Part I: An Introduction

1 An Overview

Introduction

The 2007 global financial crisis ignited by reckless bankers and their flawed reward structures will be felt for years to come. Emerging from the wreckage, however, is renewed support for the over-arching objective of traditional finance theory, namely the long-run maximisation of shareholder wealth using the current market value of ordinary shares (common stock) as a benchmark.

If capitalism is to survive, it is now widely agreed that conflicting managerial aims and short-term incentives, which now seem to characterise every business sector, must become entirely subordinate to the preservation of ownership wealth, future income and capital gains.

And as we shall discover, the key to resolving this *principle-agency* problem begins with a *theoretical* critique of how shares are valued. This not only underpins the *practical* measures of current and historical stock market performance published in the financial press (price, yield, cover, and the P/E ratio) used by market participants throughout the world. It also provides private individuals and the companies or financial institutions acting on their behalf with a common framework to analyse all their future investment decisions, whether it is an individual share transaction, a market placement, or corporate takeover activity.

1.1 Some Observations on Traditional Finance Theory

Based on the *Separation Theorem* of Irving Fisher (1930), traditional *normative* theory explains how corporate management should maximise shareholder wealth by maximising the expected net present value (NPV) of all a firm's investment projects.

According to Fisher, in a world of *perfect* capital markets, characterised by *rational-risk averse* investors, with *no barriers* to trade and a *free flow* of information, it is also irrelevant whether a company's future project cash flows are distributed as dividends to match shareholders consumption preferences at any point in time. If a company decides to retain profits for reinvestment, shareholder wealth measured by share price will not fall, providing that:

> Management's *minimum* required return on new projects financed by retention (the discount rate) at least equals the shareholders' *opportunity* rate of return (yield) that they can expect to earn on alternative investments of comparable risk, or their the *opportunity* cost of capital (borrowing rate).

If shareholders need to borrow to satisfy their consumption (income) requirements they can do so at the market rate of interest, leaving management to reinvest current earnings (unpaid dividends) on their behalf to finance future investment, growth in earnings and future dividends.

Following Fisher's logic, all market participants should therefore earn a return commensurate with the risk of their investment. And because *perfect* markets are also *efficient* markets, shares are immediately and correctly priced at their *intrinsic* value in response to managerial policy, just like any other information and current events.

Yet, we now know that markets are *imperfect*. Investors may be *irrational*, there are *barriers* to trade and information is *limited* (particularly if management fail to communicate their true intentions to shareholders) any one of which invalidates Fisher's theorem. As a consequence, the question subsequent twentieth century academics sought to resolve was whether an *imperfect* capital market can also be *efficient*. To which the answer was a resounding "yes".

Based on the pioneering work of Eugene Fama, which began to emerge in the 1960s, modern finance theory now hypothesises that real-world stock markets may not be *perfect* but are *reasonably efficient*. Shareholder wealth maximisation is premised on the law of supply and demand. Large numbers of investors are assumed to respond rationally to new public information, good, bad, or indifferent. They buy, sell, or hold shares in a market without too many barriers to trade. A privileged few, with access to *insider* information, or either the ability, time or money to analyse all *public* information, may periodically "beat the market" by being among the first to react to events. But share price still reverts *quickly* if not *instantaneously* to a new *equilibrium* value, correctly priced, in response to the *technical* and *fundamental* analyses of historical trends and the latest news absorbed by the vast majority of market constituents.

Today's trading decisions are assumed to be *independent* of tomorrow's events. So, markets are assumed to have "no memory". And because share prices and returns therefore exhibit *random* behaviour, conventional wisdom, now termed the *Efficient Market Hypothesis* (EMH), states that in its *semi-strong* form:

- *Short term*, investors win some and lose some.
- *Long term*, the market is a "fair game" for all, providing returns commensurate with their risk.

Today, even in the wake of the first global financial crisis of the 21st century, governments, markets, financial institutions, companies and many analysts continue to cling to the wreckage by promoting policies premised on the theoretical case for semi-strong efficiency. But since the 1987 crash there has been an increasing unease within the academic community that the EMH in any form is "bad science". Many observe that "it puts the cart before the horse" by relying on simplifying assumptions, without any empirical evidence that they are true. Financial models premised on rationality, efficiency and randomness, which are the bedrock of modern finance, therefore attract legitimate criticism concerning their real world applicability.

1.2 Some Observations on Stock Market Volatility

Over the past decade, global capital markets have experienced one of the most volatile periods in their entire history. For example, since the millennium, the index of Britain's highest valued companies, the FT-SE 100 (Footsie) has often moved up and down by more than 100 points in a single day, fuelled by the extreme price fluctuations of risky internet or technology shares, the changing profitability of blue-chip companies at the expense of emerging markets, rising oil and commodity prices, interest rates, global financial crises, increased geo-political instability, military conflict, natural disasters and even nuclear fallout. Consequently, conventional methods of assessing stock market performance, premised on efficiency and stability, as well as the models upon which they are based, are now being seriously questioned by a new generation of academics and professional analysts.

So, where do we go from here?

Post-modern theorists with their cutting-edge mathematical expositions of speculative bubbles, catastrophe theory and market incoherence, believe that *markets have a memory*. They take a *non-linear* view of society and dispense with the assumption that we can *maximise* anything. Unfortunately, their models are not yet sufficiently refined to provide simple guidance for many market participants (notably private investors) in their quest for greater wealth.

Irrespective of its mathematical complexity, the root cause of the problem is that however you model it, financial analysis is not an exact *physical* science but an imprecise *social* science. And history tells us that the theories upon which it is based may even be "bad" science.

All economic decisions are characterised by *hypothetical* human behaviour in a *real* world of *uncertainty* that by definition is *unquantifiable*. Thus, theoretical financial strategies may be logically conceived but are inevitably based on objectives underpinned by *simplifying assumptions* that rationalise the complex world we inhabit. At best they may support our model's conclusions. But at worst they may invalidate our analysis.

As long ago as 1841, Charles Mackay's classic text "Extraordinary Delusions and the Madness of Crowds (still in print) offered a plausible *behavioural* explanation for volatile and irrational financial market movements in terms of "crowd behaviour". He asserted that:

> It is a natural human tendency to feel comfortable in a group and only make a personal decision, which may even be irrational, after you have observed a trend.

The late Charles P. Kindleberger's classic twentieth century work "Manias, Panics and Crashes: A History of Financial Crises" first published in 1978 provides further insight into Mackay's "theory of crowds" As a study of frequent irrational investor behaviour in sophisticated markets, the book became essential reading in the aftermath of the 1987 global crash. Now in its sixth edition (2011) revised and fully expanded by Robert Aliber to include analyses of the causes, consequences and policy responses to the 2007 financial crisis, it is even more relevant today.

Kindleberger and Aliber argue that every financial crisis from *tulip mania* onwards has followed a similar pattern. Speculation is always coupled with an economic boom that rides on new profit opportunities created by some major exogenous factor, like the end of a war (1945 say) a change in economic policy (stock market de-regulation) a revolutionary invention (like the computer) political tension (the Middle East) or a natural disaster (Japan). Fuelled by cheap money and credit facilities (note the interest rate cuts that financed American post-Gulf war exuberance and the internet boom of the 1990s) prices and borrowing rise dramatically. At some stage a few insiders decide to sell their investments and reap the profits. Prices initially level off, but a period of market volatility ensues as more investors sell to even bigger fools. This stage of the cycle features financial distress, characterised by financial scandals, bankruptcies and balance of payment deficits, as interest rates rise and the market withdraws from financial securities into cash. The process tends to degenerate into panic selling that may result in what Kindleberger terms "revulsion".

At this point, disillusioned investors refuse to participate in the market at all and prices fall to irrationally low levels. The key question then, is whether prices are low enough to tempt even sceptics back into the market.

Robert Shiller, in his recent edition of "Irrational Exuberance" (2005) developed Kindleberger's analysis by citing investors who act in unison but not necessarily rationally. Market sentiment gains a popular momentum, unsubstantiated by any underlying corporate profitability, intrinsic asset values, or significant economic events, which are impossible to unscramble as more individuals wait to sell or buy at a certain price. When some psychological barrier is breached, price movements in either direction can be triggered and a crash or rally may ensue. As Shiller concludes, if *Wall Street is a place to avoid*, the question we must ask ourselves is how can market participants (private individuals, or companies and financial institutions who act on their behalf) satisfy their investment criteria in a post-modern world.

Fortunately, traditional finance theory can still throw a lifeline. Human action, reaction, or inaction may be reinforced by habit and individual investors may only become interested in a market trend (up or down) when it has run its course and a crash or rally occurs. But in between time, when markets are reasonably *stable, bullish* or *bearish*, there are plausible strategies for individuals and financial institutions that continually trade shares, as well as companies considering either a stock market listing for the first time, or periodic predatory takeovers.

All are based on today's news, current events, historical data contained in published accounts, the financial press, as well as the internet and other media that relay financial service, analyst and broker reports. And as we shall discover, until new models are sufficiently refined to justify their real world application, the common denominator that drives this information overload upon which investment strategies are based is still conventional share price theory.

Review Activity

If you have previously downloaded other studies by the author in his *bookboon* series, then before we continue you ought to supplement this Introduction by re-reading the more detailed critiques of Fisher's Theorem, the development of Finance Theory and the Efficient Market Hypothesis (EMH) contained in any of the following chapters.

Strategic Financial Management: Exercises (SFME), Chapter One, *bookboon.com* (2009).

Portfolio Theory and Financial Analyses (PTFA), Chapter One, *bookboon.com* (2010).

Portfolio Theory and Investment Analysis (PTIA), Chapter One, bookboon.com (2010).

These will not only test your understanding so far, but also provide a healthy scepticism for the theory of modern finance that underpins the remainder of this text.

If new to *bookboon* then I recommend you at least download SFME and pay particular attention to Exercise 1.1.The exercise (plus solution) is logically presented as a guide to further study and easy to follow.

Throughout the remainder of this book, each chapter's exercises and equations also follow the same structure as all the author's other texts. So, you should be able to complement, reinforce and test your theoretical knowledge of the practicalities of corporate valuation and takeover at *your own pace*.

Summary and Conclusions

The key to unlocking stock market analysis, irrespective of volatility, is an understanding of theories of share price determination that underpin its performance. Traditional financial theory assumes that:

Shareholder wealth maximisation (increased share price) is based upon the economic law of supply and demand in a capital market that may not be *perfect* but *reasonably efficient*.

Investors respond *rationally* to new information (good, bad or indifferent) and buy, sell, or hold shares in a market without too many barriers to trade.

As a consequence, yesterday's trading decision (and price) is *independent* of today's state of play and investment is a "fair game" for all.

However, the view taken here is that irrespective of whether markets are efficient, investors are rational and prices or returns are random, the investment community still requires standards of comparison to justify their latest trading decisions and stay in their comfort zone. And in this respect, despite its deficiencies, traditional finance theory has much to offer.

Explained simply, stock market performance is not an *absolute* but *relative*. It must be related to some *standard* of comparison. For example, has a firm's current share price risen, fallen, or stayed the same, relative to the market the market as a whole, its own business sector and its direct competitors since yesterday, or over the past 52 weeks say, as revealed by the financial press? And if so, how does its return, evidenced by either dividend yields or P/E ratios, fit into a *comparative* performance analysis?

To answer these questions we shall therefore begin our analyses with the theoretical determinants of share price and specifically the *capitalisation of a perpetual annuity*. This concept underpins the derivation of *maintainable* dividend yields and the P/E ratio, which are published world wide in the financial press.

As we shall discover, this model enables current shareholders and prospective investors (including management) to evaluate the risk-return profiles of their latest dividend and earnings expectations *vis a vis* current share prices for any company of interest.

Moving on, we shall explain and analyse how share price listings that encompass dividends (the yield and cover) and earnings (the P/E ratio) are used to implement trading decisions (*i.e.* whether to "buy, sell or hold").

Having clarified the inter-relationships between these universally available measures, by which individual investors analyse stock market performance, we shall then explore two practical applications of stock market data that corporate management can implement to maximise shareholder wealth. Both applications not only provide an opportunity to reflect upon the relevance of dividend policy and overall profitability to investment and financial decisions. They also represent the most important strategic decisions that management is ever likely to encounter.

The first case concerns an unlisted company coming to the capital market for the first time that requires an aggregate "flotation" value and "offer for sale" price per share. Particular attention is paid to the dividend yield, dividend cover and price earnings (P/E) ratio required by future shareholders.

The second evaluates various valuation models and methodologies, which underpin acceptable "bid prices" that support *rational* managerial motives for acquiring another business as a "going concern" in the event of a "predatory" takeover

Having read this text, you should also be in no doubt that:

The derivation of a share's price that utilises NPV cash flow analyses of prospective earnings or dividends, rather than historical data drawn from published financial accounts, represents an ideal wealth maximisation criterion throughout the investment community.

Selected References

1. Fisher, I., *The Theory of Interest*, Macmillan, 1930.
2. Fama, E.F., "The Behaviour of Stock Market Prices", *Journal of Business*, Vol. 38, 1965.
3. Mackay, L.L. D., (originally published in 1841), *Extraordinary Delusions of Madness of Crowds*, Farrar, Strauss and Giroux, 2011.
4. Kindleberger, C.P.and Aliber, R.Z., *Extraordinary Manias, Panics and Crashes: A History of Financial Crises,* Palgrave and MacMillan, 2011.
5. Shiller, R.J., *Irrational Exuberance,* Princeton University Press, 2005.
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