## Finance (Basic)

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#### Personal Finance

- Monetary decisions of an individual (family).
- Analyses how the individuals (family unit) obtain, budget, save and spend money.
- The personal income could be allocated towards expenses, saving, debt repayment.

### Sample budget

#### Example of budged allocation

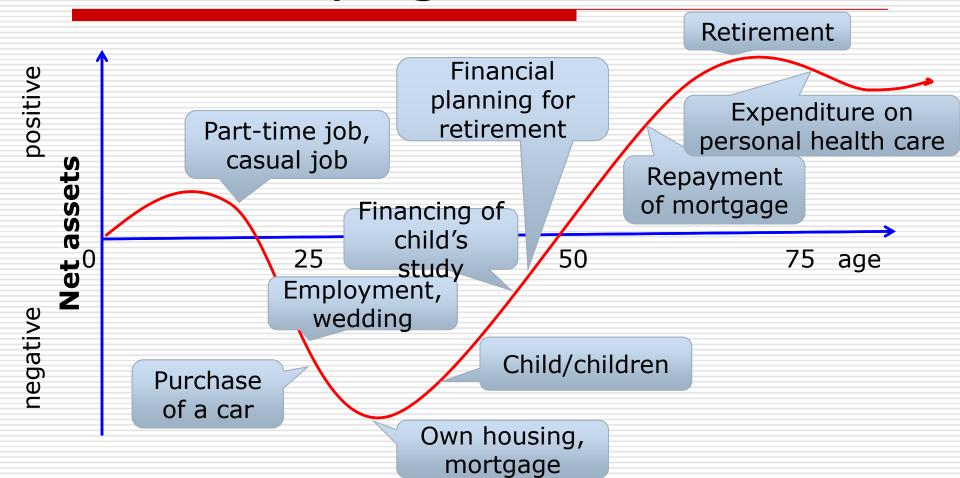
Category	Monthly amount	Annual amount	Percentage
Housing			
Food			
Automobile			
Tax			
Insurance			
School			
Medical			
Clothing			
Saving			

What happened if the total expanses are not equal to the total income?

# The phases of personal finance by age

- Phase of low saving
- Phase of debt
- Phase of investment
- Phase of use accumulated wealth

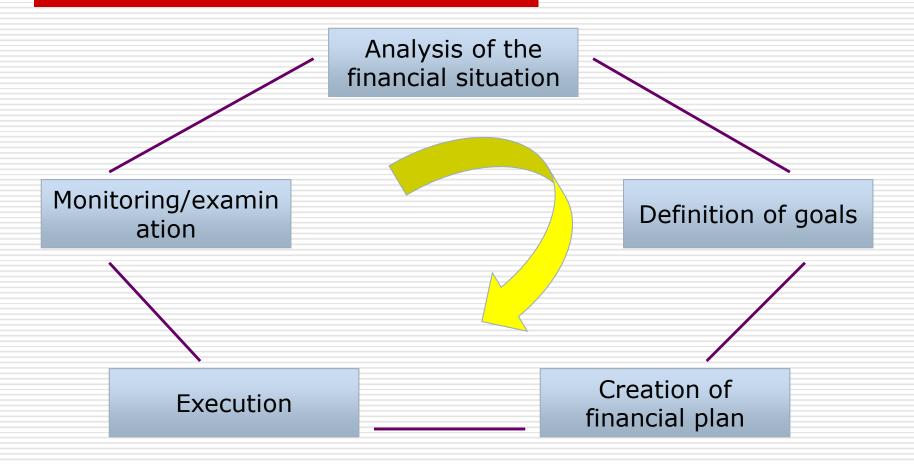
# The phases of personal finance by age



### Personal financial planning

- Assessment
- Setting goals
- Creating a plan
- Execution
- Monitoring/Reassessment

## Personal financial planning



### Saving

- Regular payment over time
- ■The task is to identify FV

#### **Categories of saving:**

- Long-term
- Short-term:
  - Ahead a period
  - After a period

# Short-term Saving, ahead a period

$$S_x = m \cdot x \cdot \left(1 + \frac{m+1}{2 \cdot m} \cdot i\right)$$

S ... total amount saved

m ... number of deposits

x ... amount of money

i ... interest rate

# Short-term Saving, after a period

$$S_x' = m \cdot x \cdot \left(1 + \frac{m-1}{2 \cdot m} \cdot i\right)$$

## Long-term Saving

$$S' = a \cdot \frac{(1+i)^n - 1}{i}$$

**a** ... annuity (a regular payment of a same amount)

### Combined Saving

#### Ahead a period

$$S = m \cdot x \cdot \left(1 + \frac{m+1}{2 \cdot m} \cdot i\right) \cdot \frac{\left(1 + i\right)^{n} - 1}{i}$$

After a period ?

### Retirement plan

**Pension** is a way to ensure a regular income for people, which are no longer earning a regular income from employment.

**Retirement plane** (individuals, employers, unions, insurance companies, government).

# The main types of income in Retirement plan

- Immediate income:
  - Ahead a period
  - After a period
- Deferred income
- Income paid m-times a year
- Perpetual income
- The task is to identify PV

#### Immediate Income

#### Ahead a period

$$D = a \cdot \frac{1 - v^n}{v \cdot i}$$

$$\mathbf{v} \ \dots \ 1/(1+i)$$

**D** ... present value of total income

After a period

## Income paid m-times in one IP

#### Ahead a period

$$D = m \cdot x \cdot \left(1 + \frac{m+1}{2 \cdot m} \cdot i\right) \cdot \frac{1 - v^n}{i}$$

After a period

# Deferred Income (ahead a period)

$$K = m \cdot x \cdot \left(1 + \frac{m+1}{2 \cdot m} \cdot i\right) \cdot \frac{1 - v^n}{i} \cdot v^k$$

**v**<sup>k</sup> ... postponement of income payment

## Perpetual Income

#### **Immediately**

$$D = m \cdot x \cdot \left(1 + \frac{m+1}{2 \cdot m} \cdot i\right) \cdot \frac{1}{i}$$

#### Deferred

### Repayment plan

#### **Consists of:**

Debt, Annuity, Interest, Amortization

#### **Amortization of debt:**

- Equal annuity
- Unequal annuity

### Thank you for your attention