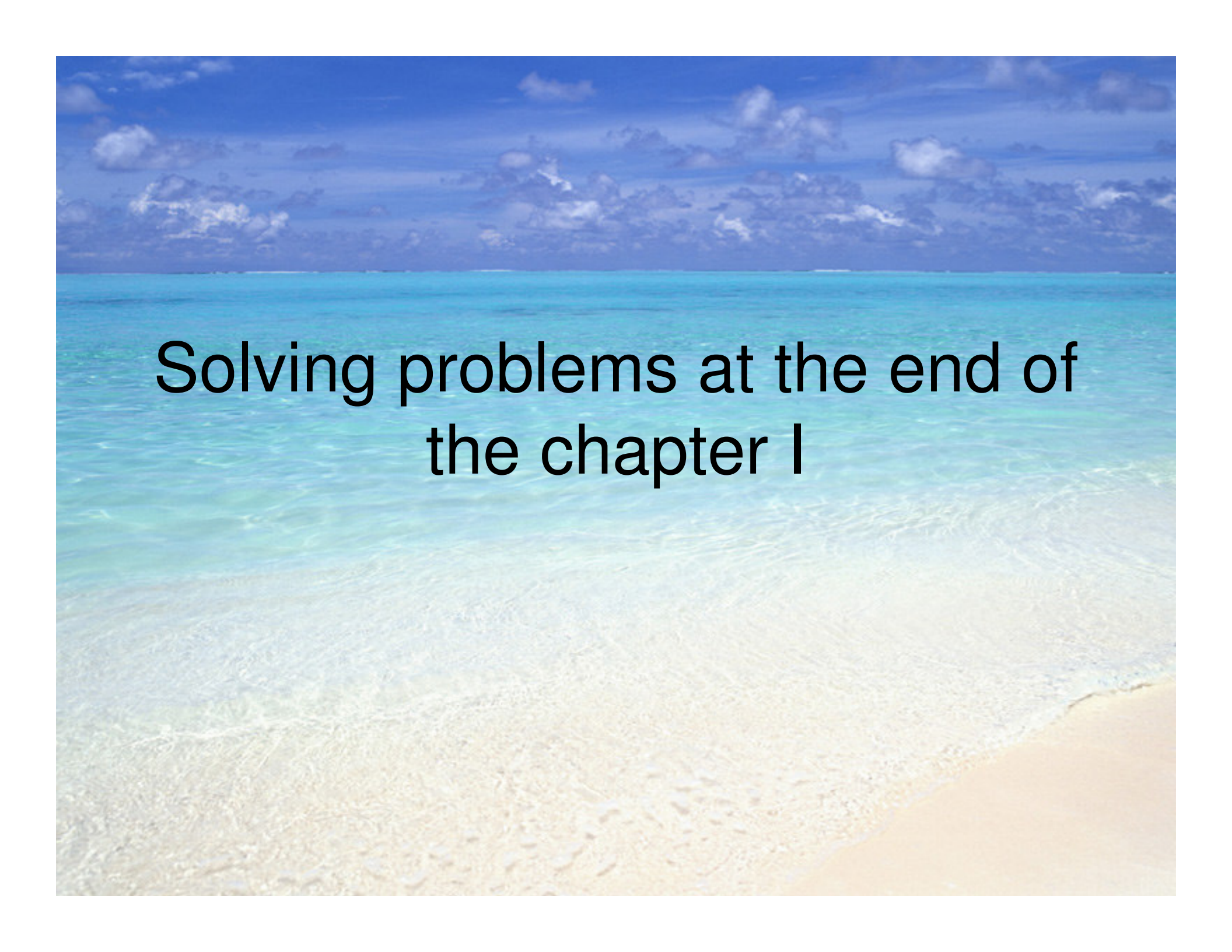


A tropical beach scene with turquoise water and a blue sky with white clouds. The water is clear and shallow, with gentle waves lapping onto a sandy beach in the foreground. The sky is a deep blue with scattered white clouds.

Managerial Finance

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A tropical beach scene with turquoise water and a blue sky with clouds. The text "Solving problems at the end of the chapter I" is overlaid in the center.

**Solving problems at the end of
the chapter I**

Problem 1-1

- The real risk-free rate of interest is 3%. Inflation is expected to be 2% this year and 4% during the next 2 years. Assume the maturity risk premium is zero. What is the yield on 2-years treasury securities? What is the yield on 3-years treasury securities?

Solution 1-1

- $r = r^* + IP + DRP + LP + MRP$

↑
 $r^* = 3\%$

↑
IP, DRP, LP

↑
MRP = 0%

Solution 1-1, continue

- $r = r^* + IP + DRP + LP + MRP$

↑
IP ????

↑
Both equal to Zero

Solution 1-1, continue

- $IP_1 = 2\%$

$$IP2 = (2\% + 4\%) / 2 = 3\%$$

- $IP_2 = 4\%$

$$IP3 = (2\% + 4\% + 4\%) / 3 = 3.3\%$$

- $IP_3 = 4\%$

Solution 1-1, continue

- $r_2 = r^* + IP + DRP + LP + MRP$

↑
 $r^*=3\%$

↑
 $IP_2=3\%$

↑
 $DRP=0$

↑
 $LP=0$

↑
 $MRP=0$

$$r_2 = 3\% + 3\% + 0 + 0 + 0 = 6\%$$

Solution 1-1, continue

- $r_3 = r^* + IP + DRP + LP + MRP$

↑
 $r^*=3\%$

↑
 $IP_2=3.3\%$

↑
 $DRP=0$

↑
 $LP=0$

↑
 $MRP=0$

$$r_3 = 3\% + 3.3\% + 0 + 0 + 0 = 6.3\%$$

Problem 1-2

- A treasury bond that matures in 10 years has a yield of 6%. A 10 years corporate bond has a yield of 8%. Assume that the liquidity premium on the corporate bond is 0.5%. What is the default risk premium on the corporate bond?

Solution 1-2

- $r = r^* + IP + DRP + LP + MRP$

- $r_{t-10} = r^* + IP + DRP + LP + MRP = 6\%$

- $r_{C-10} = r^* + IP + DRP + LP + MRP = 8\%$

Solution 1-2, continue

• $r =$  $+$  $+$ DRP $+$ LP $+$  $+$ 

• $r_{t-10} =$ $+$ $+$ DRP $+$ LP $+$ $= 6\%$

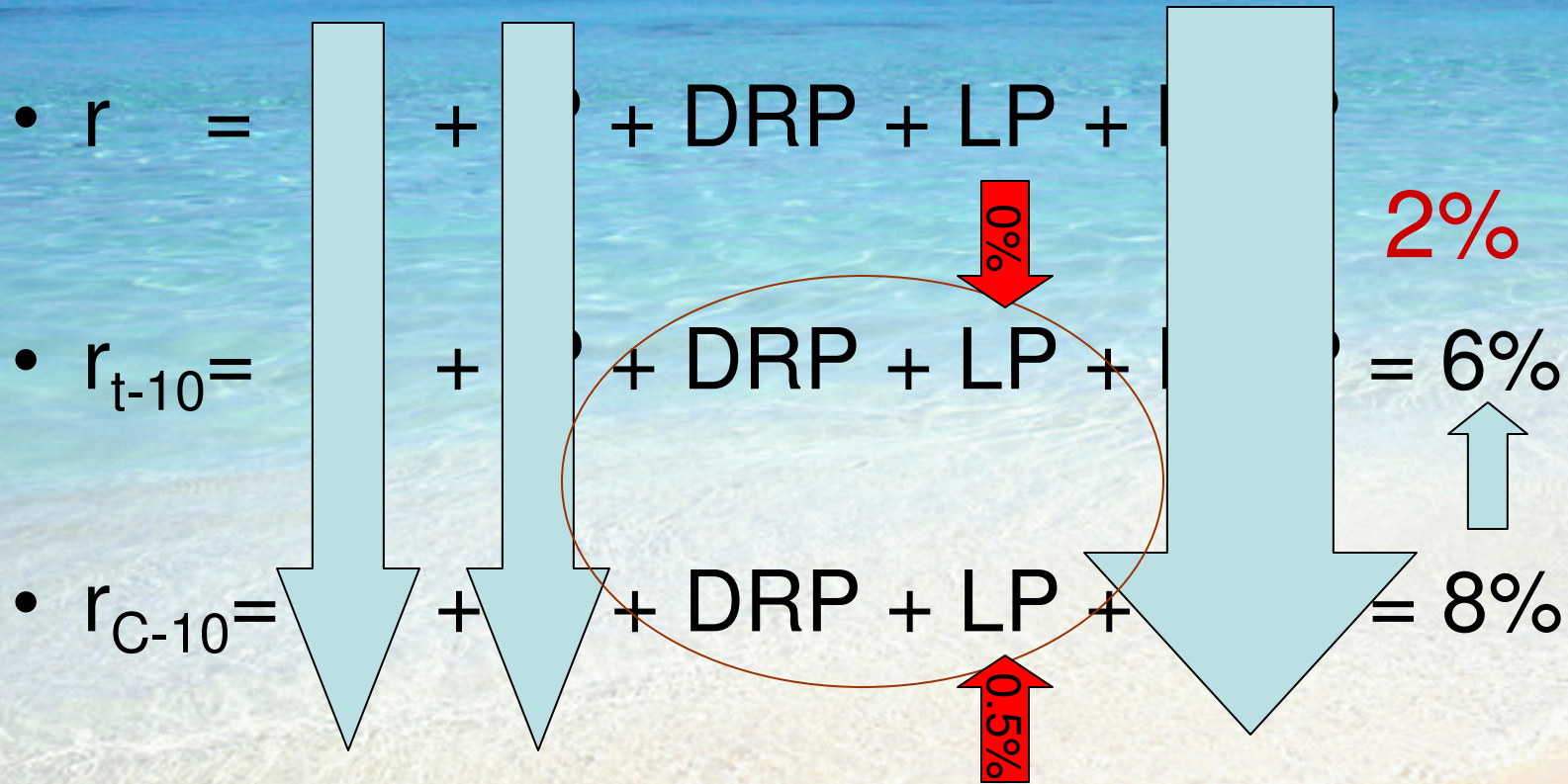
• $r_{C-10} =$ $+$ $+$ DRP $+$ LP $+$ $= 8\%$

Solution 1-2, continue

The diagram illustrates the components of interest rates for three different scenarios. Three large light-blue arrows point downwards from the top of the equations to the terms r_{t-10} , r_{C-10} , and r_{C-10} respectively. A red oval highlights the terms $DRP + LP + I$ in the middle equation. A red arrow points upwards from the 6% result to the 8% result, with a red 2% label next to it.

- $r =$ + r_{t-10} + $DRP + LP + I$ = 2%
- $r_{t-10} =$ + r_{C-10} + $DRP + LP + I$ = 6%
- $r_{C-10} =$ + r_{C-10} + $DRP + LP + I$ = 8%

Solution 1-2, continue



Solution 1-2, continue

• $r =$ + + + $\text{DRP} + \text{LP} +$ + + + 2%

• $r_{t-10} =$ + + + $\text{DRP} + \text{LP} +$ + + + $= 6\%$

• $r_{C-10} =$ + + + $\text{DRP} + \text{LP} +$ + + + $= 8\%$

$2\% = \text{DRP} + \text{LP}$

0%

0.5%

$$2\% = \text{DRP} + 0.5\%$$

$$\text{DRP} = 2\% - 0.5\%$$

$$\text{DRP} = 1.5\%$$

Problem 1-3

- The real risk free rate is 3%, and the inflation is expected to be 3% for the next 2 years. A 2 years treasury security yields 6.2%. What is the maturity risk premium for the 2 years security?

Solution

- $r = r^* + IP + DRP + LP + MRP$

$r_2 = 6.2\%$

$r^* = 3\%$

$IP = 3\%$

$DRP = 0$

$LP = 0$

$MRP????$

$$6.2\% = 3\% + 3\% + 0 + 0 + \text{MRP}$$

Solution

- $r = r^* + \text{IP} + \text{DRP} + \text{LP} + \text{MRP}$

$r = 6.2\%$

$r^* = 3\%$

$\text{IP} = 3\%$

$\text{DRP} = 0$

$\text{LP} = 0$

$\text{MRP} = ???$