

短期的產出與匯率 (part 2)

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授課講義非經同意請勿引用
[取材自Krugman, et al. (2018)
chap. 6/ (2023) ch. 17]

1 貨幣與財政政策永久性的轉變

- 將帶動長期匯率變動
- 連帶影響對未來匯率走勢的預期
 - these changes in expectations have a major influence on the exchange rate prevailing in the short run
- ...the effects of permanent changes in monetary and fiscal policy, in both the short and long runs
- 假設：
 - the economy is initially at a long-run equilibrium
 - the economy starts out at full employment with the exchange rate at its long-run level and with no change in the exchange rate expected
 - the domestic interest rate must initially equal the foreign rate, R^*

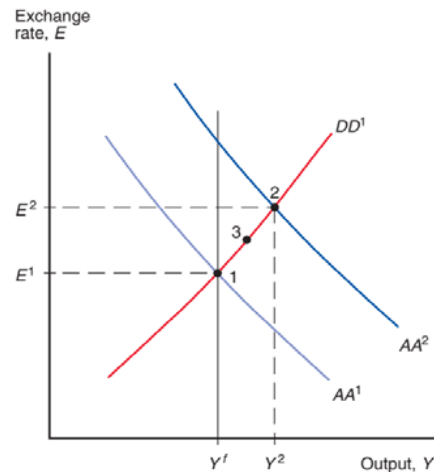
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1-1 永久性的貨幣供給增加

- the permanent rise in M_s causes E^e , the expected future exchange rate, to rise proportionally (同E)
- AA外移至AA2
- 新的短期均衡將位於2
 - 貨幣供給永久性增加 has stronger effects on the exchange rate and output than an equal temporary increase (cf. 位3) (why?)
 - No expectations effect



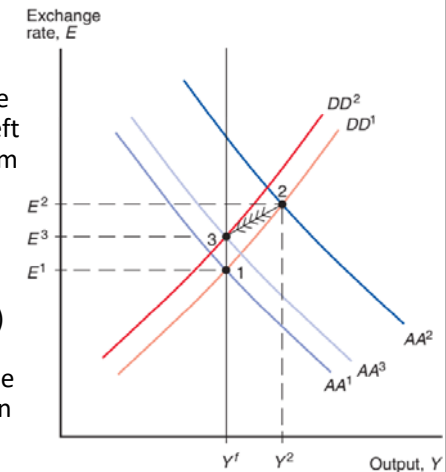
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1-2 永久性的Ms增加—調整至新的長期均衡

- After a permanent money supply increase, a steadily increasing price level shifts the DD and AA schedules to the left until a new longrun equilibrium (point 3) is reached
 - $P \uparrow \Rightarrow EX \downarrow, IM \uparrow \Rightarrow DD$ 左移
 - $P \uparrow \Rightarrow (M/P) \downarrow \Rightarrow R \uparrow \Rightarrow AA$ 左移
- This ...is an example of the **overshooting** (2 (短) vs 3 (長)) phenomenon ..., in which the exchange rate's initial response to some change is greater than its long-run response



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1-2

- ... the proper policy response to a permanent monetary disturbance **($Y \downarrow$ (why?))**
 - A permanent **increase** in money demand, for example, can be offset with a permanent increase of equal magnitude in the money supply. Such a policy maintains full employment, but because the price level would fall in the absence of the policy, **the policy will not have inflationary consequences**
 - however, that **it is hard in practice to diagnose** the origin or persistence of a particular shock to the economy

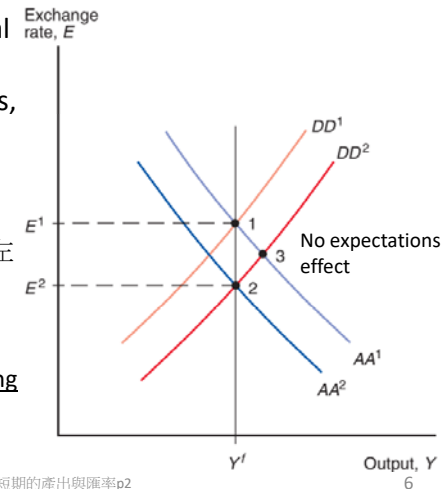
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1-3 永久性的財政擴張

- Because a permanent fiscal expansion changes exchange rate expectations, it shifts $AA1$ leftward as it shifts $DD1$ to the right
 - $G \uparrow$ (或 $T \downarrow$) \Rightarrow DD 右移為 $DD2$
 - 預期本幣(美元)升值 \Rightarrow AA 左移為 $AA2$
 - This appreciation **"crowds out"** aggregate demand for domestic products by making them more expensive relative to foreign products



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1-3

- 財政擴張並無擴張性效果...**
 - M_s 不變，長期的 P 不變，連同長期的 R 、 Y_f 皆不受影響
 - 另考慮前述假設：起始長期均衡 $Y = Y_f$ 、 $R = R^*$ ，而短期， M_s 、 P 、 (M_s/P) 皆為給定
 - 當 $Y > Y_f$ (如前圖位 **3**)，在短期均衡下，因上述前提， $L(Y \uparrow) > (M_s/P)$ ，故意味 **R 要 \uparrow** 以維持貨幣市場均衡；因此，利率平價表示預期本幣要貶值
 - 但 E_e 在短期為給定，故須 **$E \downarrow$** (即本幣升值，如前圖位 **3**)
 - 之後， AA 受 $R \uparrow$ 而左移為 $AA2$ ，本幣進一步升值，最後 $EX \downarrow$ ($IM \uparrow$) (**排擠效果**)... (其他排擠 $R \uparrow \Rightarrow I \downarrow$)
 - 及至長期均衡 **2** 時，財政擴張的效果即被完全抵消

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1-3

- 結論
 - if the economy starts at long-run equilibrium, a permanent change in fiscal policy has no net effect on output
 - Instead, it causes an immediate and permanent exchange rate **jump** that offsets exactly the fiscal policy's direct effect on aggregate demand
 - A fall in net export demand counteracts the rise in government demand
- 政府購買支出乘數 (government spending multiplier) 到底多大? (Krugman et.al. p.204)

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2 總體經濟政策與經常帳

[050823]



- 經常帳的順逆大小差係各界關心的議題
 - 攸關長期的經濟福祉
 - Large external imbalances may also generate political pressures for governments to impose restrictions on trade
- DD-AA模型加入XX曲線
 - XX曲線作為經常帳是否恰當或變化的比較基準
 - XX曲線並無市場均衡意涵
 - 不像DD與AA曲線...

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2-1 XX曲線

- XX曲線： $CA(EP^*/P, Y - T) = X$
 - X：某個給定的意欲水準(不一定=0)
 - 在XX曲線上，E與Y為**正相關**
 - $E \uparrow$ ，(AEE) $CA \uparrow$ ；為維持上述**等式**關係(note: not 均衡，亦非經常帳平衡)，Y勢須 \uparrow (即以IM \uparrow 來抵銷先前的 $CA \uparrow$)
 - **Since the actual level of CA can differ from X, the economy's short-run equilibrium does not have to be on the XX curve**
 - 長期?

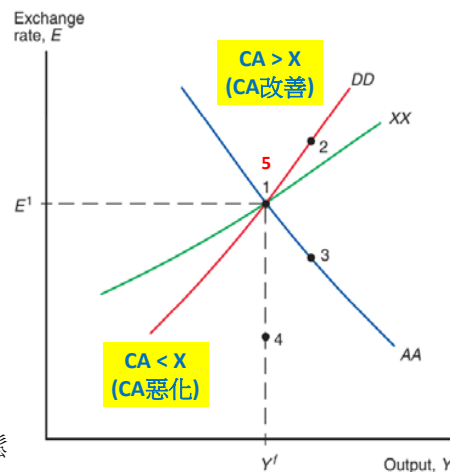
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2-2 DD-AA+XX — 總經政策對經常帳的影響

- Monetary expansion moves the economy to point 2 ($AA \uparrow$) and thus raises the current account balance in the short run
- Temporary fiscal expansion moves the economy to point 3 ($DD \uparrow$)
- While permanent fiscal expansion moves it to point 4
 - in either case, the current account balance falls
 - CF. 暫時與永久性貨幣寬鬆



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3 貿易物流的調整與經常帳的動態行為

- **An important assumption** underlying the DD-AA model is that, other things equal, a real depreciation of the home currency immediately improves the current account while a real appreciation causes the current account immediately to worsen
- In reality, however, ... the current account to adjust only gradually to exchange rate changes
- 另外，貶值會帶來**物價上揚**壓力(轉嫁效果)，也會影響經常帳調整行為

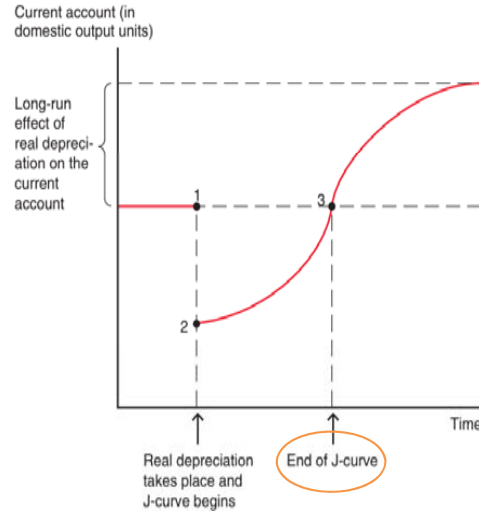
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3-1 J-曲線

- The primary effect of the depreciation is to raise the value of the pre-contracted level of imports in terms of domestic products... there is an initial fall in the current account (from 1 to 2)
 - 實質EX不變
- 生產需要時間做調整...



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補充說明1：貨幣貶值與進口總值

- 實質進口： $IM = (P_M \times Q_M) / P$
 - 其中 P_M 為以本幣表示的進口財價格， $= EP^*$
 - 故 $(P_M \times Q_M)$ 即以本幣表示的進口總值 (value of imports)
 - 實質出口 $(EX) = (P \times Q_X) / P = Q_X$
- 當本幣貶值 ($E \uparrow$)， $P_M \uparrow$ ，但進口量 Q_M 受制於先前已經下的訂單而未及更動，因此進口總值 $(P_M \times Q_M) \uparrow$ ，且 $IM \uparrow$ (given P)
- 此時 $IM \uparrow$ 的結果， $CA = EX - IM$ 反而惡化 (即前圖上的 $1 \rightarrow 2$) ($\Rightarrow Y \downarrow$)
 - 且 Q_X 對本幣貶值也來不及做足夠的反應

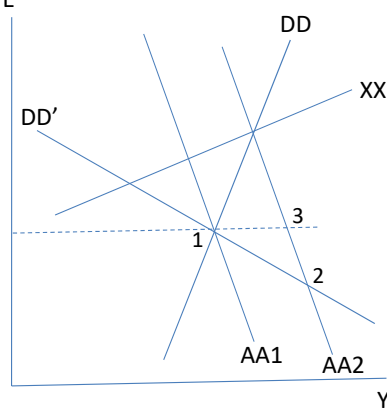
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補充說明2：J曲線現象與DD-AA

- DD (正常)： $Y = D(EP^*/P, Y-T, I, G)$
- AA： $M/P = L(R^* + Ee/E - 1, Y)$
- XX： $CA(EP^*/P, Y - T) = X$
- DD' (J曲線)：貶值 (note: 線上 $E \uparrow$, $Y \downarrow$) (見補充說明1)
- 暫時與永久性的貨幣與財政政策改變的影響? (chap.6, prob7)



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3-1.1 J-curve effect

- Empirical evidence indicates for most industrial countries a J-curve lasting more than six months but less than a year
- at least for the short run of a year or less... Monetary expansion... can depress output initially by depreciating the home currency (因實質CA惡化)
- it may take some time before an increase in the money supply results in an improved current account and therefore in higher aggregate demand

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3-1.1

- If expansionary **monetary policy** actually depresses **output** in the short run, the domestic **interest rate will need to fall further than it normally would...**
 - 反之亦同(如在貨幣正常化時...)
- the exchange rate will overshoot more sharply to create the larger expected domestic currency appreciation required for foreign exchange market equilibrium
- ⇒ J-curve effects amplify the volatility of exchange rates

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3-2 匯率轉嫁效果與通貨膨脹

- Because the *DD-AA* model assumes that the nominal output prices P and P^* cannot suddenly jump, movements in the real exchange rate, $q = EP^*/P$, correspond perfectly in the short run to movements in the nominal rate, E
- 但實際上，even the short-run correspondence between nominal and real exchange rate movements, while quite close, **is less than perfect**

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3-2

- The percentage by which import prices (EP^*) rise when the home currency depreciates by 1 percent ($\Delta \ln(EP^*)/\Delta \ln E$) is known as the degree of **pass-through** from the exchange rate to import prices
- the *DD-AA* model... above, the degree of pass-through is 1 (即 $\Delta \ln P^*=0$)
- however, exchange rate pass-through can be incomplete

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3-2.1 不完全的匯率轉嫁效果

- international market segmentation, which allows imperfectly competitive firms to *price to market* by charging different prices for the same product in different countries
 - 外國公司... worried about losing market share
 - it does not immediately raise its (U.S.) prices by 10 percent when the dollar depreciates by 10 percent (雖然利潤減少) ...
 - 反之，遇到升值時也不會立即做等比例的降價
 - the firm may wait to find out if the currency movement reflects a definite trend before making price and production commitments that are costly to undo

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3-2.1

- Incomplete pass-through will have complicated effects... on the timing of current account adjustment (即 J-曲線)
- 當名目匯率(E)變動
 - (1)進口物價(EP*)的反應不完全
 - (2)對進出口相對物價(EP*/P)的影響效果也較小
 - 若國內物價(及出口物價) P 又易受貨幣貶值的影響($E\uparrow \Rightarrow P\uparrow$)，則對(EP*/P)的影響更小
Such price increases, however, like partial pass-through, may weaken the J-curve
- The failure of relative prices to adjust quickly will in turn be accompanied by a slow adjustment of trade volumes
 - J-曲線變得比較平坦(需要花更長時間才能看到CA改善)

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3-2.2 國際計價貨幣與匯率轉嫁效果*/**

- 作為國際貿易主要的計價與支付工具(invoice currency)如美元，若\$貶值，對美國的進(出)口價格影響極小，但對其他國從美國進口的，以該國貨幣衡量的進口價格，立即的轉嫁效果為1
 - 因此，\$貶值對美國進口影響極小，但其出口會明顯改善
 - 同時，對美出口的外國廠商(如日本，用\$為其出口的主要計價貨幣)，以其本幣表示的利潤將↓(?)，因之這些廠商會一直想要調高其美元售價來彌補利損

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3-2.2

- 對美國的貿易對手如日本而言，若日幣(非國際計價貨幣)對\$貶值，則對日本的進口物價會有強勁的影響
 - 從日本出口商來看，因多以\$為計價貨幣，對其出口物價的短期效果極小，但對其出口利潤影響極大
 - 因此，相較於美國，匯率變化對日本淨輸出的影響管道(至少在短期)主要係來自進口而非出口的調整(這跟美國情況恰巧相反)

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3-2.2

- 匯率/物價間的轉嫁效果不僅跟市場勢力、調整型態(J-curve)與計價通貨有關，也跟匯率為何而變動有關
 - 例如若因經濟疲弱總需求縮減而致\$弱化，使得出口至美國的廠商，雖其利潤下滑，但也不會積極想要調高\$物價(因AD↓)，此時轉嫁效果較小
 - 若\$貶值係因(1)國際間資產組合偏好轉向非美元資產，且貶值同時造成(2)對美國產出需求增加，則\$貶值的轉嫁效果會有所不同
 - 問題: 怎樣的一個因素會同時產生(1)+(2)? 其轉嫁效果會有何不同?

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3-3 全球價值鏈與匯率對進出口價格的影響*

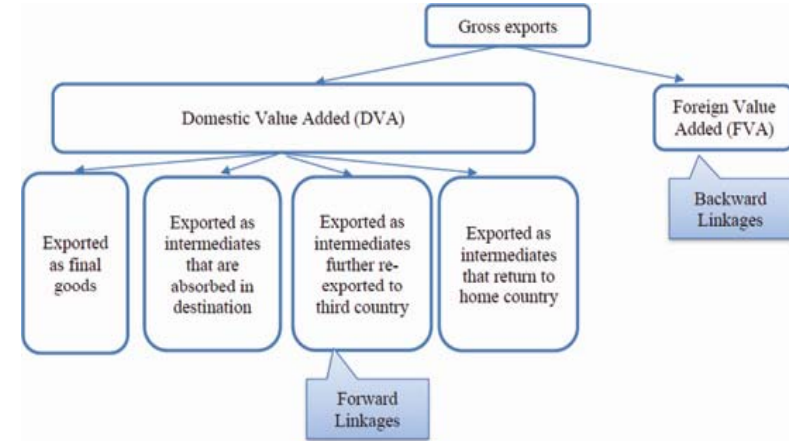
- 現代貿易中FDI、外包(outsourcing)與離岸外包(offshoring)皆為普遍常見的生產模式
- 全球價值鏈(GVC)使一國產品(及出口品)的附加價值結構變得極為複雜(羊毛可能不出在羊身上)
- 向前參與及向後參與(或關聯) (**forward and backward participation (linkage)**)
 - 向前：本國出口的商品作為(或參與)他國(即進口國) **生產出口品**的投入
 - 向後：本國為了**生產「出口」財貨**而**使用的進口財**作為**部分的生產投入**

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輸出總值的附加價值分解*



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3-3

- **向後關聯**會減弱貨幣貶值(vs升值)對輸出物價的轉嫁效果
 - 因出口品的進口投入成本↑
- 在**向前關聯**下，貨幣貶值對進口的影響...
 - $\$ \downarrow$ 、EX (中間財) $p \downarrow$ 、他國的進口投入成本 $\downarrow \Rightarrow$ 他國EX $p \downarrow$ 、**本國從他國進口物價 \downarrow** (抵消部分原先IM $P \uparrow$ 效果)
 - 故而減弱本國貨幣貶值對進口需求(減少)與淨輸出(及貿易逆差)改善的效果
- 即使GVC對轉嫁效果有些影響，**但...實證上發現 (p.522-23) 貨幣升貶對總需求與產出的效果大致不變(因貿易量效果(TVE)係主導匯率對GDP的影響力)**

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3-4 經常帳、財富效果與匯率動態行為

- Our theoretical model showed that a permanent fiscal expansion would cause both **an appreciation of the currency** and a **current account deficit**
- Because a country with a current account deficit is transferring wealth to foreigners (即net borrowers), domestic consumption (最終) is falling over time and foreign consumption is rising
- 之後，Foreigners have a relative preference for consuming the goods that they produce (相對便宜), and as a result, the relative world demand for home goods will fall and the home currency will tend to depreciate in real terms (最終反貶)

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3-4

- a permanent change such as a fiscal expansion...
 - (1) Initially, the home currency will appreciate as the current account balance falls sharply
 - (2) But then, over time, the currency will begin to depreciate as market participants' expectations focus increasingly on the current account's effect on relative international wealth levels

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4 流動性陷阱

- the nominal interest rate hit **zero**... and the country found itself caught in what economists call a **liquidity trap**
 - 30年代的美國大蕭條與90年代的日本皆曾發生
 - 現今... The liquidity trap had gone global
- A liquidity trap is a trap ..., the central bank will face great difficulty in reducing it (R) further by increasing the Ms
 - people would find money strictly preferable to bonds, and bonds therefore would be in excess supply (債券價格無空間↑)
 - Makers of macroeconomic policy, who are trapped in a situation where they may no longer be able to steer the economy through conventional monetary expansion
 - Economists therefore recommend that if possible, central banks avoid the **zero lower bound (ZLB)** on the nominal interest rate

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4-1 零率下限與負利率

- 總經政策(如前)的限制與流動性陷阱
- 市場為何會接受負利率(如存款戶)?
 - 原始所謂負利率政策與準備金存款
- *effective lower bound (ELB) vs. ZLB*
 - the liquidity trap with an interest rate that is stuck at the ZLB 或 ELB

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4-2 流動性陷阱—央行面臨的困境

- 當 $R=0$ ，利率平價條件成為

$$R = 0 = R^* + (E^e - E)/E$$
 - 假設 E^e 給定
- Suppose the central bank raises the domestic money supply so as to depreciate the currency temporarily (that is, to raise E today but return the exchange rate to the level E^e later)
- The interest parity condition shows that E cannot rise once $R = 0$ (除非 $R < 0$)
 - 表示 E 被固定在 $E = E^e / (1 - R^*)$ (故不能進一步貶值)

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4-2

- 央行若想要脫離流動性陷阱勢必要減少Ms來調升R，但是...
- but that possibility is not helpful when the economy is in a slump and a *fall* in interest rates is the medicine that it needs
- 流動性陷阱中的DD-AA
 - 流動性陷阱與經濟衰退

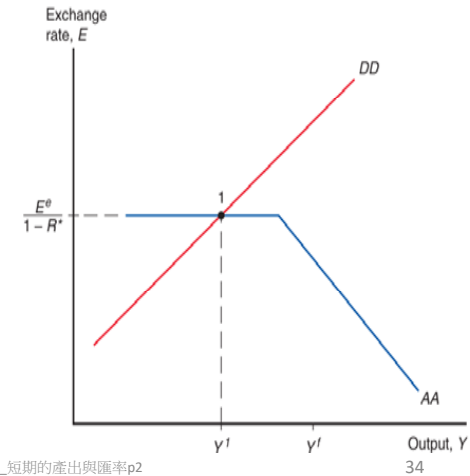
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4-3 低產出的流動性陷阱

- At point 1, output is below its full employment level
- Because exchange rate expectations E^e are fixed, however, a monetary expansion will merely shift AA to the right, leaving the initial equilibrium point the same
- The horizontal stretch of AA gives rise to the liquidity trap



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4-4 貨幣政策是否真的無效?

- Suppose the central bank can **credibly promise** to raise the money supply *permanently*, so that E^e rises at the same time as the current money supply
- *the AA schedule will shift up as well as to the right*, output will therefore expand, and the currency will depreciate
 - 日本經驗(2013) (預期通膨、負實質利率、日圓貶值)
 - 美國經驗(2016)
 - 非傳統貨幣政策(QE)與扭轉操作(twist operations)
 - 釋出巨量流動性與直接調控長期利率

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