

EARLY BIRD SEMINAR

STOCK EXCHANGE: SPECULATION VS SERIOUS INVESTMENT

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Stock Exchange: Speculation vs Serious Investment

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1. Words of wisdom

"Unfortunately, however, the present is always abnormal, and the future invariably obscure, and it is doubtful whether life offices can or should credit their investment managements with more than a limited degree of skill or judgement in the determination of future trends".

- J.B.H. Pegler

"Offices would go on making inevitable mistakes because it was not given to any of them to see into the future, nevertheless they must go on investing".

- Sir William Elderton

2. Speculation

" --- a more or less risky investment of money for the sake of unusually large profits --- "
(Chambers Twentieth Century Dictionary, 1973 edition)

There is speculation in every market in the world, including our own Stock Exchange. Speculators in shares create the liquidity which enable "serious investors" to buy and sell in reasonable volumes. So we must not look down on them.

3. Serious investment

Speculators are deadly serious in their attempt to make "unusually large profits". So what do we mean by serious investment? There is no clear-cut answer to this question. But there are some characteristics of serious investment in shares, as opposed to speculation:

- The serious investor ensures that investment in shares harmonise with his liabilities and investment objectives. A mis-match could lead to large profits or large losses.**

This leads to the key point that we must define our liabilities and our investment objectives. If we have a definite liability to pay so many rupees on such and such date, then shares are a mis-match. We must consider whether and to what extent shares harmonise with our liabilities and objectives.

The biggest recent mis-match occurred in the UK. House buyers on mortgage had a liability to pay so many £'s on a fixed date. They were sold With Profits Endowments to meet this liability. UK With Profits Life Funds were heavily invested in shares. The assumption was that at maturity, the basic sum insured plus bonuses generated by share profits and other investment income would pay off the loan. But in fact the share market fell, yields fell, and bonus rates fell.

There were shortfalls, which created pressure on life insurance companies to compensate their policy-holders for mis-selling, in billions of pounds.

This money liability should have been paid off in the old-fashioned way, by making money repayments built into an annuitised repayment schedule.

- **No aim to make "unusually large profits", no "get rich quick" mentality.**

This leads to another key matter. We should set up a yield target, $x\%$ per annum. In the case of shares, it is usual to include both dividends and capital growth. If our shares are not a mis-match for our liabilities, then our objective should be defined in real terms. This means net of taxes, net of inflation, net of expenses. What should this objective be? Here are some bench-marks from UK and USA. BUT these are net only of inflation. They are NOT net of taxes and expenses:

Table 1: UK Ordinary Share yields, % pa compound

(Derived from statistics in Prof A.D. Wilkie's paper presented to Institute of Actuaries on 28th Nov 1994)

Period	Length of period	Inflation % pa	Real yield % pa on shares
1923-58	35 years	1.90%	6.46 %
1958-68	10 years	3.19%	10.62 %
1968-78	10 years	11.80%	(-) 3.45 %
1923-78	55 years	3.87 %	5.32 %

Table 2: US S & P (500) Composite, % pa compound

From "Statistics for Pension Actuaries", US Society of Actuaries, April 1995

Period	Length of period	Inflation % pa	Real yield % pa on shares
1926-1940	14 years	(-) 1.66	5.17
1941-1951	10 years	5.79	7.32
1952-1965	13 years	1.38	13.03
1966-1981	15 years	6.85	(-) 1.08
1982-1993	11 years	3.94	11.83
1926-1993	63 years	3.18	6.71

Pakistan is not the same as the UK or the USA. The future is not the same as the past. We can set our own objectives. It would probably be unwise to aim at much higher than 5% pa net of inflation. And from this we have to deduct income tax, capital gains tax (temporarily exempt), brokerage, CDC charges, CVT and W/H Tax. If we use a mutual fund, the fund manager's charges and expenses will be deducted. Net of inflation, taxes and expenses, we could be left with a real yield in the range of 2% to 4.5% pa, depending on whether we use a fund manager or not, and depending on how actively shares are bought and sold.

These yields are not attractive to speculators, and help to distinguish serious investors.

- **Long term perspective. Regard buying shares as a marathon, not a 100 meters dash.**

This leads to another key question: what is our time frame? For share investment, most probably a minimum time frame is 10 years, perhaps rock-bottom 5 years. Life insurers, pension and gratuity funds, and individuals saving for their retirement probably have even longer time frames.

- **Buy-sell decisions are made on the basis of some analysis, not on what a very good friend of a friend of a friend of a very good friend of ours said over dinner last night. This is not the place to consider the details of share analysis. Perhaps one of the most important factors is the P/E ratio, or the earnings yield.**

- **The Nobel Prize Winning Economist Sharpe said that net of expenses it is impossible for an actively managed portfolio to do better than an Index. He also said that the laws of arithmetic have been suspended for the benefit of active fund managers. If you hold this view, buy-sell decisions will simply follow an Index. This requires all shares in the Index to be reasonably liquid, which is not true of the KSE 100 Index. If Index Linked Funds are floated in Pakistan, a different Index will have to be designed. A few days ago, a leading securities house announced a new Index, and the future may produce more.**

The advantage of Index Linked Funds is that the Fund Managers' charges drop sharply, because he becomes a mere administrator. The compound effect of this saving has a significant influence on the long term through-put to the investor. The paradox is that Index Linked funds ride on the back of actively managed funds: if there was no active management, then who would drive the Index?

4. Underlying reality

When we buy a share, we implicitly trust the management to do the following things:

- **To be skilful and dynamic businesspersons, compete in the market, create and exploit market opportunities, increase the top line and the bottom line.**
- **To be honest, and report all profits and losses in the accounts presented to us. Not to skim off the cream by taking commissions and kick-backs from suppliers and customers.**
- **To buy goods and services at lowest available prices compatible with quality, delivery, consistency and other legitimate business considerations. Not to buy from affiliated suppliers, foreign or local, in which we have no share, at artificially high prices.**
- **To sell at highest prices they can get, compatible with delivery, consistency and other relevant and legitimate business considerations. Not to sell to affiliated persons, foreign or local, in which we have no share, at artificially low prices.**
- **To recruit, promote, retain and make other personnel decisions on merit and according to the needs of the business. Not to favour their friends and relations or politicians or other influential people.**

We have to buy or sell through stock-brokers. We have to trust our broker not to do "front-running".

It's a tall order! Do not expect 100% compliance with these expectations. But do expect reasonable compliance. Don't go into situations where there is an obvious conflict of interest.

5. Our financial rights as an ordinary shareholder of a listed limited company

Let us focus on our main financial rights. This helps to keep our feet on the ground.

Direct or Explicit rights

- 1. To receive the dividends, or bonus shares, if any, that the directors declare.**
- 2. To sell our shares on the Stock Exchange for whatever price we can get, if we can find a buyer. There is no guarantee of this price. It can go up or down, sometimes suddenly and un-expectedly. And there is no guarantee we can find a buyer. The shares of some companies are very lightly traded, and we cannot easily sell them. Or we may find a "lock" on selling caused by the Stock Exchange Rules.**

3. To subscribe to any rights shares offered by the directors. This happens infrequently.
4. If the company is liquidated, to share in the proceeds of the sale of the company's assets, after satisfying all creditors. If the money is not enough to pay off creditors, then a key right under "limited liability" is that we cannot be asked to contribute from our personal assets. When we buy a share, it is normally in the expectation that the company will stay in business. Share buying or selling is influenced by Right No 4 in only exceptional cases.

Indirect or Implicit rights

5. We are a sharer in all annual earnings, regardless of whether they are distributed or not.
6. We are a sharer in all gains on sale of capital assets. This happens infrequently.

Rights 1, 2 and 5 are the dominant influences in buying or selling shares. As we will see below, earnings and dividends are much more stable than share prices. Much of our analysis will be based on item 5, annual earnings after tax.

6. Two points on Indices

(a) Possible distortion in P/E caused by periodical re-composition

The composition of the KSE Index is reviewed periodically. This is necessary in all Stock Exchange Indices. Companies are removed, and replaced by others. The value of the Index is appropriately smoothed by adjusting the denominator.

However, it is impossible to eliminate distortion in the P/E ratio as a result of these changes. New companies coming in are likely to have different P/E ratios from those going out.

During the observed 53 months there was a net removal of 31 companies from the KSE 100, replaced of course by 31 new companies. A preliminary study indicates some part of the growing trend of P/E ratios noticed was due to the 31 new companies having somewhat higher P/E ratios than the outgoing companies.

(b) Earnings creep

In normal course, companies grow by retained earnings. This enables them to expand their operations, sales, profits and dividends. Indices tend to creep up because of this, and also because of inflation.

7. KSE 100 Index from beginning January 2001 to beginning June 2005

The KSE Index reflects share price rises and falls, and also indirectly reflects dividends. So it is a total return index¹. We tracked the KSE Index for 53 months, from beginning January 2001 to beginning June 2005. This was an eventful period. It included the dark days of 2001, and the bull market upto mid March 2005, and the set-back after that. The Appendix contains details. Significant items are summarised in Table 3.

Table 3: Significant features of the KSE 100 Index from January 2001 to June 2005

	1st 12 months	1st 24 months	1st 36 months	All 53 months
Nominal annualised growth pa	(-) 8.06%	38.19%	46.87%	45.12 %
Annualised growth net of CPI increase	(-) 9.82%	34.59 %	41.29%	37.88 %
If fixed amount invested every month throughout 53 months				
IRR pa nominal:	3.77%	67.76%	67.08%	54.74%
IRR pa net of CPI:	1.78%	63.38 %	61.30 %	47.02 %

¹ A leading firm of stock-brokers, KASB, do strip out dividends and produce a proprietary share price only index.

The first observed P/E was 5.75. The last observed P/E (on 2 June 2005) was 12.41. The average P/E during the observed period was 8.54.

If we had bought into the index in a lump sum at beginning January, we would have been down in the first 12 months. But if we had bought steadily throughout those twelve months, we would have been slightly up in the first 12 months.

Over the first 24 months, or the first 26 months or the total 53 months, we would have done very well indeed, whether we bought in a lump sum in January 2001, or whether we invested steadily every month throughout the period. We would have earned much more than our target of 5% pa net of inflation.

P/E ratios remained low for most of 2001 and remained below 6 × right up to July 2002. P/E hit a rock bottom of 4.14 × in January 2002. These low values existed well before the incident of 11 Sep 2001, and there was talk of a "melt-down". Pakistani shares were dirt cheap in those days. P/E's below 8 × are normally a sign of serious political or economic malaise. As of today, only one country, "Israel" (P/E 4.00 ×) has a P/E below 8 ×.

Of course, if we had bought in a lump sum at the peak in March 2005, we would be much worse off by beginning June 2005.

8. Stability of Earnings and Dividends

We obtained P/E ratios for all 53 months studied except for the first 6 months. The Appendix shows that the estimated stream of earnings and dividends, based on P/E multiples and dividend yields, was remarkably stable over the 47 months. The variation in prices was due to the sharp variation in the P/E ratios in the market. This is world-wide experience. Earnings are relatively stable, the major instability arises from market changes in P/E ratios.

9. KSE Index: Projections

"Never make predictions, especially about the future"

(Sam Goldwyn)

The spectacular results from 1 Jan 2001 to 1 June 2005 cannot be replicated in the long run. Long run projections depend on inflation, growth of earnings above inflation and future P/E ratios. There is an infinite number of scenarios. Much mathematical ingenuity has been expended in designing projection models. For today's seminar, we have developed projections for 20 years, and proceeded as follows:

(a) Inflation was assumed at a long term rate of 5% pa, much less than the current rate of around 10%.

(b) Earnings were assumed to increase at 5% above inflation. This is roughly the long trend observed in the UK. Eventually Pakistan will develop and study its own experience.

Professional journals discuss the link between earnings growth and GDP growth. This is a macro-economic question which we will not pursue today.

Earnings were projected on the above assumptions. The Projected KSE 100 index was derived every month by applying a P/E ratio to the projected earnings. There are an infinite number of possible future P/E's. We developed 10 random "samples" out of this infinite number, to illustrate the variability of projected returns on shares.

What will be the future range of P/E ratios? Table 4 gives P/E ratios in other markets.

Table 4: P/E ratios in other countries

(From figures prepared by Thomson Datastream, published in the Financial Times, 13 June 2005)

Country and Index	P/E	Country and Index	P/E
Australia S &P All Ordinaries	16.5	PAKISTAN KSE-100	12.7
Canada S&P/TSX Met & Min	17.5	Philippines Manila Comp	18.0
China Shanghai A	9.5	Singapore Straits Times	14.5
France CAC 40	13.2	South Africa FTSE/JSE All Shares	12.7
Germany M-DAX	12.2	South Korea KOSPI	8.0
Hong Kong Hang Seng	14.6	Sri Lanka CSE All Share	12.2
India BSE Sens	13.7	Switzerland SMI Index	16.7
Indonesia Jakarta Comp	12.1	Turkey IMKB Nat 100	11.7
Japan Nikkei 225	26.5	UK FTSE 100	14.3
Malaysia KLSE Comp	12.4	US DJ Industrial	19.2

A simple average of the P/E's in these 20 countries is 14.41. Pakistan is not too far out.

The projections were made on a random basis². In Projections 1 to 5 inclusive, we placed a lower limit of 4 × and an upper limit of 16 × on the P/E, being Pakistan's experience in the observed 53 months. In projections 6 to 10 inclusive, the lower and upper limits were 8 × and 20 × respectively, conforming to most international experience, ignoring the outliers of Japan and "Israel".

All projections assume regular monthly investment, starting at Rs 100 in the first month and increasing at the 5% inflation rate assumed (= 0.407412 % pm compound). The projections are for 20 years. They show the IRR net of inflation if the portfolio is sold at the end of the 10th and 20th years. They also show the annual income net of inflation, if the portfolio is NOT sold at the end of the 20th year, but retained to provide an income.

These projections approximate to the situation of a person aged 40 who starts saving for his retirement at 60.

It is assumed that dividends are 50% of earnings.

² The random process was designed to ensure that the change in the P/E from one month to the next fell within a frequency distribution of such changes, derived from the KSE 100 experience from beginning July 2001 to beginning June 2005.

Table 5: Results of Projection Nos 1 to 5, projection period 20 years
Inflation rate 5% pa. Earnings growth over inflation 5% pa.
Monthly investment Rs 100 in 1st mth, increasing at inflation 5% pa (= 0.40741% pm)
P/E range 4 × to 16 ×

No	Projection No →	1	2	3	4	5
1	Constraints on P/E's	Min 4 ×		Max 16 ×		
2	Index in 1st mth	7,404	7,539	6,570	7,161	6,810
3	do in 240th mth - Nominal	16,615	66,462	51,932	49,055	47,389
4	do in 240th mth - Real	6,288	25,151	19,652	18,564	17,933
5	Average P/E ratio in 20 yrs	8.06 ×	11.73 ×	8.91 ×	9.89 ×	12.48 ×
6	P/E ratio at end of year 20	4.00 ×	16.00 ×	12.50 ×	11.81 ×	11.41 ×
7	Real IRR pa end of Yr 10*	20.18%	3.42%	1.75%	6.31%	13.81%
8	Real IRR pa end of Yr 20*	- 0.36%	8.33%	9.05%	7.60%	5.16%
9	MV end Yr 20 – Nominal	61,211	156,157	169,722	143,569	109,124
10	MV end Yr 20 – Real	23,164	59,094	64,227	54,330	41,295
11	Inc pa end Yr 20 – Nominal	15,303	9,760	13,576	12,157	9,565
12	Inc pa end Yr 20 – Real	5,791	3,693	5,137	4,601	3,620
13	Real Div pa Yr 20 @ 50%	2,895	1,847	2,569	2,300	1,810

* If portfolio sold at Market Value

Table 6: Results of Projection Nos 6 to 10, projection period 20 years
Inflation rate 5% pa. Earnings growth over inflation 5% pa.
Monthly investment Rs 100 in 1st mth, increasing at inflation 5% pa (= 0.40741% pm)
P/E range 8 × to 20 ×

No	Projection No →	6	7	8	9	10
1	Constraints on P/E's	Min 8.00 ×		Max 20.00 ×		
2	Index in 1st mth	6,939	7,161	8,722	6,570	6,939
3	do in 240th mth - Nominal	51,622	64,469	57,024	58,847	57,664
4	do in 240th mth - Real	19,535	24,397	21,579	22,269	21,821
5	Average P/E ratio in 20 yrs	10.25 ×	13.18 ×	13.84 ×	10.55 ×	12.22 ×
6	P/E ratio at end of year 20	12.43 ×	15.52 ×	13.73 ×	14.17 ×	13.88 ×
7	Real IRR pa end of Yr 10*	8.51%	13.49%	9.14%	2.15%	6.28%
8	Real IRR pa end of Yr 20*	7.04%	7.43%	5.14%	8.09%	7.54%
9	MV end Yr 20 – Nominal	134,664	140,858	108,908	151,997	142,705
10	MV end Yr 20 – Real	50,960	53,304	41,214	57,519	54,003
11	Inc pa end Yr 20 – Nominal	10,836	9,076	7,933	10,729	10,280
12	Inc pa end Yr 20 – Real	4,101	3,435	3,002	4,060	3,890
13	Real Div pa Yr 20 @ 50%	2,050	1,717	1,501	2,030	1,945

* If portfolio sold at Market Value

Within Table 5, the market value of the portfolio at the end of 20 years, net of inflation, varies from Rs 23,164 to Rs 64,227, a range of 1: 2.77. However the dividend income varies from Rs 1,810 pa to Rs 2,895, a much smaller range of 1:1.60.

Within Table 6, the market value of the portfolio at the end of 20 years, net of inflation, varies from Rs 41,214 to Rs 57,519, a range of 1: 1.40. The dividend income varies from Rs 1,501 pa to Rs 2,050, about the same range of 1:1.37.

Taking both Tables together, the range of dividend incomes is much less than the range of market values of the portfolio.

A noteworthy feature of Table 5 is that the highest income is associated with the lowest MV at the end of 20 years. If we plan to build up a portfolio to provide a retirement income, then are we more concerned with the market value on sale, or the stream of income we need? The market value is profoundly affected by the P/E on the retirement date. But the income value is much more stable.

We ran 1,000 simulations of the model underlying Table 6. Table 7 summarises some key results.

Table 7: Results of 1,000 simulations of model underlying Table 6
Projection period 20 years

Inflation rate 5% pa. Earnings growth over inflation 5% pa.
Monthly investment Rs 100 in 1st mth, increasing at inflation 5% pa (= 0.40741% pm)
P/E range 8 × to 20 ×

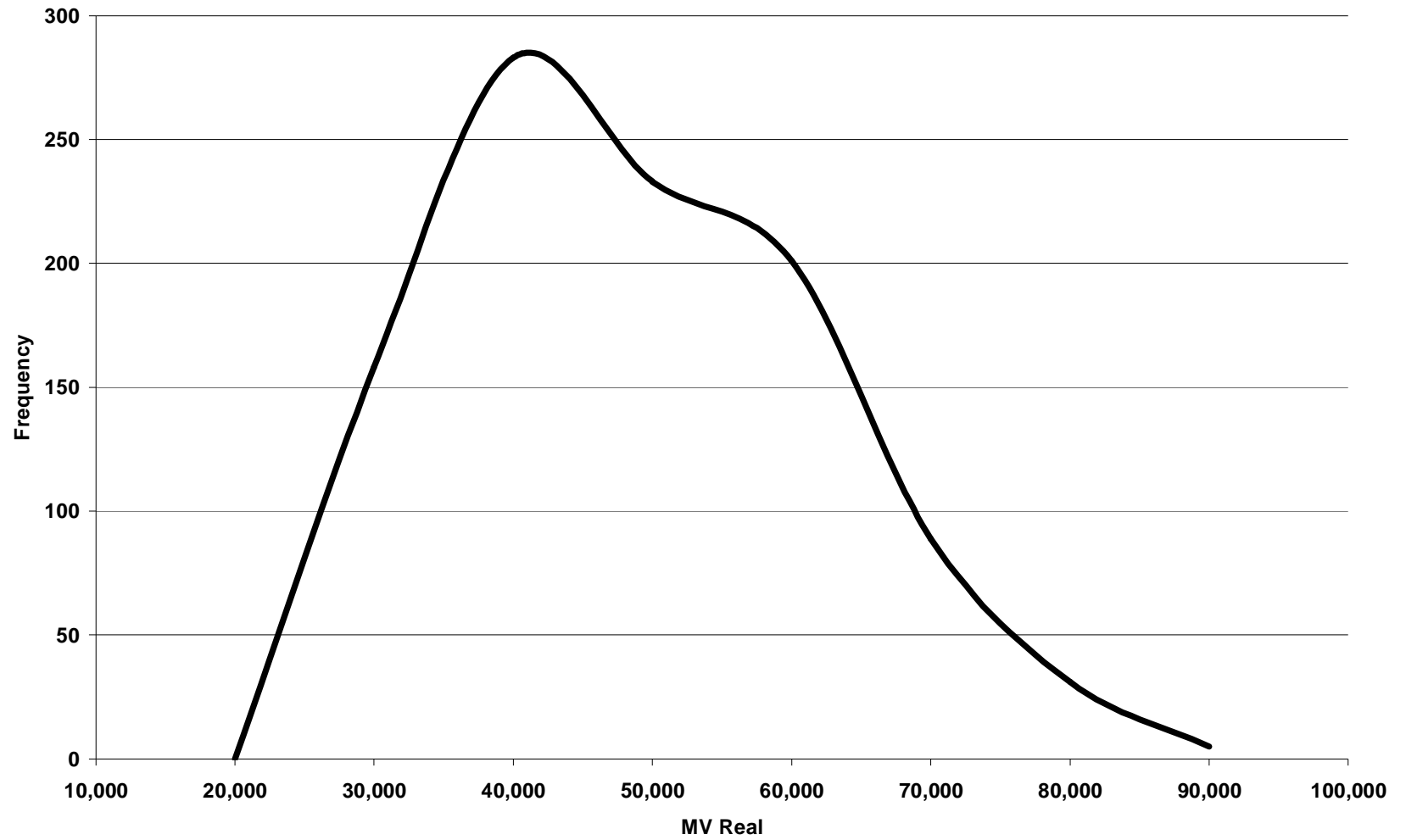
All results in "real" terms, net of inflation.

At end of Year 20	Mean	Standard Deviation	95% confidence	
			Lower limit	Upper limit
1. Portfolio MV	43,976	13,045	24,735	71,550
2. IRR % pa*	5.27%	2.69%	0.30%	9.97%
3. Annual Earnings	3,379	410	2,600	4,160
4. Annual Dividends @ 50% of earnings	1,689	205	1,300	2,080

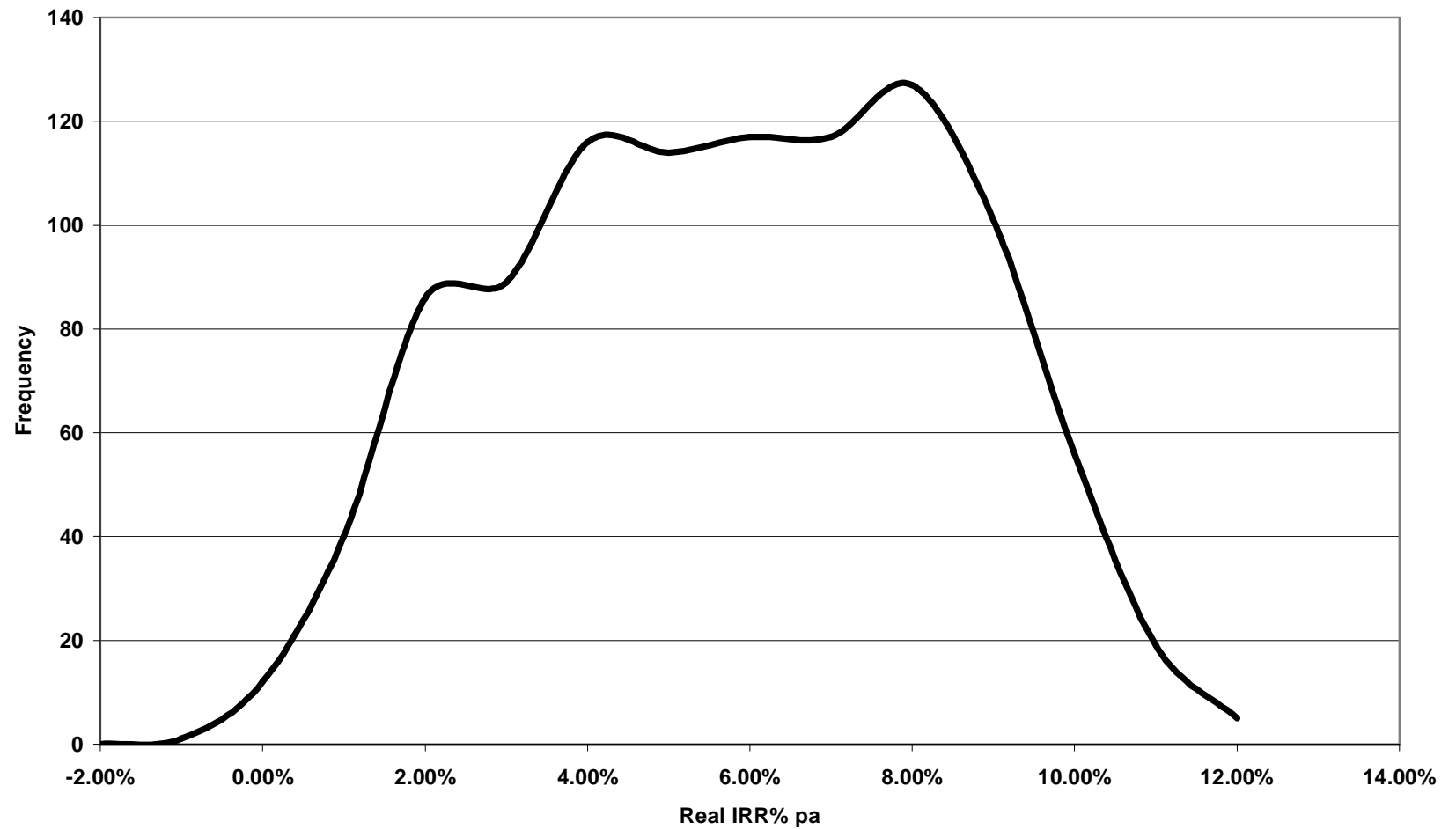
*** If portfolio sold at Market Value**

Graphs 1, 2 and 3 depict the frequency distribution of items 1, 2 and 4 respectively.

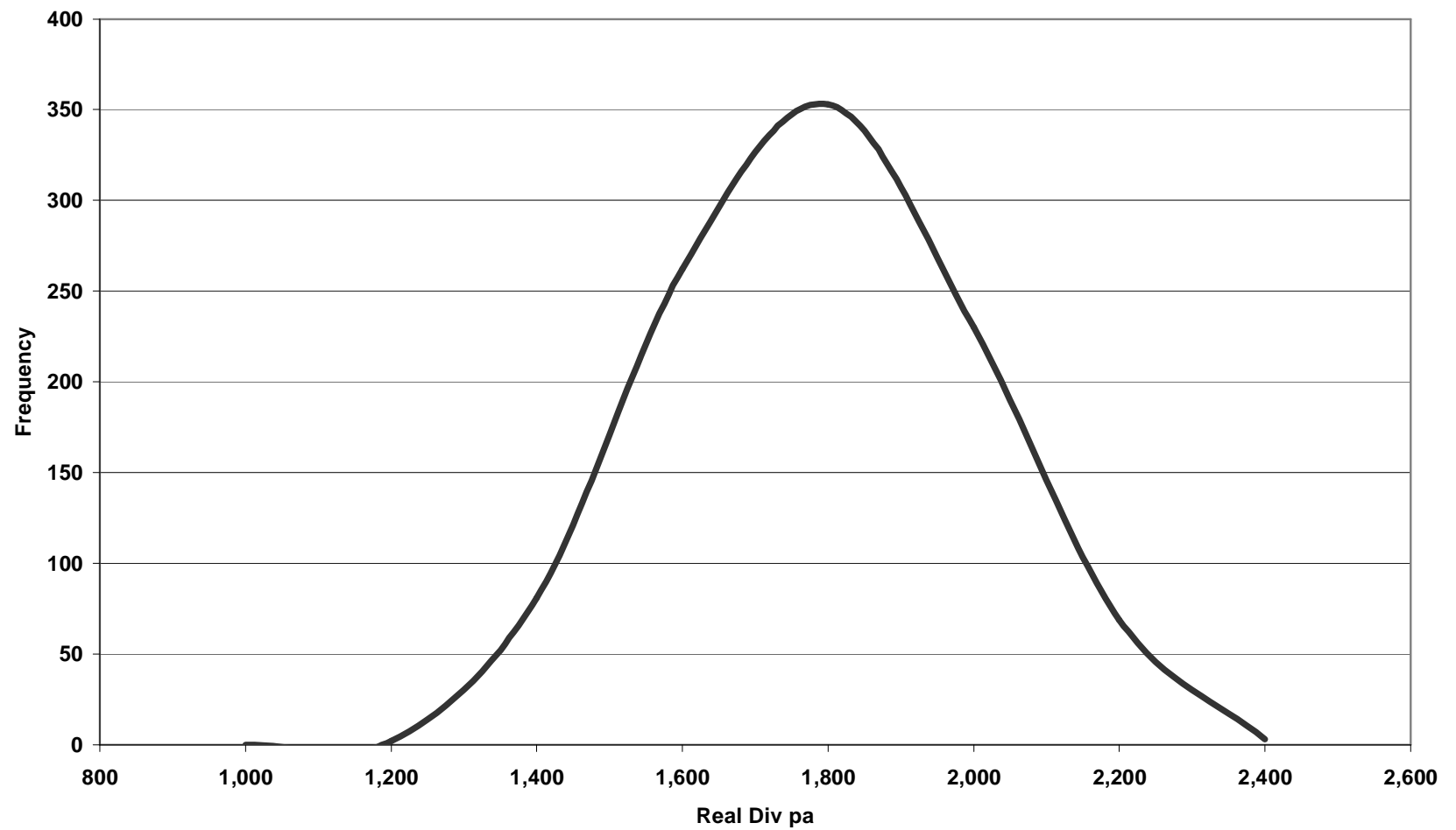
Graph 1: Frequency Distribution MV End Yr 20 Real



Graph 2: Frequency Distribution Real IRR% pa End year 20



Graph 3: Frequency Distribution Real Div. pa year 20



10. Points to Remember

- **Nobody (and nobody means nobody) can predict where the market will be three months from now, or at any later date. Opinion can change overnight, as happened in March 2005.**
- **Be humble, we are bound to make mistakes.**
- **We must be able to absorb market value falls. In a "normal" market, be prepared for 25% falls in normal course, 50% falls from a bull market. Accounting for such falls should not bankrupt us. Remember, 50% fall means prices must double to get back to where they were. If we have leveraged our position, then leverage will multiply these falls, so be careful how much you leverage.**
- **If we are easily swayed by the herd, or nervous or panicky, then it's best to stay out of shares. Otherwise, we will tend to buy in euphoria when prices are high, and sell in panic when they fall.**

11. Timing risk: spread

The timing of purchases is crucial. Ideally you should buy when the market is low, and sell when it is high. But nobody can forecast market movements. We have to live with this problems. The only rather obvious point is don't plunge in. If you have a large lump sum to

invest, try to invest in stages. And if you are a recurrent investor like a life insurer or a retirement fund, then in any case you will invest steadily. And of course, you must spread your purchases over at 10 or more companies, depending on the size of your portfolio. Or use a mutual fund.

12. So, should we invest in shares?

"No plan survives contact with the enemy"

(Field Marshal Helmut von Moltke, the Elder)

Here are some thoughts:

(a) If you have a fixed rupee liability to meet at a particular future date, then do not even think of buying shares.

(b) If you have to deliver a lump sum at any particular date in real terms, then there really is no safe investment. If you buy long term fixed interest securities, you are at the mercy of future inflation. If you buy shares, the money that the portfolio will fetch at that date depends on the ruling market, and no predictions can be made. But maybe you have a better chance of ending up with a positive real IRR if you have at least some proportion of shares in your portfolio.

(c) If you intend to build up an income stream for your retirement by steady monthly investments, not intending to sell it at retirement or any other fixed date, then you should give serious consideration to buying shares as part of a diversified portfolio, and holding on to them rather than necessarily selling them at retirement.

“Lifestyle investment”: There is a theory that a share-based investment policy is appropriate at a relatively young age. But as retirement approaches, a switch to bonds or fixed return investments might be more appropriate, to reduce the risk of a sudden crash at the point of retirement. This theory sounds good. But Philip Booth FIA, and Yakoub Yakoubov studied this question in a paper published in the North American Actuarial Journal in April 2000. “The authors draw the weak conclusion that there is no evidence that lifestyle investment plans are appropriate, rather than the strong one that equity investment is necessarily better. However, there is strong evidence to suggest that there is a strong case for maintaining a well-diversified investment strategy until retirement, rather than automatically switching to a particular class”.

(d) A very good friend of mine, who is a senior chartered accountant and was finance director of a major multi-national, once remarked that rather than invest in shares he would prefer to bet on horses. At least that way he would get an afternoon’s entertainment.

But it is probably no longer appropriate to hold this view. Considering the alternatives or lack of alternatives, it is probably true that in Pakistan some proportion of investments in shares is almost essential for most individuals saving for their retirement, or for most Provident, Pension and Gratuity Funds, or for life insurers and EOBI. Investing in shares means investment in Pakistan's industry and commerce, and Inshallah these will grow.

DISCLAIMER

Share investment presents risks, and all who invest in shares should realise this and accept it. This presentation highlights some relevant points. The figures shown in it are illustrative only, and do not form a basis for investment decisions.

Acknowledgements

We have drawn heavily on the weekly P/E ratios and Cash Yield figures prepared by Taurus Securities Ltd and published in the Pakistan & Gulf Economist. We acknowledge with thanks information provided by the KSE. We thank Mr Faisal Haroon Zai, an actuary working with Arif Habib Securities, for drawing our attention to the fact that the KSE is a total return index.

This presentation has been prepared by the Akhtar & Hasan actuarial team, with special participation from Samee-ul-Hasan, Shujat Siddiqui and Irfan Ali.

Appendix

Mth No	Date	KSE 100 Index	P/E per Taurus Securities	Projected Earnings*	Cash yield per Taurus Securities	Projected Dividends
1	4-Jan-01	1550.04			6.61%	102.46
2	1-Feb-01	1458.09			7.01%	102.21
3	1-Mar-01	1425.76			6.99%	99.66
4	3-Apr-01	1329.00			7.44%	98.88
5	3-May-01	1374.32			7.64%	105.00
6	31-May-01	1377.61			8.08%	111.31
7	5-Jul-01	1320.71	5.75	229.69	8.52%	112.52
8	2-Aug-01	1248.18	5.44	229.44	9.08%	113.33
9	6-Sep-01	1245.61	5.76	216.25	9.06%	112.85
10	4-Oct-01	1112.31	5.06	219.82	10.25%	114.01
11	8-Nov-01	1382.67	5.70	242.57	8.71%	120.43
12	6-Dec-01	1380.45	4.52	305.41	11.36%	156.82
13	3-Jan-02	1349.97	4.14	326.08	12.44%	167.94
14	7-Feb-02	1723.16	5.15	334.59	9.88%	170.25
15	7-Mar-02	1835.11	5.46	336.10	9.40%	172.50

* Please Refer to Section 6 of presentation regarding Projected Earnings

Appendix (cont'd)

Mth No	Date	KSE 100 Index	P/E per Taurus Securities	Projected Earnings	Cash yield per Taurus Securities	Projected Dividends
16	4-Apr-02	1853.33	5.64	328.60	9.45%	175.14
17	2-May-02	1895.66	5.76	329.11	9.25%	175.35
18	6-Jun-02	1714.84	5.23	327.89	10.20%	174.91
19	4-Jul-02	1791.82	5.49	326.38	9.43%	168.97
20	8-Aug-02	1801.46	6.05	297.76	8.14%	146.64
21	5-Sep-02	1992.02	6.54	304.59	9.64%	192.03
22	3-Oct-02	2013.46	6.30	319.60	10.14%	204.16
23	7-Nov-02	2228.54	6.66	334.62	9.55%	212.83
24	28-Nov-02	2238.14	6.68	335.05	9.56%	213.97
25	2-Jan-03	2710.54	7.58	357.59	9.23%	250.18
26	6-Feb-03	2483.13	6.93	358.32	10.00%	248.31
27	6-Mar-03	2479.95	6.78	365.77	10.20%	252.95
28	3-Apr-03	2753.46	7.39	372.59	9.24%	254.42
29	30-Apr-03	2902.42	7.78	373.06	8.58%	249.03
30	5-Jun-03	3132.46	8.27	378.77	7.98%	249.97

Appendix (cont'd)

Mth No	Date	KSE 100 Index	P/E per Taurus Securities	Projected Earnings	Cash yield per Taurus Securities	Projected Dividends
31	3-Jul-03	3481.43	9.17	379.65	7.19%	250.31
32	7-Aug-03	4204.68	10.67	394.07	6.03%	253.54
33	4-Sep-03	4464.80	11.28	395.82	5.69%	254.05
34	2-Oct-03	4178.94	9.95	419.99	5.69%	237.78
35	6-Nov-03	3732.30	8.54	437.04	6.64%	247.82
36	4-Dec-03	4250.11	9.69	438.61	5.86%	249.06
37	1-Jan-04	4473.57	9.97	448.70	5.61%	250.97
38	29-Jan-04	4803.85	10.25	468.67	5.36%	257.49
39	4-Mar-04	4888.11	10.35	472.28	5.29%	258.58
40	1-Apr-04	5141.08	10.96	469.08	4.86%	249.86
41	6-May-04	5530.13	11.33	488.10	4.56%	252.17
42	3-Jun-04	5279.09	10.74	491.54	4.81%	253.92
43	1-Jul-04	5347.72	10.86	492.42	4.76%	254.55
44	5-Aug-04	5303.84	10.79	491.55	4.80%	254.58
45	2-Sep-04	5327.53	10.84	491.47	4.78%	254.66

Appendix (cont'd)

Mth No	Date	KSE 100 Index	P/E per Taurus Securities	Projected Earnings	Cash yield per Taurus Securities	Projected Dividends
46	30-Sep-04	5217.65	10.00	521.77	4.84%	252.53
47	4-Nov-04	5349.04	9.78	546.94	6.08%	325.22
48	2-Dec-04	5552.50	10.57	525.31	5.85%	324.82
49	6-Jan-05	6353.27	11.69	543.48	5.19%	329.73
50	3-Feb-05	7014.71	12.95	541.68	4.67%	327.59
51	3-Mar-05	8496.73	15.30	555.34	3.99%	339.02
52	7-Apr-05	7784.34	13.75	566.13	4.17%	324.61
53	5-May-05	7098.22	12.05	589.06	4.53%	321.55
54	2-Jun-05	7322.38	12.41	590.04	4.41%	322.92
		Average P/E	8.54			

Appendix 2

A share price can be regarded as Earnings Per Share net of tax \times Price Earnings Ratio expected by the market. Both factors will fluctuate. Earnings per share are what the market expects, not necessarily historical earnings. The P/E is affected by market sentiment, and supply and demand. P/E's fluctuated much more in Pakistan than Earnings per Share. For the present exercise, we made a simplifying assumption that earnings per share will grow at inflation + 5% per annum. To determine the P/E applied to this stream of earnings, we proceeded as follows:

- (a) The P/E ratios were studied for the KSE 100 shares from 5 July 2001 to 2 June 2005, as computed by Taurus Securities Ltd and published in the Pakistan & Gulf Economist.
- (b) The ratio of one P/E to the next was calculated at approximately monthly intervals. This produced a series of 47 ratios.

For example: P/E on 12 May 05 was 12.05. P/E on 5th June 05 was 12.41. The ratio of the two was $12.41/12.05 = 1.03$

- (c) During the observation period, more ratios were greater than 1.00 than less than 1.00, because on the whole the market rose. To avoid a projection bias, the ratios less than 1.00 were taken as the mirror image of the ratios greater than 1.00. This gave a series of 60 ratios, half less than 1.00 and half more than 1.00.
- (d) Starting with the P/E of 12.41 as at 2 June 2005, future P/E's were generated by multiplying each P/E by a ratio selected at random from those 60 ratios, to obtain the next P/E. This was done for monthly intervals. However the random values thus generated were subject to the following upper and lower P/E's:

For Projections 1 to 5, the minimum and maximum P/E was fixed at $4.00\times$ and $16.00\times$ respectively, corresponding to the KSE 100 experience in the period studied.

For Projections 6 to 10, the minimum and maximum P/E was fixed at $8.00\times$ and $20.00\times$ respectively, corresponding to the current range of Stock Exchange indices in other world markets, but excluding two outliers namely Japan ($26.50\times$) and "Israel" ($4.00\times$).

- (e) The resultant P/E's were applied to the stream of earnings to arrive at the projected KSE 100 index.