PORIFOLIO SELECTION AND RISK MANAGEMENT:

A CASE SIUDY OF UNITED BANK FOR AFRICA
LIMITED, UNION BANK OF NICERIA LIMITED,

AND UNITED NICERIA TEXTILES LIMITED

BY:

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Department of Business Administration

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DEDICATION

I dedicate this work to my father Alhaji Ibrahim Dikko, my mother Maryam, my wife Saratu, my children Muzzammil and Shukriyya and those who may be born in future, and to all who wish me well.

DECLARATION

I SAMAILA DIKKO hereby declare that this project
has been composed and written by myself. It has not been
previously presented in any application for a higher degree.
Sources of information are duely acknowledged.

SAMAILA DIKKO

November, 1988

CERTIFICATION

This project entitled "PORTFOLIO SELECTION AND RISK MANAGEMENT":

A case study of UNITED BANK FOR AFRICA LIMITED, UNION BANK OF

NIGERIA LIMITED AND UNITED NIGERIA TEXTILES LIMITED by

SAMAILA DIKKO meets the regulations governing the degree of

Master of Business Administration of Ahmadu Bello University, Zaria,

and is approved for its contribution to knowledge in business.

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Date

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Date

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ABSTRACT

The Nigerian economy is today in dire need of funds from both internal and external sources for investment. These funds are not forthcoming.

The problem is compounded by the fact that expertise in management especially investment menagement is virtually lacking. Perhaps because of the mathematics involved, few people have ventured into the field.

The study is undertaken in order to show that an investor could collect data of almost any security and analyse it, using simple statistical tachniques and see how such a security fares.

He could then form suitable portfolios based on simple guidelines. He could then decide whether to diversify within or across industries.

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INTRODUCTION

1.1 Introduction

With the global decline in fortunes for both nations and individual businesses, financial management, and especially investment management, is increasingly assuming a pivotal position.

Few people are aware that starting a new business is not an end in itself, and only few people would want to venture into what others have started and are doing. Few also would concede to others part of what they own so that ownership is not spread among a wide range of people.

Financial resources available for investment are scarce, yet people long for where they could put the little they have so that they could get some reasonable return on such investment.

Many people assume that merely having the funds is the end of the investment process, and all they need do is go for the stock that is making the rounds on the stock exchange and buy such. However, events now and again have shown that investment is not so simple, but has a scientific approach to it.

The limitation of the investible funds available and the urge to have maximum return on the little available, makes portfolio analysis and management assume a significant place in investment appraisal.

Meanwhile, the expertise available for this is scarce so many people do pose as if they were experts, using subjective, non analytical criteria in advising their clients. However, portfolio analysis and management has principally, an analytical and scientific approach to it.

1.2 Purpose of the Study

The study is intended to introduce the analytical and scientific basis for portfolio selection. It is intended to show that merely having the funds and the availability of securities with high returns is not enough. The investor has to possess a basis not only of knowing what security is profitable, but the combination of securities that would maximise his returns while reducing risk. It would therefore highlight this scientific basis for portfolio appraisal.

1.3 Limitation of the Study

The study is limited to a look at three securities: two in the financial industry, and one in the textile industry. Those in the financial industry are United Bank for Africa, UBA, and Union Bank of Nigeria, UBN. The firm in the textile industry is the United Nigeria Textiles Limited, UNTL.

The two firms in the finance industry would be appraised individually and then a portfolio is formed of the two. The performance of this portfolio would be looked at. Each of these firms is then combined into a portfolio with that in the textile industry and their performances are equally looked at.

Portfolio of only two assets are formed in order not to engage in any cumbersome mathematical analysis, since this work is only introductory.

The analysis would not go beyond the Markowitz diversification for this study, stage as this stage is adequate/in looking at portfolios and the risk associated with them which would be looked at in the study.

Data between 1978 and 1987 would be looked at, a reasonable period for such analysis.

1.4 Research Methodology

Scientific portfolio analysis cannot be based on what people feel or think, but what analysis has to show in terms of return and risk. This involves the analysis of historical data of a company. Most of such data are normally contained in the annual financial report about the performance of these firms. The rate of return could then be calculated from such data.

Analysing only a firm's rate of return looks simplistic but, it does not contradict more fundamental security analysis techniques like ratio analysis etc. All the security analyst need do is to convert his estimates into several possible rates of return and attach probabilities to them. This is the approach of this study.

1.5 Definition of Terms

Portfolio analysis, though could be simplified, involves the use of certain peculiar language, the meaning of which would be distorted if given ordinary literal interpretations. Therefore, defining some of these terms is necessary in order to make their meanings unambiguous and clear.

1.5.1 Expected Return

This is the rate of return an investor expects to realise from an investment. It is normally expressed as the mean value of the probability distribution of possible returns, and is denoted by E(r).

1.5.2 Risk

This is the probability of default, or the variability or uncertainty of realised return around expected return. It shows how much our observation differs from the expected return. It is denoted by variance 6^2 or more appropriately by the standard deviation 6.

1.5.3 Diversification

'Not putting all your eggs in one basket" or "spreading your risks", i.e. investing in more than one security by forming a basket of securities called a portfolio.

1.6 Order of Presentation

The study consist of four chapters. Chapter One is introductory. It throws light on the scope of the study, and definition of terms.

Chapter Two reviews existing literature relevant to this study.

Chapter Three analyses data by calculating the expected return and variance of the individual securities; and the correlations and covariances of portfolios.

Chapter Four concludes the work by bringing out our observations and pointing out appropriate recommendations.

CHAPTER TWO

2.1 Literature Review

Before the advent of more analytical and scientific approach to investment appraisal, especially in portfolio management, investment counsellors hitherto gave only "commonsense guidelines" to their clients, pretending it was valuable expert advice. Today, the atmosphere for investment and financial management is relatively packed with more than adequate techniques for appraising the suitability of investment projects.

However, few people have got the financial wherewithal to start new businesses, yet they long for where they could make profitable use of their money. The dilemma arises as to where they could employ money that would be able to achieve satisfactory return, while reducing risk to an appreciable level. Thus portfolio management assumes a critical position especially in these days of dwindling finances. Portfolio selection and risk management can be broken into three broad stages, viz:-

- Security Analysis
- 2. Portfolio Analysis and
- Portfolio Selection

Often times, many investors are found holding non-efficient portfolios.

This is due partly from advice normally given by investment counsellors,

often referred to as FINANCIAL INTERIOR DECORATORS, who give their clients

advice based not on expert or scientific analysis of the performance

of an investment, but on their client's personality. This is even though certain investments that are by themselves very risky and which certain class of people are advised to keep clear of, could be combined into efficient sets of investment opportunities.

Investment behaviour prefer more return to less and seek to avoid risk. However, the options open to an investor are not merely to pick between assets, but also to consider combination of these assets.

The risks associated with combining assets is very different from simple average of individual assets. "Most dramatically, the variance of a combination of two or more assets could be less than the variance of the assets themselves."²

2.2 Security Analysis

Security Analysis is the preamble of portfolio analysis and selection. Security Analysis involves estimating probability distribution of returns for each security, using historical data in many cases, the financial statements of the companies in question.³

The firms rate of return is normally calculated and used from these data. Analysing the rate of return looks simplistic, yet it does not contradict more fundamental security analysis techniques - analysing financial ratios, industry forecasts, or a look at the state of the economy. All the analyst need do, is convert his estimates into several possible rates of return and attach suitable probabilities. The other problems mentioned are then duely taken care of by these returns and their probabilities. This is

because variability of returns is a measure of risk grounded in fundamental analysis of the firm, its industry and the general economic outlook.

2.3 Expected Return

The expected return is perhaps the most important single factor in analysing the performance of a security. Hence risk of a security focuses on the dispersion of the security's return about its expected return.

Every reasonable investor wants more return to less and avoids risk. So he is on the look out for securities with the highest return in a particular risk class. The rate of return on an investment, is the relevant outcome of an investment. The expected value of the probability distribution of these returns. In other words,

$$E(r) = \sum_{t=1}^{n} P_{t}r_{t}$$
 Where P is the probability of
$$t^{th} \text{ rate of return and r}$$
 the t^{th} rate of return.

Rates of return below the expected values, represent disappointing outcomes to an investor, representing the injury, damage or loss he runs away from.

2.4 Risk Associated with a Security

Risk associated with a security must be analysed and understood in order to manage it. "If two projects have the same expected return, it does not imply that they also have the same desirability, as desirability depends on both the expected return and risk."4

If risk analysis is to be meaningful, a quantitative risk surrogate is required. And for this surrogate to be useful, it must be able to measure either directly or indirectly "the chance of injury or damage" so that it must be used synonymously with risk. 5

The variance of returns is normally used as this risk surrogate. Normally the standard deviation replaces the variance because it is stated in terms/ $^{\rm of}_{\rm rates}$ of return while variance talks of rates of return squared.

The standard deviation of a portfolio's return can be determined from (among other things) the standard of the returns of its component securities, no matter what the distribution. 6 Variance, 6 = E (ri - E(ri)) 2 Where i is the security.

The standard deviation could be got from the square root of the variance.

2.5 Portfolio Analysis

Merely analysing a security's performance and seeing it record a high expected return compared to risk does not advise for "putting all your eggs in one basket." It is better for you to "spread your risks."7 This means that investment has to be spread among basket of securities, not one, in order to reduce risk.

Portfolio Analysis is concerned with finding the most desirable group of securities to hold, given the properties of each of the securities.⁸ Portfolio Analysis rest on the following assumptions:

- (a) All investors maximise one period expected utility and exhibit diminishing marginal utility of wealth.
- (b) Investors risk estimates are proportional to the variability of the expected return.
- (c) Investors are willing to base their decision solely in terms of expected return and risk. That is utility, U, is a function of variability of return,r, and expected return, E(r).
 Symbollically,

$$U = f(E(r),r)$$

(d) For any given level of risk, investors prefer higher returns to lower returns. And for any level of expected return, they prefer lower risk to a higher one.

In summary, portfolio analysis is based on the premise that the most desirable assets are those which have:

- The minimum risk at any given expected rate of return or conversely,
- (ii) the maximum expected rate of return at any given level of risk.

Portfolios so formed are referred to as efficient portfolios.

2.6 Diversification

That a security has high expected return and low risk does not demand that all investible funds available be put into such a security. Such a behaviour though appealing, does not treat the risk involved, adequately. Several studies have shown that risk could only be spread by forming a basket of securities referred

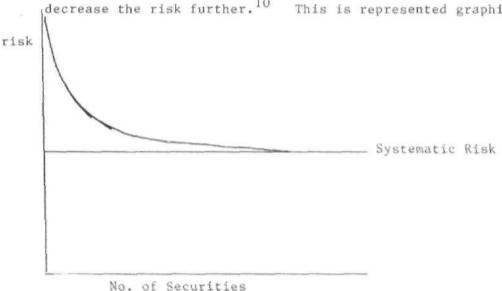
to as a portfolio.

This behaviour of taking more than one security for investment is what is referred to as diversification. We would look at two types of diversification: - Naive or simple diversification and the Markowitz diversification.

2.7 Naive; Diversification

Naive or simple diversification is a type of diversification that merely urge the spread of risk by asking that the number of securities held in a portfolio be increased. It discourages putting investible funds in only one but to spread it among several securities.

Naive diversification implies that a portfolio of 25 securities is 5 times better or more diversified than a portfolio of 5 different securities. But studies have shown that that could be true only to an extent. The studies show that as securities increase from one to ten and to fifteen, risk does decrease towards the systematic level of risk in the market. Adding more securities to the portfolio would not decrease the risk further. This is represented graphically below:-



2.8 Markowitz Diversification

Harry Markowitz, in his path breaking article published in 1952 has shown that there is a scientific approach to diversification. He showed that it is not enough to merely diversify, but that diversification has an analytical approach to it. And as stated already, simple diversification has its limits. Markowitz himself states it thus:-12

"Not only does the E-V hypothesis imply diversification, it implies the "right kind" of diversification for the "right season." The adequacy of diversification is not though by investors to depend solely on the number of different securities held. A portfolio with 60 different railway securities, for example, would not be as well diversified as the same size portfolio with some railroad, some public utility, mining, various sort of manufacturing, etc. The reason is that it is generally more likely for firms within the same industry to do poorly at the same time than for firms in dissimilar industries.

Similarly in trying to make variance small it is not enough to invest in many securities. It is necessary to avoid investing in securities with high covariances among themselves. We should diversify across industries because firms in different industries with different economic characteristics, have lower convariances than firms within an industry."

Markowitz diversification involves combining securities with less than perfectly positive correlation in order to reduce risk in a portfolio. Therefore, the lower the correlation between assets in a portfolio, the less risky the portfolio would be and Markowitz has shown that this does not affect the return of the portfolio.

2.9 Correlation of returns

Efficient diversification can be defined as "combining securities with less than perfectly, positively correlated returns." Correlation coefficients P(rho), vary between positive one and negative one, -1 < P > 1

If the correlation coefficient is positive, then the securities returns are perfectly, positive correlated i.e. they move in the same direction. This means that any adverse effect like a crash or loss due to any major indicator affecting one security, would also affect the other. If the correlation coefficient is negative, then they are perfectly, negatively correlated, meaning that they move in opposite directions. If the coefficient is zero, then it means that there is no correlation between the securities.

2.10 Data Required for Portfolio Analysis

Data required for portfolio analysis include:-

- 1. Expected return,
- 2. The variance of the returns and
- The covariance or correlation between the securities.

Their formulae follow respectively:

$$E(r_p) = \sum_{i=1}^{n} x_i E(r_i)$$

$$Var(r_p) = \sum_{i=1}^{n} x_i^2 \sigma_{ii} + \sum_{i=1}^{n} \sum_{j=1}^{n} x_i x_j \sigma_{ij}$$

Where x_{j} and x_{j} are the proportions of

i and j respectively

Portfolio Risk

This is expressed thus:

$$r_p^2 = E[r_p - E(r_p)]^2$$

This is better expressed if we define the covariance between securities.

The Covariance of $\mathbf{R_i}$ and $\mathbf{R_j}$ is

$$\sigma_{ij} = E([R_i - E(R_i)][R_j - E(R_j)]$$

$$= \sigma_i \sigma_j \quad ij$$

FOOTNOTES

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- (2) lbid. PP22
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CHAPTER THREE

DATA ANALYSIS

We would analyse historical data of the three securities extracted from their annual reports from 1978 to 1987, the securities return would be calculated from the return on asset (ROA), which is a ratio of earnings before interest and taxes (EBIT) to total asset.

Each security and the risk associated with it would be calculated since from Markowitz diversification recommendation, it would be better for an investor to spread his risks, we would form a portfolio of the securities in the financial industry and see how the expect return would be and the covariance between the securities. Each of the securities would then be combined into a portfolio with the security of the Textile industry. The expected return of each portfolio and the covariance would be found.

In this chapter, we would analyse the securities we want to look at:

Union Bank of Nigeria, United Bank for Africa and the United Textiles Limited.

Recently, the banking industry has been turning in huge profits.

rising but textiles has been the prices of the securities have been facing problem in obtaining raw materials and the threat from smugglers.

Union Bank and United Bank for Africa are among the three foremost banks. We would look at their individual and group performance. For United Nigeria Textile despite the problems in the industry, it has been doing fine. We would look at how far it has fared in terms of return and risk. They would be represented by X,Y and Z respectively.

Table 1

UNITED BANK FOR AFRICA LIMITED (HISTORICAL DATA)

YEAR	(1) EAT	(2) TAXES	(3) EBT	(4) INTEREST	(5) EBIT	(6) ASSET	(7) ROA = EBIT/ASSET
1978	17806	17168	34974	66083	101057	1093736	0.0924
1979	17754	17612	35366	80954	116320	1285168	0.0905
1980	20036	21331	41367	89567	130934	1715883	0.0763
1981	22715	20150	42865	63541	106406	2518970	0.0422
1982	26602	25808	52410	85881	138291	2826935	0.0489
1983	29279	26690	55969	114,731	170700	3409704	0.0501
1984	31482	24784	56266	101,502	157768	3567345	0.0442
1985	34193	29528	63721	162,173	225,894	4802882	0.0470
1986	42,081	39823	81904	182,896	264800	4617644	.0574
1987	73,653	32,238	105891	236924	342,815	5656712	0.0606

(Figures are in thousands)

Where:

EAT = Earnings after taxes

EBT = Earnings before taxes

EBIT = Earnings before interest and taxes

ROA = Return on asset

$$E(^{r}UBA) = ^{r}UBA$$
 $^{p}UBA = 0.04799$
 $E(^{2}UBA) = 0.0019051$
 $Var (^{r}UBA) = E(^{2}UBA) - (E(^{r}UBA))^{2}$
 $- .0019051 - (.04799)^{2}$
 $= 0.0019051 - 0.0023030401$
 $= 0.00039794$

Table 2

UNITED BANK FOR AFRICA LIMITED (DATA FOR EXPECTED RETURN)

r UBA	PUBA	r UBA P UBA	r ² UBA P UBA
.0419	.1	.00419	.0001756
.0470	.1	.00470	.0000221
.0446	.1	.00446	.0001989
.0422	.1	.00422	.0001781
.0489	.1	.00489	.0002391
.0501	.1	.00501	.0000251
.0442	.1	.00442	.0001954
.0470	.1	.0047	.0002209
.0574	.1	.00574	.0003295
.0566	.1	.00566	.0003204
		.04799	.0019051

TABLE 3

UNITED NIGERIA TEXTILES LIMITED (HISTORICAL DATA)

YEAR	EAT	TAXES	EBT	INTEREST	EBIT	ASSET	ROA = EBIT/ASSET
1978	5168	1290	6458	1046	7504	31095	0.2413
1979	5934	4158	10092	1472	11564	35352	0.3271
1980	2680	1641	4321	2026	6347	48305	0.1314
1981	2441	2299	4740	3003	7743	57578	0.1345
1982	1006	3127	4133	5534	9667	66407	0.1456
1983	175	2203	2378	3452	5830	47991	0.1215
1984	6627	4941	11568	2594	14162	46905	0.3019
1985	10792	7375	18167	2090	20257	54664	0.3706
1986	19279	11018	30297	2137	32434	66240	0.4896
1987	21325	14109	35434	18814	54248	82042	0.6612

Figures are in thousands

Table 4

UNITED NIGERIA TEXTILES LTD. (DATA FOR EXPECTED RETURN)

UNTL	UNTL	(rP)UNTL	(r ² p) UNTL
0.2413	0.1	0.02413	.0058226
0.3271	0.1	0.03271	.0106994
0.1314	0.1	0.01314	.0017266
0.1345	0,1	0.01345	.001809
0.1456	0.1	0.01456	.0021199
0.1215	0.1	0.01215	.0014762
0.3019	0.1	0.03019	.0091144
0.3706	0.1	0.03706	.0137344
0.4896	0.1	0.04896	.0239708
0.6612	0.1	0.06612	.0437185

$$E(^{r}UNTL) = (^{rp})UNTL = .29247$$
 $E(^{r}UNTL) = (^{r^{2}}p)UNTL = .1141918$
 $Var(^{r}UNTL) = E(^{r^{2}}UNTL) - [E(^{r}UNTL)]^{2}$
 $= .1141918 - (.29247)^{2}$
 $= .1141918 - .0855387$
 $= .0286531$
 $= 0.1693$

Table 5

YEAR	(1) EAT	(2) TAXES	(3)=(1)+(2) EBT	(4) INTEREST	(5)=(3)+(4) EBIT	(6) ASSET	ROA = EBIT/ASSET
1978	8621	27820	36441	15193	51634	1184962	.04357
1979	13547	9367	22914	25178	48092	1445206	.03328
1980	20788	14333	35121	33200	68321	1825362	.03743
1981	29801	30396	60197	45618	105815	2567166	.04122
1982	32623	32347	64970	71999	136969	3182226	.04304
1983	30611	30630	61241	99857	161098	3767011	.04277
1984	28751	28327	57078	124061	181139	4106182	.04411
1985	41550	39603	81153	124764	205917	4370053	.04712
1986	53849	49928	103777	134585	238362	5298550	.04499
1987	56158	27355	83513	238122	321635	5747581	.05596

Figures are in thousands.

$$E(rUBN) = .043349$$

$$E(r^2UBN) = ...0019109$$

$$Var(rUBN) = E(r^2UBN) - [E(rUBN)]^2$$

Table 6

UNION BANK OF NIGERIA LIMITED (DATA FOR EXPECTED RETURN)

UBN	UBN	r UBN p UBN	r ² UBNpUBN
04357	.1	.004357	.0001898
03328	.1	.003328	.0001108
03743	.1	.003743	.0001401
04122	.1	.004122	.0001699
04304	.1	.004304	.0001852
04277	.1	.004277	.0001829
04411	.1	.004411	.0001946
04712	.1	.004712	.0002220
04499	.1	.004499	.0002024
05596	.1	.005596	.0003132
		0.043349	.0019109

YUBN = Return on Union Bank of Nigeria

Pubn = Probability of the return

(It is assumed that the returns have the same probability of occuring)

DATA TO CALCULATE CORRELATION BETWEEN UNION BANK (X) AND UNITED BANK FOR AFRICA (Y)

0.018657288	0.015224868	0.016852527 0.015224868		
1.7918289 x 10 ⁻³	1.425289 x 10 ⁻³	1.5980844 x 10 ⁻³	-0.04233	-0.0377530
1.7850625 x 10 ⁻³	1.5093225×10^{-3}	1.6414125×10^{-3}	-0.04225	-0.0388500
1.8740241 x 10 ⁻³	1.4928177×10^{-3}	1.6725957 x 10 ⁻³	-0.04329	-0.0386370
1.8983449 x 10 ⁻³	1.5161678×10^{-3}	1.6965286×10^{-3}	-0.04357	-0.0389380
1.8472804 x 10 ⁻³	1.5266211 x 10 ⁻³	1.6793145×10^{-3}	-0.04298	-0.0390720
1.85761 x 10 ⁻³	1.524512×10^{-3}	1.6828395 x 10 ⁻³	-0.04310	-0.0390450
1.9158129 x 10 ⁻³	1.5387575 x 10 ⁻³	1.7169657 x 10 ⁻³	-0.04377	-0.0392270
1.8948609 x 10 ⁻³	1.5693244×10^{-3}	1.7244278×10^{-3}	-0.04353	-0.0396147
1.8740241 x 10 ⁻³	1.6016804×10^{-3}	1.732509×10^{-3}	-0.04329	-0.0400210
1.91844 x 10 ⁻³	1.520376×10^{-3}	1.7078496 x 10 ⁻³	-0.04380	-0.0389920
(Y')2	(X')2	(x') (Y')	Y,	X,

Where

 $X' = X - \overline{X}$ and $Y = Y - \overline{Y}$

and

 $\overline{\mathbf{x}}, \ \overline{\mathbf{Y}}$ are the expected values of

X and y respectively

Correlation between Union Bank and United Bank for Africa (X and Y) and their Covariance $\,$

P = Correlation Coefficient
= \(\sum_{XY} \)

$$= \sum_{XY} XY = \sqrt{\sum_{X} X^2 \sum_{Y} Y^2}$$

= 0.016852527

0.015224868 x 0.018657288

- = 0.016852527 0.00028405474
- = <u>0.016852527</u> <u>0.016853923</u>
- .99991717

 $Cov(X, Y) = Gx Gy \rho(x, y)$

- = .04371 x .01995 x .99991717
- = 0.0008719

The variance of the portfolio of securities X and Y

$$Var(^{r}p) = X^{2}\sigma_{x}^{2} + Y^{2}\sigma_{y}^{2} + 2\sigma_{x}^{2}\sigma_{y}^{2} + 2\sigma_{x}^{2}\sigma_{y}^{2}$$

$$= (.53)^{2} (.0000318) + (.5)^{2} (.00039794) + 2(.01995) (.005639)$$
$$+ 2(.005639)(.01995)(.0008719)$$

=
$$7.95 \times 10^{-6} + 9.9485 \times 10^{-5} + 1.9617409 \times 10^{-7}$$

= 0.0001076

In calculating the expected value of the portfolio, we assume that equal proportions of the securities are taken:

$$E(r_p) = XE(r_x) + YE(r_y)$$

$$= (0.5)(.043349) + (.5)(.04799)$$

$$= .0216745 + .023995$$

= 0.0456695

= 4.567%

Table 8

X	, Z	(x')(x')	(x') ²	(Z') ²
-0.038992	-0.26834	1.04631B × 10 ⁻²	1.520376 x 10 ⁻³	7.2006355 x 10 ⁻²
-0.040021	-0.25976	1.0395854 x 10 ⁻²	1.6016804 x 10 ⁻³	6.7475257 x 10 ⁻²
-0.0396147	-0.27933	1.1065574 x 10 ⁻²	1.5693244 x 10 ⁻³	7.8025248 x 10 ⁻²
-0.039227	-0.27902	1.0945117 x 10 ⁻²	1.5387575 x 10 ⁻³	7.785216 x 10 ⁻²
-0.039045	-0.27791	1.0850995 x 10 ⁻²	1.524512 x 10 ⁻³	7.7233968 x 10 ⁻²
-0.039072	-0.28032	1.0952663 x 10 ⁻²	1.5266211 x 10 ⁻³	7.8579302 x 10 ⁻²
-0.038938	-0.26228	1.0212658 x 10 ⁻²	1.5161678 x 10 ⁻³	6.8790798 x 10 ⁻²
-0.038637	-0.25541	9.8682761 x 10-3	1.4928177 x 10 ⁻³	6.5234268 x 10 ⁻²
-0.03885	-0.24351	9.4603635 x 10-3	1,5093225 x 10 ⁻³	5.929712 x 10-2
-0.037753	-0.22635	8.5453915 x 10 ⁻³	1,425289 x 10 ⁻³	5.1234322 x 10 ⁻²
		0.10276	0.015224858	0.69572879

Where $X' = X - \overline{X}, Z' = Z - \overline{Z}$

and

X,Z are the expected values of X and Z respectively

Correlation between Union Bank and United Nigeria Textiles Limited (X and Z) and their covariance

$$= \underbrace{\sum_{x \in Z}}_{x^2 \sum z^2}$$

= 0.10276

0.015224858 x 0.69572879

- 0.10276
 - 0.010592372
- = 0.10276 0.10291925
- = .99845266

Cov (x,z) =
$$\mathbf{6}_{x} \mathbf{6}_{z} \mathcal{R}_{x,z}$$
)
= 0.04371 x 0.1693 x .99845266
= 0.00738865

In finding the variance of the portfolio it is assumed that equal amounts of the securities are employed.

$$Var (^{r}_{p}) = X^{2} \nabla_{x}^{2} + Z^{2} \nabla_{z}^{2} + 2XZ \quad Cov(X,Z)$$

$$= (.5)^{2} (.0000318) + (.5)^{2} (.0286531) + 2(.005639) (.1639) (.00738865)$$

= .0071853076

The expected value of the portfolio using equal proportions of the securities: $E(r_p) = XE(r_x) + ZE(r_z)$

- = (.5)(.043349) + (.5)(.29247) = .1679095
- = 16.791%

DATA TO CALCULATE CORRELATION BETWEEN UNITED BANK FOR AFRICA(Y) AND UNITED NIGERIA TEXTILES (Z)

Ϋ́	, Z	(Y')(Z')	(Y') ²	7(,2)
-0.04380	-0.26834	1.1753292 x 10 ⁻²	1.91844 x 10 ⁻³	7.2006355 x 10 ⁻²
-0.04329	-0.25976	1.124501×10^{-2}	1.8740241 x 10 ⁻³	6.7475257 x 10 ⁻²
-0.04353	-0.27933	1.2159234 x 10 ⁻²	1.8948609 x 10 ⁻³	7.8025248 x 10 ⁻²
-0.04377	-0.27902	1,2212705 x 10 ⁻²	1.9158129 x 10 ⁻³	7.785216×10^{-2}
-0.04310	-0.27791	1.1977921×10^{-2}	1.85761 x 10 ⁻³	7.7233968 x 10 ⁻²
-0.04298	-0.28032	1.2048153 x 10 ⁻²	1.8983449 x 10-3	7.8579302 x 10 ⁻²
-0.04357	-0.26228	1.1427539 x 10 ⁻²	1.8740241 x 10 ⁻³	6.8790798 x 10 ⁻²
-0.04329	-0.25541	1.1056698 x 10 ⁻²	1.8740241 x 10-3	6.5234268 × 10-2
-0.04225	-0.24351	1.0288297 x 10 ⁻²	1.7850625 x 10 ⁻³	5.929712 x 10 ⁻²
-0.04233	-0.22635	9.5813955 x 10 ⁻³	1.7918289 x 10 ⁻³	5.1234322 x 10 ⁻²
		0.11375024	0.11375024 0.018657288 0.69572879	0.69572879

Where

= Y - \overline{Y} , Z = Z - \overline{Z}

and

 $\widetilde{Y},\widetilde{Z}$ are the expected returns of Y and Z respectively

Correlation between United Bank for Africa and United Nigeria Textiles Limited (Y an Z) and their Covariance

$$= \sum_{YZ} \sqrt{\sum_{Y}^{2} \sum_{Z}^{2}} = 0.11375024$$

$$= 1.8657288 \times 10^{-2} \times 0.69572879$$

.11393161

- 0.99840808

Cov
$$(Y,Z) = 6y 6z/(Y,Z)$$

- = .01995 x 0.1693 x 0.99840808
- = 0.0033721582

The variance of the portfolio securities Y and Z assuming equal proportions

$$Var(r_p) = Y^2 \sigma_y^2 + Z^2 \sigma_z^2 + 2\sigma_y \sigma_z^2 Cov(Y,Z)$$

$$= (.5)^{2}(.00039794) + (.5)^{2}(.0286531)$$
$$+ 2(0.01995)(0.1693)(0.0015677)$$

=
$$9.9485 \times 10^{-5} + 7.163275 \times 10^{-3} + 1.0589923 \times 10^{-5}$$

= 0.0072733499

The expected Value

= 17.023%

$$E(r_p) = YE(r_y) + ZE(r_z)$$

= (.5) (.04799) + (.5) (.29247)
= .023995 + .146235
= .17023

CHAPTER FOUR

OBSERVATIONS RECOMMENDATION AND CONCLUSION

This chapter would bring out our observations from the analysis. We would then be in a position to bring out suitable recommendations. It would bring us to the end by concluding the study.

4.1 Observations

In this chapter, we would bring out our observations by bringing out the items required to look at the performance of a portfolio. These include, the correlation between the assets, their covariances, the variance of the portfolio and the expected return of the portfolio. We would then be in a position to recommend which portfolio would be better as an investment opportunity.

However, a look at the individual securities is necessary as a beginning, to see how each fares in relation to the others.

4.1.1 The Individual Securities

Among the securities in the financial industry, Union Bank has an expected return of 4.34% while United Bank for Africa has an expected return of 4.8%. However, the risk associated with United Bank for Africa is 0.01995 compared to Union Bank's risk of 0.005639. This means that though with a slight difference in expected return, United Bank for Africa is almost 3.5 times more risky than Union Bank. United Nigeria Textiles on the other hand has an expected return of about 29.25% with a risk of .1693 associated with it.

4.1.2 The Portfolios

The covariance between Union Bank and United Bank for Africa is .0008719. And the covariance between Union Bank and United Nigeria Textiles is 0.00738865 and that between United Bank for Africa and United Nigeria Textiles is 0.0033721582.

The expected returns, (assuming we use equal proportions of each security in their respective portfolios) are 4.57%, 16.79% and 17.02% respectively.

The expected return for the portfolio of United Nigeria Textiles and United Bank for Africa is 17.02% compared to 16.79%, for that of the portfolio of Union Bank and United Nigeria Textiles. And the covariance in the latter case is higher than in the former.

The portfolio of Union Bank and United Bank for Africa on the other hand has a lower expect return and a much higher covariance.

4.1.3 The Correlation between Assets

The correlation between the assets do not reveal much. They seem to exhibit the same range of correlation.

Union Bank and United Bank for Africa have between them a correlation of 0.99991717 (almost); Union Bank and United Nigeria Textiles - 0.99845266; and that between United Bank for Africa and United Nigeria Textiles is 0.99840808. The later covariance is though the smallest compared to the other two, even though it is equally closer to one.

4.2 Recommendations

In our recommendations, we would point out the security(ies) which is/are a better investment opportunity, based on their return and risk associated with those returns.

4.2.1 Securities to take

Among the securities, we would divide them into two, those in the financial industry on one hand and that in the textiles industry on the other.

In the financial industry, Union Bank is a much better security to invest in compared to United Bank for Africa because the return is not greatly below that of United Bank for Africa while the risk is 3½ times less.

United Nigeria Textiles on the other hand has a high expected return of 29.25% with a risk of .1693. It has a high risk, but this high risk is compensated for by the high expected return.

Therefore, the risk lover should go for United Nigeria Textiles while the risk averse should go for Union Bank of Nigeria. However, we have indicated that portfolios are better investment opportunities than single securities, so we now recommend the portfolio that is suitable.

4.2.2 The Portfolio to choose

All the portfolios under consideration have nearly the same correlation, but the covariances do differ.

So in choosing the most diversified and most profitable portfolio, we choose the one with the least covariance. The portfolio of United Bank for Africa and United Nigeria has the least covariance (.0033721582) followed by the portfolio of Union Bank and United Nigeria Textiles. Then comes that of Union Bank and United Bank for Africa.

The expected returns on the other hand are 17.02% for the United Bank for Africa/United Nigeria Textiles; and only 4.57% for the Union Bank/United Bank for Africa portfolio.

This shows that the portfolio of United Bank for Africa is the better investment opportunity and therefore should be chosen. That of United Bank for Africa/Union should be shunned.

4.3 Conclusion

The main thrust of this study is to print out how investment portfolios are formed. It is not a question of how one feels about a security, no, analysis must be conducted to bring out the expected return and risk involved.

But it is not even enough to merely invest in any particular security. Forming a basket of securities is a far better alternative. This route, even reduces the risk, than if they were considered individually.

The study considered only portfolios of two securities, but with the availability of computer programming, any number of securities could be put into a portfolio and analysed.

Expertise is in short supply, but it should not be an alibi for using hunches for appraising portfolios.

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APPENDIX

UNITED NIGERIAN TEXTILES LIMITED

AND ITS SUBSIDIARY COMPANIES

FIVE-YEAR FINANCIAL STATEMENT

	1982	1981	1980	1979	1978
	M.000	N'000	N.000	M.000	M.000
SSETS EMPLOYED:					
Fixed Assets	65,782	47,741	36 402	30,794	32,858
Investments in Subsidiary Companies	-	3,000		4,335	
Net Current Assets/(Liabilities)	(471)	5.377	11,143	(246)	(2,465)
Deferred Revenue Expenditure		25	234 •	469	702
Preliminary Expenses	144	82	82 .	/	100
Pre-Production Expenses	952	1,378	444 \	-	
	№66,407	N57.578	N48,305	N35,352	N31,095
FINANCED BY:					
Ordinary Share Capital	17,000	17 000	17.000	17,000	17,000
Capital Reserve	650	650	650	650	650
Revenue Reserve	9,211	9.041	8.027	7.093	5,226
Loans and Advances	24,028	16 622	10,275	4.092	3,584
Minority Interest	7,788	8.293	7,735	4.208	3.744
Staff Gratuities	7,790	5,972	4,618	2.309	891
	₩66,467	N57,578	N48.305	N35,352	N31,095
RESULTS					
Sales to third parties	152,861	139,501	136,053	107,909	67,723
Profit before Taxation	4,133	4.740	4,321	10,092	6,458
Taxation	3,127	2,299	1,641	4,158	1,290
Profit after Taxation	1,006	2,441	2,680	5,934	5,168
Profit Attributable to UNTL	1,360	2,204	2,379	5,192	4,459
Dividends	1,190	1,190	1,445	3.400	1,700
Profit for the year Retained	170	1,014	934	1,792	2,759
Dividends per Share	3.5k	3.5k	4.25k	10.0k	5.0k
Earnings per Share	4.0k	6.48k	7.00k	15.271	13.11k
Net Assets per Share	192.09k	165 05k	139.84k	102.60k	89.39k

NOTE:

Dividends, Earnings and Net Assets per Share are calculated on the issued and paid-up capital of 34,000,000 ordinary shares of 50k each.

Group Financial Summary

	1987 N'000	1986 N'000	1985	1984 N'000	1983 N'000
Share capital Capital reserve Revenue reserve	25,500 1,505 28,301	25,500 1,505 19,499	17,000 650 18.293	17,000 650 12,439	17,000 650 9,110
Shareholders' interest Loans Minority interest	55,306 15,165 11,571 82,042	46,504 9,708 10,028	35,943 9,607 9,114 54,664	30,089 9,245 7,571 46,905	26,760 14,431 6,800 47,991
REPRESENTED BY Fixed assets	58,305	57,946	59,217	56,625	64,547
Investments Net current	1,350	1,350	1,350	1,350	1,350
assets/(liabilities) Preliminary and	47,603 107,258	29,103 88.399	13,328 73,895	4,761 62,736	60,271
preproduction expenses Deferred liabilities	(25,216)	216 (22,375) 66,240	432 (19,663) 54,664	726 (16,557) 46,905	1,018
TURNOVER, PROFITS, TAXATION AND DIVIDENDS Turnover	312,116	211.317	174.093	141,356	136,809
Profit before taxation Taxation Profit after taxation Profit attributable to UNTL Dividend	35,434 14,109 21,325 17,676 10,200	30,297 ,11,018 19,279 17,356 7,650	18,167 > 7.375 10,792 8,928 2,975	11,568 4,941 6,627 5,454 2,125 =====	2,378 2,203 175 798 850
Dividend per share Earnings per share Net assets per share	20.00k 37.25k 108.44k	15.00k 34.03k 91.18k	8.75k 26.26k 105.71k	6.25k 16.04k 88.50k	2.50k 2.35k 78.71k

Note: The comparative figures per share have been prepared on the basis of the shares (51,000,000) at 31st December, 1987.

AND ITS SUBSIDIARY COMPANY

VALUE ADDED STATEMENT FOR THE YEAR ENDED 31ST DECEMBER, 1979

"Value added" represents the additional wealth which the Group has been able to create by its own and its employees' efforts. This statement shows the allocation of that wealth between employees, shareholders, government and that retained for the future creation of more wealth.

	19	7 9	1 9	78
	₩000	₩'000	₩'000	₩'000
External sales		107,909		67,723
Other external income	_	178		508
Less: Cost of production and payment for other services	_	108,087 69,383		68,231 41,898
Value added by the Group	-	38,704		26,333
Applied as follows -				
In payment of employees (salaries, wages, bonus, gratuities and other benefits)		23,267		16,142
In payment for the provision of funds: Interest on borrowings Dividends to external shareholders	1,472 3,765		1,046 1,980	
		5,237		3,026
In payment of Income Tax		4,158		1,290
Retained for future maintenance and development:	3,818		3,042	
Added to reserves: Parent company Subsidiary company	1,552 672		2,245 588	
		6,042		5,875
Value added by the Group	,	38,704		26,333

AND ITS SUBSIDIARY COMPANIES

VALUE ADDED STATEMENT FOR THE YEAR ENDED 31ST DECEMBER, 1981

"Value Added" represents the additional wealth which the Group has been able to create by its own and its employees' efforts. This statement shows the allocation of that wealth between employees, shareholders, government and that retained for the future creation of more wealth.

	3	1981		980
	N.000	W.000	#1000	N'000
External Sales		139,501		136,053
Other External Income		312		169
		139,813	·	136,222
Less: Cost of Production and Payment for other Services		101,391		92,359
Value Added by the Group		N38,422		N43,863
Applied as follows:				
In Payment of Employees (Salaries, Wages, Bonus, Gratuities and other Benefits)		27,788		33,996
In Payment for the Provision of Funds:			•	•
Interest on Borrowings	3,003		2,026	
Dividends to External Shareholders	1,401		1,698	75 9 71 4
		4,404		3,724
In Payment of Income Tax		2,299		1,641
Retained for future Maintenance and Development		2,866		3,415
Added to Reserves:		•		
Parent Company	1,014		992	
Subsidiary Company	51	1,065	<u> 96</u>	1,037
Value Added by the Group		N38,422		N43,863



AND ITS SUBSIDIARY COMPANIES

STATEMENT OF VALUE ADDED FOR THE YEAR ENDED 31ST DECEMBER, 1983

"Value Added" is the wealth which the Company has been able to create by its own and its employees efforts, and explains how that wealth has been allocated between Employees, Government, Shareholders and that retained for the future creation of more wealth.

OUR EARNINGS CAME FROM:

	1983 ₩′000	1982 N'000
Sales	136,809	152,861
Other Income received	1,773	882
Sales and Other Income together amounted to	138,582	153,743
Less: Cost of Materials and Services employed to		
generate those earnings	85,094	102,275
SURPLUS EARNED	53,488	51,468
	*******	*******
Which was Applied as Follows:		
TO PAY EMPLOYEES WAGES, SALARIES AND OTHER		
BENEFITS	39,775	39,428
TO PAY PROVIDERS OF CAPITAL:		
Interest on Loans	3,452	2,116
Dividends to Shareholders	850	1,190
TO PAY GOVERNMENT TAX	2,203	3,127
TO PROVIDE FOR MAINTENANCE OF ASSETS AND EXPANSION :		
Depreciation	7,260	5,437
Retained Profit/(Loss)	(52)	170
	53,488	51,468



AND ITS SUBSIDIARY COMPANIES

STATEMENT OF VALUE ADDED

Value added represents the additional wealth which the Company and its subsidiary companies have been able to create by their own and their employees' efforts. This statement shows the allocation of that wealth between employees, shareholders and government and that retained for the future creation of more wealth.

1:	985	1984	
₩.000	N'000	N.000	N.000
	174,093		141,356 1,566
	1,100		1,500
	175, 193	•	142,912
	107,977		81,333
	67,216		61,579
	40.40.4		
	40,464		40,276
2,975		2,125	
2,090		2,594	
	5,065		4,719
	2 075		5.441
	7,375		3,441
•			
		8,314	
5,732		3,329	
•	14,312		13,143
	67,216		61,579
	2,975 2,090	174,093 1,100 175,193 107,977 67,216 40,464 2,975 2,090 5,065 7,375 8,470 110 5,732	N'000 N'000 N'000 174,093 1,100 175,193 107,977 67,216 40,464 2,975 2,090 5,065 7,375 8,470 110 5,732 14,312 67,216



Statement of Value Added

Value added represents the additional wealth which the Company and its subsidiary companies have been able to create by their own and their employees' efforts. This statement shows the allocation of that wealth between employees, shareholders and government and that retained for the future creation of more wealth.

	1987		1986	
• •	N'000	%	H'000	%
Group sales of products (**)	312,116	100.0	211,317	100.0
Other income received ,	2,145	0.7	3,894	1.8
	314,261	100.7	215,211	101.8
Less: Purchases and services ()	212,949	68.2	137,856	65.2
Value added	101,312	<u>32.5</u>	_7 <u>7</u> ,35 <u>5</u>	36.6
Applied as follows:				
To pay employees	,			
Salaries; wages, pensions and social benefits	40,208	12.9	37,968	18.0
To pay providers of funds				
Dividends to shareholders	10,200	3.3	7,650	3.6
interest on loans	18,814	6.0	2,137	1.0
To pay government				
Income tax	13,937	4.5	10,448	4.9
To provide for maintenance of assets and				
expansion				
Depreciation	9,179	2.9	8,876	4.2
Deferred taxation	172	0.1	570	0.3
Retained profit	8,802	2.8	9,706	4.6
	101,312	32.5	77,355	36.6

Profit & Loss Account

FOR THE YEAR ENDED 30th SEPTEMBER, 1979

			1979		1978
	Notes	N'000	N'000	M,000	У,000
Gross earnings	14	102,372		96,691	
Interest paid	15	25,178		15,193	
Net earnings			77,194		81,498
Overhead expenses	16	42,404	v	35,340	
Provision for bad and doubtful accounts		8,486		7,130	
Depreciation		3,390		2,587	,
			54,280	-	45,057
Profit before taxation			22,914		36,441
Taxation	17		9,367		27,820
Profit after taxation			13,547		8,621
Appropriation:					
Transfer to statutory re	serve	3,400		2,500	
Dividends	18	4,536		3,456	
		0	7,936		5,956
Profit for the year retai	ned		5,611		2,665
Earnings per N1 share					-
(adjusted)			37k	TDA.	24k

The notes on pages 19 to 25 form part of these accounts.

		198	n	1979	
	Notes	N.000	N'000		4,000
Gross earnings	13	138,942		102,372	
Interest paid√	14	33,200		25,178 🗸	
Net earnings			105,742		77,194
Overhead expenses	15	57,766		42,404	
Provision for bac and doubtful	j	8,303	0	8,486	
accounts		0,303		0,400	
Depreciation		. 4,552		3,390	
			70,621		54,280
Profit before taxation		F	35.12		22,914
Taxation	16	3	14,33		9,367
Profit after taxation		RE	20.788		13,547
Appropriation:-	1	1	1		*
Transfer to statutory reserve		5,197	100 C	3,400	
Dividends	17	6,532		4,536	
			11,729		7,936
Profit for the year retained			9,059	¥ ½	5,611
Earnings per N1 (adjusted)	share		57k	0	37k

THE RESERVE OF THE PROPERTY OF

The notes on pages 17 to 23 form part of these accounts.

UNION BANK OF NIGERIA LIMITED

BALANCE SHEET as at

30th September	1985	1984	1983	1982	₩ '000 1981
USE OF FUNDS Cash and short-term funds Investments Loans and Advances Other Assets Fixed Assets	2,285,996 5,469 1,492,980 522,546 63,062	2,120,206 3,214 1,534,564 370,125 56,225	1,900,201 2,964 1,536,949 274,390 52,507	1,235,039 1,618 1,654,710 245,285 45,574	771,697 1,393 1,395,593 367,922 30,561
Total Assets	4,370,053	4,084,334	3,767,011	3,182,226	2,567,166
SOURCE OF FUNDS Share Capital Statutory Reserve Loan Stock Redemption Fund General Reserve Profit and Loss Account	54,432 66,137 8,890 77,000 423	54,432 60,943 4,445 53,500 177	54,432 53,755 43,000 635	54,432 46,102 28,500 342	36,288 37,947 10,000 20,683
Shareholders' Fund 11% Loan Stock 1988/1992 Deposits Taxation, dividends, & Other	206,882 40,000 3,380,453	173,497 40,000 3,381,794	151,822 40,000 3,275,801	129,376 31,831 2,853,545	104,918 2,318,280
Liabilities	742,718	489,043	299,388	167,474	143,968
	4,370,053	4,084,334	3,767,011	3,182,226	2,567,166
Contingent Liability	456,099	531,373	460,165	579,764	755,790

PROFIT & LOSS ACCOUNT for the year ended

20:1-2	1005	4004	1000	4000	₩ '000
30th September EARNINGS	1985	1984	1983	1982	1981
Gross Earnings Less: Interest Paid	415,737 124,764	378,988 124,061	323,178 99,857	284,838 71,999	201,817 45,618
Net Earnings	290,973	254,927	223,321	212,839	156,199
EXPENSES Overhead Expenses Bad and Doubtful Debts (Prov.) Depreciations	139,640 56,027 14,153	131,405 53,129 13,315	115,638 34,739 11,703	109,471 28,955 9,443	76,234 13,930 5,838
	209,820	197,849	162,080	147,869	96,002
Profit Before Taxation Taxation	81,153 39,603	57,078 28,327	61,241 30,630	64,970 32,347	60,197 30,396
Profit After Taxation Unappropriated Profit b/f	41,550 177	28,751 635	30,611 342	32,623 20,683	29,801 14,864
	41,727	29,386	30,953	53,306	44,665
APPROPRIATIONS Statutory Reserve Loans Stock Redemption Fund General Reserve Bonus Issue Proposed Dividend	5,194 4,445 23,500 8,165	7,188 4,445 10,500 7,076	7,653 14,500 8,165	8,155 18,500 18,144 8,165	7,450 10,000 6,532
	41,304	29,209	30,318	52,964	23,982
Unappropriated Profit c/f	423	177	635	342	20,683
		1 4 4			

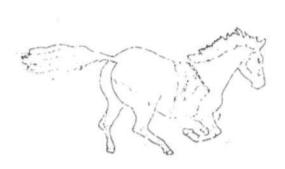
Proff and Loss Account for the year ended 30th September, 1987

3.	-	19	387	19	986
*	Note	M,000	₩'000	₩'000	₩'000
Gross earnings Interest paid	16 17	611,276 238,122		476,762 134,585	/
Overhead expenses Provision for bad and doubtful	18	212,405	373,154	169,022	342,177
account Depreciation	19 7	60,467 16,769		55,041 14,337	
			289,641	and the same of th	238,400
Profit before taxation Texation	20		83,513 27,355		103,777 49,928
Profit after taxetion			56,158		53,849
Appropriations:		*			
Transfer to statutory reserve	9	7,020		6,731	
Transfer to loan stock redemption fund	10	4,445		4,445	
Divident's	22	10,160		8,709	
Patienal Economic Recovery Fund levy		grant grant are not		4,582	
		*	21,625		24,467
Retained a offic for the year transferred to revenue receive (note 12)	6		34,533	•	29,382
	0		CHICAGO STORES		102770.0050,004
Earnings per (41 share (adjusted)			. 88k		85k

The notes on pages 22 to 20 form part of these accounts.

for the year ended 30th September \

Cash and short term funds Bills discounted Quoted investments Unquoted investments	198 N'00 494,27 740,76 1,51	00 N°C 78 254,9 61 516,7 18 1,3	N'000 254,950 516,747 1,393		N°000 201,926 468,946		1979 '000 ,698 ,791	0 N'000 3 250,012 99,572	
Loans and advances Other assets Fixed assets	1,654,71 245,28 45,57	0 1,395,5 5 367.9	93 22	931,6 199,0 22,8	54 47	633, 183, 19,	907	658,367 159,947 17,048	
Total assets Less: Other liabilities	3,182,226 167,474		8	1,825,30	52 27	1,445.2	206	1,184,962 254,596	
	3,014,752	2 423 10	8	1,/06,23		1,352,5		£30,566	
Represented by:- Share capital Statutory reserve General reserve Profit and loss account	54,432 46,102 28,500 342	37.94	7	36.28 30,49	7	36,20 25,30 — 5,80	00	30,240 21,900	
Shareholders' lunds V Deposits for 11 loan stock 1988/1992	129,376	104,918		81.649		67,39	-	6,242 58,382	
Capital funds Customers' deposits Negotiable certificates of deposit	161,207 2,853,545	104,918 2,318,280		81,649 .624,586		67,39	3	58,382 822,784	
Capital employed	3,014,752	2,423,198	_	700.000	-	3,000		49,200	
Acceptances, etc.	579,764	755,790	-	706,235 487,246	-	352,569 230,211	78.0	930,366	
	284,838 64,970 32,623 8,165	201,817 60,197 29,80; 6,532	EUTE	138.942 35,121 20,788 6,532		02,372 22,914 13,547 4,536		96 091 36 441 8 621 3 456	
arnings per share (adjusted) vidends per share (adjusted)	60k 15k	55k 12k		38k		25k		16k	
vidend cover tal assets per share (adjusted)	4		3.1	12k times :	3.0	8k times	2.5	Gk times	



Five Year Financial Summary

FIVE YEAR FINANCIAL SUMMARY FOR THE YEAR ENDED SOTH SEPTEMBER,

					000
USE OF FUNDS	1987 ♠'′000	1986 ∯′000	1985 N'000	1984 ₩'000	1983 ₩ ′000
Cash and short-term funds Bills discounted Quoted investments Unquoted investments Loans and advances Other assets Fixed assets	2,119,228 1,191,873 2,619 3,850 1,872,215 456,880 100,916	1,693,010 1,416,189 2,619 2,850 1,845,956 274,535	372,981 1,913,015 2,364 3,105 1,492,980 522,546 63,062	402,352 1,717,854 2,364 850 1,556,412 370,125 53,225	362,600 1,537,601 2,364 600 1,536,949 274,390 52,507
Total assets Less: Other liabilities	5,747,581 1,285,299	5,208,550 953,686	4,370,053 742,718	4,100,182 510,891	3,767,011 299,388
	4,462,282	4,339,964	3,627,335	3,595,291	3,467,623
Represented by: Share capital Statutory reserve Loan stock redemption fund Exchange difference reserve Revenue reserve	63,504 81,274 17,780 44,069 141,964	54,432 74,254 13,335 41,191 116,503	54;432 66,137 8,890 - 77,423	54,432 60,843 4,445 — 53,677	54,432 53,755 — - - - - -
Shareholders' funds Shareh	348,591- 40,000	299,715	206,882 40,000	173,497 40,000	151,822 V 40,000
Capital funds Customers' deposits	388,591 4,073,691	339,715 4,000,249	246,882 3,380,453	213,497 3,331,794	191,822 3,275,801
FUNDS EMPLOYED	4,462,282	4,339,964	3,627,335	3,505,291	3,467,623
Acceptances, etc.	511,946	475,192	456,009	531,373	460,165
Profit before taxation Profit after taxation Dividends	611,276 83,513 56,158 10,160	476,762 103,777 53,849 8,709	415,737 81,153 41,550 8,165	378,988 57,078 28,751 7,076	323,178V 61,241V 30,611V 8,185 V
Earnings per 1 share (adjusted) Dividends per 1 share	. 88k	85k	65k,	45k	48k
(adjusted) Dividend cover	16k 5,5 times	14k 6.2 times	13k 5.1 times	11k 4.1 times	13k 3.8 times
Total assets per ++1 share (adjusted) Net assets per ++1 share	₩90.51	₩83,44	₩68.81	₩64.66	₩59.32
(adjusted)	549k	272k	326k	273k	。 239k

NOTES: (1) Earnings per share are based on profit after tax and are calculated on the number of immed ordinary shares at 30th September, 1987.

(2) Dividends per chare are calculated on the number of issued ordinary shares at 30th September, 1997.

Profit and Loss Account

for the year ended 31st March, 1979

Access to the first transfer of the first tr					
		1979	9	1978	F
Total Company	Note	N'000	N'000	N'000	N,000
Earnings from:-		70.070		10.000	
Interest		73,278		48,506	
Commission and transfer charges		26,604		22,104	
Foreign exchange	10	4,450		4,178	
Other Income	10	1,693	106,025	2,102	76,890
to to one of the late.					
Interest paid:- Other banks in Nigeria		574		1	
Other banks in Nigeria		24,497	25,071	10,806	10 807
Other		24,437	20,071	10,606	10,807
Net earnings			80,954		66,083
Overhead expenses	11	33,948		23,553	
Provision for bad and doubtful debts		8,272		5,500	
Depreciation of fixed assets		3,368	45,588	2,056	31,109
				The state of the s	
Profit before taxation			35,366		34,974
Taxation	12		17,612		17,168
Profit after taxation			17,754		17,806
Unappropriated profit brought forward			546		530
			18,300		18,336
Appropriations:-					*
Statutory reserve	8	4,438		4,452	
General reserve	8	8,500		11,338	
Dividends	13	5,000	17,938	2,000	17,790
Unappropriated profit carried forward			362		546

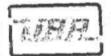
The notes on pages 18 — 21 form part of these accounts.

Profit and L: Account

for the year ended 31st March.	1981			1980		
	Note	M,000	34,000	900°14	54,000	
Earnings from:—						
Interest Commission and transfer charges Foreign exchange Other income	10	125,889 40,058 6,311 4,577	176,835	89,743 28,798 3,639 2,519	124,699	
Interest paid:— Other banks in Nigeria Other		63,532	63,541	104 35,028	35,132	
Net earnings Overhead expenses Provision for bad and doubtful debts Depreciation of fixed assets	11	58,424 6,073 5,932	70,429	41,203 2,335 4,662	48,200	
Profit before taxation Taxation	12		42,865. 20,150		41,367 21,331	
Profit after taxation Unappropriated profit brought forward			22,715 389 23,104		20,036 362 20,398	
Appropriations:— Statutory reserve General reserve Dividends	8 8 13	5,776 11,000 6,000	22,776	5,009 9,000 6,000	20,009	
Unappropriated profit carried forward			328	-	389	

The notes on pages 18 to 22 form part of these accounts.







Statement of Value Added

Year to 31st March,		987	p.'		986	
284	₩'000	₩'000	%	W,000	49 '000	%
Gross earnings Interest paid		569,172 (236,924)	100.0 (41.6)	•	441,965 (182,896)	100.0 (41.4)
(Y) (A) (A)		332,248	58.4		250,089	F . 0
		332,240	50.4		201.,009	55.6
Bought in materials and services Bad and doubtful debts	(63,964) (57,793)	121,777	(11.2) (10.2)	(49,034)	(27,687)	(5.7)
VALUE ADDED		210,471	37.0		171 402	38.8
Applied in the following way:			marke A		Carrierate Sales	LOALLES
, , , , , , , , , , , , , , , , , , , ,						
TO PAY EMPLOYEES						
Salaries, wagus and tringe penef	its	91,930	16.2		79,463	18.0
TO PAY PROVIDERS OF CAR	MTAL					
Dividends to snareholders		16,339	2.3		9,700	2.2
4						
TO PAY GOVERNMENT						
Direct taxation Contribution to national econo	****	32,233	5.7		JJ,52%	9.0
recovery levy	III.C				2,355	ئ.ن ·
ă.						
TO PROVIDE FOR MAINTEN ASSETS AND EXPANSION OF						
Depreciation Retained profits	12,850 57,314	69,964	2.2 10.1	10,013 29,746	39,731	2.3 6.7
VALUE ADDED	-	210,471	37.0		**1,402	38.8
,			-		Supporter salah	Santana and

Value added is the wealth the bank has been able to create by its own and its employee's efforts.

UNITED BANK FOR AFRICA

FIVE-YEAR FINANCIAL INFORMATION (1985/86)

BALANCE SHEET				•	
USE OF FUNDS	81 N'000	82 N'000	83 N°000	84 N1000	85 N'000
Cash and Short Term Funds	293,475	358,197	313,161	416,080	555,319
Cash Reserve Deposits	32,006	34,835	35,277	37,123	38,917
Bills Discounted	824,891	686,791	1,102,057	1,216,744	2,393,310
Investments	82,314	79,210	83,399	68,366	72,744
Loans and Advances	1,161,294	1,519,426	1,619,691	1,553,263	1,409,137
Other Assets	92,656	110,214	210,448	219,574	271,696
Fixed Assets	32,334	38,262	45.670	56,195	61,759
Total Assets	2,518,970	2,826,935	3,409,704	3,567,345	4,802,882
SOURCES OF FUNDS					
Share Capital	30,000	65,000	70,000	75,000	75,000
Reserves	64,312	78,239	92,818	109,600	134,093
Shareholder's Fund	94,312	143,239	162,818	184,600	209,093
Current Deposits	836,978	969,327	904,056	979,620	1,094,173
Savings Deposits	170,064	212,908	255,895	321,132	382,301
Time Deposits	1,400,176	1,365,995	1,779,960	1,813,794	2,843,126
PROFIT AND LOSS ACCOUNT	81 N'000	82 N'()(X)	83 N°000	84 N:000	85 N'000
Gross Earning:	176,835	232,195	281,387	285,566	376,270
Interest Earned:	125,889	178,787	236,804	247,813	339,906
Interest Paid	63,541	85,884	144,731	101,502	162,173
Overhead Expenses	58,424	73,032	85,313	98,071	112,075
Profit before taxation	42,865	52,410	55,969	65,266	63,721
Transfer to Reserves	16,776	19,150	29,279	31,482	34,193
Profit after tax	22,715	26,602	29,279	31,482	34,193
Dividends:	6,000	7,675	9,700	9,700	9,700
Preserence:	•	_. 675	2,700	2,700	2,700
Ordinary	6,000	7,000	7,000	7,000	7,000
Number of Ordinary Shares	AA AAA AAA	A. 000 000	6 2, 22, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40		44 000 000
outstanding Earnings per Share	20,000,000	35,000,000	30,000,000	25,000,000 64 Kaba	25,000,000 70 Kobo
carnings per snare	57K	65 Kaba	66 Kobo	ርዓ ሊፀፀፀ	/U M000

Five Year Financial Summary

	1980	1979	1978	1977	1976
year ended 31st March	N'000	M,000	N'000	M'000	N'000
BALANCE SHEET USE OF FUNDS					
Cash and short term funds Cash reserve deposits Stabilisation securities Investments Loans and advances Other assets Fixed assets	732,748 30,243 39,883 864,836 21,420 26,753	447,638 49,531 38,919 1,042 703,004 22,080 22,954	400,423 47,824 29,019 1,042 582,298 18,033 (15,097)	374,443 75,758 8,340 26,723 445,072 12,053 10,912	424,876
Total assets	1,715,883	1,285,168	1,093,736	953,301	795,340
Deduct: Accounts payable including items in transit, taxation and dividends	62,061	86,106 1,199,062	48,681	26,082 927,219	47,024 748,316
SOURCE OF FUNDS	-	-			
Share capital Reserves	30,000 47,597	30,000 35,590	20,000 32,836	15,000 22,030	10,000 15,042
Shareholders' funds Current, deposit and other accounts	77,597 1,576,225 1,653,822	65,590 1,133,472 1,199,062	52,836 992,219 1,045,055	37,030 890,189 927,219	25,042 723,274 748,316
	1,033,022	1,199,002	1,045,055	727,217	740,310
PROFIT AND LOSS ACCOUNT	124 (00	106.026	77.000	50 716	47 530
Gross earnings Profit before taxation	124,699	106,025	76,890	59,716	47,530
Taxation	41,367 (21,331)	35,366 (17,612)	34,974 (17,168)	24,515 (11,227)	18,123 (8,189)
Profit after taxation	20,036	17,754	17,806	13,288	9.934
Prior year items				-	707
Transfers to reserves	(14,009)	(12,938)	(15,790)	(11,800)	
Dividends paid Brought forward	(6,000)	(5,000)	(2,000)	(1,650)	
Carried forward	389	<u>546</u>	530	<u>692</u>	<u>301</u> 692
BONUS ISSUES	3.69				
EARNINGS PER SHARE (*Note)	67k	10,000 59k	5,000 59k	5,000 44k	2,000 33k
DIVIDENDS PER SHARE (*Note)	ZOK	17k	7k	6k	6k

NOTES

- The earnings per share are computed on profits after taxation.
- The earnings per share and dividends per share prior to 1979 have been adjusted for the bonus issue on 2nd August, 1978.
- The profit retained for 1976 is after adjusting for the N350,000 dividend proposed but not paid due to Government restriction on dividends.

UNITED BANK FOR AFRICALTD

