BEAM033

UNIVERSITY OF EXETER

BUSINESS SCHOOL

MAY/JUNE 2009

BANKING & FINANCIAL SERVICES

Module Convenor: Paul Cox

Duration: TWO HOURS

SECTION A: worth 30 per cent of the total exam mark.

Answer ALL TWENTY questions – use answer sheet provided.

SECTION B: Answer TWO questions out of THREE

All questions in Section B carry 100 marks

Approved calculators are permitted

This is a closed note paper

Life Tables are provided for you at the back of the exam book.

SECTION A

For numerical questions select the answer that is nearest to yours
Select one answer unless prompted otherwise
Not all questions carry the same marks

Completing SECTION A
Place a cross through the letter(s) chosen for your answer. If you make a mistake handwrite the letter(s) chosen for your answer in a new column to the left of the printed question. It is your responsibility to be clear. Ambiguity will result in zero mark for the particular question.

Use the information below to answer questions 1 and 2.

A student has written the following in her assignment: 'equity market development, bond market development, and bank development are all strongly positively correlated to one another. They are complementary, you do not get one without the others. Also, stock markets are not the largest global asset market.'

1. Regarding this narrative:

    a. The student is correct because the equity market, bond market, and bank lending are strong complements?
    b. The student is incorrect because the equity market, bond market, and bank lending need not be complements?
    c. a and b?
    d. Neither is correct?

3.3 marks total

2. Regarding this narrative:

    a. The student is correct that stock markets are not the largest asset markets?
    b. The student is incorrect because stock markets actually are the largest asset markets?
    c. a and b?
    d. Neither is correct?

3.3 marks total

3. What is the purpose behind reinsurance?

    a. To deal with random fluctuation.
    b. To limit liability.
    c. To issue catastrophe bonds.
    d. To partially socialise risks.

3.3 marks total

4. Which of the following is an example of mis-estimation in insurance?

    a. An insurance company finds that in many years female drivers of red cars have higher accident rates than predicted.
    b. Global warming is increasing the incidence of unanticipated extreme weather conditions.
    c. A computer virus is due to spread throughout computer networks on 28 September 2009.
    d. An insurance company reinsures all losses above £20 million.
    e. Exceptionally cold weather leads to a high level of claims for loss due to burst water pipes.
    f. A fire in one house on a street of terraced houses leads to every house on the street catching fire.

    3.3 marks total

5. A friend of yours wants to start a business that offers general insurance. You tell your friend that the most important aspects of insurance are (choose all correct answers):

    a. Getting the premium right.
    b. Holding large amounts of surplus capital.
    c. Being lucky that no major insurance related events occur.
    d. Risk pooling.
    e. Risk transfer.
    f. Catastrophe bonds.

    3.3 marks total

6. 26 year old Angelica takes out whole life insurance of £150,000. The first 7 years pays for the term insurance element. Processing costs for the insurer are £500. Assume no administration or profit expenses. For the term assurance assume the average delay between receipt of premium and payment of claims is 35 years. The discount rate is 5%. What is the pure premium as a single lump sum?

    a. £11,234
    b. £24,927
    c. £20,966
    d. £20,221
    e. £11,413

    10.0 marks total

Turn over/…

7. After graduation, 22 year old Pippa works as a lumberjack in Scotland for 12 months. She approaches an insurance company for a quotation for £200,000 term assurance. Processing costs for the insurer are £2,000. What is the expected cost for the life insurer?

    a. £142.2
    b. £151.7
    c. £140.8
    d. £54.1
    e. £53.8
    f. £54.3

6.7 marks total

8. What are the basic characteristics of whole life insurance (choose all correct answers)?
    a. It combines term assurance with a savings plan.
    b. The premiums are fixed for the duration of the policy.
    c. The policy lasts for the whole life of the policy holder.
    d. It is a very liquid source of investment.
    e. It is good as a short term commitment.

3.3 marks total

Use the information below to answer questions 9 and 10.

James's 75 year birthday is today. James lives in a country where annuity purchase is optional. James has £100,000 with which to purchase an annuity. Annuity rates currently pay an income of £105 for each £1,000 based on life expectancy for a male at 75 years. James has looked into his family history and found that previous generations live at least until 89 years old. Interest rates are 5%.

9. What is the money's worth of the annuity to an average person on their 75^{th} birthday (highlight the answer nearest to yours)?

    a. 0.78
    b. 0.81
    c. 0.84
    d. 0.87
    e. 0.90
    f. 0.93
    g. 0.96
    h. 0.99

6.7 marks total

10. What is the money's worth of the annuity to James (highlight the answer nearest to yours)?

    a. 0.78
    b. 0.81
    c. 0.84
    d. 0.87
    e. 0.90
    f. 0.93
    g. 0.96
    h. 0.99

6.7 marks total

11. When individuals save for retirement they find that risk sharing most often occurs once:

    a. They join a defined benefit pension scheme?
    b. They are left to make their own personal arrangements?
    c. They join a personal pension scheme organised by an intermediary?
    d. They are compelled to save by the government?
    e. They join an employer sponsored defined contribution pension scheme?

3.3 marks total

12. A pension fund is tax efficient because?

    a. It is easy to evade the tax.
    b. A basic marginal tax payer in work may be a high rate tax payer during retirement.
    c. A high marginal tax payer in work may be a basic rate tax payer during retirement.
    d. There is no tax on income paid from an annuity.
    e. Other workers help pay the tax.

3.3 marks total

13. The price of a mutual fund can (choose all correct answers)?

    a. Vary with supply and demand for mutual fund units.
    b. Depend on movement in the prices of the underlying securities.
    c. Be influenced by whether or not netting is used.
    d. Trade at a premium or a discount to the underlying net asset value.
    e. Never fall to zero.

3.3 marks total

Turn over/…

14. The fund accountant for a mutual fund needs to calculate the net asset value (NAV). An assistant hands the fund accountant the following information. Use the information below to establish what items are required.

Assets

Value of Securities	£17,000,000
Value of Cash	£400,000

Accrued Values

Dividends	£50,000
Borrowings	£60,000
Staff Breakfast	£5,000
Custody	£10,000
Clearing	£1,000
Manager	£60,000
CEO's Chauffeur	£10,000
Depositary	£10,000
Transfer Agent	£30,000
Fund Accountant	£30,000
Bloomberg Terminals	£20,000

What is the NAV?

a. £17,249,000
b. £17,284,000
c. £17,289,000
d. £17,299,000
e. £17,199,000

6.7 marks total

15. The theory of financial intermediation does not include?

a. Bonding.
b. Monitoring.
c. Indivisibility.
d. Tax.
e. Specialisation.

3.3 marks total

Use the deposit multiplier model and the information below to answer questions 16, 17 and 18:

The money stock is **M4 = C + D** where C is notes and coins held by the public and D is deposits (D includes reserves held by banks' as these are their own deposits). The monetary base is **M0 = C + R** where C is notes and coins held by the public and R is reserves (notes and coins held by banks). Here, $\mathbf{C = c_pD}$ where c_p is the proportion of deposits the public wish to hold as notes and coins and $\mathbf{R = c_bD}$ where c_b is the proportion of deposits that banks wish to hold as reserves.

The money multiplier = M4/M0 or alternatively $(c_p + 1) / (c_p + c_b)$

If the following initial values are true:

C = £10m
c_p = 5%
c_b = 5%

16. What is the value of M4?

    a. £205m
    b. £105m
    c. £210m
    d. £110m
    e. £215m

6.7 marks total

17. What is the value of M0?

    a. £15m
    b. £30m
    c. £20m
    d. £25m
    e. £10m

6.7 marks total

18. Debit card counterfeiting leads people to hold £5m more in cash in order to make payments. What is the new value of the money multiplier?

    a. 5.5
    b. 10.5
    c. 10.0
    d. 5
    e. 5.75

10.0 marks total

Turn over/…

19. If the Central Bank increases the required reserve ratio, what is the expected effect upon credit creation?

    a. Increase.
    b. Decrease.
    c. No change.
    d. Not enough information to say.

3.3 marks total

20. According to the monetary base approach to analysing credit creation which of the following influence(s) the level of credit creation (choose all correct answers)?

    a. Customers of bank A make payments from their bank accounts to the bank accounts of shop keepers who bank at bank B.
    b. Customers of bank B make payments from their bank accounts to the bank accounts of shop keepers who bank at bank C.
    c. New laws encourage part of the 'informal' or 'black' economy to start to use banks for the first time.
    d. Banks' customers make net drawings of notes and coins from banks.

3.3 marks total

SECTION B

Answer 2 questions from 3
Each question is worth 35 per cent of the total exam mark.

1. Jane Gilbert is close to retirement, and a member of a defined contribution pension scheme. She is considering the purchase of a level annuity at retirement.

   a. Why might an annuity be attractive to Jane? 15 marks total

   b. What are the principal financial risks for Jane now that she is close to retirement and yet to purchase an annuity?
   14 marks total

   c. Once she has purchased an annuity, what are the principal financial risks for Jane?
   14 marks total

   d. What are the arguments for and against risk separation within annuity pricing based on genetics and socio-economic characteristics?
   22 marks total

   e. A 69 year old female believes that annuity rates may be poor value. She asks you to advise her about the money's worth of an annuity that will start on her 70^{th} birthday and stop on her 75^{th} birthday. The annuity that the woman is considering purchasing pays £230 per period for a single premium of £1,000, with an interest rate of 10%.
   What is the money's worth of the annuity? What is the annuity provider's administration cost and profit?
   35 marks total

2. Commercial banks are being blamed for the current financial crisis, the so-called 'credit crunch'. A number of causative factors have been suggested under the following topics:
   a. The deposit base.
   b. Loan losses.
   c. Collateralised debt obligations.
   d. Pro-cyclical reserves and/or capital.
   e. Liquidity of capital and liabilities.
   f. Size of capital.
   g. Corporate governance.

Describe each topic in a. to g. above. Critically appraise the contribution of each topic to the credit crunch.
100 marks total

Turn over/…

3. Investors in mutual fund 'Beta Positive' incur various charges. 0.5% is levied per unit/share at fund entry and 0.5% is levied per unit/share at fund exit. In addition, subscriptions and redemptions of fund units incur the following:

   Stamp duty, 50bps.
   Commission, 7bps.
   Spread when buying, 50bps.
   Spread when selling, 50bps.
   Clearing and settlement, 3 bps.

At the start of the week Beta Positive receives buy orders for 200 units and sell orders for 260 units.

a. What are the buyers costs and sellers costs under full trading and netting?

34 marks total

b. List reasons, with a brief supporting explanation, why an investor's experience of saving in a mutual fund will be different to that of saving in a defined contribution pension scheme.

20 marks total

c. List, with a brief supporting explanation, the ways in which investment pooling brings about benefits to investors of a mutual fund.

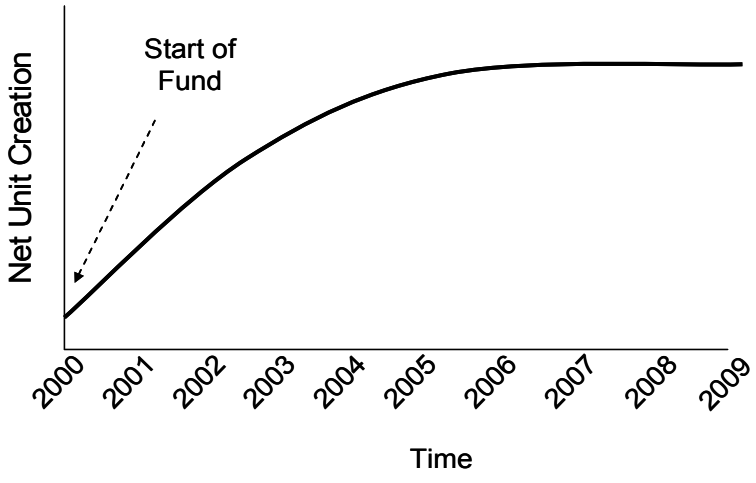
22 marks total

d. Why might a mutual fund consider using a manager's box to manage unit creation and cancellation in the fund?

12 marks total

e. With reference to the chart below, when might a mutual fund manager use full trading, box management, and netting? Explain your answer.

Net Unit Creation Since Inception for Mutual Fund 'Altitude'



12 marks total

End of Paper

INTERIM LIFE TABLES

The Office for National Statistics

EXPECTATION OF LIFE

UNITED KINGDOM, MALES

BASED ON DATA FOR THE YEARS 2005-2007

ex = average expectation of life at exact age x

lx = the number of survivors to exact age x of 100,000 births

qx = mortality rate between age x and (x+1) i.e. the probability a person aged x will die before reaching age (x+1)

MALE				MALE			
AGE x	qx	lx	ex	AGE x	qx	lx	ex
0	0.00549	100000.0	77.16	51	0.00421	94403.7	28.73
1	0.00040	99451.1	76.59	52	0.00448	94005.9	27.85
2	0.00026	99411.1	75.62	53	0.00498	93585.0	26.98
3	0.00018	99385.4	74.64	54	0.00542	93119.2	26.11
4	0.00013	99367.5	73.65	55	0.00598	92614.3	25.25
5	0.00012	99354.5	72.66	56	0.00649	92060.3	24.40
6	0.00012	99342.6	71.67	57	0.00690	91462.6	23.55
7	0.00009	99330.5	70.68	58	0.00758	90831.1	22.71
8	0.00012	99321.2	69.69	59	0.00819	90143.1	21.88
9	0.00012	99309.8	68.69	60	0.00919	89405.0	21.06
10	0.00010	99298.1	67.70	61	0.01042	88583.0	20.25
11	0.00014	99287.8	66.71	62	0.01156	87659.8	19.46
12	0.00014	99274.4	65.72	63	0.01267	86646.2	18.68
13	0.00018	99260.2	64.73	64	0.01405	85548.5	17.91
14	0.00020	99242.4	63.74	65	0.01529	84346.4	17.16
15	0.00025	99222.9	62.75	66	0.01660	83056.6	16.42
16	0.00035	99197.8	61.77	67	0.01824	81677.7	15.69
17	0.00055	99163.5	60.79	68	0.02012	80187.9	14.97
18	0.00062	99109.2	59.82	69	0.02171	78574.3	14.27
19	0.00067	99047.4	58.86	70	0.02382	76868.5	13.57
20	0.00069	98981.3	57.90	71	0.02691	75037.7	12.89
21	0.00070	98913.5	56.94	72	0.02975	73018.2	12.24
22	0.00070	98844.5	55.98	73	0.03256	70846.2	11.60
23	0.00075	98774.9	55.02	74	0.03671	68539.7	10.97
24	0.00074	98700.7	54.06	75	0.04042	66023.3	10.37
25	0.00079	98627.2	53.10	76	0.04551	63354.9	9.78
26	0.00076	98549.3	52.14	77	0.05072	60471.4	9.23
27	0.00082	98474.0	51.18	78	0.05561	57404.0	8.69
28	0.00078	98393.1	50.22	79	0.06219	54212.1	8.17
29	0.00086	98316.7	49.26	80	0.06863	50840.5	7.68
30	0.00096	98231.9	48.30	81	0.07659	47351.4	7.21
31	0.00099	98137.2	47.35	82	0.08518	43724.9	6.77
32	0.00108	98039.9	46.39	83	0.09373	40000.4	6.35
33	0.00114	97933.8	45.44	84	0.10297	36251.2	5.96
34	0.00113	97821.9	44.49	85	0.11184	32518.3	5.59
35	0.00123	97711.2	43.54	86	0.12031	28881.5	5.23
36	0.00130	97591.2	42.60	87	0.13059	25406.9	4.87
37	0.00137	97464.0	41.65	88	0.14122	22089.0	4.53
38	0.00138	97330.4	40.71	89	0.16913	18969.6	4.19
39	0.00149	97195.7	39.76	90	0.17776	15761.3	3.94
40	0.00159	97051.1	38.82	91	0.18963	12959.5	3.69
41	0.00175	96897.2	37.88	92	0.20742	10502.0	3.43
42	0.00192	96728.0	36.95	93	0.22579	8323.7	3.20
43	0.00205	96542.0	36.02	94	0.23706	6444.3	2.99
44	0.00218	96344.2	35.09	95	0.26497	4916.6	2.76
45	0.00245	96134.6	34.17	96	0.28244	3613.9	2.58
46	0.00258	95899.0	33.25	97	0.30905	2593.2	2.40
47	0.00285	95651.2	32.33	98	0.33831	1791.8	2.25
48	0.00312	95379.0	31.43	99	0.33724	1185.6	2.14
49	0.00337	95081.1	30.52	100	0.37952	785.8	1.98
50	0.00377	94760.8	29.62				

INTERIM LIFE TABLES

The Office for National Statistics

EXPECTATION OF LIFE

UNITED KINGDOM, FEMALES

BASED ON DATA FOR THE YEARS 2005-2007

ex = average expectation of life at exact age x

lx = the number of survivors to exact age x of 100,000 births

qx = mortality rate between age x and (x+1) i.e. the probability a person aged x will die before reaching age (x+1)

FEMALE				FEMALE			
AGE x	qx	lx	ex	AGE x	qx	lx	ex
0	0.00443	100000.0	81.47	51	0.00266	96635.9	32.14
1	0.00037	99557.1	80.83	52	0.00296	96378.9	31.22
2	0.00018	99520.2	79.86	53	0.00320	96093.8	30.31
3	0.00015	99502.2	78.87	54	0.00352	95786.2	29.41
4	0.00011	99487.6	77.89	55	0.00379	95449.2	28.51
5	0.00009	99477.1	76.89	56	0.00423	95087.1	27.62
6	0.00010	99467.9	75.90	57	0.00455	94685.3	26.73
7	0.00008	99457.6	74.91	58	0.00478	94254.5	25.85
8	0.00008	99449.3	73.91	59	0.00528	93804.2	24.97
9	0.00007	99441.1	72.92	60	0.00567	93309.4	24.10
10	0.00010	99434.1	71.93	61	0.00659	92780.0	23.24
11	0.00010	99424.6	70.93	62	0.00703	92169.0	22.39
12	0.00012	99414.9	69.94	63	0.00794	91520.6	21.54
13	0.00012	99403.2	68.95	64	0.00869	90794.4	20.71
14	0.00014	99391.0	67.96	65	0.00944	90005.4	19.89
15	0.00015	99377.3	66.97	66	0.01054	89155.4	19.08
16	0.00020	99362.5	65.98	67	0.01151	88216.1	18.27
17	0.00025	99342.4	64.99	68	0.01255	87200.8	17.48
18	0.00027	99317.6	64.00	69	0.01381	86106.3	16.70
19	0.00026	99291.2	63.02	70	0.01526	84917.4	15.92
20	0.00026	99265.5	62.04	71	0.01695	83621.4	15.16
21	0.00027	99239.9	61.05	72	0.01899	82204.2	14.41
22	0.00027	99213.6	60.07	73	0.02109	80643.3	13.68
23	0.00027	99186.9	59.09	74	0.02405	78942.4	12.97
24	0.00029	99160.3	58.10	75	0.02676	77044.1	12.27
25	0.00028	99131.5	57.12	76	0.03008	74982.1	11.60
26	0.00034	99103.4	56.13	77	0.03380	72727.0	10.94
27	0.00033	99070.2	55.15	78	0.03796	70268.7	10.31
28	0.00037	99037.7	54.17	79	0.04292	67601.0	9.70
29	0.00038	99000.9	53.19	80	0.04781	64699.6	9.11
30	0.00042	98963.4	52.21	81	0.05370	61606.7	8.54
31	0.00041	98922.4	51.23	82	0.05979	58298.2	8.00
32	0.00047	98881.9	50.25	83	0.06748	54812.7	7.47
33	0.00053	98835.4	49.28	84	0.07554	51113.9	6.98
34	0.00055	98783.4	48.30	85	0.08415	47252.7	6.51
35	0.00059	98728.8	47.33	86	0.09149	43276.3	6.06
36	0.00066	98670.6	46.36	87	0.10253	39316.9	5.62
37	0.00074	98605.3	45.39	88	0.11381	35285.9	5.20
38	0.00077	98531.9	44.42	89	0.13309	31269.9	4.81
39	0.00088	98455.8	43.45	90	0.14428	27108.2	4.47
40	0.00097	98368.8	42.49	91	0.16098	23196.9	4.14
41	0.00102	98273.3	41.53	92	0.17839	19462.7	3.84
42	0.00117	98173.3	40.57	93	0.19860	15990.9	3.56
43	0.00127	98058.6	39.62	94	0.21438	12815.1	3.32
44	0.00137	97934.2	38.67	95	0.23468	10067.9	3.09
45	0.00153	97799.9	37.72	96	0.25453	7705.1	2.88
46	0.00161	97650.2	36.78	97	0.27205	5743.9	2.69
47	0.00185	97493.3	35.84	98	0.29669	4181.3	2.51
48	0.00216	97312.8	34.90	99	0.31250	2940.7	2.36
49	0.00225	97103.0	33.98	100	0.33422	2021.8	2.20
50	0.00257	96884.9	33.05				