Business School

WARSAW UNIVERSITY OF TECHNOLOGY

Paper F9

DIPLOMA in **ACCA**

Accounting & Finance

FINANCIAL MANAGEMENT (F9)

Specimen Exam

Time allowed: 3 hours 15 minutes

This question paper is divided into three sections:

Section A – ALL 15 questions are compulsory and MUST be attempted

Section B – ALL 15 questions are compulsory and MUST be attempted

Section C – BOTH questions are compulsory and MUST be attempted

Do NOT open this question paper until instructed by the supervisor.

Do NOT record any of your answers on the question paper.

This question paper must not be removed from the examination hall.

ACCA

ACCREDITED PROGRAMME

Section A – ALL 15 questions are compulsory and MUST be attempted

1. The home currency of XYZ Sp. zo.o. is the zolty (zl) and it trades with a company in the Euro-zone whose home currency is the Euro (€). The following information is available:

	Poland	Euro-zone
Spot Rate: 4.1 zl/€		
Interest rate	6%	2%
Inflation Rate	4%	1%

    What is the six-month forward exchange rate?

    A. 4.18 Zl/€
    B. 4.09 Zl/€
    C. 3.02 Zl/€
    D. 4.15 Zl/€

2. The following financial information relates to an investment project:

	PLN '000
Present value of sales revenue	65,067
Present value of variable costs	31,768
Present value of contribution	*33,299*
Present value of fixed costs	17,875
Present value of operating income	*15,434*
Initial investment	10,656
Net present value	4,768

    What is the sensitivity of the net present value of the investment to a change in sales volume?

    A.   5.9%
    B.   8.2%
    C.   12.7%
    D.   14.3%

3. Bargiel plots the historic movements of share prices and uses this analysis to make his investment decisions.

    To what extent does Bargiel believe capital markets to be efficient?

    A. Strong form efficient
    B. Semi-strong form efficient
    C. Weak form efficient
    D. Inefficient

4. **Which of the following statements concerning capital structure theory is <u>incorrect</u>?**

    A. Business risk is assumed to be constant as the capital structure changes
    B. Pecking Order Theory says that new, externally raised equity is a better source of fresh capital than debt
    C. Modigliani & Miller say that capital structure doesn't affect the cost of equity
    D. In the traditional view there is a linear relationship between the cost of equity and risk

5. **Which of the following will be the MOST likely to increase shareholder wealth?**

    A. The supervisory board recruits a ACCA to head up the audit committee
    B. Management focuses on investing in projects with high NPVs
    C. A management board bonus programme is created to boost earnings per share (EPS)
    D. Surplus cash is used in a share buy-back programme reducing float by 15%

6. **The demand for widgets brought into the warehouse at a cost of PLN 300/unit is expected to be 250 units per month. The cost of processing each purchase order is estimated to be PLN 125. The most significant holding cost is financing. The firm's WACC is 15%**

    The optimum amount of each order is:

    A. 250 units
    B. 198 units
    C. 129 units
    D. 98 units

7. The following are extracts from the income statement of RST SA:

Sales revenue	72,000
Direct, variable Costs	40,000
Contribution	32,000
Fixed Cost Production Overheads	20,000
Operating profit	*12,000*
Interest expense	3,000
Profit before taxes	*9,000*
Incomes taxes	3,000
Net profit after tax	***6,000***

What is the total leverage effect (operational & financial) of RST SA?

A. 2.3 times
B. 3.4 times
C. 4.5 times
D. 5.0 times

8. Polmark SA has annual credit sales of PLN 60 million with days sales outstanding (DSO) of 60 days. Accounts receivable are financed by a combination of bank debt (67% at 9%) and the firm's own working capital (WACC at 12%).

What would be the annual interest saving (PLN '000) if DSO could be reduced by 15 days?

A. 189
B. 413
C. 246
D. 125

9. **Which of the following statements about shareholder wealth maximization are correct?**

(1) Managers should maximize earnings per share
(2) Reducing the WACC to its minimum will tend to maximize the firm's value
(3) In efficient markets, cumulative NPVs will tend to be reflected in share prices

A. 1 and 3
B. 1 only
C. 2 and 3
D. None

10. Motoparts SA has EPS of PLN 25, net book value per share (average for the yr.) of PLN 200 and pays out 40% of NPAT in dividends. Risk-free treasury bonds yield 4% and the stock market returns are 9%. Motoparts' beta is calculated to be 1.2.

Using the dividend growth model (DGM) valuation what is the likely market price of Motopart's shares on an ex-dividend basis?

    A. PLN 220
    B. PLN 167
    C. PLN 430
    D. PLN 657

11. A Boeing aircraft executive said: "The strengthening USD is having an adverse impact on the company's competitiveness in the commercial jet liner market."

What risk is the executive referring to?

    A. Interest rate risk
    B. Transaction risk
    C. Economic risk
    D. Translation risk

12. The following information has been calculated for Polflex Sp.zo.o.:

Cash balances – PLN million	13
A/R: Days sales outstanding	65
Inventory: Days COGS outstanding	30
Current portion LTD – PLN million	7.5
A/P: Days purchases outstanding	25

What is the length of the cash cycle of net trading investment?

    A. 64 days
    B. 70 days
    C. 53 days
    D. 100 days

13. **Commercial banks are exposed to which of the following risks:**

    (1)   Credit risk
    (2)   Liquidity Risks
    (3)   Operating risk
    (4)   Regulatory risk

    A. 1 & 2
    B. All
    C. 1 & 3
    D. 1 only

14. **Which of the following statements about working capital management (WCM) is <u>incorrect</u>?**

    (1) WCM involves a risk reward trade-off between profitability and liquidity
    (2) During periods of rapid sales growth, WCM is secondary compared to market share
    (3) Poor WCM can result in cash shortages and the threat of insolvency

    A. 2 only
    B. All
    C. 1 & 3
    D. 1 & 2

15. **Quantitative easing by central banks has become a popular monetary policy in order to:**

    (1) Inject liquidity into the financial system after a credit crisis panic
    (2) Help governments to stimulate economies by deficit spending
    (3) Kick-start low growth economies with lower borrowing costs
    (4) Used in lieu of austerity constrained fiscal policies of excessively indebted governments

    A.   1 only
    B.   1, 3 & 4
    C.   3
    D.   2

(30 marks)

Section B – ALL 15 questions are compulsory and MUST be attempted

Each question is worth 2 marks.

The following scenario relates to questions 16-20.

Slavmax SA currently has the following long-term capital structure:

	PLN millions	PLN millions
Long Term Debt:		
Mortgage Bonds – 20 yrs	24	
Senior unsecured debt	15	
Subordinated debt	10	
Deferred Tax Liability	7	
Equity:		56
Preferred shares – 5%	10	
Capital reserves	7	
Ordinary shares	25	
Retained earnings	27	
		69
Total equity and liabilities		*125*

The subordinated debt earns interest at 9% per year and matures in 5 years time. It has a convertibility feature allowing creditors the right to receive 10 common shares at maturity for every 1,000 PLN nominal value of debt. Slavmax's cost of subordinated debt is 11%.

The ordinary shares of Slavmax have a nominal value of 25 PLN per share. The current ex-dividend share price on the Warsaw Stock Exchange is PLN 95/share which the company expects to grow at 5% per year for the foreseeable future. Polish treasury bills currently pay 3%. Total shareholder returns (dividends and price appreciation) on the WSE WIG-30 index have averaged 14% over the last 5 years. The equity beta of Slavmax is .95.

16. What is the conversion value of the subordinated debt after 5 years?

    A. 1,342 PLN
    B. 1,212.50 PLN
    C. 121.25 PLN
    D. 987.56 PLN

17. The market consensus is that Slavmax's earnings will grow at 4%/yr. Based on this, what is the market value of the subordinated debt of Slavmax?

    A. 897.56 PLN
    B. 1,000.00 PLN
    C. 1,213.77 PLN
    D. 1,018.04 PLN

18. What is Slavmax's cost of equity capital as implied by the Capital Asset Pricing Model?

    A. 13.5%
    B. 15.1%
    C. 9.0%
    D. 17.3%

19. Which of the following statements are advantages of using the price/earnings ratio to value a company?

    (1) It is a commonly accepted methodology in the stock market
    (2) It is based on reliable audited financial reporting numbers
    (3) It capitalizes on stock market efficiency
    (4) It allows comparisons to comparable investments

    A. 1
    B. 1 & 2
    C. 1, 2 & 3
    D. 1, 2,3 & 4

20. Which of the following statements about the Capital Asset Pricing Model (CAPM) is wrong?

    A. CAPM assumes stock market efficiency
    B. Betas for publically listed firms are difficult to identify
    C. CAPM reflects both a firm's systematic and unsystematic risk
    D. While CAPM is popular it is not universally accepted

The following scenario relates to questions 21-25

Tecmate Sp.zo.o. has the following financial profile:

PLN '000					
Balance Sheet				**Income Statement**	
Cash	11	70	ST Bank debt	Sales	530
Receivables	108	105	Trade debt	COGS	245
Inventory	120	20	CPLTD	Gross Profit	*285*
Prepaids	21	120	LT Debt	Overheads	145
P & E	250	31	Capital Reserve	Interest	68
Real Estate	50	100	Share Capital	Net Profit	*72*
Intangibles	14	128	Retained Earnings	Income Taxes	18
TOTAL	*574*	*574*	TOTAL	Net Profit AT	*54*

Other selected information:

Purchases in COGS = 200

Dividend Payout Ratio = 40%

Prior 3 year's sales growth = 18%/yr

Peer sector ratios (average): current ratio of 1.57 & debt-to-equity ratio of .85:1

Annual depreciation expense: 25

Estimated mandatory capex: 21

21. What is the length of the firm's cash cycle for its net trading investment?

    A. 34 days
    B. 60 days
    C. 95 days
    D. 41 days

22. Suppliers have offered an early payment discount terms of 3% 15/net 60. What would be the equivalent annual interest rate if Tecmate paid at 60 days instead of 15 days?

    A. 14%
    B. 32%
    C. 9%
    D. 28%

23. **What is the sustainable growth rate for the firm?**

   A. 13%
   B. 19%
   C. 8%
   D. 4%

24. **Based on the sustainable growth rate compared to previous growth rates and financial condition, is the firm over-trading?**

   A. Not over-trading at all
   B. On the threshold of over-trading
   C. Aggressively over-trading
   D. Under-trading

25. **The free cash flow available for debt service is:**

   A. 51
   B. 58
   C. (5)
   D. 31

The following scenario relates to questions 26-30

Drew-max operates in an industry about to be protected by tariff barriers as part of an initiative to promote local, in-country enterprise.

It is replacing obsolete equipment and must choose between two machines. Machine A has an initial cost of PLN 1,500,000 and will have a scrap value of PLN 75,000 after 4 years. Machine B has an initial cost of PLN 1,750,000 and will have a scrap value of PLN 125,000 after 3 years. The estimated annual maintenance costs of the two machines are as follows:

Annual Maintenance Costs				
Year:	1	2	3	4
Machine A (PLN/year)	120,000	125,000	130,000	140,000
Machine B (PLN/year)	80,000	90,000	75,000	

All the information above reflects expected future inflation and is before tax and tax allowable depreciation. For analysis's sake, all tax effects can be ignored.

Drew-max has a nominal before tax cost of capital of 9%.

26. Which of the following statements about Drew-max are true?

(1) Reduced competition from imports will allow higher pricing and increased profits
(2) Consumers will suffer from lower quality and higher prices
(3) Higher returns on capital will boost capital expenditures
(4) Foreign direct investment into Drew-max's sector could increase

A. 1 & 2
B. 1, 2, 3 & 4
C. 2 only
D. 1 & 3

27. What is the equivalent annual cost (PLN '000) of Machine A?

A. 231
B. 788
C. 143
D. 557

28. **Which of the following statements about Drew-max using the equivalent annual cost method are true?**

(1) The machine with the lowest present value should be selected.
(2) Comparing the PV over 2 x 12 year (3 & 4 cycles) would provide an answer
(3) There is no way to compare machine A to machine B because of different life-spans

A. 1 only
B. 2 & 3
C. 2 only
D. None

29. **There is a concern about the accuracy of the maintenance costs for Machine B in year 3. After further investigation, the following probability of cash flows was assigned:**

Cash Flow (PLN)	Probability
50,000	.15
75,000	.65
100,000	.20

What is the expected present value for maintenance costs in year 3?

A. PLN 58,865
B. PLN 72,438
C. PLN 68,111
D. PLN 83,543

30. **On a different, larger and more complex project, Drew-max is concerned about risk and project uncertainty.**

Which of the following statements about risk, uncertainty and the project is accurate?

A. Investors with well-diversified portfolios focus on project-specific risks
B. A risk adjusted discount rate should be used to reflect distinctive risk
C. Sensitivity analysis can be used to gauge probabilities
D. Uncertainty can be quantified by a Monte Carlo simulation

Section C – BOTH questions are compulsory and MUST be attempted

31. Polchem SA is a large publicly traded firm on the Warsaw Stock Exchange. Based on a PLN 100,000 market feasibility study it is considering the manufacture and sale of a new line of products developed by its R&D research group at a cost of PLN 250,000. The finance department has gathered the following information on the investment proposal:

Initial investment (straight line depreciation)	PLN 9 million
Scrap value (year 4; tax paid yr. 5)	10% of initial cost
Selling price (current price)	PLN 80/unit
Expected selling price inflation	4%/yr
Variable operating costs (current price)	PLN 35/unit
Fixed operating costs	PLN 450,000
Expected operating cost inflation	3%/yr

Market research estimates that demand for the product will be as follows:

Year:	1	2	3	4
Demand (Units):	50,000	85,000	100,000	75,000

The company has a real return hurdle rate of 12%. Expected inflation over the project's life-span is 2.5%. Polchem pays income tax at 30% payable 1 year in arrears. The project would qualify for the tax office's "accelerated" capital cost allowance of 1/3rd of investment cost per year on a straight-line basis.

Required:

(a) Calculate the flowing values for the investment proposal:

    i.   **Net present value**   **(12 marks)**
    ii. **Internal rate of return**   **(6 marks)**

(b) **Briefly discuss your findings and advise whether the proposal is financially attractive.**   **(1 marks)**

(c) **Assuming that the stock market is semi-strong efficient, what will be the implication for the firm's stock price if Polchem goes ahead with the project?**   **(1 marks)**

                                                           (20 marks)

32. Capit SA is a large firm listed on the Warsaw Stock Exchange. It has the following capital structure:

Capital Structure	
Long Term Capital	PLN million
Convertible Debt – 5 yrs; 8%	25
Preferred Shares – 5% coupon + nominal value of 100	15
Common Equity (nominal value PLN 100/share)	10
Retained Earnings	23

The current dividend for the company is PLN 50/share and is expected to grow at 3% per year in the foreseeable future. The equity shares trade at PLN 450/share. The preferred shares trade at PLN 104/share. The convertible debt has a conversion privilege of 2 shares per 1,000 PLN face value at maturity. The debt currently trades at PLN 900 per 1,000 nominal value bond.

The firm's income tax rate is 30%

Required:

(a) **Calculate (to 1 decimal point) the firm's weighted average cost of capital (WACC):**　　　　　　　　　　　　　　　　　　**(14 marks)**

(b) **Discuss the firm's dividend payout policy and whether it has an impact on share price?**　　　　　　　　　　　　　　　　**(3 marks)**

(c) **Explain why the different sources of capital have different levels of risk and return.**　　　　　　　　　　　　　　　　　　**(3 marks)**

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(20 marks)

Formulae Sheet

Economic order quantity

$$= \sqrt{\frac{2C_0 D}{C_h}}$$

Miller–Orr Model

$$\text{Return point} = \text{Lower limit} + \left(\frac{1}{3} \times \text{spread}\right)$$

$$\text{Spread} = 3\left[\frac{\frac{3}{4} \times \text{transaction cost} \times \text{variance of cash flows}}{\text{interest rate}}\right]^{\frac{1}{3}}$$

The Capital Asset Pricing Model

$$E(r_i) = R_f + \beta_i\left(E(r_m) - R_f\right)$$

The asset beta formula

$$\beta_a = \left[\frac{V_e}{\left(V_e + V_d(1-T)\right)}\beta_e\right] + \left[\frac{V_d(1-T)}{\left(V_e + V_d(1-T)\right)}\beta_d\right]$$

The Growth Model

$$P_o = \frac{D_0(1+g)}{(r_e - g)}$$

Gordon's growth approximation

$$g = br_e$$

The weighted average cost of capital

$$\text{WACC} = \left[\frac{V_e}{V_e + V_d}\right]k_e + \left[\frac{V_d}{V_e + V_d}\right]k_d(1-T)$$

The Fisher formula

$$(1+i) = (1+r)(1+h)$$

Purchasing power parity and interest rate parity

$$S_1 = S_0 \times \frac{(1+h_c)}{(1+h_b)} \qquad\qquad F_0 = S_0 \times \frac{(1+i_c)}{(1+i_b)}$$

Present Value Table

Present value of 1 i.e. $(1 + r)^{-n}$

Where   r = discount rate

    n = number of periods until payment

Discount rate (r)

Periods (n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0·990	0·980	0·971	0·962	0·952	0·943	0·935	0·926	0·917	0·909	1
2	0·980	0·961	0·943	0·925	0·907	0·890	0·873	0·857	0·842	0·826	2
3	0·971	0·942	0·915	0·889	0·864	0·840	0·816	0·794	0·772	0·751	3
4	0·961	0·924	0·888	0·855	0·823	0·792	0·763	0·735	0·708	0·683	4
5	0·951	0·906	0·863	0·822	0·784	0·747	0·713	0·681	0·650	0·621	5
6	0·942	0·888	0·837	0·790	0·746	0·705	0·666	0·630	0·596	0·564	6
7	0·933	0·871	0·813	0·760	0·711	0·665	0·623	0·583	0·547	0·513	7
8	0·923	0·853	0·789	0·731	0·677	0·627	0·582	0·540	0·502	0·467	8
9	0·914	0·837	0·766	0·703	0·645	0·592	0·544	0·500	0·460	0·424	9
10	0·905	0·820	0·744	0·676	0·614	0·558	0·508	0·463	0·422	0·386	10
11	0·896	0·804	0·722	0·650	0·585	0·527	0·475	0·429	0·388	0·350	11
12	0·887	0·788	0·701	0·625	0·557	0·497	0·444	0·397	0·356	0·319	12
13	0·879	0·773	0·681	0·601	0·530	0·469	0·415	0·368	0·326	0·290	13
14	0·870	0·758	0·661	0·577	0·505	0·442	0·388	0·340	0·299	0·263	14
15	0·861	0·743	0·642	0·555	0·481	0·417	0·362	0·315	0·275	0·239	15

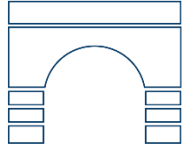| (n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0·901	0·893	0·885	0·877	0·870	0·862	0·855	0·847	0·840	0·833	1
2	0·812	0·797	0·783	0·769	0·756	0·743	0·731	0·718	0·706	0·694	2
3	0·731	0·712	0·693	0·675	0·658	0·641	0·624	0·609	0·593	0·579	3
4	0·659	0·636	0·613	0·592	0·572	0·552	0·534	0·516	0·499	0·482	4
5	0·593	0·567	0·543	0·519	0·497	0·476	0·456	0·437	0·419	0·402	5
6	0·535	0·507	0·480	0·456	0·432	0·410	0·390	0·370	0·352	0·335	6
7	0·482	0·452	0·425	0·400	0·376	0·354	0·333	0·314	0·296	0·279	7
8	0·434	0·404	0·376	0·351	0·327	0·305	0·285	0·266	0·249	0·233	8
9	0·391	0·361	0·333	0·308	0·284	0·263	0·243	0·225	0·209	0·194	9
10	0·352	0·322	0·295	0·270	0·247	0·227	0·208	0·191	0·176	0·162	10
11	0·317	0·287	0·261	0·237	0·215	0·195	0·178	0·162	0·148	0·135	11
12	0·286	0·257	0·231	0·208	0·187	0·168	0·152	0·137	0·124	0·112	12
13	0·258	0·229	0·204	0·182	0·163	0·145	0·130	0·116	0·104	0·093	13
14	0·232	0·205	0·181	0·160	0·141	0·125	0·111	0·099	0·088	0·078	14
15	0·209	0·183	0·160	0·140	0·123	0·108	0·095	0·084	0·074	0·065	15

Annuity Table

Present value of an annuity of 1 i.e. $\dfrac{1-(1+r)^{-n}}{r}$

Where   r = discount rate
              n = number of periods

Discount rate (r)

Periods (n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0·990	0·980	0·971	0·962	0·952	0·943	0·935	0·926	0·917	0·909	1
2	1·970	1·942	1·913	1·886	1·859	1·833	1·808	1·783	1·759	1·736	2
3	2·941	2·884	2·829	2·775	2·723	2·673	2·624	2·577	2·531	2·487	3
4	3·902	3·808	3·717	3·630	3·546	3·465	3·387	3·312	3·240	3·170	4
5	4·853	4·713	4·580	4·452	4·329	4·212	4·100	3·993	3·890	3·791	5
6	5·795	5·601	5·417	5·242	5·076	4·917	4·767	4·623	4·486	4·355	6
7	6·728	6·472	6·230	6·002	5·786	5·582	5·389	5·206	5·033	4·868	7
8	7·652	7·325	7·020	6·733	6·463	6·210	5·971	5·747	5·535	5·335	8
9	8·566	8·162	7·786	7·435	7·108	6·802	6·515	6·247	5·995	5·759	9
10	9·471	8·983	8·530	8·111	7·722	7·360	7·024	6·710	6·418	6·145	10
11	10·368	9·787	9·253	8·760	8·306	7·887	7·499	7·139	6·805	6·495	11
12	11·255	10·575	9·954	9·385	8·863	8·384	7·943	7·536	7·161	6·814	12
13	12·134	11·348	10·635	9·986	9·394	8·853	8·358	7·904	7·487	7·103	13
14	13·004	12·106	11·296	10·563	9·899	9·295	8·745	8·244	7·786	7·367	14
15	13·865	12·849	11·938	11·118	10·380	9·712	9·108	8·559	8·061	7·606	15

(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0·901	0·893	0·885	0·877	0·870	0·862	0·855	0·847	0·840	0·833	1
2	1·713	1·690	1·668	1·647	1·626	1·605	1·585	1·566	1·547	1·528	2
3	2·444	2·402	2·361	2·322	2·283	2·246	2·210	2·174	2·140	2·106	3
4	3·102	3·037	2·974	2·914	2·855	2·798	2·743	2·690	2·639	2·589	4
5	3·696	3·605	3·517	3·433	3·352	3·274	3·199	3·127	3·058	2·991	5
6	4·231	4·111	3·998	3·889	3·784	3·685	3·589	3·498	3·410	3·326	6
7	4·712	4·564	4·423	4·288	4·160	4·039	3·922	3·812	3·706	3·605	7
8	5·146	4·968	4·799	4·639	4·487	4·344	4·207	4·078	3·954	3·837	8
9	5·537	5·328	5·132	4·946	4·772	4·607	4·451	4·303	4·163	4·031	9
10	5·889	5·650	5·426	5·216	5·019	4·833	4·659	4·494	4·339	4·192	10
11	6·207	5·938	5·687	5·453	5·234	5·029	4·836	4·656	4·486	4·327	11
12	6·492	6·194	5·918	5·660	5·421	5·197	4·988	4·793	4·611	4·439	12
13	6·750	6·424	6·122	5·842	5·583	5·342	5·118	4·910	4·715	4·533	13
14	6·982	6·628	6·302	6·002	5·724	5·468	5·229	5·008	4·802	4·611	14
15	7·191	6·811	6·462	6·142	5·847	5·575	5·324	5·092	4·876	4·675	15

End of Question Paper

WARSAW UNIVERSITY OF TECHNOLOGY

FINANCIAL MANAGEMENT (F9)

Specimen Exam

Answers

Section A

1.	**A** 4.1 x (1.03/1.01) = **4.18**
2.	**D** [S x GP%] – FC – Invest = NPV; Solving for S when NPV = 0 [S x (33,299/65,067 = .5117)] – 17,875 – 10,656 = 0 S = [17,875 + 10,656]/.5117 = 55,757; [65,067-55,757]/65,067 x 100% = **14.3%** Alternatively: NPV/Contribution = 4,768/33,299 x 100% = **14.3%**
3.	**D** Inefficient since latest information is not in share price; not random
4.	**B** Pecking Order: i) Retained Earnings; ii) debt & ii) new, external equity
5.	**B** Focusing on investing in projects with high NPV
6.	**C** $[(2 \times 125 \times 12 \times 2500/(.15 \times 300)]^{1/2} = [750,000/45]^{1/2}$ = **129**
7.	**B** Contrib'n %: 32/72 = .44; Op Profit %: 9/72 = .17; PBT %: 9/72 = .13 OLE: .44/.17 = 2.6; FLE: .17/.13 = 1.3; TLE: OLE x FLE = 2.6 x 1.3 = **3.4**
8.	**C** 60 million/365 x 15 days = 2.466 million reduced A/R x [.67 x 9% + 33 x 12% = 10%] = **246**
9.	**C** EPS is not a future oriented cash flow metric
10.	**C** RoE = 25 (EPS)/200 (NBV/share) = 12.5%; Retention ratio: 1 – 40% payout =60%. Growth (Gordon approximation) = 12.5% x 60% = 7.5%. Ke (CAPM) = 4% = 1.2 (9%-4%) = 10%. MV = Div (1+g)/Ke-g = [40% x 25 x (1.075)]/10%-7.5% = 10.75/.025 = **PLN 430**
11.	**C** Economic risk impacts competitiveness in the long term
12.	**B** 65 = 30 – 25 = **70** days
13.	**B** Commercial banks are exposed to all these risks (& more)
14.	**A** High sales growth can lead to dangerous over-trading & insolvency
15.	**B** Fiscal stimulus (2) by governments is independent of monetary policy

Section B

16.	**B.** PLN 95 x [$(1.05)^5$ = 1.276] = 121.22 x 10 = **PLN 1,212.50**
17.	**D.** PLN 95 x [$(1.04)^5$ = 1.217] = 115.58 x 10 = 1,155.80 x .593 [DF $_{11\%/5yr}$] = 685.40 + 9% x 1,000 = 90 x 3.696 [AF $_{11\%/5yrs}$] = 332.64; ∑ = **PLN 1,018**
18.	**A**. 3% + .95(14%-3%) = **13.5%**
19.	**D.** All are generally true of the P/E ratio
20.	**B.** In actively traded firms betas can be easily observed over time
21.	**B.** A/R = 530/365 = 1.45 . 74 days; Inv. 245/365 > 179 days; A/P = 200/365 = .547 > 193 days; 74+179-193 = **60 days**
22.	**D.** 3/97 = .0309; $(1.0309)^{360/45}$ = 1.276 – 1.0 = **28%**
23.	**A.** 54/259 = 20.8% RoE x (1-40%) = 12.5%, say **13%**
24.	**C**. Aggressively over-trading re: SGR (12.5%) vs. growth (18%), current ratio (1.33 vs. 1.57) & D/E (1.2 vs. .85) vs peers
25.	**B.** NPAT + Deprec – Mcapex = 54 + 25 – 21 = **58**
26.	**B.** All would result from greater protection against foreign competition
27.	**C.** $1,500/(1.09)^0$ = 1,500; $120/(1.09)^1$ = 110; $125/(1.09)^2$ = 105; $130/(1.09)^3$ = 100; $(140-75)/(1.09)^4$ = 46; ∑ PV = 1,861/3.34 [$_{AF9\%/4yrs}$] = **PLN 557,186**
28.	**C.** Comparing PV over common cycles will work but is troublesome
29.	**A.** [50 x .15] + [75 x .65] + [100 x .20] = 76,250 x .772 (DF $_{9\%/3yrs}$) = **58,865**
30.	**B.** RAD should be used whenever project risk is distinctive vs. the firm overall

Section C

31. (a) i: Net Present Value (12 marks)

NPV Worksheet						
	0	**1**	**2**	**3**	**4**	**5**
Units: Q		50,000	85,000	100,000	75,000	0
Price		80	80	80	80	
Inflation @ 4%		$(1.04)^1$	$(1.04)^2$	$(1.04)^3$	$(1.04)^4$	
Factor		1.04	1.08	1.13	1.17	
Price - nominal		83.20	86.40	90.40	93.60	
Revenue: Q x P		**4,160**	**7,344**	**9,040**	**7,020**	
VC @ 35/unit		1,750	2,975	3,500	2,625	
Fixed costs		450	450	450	450	
Total Costs		2,200	3,425	3,950	3,075	
Inflation @ 3%		$(1.03)^1$	$(1.03)^2$	$(1.03)^3$	$(1.03)^4$	
Factor		1.03	1.06	1.09	1.13	
TC - nominal		**2,266**	**3,631**	**4,306**	**3,475**	
Net CF		*1,894*	*3,713*	*4,734*	*3,545*	
Taxes @ 30% + 1			-568	-1,114	-1,420	-1,064
WDA			900	900	900	-270
Outlay	-9,000					+900
Net CF	**-9,000**	**1,894**	**4,045**	**4,520**	**3,025**	**-434**
DF @ 15%	1.0	.87	.756	.658	.572	.497
PV	*-9,000*	*1,647*	*3,058*	*2,974*	*1,730*	*-216*
NPV	**+193,000**					
Workings:		Writing Down Allowances				
NBV	9,000					
1/3rd WDA	-3,000	X 30%	= +900	T2		
NBV	6,000					
1/3rd WDA	-3,000	X 30%	= +900	T3		
NBV	3,000					
1/3rd WDA	-3,000	X 30%	= +900	T4		
NBV	0					
Salvage	900	X 30%	= -270	T5		
			("Charge")			
Discount Rate						
Fisher Equation:	(1.12)	x	(1.025)	=	1.148	
	Real		Inflation	Say:	15%	

(a) – ii – Internal Rate of Return (6 marks)

IRR Worksheet						
Net CF	-9,000	1,894	4,045	4,520	3,025	-434
DF @ 20%	1.0	.833	.694	.579	.482	.402
PV	*-9,000*	*1,578*	*2,807*	*2,617*	*1,458*	*-175*
NPV	**-715,000**					

$$IRR = \%_L + \frac{NPV_L}{NPV_L - NPV_H} \times (\%_H - \%_L)$$

= 15% + 193/[193 – (-715)] x (20% - 15%)

= 15% + [193/908] x 5%

= 15% + .21 x 5% = **16.1%**

(b) **1 mark**: Because the NPV is positive, value has been created for shareholders and the project would appear to be financially attractive.

(c) **1 mark:** Efficient stock markets will tend to reflect the value creation from projects with positive NPV in higher share prices. Publically announced news of the project will be noted by the market and depending on how credible management is, share prices will be boosted as the project "proves itself out" over time as reported profit comes on stream.

32.

(a) WACC (14 marks)

Workings:

K_E = Div (1+g)/MV + g = [(50 x 1.03)/450] + 3% = **14.4%**

K_{PS} = PS Div/MV x 100% = (5% x 1,00)/104 = 5/104 x 100% = **4.8%**

K_D = IRR of after tax interest and higher of face value redemption at maturity or "in the money" conversion. 1,000 vs. 450 x $(1.03)^5$ x 2 = **1,043** = "in the money"

IRR

Interest flows: 8% x 1,000 x (1 − T%) = 80 x 70% = 56

Extrapolation NPVs				
	7%	DF	9%	DF
MV (now)	-900	1.0	-900	1.0
PV: Interest (56 x 5 yrs)	+230	4.1 = $AF_{7\%/5yrs}$	+217	3.89 = $AF_{9\%/5yrs}$
PV: Maturity (1,043 in Yr 5)	+744	.713 = $DF_{7\%/5yrs}$	+678	.65 = $DF_{9\%/5yrs}$
NPV	*+124*		*-5*	

IRR = $\%_L$ + $\underline{NPV_L}$ x   ($\%_H$ - $\%_L$)
          NPV_L - NPV_H

  = 7% + [124/124 − (-5)] x (9%-7%)

  = 7% + [.96 x 2%]

  = **8.9%**

Market Weights:

Capital Source	**Calculation**	**PLN millions**	**Share**
Debt	25 x 900/1,000	23.5	28%
Preferred Shares	15,000,000/100 x 104	15.6	18%
Equity	10,000,000/100 x 450	45.0	54%
	TOTAL	*84.1*	*100%*

WACC Calculation						
WACC	=	K_D x $\%_D$	+	K_{PS} x $\%_{PS}$	+	K_E x $\%_E$
	=	8.9% x .28	+	4.8% x .18	+	14.4%x .54
	=	2.49%	+	.86%	+	7.78
	=	11.13%				
	=	**11.3%** (1 decimal)				

(b)   Dividend Payout policies (3 marks)

- A policy of a fixed % of profits may lead to dividend reductions in certain years if profits are volatile. In general, markets like steadily growing dividends for their predictability;

- Management should consider the "signaling" impact of declaring an increase in dividends. Markets tend to read an increase as a sign of management's confidence in the future;

- Other considerations for dividends: liquidity availability, growth prospects (Pecking Order Theory looks to retained earnings as a source of growth; also, excess cash (low capex) might tempt management to waste vs. return capital to shareholders) and the existence of special needs by shareholders ("Clientele Theory") i.e. Capital gains vs. income, dividend payout and dividend yields vs. peers.

(c)   Risk-reward characteristics (3 marks)

- Bankruptcy laws assign different priorities of claim upon liquidation. Therefore debt is safer than preferred shares which are safer than equity.

- Also priorities of both claim and cash flow can be established by contractual provisions with financial instruments. Thus, senior creditors have a higher claim than junior or subordinated creditors. Likewise preferred shareholders have a first claim on profits ahead of common shareholders but this is capped by a fixed dividend amount.

- To compensate capital providers for greater relative risk-taking, the financial instrument must offer a correspondingly higher yield or else markets could not be induced to supply capital without appropriate reward.

- In the case of debt, the 'tax shield' reduces after-tax cost of this source of capital.

- In the case of an active secondary market for equity or debt, ability to exit quickly also tends to reduce risk and thereby reduce required returns.