115年 台灣大學 財金所 試題詳解
（甲組）

試題

㈠單選題　（每題3分，共30分）

1. Suppose the Phillips curve is given by

$u = u^* - \alpha(\pi - E\pi)$,

where $u^* = 5\%$, $\alpha = 0.5$, and expected inflation equals last period's inflation (u: unemployment rate, π: inflation). If actual inflation turns out to be 2 percentage points higher than expected inflation, what happens to unemployment? ㈠It increases by 1 percentage point. ㈡It decreases by 1 percentage point. ㈢It decreases by 2 percentage points. ㈣It remains unchanged. ㈤Cannot be determined.

2. Assume a central bank minimizes a loss function over inflation and unemployment. If inflation expectations are adaptive, which outcome is most likely after a surprise monetary expansion? ㈠Permanent reduction in unemployment ㈡ Permanent increase in inflation with no unemployment effect ㈢ No change in inflation or unemployment ㈣Immediate return to natural unemployment ㈤Temporary reduction in unemployment.

3. Assume the following closed-economy *IS-LM* model

$Y = C + I + G$

$C = 50 + 0.75(Y - T)$

$I = 180 - 8r$

$\left(\frac{M}{P}\right)^d = Y - 40r$

$G = 250$, $T = 200$, $M = 4000$, $P = 4$,

where Y denotes aggregate output (income), C denotes aggregate consumption, I denotes aggregate investment, G denotes government spending, T denotes lump-sum taxes, r denotes the real interest rate,

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M denotes the nominal money supply, and P denotes the price level. The term M/P represents the real money supply. An increase in government spending shifts: (A)the IS curve to the right (B)the IS curve to the left (C)the LM curve to the right (D)the LM curve to the left (E)both the IS and LM curves.

4. Two economies are identical except that Economy A has a higher marginal propensity to consume (MPC) than Economy B. Both experience the same monetary expansion. Compared to Economy A, Economy B will experience (A)A larger increase in output (B)A smaller increase in output (C)A larger decrease in interest rates (D)No change in output (E)A higher inflation rate.

5. Which of the following changes would most likely reduce the natural rate of unemployment? (A) Stronger employment protection laws (B) Higher unemployment benefits (C) Improved job-matching technology (D) An increase in minimum wages (E)A contractionary monetary policy.

6. When a central bank conducts open market sales of government bonds, which outcome is most likely in the short run? (A)Higher output and lower interest rates (B)Lower output and higher interest rates (C)Higher inflation and higher output (D)Lower inflation and higher output (E)No change in macroeconomic variables.

7. If Taiwan imposes a quota on imports of Japanese cars due to claims of unfair trade practices, and Japanese demand for Taiwanese exports increases at the same time, then, in the long run _____, everything else held constant.: (A)the Japanese yen will depreciate relative to the New Taiwan dollar (B)there will be no effect on the Japanese yen relative to the New Taiwan dollar (C)the Japanese yen will appreciate relative to the New Taiwan dollar (D)the Japanese yen will either appreciate, depreciate or remain constant against the New Taiwan dollar (E)None of the above.

8. The Bruce the Bank Manager can reduce interest rate risk by _____ the duration of the bank's assets to increase their rate sensitivity or, alternatively, _____ the duration of the bank's liabilities. (A)shortening;

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shortening　(B) lengthening; lengthening　(C) lengthening; shortening　(D)shortening; lengthening　(E)None of the above.

9. For which of the following is the change in reserves necessarily different from the change in the monetary base?　(A)Open market purchases from an individual who cashes the cheque　(B)Open market purchases from a bank　(C)Open market purchases from an individual who deposits the cheque in a bank　(D)Open market sale to a bank　(E)None of the above.

10. According to the expectations theory of the term structure　(A)when the yield curve is downward sloping, short-term interest rates are expected to remain relatively stable in the future.　(B)yield curves should be equally likely to slope downward as slope upward.　(C)investors have strong preferences for short-term relative to long-term bonds, explaining why yield curves typically slope upward.　(D)when the yield curve is steeply upward sloping, short-term interest rates are expected to remain relatively stable in the future.　(E)None of the above.

㈡多選題　（每題4分，共20分）

請閱讀以下關於2025年*The Economist*文章[1]後回答問題。

The hidden risks in Taiwan's boom — A weak-currency policy is punishing consumers and storing up financial peril

Taiwan is envied for its exporting prowess: it is home to all of the world's cutting-edge chipmaking. Just as extraordinary, but much less appreciated, is its towering current-account surplus, the result not just of a trade boom but of a long-undervalued currency. This aided Taiwan's export-led rise, but it has long outlived its purpose. While manufacturers have been coddled, ordinary Taiwanese consumers have been deprived of the fruits of growth, and financial risks are building up. It is time for Taiwan to loosen its grip on its currency. Taiwan's vast surpluses have been years in the making. For decades its central bank, known as the CBC, has kept the currency undervalued, giving manufacturing exporters a competitive boost. According to the GDP-adjusted

1 "The hidden risks in Taiwan's boom." The Economist, November 15th 2025.

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Big Mac index, our measure of how far exchange rates depart from their underlying values, the Taiwan dollar is 55% undervalued against the American dollar –– the most in the world.

As a consequence, in this century Taiwan has run the world's biggest current-account surplus as a share of output, once entrepôts and petrostates are excluded. And lately, thanks to the artificial-intelligence boom, Taiwan's imbalances have gone into overdrive. In October its goods-trade surplus hit a record high of 31% of GDP in annualised terms—a quadrupling since the pandemic. According to the latest data for this year, Taiwan's current-account surplus has reached 16% of GDP. By comparison, China, the archetypal surplus economy, is running a current-account surplus of just 3%.

The problem with all this is that the cheap currency has become a costly and dangerous anachronism. For a start, it no longer delivers the benefits it once did. Taiwan is no longer an industrialising economy; its annual GDP per person now exceeds that of Japan. Its stock of foreign reserves, at $600bn, is large enough to cushion the impact of a Chinese blockade or a financial crisis. And the best of Taiwan's chip-and computer-makers, which are responsible for three-quarters of total exports and nearly half of nominal GDP, can shrug off a stronger currency. A 20% appreciation in the Taiwan dollar would knock perhaps eight percentage points off the operating margins of TSMC, the world's leading chipmaker-still leaving them plumper than Alphabet's or Apple's.

At the same time, the costs and distortions of having an undervalued currency are mounting. First, it is a tax on consumers. In an economy that depends on imports for food, fuel and goods, the cheap currency has shifted purchasing power from ordinary households to exporters. The result has been that even by export-economy standards, Taiwan saves too much and consumes too little. Since 1998 private consumption as a share of output has tumbled by 20 percentage points. A policy that was meant to help Taiwan get rich is now depriving ordinary Taiwanese.

Another distortion is that the cheap currency is inflating property prices.

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Printing currency to buy foreign exchange has flooded Taiwan's financial system with liquidity and pushed down interest rates. That combination lies behind a quadrupling of house prices since 1998. And the weak-currency policy has seeded risk deep in the heart of Taiwan's financial system—a third distortion. To recycle the proceeds of its surpluses Taiwan has leant on its life-insurance industry, which has poured nearly $1trn of households' savings largely into American Treasuries. But that has created a giant currency mismatch, because Taiwan-dollar liabilities are being funded with American-dollar assets. An abrupt move in either currency could wipe out the insurers, threatening a financial crisis.

Why, then, has the policy persisted? One reason is the export lobby. Taiwan's chipmakers could withstand a stronger currency, but existing policy has propped up a cohort of manufacturers that subsist on thin margins and would be severely hurt by an appreciation. Such firms make up perhaps 70% of manufacturing employment. Another reason is the CBC's unusual power. Printing Taiwan dollars to hoover up foreign-currency assets has minted handsome profits, which are remitted to the government and have become a big source of revenue. Central-bank transfers make up 6% of total government receipts, compared with a rich-world average of 0.4%.

The situation is becoming increasingly precarious. One risk is that further depreciation in the American dollar destabilises Taiwan's life insurers, which have become too big to fail. A second danger is that American trade-surplus hawks take flight again, using tariffs and their security leverage to force Taiwan to revalue. That could happen at any time.

That is why Taiwan must unpick its outdated economic model — and build a better one. The CBC should gradually loosen its grip on the currency. Inevitably, the transition will be fraught with political and financial risks. But these risks can be managed. The key is for the CBC to establish a long-term path for the currency. And in return, ordinary Taiwanese will at last be able to enjoy more of the fruits of their country's extraordinary export miracle.

11. According to the article, Taiwan's persistent current-account surplus is

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partly the result of a long-undervalued currency. Which of the following statements are correct economic implications of this policy, as discussed in the article?（答案可能不只一項） (A)It transfers purchasing power from domestic consumers to exporting firms. (B) It increases private consumption as a share of GDP. (C)It leads to excess national saving relative to domestic investment. (D)It permanently raises real GDP growth through export competitiveness. (E)It lowers real household consumption by raising the domestic price of imports.

12. The article argues that Taiwan's weak-currency policy has distorted its financial system. Which of the following mechanisms are identified as contributing to financial risk?（答案可能不只一項） (A)Large-scale foreign-exchange intervention increases domestic liquidity and depresses interest rates. (B)Low interest rates reduce housing demand and stabilize property prices. (C)Life insurers accumulate foreign-currency assets while liabilities remain in domestic currency. (D) A sudden exchange-rate appreciation could generate balance-sheet losses for insurers. (E)Capital controls fully insulate Taiwan's financial system from exchange-rate shocks.

13. Despite rising economic risks, Taiwan's weak-currency policy has persisted for decades. Which of the following explanations are consistent with the article's analysis?（答案可能不只一項） (A)Export-oriented manufacturers benefit disproportionately from an undervalued currency. (B)The central bank gains political influence through large profit transfers to the government. (C)Taiwan lacks sufficient foreign-exchange reserves to allow currency appreciation. (D) Employment concentration in low-margin manufacturing creates resistance to appreciation. (E)Consumers strongly support the weak-currency policy due to lower living costs.

To understand how a pension system is exposed to exchange-rate risk and how this exposure can potentially generate intergenerational inequality, consider the following overlapping-generations model. The economy consists of a two-period overlapping-generations (OLG) framework. Individuals work and save when young (period t) and retire and consume when old (period

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$t+1$). Pension benefits are denominated in New Taiwan Dollars (NTD), while pension contributions are invested in U.S. Treasury bonds denominated in U.S. dollars (USD). The nominal exchange rate (NTD per USD) is exogenously managed by the central bank. Preferences are standard and time-separable, and financial markets are otherwise frictionless. Answer the following questions.

14. Suppose the central bank unexpectedly allows a sharp appreciation of the NTD in period t+1. Which of the following statements are correct?（答案可能不只一項） (A)The realized domestic-currency return on pension savings is lower than expected. (B)The marginal utility of consumption in old age increases relative to expectations. (C)The pension system is unaffected because U.S. Treasuries are risk-free. (D)The old-age budget constraint becomes tighter in NTD terms. (E)Retirees experience a positive wealth effect.

15. Suppose Taiwan delays exchange-rate adjustment for many years, allowing pension funds to accumulate large USD asset positions. When appreciation finally occurs, which statements are correct?（答案可能不只一項） (A)Retirees at the time of appreciation bear significant welfare losses. (B)Young workers can fully offset losses through labor supply adjustment. (C) Losses arise because realized returns differ from expected returns. (D)Exporters are the primary losers in the OLG sense. (E)The policy redistributes welfare across cohorts.

㈢填充題　（每格5分，共50分）

1. 請考慮一個沒有不確定性的兩期消費模型（$t=1,2$）。各期消費分別為 c_1，$c_2>0$。A的偏好可以用兩期加總效用代表：

$U(c_1,c_2)=u(c_1)+\beta u(c_2)$，$0<\beta<1$。

其中單期效用函數為：

$u(c)=\dfrac{(c^{\alpha-1})}{\alpha}$，$c$ 為該期消費，參數 $\alpha\neq 0$

A在兩期的所得分別為$y_1, y_2>0$。兩期間A可以固定利率 r 借貸，跨期預算限制為：$c_1+\dfrac{c_2}{1+r}=y_1+\dfrac{y_2}{1+r}$，$r>-1$。

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①請推導A在選擇兩期消費以極大化效用之下的跨期替代彈性，其定義為：$\dfrac{\partial \ln(\frac{c_2^*}{c_1^*})}{\partial \ln(1+r)}$

其中 c_1^* ，c_2^* 為讓兩期效用最大的消費組合。 (1) （提示：可從效用極大化問題的一階條件計算此彈性）

②假設 $\alpha=-1$ ， $\beta=\dfrac{5}{22}$ ， $r=0.1$ ， $y_1=36$ ， $y_2=66$ 。請求解 (c_1^*,c_2^*) 。 (2)

填答範例：若解出 $c_1^*=55$ ， $c_2^*=65$ ，則填寫答案為(55,65)。

2. 一位買方準備購買一間房屋。房屋的真實市場價值可能為 $\theta\in\{0,1,2\}$ ，分別代表低價、中價與高價房屋，且三種狀態發生機率皆為1/3。買方無法直接觀察 θ 。買方期望效用函數為 $u(a,\theta)=-(a-\theta)^2$ ，其中 $a\in\{0,1,2\}$ ，代表買方的出價。此效用函數設定代表出價低於或高於真實市場價值都會帶來損失。例如出價過高容易成交但買貴了，出價過低可能無法成交而錯失機會。

①假設買方選擇出價以極大化期望效用，請根據先驗機率（即三種狀態發生機率皆為1/3）求解買方的最適出價。 (3)

②假設房仲可觀察到 θ ，並給買方建議 $m\in\{L,H\}$ 。 L 代表房屋真實價值偏低， H 代表真實價值偏高。假設房仲建議策略為： $\theta=0$ 時給 L ； $\theta=1,2$ 時給 H 。另假設買方在不同的出價之下期望效用相同時，將選擇其中最高的出價。請求買方在得到建議為 L 與 H 之下的最適出價 (a^L,a^H) 為何？ (4)

填答範例：若解出 $a^L=1$ ， $a^H=2$ ，則填寫答案為(1,2)。

③假設房仲偏好買方的出價相較於真實價值略高一級，反映其希望買方「較積極出價」以提高成交機率與傭金收入的想法。房仲期望效用函數為 $v(a,\theta)=-(a-(\theta+1))^2$ 。假設買方依②小題所算出的最適策略行動。在給定房仲觀察到 $\theta=1$ 的狀況下，請計算房仲依照②小題的設定給出 H 建議的期望效用 v^H ，以及背離②小題的設定給出 L 建議的期望效用 v^L 。 (5)

填答範例：若解出 $v^H=0$ ， $v^L=-1$ ，則填寫答案為(0,−1)。

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提示：在本題設定下，不論真實的θ為何，只要買方依照②小題答案的策略出價，房仲都不會想要背離②小題題幹的策略。因此本小題答案中v^L將小於或等於v^H，代表房仲背離原先策略的效用不會比較高。

④請計算有房仲時買方的預期效用較無房仲時增加或減少多少？ ⑹

填答範例：若無房仲時買方效用期望值為–2，有房仲時為–1，代表有房仲時效用期望值增加1，則填寫答案為1。若答案為負值則代表效用減少。

3. 假設一債券持有人的期望效用函數為$u(x)=\frac{x^{\alpha-1}}{\alpha}$，其中$x$為一有違約風險的零息債券到期時支付的金額，參數$\alpha\neq 0$。

①定義Arrow-Pratt相對風險趨避係數$RRA=-xu''(x)/u'(x)$。請根據債券持有人的效用函數推導RRA。 ⑺（提示：答案為α的函數）

②定義確定等值（certainty equivalent, CE）須滿足下式：

$u(CE)=E(u(x))$，

請根據債券持有人的效用函數推導CE，並將CE寫為$E(x)$與RRA的函數。 ⑻

③假設該債券到期時若沒有違約（機率為0.75）將支付債券持有人100元，若違約（機率為0.25）僅能支付50元。債券持有人考慮購買由銀行推出的信用違約交換（credit default swap，簡稱CDS）。CDS在債券違約狀態下將支付投資人50元，在未違約狀態下支付0。另假設$\alpha=-1$，無風險利率為0。請計算債券持有人對於CDS的最高願付價格。 ⑼

④承上題，假設銀行為風險中立，CDS市場為完全競爭。此外，銀行經辦CDS業務時除了可能給付投資人的支出外，每張合約尚有固定成本5元。請求出市場均衡時的CDS價格。 ⑽

解答

㈠單選題

1. ⒝；

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$$\frac{\Delta u}{\Delta(\pi - E\pi)} = -\alpha = -0.5 \rightarrow \Delta u = -0.5 \times \Delta(\pi - E\pi) = -0.5 \times 2\% = -1\%$$

2.(E)；

預料外的擴張性貨幣政策，在預期尚未修正的條件下，擴張性的貨幣政策將使失業短期下降，採用適應性預期之假設，經過長期調整後，失業將恢復至自然失業水準。

3.(A)；

在 *IS-LM* 模型設定下，政府支出擴張將導致 *IS* 向右移動。

4.(B)；

貨幣政策乘數為：$\frac{\partial Y}{\partial M} = \frac{\frac{1}{P}}{\frac{(1-MPC)}{I_R} l_R + k_y}$，當A國有比較大的 *MPC* ，$\left.\frac{\partial Y}{\partial M}\right|_A > \left.\frac{\partial Y}{\partial M}\right|_B$。

5.(C)；

自然失業率 = 摩擦性失業 + 結構性失業，工作匹配技術變好，求職者和職缺更快、更準確配對，摩擦性失業下降，自然失業率會隨之下降。

6.(B)；

中央銀行在公開市場賣出公債，等於收回市場資金，貨幣供給減少，屬於緊縮性貨幣政策，短期下利率上升、產出下降。

7.(A)；

台灣對日本車設定進口配額，會減少台灣對日圓的需求，導致日圓相對新台幣貶值；同時日本對台灣出口品的需求增加，代表日本人需要更多新台幣來買台灣商品，又會導致新台幣升值、也就是讓日圓相對新台幣貶值，以上二力量會使日幣相對趨於貶值。

8.(D)；

題幹明寫目的是「reduce interest rate risk」，且兩個空格以「or, alternatively」相連，表示兩個動作是互為替代的兩條路，各自都要能降低利率風險。

前一個空格：目的子句說「to increase their rate sensitivity」。這裡的rate sensitivity是重定價意義的敏感度（rate-sensitive assets = 在期間內會重新

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定價的資產）：存續期間越短、重定價越快、對利率越敏感。所以要提高資產的敏感度，答案是shortening。

後一個空格：本題是典型商業銀行的設定，資產存續期間長於負債（題幹未明言，屬通例假設），存續期間缺口為正，升息會侵蝕銀行淨值。要縮小缺口有兩條路，兩條都朝同一個方向：縮短資產存續期間，或者拉長負債存續期間。所以後一個空格是lengthening。即使不先假設缺口符號，也可以直接由替代句構得到同一答案：兩個動作既然互為替代，就必須往同一個方向縮小缺口。故選(D)shortening; lengthening。

(C)lengthening; shortening的兩個動作都把存續期間缺口拉得更大、利率風險更高，與題幹的reduce相反。會選(C)是把「對利率敏感」誤讀成「價格波動大」（存續期間越長、價格敏感度越高），兩個「敏感度」不是同一個。

9.(A)；

貨幣基礎（H）由兩部分所組成，一部分是民眾手上的通貨（C），另一部分是銀行的準備金（R）。中央銀行執行公開市場買進（開支票買進債券），屬於擴張性貨幣政策，貨幣基礎終將增加。A選項中若央行以支票形式向一個個人買債，而這個人拿到支票後，直接去向商銀兌現成現金，則他手上的通貨將直接增加，銀行中的準備金當下會先下降，商業銀行再將支票去向央行兌換成現金，則銀行準備金將回復到原水準（$H\uparrow = C\uparrow + \overline{R} \rightarrow \Delta H = \Delta C$）；(C)選項若央行透過向一個個人買債，而這個人如果拿到支票後存入銀行，由商業銀行去向央行兌現成通貨，此時是銀行準備金直接增加，而一般個人的通貨量就沒有發生變化，此時貨幣基礎和準備金同向變動（$H\uparrow = \overline{C} + R\uparrow \rightarrow \Delta H = \Delta R$）。(B)、(D)選項則是如果中央銀行直接向銀行買債或賣債，那銀行拿到現金是準備增加或用準備去支付則準備減少，因此貨幣基礎的變動就是直接對應準備金的變動，兩者方向會一致。

10.(E)；

利率期限結構中的預期理論（expectations theory of the term structure），在表達的是長期利率反映了市場對未來短期利率的預期平均值。如果殖利率曲線為負斜率或正斜率，表示市場預期未來短期利率會下降或上升，而非維持穩定。也因此殖利率曲線是正斜率或負斜率須取決於市場

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