

# **INSTITUTE AND FACULTY OF ACTUARIES**

## **EXAMINERS' REPORT**

September 2010 examinations

### **Subject CT7 — Business Economics Core Technical**

#### **Introduction**

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

T J Birse  
Chairman of the Board of Examiners

December 2010

<b>1</b>	A
<b>2</b>	C
<b>3</b>	B
<b>4</b>	B
<b>5</b>	D
<b>6</b>	D
<b>7</b>	B
<b>8</b>	B
<b>9</b>	No correct answer – all candidates awarded 1.5 marks
<b>10</b>	C
<b>11</b>	B
<b>12</b>	C
<b>13</b>	B
<b>14</b>	D
<b>15</b>	C
<b>16</b>	C
<b>17</b>	C
<b>18</b>	B
<b>19</b>	A
<b>20</b>	C
<b>21</b>	D
<b>22</b>	A
<b>23</b>	C or D
<b>24</b>	B
<b>25</b>	D
<b>26</b>	B

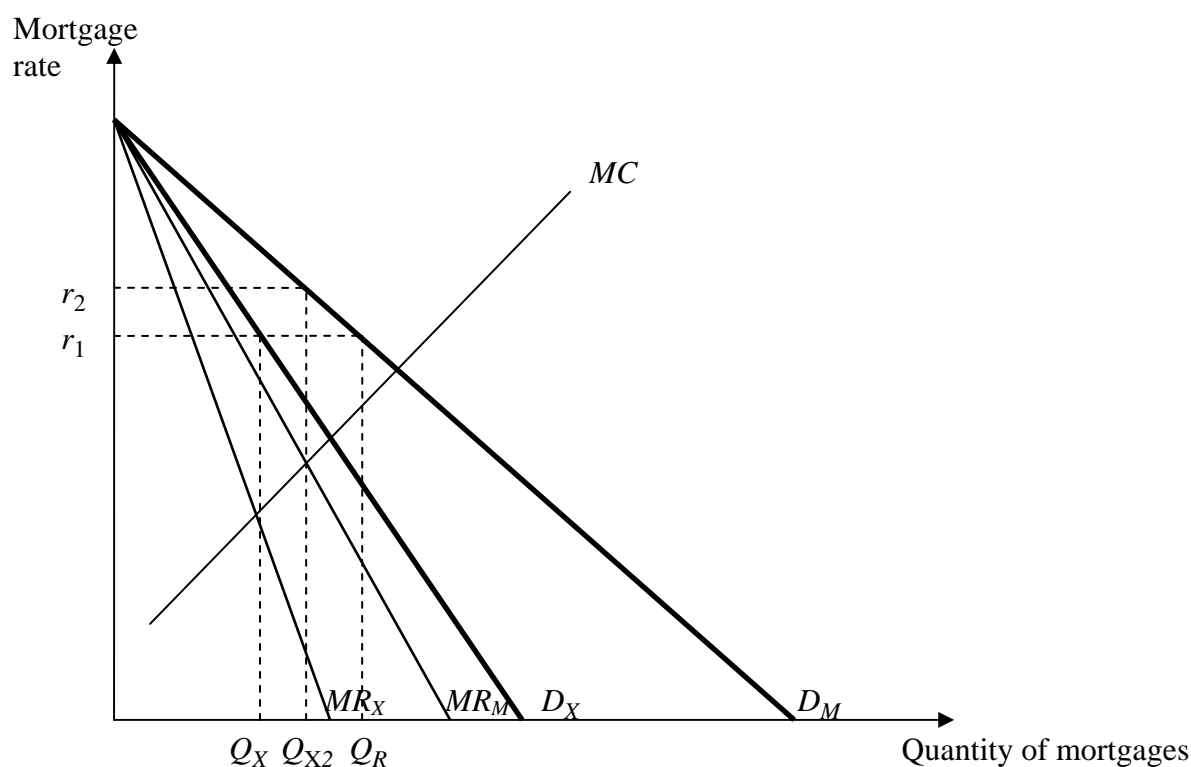
*There was a problem with question 9 meaning none of the choices was valid, as such all candidates were awarded 1.5 marks. Two answers were acceptable for question 23, allowing both + and – quantities. The multiple choice section itself was generally well answered.*

- 27** (i) (a) Horizontal
- (b) Conglomerate
- (ii) Mergers will generally have the effect of increasing the market power of those firms involved. This could lead to less choice and higher prices for the consumer. These are key reasons for a government's competition policy.

Nonetheless, mergers may facilitate the exploitation of economies of scale as which may then result in price falls for consumers. Also mergers may lead to greater research and development (R&D) as the sunk costs of R&D can be spread in a larger enterprise and also the risk go down due to the enlargement of the company.

*This question was generally well answered but students also needed to point out some of the advantages and disadvantages to consumers of mergers as the question required.*

- 28** (i)



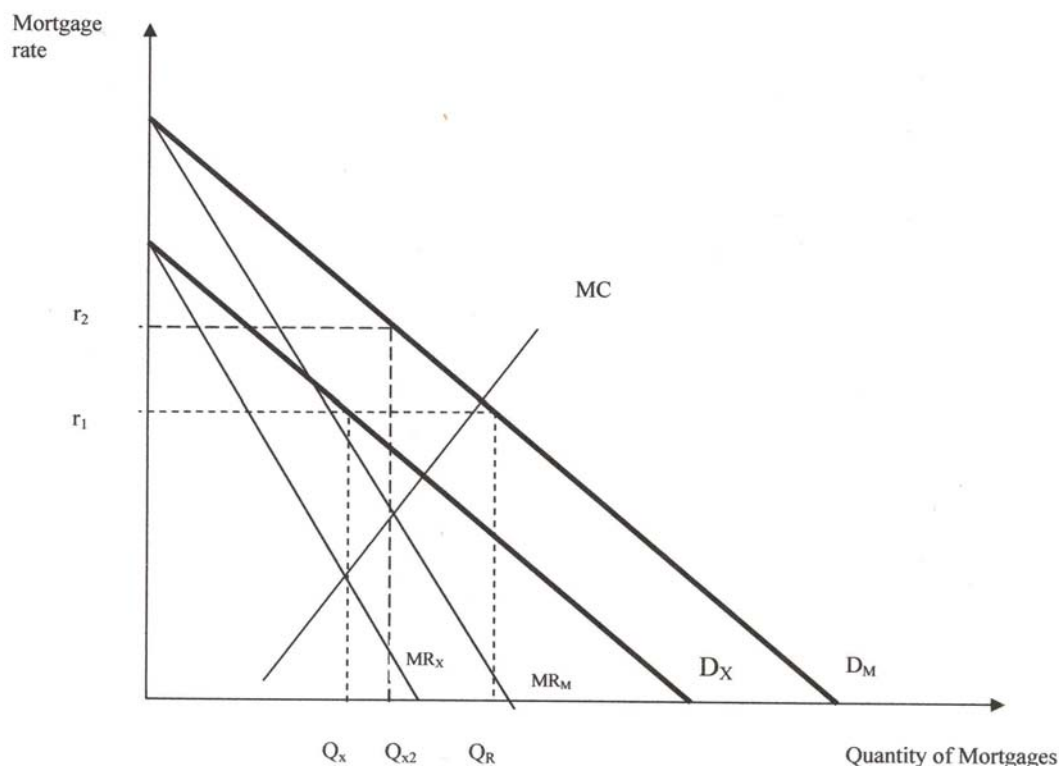
$D_X$  and  $MR_X$  are the demand and marginal revenue lines for the leader.  $D_M$  is the market demand curve.  $MR_M$  is the marginal revenue curve derived from the market demand curve.

- (ii) Bank X sells  $Q_X$  of mortgages at  $r_1$ . Other firms sell  $Q_X$   $Q_R$  at  $r_1$ .

- (iii) Bank X as a monopolist would sell  $Q_{X2}$  at  $r_2$ .

An alternative response that was allowed was the following:

- (i)



$D_X$  and  $MR_X$  are the demand and marginal revenue lines for a dominant firm that assumes a output (the difference between  $D_X$  and  $D_M$ ).  $D_M$  is the market demand curve.  $MR_M$  is the marginal revenue curve derived from the market demand curve.

- (ii) Bank X sells  $Q_X$  of mortgages at  $r_1$ . Other firms sell  $Q_X$   $Q_R$  at  $r_1$ .

- (iii) Bank X as a monopolist would sell  $Q_{X2}$  at  $r_2$ .

*The examiners allowed for two possible responses to this question which are outlined above. Candidates generally did fine with the basic diagram(s) but often marks were lost due to poor ;labelling and misidentification of the relevant prices and output.*

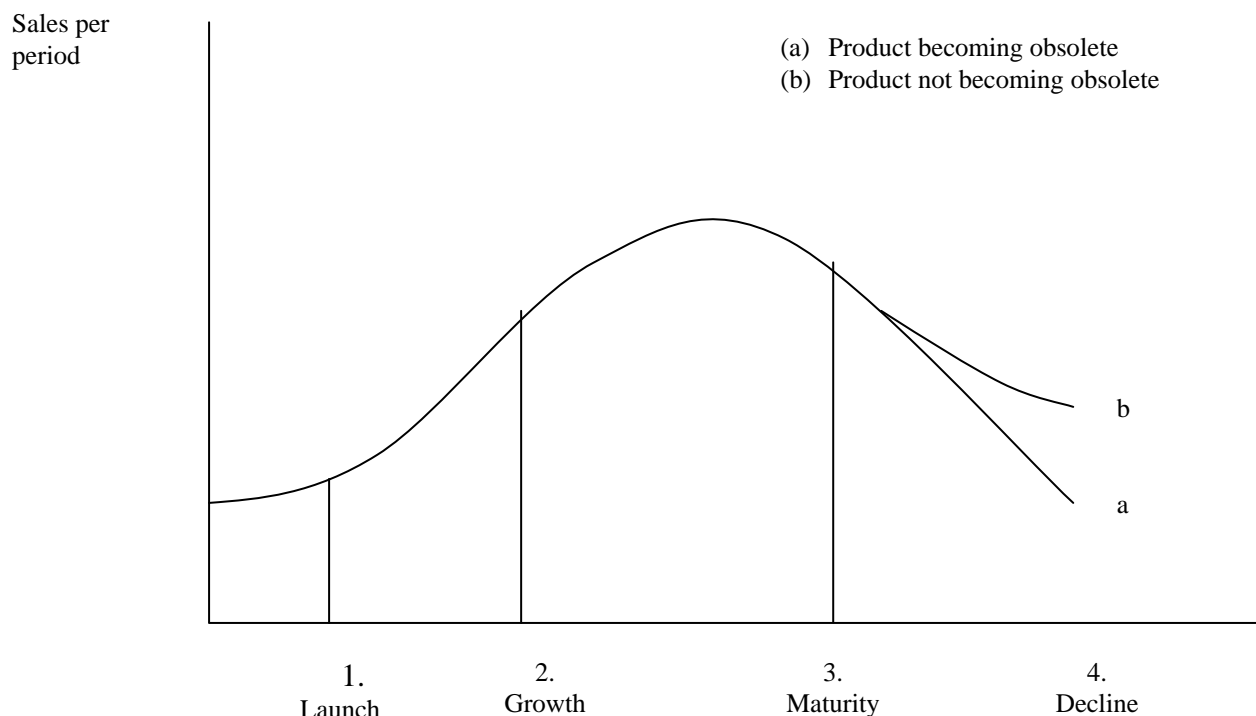
- 29**
- (i) It could be argued that the banks may undertake highly risky activities confident that the government would come to the rescue should there be a threat that they could collapse; activities that they may not otherwise undertake. This means that the presence of government guarantees could mean banks undertake risking lending which increases the likelihood of a financial crisis occurring.
- (ii) Two of the following:
- A no-claims bonus.
  - The insured having to pay a proportion of the value of the loss.
  - Offering lower premiums to those less likely to claim.
  - Invalidating claims if pertinent facts have not been disclosed.
- (iii) The adverse selection problem facing banks is that as they raise interest rates then the risk is that after a certain point profits will fall rather than rise. This is because as interest rates go up they attract an increasing proportion of “bad” customers that do not intend to pay back the loan at high rates of interest. As such, after a certain point raising interest rates will increase a bank’s non performing loans and lower rather than raise profits.

*Sometimes candidates showed a poor understanding of the concepts especially when it came to the concept of adverse selection. In part (i) many candidates correctly defined the concept of moral hazard but failed to discuss how it was linked to financial crises as required by the question.*

- 30**
- (i) (a) Equilibrium wage rate is £5 per hour.
- (b) Natural unemployment number =  $556,000 - 400,000 = 156,000$
- (ii) If the wage rate is £7 per hour, disequilibrium unemployment would be
- $$480,000 - 320,000 = 160,000$$
- (iii) At higher wage rates a larger proportion of the labour force would be prepared to accept work, so the difference between the labour force and those who want to work decreases.

*Answers were generally of a high quality and many candidates obtained full marks to this question.*

**31** (i)



- (ii) The four stages of the product cycle include the launch (early sales and product recognition), then rapid growth of sales during the growth phase, followed by a slower growth rate as the market matures and becomes saturated. Finally, a period of decline in sales as price cutting among existing firms takes place and as new versions of the product come out or the product is replaced by new superior products.
- (iii) The very first mobile phones were a radically new product and so the company launching these was able to charge a high price and make large profits. At this stage, the market for this product was expanding rapidly and the price inelastic demand supported the high price policy.

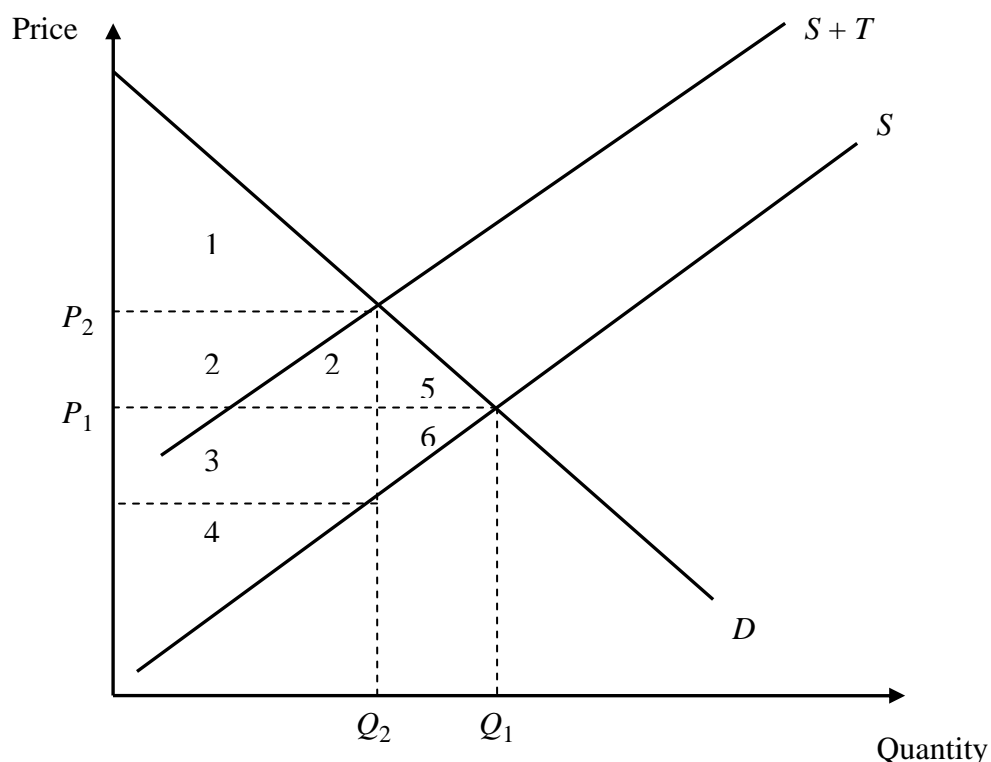
At the growth stage the high profits, rapid growth and low barriers to entry attracted other companies to enter the market and as the sales were expanding rapidly, all firms expanded their sales with very little price competition. The firms in the oligopoly competing in terms of minor product differences and following the price set by the market leaders.

The mobile phone market has since reached its maturity stage with many firms competing. The slowing of the growth in sales has meant more competition and companies following a more aggressive pricing policy in order to maintain their market share. The companies have introduced new models with better capabilities in order to rejuvenate the market and encourage the consumers to upgrade to new models.

With the growing sales for smart phones the market for the traditional mobile phones will decline and may eventually become obsolete.

Answers were generally fine in that students correctly identified the four stages with a relevant description but marks were lost in part (iii) due to many students failing to apply their analysis to the specific case of mobile phones as set out in the question.

32



**Before tax**

Consumer surplus = 1 + 2 + 5

Producer surplus = 3 + 4 + 6

**After tax**

Consumer surplus = 1

Producer surplus = 4

Government revenue = 2 + 3

Excess burden of tax = 5 + 6

Answers to this question were generally fine with students correctly identifying the relevant welfare effects of the tax and also the net loss of areas 5 and 6.

- 33** (i) Bank deposits multiplier is  $1/\text{Liquidity ratio} = 1/0.1 = 10$

The increase in total deposits = £25 billion  $\times$  10 = £250 billion

- (ii) An increase in the liquidity ratio from 0.11 to say 0.2 will reduce the increase in total deposits to £125 billion.

If the banking system creates deposits resulting from extra cash coming into the banking system and the public decides to hold part of the deposits as cash outside the banking system, this would mean some of the extra cash would leak out of the banking system. This will result in the overall multiplier effect being smaller than the full bank deposits multiplier.

A final reason why banks may not increase their lending when new deposits occur is that there are insufficient demand from borrowers

*Part (i) was generally well answered. But many candidates failed to cover part (ii) correctly, at least two reasons were required to get full marks in section (ii).*

- 34** (i) Market drivers, Cost drivers, Government drivers, Competitive drivers.

- (ii) Any FOUR from the following list of market drivers:

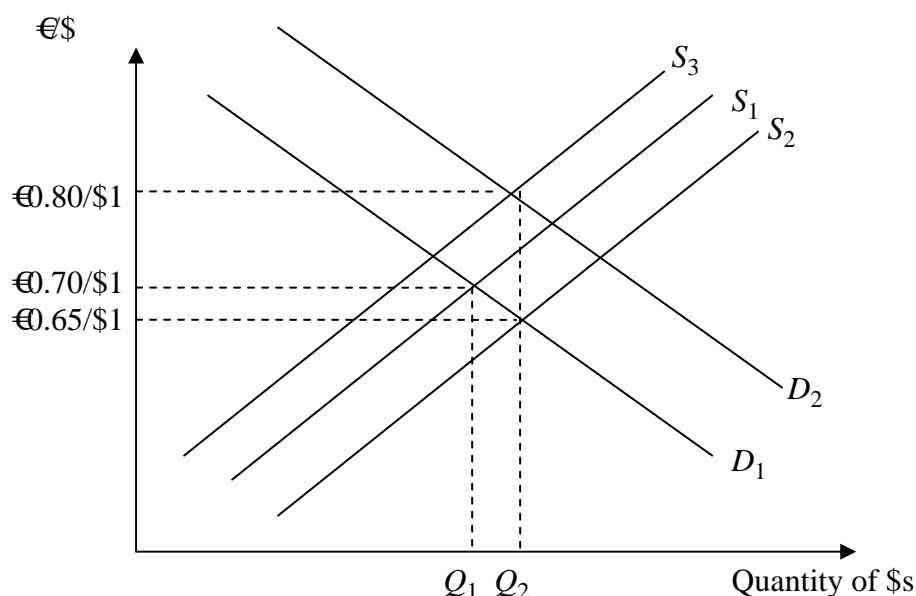
Per capita income converging among industrial nations  
Convergence of lifestyles and tastes  
Organisations begin to behave as global customers  
Increasing travel creating global customers  
Growth of global and regional channels  
Establishment of world brands  
Push to develop global advertising

*The first part of the question was generally well answered but the second part was generally less well answered.*

- 35** The increase in US government expenditure will boost aggregate demand and will cause an increase in imports, causing the current account to go into deficit. People will sell dollars to buy euros so shifting  $S_1$  to the right to  $S_2$  causing an appreciation of the euro from €0.70/\$1 to say €0.65/\$1. On the other hand, the higher interest rates caused by the rise in domestic demand and fiscal deficit will encourage a large inflow of short term finance as people abroad will be attracted to deposit their money in the US. This will shift the demand for the dollar to the right to  $D_2$ . It may also cause smaller short-term financial outflows causing  $S_2$  to move to  $S_3$  outflows as US residents keep more of their money in the country resulting in less selling of dollars in the foreign exchange market. The financial account will move into surplus. This financial account effect is likely to outweigh the adverse current account deficit and cause an appreciation of the dollar from the initial value of €0.7/\$1 to say €0.80/\$1. Of course, if the current account effect outweighs the financial account effect, then



the leftward shift of the supply curve  $S_2$  to  $S_3$  will be much smaller as will be the increased demand from  $D_1$  to  $D_2$  meaning a net depreciation of the dollar to say €0.68/\$1



*The above solution is only an indicative solution, examiners made allowance for a wide range of reasoned responses when awarding marks. Other answers are acceptable so long as they are rationalised. For example, the rising fiscal deficit might lead to people panicking and selling the dollar and reducing demand for dollars so the dollar would then clearly depreciate. However, it was the case that many candidates considered only the current account effect or only the financial account effect only. Relatively few candidates considered both effects.*

- 36** (i) Nash equilibrium is when both firms charge £200 and gain a profit of £80,000 each.
- (ii) Aggressive firms spend large amounts on advertising to get ahead of their rivals (maximax approach), cautious firms do so in case their rivals advertise (maximin approach). Although in both cases it may be in the individual firm's best interest to increase advertising, the resulting Nash equilibrium is likely to result in excessive advertising, which is not recouped in additional sales.

*Part (i) was generally well answered but in part (ii) answers were not so good and the problem of excessive advertising was not as well explained as it should have been.*

- 37** (i) Keynesian theory proves a “demand-side” explanation of fluctuations in output and employment in terms of fluctuations in aggregate demand.

During a recession there is a lack of aggregate demand, unemployment is high and business and consumer confidence is depressed. Low interest rates will

however likely lead at some point to a pick up of investment demand and consumer expenditure.

During the recovery phase of the business cycle, unemployment starts to fall, investment starts to pick up to the low interest rates, as workers start to obtain jobs then consumer demand starts to rise and consumer and business confidence start to rise leading to further increases in consumer expenditure and investment demand. After a certain point the recovery becomes self reinforcing.

Eventually, the recovery starts to become a boom with low unemployment, high investment and high consumer demand and rises in asset prices such as the stockmarket and housing markets, large scale borrowing by the private sector starts to push up interest rates. In addition as the economy approaches full employment the government may be keen to raised interest rates to slow the economy and contain inflation risks. This then starts to slowdown the economy.

During the slowdown, investment demand starts to slow due to rising interest rates, and consumer and investment demand slows as they try to repay borrowed loans taken out earlier in the cycle. This means that aggregate demand begins to decline and layoffs begin to occur. Hence the slowdown begins to take shape.

- (ii) According to the multiplier theory changes in investment will generate jobs in the economy and through the multiplier effect will lead to a rise in the national income that is bigger than any initial increase in aggregate demand (whether caused by an increase in investment, autonomous consumption or government expenditure). The multiplier for a closed economy will be greater the higher the marginal propensity to consume and the lower the income tax rate.

Planned private investment is linked to the growth of aggregate demand for goods and services in the economy. When aggregate demand rises, this will increase private investment demand which is known as the accelerator effect. Hence an initial increase in investment which generates an increase in the national income will in turn result in a further increase in investment demand via the accelerator effect. The multiplier-accelerator interaction suggests a dynamic relationship between changes in investment and the Gross Domestic product.

*In part (i) there were generally good explanations of the various phases of the business cycle although the dynamics behind the four phases required more explanation in some cases. In part (ii) while the multiplier effect was generally well explained, explanations of the accelerator were somewhat weaker and often showed no real understanding of the concept and its interaction with the multiplier as required by the question.*

## **END OF EXAMINERS' REPORT**