

考試科目	統計學	所別	金融	考試時間	月 日 上午第 節
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4. (10%)

The closing price of two common stocks were recorded for a period of 16 days. The means and variances were

$$\bar{P}_1 = 40.3 \quad \bar{P}_2 = 42.54$$

$$S_1^2 = 1.20 \quad S_2^2 = 3.00$$

Does the data indicate a difference in the population variability of the closing price? Give bounds for the attained significance level. What would you conclude with $\alpha = 0.05$?

$P[F > F_{15, \alpha}^{15}] = \alpha$ is given as follows

α	0.1	0.05	0.025	0.01	0.005
$F_{15, \alpha}^{15}$	1.97	2.40	2.86	3.52	4.07

5. (10%)

Consider the regression model

$$y_t = \alpha + \beta_1 X_{1t} + \beta_2 X_{2t} + u_t, \quad t = 1, \dots, 100$$

with the sample data :

$$\sum_{t=1}^{100} (y_t - \bar{Y})^2 = \frac{493}{3}, \quad \sum (X_{1t} - \bar{X}_1)^2 = 30$$

$$\sum (X_{2t} - \bar{X}_2)^2 = 3, \quad \sum (X_{1t} - \bar{X}_1)(y_t - \bar{Y}) = 30$$

$$\sum (X_{2t} - \bar{X}_2)(y_t - \bar{Y}) = 20, \quad \sum (X_{1t} - \bar{X}_1)(X_{2t} - \bar{X}_2) = 0$$

(a) Compute the least squares estimates of β_1 and β_2 .

(b) Test the hypothesis $H_0: \beta_2 = 7$ against $H_1: \beta_2 \neq 7$.

考試科目	統計學及 財務管理	所別	經濟系	考試時間	星期	月	日	上午	第	節
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1. According to the capital asset pricing model, all investments must: (5%)
 - a. Offer the same level of expected return.
 - b. Lie along the same line as efficient portfolios.
 - c. Offer the same level of market risk.
 - d. Lie along the security market line.

2. According to the capital asset pricing model, the only reason expected returns differ is: (5%)
 - a. Variance.
 - b. Beta.
 - c. The market portfolio.
 - d. The risk-free investment.

3. In theory, the capital asset pricing model requires that the market portfolio include: (5%)
 - a. Common stocks.
 - b. Bonds.
 - c. Real estate.
 - d. Human capital.
 - e. All of the above.

4. The expected return on the market portfolio is 20%, and the risk-free rate of return is 8%. An investment has a beta of 1.4 and offers an expected return of 23%. (5%)
 - a. This is a good investment because it earns more than the market rate of return.
 - b. This investment has a negative net present value.
 - c. This investment has a positive net present value.
 - d. Need more information to decide if this is a good or bad investment.

5. The expected return on the market portfolio is 17%, and the risk-free rate of return is 9%. An investment has a beta of 1.8 and offers an expected return of 26%. (5%)
 - a. This is a good investment because it earns more than the market rate of return.
 - b. This investment has a negative net present value.
 - c. This investment has a positive net present value.
 - d. Need more information to decide if this is a good or bad investment.

6. Arbitrage pricing theory implies that there are higher risk premiums on stocks with returns that are especially sensitive to: (5%)
 - a. Changes in long-term interest rates.
 - b. Changes in short-term interest rates.
 - c. The market portfolio.
 - d. Oil price changes.
 - e. None of the above.

7. Meredith Corp. is financed with \$25 million of (risk-free) debt and \$50 million of common stock, which has a beta of 1.6. The risk-free rate is 4%, and the expected return on the market portfolio is 13%. If the company issues \$25 million more common stock and uses the proceeds to buy back all the outstanding debt, the cost of equity capital will be: (5%)

- a. 4.0%
- b. 18.4%
- c. 17.0%
- d. 13.6%

8. Consider the following market-value balance sheet:

Assets	200	50	Debt (D)
		<u>150</u>	Equity (E)
	200	200	Market value (V)

$\beta_{equity} = .8$ and the debt is risk free. Now suppose this firm announces an issue of \$120 of additional debt. All the proceeds of the debt issue are paid out as a special dividend. After these changes, the market value of old debt falls to \$40 and β_{debt} is .3. What is the new β_{equity} ? (5%)

- a. .9
- b. 1.5
- c. 1.8
- d. 2.0
- e. 3.0

9. Arbitrage pricing theory implies that there are higher risk premiums on stocks with returns that are especially sensitive to: (5%)

- a. Changes in long-term interest rates.
- b. Changes in short-term interest rates.
- c. The market portfolio.
- d. Oil price changes.
- e. None of the above.

10. The arbitrage pricing theory implies that there are higher risk premiums on stocks with returns that are especially sensitive to: (5%)

- a. The yield spread.
- b. Interest rates.
- c. Exchange rates.
- d. Real GNP.
- e. None of the above.

考試科目	Constitutional Law	所別	Constitutional Law	考試時間	月 日 上午 時 分
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1、政府決定發行公債 100 億，並採用價格標，現有中央公債交易五家來競價，假設非競標數量為 20 億，5 家競標價格及數量為

價格	數量
95 元	20 億
98 元	30 億
96 元	40 億
97 元	10 億
99 元	20 億

請問：

- (1) 如果採用款式標，則非競標價格為？
- (2) 如果採用荷蘭標，則得標價格為？

2、請說明直接金融與間接金融之差別？1996 年我國直接金融成長率首度超過間接金融，請分析其影響。(25%)

3、我國金融體制曾討論要走德國銀行制或美國銀行制，請說明二者的異同？(25%)

4、在商業拆放款市場的拆借常呈一面倒之勢，即合庫、郵匯局、上銀等為拆出，而外商銀、票金等為拆入者，由於利率常相提並論，央行因此有意允許人壽保險公司加入市場，請問此舉對同拆市場之利弊？(25%)

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- 一. 已知某商品的市場需求函數為 $Q^D = 400P^{-2}$, $5 \leq P \leq 20$ (式中 Q^D 及 P 分別表示該商品的需求量及價格)。
1. 試求 $P=10$ 時, 需求之價格彈性為多少?
2. 若只有一家廠商供應此一商品, 則其總收益函數、平均收益函數及邊際收益函數各如何?
- 二. 設某廠商之長期總成本函數為 $C = C(Q, w_1, w_2, \dots, w_n)$, (式中 Q 表示產量, w_1, w_2, \dots, w_n 分別表示幾種投入品之價格)。在 Q, w_2, w_3, \dots, w_n 固定不變的情況下, w_1 增加如何影響總成本 C ? 試以圖解或數學說明之。
- 三. 在勞動者對物價水準的預期具有「完全先見之明」(perfect foresight) 的情況下, 工資僵硬性(工資太高)如何造成不充分就業均衡? 貨幣當局若採用貨幣供給額增加的政策是否可使國民所得達到充分就業水準? 試分別就名目工資僵硬性及實質工資僵硬性兩種情況說明之。
- 四. 關於市場均衡利率的決定問題, 有人指出「可貸基金說」(Loanable funds theory) 認為利率由債券市場決定, 流動性偏好說 (Liquidity preference theory) 認為利率由貨幣市場決定。此種說法是否正確? 兩者是否有不一致性? 試加評述。

(每題 25 分)

考試科目	貨幣銀行	所別	金融系	考試時間	星期	月	日	上午	第	節
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壹、假定一年期的利率為 7%，二年期利率為 9%，三年期的利率為 6%。試問根據純粹預期理論，在此利率期限結構所隱含第二年與第三年的遠期利率為何？並請說明投資者若欲投資兩年的可能策略。(20 分)

貳、請回答並簡單解釋下列因素變動對於新台幣與美金間匯率之影響：(註：請說明新台幣之漲跌及簡單的原因)(20 分)

1. 台灣物價高漲，美國物價穩定
2. 台灣加入世界貿易組織(WTO)
3. 台灣開發出超高速 CPU
4. 央行停止 NDF 之交易
5. 央行減少貨幣供給量

參、某銀行的資產負債結構如下：(20 分)

資產(貸款) 100 億元 到期期限 2 年 固定年利率 10%
 負債(存款) 90 億元 到期期限 1 年 固定年利率 8%
 股東權益 10 億元

請問 a. 這家銀行在怎樣的利率環境下對其最不利(指利率的走勢)?
 b. 如果這樣不利的情形發生, 這家銀行該如何作?

肆、假定貨幣需求函數為 $\log m = \gamma_0 + \gamma_1 \log y + \gamma_2 \log R$ 。其中 $\gamma_1 = 1, \gamma_2 = 0.5$ 。另外，先假定 $R = r = 0.01, y/m = 6$ (m 代表實質貨幣供給量, y 代表實質國民所得, R 代表名目利率, r 代表實質利率)。假定政府因財政原因，宣告並要求中央銀行將物價上漲率調成每年上升 35%。在其他條件不變的情況下，試求政府這樣的物價政策會造成多大的社會福利成本(暫國民所得的比例)? (15 分)

伍、請根據下面的新聞報導討論下列問題：(共 25 分)

1. 請問何謂 Glass-Steagall Act?(5 分)
2. 請問這些銀行(或金融機構)合併的原因為何?這些原因合理嗎?(10 分)
3. 請問如果美國要修改銀行法，他們會如何修?為什麼會如此修?以及可能遇到什麼問題?(10 分)

Citicorp Chairman John Reed on Tuesday said he is hopeful Congress will enact sweeping reforms to the nation's banking laws, allowing banks, securities and insurance firms to integrate. "We would like to see comprehensive legislation," Reed told reporters at a conference hosted by the U.S. Securities and Exchange Commission. His comments came a week after Citicorp and the Travelers Group Inc. announced their plans for an historic \$70 billion merger, creating a financial conglomerate that would offer insurance, securities and banking services, in defiance of U.S. banking laws. "We would like to see an ability of an integrated firm that includes insurance as well as other parts of the financial business," he said. Reed added that he and Travelers Chairman Sanford Weill have reached an agreement over how Congress should reform banking laws. "Sandy and I talked about it recently and I think we both have a common view of what would

試科目	貨幣銀行	所別	金融系	考試時間	星期	月	日	上午第	節
<p>constitute an appropriate bill," Reed said. House Republican lawmakers earlier this month were forced to withdraw controversial legislation that would repeal the Depression-era Glass-Steagall Act and allow banking and commerce to mix. But the impending Citicorp/Travelers marriage and other huge bank mergers have sparked a new interest in Congress to again take up the legislation. Bank America Corp. and NationsBank Corp. announced plans on Monday to merge, creating the largest U.S. retail bank with \$570 billion in assets. Banc One Corp. and First Chicago NBD Corp. said they would also merge in a \$29 billion deal to create a Midwest banking giant and the second-largest credit card issuer in the United States. Even so, Reed said that banking reforms are not needed in order for Citicorp's planned merger to take place. "We continue to believe that there are viable outs. We can operate within the existing framework of the law and we believe that we can run the business appropriately," he said. But U.S. banking laws need to be updated to keep pace with today's market, according to Reed, as well as many other industry leaders.]</p>									

考試科目	統計學及財務管理 ^{研究所} 別	金融	考試時間	4月26日 星期日 上午第3節
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國立政治大學圖書館

1. (10%)

Suppose Y has normal density with mean μ and variance σ^2

Let $X = \exp(Y)$

- (a) Find the density function of X
- (b) Find the mean and median of X

2. (10%)

Suppose X and Y has joint density :

$$f(x,y) = \begin{cases} \frac{2}{n(n+1)} & \text{for } y=1,2,\dots,x; x=1,2,\dots,n \\ 0 & \text{otherwise} \end{cases}$$

Compute $E[Y|X=2]$ and the correlation coefficient $\rho(X,Y)$.

3. (10%)

Let X_1, X_2 be independent random variables with p.d.f. given by

$$f(x; \theta) = \frac{2}{\theta^2}(\theta - x) I_{(0,\theta)}(x), \quad \theta > 0$$

where $I_{(0,\theta)}(x) = \begin{cases} 1 & \text{if } 0 < x < \theta \\ 0 & \text{otherwise} \end{cases}$

Find the method of moments estimator of θ .