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Project Appraisal

Using The Adjusted Present Value Technique

- Building A Sustainable Economy In Nigeria

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Editor's Note

For any country to be economically viable, such must be able to grow its Gross Domestic Product (GDP) to an enviable level to sustain its wealth. If this is not done, the standard of living of the people will be jeopardised as the population increases.

Our lead article: **Building a Sustainable Economy in Nigeria** discusses what needs to be done to build a sustainable economy in Nigeria. The writer emphasizes that major stakeholders in the economy, irrespective of professional background, academic attainment, social status and political affiliations, have roles to play in building a viable economy.

Project or investment appraisal is an integral part of Accounting and Management and there are certain techniques and processes it passes through. **Project Appraisal Using the Adjusted Present Value (APV) Technique** focuses on one of the techniques available in project appraisal. The author takes time to break down the procedures and explains painstakingly the Adjusted Present Value (APV).

In our usual manner, we publish in this edition some past questions and solutions, to serve as guide to our students, towards tackling similar questions during the Institute's examinations.

The news section also keeps our students abreast of the current developments within and outside the Institute. The detailed reports of the above and other regular sections are served our readers.

Your comments and contributions are welcome. Write to: Corporateaffairs@ican.org.ng or aowolabi@ican.org.ng

ICAN To Strengthen Taraba State University Accountancy Department

The Institute of Chartered Accountants of Nigeria (ICAN) will help the Taraba State University's Accountancy Department build capacity in order to strengthen it for ICAN accreditation. President of the Institute Mr. Chidi Onyeukwu Ajaegbu stated this when he paid a courtesy call on the authorities of the university in Jalingo.

He informed management that one of the requirements to be met before the

accreditation of the university's accountancy department is the recruitment of chartered accountants to help train the students professionally, pointing out that the next step would be to formally apply to ICAN for accreditation so that its students could enjoy exemptions from many subjects in the professional examination.

Ajaegbu said the Institute would consider setting up an examination centre in Jalingo once the number of candidates meets the minimum standard.

He said that a world without accountants was impossible to imagine as that would mean no one to sign vouchers, prepare accounts, declare dividends, and initiate or evaluate various records that help determine the financial health of individuals and organizations.

In demonstration of the Institute's readiness to assist the university, five chartered accountants who possess requisite post graduate degrees were recommended for immediate employment as full or part time lecturers.

In her remarks, the Deputy Vice Chancellor (Administration) Dr. Catherine Ashasim said the objective of the university was to make the accountancy department sound and that explained why it resorted to ICAN when it found it difficult to recruit lecturers who are professional accountants.

She promised that the university would do all in its powers to ensure that the right candidates are recruited as lecturers in its accountancy department. She implored qualified members of ICAN in the president's entourage who indicated interest to liaise with the accountancy department to submit their resumes and applications for further processing of their applications.



ICAN President with students of Taraba State University during his visit.

ICAN Slashes ATSWA Exemption Fees, Sets Up Tuition House Support Fund

The Council of the Institute of Chartered Accountants of Nigeria (ICAN) has approved reduction in the exemption fees for students writing the Accounting Technician Scheme for West Africa (ATSWA) examination by 40 percent.

According to the Institute's Council, the reduction was in line with the council's resolve to assist the students and also to increase the number of National Diploma (ND) and National Certificate in Education (NCE) graduates writing part three of the ATSWA examinations.

In a related development, the Council of the Institute has also set up an ICAN

Tuition House Support Fund to assist in raising the standard of tuition houses and ultimately the performance of students at ICAN examinations.

The Institute observed that most tuition houses have the basic challenges of inappropriate venue in terms of building/lecture rooms, inappropriate furniture/fittings for conducive learning, inadequate lecturers, poor or non-existent library facilities and dearth of good study materials.

In view of the challenges, the Institute is to render technical assistance by providing library support of between N250,000 and N1million. The support will however, be made in materials and facilities.

Accordingly, ICAN would organize and sponsor a bi-annual mandatory tuition house operators retreat and a half-yearly meeting with directors of tuition houses and student affairs directorate of the Institute. It would also conduct a train-the-trainers programme at least once a year, to sharpen tutors skills and share experiences.

However, the tuition houses must demonstrate that their organisations meet the core principles of the scheme, which are designed to ensure consistent standard in the tuition offered worldwide for the ACA qualification.

Students, Our Most Important Stakeholders

- Ajaegbu



ICAN President with pupils of Ronik International School Lagos, during his visit to Ronik Polytechnic recently

The 50th President of the Institute, Mr. Chidi O. Ajaegbu has described students of institutions of higher learning as the most important stakeholders of ICAN.

According to him, ICAN would have no

reason to continue in business if there were no students to register and write its examinations.

He made this declaration while addressing a students' forum organized by the Institute at

Taraba State University (TSU) to boost interest in accountancy profession and encourage undergraduates to write ICAN examinations.

He enjoined the students to register and write ICAN examinations whether they are studying accountancy or not as this would engender a spirit of hard work, discipline and integrity in them.

The ICAN president told the students that accountancy was the most lucrative job in the world which offers promising careers in various fields of finance, consultancy, audit and assurance fields among others.

He implored the students to take advantage of the Institute's accounting technician's scheme – an intermediate examination for entry level accountants to enjoy maximum exemptions in the professional examination.

Mr. Ajaegbu promised that ICAN, through its Jalingo district, would help prepare the students for the examinations.

ICAN “Catch Them Young” Holds In Ibadan

Lecturer at the Obafemi Awolowo University, Professor Taiwo Asaolu has warned young people to reduce their preoccupation with modern technology tools such as GSM phones, Ipad, the internet and online browsing due to their ability to divert their attention and make them waste precious time.

He gave this warning in Ibadan recently at the Institute's career guidance programme tagged “catch them young” organized by the Ibadan District of the Institute of Chartered Accountants of Nigeria (ICAN) to highlight the gains of accountancy and encourage secondary school pupils take to the career path early in life.

Speaking on the topic “the road map to becoming a chartered accountant” the lecturer implored secondary school pupils to seriously consider starting the journey to the accountancy profession early through the Accounting Technicians Scheme (ATS). This according to him would make their progression less cumbersome and faster.

In his remarks at the occasion, the Chairman of Ibadan & District Society of ICAN Mr. Ganiyu Adebayo, said the objective of the event which attracted 400 pupils from 20 secondary schools was to debunk the insinuation in some quarters that only graduates of accountancy and others working for accounting firms could become chartered accountants.

“We are trying to prepare a short cut for pupils to become accountants through the Accounting Technicians Scheme, which they can start once they get their secondary school certificate,” he said.

He pointed out that those who excel in the three stages of the ATS examination would be able to secure admission into the second year of a four-year degree programme at any ICAN accredited university because the qualification is equivalent to National Diploma. He added that those who prefer the polytechnic route could go straight to Higher national Diploma (HND) in Accountancy.

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PROJECT APPRAISAL USING THE ADJUSTED PRESENT VALUE (APV) TECHNIQUE

By Ben Ukaegbu

Introduction

Most advanced level candidates for the professional examinations in Corporate Finance/Financial Management/Management Accounting must be familiar with the routine process of investment appraisal techniques, notably, **payback**, **net present value (NPV)**, **internal rate of return (IRR)** and **accounting rate of return (ARR)**. However, in a situation where the project under consideration attracts **side effects**, for example, subsidised borrowing, issue costs on new financing, tax relief or an increase in debt capacity, the 'straight-line' investment appraisal techniques become inadequate. Under such settings, the understanding and application of **adjusted present value (APV)** becomes relevant and inevitable.

Mechanics of Adjusted Present Value

The APV method of appraising investments is not easy to learn, but any examination question involving a project that is subject to significant financing issues, as in real live situations, is likely to require the application of the technique. The APV technique requires that the investment appraisal process can be split into two distinct segments. Firstly, the investment should be discounted at a suitable ungeared cost of capital. The base-case net present value (NPV) that arises ignores the benefit of tax relief on debt finance and other financing aspects. These are calculated separately as the present value (PV) of the financing side-effects. The sum of the base-case NPV and the PV of the financing side effects is the APV. This is then used in the same way as an NPV.

The base-case NPV calculation, which assumes that only equity finance is used to fund the project can also be split into two segments. The first is to calculate a cost of equity for a suitable ungeared company (k_{eu}). If the project carries the same business risk as that of the company,

the firm's existing cost of equity can be used. If however, the project represents a departure from the company's existing business operations, for example, into a new area with a different business risk from that of the rest of the company, a new (k_{eu}) can be found using information from a suitable proxy firm that is already operating in the same business sector.

The second step of the base case NPV calculation is a normal NPV calculation in which the cost of equity of ungeared company (k_{eu}) obtained in the first step is used as the discount rate.

Project's Side Effects

When it comes to the financing side effects calculation, the main side effect is the tax relief on interest paid. However, other factors may be included and are discussed below:

Issue costs: Any issue costs on debt and equity should be accounted for. Debt issue are usually tax allowable, in which case the tax relief should be calculated. Unless one is informed otherwise in the examination, it is assumed that any debt issue costs are tax allowable while any equity issue costs are not allowed.

The present value (PV) of tax relief on interest paid should be calculated both for any normal or commercial-rate loan and for any cheap or subsidised loan that may be provided by a government or the supplier of the asset. For instance. If there is a cheap loan, the PV of the interest saved compared with the normal commercial rate must be calculated. This benefit is then reduced because paying a lower rate of interest results in the loss of some tax relief.

In order to determine the PV in all the calculations, a discount rate is required. The issue of which discount rate to apply remains the subject of much discussion. However, past examination and other practice questions have involved a number of different rates. It is advisable to use the pre-tax cost

of debt unless the question indicates otherwise.

The change in debt capacity caused by a project is the extra debt finance that a company can borrow as a result of the project. If the change in debt capacity differs from the loan actually taken, the total loan on which tax relief is calculated should reflect the total change in debt capacity. Thus, the normal-rate loan to be used in the calculations would be deemed to be the total change in the debt capacity less any cheap loan. If an examination question does not mention the change in debt capacity caused by a project, it should be assumed that the change in debt capacity is the same as the actual debt raised.

The Rationale of APV

The APV approach relies on the Modigliani and Miller (M&M) theories of capital structure. The M&M's 'no tax' hypothesis states that as the gearing of a firm changes, its weighted average cost of capital (WACC) stays constant. If its gearing rises, its financial risk rises, as does its cost of equity. While the rising cost of equity tries to push the WACC up, the increased proportion of cheaper debt finance tries to push the WACC down. These effects are equal and opposite, leaving the WACC unchanged. The lowest level of gearing is where the firm has no debt, so the WACC is the same as the cost of equity at this point; the (k_{eu}).

Under the M&M 'with tax' theory, the WACC falls as gearing rises. This is because the debt is cheaper than in the 'no tax' theory because of the tax relief on the interest paid. Under the APV method, the base-case NPV is calculated using (k_{eu}). This is the appropriate WACC if there were no tax. In the financing side effects calculation, the key element is the calculation of the benefit of tax relief on interest paid. This benefit, which in the

M&M 'with tax' theory causes the WACC to fall, is evaluated in absolute terms and added to the base case NPV to create the APV. Therefore, the final APV calculated reflects the 'with tax' theory.

The Modigliani and Miller theories take no account of the impact of financial distress when gearing is high, so APV should be applied only at reasonable gearing levels. Financial distress is caused by real-world factors that are ignored by the M&M theories – for example, the increased danger of liquidation, extra agency costs and the risk of tax exhaustion that may arise when gearing is high. At higher gearing levels, corporate debt is no longer risk free. Further problems arise with the M&M theories' failure to account for different investors' tax positions and their assumption that markets are perfect. Where the capital asset pricing model (CAPM) is used to derive (k_{eu}), all the assumptions and limitations of the model are equally applicable.

Illustration:

A worked example is provided to illustrate some of the aspects of Adjusted Present Value (APV).

Illustration Scenario

The managers of Fineland plc are investigating a potential N60 million investment. The investment would be a diversification away from existing mainstream activities and into the packaging industry. N20 million of the investment would be financed by internal funds, N20 million by a rights issue and N20 million by long term loans. The investment is expected to generate pre-tax cash flows of approximately N13.5 million per year, for a period of ten years. The residual value at the end of Year 10 is forecast to be N7 million after tax. As the investment is in an area that the government wishes to develop, a subsidised loan of N12 million out of the total N20 million is available. This will cost 2.5% below the company's normal cost of long-term debt finance, which is 9%.

The company's equity beta is 0.95, and its financial gearing is 70% equity, 30% debt by market value. The average equity beta

in the packaging industry is 1.3, and average gearing 60% equity, 40% debt by market value. The risk-free rate is 6.5% per year and the market return 12% per year. Issue costs are estimated to be 1% for debt financing (excluding the subsidised loan) and 4% for equity financing. These costs are not tax allowable.

The corporation tax rate is 30%

Requirements:

Estimate the Adjusted Present Value (APV) of the proposed investment.

Suggested Solutions:

1. It is assumed that the risk of companies in the packaging industry is similar to that of Fineland plc's new investment. In this case, the beta of the packaging industry will be used to estimate the discount rate for the base case NPV.
2. Ungearing Beta, the following approach is applicable:

$$(B_g = B_u \times E/E + D(1 - t))$$

Where:

B_u = Beta factor for the ungeared company; B_g = beta factor of equity in a similar, but geared company. E = market value of the equity capital in the geared company; D = market value of the debt capital in the geared company; T = corporate tax rate.

3. Ungearing the beta of the Packaging industry:

$$= 1.3 \times (60/60 + 40)(1 - 0.30) = 0.886$$

4. Using the CAPM model

$$K_{eu} \text{ (Cost of equity in an ungeared company)} = 6.5\% + (12\% - 6.5\%) 0.886 = 11.37\% \text{ or approximately } 11\%.$$

$$\text{Annual after tax cash flows} = N13.5m (1 - 0.30) = N9,450,000.$$

From Annuity Tables with 11% discount rate:

		N
Present value of annual cash flows	9,450,000 x 5.889 =	55,651,050
PV of the Residual value	7,000,000 x 0.352 =	2,464,000
		58,115,050
Less Initial Investment		(60,000,000)
Base case NPV		(1,884,950)

As the base case NPV is negative, the project will be recommended for rejection in the traditional NPV criteria. However, the financing side effects are considered. Financing side effects relate to the tax shield on interest payments, the subsidised loan and issue costs associated with external financing.

Tax Relief:

N8 million 9% loan. Interest payable is N720,000, tax relief is N720,000 x 0.30 = N216,000 per year.

N12 million subsidised loan: Interest is N780,000 per year, tax relief = N234,000

Total annual tax relief = N450,000 per year. The PV of this tax relief discounted at the risk free of 6.5% per year is $7.192 \times N450,000 = N3,236,400$.



(The tax relief on interest payments allowed by government is assumed to be risk free. The mid-point between 6% and 7% in annuity tables is used. **Note:** discounting at a rate higher than the risk rate could be argued, especially if the company might be in a non tax-paying position in some years).

Subsidy:

The company saves 2.5% per year on N12m or N300,000, or $N300,000 \times (1 - 0.30) = N210,000$ after tax.

As this is a government subsidy it is assumed to be risk free and will be discounted at 6.5% per year.

$N210,000 \times 7.192 = N1,510,320$.

Issue Costs:

		N
Debt: N8 million x 1%	=	80,000
Equity: N20 million x 4%	=	800,000
		<u>880,000</u>

Adjusted present value:

Base NPV (N1,884,950) + Tax Relief 3,236,400 + Subsidy 1,510,320 – Issue Costs 880,000 = **N2,061,770**

Based upon these estimates the project is financially viable.

Merits of APV

- APV can be used to evaluate the effects of financing a project including changing capital structure;
- APV can be used to assess other costs and benefits associated with the investment such as tax shield, issue costs, subsidies or grants.
- The APV calculation does not necessarily depend on the assumption of perpetual risk-free debt.

Problems with APV

- it can be difficult to establish a suitable cost of equity for the computation, based on the assumption that the project was all-equity financed, and also establish an all-equity beta.

- It is also difficult to identify all the costs associated with the method of finance;
- The choice of discount rates can be problematic.

APV vs NPV: APV may be a better technique to use than NPV when:

- there is a significant change in capital structure as a result of the investment;
- the investment involves complex tax payments and tax allowances, and/or has periods when taxation is not paid.
- Subsidised loans, grants or issues costs exist.
- Financing side effects exist (e.g. the subsidised loan) which require discounting at a different rate than that applied to the mainstream project.

Conclusion

The benefit of APV is that it breaks the problem down into the value of the project itself (if equity financed) and the value of the financing (whereas the effect of financing is taken account of in the WACC when calculating regular NPV). This makes APV flexible enough to cover many different types of real-world financing arrangements such as: tax rates that may change from year to year, amount of debt increases or decreases each year, government subsidies, interest payments for a certain number of years and other side-effects of investment proposals.

From managerial standpoint, it is believed that APV shows directly the sources of value created by a project, that is, how much is from running the actual project, how much is from the financing arrangements, how much value is created by a government subsidy and other side effects ■

Bibliography/Additional Readings:

- Arnold, G. (2012) *Corporate Financial Management*, Financial Times/Pitman 6th edition.
- Brealey, R., S. Myers and F. Allen (2013) *Principles of Corporate Finance* McGraw-Hill, 10th edition.

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BUILDING A SUSTAINABLE ECONOMY IN NIGERIA

By Oyedepo Fatai Oyeade

This topic is apt and relevant to all major stakeholders in the economy irrespective of his or her professional background, academic attainment, social status and political affiliations. As a matter of fact the discussions and deliberations of this topic should be continuous but not one-off in order to achieve the desired result for the benefit of all. It is however expedient to remind ourselves of certain definitions to refresh our memories before embarking on further discussions of this topic.

Definitions of Basic Terminologies by the Advanced Learners' Dictionary

- Economy**– The state of a Country or Region in terms of the production and consumption of goods and services and the supply of money.
- Sustainable** - Able to be maintained at a certain rate or level.

Explanations

The above two definitions indicate that the wealth of a nation is hinged on certain factors. They form the basis to determine the gross domestic product and the standard of living of the people. However, there is a need to improve on the GDP otherwise the standard of living of the people will decline as a result of an increase in population.

Economic factors

Production of goods and services

This refers to the goods and services produced internally which are consumed by the people and also exported to other nations of the world to boost the foreign reserves.

The objective is to be self-sufficient and less dependent. However, the objective is still beyond the reach of most third world countries. Some of the limiting factors to production of goods and services in Nigeria include the followings among others;

- Lack of some basic infrastructural facilities
- Inability to provide the enabling environment by the government
- Insecurity of lives and property
- Inadequate access to capital
- Lack of modern skills and competences etc.

All these limitations are hindrances to effective production as a result of which the country relies on foreign goods and services to satisfy local demands. With this development, the country cannot earn enough foreign currency to shore up her reserve. The resultant effect is deficit in the gross domestic product and a fall in the standard of living of the people because the country is a consuming nation and not a producing one.

Consumption of goods and services

It means our consumption of goods and services whether locally produced or imported. It is clear that our consumption level is

extremely high in spite of the fact that we are not a producing nation. Even when we produce some goods, our taste is tilted towards the imported goods at the detriment of local manufacturers.

The crave for materiality in this part of the world is on the high side and it has almost become part of our culture which is now from one generation to the other.

New psychological research affirm that too much of focus on material consumption can reduce our well-being. For example, Psychologist Tim Kasser, in his 2003 book, *The high price of Materialism*, points out that people who focus on material consumption as a path to well-being are actually less satisfied. Material consumption beyond real need is a temporary satisfaction but which ultimately leads to depression, "Tim Kasser"

The implication of our high consumption level and our low production capacity is a dwindling economic fortune which is represented by a low gross domestic product (GDP).

The supply of money

The flow of money in the economy is regulated by the apex bank, i.e. the Central Bank of Nigeria (CBN). The level of economic activity in the Country (formal and informal sectors) dictates the quantum of money in circulation. However, the massive demand for foreign goods and services will result to heavy pressure on hard currencies and a fall in the economic power of our local currency and by extension, the living condition of people. This is due to the fact that too much of local currency will be needed to purchase goods and services which an average person in terms of income cannot afford.

In addition, the flow of money is not evenly distributed but lopsided in Nigeria. The reality is that only the privileged few are extremely rich while others are living below the poverty level.

By implication, a highly skewed income distribution has negative effects on a society's social capital.

Gross Domestic Product (GDP)

The Gross Domestic Product (GDP) is one of the primary indicators used to gauge the health of a country's economy. It represents the total money value of all goods and services produced over a specific time period. It could be regarded as the size of the economy.

The growth of the market economy of any nation is measured by the gross domestic product. The GDP is premised on three bases; the production capacity, consumption level and the supply of money. Therefore, the gross domestic product forms the basis to determine the living standard of the people at any given period of time.

It is however expedient to consider the merits and demerits of using Gross Domestic Product (GDP) as the method of determining the growth of an economy and the living standard of people.

Merits of Gross Domestic Product (GDP)

- i. Firstly, GDP is an adequate measure of the growth of industrial economies that produces finished goods.
- ii. It is a good basis to collate and reflect appropriately the spending of government and consumer; to determine the total consumptions as a measure of an economy.
- iii. GDP is dynamic; it changes constantly based on new figures on productivity, consumption and investments. Therefore, economists and decision makers can use it to measure the growth or decline of any economy because of its dynamism to consider changes of data.
- iv. It is universal; it can be used to examine all economies of the world, it is used in the same manner around the globe thus allowing inter-country comparisons.
- v. GDP concentrates its focus on economic data; it is not affected by variables which are difficult to measure such as voluntary labor and real unemployment.
- vi. GDP is expected to be measured frequently thereby allowing trends in the economy to be seen and monitored speedily.

Demerits of Gross Domestic Product (GDP)

- i. One of the demerits of using GDP to measure the economy is that it focuses only on the marketed economic activity but leaving out the non-marketed contributions to human well-being e.g. the contributions from nature, family, friends, social relationships, health and education.
- ii. Secondly GDP regards all the activities as being positive. It does not separate desirable well-being-enhancing activity from undesirable, well-being-reducing activity. For example, an oil spill increases GDP because someone has to clean it up, but it obviously detracts from society's well-being. From the perspective of GDP, more crime, more sickness, more war, more pollution, more fires, storms, and pestilence are all potentially good things, because they can increase marketed activity in the economy.
- iii. Thirdly, GDP leaves out many activities which enhance the well-being of the people but are outside the marketed economy. For instance, the unpaid work of parents caring for their own children at home does not reflect on GDP. However, if these same parents decide to work outside the home to pay for childcare GDP will suddenly increase. Also, the non-marketed work of natural capital in providing clean air and water, food, natural resources, and other ecosystem services does not adequately show up in GDP but if those services are damaged and needed to be fixed or replaced,

the GDP suddenly increases.

- iv. Finally, GDP takes no account of the distribution of income among individuals. In fact, GDP is maximized by the allocation of resources to those with the greatest willingness to pay.

Building a Sustainable Economy

The government can seek to improve the well-beings of her citizens in practical and feasible terms instead of relying on the interpretations of the Gross Domestic Product (GDP). The emphasis should shift from the mere theoretical growth which is determined by scientific gross domestic product (GDP) but does not reflect on the living conditions of majority of the citizens.

It is therefore essential to discuss some of the policies necessary to achieve this vision of building a sustainable macro-economy in Nigeria.

- i. Investment in sustainable infrastructure, such as renewable energy, energy efficiency, transportation, building, watershed protection measures, green public spaces, clean technology and human artifacts and services that help to fulfill basic human needs e.g. shelter, subsistence, mobility and communication.
- ii. Dismantling incentives towards materialistic consumption including banning advertising to children and regulating the commercial media.
- iii. Reducing systemic inequalities of income by improving the living standards of the poor and preventing private capture of common wealth. Nigerian tax law should be reviewed to be more progressive to address the inequalities of income.
- iv. Granting of incentives to local producers and manufacturers to make their goods very competitive with their foreign counterparts. This can be in form of unlimited access to capital from money market at a reasonably low rate, granting of moratorium for repayments and reduction of company income tax.
- v. Fiscal reforms that reward sustainable and well-being enhancing actions and penalize unsustainable behaviors that diminish collective well-being.
- vi. Increased financial and fiscal prudence including greater public control of the money supply and other financial instruments and practices. To achieve this, the apex bank should be granted the necessary autonomy and powers to regulate the flow of money in circulation. The sharp practices in the financial sector which creates opportunities to strengthen the foreign currencies at the expense of our local currency should be eliminated.
- vii. The government should redirect economic policies to meet human basic needs instead of engaging in poverty alleviation

programmes. Some of these needs include; subsistence, reproduction, security, affection, happiness, life satisfaction, leisure, spirituality, creativity, identity and freedom. This will involve investment in cultural amenities, recreation, raw materials required for all economic productions to meet the natural, social and cultural needs.

- viii. Ensuring availability and dissemination of all information required to move to a sustainable economy that enhances well-being. This can be achieved through public investment in research and development and reform of the ownership structure of copyrights and patents.
- ix. Fair distribution of resources and opportunities among groups within the present and future generations.
- x. Promoting economic policy to improve well-being and happiness. The priority of the policy should be happiness and that the progress of national happiness should be measured and analysed as closely as the growth of gross national product (GNP).
- xi. De-emphasis the use of Gross Domestic Product (GDP) to measure the standard of living of people because of inherent limitations but rather on the practical and feasible assessment of their conditions.

Conclusion

There is no gainsaying the fact that the growth of an economy will impact on peoples' standard of living; therefore the government and the governed should expedite necessary actions to correct the hindrances of development in order to enjoy the abundant benefits.

The feat of building a sustainable economy is feasible even in spite of daunting challenges being faced by third world countries but it requires genuine commitment on the part of all and sundry to address the issues e.g. develop the productive sector of the economy, reduce frivolous consumptions to the barest minimum to ensure a stable currency.

It is therefore the responsibility of all stakeholders to patronize domestic products to curtail our excessive demands for foreign products which would lead to stability of the local currency against foreign currencies.

I am convinced that we can grow the economy significantly by addressing the three issues already mentioned and implementing all the suggested policies to achieve the vision of building a sustainable macro-economy in Nigeria. There lies the power to succeed as a nation and to better the lives of her citizenry.

Finally, I admonish the government to give a wider perspective to all the suggestions on how to build a sustainable economy and to boost the living standard of our people.

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TUESDAY MAY 19, 2015	9.00 a.m. – 12 noon	Financial Accounting	Financial Reporting	Corporate Reporting
	2.00 p.m. – 5.00p.m.	Management Information	Taxation	Advanced Taxation
WEDNESDAY MAY 20, 2015	9.00 a.m. – 12 noon	Quantitative Techniques in Business	Performance Management	Strategic Financial Management
	2.00 p.m. – 5.00 p.m.	Business & Finance	Audit & Assurance	Advanced Audit & Assurance
THURSDAY MAY 21, 2015	9.00 a.m. – 12.00/1.00 p.m.	-	Public Sector Accounting & Finance	Case Study
	2.00 p.m – 5.00 p.m	Business Law	Management, Governance & Ethics	-

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Our goal is to ensure success in ICAN exams. We have, therefore, provided solutions to some past questions to guide candidates in future exams. Although these suggested solutions have been published under the Institute's name, they do not represent the views of the Council of the Institute. ICAN will, therefore, not enter into any correspondence about them.

Information Technology ((PROFESSIONAL EXAMINATION I - May, 2011))

Multiple Choice Questions

- Computer processing speed is measured in
 - Hertz (HZ).
 - Gigahertz (GHZ).
 - Megahertz.
 - Nanoseconds.
 - Pico seconds.
- The following are problems associated with computer networks **EXCEPT**
 - expensive to install.
 - requires administrative time.
 - server may breakdown.
 - cables may break.
 - flexibility of access.
- A technology that enables the sending and receiving of messages between text enabled phones describes
 - Concatenated Short Message Service.
 - Long Short Message Service.
 - Short Message Service.
 - SMS for Code Division Multiple Access.
 - SMS for Time Division Multiple Access.
- Security threats related to computer crime or abuse includes the following **EXCEPT**
 - impersonation.
 - trojan horse method.
 - logic bomb.
 - computer viruses.
 - provision of service.
- A system of computers and workstations that are connected together describes a/an
 - web Network.
 - computer Network.
 - network.
 - mobile Phone Network.
 - the internet.
- The series of steps or stages that a Systems Analyst will undertake in order to study or computerize an area of organizations business describes
 - Structured Systems Analysis and Design Methodology (SSADM)
 - Rapid Application Development (RAD)
 - The Waterfall model
 - Systems Development Life Cycle (SDLC)
 - Prototyping model.
- An executive information system must have the following design philosophy **EXCEPT** that it should
 - make data easy to manipulate.
 - provide tools for analysis.
 - provide aids for presenting information in narrative or numeric form.
 - be difficult to use.
 - be designed to present information for timely decision making.
- A company-wide computer software system that is used to manage and coordinate all the resources, information and functions of a business from shared data stores describes
 - Database Software.
 - Supply Chain Management Software.
 - Customer Relation Manager.
 - Oracle Financial Software.
 - Enterprise Resource Planning Software.
- A Protocol which enables web servers to communicate with each other over a network describes
 - Internet Protocol (IP).
 - Transmission Control Protocol (TCP).
 - Hyper Text Transfer Protocol (HTTP).
 - File Transfer Protocol (FTP).
 - Post Office Protocol (3) (POP3).
- A seven- layer architecture for communicating systems describes
 - Network Protocol.
 - Protocols.
 - Open System Interconnection (OSI) Model.
 - Network Layer.
 - Physical Layer.
- A group of related records describes a
 - character.
 - field.
 - record.
 - file.
 - database.
- A source or destination of data which is external to a system describes

- A. entity.
 - B. attribute.
 - C. relationship.
 - D. set.
 - E. entity set.
13. The following are forms of distributed data **EXCEPT**
- A. replicated data.
 - B. normalised data.
 - C. horizontal fragmented data.
 - D. re-organised data.
 - E. separate - schema data.
14. Which of the following is **NOT** a basic way of dealing with identified IT risks?
- A. Mitigation
 - B. Litigation
 - C. Elimination
 - D. Transference
 - E. Avoidance
15. Process integrity relates to the following **EXCEPT**
- A. completeness.
 - B. accuracy.
 - C. ruggedness.
 - D. timelines.
 - E. authorisation.
16. The act of sharing tasks over multiple computers describes
- A. Encapsulation
 - B. Isolation
 - C. Grid computing
 - D. Service - oriented
 - E. Partitioning
17. In cloud computing, the various computer servers and data storage systems that create the computing services are referred to as
- A. back end.
 - B. cloud system.
 - C. front end.
 - D. users hardware.
 - E. users software.
18. Which of the following is **NOT** a key element in presenting a digital evidence that is legally acceptable?
- A. Identification
 - B. Investigation
 - C. Preservation
 - D. Analysis
 - E. Presentation.
19. The connection of a WIMAX tower to another one using a line-of-sight microwave link is called
- A. Front End.
 - B. Front Haul.
 - C. Back End.
 - D. Back Haul.
 - E. Internet Backbone.

20. The telecommunication technology that has the potential to replace a number of existing telecommunication infrastructure is the
- A. GPRS.
 - B. Intranet.
 - C. WIFI.
 - D. WIMAX.
 - E. EDGE.

Part II: Short- Answer Questions

1. A temporary storage space located in the CPU, on which arithmetic and logical operations can be carried out is called.....
2. Combinations of hardware and software that try to emulate or duplicate reasoning processes that take place within the human brain is called.....
3. A language used to format documents on the World Wide Web is called.....
4. A cross – section of the internet consisting of all the resources that can be reached by means of the HTTP protocol is called.....
5. A website that is programmed as a start page, that is, the page on which a browser automatically loads every time you connect to the internet, is called.....
6. The basic shape of a network is called
7. A communication system which provides connection for systems with compatible protocol is called.....
8. A network that makes use of radio waves to transmit data or information from one node to another is called.....
9. A preliminary study undertaken by an organization to find out if it will be feasible for them to acquire, maintain and profit from the use of computer system is called.....
10. An e-Commerce model that describes the relationship between two or more business selling services is called.....
11. A system that enables the capture of data at the time and place where sales transactions occur is called.....
12. The study and application of the principles by which knowledge is stored and used, goals are generated and achieved are called.....
13. A broad field of IT that encompasses the collection and dissemination of information to assist decision making and assesses organisational performance is called.....
14. A language for the electronic communication of business and financial data which is revolutionizing business is called.....

15. An organised and structured, collection of files or group of records which can hold data and information together in a computer is called.....
16. An item (such as a person, job, business, an activity, a product) about which information is stored is referred to as.....
17. BCP and BIA are acronyms forand
18. A computer crime that uses a system program that can bypass regular system controls to perform unauthorized acts is called
19. SAAS is an acronym for
20. In computer forensics, three types of data that are of general interest are active,and

SECTION B: Question 1

CASE STUDY

BUP SYSTEMS LIMITED

Kayode Mohammed is popularly called Crown Prince of BUP Systems Limited, a company founded and managed by his father for over ten years.

BUP systems develop propriety applications for organisations in Banking and Insurance Industries. In the last ten years, the company has grown from a small-time Software Development Company, to a major player in the Software Industry.

In the last couple of years, revenue has been declining, costs rising together with staff turnover. A report of the consultants, who were hired to identify the causes of decline in revenue, reveals the following:

- (i) The trend in the finance industry is that of using bespoke applications. BUP Systems seems not to have realised this.
- (ii) In the last couple of years, customers' dissatisfaction has heightened. The support mechanism which BUP is known for seems to have dwindled. In the words of a major BUP customer, "they just dump an application for you and walk away, without trying to find out if it works or not".
- (iii) The morale of programming staff is reduced since the company adopted the stringent documentation process.
- (iv) There are more standardized applications in the market, meeting demands of users at much lower costs than those implemented by BUP.
- (v) Some customers have complained that BUP's proprietary software comes with the database management system. This database management system does not interface with other applications. This is in contrast to other applications that sit on open database management systems.

Required

Assuming that you are Kayode Mohammed, convince the Board

of the efficacy of the propriety applications by:

- a. Differentiating between a bespoke application and propriety Software. (4 Marks)
- b. Enumerating **FIVE** benefits of bespoke application over Propriety Software. (5 Marks)
- c. Explaining **FIVE** benefits of an open Data Management System. (5 Marks)
- d. Suggesting a support mechanism which BUP could have rendered to their customers. (1 Mark) **(Total 15 Marks)**

Question 2

Explain **FIVE** features of each of the following:

- a. e-mail application. (5 Marks)
- b. Intranet application. (5 Marks)
- c. Workflow application. (5 Marks)

(Total 15 Marks)

Financial Reporting & Ethics

(PROFESSIONAL EXAMINATION II - May, 2011)

Question 3

International Financial Reporting Standards (IFRS) are unnecessary impositions on developing countries with preponderance of small and medium entities (SME). Some IFRS are unnecessarily demanding and might be difficult for these SMEs to meet. Some of the information produced by adopting IFRS are not necessary for users of SME Financial Statements.

You are required to discuss the following:

- a. The need to develop a set of IFRS specifically for SMEs. (5 marks)
- b. The need for the modification of existing IFRS to meet the needs of SMEs. (5 marks)
- c. How items not dealt with by an IFRS for SMEs should be treated. (5 marks) **(Total 15 Marks)**

Strategic Financial Management

(PROFESSIONAL EXAMINATION II - May, 2011)

Question 4

Unlike the old management information systems, Decision Support Systems (DSS) utilise model bases and databases in their support provision. A DSS model base is a software component comprising models used in calculations and analyses which materially display relationships among variables such as sales, expenses and net profit. A typical example of DSS models is the spreadsheet.

Required:

- (a) Explain the term "Decision Support System" (DSS). (3 marks)
- (b) Briefly explain **FOUR** applications of spreadsheet packages which are particularly relevant to the financial manager. (12 marks) **(Total 15 marks)**

Solutions To All Questions

(Multiple Choice Questions - PROFESSIONAL EXAMINATION I - May, 2011)

- | | | | |
|------|-------|-------|-------|
| 1. A | 6. D | 11. D | 16. C |
| 2. E | 7. D | 12. A | 17. A |
| 3. C | 8. E | 13. B | 18. B |
| 4. E | 9. D | 14. B | 19. D |
| 5. B | 10. C | 15. C | 20. D |

Examiners' Report

The questions cover a substantial part of the syllabus.

The performance was fair as over 90% of the candidates obtained scores above the average.

Part II: Short- Answer Questions

1. Accumulator /Arithmetic & Logic unit
2. Nueral nets Mark-up Language (HTML)
3. Hyper Text Mark-up Language
4. World wide web (WWW)
5. A portal
6. Topology
7. Router
8. Wireless Network
9. Feasibility Study
10. Business –To- Business (B2B)
11. Point –Of-Sale Systems (POS)
12. Artificial Intelligence
13. Business Intelligence
14. Extensible Business Reporting Language (XBRL)
15. Database
16. An entity
17. Business Continuity Planning and Business Impact Analysis
18. Super zapping
19. Software as a Service
20. Archival, Latent

Examiners' Report

The questions cover most sections of the syllabus. The performance was not good as less than 30% scored above the average mark.

Some of the candidates are not conversant with the required computing terminologies. They are therefore advised to broaden their knowledge in information technology.

SECTION B: Solution To Question 1 (Case Study)

a. Bespoke Application

A bespoke application is a software system that has been specifically developed to fulfil a defined business requirement for a specific organization.

A Proprietary software is a legal property of one party whose terms of use by other parties or organisation are defined by contracts or licencing agreement. These terms may include privileges to share, disassemble and use the software and its code.

b. The benefits of Bespoke application over proprietary application software include:

- Cost: Bespoke applications are usually cheaper since they are standardised, unlike the proprietary software.
- Ease of use: Most times, bespoke applications are user friendly unlike the proprietary software.
- Maintenance: Bespoke software is usually maintainable. The developers just bring up patches and the users download.
- Flexibility: Bespoke application can be implemented on any hardware and operating system which is more restrictive.
- Going concern advantage: With bespoke application, the normal thing is to deposit the source code in an escrow account with the bank. This is a standard requirement ensuring that users get access to it should the vendors go into liquidation. This may not be the case with proprietary software.
- Shorter development time
- Ease of portability
- Easy integration with other applications
- Easy modification to fit changing needs of the user over time.
- It gives company competitive advantage in the market place

c. Benefits of an Open Database Management System:

Since an open database management system is an independent application that manages the database of an organisation, it receives requests from different applications and attends to each on need basis. Benefits include:

- Cost: One database Management Systems can serve many applications, thus reducing cost.
 - Multi-user support: Open database management system supports multi-user and networked environments. This allows data to be accessed in a variety of ways, and by using several programming languages.
 - No restriction: Unlike proprietary software, open database management system does not restrict the user on the type of hardware and operating system to use.
 - Less storage capacity: Duplication of data is eliminated.
 - Flexibility: Programs do not have to be modified when types of unrelated data are added to or deleted from the database or when physical storage changes.
- d. BUP could have been introduced after sales services by solving any teething problems that each client might face.
- BUP could have been involved in regular training of client's person.

Examiners' Report

This case study tests candidates' understanding of the differences between Bespoke and Propriety applications, the benefits the former has over the latter. Candidates are

also to be aware of the type of support mechanism which an application developer should render to client using Bespoke application.

Candidates' performance was poor, as less than 40% scored above the average mark.

The common pitfall was that candidates could not explain both forms of applications properly, hence most of those who had ideas on each could not differentiate the benefits.

Candidates are therefore advised to ensure that they study well in line with the information Technology syllabus provided by ICAN.

Solution To Question 2

- (a) **e-mail application is the software that enables mails to be sent or received electronically.** The features of e-mail applications include the following:
- Address Management: E-mail users can share other people's e-mail addresses.
 - Send and Receive e-mail facility: This is the major function of an e-mail application. It enables users to send out mails to other users within and outside a network.
 - Mail storage and sorting: A standard email application has an embedded database management system for storing of users mails. The application also helps users to sort mails in order of date, subject, sender and receiver.
 - Logical access control: Every email system performs logical access control, in the sense that users must be able to provide authorization and authentication mechanisms before being allowed access to the application. A key authorisation mechanism is user name, while password serves as an authentication mechanism.
 - Calendar management: e-mail applications provides a facility for users to save calendar activities, with which the application reminds them on due dates. This helps planning.
 - Task Management: This involves saving of task processes for future retrieval
 - Owners can access their boxes from anywhere in the world at anytime.
- (b) **Intranet application is the software that enables internal communication to take place among employees of an organisation that have branch network.** Features of an intranet application include the following:
- Shared access to documents: Intranet provides central storage files and documents in a standard form, enabling people who may be physically dispersed to share the resources amongst themselves.
 - Controlled access: Intranet applications provide controls on who should have access to it. Control mechanisms includes user names and passwords.

- Allows on-line chatting or exchange of information within the organization.
 - Search engine: A search engine is a text field where users type in key words and execute an instruction enabling the intranet to search for the key work within the network. This ensures faster access to files and resources on the intranet network.
 - Message Boards: Message boards is an online forum that allow employees to share ideas that may not occur in a face- to – face discussion. This fosters communications between departments and peer groups. Or on line calendar management
- (c) **Workflow application is a software which automates a process or processes.** Features of a Workflow Application includes the following:
- Online forms: Every workflow application provides some online forms for users to enter information remotely. This is used for approvals, form storage etc.
 - Electronics signatures: Considering that workflow applications enable physically dispersed people to work together online, access control is key. This is achieved by the availability of electronics signatures. This facilities uniquely identifies each user in the workflow network.
 - Real time follow-up and alerts: Users participating in a workflow environment get real time notification of activities. This includes emails advising them of actions assigned to them, actions they are requested to assign, closed requests, actions overdue and cancelled.
 - Integration: Every workflow application must be integrated into other applications in a network.
 - Control flow of information within the organisation

Examiners' Report

The question tests candidates' knowledge on features of e-mail intranet and workflow applications. Over 80% of the candidates attempted this question and the performance was poor.

Most candidates were writing on advantages that applications have instead of explaining the features.

Candidates are advised to avail themselves with IT books, ICAN study pack and the internet. They should also endeavour to read widely.

Financial Reporting & Ethics

(PROFESSIONAL EXAMINATION II - May, 2011)

Solution To Question 3

- (a)i. IFRS, were not designed specifically for a class of companies – quoted or unquoted. IFRSs gives Financial Statements enhanced reliability, relevance and credibility and result in fair presentation.

- ii. SMEs' would wish to comply with IFRSs for consistency and easy comparability with similar SMEs' both within their own country and internationally.
 - iii. The objectives of general purpose Financial Statements are basically appropriate for SMEs and bigger publicly quoted companies alike. Given this, one set of IFRS that would be used nationally and internationally is desirable.
 - iv. The cost burden of applying the full set of IFRSs may not be justified on the basis of user needs. The purpose and usage of the Financial Statements, and the nature of the accounting expertise available to the SMEs, will not be the same as for listed companies. These may provide justification for a separate set of IFRS for SMEs.
 - v. Where attention is devoted to adopt local Generally Accepted Accounting Principle (GAAP) for SMEs on a national basis and IFRSs for listed companies, this practice of adopting GAAP for SMEs may differ between countries when applied by such SMEs thus making comparability of Financial Statements difficult across national boundaries.
- (b)i. Most SMEs have a narrower range of users than publicly quoted companies. Users of SMEs Financial Statements are basically owners, lenders and suppliers of the merchandize and tax authorities.
- ii. In deciding the form of modification to be made to IFRSs, the needs of these users must be taken into consideration. Also the financial burden imposed by the compliance with IFRSs by these SMEs must be identified.
 - iii. There will have to be a relaxation of some of the measurement and recognition criteria in IFRSs in order to achieve the reduction in the costs and burden of implementation.
 - iv. Some disclosures, such as Earnings Per Share, segment reporting, etc, may not be relevant to SMEs and therefore may not be needed.
 - v. A review of these disclosures requirements in IFRSs will be required to assess their appropriateness for SMEs.
- (c) IFRSs for SMEs would not necessarily deal with all the recognition and measurement issues facing an entity but the key issues should revolve around the nature of the recognition, measurement and disclosure of the transactions of SMEs. In the case where the item is not dealt with by the standards, there are three alternatives:
- i. the entity can look to the full IFRSs to resolve the issue.
 - ii. management judgement can be used with reference to the framework and consistency with other IFRSs for SMEs.
 - iii. existing practice could be used.

Examiners' Report

The question tests candidates' understanding of the need to develop a set of International Financial Reporting Standards (IFRSs) specifically for Small and Medium

Entities (SMEs) in the context of developing economies. Parts b and c of the question request candidates to discuss the need for modification of existing IFRSs to meet the needs of SMEs and how items not dealt with by an IFRSs for SMEs should be treated respectively.

Most of the candidates demonstrated inadequate understanding of the requirements of the question. Consequently, their performance was below average. Candidates displayed inadequate knowledge of IFRSs viz-a-viz operation of SMEs.

IFRS is now the global phenomenon in Financial Reporting, hence, candidates at the final level of ICAN examinations are expected to update themselves on the principles and application of all IFRSs issued to date by IFAC, if they are to improve on their performance.

Strategic Financial Management

(PROFESSIONAL EXAMINATION II - May, 2011)

Solution To Question 4

- (a) Decision Support Systems are computer based information systems which give business managers the necessary interactive information support that help their decision – making. It is useful to financial managers in financial planning, financial modelling, and analysis of alternative courses of action and in financial decision making. Financial managers normally receive decision support by interacting with the computer system. Decision Support System use analytical models, specified databases, interactive computer based modelling process plus the financial managers intuitive knowledge and judgment to lend support for the making of semi-structured financial decision.
- (b) Application of spreadsheet packages which are particularly relevant to the financial manager include:
 - i. **Financial Planning Models**
Decision Support System based financial planning models can be used in constructing projected financial statements for periods longer than one year. These models are stored in the form of spreadsheets and they can be programmed to provide support for the financial managers where there are many assumptions to be made, where there is
 - need to show the effects of different assumptions;
 - where there is need to evaluate different financing plans and their effects on significant variables; and
 - where it is necessary to modify the initial plan based on the outcome of previous projections.

- ii. **Capital Budgeting Models**

The capital budgeting models (discounted cash flows) are used to support the financial manager in the financial analysis and evaluation of different capital investment alternatives. The

relevant data in the decision making process is semi-structured and the models help in making certain analysis such as 'what if' analysis, sensitivity analysis and so on.

Electronic spreadsheet packages such as EXCEL have in-built NPV and IRR functions in their application programmes.

iii. **Linear Programming Models**

The formulation of and the proffered solutions to linear programming problems lend itself to the utilisation of the computer-based DSS. In such problems, there may be many constraints and interacting variables which might make solutions to such problems very laborious and probably impossible under manual approach.

iv. **Decision Support Systems Analytical Models**

The use of Decision Support Systems entails a typical interactive analytical process comprising analysis such as 'what if' analysis, sensitivity analysis and so on. Here, alternative 'what-if-changes' in input variables can be entered by the financial manager into the computer. The Decision Support System software package, might show series of outcomes in response to say 'what-if-changes'. In this case, financial managers are not asking for pre-information, instead

they are examining all possible alternatives. They need not decide in advance what information they need. What they do is to utilise the Decision Support Systems to get the information they require to assist them in arriving at a decision.

Examiners' Report

The question tests candidates' knowledge of Decision Support Systems (DSS); the meaning and the usefulness of its analytical models to the Financial Manager.

Many candidates attempted the question but performance was poor particularly in part 'b' which carries twelve (12) marks. Most of the candidates exhibited shallow knowledge of part 'b' while part 'a' was fairly attempted.

Candidates' commonest pitfall in part 'b' was their inability to interpret and note the specific requirement of the question. Instead of explaining applications of spreadsheet packages, many candidates went ahead to write on accounting and audit software packages.

Candidates are advised to take time to read, understand and interpret questions appropriately and note their specific requirements before attempting them.

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