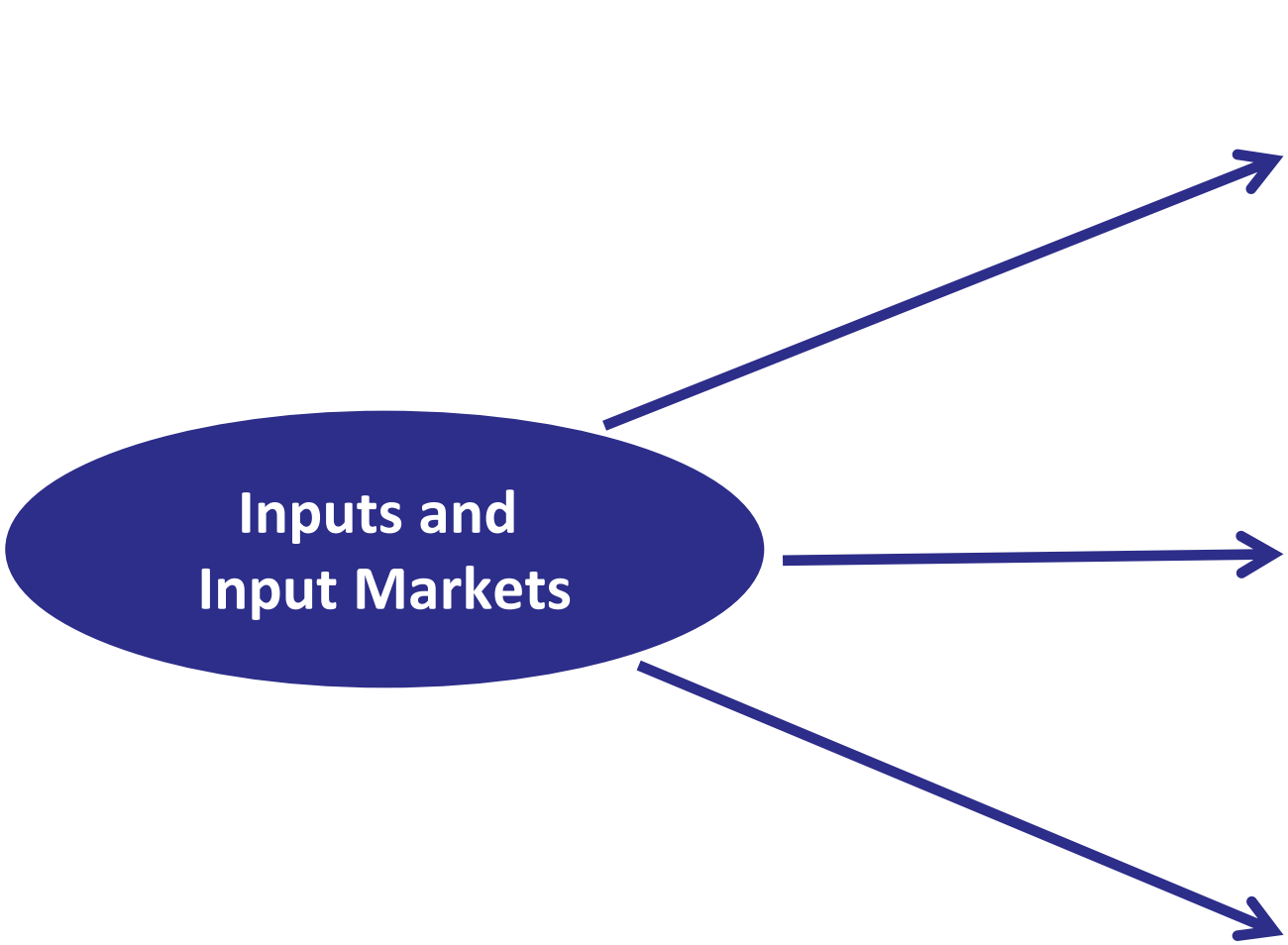
	2007	2008	2009	2010	2011	2012 (7 m)
Manufacturing	80.2	76.7	65.2	72.6	75.4	74.2
10 – Food Industry	76.0	73.6	68.4	70.3	70.2	70.4
Processing and preserving of fruits&vegetables (103)	**68.1**	**64.2**	**60.9**	**62.2**	**62.7**	**60.2**



Input Market and Input Prices

- Are the inputs (raw, auxiliary goods) depend on import
- Structure of the input market (monoply, oligopoly etc.)
- Restrictions on procurement (related to the level of the inventory for input)
- Prices of the inputs (related to the profit margin of the firm)
- Maturity of the input items (related to the working capital requirement)

Input Market and Input Prices



RAW/AUXILIARY/WORKING MATERIALS:

- Major raw materials?
- Auxiliary materials?
- Working materials define the final shape/condition of goods

PROCUREMENT (SUPPLY) :

- Where? (Region, other regions,import))
- Structure of input market? (Monopoly, oligopoly, perfect competition)
- Problems in procurement raw materials?

INPUT PRICES AND MATURITY:

- All-in cost prices of Inputs (VAT excluded)
- Maturity terms in Input Market

Input Market and Input Prices

Main raw material is potato (33,600 Ton), besides some auxiliary materials such as water, oil etc. and working materials such as packaging materials are used in production process.

According to the target market, there are two main types of Frozen French Fries;

- **Standard**
- **Mc-Fries**

Main Characteristics of Frozen French Fries

Product Type	Target Market	Sale Price	Raw Quality	Technology	Cost	Productivity	Packaging Type
Standard Quality	Household	Low	Normal-Standard	Low-Medium	Low	High	Consumer
Mc-Fries Quality	Fast food	High	High	High	High	Low	Industrial

Input Market and Input Prices

POTATO PRODUCTION IN TURKEY (TON)			
Years	**Potato (Other Type)**	**Potato (Sweet)**	**Total**
2000	5,370,000	-	5,370,000
2001	5,000,000	-	5,000,000
2002	5,200,000	-	5,200,000
2003	5,300,000	-	5,300,000
2004	4,770,000	30,000	4,800,000
2005	4,060,000	30,000	4,090,000
2006	4,366,180	31,125	4,397,305
2007	4,227,726	18,481	4,246,207
2008	4,196,522	28,646	4,225,168
2009	4,397,711	27,728	4,425,439
2010	4,513,453	34,930	4,548,383
2011	4,613,071	35,010	4,648,081

Source: TSI

Input Market and Input Prices

POTATO PRODUCTION OF NİĞDE PROVINCE

Years	PRODUCTION (TON) Potato (Other Type)	Potato (Sweet)	Total
2000	1,296,020	-	24.1
2001	1,095,249	-15.5	21.9
2002	1,206,876	10.2	23.2
2003	1,293,694	7.2	24.4
2004	929,256	-28.2	19.4
2005	712,865	-23.3	17.4
2006	721,360	1.2	16.4
2007	793,401	10.0	18.7
2008	722,482	-8.9	17.1
2009	715,849	-0.9	16.2
2010	728,564	1.8	16.0
2011	731,270	0.4	15.7

Source : TSI

Share of potato production of Niğde province in Turkey is about 16 %.

Input Market and Input Prices

Inputs

MAIN RAW MATERIALS:
Fresh Potato: 128 USD/Ton
Stored Potato: 220 USD/Ton

AUXILIARY MATERIALS:
Frying Oil: 1,250 USD/Ton
Sodium Acid Pryophospate: 18,000 USD/Ton

WORKING MATERIALS:
Polyethylene film: 1,500 USD/Ton
Cardboard box: 0.30 USD/Item

Maturity: All inputs paid in advance.

Sectoral Independencies and Sectoral Interactions

VALUE ADDED CHAIN (TOTAL BACKWARD LINKAGE)

Final demand of F&B increased 1 unit

↓

F&B sectoral output increased 1 unit to meet the increased final demand

↓

Input requirement of F&B from other sectors, increased

↓

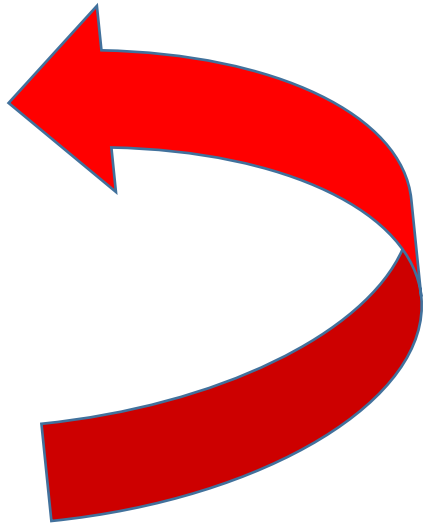
Input provider sectors' (suppliers) own production increased

↓

Suppliers needed more input to meet the new own production level, their suppliers' production (including F&B), increased

↓

All suppliers production increased to meet the their customer's demand



Sectoral Independencies and Sectoral Interactions

VALUE ADDED CHAIN (TOTAL BACKWARD LINKAGE)

Final demand of F&B increased 1 unit

Sector		1	2	3	4	5	…	Total
Food& Bevevarge	Coefficient	1.186	0.542	0.140	0.127	0.110	…	2.498
	Sector	F&B	Agriculture	Trade	Logistics	Oil	…	

Total production in the whole economy increased 2.498 unit

Sectoral Independencies and Sectoral Interactions

THREE SECTORS WHICH F&B IS THE IMPORTANT SUPPLIER

Sector		1	2	...	Total
1516-F&B	Coeff.	0.4411	0.1842	...	**0.7747**
	NACE Code	0105-Agricult.	1516-F&B	...	
19-Leather Prod.	Coeff.	0.3265	0.1449	...	**0.7477**
	NACE Code	19-Apparel	1516-F&B	...	
55-Hotel&Rest.	Coeff.	0.2043	0.1126	...	**0.5566**
	NACE Code	1516-F&B	0105-Agricult.	...	

Direct Backward Linkage Coefficients

INDUCED PRODUCTION INCREASE (TOTAL FORWARD LINKAGE)

Three sectors' (F&B, Leather Products and Hotel&Restaurants) final demand increased 1 unit

↓

Those 3 sectors increased their production to meet the increased demand

↓

3 sectors demanded more output (supply) from the F&B (as seen on the above table, Direct Backward Linkage)

↓

F&B production increased

↓

F&B needed more input, F&B's input demand increased, (including from F&B, as seen on the above table)

↓

The production of suppliers of F&B (including if any F&B) increased

Legal Framework - Incentives

- **Regional and/or sectoral incentives, provided by local/central government, may effect the profitability of the investment and unit cost/selling price of the products to be produced**

  - Follow up laws and regulations
  - The importance of correct definition of the sector and products
  - The differentations of the implementation period of the incentives (during the investment period and operating period
  - International trade restrictions (tariffs, quotas, custom policies etc.)

Legal Framework - Incentives

INVESTMENT INCENTIVE SYSTEM IN TURKEY

INCENTIVES

INVESTMENT PHASE

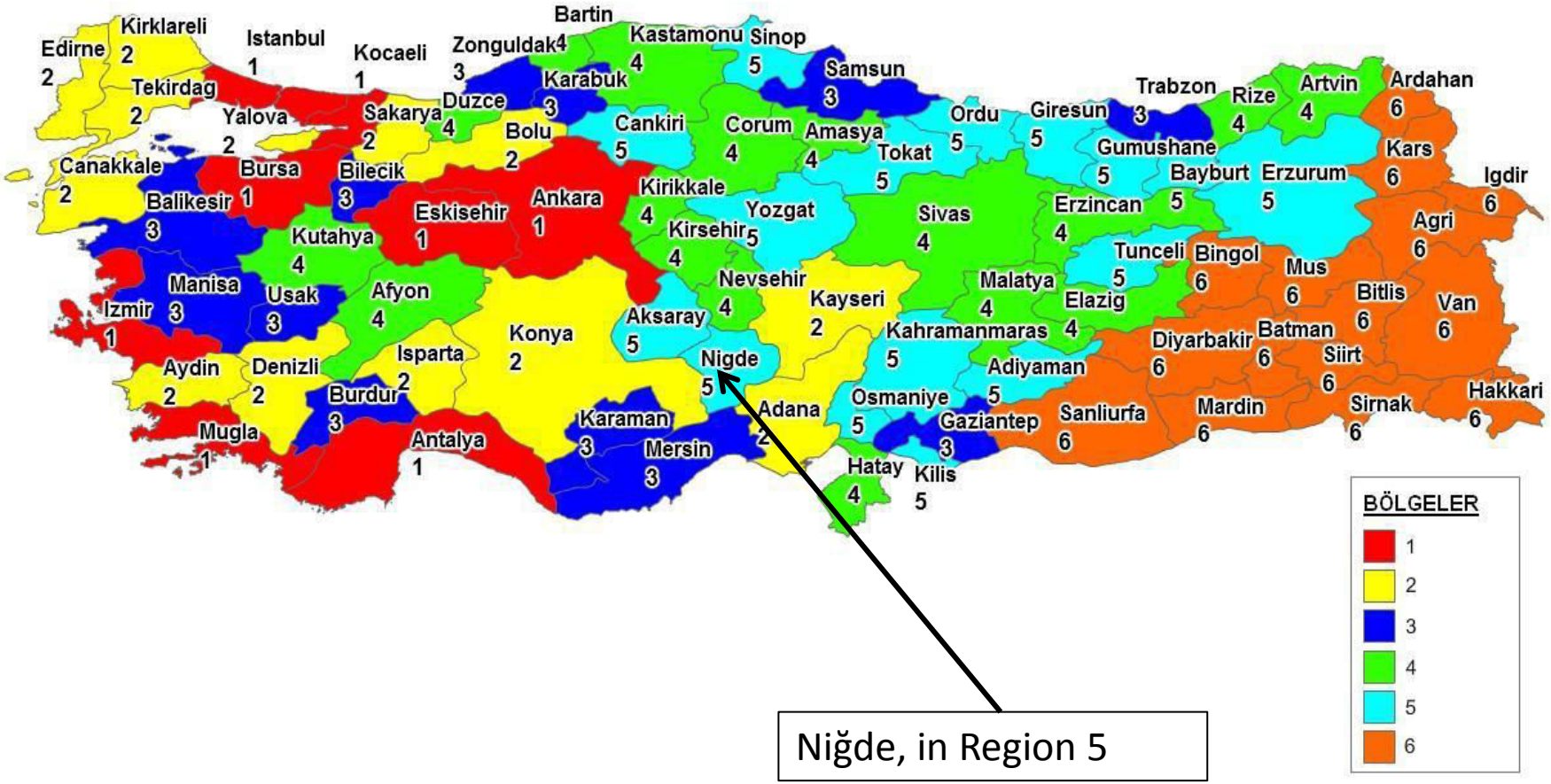
1. Custom Tax Exemption
2. Investment Place Allocation
3. VAT Exception
4. Interest Rate Discount
5. Tax Deduction

OPERATION PHASE

1. Tax Deduction
2. Employer's Social Insurance Premium Deduction
3. Interest Rate Discount
4. Employee's Social Insurance Premium Deduction

Legal Framework - Incentives

INVESTMENT INCENTIVE SCHEME MAP



Legal Framework - Incentives

On condition that frozen potato invesment will be realized in Niğde province (in the 5th region prority in development), the incentives will be as follows:

a) Custom tax exemption
b) VAT exception
c) Investment place allocation
d) Employer's Social Insurance Premium Deduction

→ **Investment Phase**

e) Tax Deduction
f) Interest Rate Discount

→ **Production (Operation) Phase**

Output Market and Sale Conditions

- Characteristic of the distribution channel in the sector
- Availability of the proper conditions of the firm in terms of sale conditions in the market
- Standards of the product
- Strategies of competitors
- Structure of the market (monopoly, oligopoly, full competition)
- Selling prices and maturity of goods to be sold
- Role of the advertisement and promotion in the market
- Existence of "leader firm or brand"
- Has the firm any "guaranteed selling contract" agreement?

Sale Conditions

Selling price of frozen potato: 1,200 USD/Ton

Average maturity on sales is 45 days.

Projected CUR for the Firm

- **Concerning all the data and results obtained by the appraisal**
- **Will define the "power of the competition" of the firm**
- **Must be given in same terms (ratio, kg, item etc) in parallel with the technical expert**

*Being **"septic"** (not pessimistic) rather than **"optimistic"**, is more **"realistic"**, considering most of the analyze depends on estimation, survey, sampling figures….*

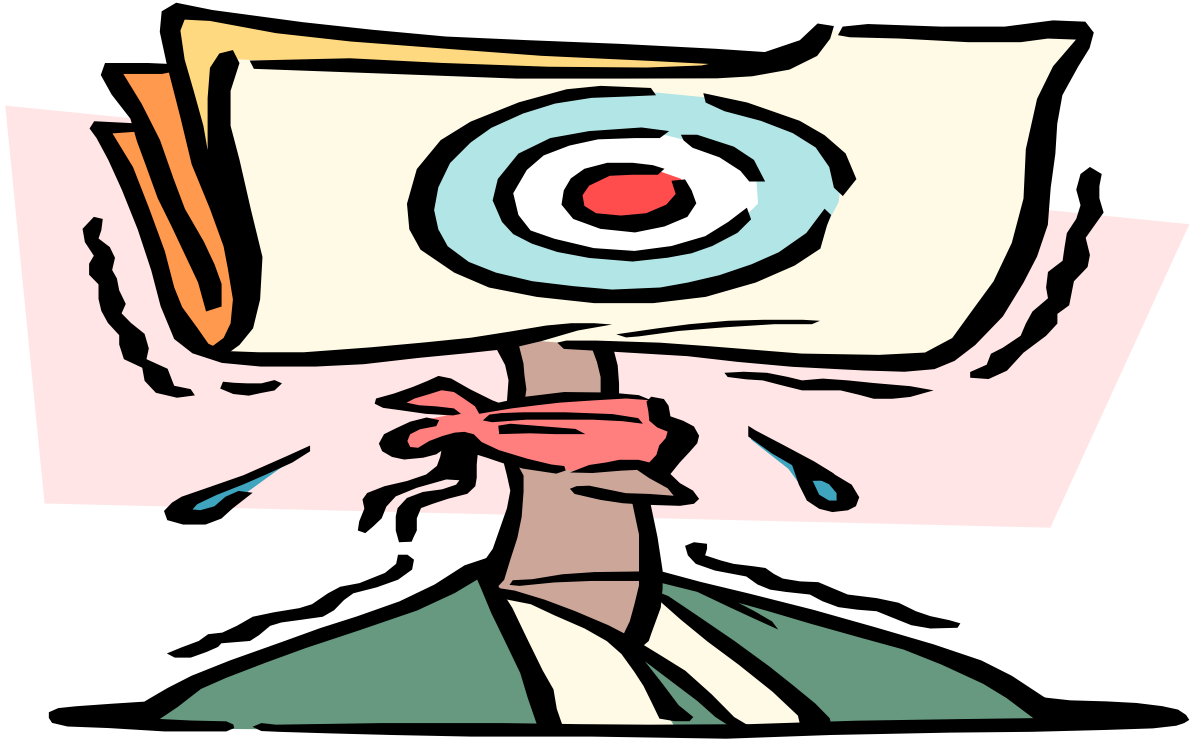
Projected CUR for the Firm

Installed capacity of the firm : 14,400 ton /year (2 shifts/day, 300 day/year)

Years	1st Year	2nd Year	3rd Year	4th Year	5th Year+
CUR (%)	60	65	70	75	80
Production (ton)	8,640	9,360	10,080	10,800	11,520

END OF SESSION V

Comments ???
Questions ???



Credit Rating/Scoring

- Scoring is to sort to the elements of a group from "the best" to "the worsts" by means of certain criteria set.

- The relative position of the firms in the (main, pre-analysis) group defined by this ranking.

Credit Rating/Scoring - Aims

1. To measure the strengths of the firms in a standard form by different criteria set

2. To compare the firms

3. Early warning

4. To monitor and manage the risk

5. To define the loan conditions (price, collateral etc)

Credit Rating/Scoring For …..

- **Loan Allication Decision**
- **Defining the Risk Level**
- **Pricing**
- **Collateralization**
- **Early Warning Model**

Credit Rating/Scoring - Models

Mathematical- Statistical Models

Models Depend on Expert Judgement

Hybrid (Mixed) Models

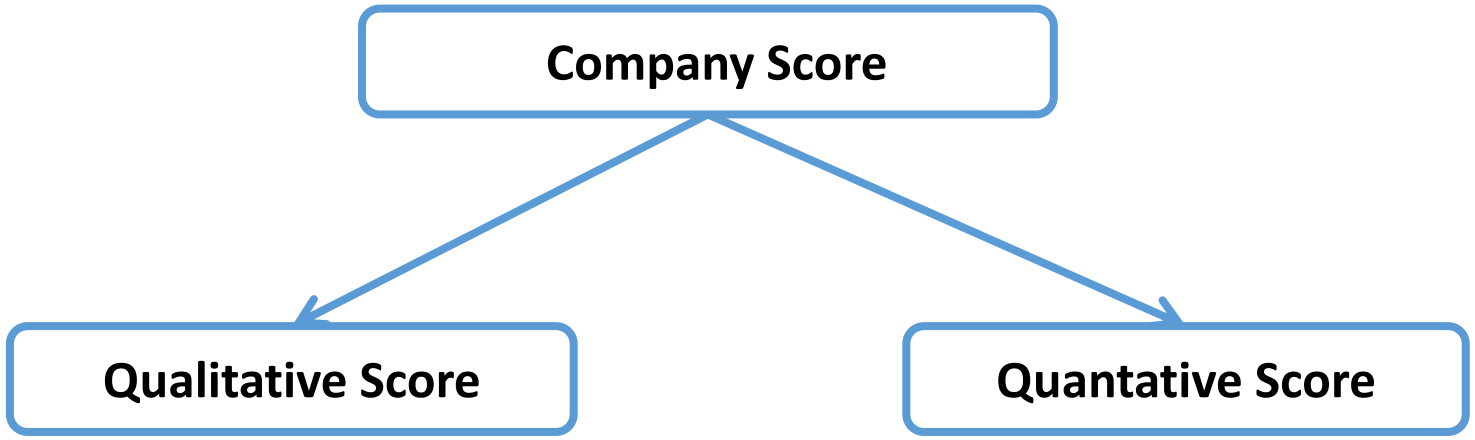
Credit Rating/Scoring – DBT Model

Hybrid Model

Qualitative Modules Set Up by Expert Judgements

Statistical Models Employed in Quantatitive Modules

Credit Rating/Scoring – DBT Model



Credit Rating/Scoring – DBT Model

DBT's Qualitative Module has 9 sub modules

- Shareholders Info
- Management and Organization
- Operating Period and Capacity
- State of Business and Reputation
- Conglomerate Companys
- Fixed Assets (Real Estate Properties)
- Company's Financial Relations
- Sister Companies' Financial Relations
- Legal Entity Shareholders' Assessment

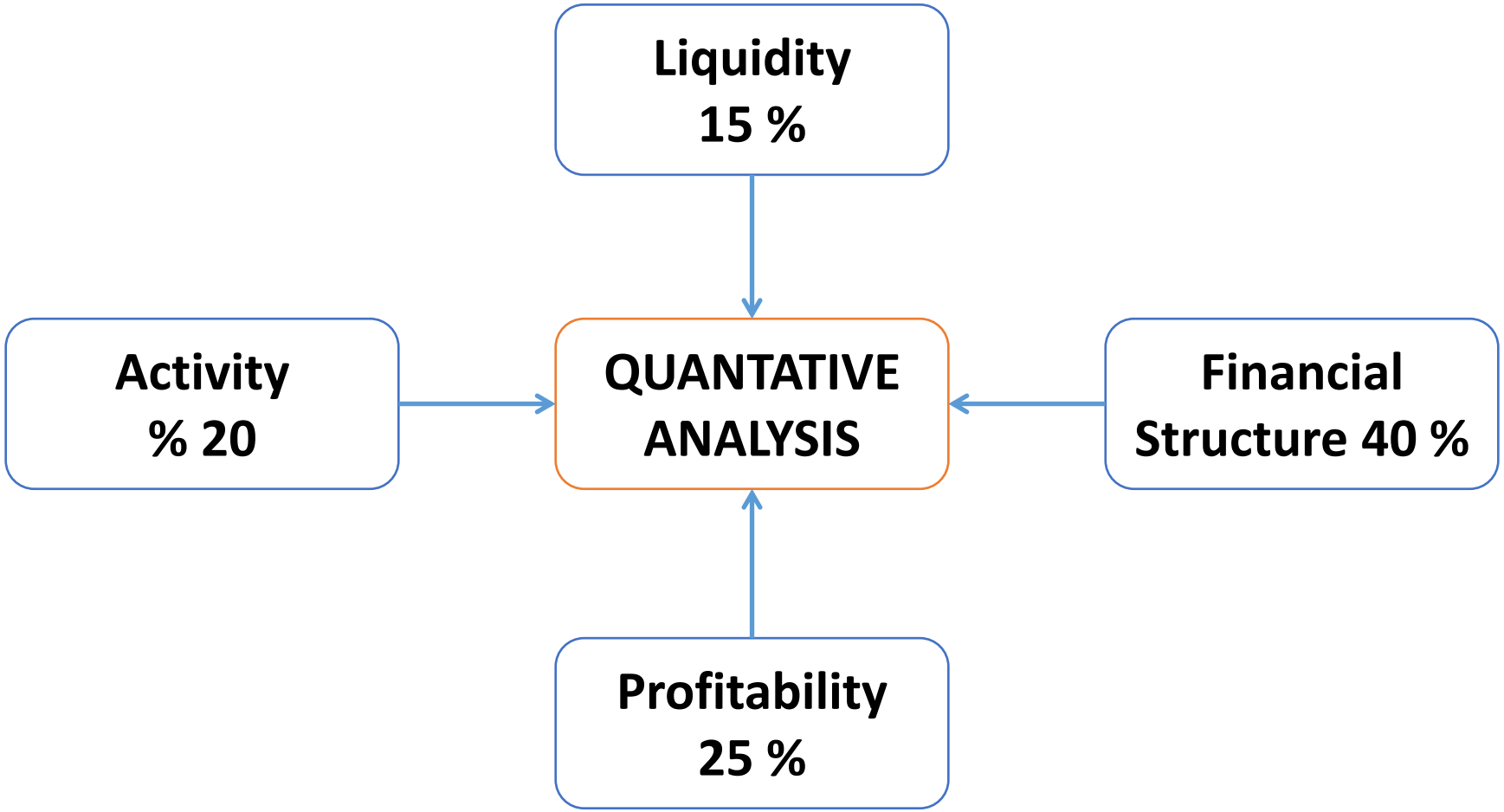
Credit Rating/Scoring – DBT Model

Qualitative Assessment Templates

State of Entity	● Investment	Operating
Legal Entity Shareholder	Exist	● None
Conglomerate Co.	● Exist	None
Letter of Guarantee	● Exist	None
Turnover	≥ 75 mio	● <75 mio
Co. Financing	Exist	● None
Group Finance	● Exist	None

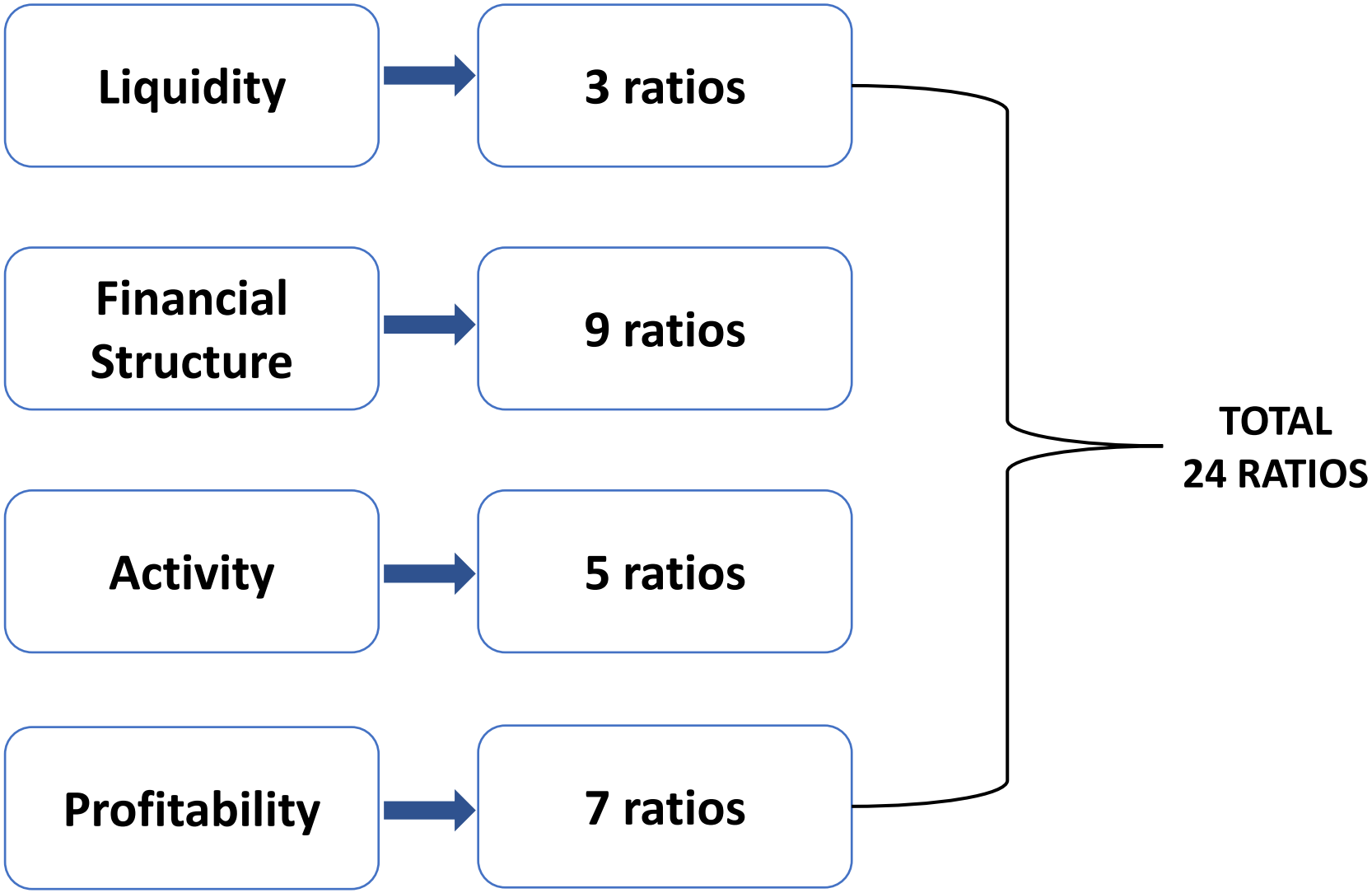
Credit Rating/Scoring – DBT Model

DBT's Quantative Module has 4 sub modules



Credit Rating/Scoring – DBT Model

Quantative Sub-Modules have 24 financial ratios



Credit Rating/Scoring – DBT Model

Quantative Sub-Modules Scoring Procedure/Algorithm

- Defining the sector of the company
- Financial tables of the sector for 4 groups (24 ratios) (including quartiles) accepted as charactestic table
- Company's calculated ratios convert to the score by interpolation method (according to the ratios' relative position in the sector characteristic table)

Credit Rating/Scoring – DBT Model

Quantative & Qualitative Modules weight varies by the size of the company

Net Sales		XXXXXXXXXXXX TL, USD etc	
Firm Size	**Small**	**Medium**	**Big**
Weight Of Qualitative Module (%)	***60***	***50***	***40***
Weight Of Quantative Module (%)	***40***	***50***	***60***

Credit Rating/Scoring – DBT Model

Scoring → Rating → Pricing → Collateralizing

Rates	Score Interval	# of default	Probability of Default	Risk Premium
A+	90-100	0	% 0.00	% 0.00
A	80-90	2	% 1.32	% 0.39
A-	70-80	4	% 2.63	% 0.79
B+	60-70	4	% 2.63	% 0.79
B	50-60	10	% 6.58	% 1.97
B-	40-50	19	% 12.50	% 3.75
C+	30-40	34	% 22.37	% 6.71
C	20-30	36	% 23.68	% 7.11
C-	10-20	37	% 24.34	% 7.30
D	0-10	37	% 24.34	% 7.30

Credit Rating/Scoring – Case Study

Rating	# of Company (*)	Total Loan Amount	Average Loan Amount	# of Default	Average Loss (**)	Total Loss (**)	Interest Payment (**)	Total Loss (Inc. Interest) (**)	Risk Premium (%) (*)
AAA	10,000	10,000,000	1,000	10	300	3,000	150	3,150	0.03
AA	5,000	10,000,000	2,000	25	600	15,000	750	15,750	0.15
A	10,000	10,000,000	1,000	80	300	24,000	1,200	25,200	0.24
BBB	20,000	10,000,000	500	400	150	60,000	3,000	63,000	0.6
BB	20,000	10,000,000	500	800	150	120,000	6,000	126,000	1.2
B	30,000	30,000,000	1,000	1,800	300	540,000	27,000	567,000	1.8
CCC	10,000	5,000,000	500	1,000	150	150,000	7,500	157,500	3
CC	5,000	1,000,000	200	600	60	36,000	1,800	37,800	3.6
C	5,000	1,000,000	200	1,000	60	60,000	3,000	63,000	6
D	1,000	200,000	200	300	60	18,000	900	18,900	9
Total	**116,000**	**87,200,000**		**6,015**		**1,026,000**	**51,300**	**1,077,300**	

Notes:

(*) : At the beginning of the period

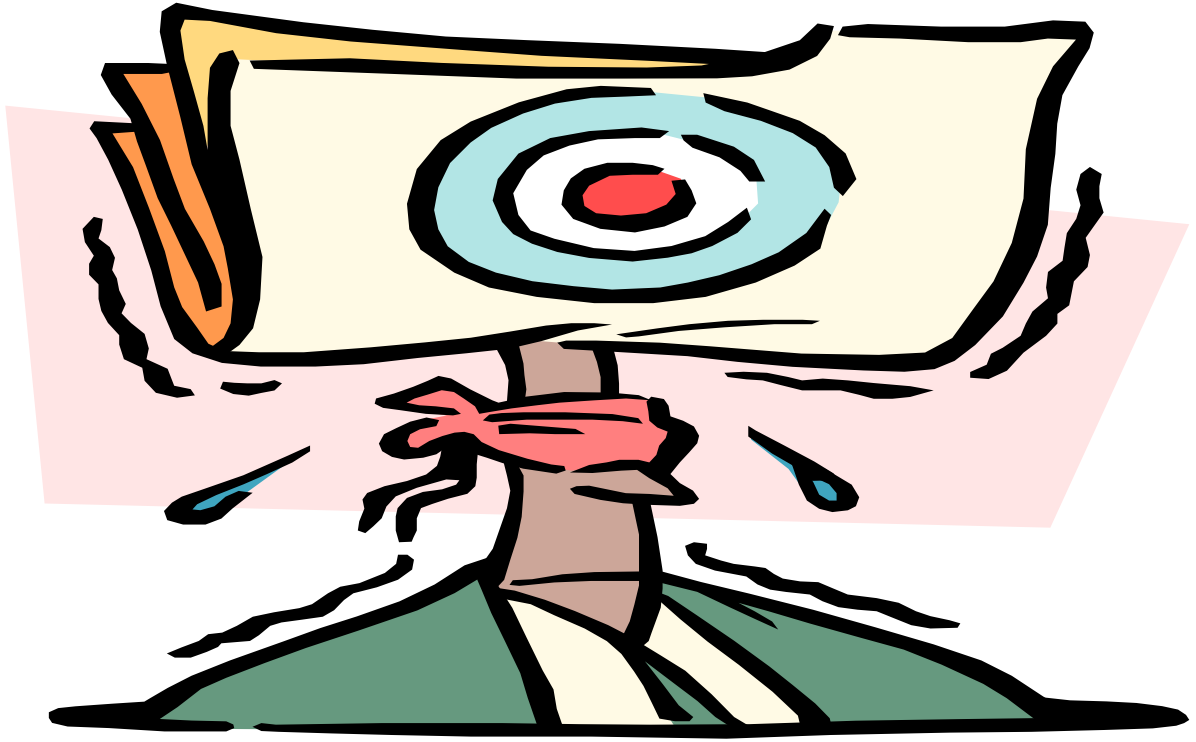
(**) : At the end of the period (in 6th month)

1. Risk free annual interest rate is assumed 10 %
2. Loss ratio on default is accepted 30 %
3. All the calculations are made semi-annually

END OF SEMINAR

Comments ???

Questions ???



Financial Appraisal

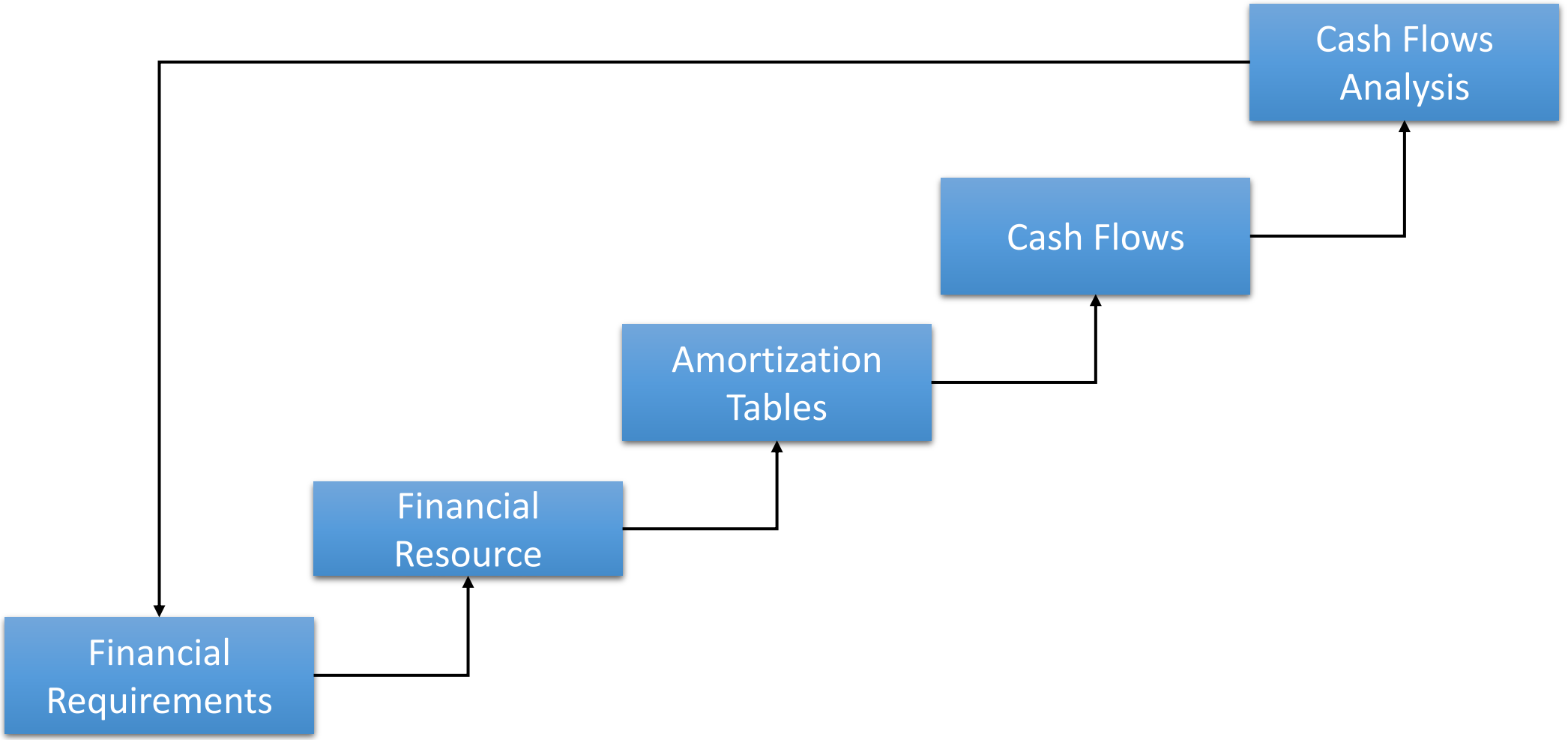
Purposes

Determining convenient debt/equity level of financial requirements

calculating cash flows by the years to support financial decisions

Financial Appraisal

Basic Steps



Financial Appraisal

Financial Table

TOTAL FINANCIAL NEEDS	CUMULATIVE			1		2	
	TOTAL	DOMESTIC	FOREIGN	DOMESTIC	FOREIGN	DOMESTIC	FOREIGN
A - Land	400.000	400.000	0	400.000	0	0	0
B - Fixed Investment	11.568.612	3.988.687	7.579.925	1.278.250	2.989.370	2.710.437	4.590.555
C - Financial Costs (ınterests)	397.500	397.500		82.500		315.000	
Total Fixed Investment	12.366.112	4.786.187	7.579.925	1.760.750	2.989.370	3.025.437	4.590.555
D -Working Capital	3.008.249	3.008.249		0	0	3.008.249	0
E - Others	717.964	717.964		230.085	0	487.879	0
TOTAL	**16.092.325**	**8.512.400**	**7.579.925**	**1.990.835**	**2.989.370**	**6.521.565**	**4.590.555**

TOTAL FINANCIAL SOURCES		CUMULATIVE			1		2	
		TOTAL	DOMESTIC	FOREIGN	DOMESTIC	FOREIGN	DOMESTIC	FOREIGN
A - Equity	52%							
1 - Capital		8.342.325	7.512.400	829.925	1.990.835	239.370	5.521.565	590.555
B - Liabilities	48%	7.750.000	1.000.000	6.750.000	0	2.750.000	1.000.000	4.000.000
1-Short Term Liabilities								
2-Medium and Long Term Liabilities		7.750.000	1.000.000	6.750.000	0	2.750.000	1.000.000	4.000.000
2.1 - Proposed Bank Loans		7.750.000	1.000.000	6.750.000	0	2.750.000	1.000.000	4.000.000
Kalkınma Investment Loan-I		2.750.000	0	2.750.000		2.750.000		
Kalkınma Investment Loan-II		5.000.000	1.000.000	4.000.000			1.000.000	4.000.000
TOTAL		**16.092.325**	**8.512.400**	**7.579.925**	**1.990.835**	**2.989.370**	**6.521.565**	**4.590.555**

Factors

- Equity available?
- Funds available?
- Any other funds?
- Project funds?

ANNUAL WORKING CAPITAL NEEDS (USD) (By Capacity Utilization Ratio)			
YEARS	CAPACITY UTILIZATION RATIO	WORKING CAPITAL NEEDS	CUMULATIVE
3	60%	3.008.249	3.008.249
4	65%	237.982	3.246.231
5	70%	237.982	3.484.213
6	75%	237.982	3.722.105
7	80%	237.982	3.959.997

Financial Appraisal

Depreciation Table

USD

FIXED ASSETS	Input Table	Amount	Dep. Rate	Dep. Amount
Civil Works	T1	1.311.000	2,00%	26.220
Plant Machinery and Equipment	T1	8.860.112	5,00%	443.006
Vehicles and Fixtures	T1	387.500	25,00%	96.875
Others	T1	895.000	10,00%	89.500
Total		**11.453.612**		655.601

Weighted Dep. Rate	**5,72%**

Fixed Assets to be amortised	Input Table	Amount
Fixed Investment	T1	11.453.612
Financial Cost	T5	397.500
Total		11.851.112
(-) accumulated depreciation		0
Net Fixed Assets to be amortised		11.851.112

Annual Weighted Average Dep. Amount		**678.353**

Year	Dep. Amount	Net Fixed Assets to be amortised
1	678.353	11.172.759
2	678.353	10.494.405
3	678.353	9.816.052
4	678.353	9.137.699
5	678.353	8.459.345
6	678.353	7.780.992
7	678.353	7.102.639
8	678.353	6.424.285
9	678.353	5.745.932
10	678.353	5.067.578
11	678.353	4.389.225
12	678.353	3.710.872
13	678.353	3.032.518
14	678.353	2.354.165
15	678.353	1.675.812
16	678.353	997.458
17	678.353	319.105
18	319.105	(0)

Financial Appraisal

Amortization Tables

Loan 1				
LOAN AMOUNT	2.750.000 USD		Interest Rate	6%
DISBURSEMENT DATE	June/First year			
MATURITY	7 YEARS			
GRACE PERIOD	2 YEARS			
Month/Year	LOAN		INTEREST	TOTAL PAYMENT
	REMAINING	DUE		
06/01	2.750.000	0	0	0
12/01	2.750.000	0	82.500	82.500
06/02	2.750.000	0	82.500	82.500
12/02	2.750.000	0	82.500	82.500
06/03	2.500.000	250.000	82.500	332.500
12/03	2.250.000	250.000	75.000	325.000
06/04	2.000.000	250.000	67.500	317.500
12/04	1.750.000	250.000	60.000	310.000
06/05	1.500.000	250.000	52.500	302.500
12/05	1.250.000	250.000	45.000	295.000
06/06	1.000.000	250.000	37.500	287.500
12/06	750.000	250.000	30.000	280.000
06/07	500.000	250.000	22.500	272.500
12/07	250.000	250.000	15.000	265.000
06/08	0	250.000	7.500	257.500
TOTAL		**2.750.000**	**742.500**	**3.492.500**

Loan 2				
LOAN AMOUNT	5.000.000 USD			6%
DISBURSEMENT DATE	June/Second year			
MATURITY	7 YEARS			
GRACE PERIOD	2 YEARS			
Month/Year	LOAN		INTEREST	TOTAL PAYMENT
	REMAINING	DUE		
06/02	5.000.000	0	0	0
12/02	5.000.000	0	150.000	150.000
06/03	5.000.000	0	150.000	150.000
12/03	5.000.000	0	150.000	150.000
06/04	4.545.455	454.545	150.000	604.545
12/04	4.090.909	454.545	136.364	590.909
06/05	3.636.364	454.545	122.727	577.273
12/05	3.181.818	454.545	109.091	563.636
06/06	2.727.273	454.545	95.455	550.000
12/06	2.272.727	454.545	81.818	536.364
06/07	1.818.182	454.545	68.182	522.727
12/07	1.363.636	454.545	54.545	509.091
06/08	909.091	454.545	40.909	495.455
12/08	454.545	454.545	27.273	481.818
06/09	0	454.545	13.636	468.182
TOTAL		**5.000.000**	**1.350.000**	**6.350.000**

Financial Appraisal

Proforma Income Statement (USD)

ITEMS/YEARS		Input Table	1	2	3	4	5	6	7	8	9	10
CUR			60%	65%	70%	75%	80%	80%	80%	80%	80%	80%
1 - Project Income		T2	10.368.000	11.232.000	12.096.000	12.960.000	13.824.000	13.824.000	13.824.000	13.824.000	13.824.000	13.824.000
2 - Operating Costs (-)		T8	6.847.536	7.367.343	7.887.151	8.406.958	8.926.765	8.926.765	8.926.765	8.926.765	8.926.765	8.926.765
3 - Profit Before Interest&Depreciation&Tax (EBITDA)			3.520.464	3.864.657	4.208.850	4.553.042	4.897.235	4.897.235	4.897.235	4.897.235	4.897.235	4.897.235
4 - Depreciation (-)		T8	678.353	678.353	678.353	678.353	678.353	678.353	678.353	678.353	678.353	678.353
5-Profit Before Interest and Tax (EBIT)			2.842.111	3.186.303	3.530.496	3.874.689	4.218.882	4.218.882	4.218.882	4.218.882	4.218.882	4.218.882
6 - Interest (-)		T8	457.500	413.864	329.318	244.773	160.227	75.682	13.636	0	0	0
7-Profit Before Tax / Tax Base			2.384.611	2.772.440	3.201.178	3.629.916	4.058.654	4.143.200	4.205.245	4.218.882	4.218.882	4.218.882
8-Year Loss Deduction			0	0	0	0	0	0	0	0	0	0
9 - Cooperate Tax Base			3.520.464	3.864.657	4.208.850	4.553.042	4.897.235	4.897.235	4.897.235	4.897.235	4.897.235	4.897.235
10 - Cooperate Tax (-)	20%		70.409	77.293	84.177	91.061	97.945	97.945	97.945	547.360	979.447	979.447
11 - Profit after tax			3.450.055	3.787.364	4.124.673	4.461.981	4.799.290	4.799.290	4.799.290	4.349.875	3.917.788	3.917.788
12 - Cooperate Reserves (-)	5%		172.503	189.368	206.234	223.099	239.965	239.965	239.965	157.368	0	0
13 - Net Profit for Dividents (-)			3.277.552	3.597.995	3.918.439	4.238.882	4.559.326	4.559.326	4.559.326	4.192.507	3.917.788	3.917.788
13 - Dividend (-)			655.510	719.599	783.688	847.776	911.865	911.865	911.865	838.501	783.558	783.558
14 - Net Profit			2.622.042	2.878.396	3.134.751	3.391.106	3.647.461	3.647.461	3.647.461	3.354.006	3.134.230	3.134.230

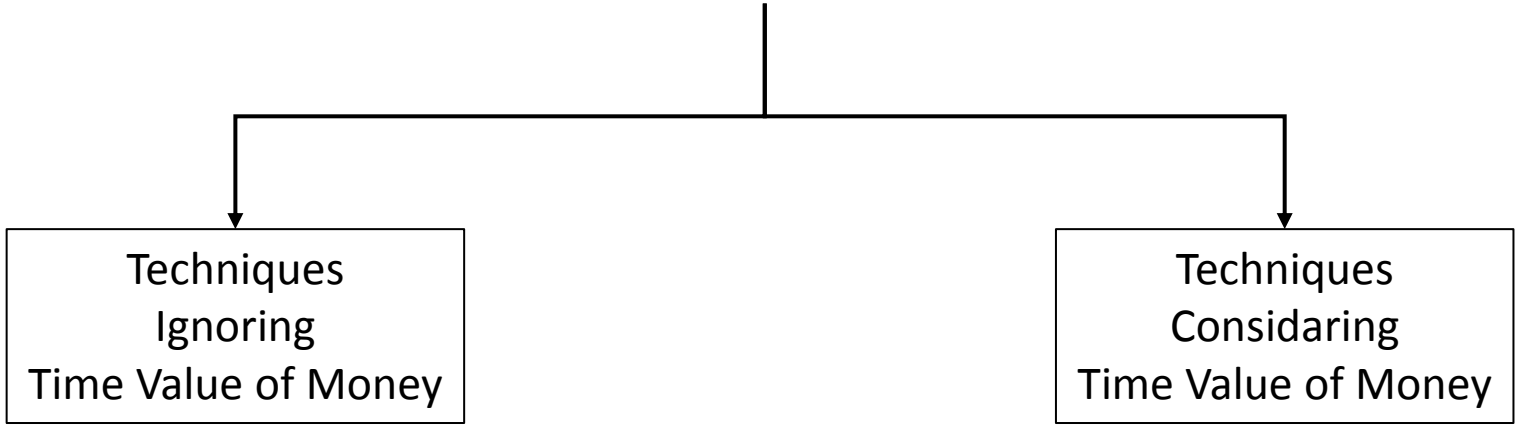
Financial Appraisal

Proforma Cash Flow Statement (USD)

ITEMS/YEARS	Input Table	1	2	3	4	5	6	7	8	9	10
CUR		60%	65%	70%	75%	80%	80%	80%	80%	80%	80%
A - Cash Inflows		**9.524.731**	**11.293.939**	**11.988.000**	**12.852.000**	**13.716.000**	**13.824.000**	**13.824.000**	**13.824.000**	**13.824.000**	**13.824.000**
1. Revenues		9.072.000	11.124.000	11.988.000	12.852.000	13.716.000	13.824.000	13.824.000	13.824.000	13.824.000	13.824.000
Gross Revenues	T2	10.368.000	11.232.000	12.096.000	12.960.000	13.824.000	13.824.000	13.824.000	13.824.000	13.824.000	13.824.000
Accounts Reciviable (-)	T3	1.296.000	108.000	108.000	108.000	108.000	0	0	0	0	0
2 -Other Cash Inflows (Grants, VAT)	T1	452.731	169.939								
B - Cash Outflows		**7.203.262**	**10.090.573**	**10.596.807**	**11.103.041**	**11.371.293**	**11.171.348**	**10.404.757**	**9.936.575**	**10.312.627**	**10.689.770**
1 - Working Capital Investment	T3	237.982	237.982	237.982	237.982	0					
2 - Net Operating Cost		6.007.779	7.303.716	7.823.523	8.343.331	8.863.138	8.926.765	8.926.765	8.926.765	8.926.765	8.926.765
Gross Operating Costs	T4	6.847.536	7.367.343	7.887.151	8.406.958	8.926.765	8.926.765	8.926.765	8.926.765	8.926.765	8.926.765
Accounts Reciviable (-)	T3	839.757	63.627	63.627	63.627	63.627	0	0	0	0	0
3 - Financial Payments		0	725.920	796.892	867.865	938.837	1.009.810	1.009.810	1.009.810	1.385.862	1.763.005
a . Cooperation Tax	T9	0	70.409	77.293	84.177	91.061	97.945	97.945	97.945	547.360	979.447
b . Dividend	T9	0	655.510	719.599	783.688	847.776	911.865	911.865	911.865	838.501	783.558
4 - Loan Payments		957.500	1.822.955	1.738.409	1.653.864	1.569.318	1.234.773	468.182	0	0	0
a . Interest	T7	457.500	413.864	329.318	244.773	160.227	75.682	13.636	0	0	0
b . Installment	T7	500.000	1.409.091	1.409.091	1.409.091	1.409.091	1.159.091	454.545		0	
C - Net Cash Flow (A-B)		**2.321.469**	**1.203.366**	**1.391.193**	**1.748.959**	**2.344.707**	**2.652.652**	**3.419.243**	**3.887.425**	**3.511.373**	**3.134.230**
D - Debt-Service Coverage Ratio		3,42	1,66	1,80	2,06	2,49	3,15				

Financial Appraisal

Analysis Based on Cash Flows



- Average rate of return
- Payback period

- NPV: Net Present Value
- IRR: Internal Rate of Return
- MIRR: Modified IRR

Financial Appraisal

Average Rate of Return

This ratio represents the ratio of the average annual profit after taxes to investment amount

$$\text{Average Rate of Return} = \frac{\dfrac{\text{Total Net Incomes}}{\text{Number of Years}}}{\text{Investment Amount}}$$

Financial Appraisal

Payback Period

The pay back period gives the number of years required to recover initial cash investments

	PROJECT#1	
0	500.000	
1	120.000	120.000
2	150.000	270.000
3	170.000	440.000
4	250.000	690.000

3 Years + 3 Months

	PROJECT#2	
0	750.000	
1	150.000	150.000
2	200.000	350.000
3	300.000	650.000
4	300.000	950.000

3 Years + 4 Months

Financial Appraisal

Net Present Value

NPV is a discounted cash flow approach to capital budgeting. In this method all cash flows by the years are discounted to present value, using the required rate of return.

$$NPV = \sum_{t=1}^{n} \frac{A_t}{(1+i)^t} - A_0$$

$$\text{Profitability Index (PI)} = \frac{\sum_{t=1}^{n} \frac{A_t}{(1+i)^t}}{A_0}$$

Financial Appraisal

Internal Rate of Return

Internal Rate of Return (IRR) is a discount rate that equates the present value of the expected cash inflows with present value of the expected outflows.

IRR expresses itself as a percentage measure of project performance; it also provides a useful tool to measure 'headroom' when negotiating with suppliers of funds.

$$IRR = \sum_{t=1}^{n} \frac{A_t}{(1+i)^t} = A_0$$

Financial Appraisal

NPV or IRR?

- On theoretical view NPV is better approach for financial decisions.

- Since business people interest rate of return rather than actual money amounts, in practical view IRR is more valuable for financial managers.

In USA,

Researchers Walker, Burns and Denson studied 213 private manufacturing firms with fewer than 500 employees.

- 9% used discounted cash flows
- 66% are unaware of NPV method
- 26% are familier with NPV but do not use it for several reasons

Financial Appraisal

Modified IRR

While the internal rate of return (IRR) assumes the cash flows from a project are reinvested at the IRR, the modified IRR assumes that positive cash flows are reinvested at the firm's cost of capital, and the initial outlays are financed at the firm's financing cost. Therefore, MIRR more accurately reflects the cost and profitability of a project.

$$MIRR = \sqrt[n]{\frac{FV(PositiveCashFlows, costofcapital)}{PV\ (InitialOutlays, FinancingCost)}} - 1$$

Credit Modelling and Strategies

Scenario Analysis

Scenario analysis is a process of analysing possible future events by considering alternative possible outcomes

The scenario analysis, which is a main method of projections, does not try to show one exact picture of the future

Sensitivity Analysis

Credit Modelling and Strategies

Scenario Analysis

Project Framework

Input prices

Sale price

Sales (CUR)

Interest rate

Exchange rate

Legal Framework

Unregistered debts

Unvaluable guarantees

Changes in regulations
(commercial code, tax rate, banking regulations etc.)

Investor Framework

Unplanned investments

Unplanned loans

Ownership changing

Unregistered debts

Macroeconomic Framework

Financial crisis

Political crisis

Credit Modelling and Strategies

Manufacturing & Service Sectors/Why is Service Sector is Important?

In Turkey Sectoral Breakdown of GDP between the Years 1998-2010 (%)

SECTORS	2005	2006	2007	2008	2009	2010	2011	2012
Services	59,4	71,6	72,4	72,6	72,6	68,8	68,5	69,4
Agriculture	11,4	8,3	7,6	7,6	8,3	9,4	9,0	8,8
Industry	29,2	20,1	20,0	19,8	19,1	21,8	22,5	21,8
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Credit Modelling and Strategies

Manufacturing & Service Sectors/Why is Service Sector is Important?

Investment Amount (in $) for Create One Job (August 2014)

	Agriculture	Mining	Manufacturing	Energy	Services
Investment/Per Employee	125.764	239.299	169.239	2.133.258	153.889

Credit Modelling and Strategies

Manufacturing & Service Sectors/What is Service Sector?

Services are intangible economic activities which are commercial and has a market price.

Services are a diverse group of economic activities not directly associated with the manufacture of goods.

They typically involve the provision of human value added in the form of labor, advice, managerial skill, entertainment, training, intermediation and the like.

Credit Modelling and Strategies

Manufacturing & Service Sectors/Historical Perspective

- The manufacturing industry came to prominence in the United States during the 19th century.
- Spurred by technological advances that were occurring in Britain in Western Europe.
- It arose in conjunction with the advent of the steam engine, the extensive mining and use of coal and the building of railroads.
- Manufacturing was the dominant industry sector for much of the 20th century.

- Service industry jobs have existed for centuries, the prominence of the service industry sector is more recent.
- Beginning in the mid-1980s, service jobs such as medical, educational, food services and hospitality, pulled even with manufacturing in the total number of jobs by category in the United States.
- By 1999, however, the service industry employed about twice as many workers as the manufacturing industry.

Credit Modelling and Strategies

What are Differences Between Service & Production Sectors?

Service Business	Manufacturing Business
Simultaneous production and consumption (co-creation between producer and consumer)	Consumption and production at different stages
Many critical aspects are intangible	Many critical aspects are tangible
Concept of inventory may not be material, but can be virtual such as requests and, in healthcare, patients waiting for service can be considered a type of inventory	Usually has inventory and buffers
Considerable variability in service sector	Some variation

Credit Modelling and Strategies

And more…

- Calculation of the costs are not easy for suppliers compare with manufacturers.
- It is impossible to evaluate quality before supply for any service. But manufacturers can test the quality before sell any product.
- Since the average establishment in most service industries is small, the employment per establishment is also small
- Measurement of innovation in services, however, is not as straightforward as in manufacturing, which makes it difficult to evaluate the extent to which it is occurring.

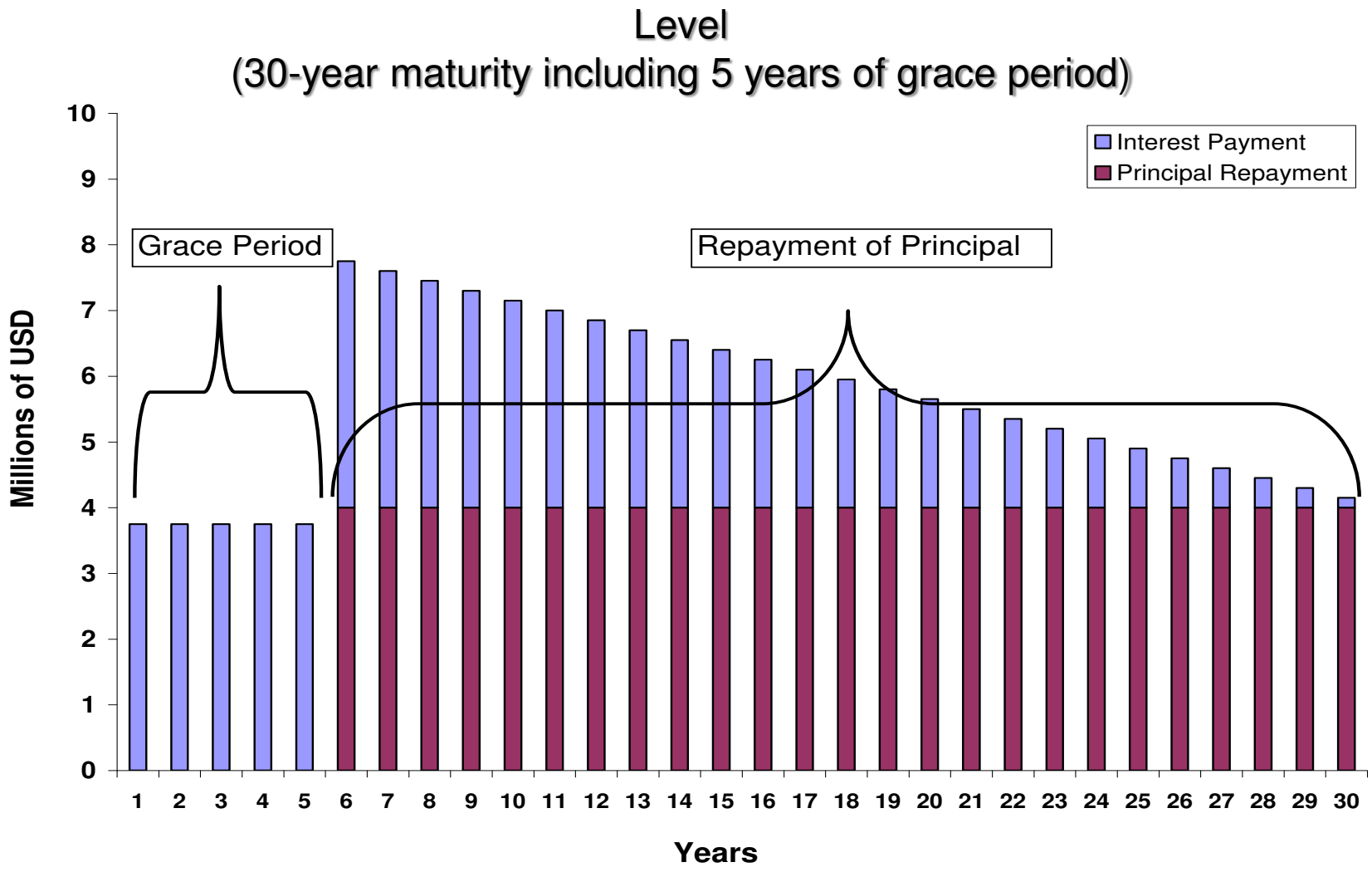
Credit Modelling and Strategies

Importances of Understanding Characteristics of Service Sector

	Financial Risks
Intangibility (instability)	Intangible assets increases the risk. This can be regarded as an adverse situation for investor's analysis of securities.
Simultaneously Production and Consumption	"To bear no delay" increases the risk of sufficient turnover.
Heterogeneity	Due to heterogeneity, profitability may occure in long term
Variable Demand	Any contraction in demand may increase the financial risk, in the situation of unsufficient working capital.
Intensity of Labor and Relationship	Any quality losses, due to human errors, makes fragile the business and the financial balance continuity. Wages, social security spending and overtime expenditures must planning well in advance and all costs must be taken into consideration while pricing.
Limited Ability to Control Quantify The Quality	Quality costs and losses of labor should be controlled.
Difficult to Make Cost Calculations	Pricing policies and financial monitoring must be conducted together.
Usually Close to The Market.	Proximity to market, increase the effectiveness of pricing policies.
Difficult to Define The Target Market.	It is difficult to determine the amount of optimal investment amount and number labor For this reason it is difficult to determine the breakeven point and to ensure financial stability.

Credit Modelling and Strategies

Amortization Tables & Effects to Cash Flows



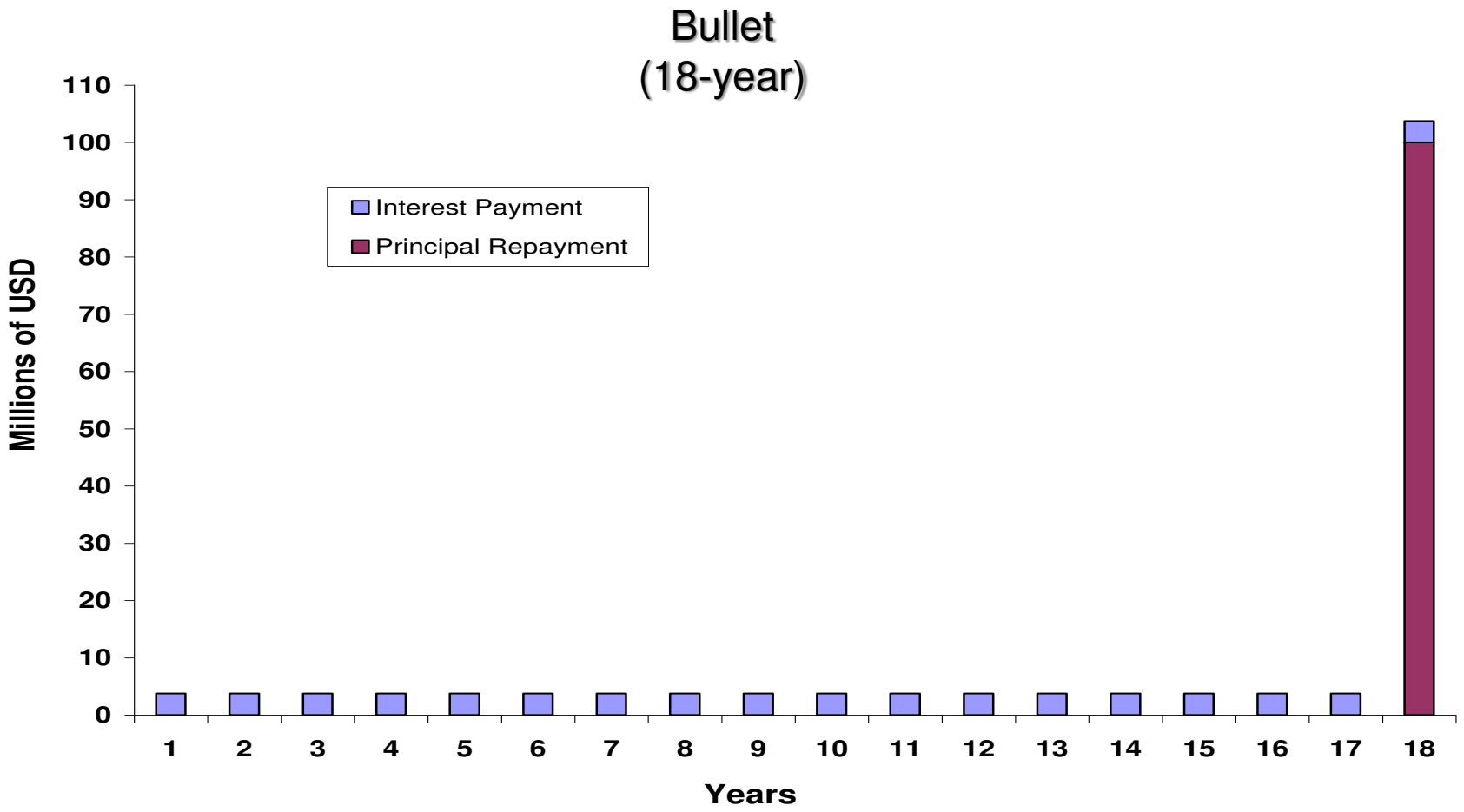
Credit Modelling and Strategies

Amortization Tables & Effects to Cash Flows

Years	Loan	Principal	Interest	Total
2014	103.317.185	0	0	0
2015	103.317.185	0	12.398.062	12.398.062
2016	103.317.185	0	12.398.062	12.398.062
2017	103.317.185	17.219.531	12.398.062	29.617.593
2018	86.097.654	17.219.531	12.398.062	29.617.593
2019	68.878.123	17.219.531	10.331.718	27.551.249
2020	51.658.592	17.219.531	8.265.375	25.484.906
2021	34.439.062	17.219.531	6.199.031	23.418.562
2022	17.219.531	17.219.531	4.132.687	21.352.218
Total		**103.317.185**	**78.521.060**	**181.838.245**

Credit Modelling and Strategies

Amortization Tables & Effects to Cash Flows



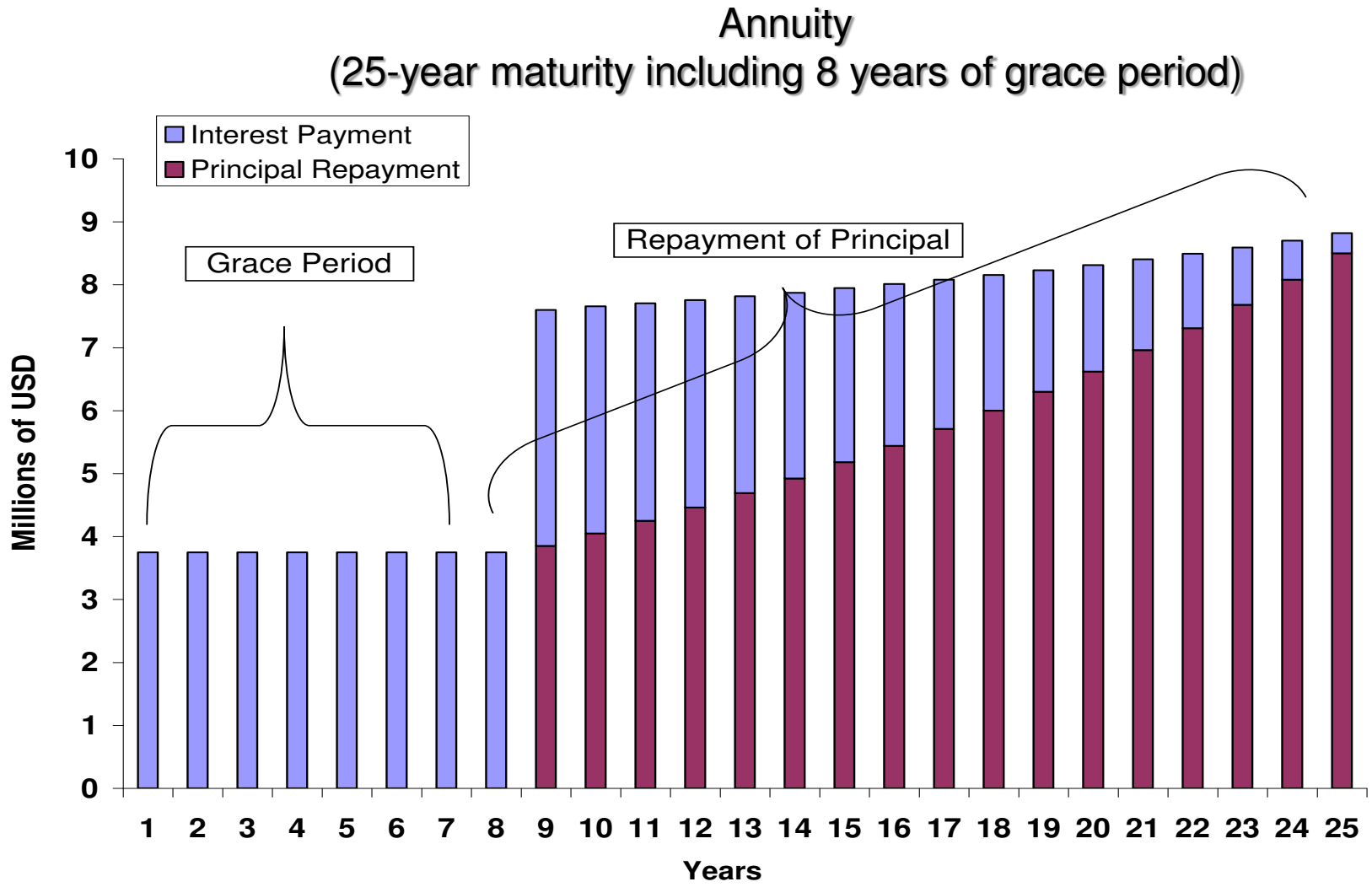
Credit Modelling and Strategies

Amortization Tables & Effects to Cash Flows

Years	Loan	Principal	Interest	Total
2014	103.317.185	0	0	0
2015	103.317.185	0	12.398.062	12.398.062
2016	103.317.185	0	12.398.062	12.398.062
2017	103.317.185	0	12.398.062	12.398.062
2018	103.317.185	0	12.398.062	12.398.062
2019	103.317.185	0	12.398.062	12.398.062
2020	103.317.185	0	12.398.062	12.398.062
2021	103.317.185	0	12.398.062	12.398.062
2022	103.317.185	103.317.185	12.398.062	115.715.247
TOTAL		**103.317.185**	**99.184.497**	**202.501.682**

Credit Modelling and Strategies

Amortization Tables & Effects to Cash Flows



Credit Modelling and Strategies

Amortization Tables & Effects to Cash Flows

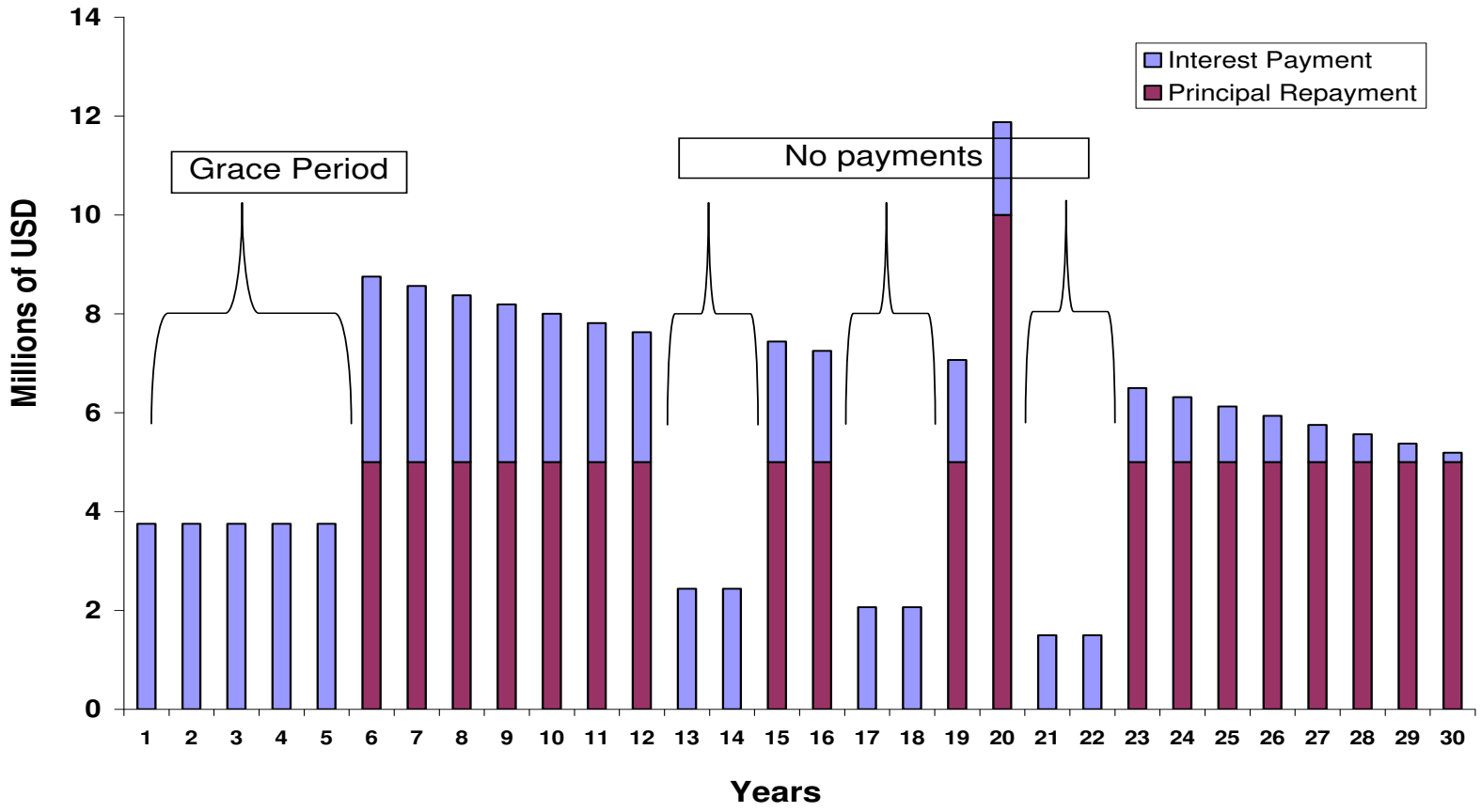
Loan Amount : 100.000 TL
Interest Rate : 3% Monthly
Duration : 12 Months

$$A = \frac{P.\,(1 + i)n * i}{[\,(1 + i)n - 1\,]}$$

	Loan	Interest	Principal	Total
0	100.000			0
1	92.954	3.000	7.046	10.046
2	85.696	2.789	7.258	10.046
3	78.221	2.571	7.475	10.046
4	70.521	2.347	7.700	10.046
5	62.591	2.116	7.931	10.046
6	54.422	1.878	8.168	10.046
7	46.009	1.633	8.414	10.046
8	37.343	1.380	8.666	10.046
9	28.417	1.120	8.926	10.046
10	19.223	853	9.194	10.046
11	9.754	577	9.470	10.046
12	0	293	9.754	10.046
		20.555	**100.000**	**120.555**

Credit Modelling and Strategies

Amortization Tables & Effects to Cash Flows



Credit Modelling and Strategies

Capitalization

Years	Loan	Principal	Interest	Total
2015	103.317.185	0	12.398.062	12.398.062
2016	103.317.185	0	12.398.062	12.398.062
2017	103.317.185	17.219.531	12.398.062	29.617.593
2018	86.097.654	17.219.531	12.398.062	29.617.593
2019	68.878.123	17.219.531	10.331.718	27.551.249
2020	51.658.592	17.219.531	8.265.375	25.484.906
2021	34.439.062	17.219.531	6.199.031	23.418.562
2022	17.219.531	17.219.531	4.132.687	21.352.218
Total		**103.317.185**	**78.521.060**	**181.838.245**

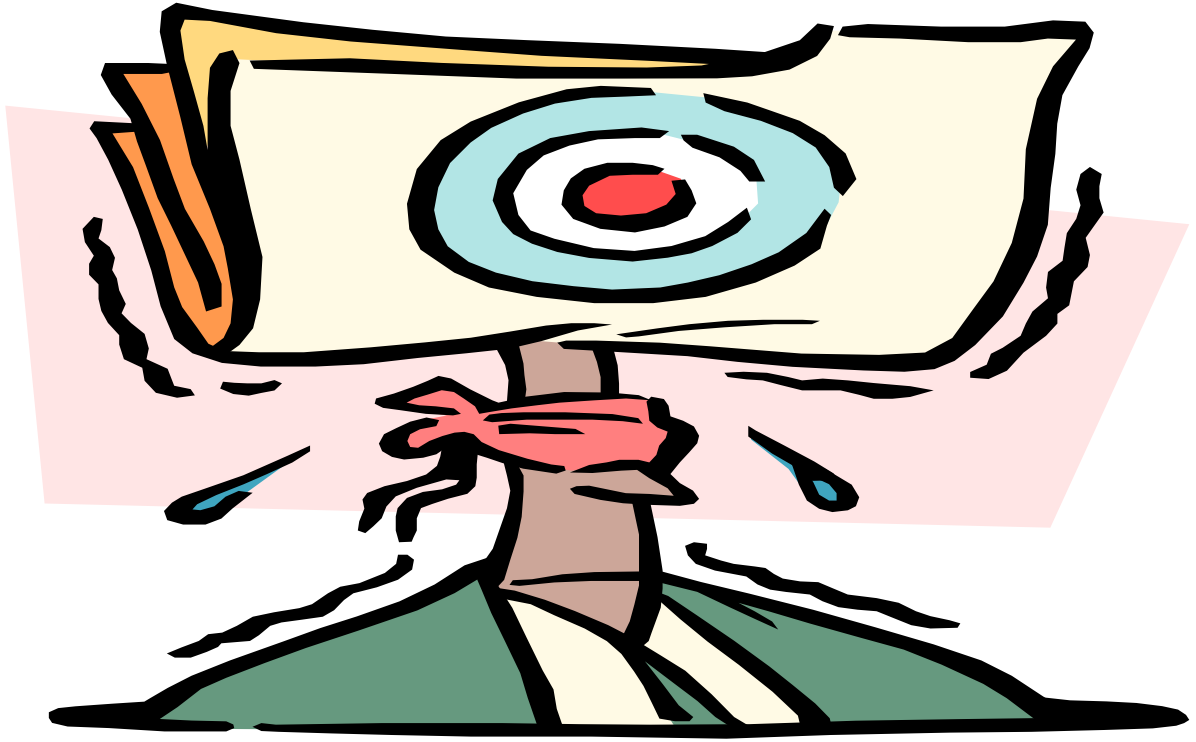
Years	Loan	Principal	Interest	Total
2015	103.317.185	0	0	0
2016	115.715.247	0	0	0
2017	129.601.077	21.600.179	15.552.129	37.152.309
2018	108.000.897	21.600.179	12.960.108	34.560.287
2019	86.400.718	21.600.179	10.368.086	31.968.266
2020	64.800.538	21.600.179	7.776.065	29.376.244
2021	43.200.359	21.600.179	5.184.043	26.784.223
2022	21.600.179	21.600.179	2.592.022	24.192.201
Total		**129.601.077**	**54.432.452**	**184.033.529**

103.317.185+12.398.062

(115.715.247*0,12)+115.715.247

END OF SESSION VI

Comments ???
Questions ???



GROUP WORKING

Thank you for your attention, patience and contributions

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