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TABLE OF CONTENTS

LIST OF EXHIBITS	vi
RÉSUMÉ	vii
ABSTRACT	viii
CHAPTER I	3
Accounting Research and equity Valuation.....	3
CHAPTER II	8
Efficient Markets Hypothesis.....	8
2.1 Efficient Markets and Information Asymmetry.....	8
2.2 Efficient Markets and Information Asymmetry: George Soros.....	12
2.3 Reflexivity.....	13
2.4 The Stock Market as a Complex Adaptive System.....	14
2.5 Relationship between Market Value, ROIC and Growth.....	15
2.6 Distribution of Stock Market Returns.....	16
CHAPTER III	17
Fundamental analysis.....	17
3.1 Financial Statements – Are They Still Relevant?.....	17
3.2 Role of Fundamental Analysis.....	22
CHAPTER IV	25
Accounting-Based Market Studies.....	25
4.1 The Low Book-to-Market (BM) Anomaly.....	25
4.2 Future Earnings Growth.....	28
4.3 SUE – Standardized Unexpected Earnings growth.....	29
CHAPTER V	31
Fair Value.....	318

CHAPTER VI	38
Experiment and Supporting Research.....	38
6.1 Background.....	38
6.2 Theoretical Support of our Investment Process.....	40
6.2.1 Payout Yield Research.....	40
6.2.2 Support for Dividends.....	41
6.2.3 Return on Equity.....	42
6.2.4 How Do Accounting Variables Explain Stock Movement?..	43
6.2.5 Stock Repurchases and the EPS Enhancement Fallacy.....	47
6.2.6 Changing Motives for Share Repurchases.....	49
6.2.7 Study of US Utilities Sector; High Performance and ROEs..	50
6.2.8 Payout Yield.....	51
6.3 Summary of the Investment Concept and Approach.....	56
6.4 Description of Investment Model.....	57
6.4.1 Investment Universe.....	57
6.4.2 Time Frame.....	58
6.4.3 Data.....	58
6.4.4 Stock Screening and Selection Process.....	58
6.4.5 Use of Median.....	60
6.4.6 Portfolio Construction and Rebalancing.....	60
6.5 Results of Study.....	62
6.5.1 Portfolio Performance versus Benchmark Performance.....	62
6.5.2 Portfolio Payout Yield.....	64
6.5.3 Importance of Overall Portfolio Characteristics.....	66
 CONCLUSION.....	 70
 APPENDICE A.....	 78
 BIBLIOGRAPHY.....	 80

LIST OF EXHIBITS

2.1 Theoretical Relationship between Market Value, ROIC and Growth.....	15
3.1 Types of Fundamental Screens.....	33
5.1 Feedback Loops.....	36
6.1 Sustainable Outperformers.....	39
6.2 Distribution / Creation of Wealth.....	42
6.3 Predictive Return Regressions.....	41
6.4 Payout Yield through Time.....	45
6.5 Aggregate Dividends and repurchases Through Time.....	52
6.6 Average Annual Sector Dividend Yields and relative Returns.....	53
6.7 Regressions of Relative Returns on Dividends and Fundamental Factors.....	54
6.8 Sample of companies from 5-Factor Screen.....	61
6.9 Performance Summary.....	63
6.10 Payout Yield Summary.....	66
6.11 Portfolio Characteristics compared to the Benchmark.....	68
A.1 Investment Process.....	79

RÉSUMÉ EN FRANÇAIS

Suite à l'éclatement de la bulle du secteur de la technologie (dot-com) de nombreux experts ont proclamé que la recherche et l'analyse fondamentale est chose du passé. Le temps nous a démontré le contraire, et plus particulièrement lors de la récente crise du crédit où l'analyse fondamentale des états financiers et des données comptables s'est avérée un facteur crucial dans la prise de décision d'investissement.

Suite à ces événements récents, la demande pour la recherche fondamentale de haute qualité s'est fortement accrue, particulièrement celle de nature indépendante c.-à-d. des firmes qui n'ont aucun lien avec les sociétés analysées. Aujourd'hui, les investisseurs de partout à travers le monde ont un grand appétit pour ce type d'information à valeur ajoutée qui leur offre un avantage face à la concurrence

L'analyse des états financiers est un élément-clé dans le processus d'investissement et de l'analyse fondamentale. Lors de l'étude d'une entreprise, plusieurs facteurs sont prépondérants dans l'analyse des ses états financiers tel que la tendance des marges opérationnelles, l'analyse de levier financier, la qualité des actifs et les flux de trésorerie, etc.

De nombreuses études ont montré que les investisseurs peuvent obtenir des rendements anormaux (génération d'alpha) par l'utilisation de l'analyse fondamentale basée sur l'analyse des états financiers puisque les marchés financiers ne sont pas complètement efficaces.

Après avoir fait un revue de littérature sur le sujet, nous avons mis en place un portefeuille virtuel (re-balancement trimestriel) en tenant compte des facteurs suivants : 1) la croissance opérationnelle, 2) la rentabilité, 3) la redistribution des profits (dividende et rachats d'actions). Cette étude porte sur la période de janvier 2001 à juin 2007.

Les résultats ont illustré un portefeuille qui a surperformé de manière significative lors de marchés baissiers, tout en performant de façon similaire au marché pour les périodes haussières. Les résultats ont été significatifs et ainsi les informations collectées au cours de l'exercice ont été utilisées comme cadre théorique à l'intérieur d'un processus d'investissement existant à partir de septembre 2008.

Mots clés : analyse des états financiers, recherche fondamentale, marchés financiers.

ABSTRACT

With the bursting of the dot-com bubble, many pundits proclaimed that research and fundamental analysis were dead, but in fact just the opposite has proven true since then. The credit crisis has once again shown that fundamental accounting-based analysis has a bright future. Investors who took the time to carefully scrutinize the balance sheets of banks from 2005 to 2007 began to see a disturbing trend take form and they were able to then implement trading strategies to profit from the eventual carnage that ensued. There has never been such a strong demand for high quality research as independent research flourishes. The thirst for value-added information that can give you an edge over the competition has grown dramatically. Financial statement analysis is a key element of investing and fundamental analysis – margin trends, leverage analysis, asset quality, and cash flow – anything that can provide clues to whether a company can sustain its current performance, improve or falter is vitally important.

Numerous studies have shown that investors can earn *abnormal returns* (generate alpha) through the use of fundamental analysis of financial statements given that the financial markets do not fully discount the information contained in historical/current financial statements (Desai, Krishnanurthy and Venkaturaman 2007). There is a lag that allows traders to make gains and eventually close the *information gap*. We created a virtual equity portfolio (rebalanced quarterly) using screens for EBITDA growth (core operating performance) and profitability (ROE) while controlling for payout yield from January 2001 through June 2007. The results are a portfolio that significantly outperformed in a down market, while keeping pace with the market during rallies. The *virtual* results were encouraging and the information collected during the experiment was eventually used as the framework behind the investment process that is being used to manage a real investment portfolio as of September 2008.

Key words: fundamental analysis, financial statement analysis, financial markets.

INTRODUCTION

What is the role of accounting research with respect to the equity markets and stock valuations? The role that accounting researchers can play is an important one. The myth of efficient markets has been called into question in recent years, thus fundamental analysis can be a very useful tool to identify winners and losers.

Financial statements are one of the key and most readily available sources of information that can be used in the fundamental analysis process. Who is better placed to analyze financial statements than accounting researchers?

Bauman (1996) believes fundamental analysis involves an assessment of a firm's value (without reference to the actual price), activities and prospects through published financial reports, as well as other sources of information.

According to Penman (1992), "The task of research is to discover what information projects future earnings and, from a financial statement analysis point of view, what information in the financial statements does this."

Fundamental analysis is an area of great relevance, a high profile subject matter and wide open to accounting research. More importantly, investors are interested in this type of research, especially when the methods and models can be used in real world scenarios to deliver excess returns.

While the Efficient Market Hypothesis (EMH) has been the foundation of capital markets research in accounting and has served market researchers and practitioners well, the time has come for the concept to evolve to the next stage. While the market and individual stocks tend to ultimately move to *fair value* the process can take long periods of time and fair value may be only be achieved for relatively short periods of time. The fact that securities spend very little time at fair value implies that alpha generating strategies can be developed to take

advantage of these fair value discrepancies in the market. It remains by no means *easy* to beat the market on a consistent basis, but it can and has been done.

The belief that markets are efficient has long been a guiding principal of capital markets research. The arguments in favor of efficient markets have been weakened in recent years. While the theory of the rational investor properly processing all value-relevant information is plausible in the theoretical world; information asymmetry and irrational behavior abound in the marketplace. Prices do eventually move towards fair value, but they do not stay there for long, rather prices oscillate above and below fair value (sometimes at extremes) for extended periods of time. Consequently, active investors can add value, although it remains difficult to do so over extended periods of time.

While there has been an increased use in low-cost index tracking products in recent years, there have also been large sums of money that have flowed into high fee hedge funds. The entire hedge fund sector is based on the belief that arbitrage opportunities are available in the market and can be exploited. This being the case, the absolute explosion in the number of hedge funds has led to a watering down of results as the talent pool thins out, with some of the weaker players being weeded out by the credit crisis in recent months.

The savings & loan crisis, the Long Term Capital Management (LTCM) crisis, the Dot-com bubble and most recently the mortgage-related credit crisis that has engulfed the US financial system further highlight that investors do not always behave in a rational manner and that valuation can become far out of touch with reality (fair value). While it is true that market forces eventually lead to a readjustment it is becoming increasingly difficult to argue that markets are efficient given the carnage.

The first part of this essay presents an overview of the key issues and debates regarding accounting research, fundamental analysis and the capital markets. The second part is an attempt to create a stock selection model whereby we develop and implement a stock screening process based on readily available accounting information and analyst forecasts. The selection process looks at growth, profitability and payout data.

CHAPTER I

ACCOUNTING RESEARCH AND EQUITY VALUATION

Historically, most of the work done in this domain has emphasized the informational perspective of accounting and the traditional valuation models such as the dividend discount model. The fundamental analysis school of thought, which includes researchers such as Stephen Penman, believes a firm's value can be derived through financial statement analysis. Stocks are believed to deviate from their true fundamental value, sometimes for extended periods of time, but eventually the price moves back towards its fundamental value. This does not mean it remains at its fundamental value for very long as it may overshoot to other direction.

Articles by Ball & Brown, as well as Beaver are generally regarded as turning points in the history of accounting research. Post 1968 research has tilted towards empiricism, has been deemed normative and follows the *positive* line of thought as apposed to the *prescriptive and descriptive* approaches that dominated the literature prior to 1970 (Gaffikin, 2007). The *systematic* use of empirical data was facilitated by the widespread availability of financial databases along with easier access to more and more powerful computers that made number crunching easy allowed a myriad of theories to be tested in much less time than was the case in prior generations(Gaffikin, 2007). The backbone of this research was the Efficient Market Hypothesis (EMH), developed by Fama and French that hypothesizes that security prices reflect all available information.

Ball and Brown's seminal 1968 study built upon existing research in finance and economics, which focused on fundamental analysis of which studying financial statements was a key element. Ball and Brown (1968) tried to identify the usefulness or importance of accounting information for the security markets and the subsequent impact on security prices (Gaffikin,

2007). What information moves share prices and what information is useful in identifying future stock movements?

For most of the 1970s and 1980s research in accounting accepted for analysis purposes EMH and the linear relationship between risk and reward, but since the 1990s there has been increased criticism of EMH. In 2004, Eugene Fama stated that markets may not be efficient because of poorly informed investors acting irrationally (Gaffikin, 2007).

Ou & Penman (1989) believe an analysis of published financial statements can uncover mis-priced stocks (expensive or inexpensive) and that investment strategies can be derived using the fundamental information in financial statements.

According to Bauman (1996), the 1990s saw a shift towards the development of the fundamental analysis perspective;

1. More theory-based equity valuation models,
2. Few ad hoc assumptions between future earnings, dividends and cash flows,
3. Focus has shifted from explanation of observed stock prices to the prediction of future profitability,
4. More contextual approaches.

There are many different types of studies conducted, but some of the most commonly used are (Gaffikin, 2007);

1. Event studies; information announcements and the impact on share prices,
2. Association studies; correlation between the *information content* accounting information and share price returns,
3. Fundamental analysis; search for *intrinsic value*.

What is interesting in all this is that it is exactly all these researchers and analysts looking for arbitrage opportunities that eventually lead to individual securities and the broader markets

closer to an efficient state, although *other* market forces inevitably continue to work against broader efficiency.

The market is complex and moves in many directions for many different reasons. While sell-side analyst forecasts are often used as the basis for analysis, many stocks, especially the more cyclical names tend to move down way before analysts lower estimates or raise estimates. Gaffikin (2007) states that;

There is mounting evidence that many investors do not act rationally as believed (in EMH); they, in fact, act (economically) irrationally. Accordingly, there has been a distinction drawn between *smart money* investors and noise (or liquidity) traders. It has been found that there is a very significant amount of noise trading and it is probably responsible for the volatility in realized returns. As noise trading is irrational, it is not possible to statistically or mathematically model it, which has direct implications for much accounting research. (Gaffikin, 2007, page 9)

Ou & Penman (1989) specify that financial statement analysis is the process by which investors and researchers identify value-relevant information contained within a company's financial statements. Ou & Penman highlight two different approaches to financial statement analysis;

1. Capital markets theory in that price equals value or is at least a good approximation over the long-term
 - i. Market price is a good proxy for value,
 - ii. Look for signals to future stock price gains,
 - iii. For example Ball & Brown (1968) found that accounting earnings are valued positively by investors,
 - iv. Graham & Dodd (1962) "future earnings power" is the single most important factor to consider in valuation,
 - v. Dividends paid from earnings,
 - vi. Thus, given that future earnings are value relevant – identify factors in the financial statements that are able to predict earnings.

2. Traditional fundamental analysis where price does not equal value
 - i. Financial statements are used to calculate intrinsic value,
 - ii. Share price converges to intrinsic value.

The theory of efficient markets needs to evolve because while a stock price may contain all known information, a large part of the stock price is based on expectations about the future, which are inherently difficult to predict. It is perhaps these false assumptions about that future leads to inefficiency as the market extrapolates current positive trends too far into the future or assumes a stock will never emerge from a particular market environment such as a recession. This is what makes the markets so difficult to predict – the infinite nature of the game. Market prices are influenced by numerous factors including a company's specific history, current economic conditions, macroeconomic outlook, political factors and the list goes on.

According to Ohlson's (1995) interpretation of the Modigliani & Miller theorem;

Dividends displace market value on a dollar-for-dollar basis, so that dividend payment irrelevancy applies. Furthermore, dividends paid today influence future expected earnings negatively. This separates the creation of wealth from the distribution of wealth. (Ohlson, 1995, page 2)

If we follow the positive school of thought Nissim and Penman (2001), state that in an applied discipline such as accounting, the goal of research should be to influence practice;

Theory can be admired on a number of dimensions, but a stream of research is ultimately judged on the products it delivers, how it enhances technology. (Nissim & Penman, page 1)

Nissim & Penman highlight that equity valuation research in the finance field has stagnated in recent years and has not moved much beyond the traditional dividend discount model. This has in turn opened the door to accounting researchers who have been able to use their particular knowledge of the intricacies of financial statements to make significant advances in the field of equity valuation field. An example is Ohlson's residual income model has been an important contribution to the valuation debate.

The process of *capital markets research* is all about the *information content* of financial statements in determining stock prices. A great number of empirical studies have been conducted, but there has been a failure to develop robust *structural* models. The residual income model is one of the few in this sense. The residual income model was validated by Penman (1997) who found no difference in valuation between the residual income model, dividend discount model and discounted cash flow approaches.

CHAPTER II

EFFICIENT MARKETS HYPOTHESIS

2.1 Efficient Markets and Information Asymmetry

The financial markets are a dynamic environment that is constantly being bombarded by infinite quantities of information and signals coming from all directions. Efficient market theory puts forward the idea that investors cannot successfully trade (earn excess returns) using publicly available information because this information is already woven into the price of a security.

This being said the financial markets may not be as efficient as previously believed, at least not in the traditional sense of all information being immediately implanted in stock prices. There has been a growing trend amongst researchers and market participants towards the loosening of the efficient market hypothesis developed by Fama. According to Lee (2001), stock prices do not adjust to information instantly, but rather price converges toward fundamental value through time as various types of traders (both sophisticated and non-sophisticated) act on pieces of available information. Lee believes accounting research has a golden opportunity to add value in this type of environment;

Professional arbitrage involves careful monitoring of an evolving set of information sources and ongoing evaluation of their effect on market pricing dynamics. Accounting researchers can contribute to this process by developing lower cost techniques for market arbitrage. (Lee, 2001, page 10)

Lee's viewpoints differ from Bauman in that he believes researchers should not ignore the current market price, but rather accounting researchers should seek to *improve it*.

Beaver suggests the following four implications for accounting policy's role in the efficiency debate;

1. Accounting policy choices do not affect security prices as long as policies are disclosed,
2. Full disclosure in financial statement is needed to achieve an efficient market,
3. An efficient market implies that naïve investors will be *price-protected* by professional investors,
4. Accounting information is but one source of information for the markets.

We agree with Beaver's assessment that accounting policy does not affect security prices as long as policy is clear to all and we also agree with the last point that accounting information is but one source of information. On the other hand we doubt that full disclosure in financial statements will result in an efficient market because the financial statements contain historical information, whereas a company's stock price is a function of past information and expectations about the future.

Information asymmetry results when investors do not have all the necessary information to make informed decisions. A company's financial statements are one mechanism whereby companies can communicate important and relevant information to current and potential investors.

The presence of anomalies such as post-announcement drift and the interpretation of accruals call into question the efficiency of the capital markets. Once the principle of efficient markets is called into question, what are the implications of this for accounting research? Rather than cast a shadow over accounting research, we believe this creates an opportunity for academics to explore different methods and develop new theories.

As Ou & Penman (1992) highlighted, share prices eventually move towards the correct value, but this process can take a long time and investors can make or lose a great deal of money waiting for the share price to move to an efficient level.

Bird et al. (2005) question the existence of efficient pricing from a slightly different perspective. Their research paper delves into what are the necessary conditions required for

an efficient market and are these conditions in place? The interesting aspect of this article is that it weaves the impact of investment styles into the efficient markets debate. Moreover, what impact do index investing and momentum investing have on market efficiency? Momentum and technical investing have become increasingly popular in recent years with many investors paying little or no attention to the fundamentals, but rather preferring to examine charts and trends. While hard to calculate, a significant number of market practitioners manage money with little or no regard for the underlying fundamentals.

Bird et al. suggest the availability of information (lack of information asymmetry) and the existence of a large number of rational, profit maximizing investors are necessary to the concept of efficiency. The increasing popularity of index funds has led to greater than 25% of funds in many developed equity markets being managed in this manner. Add to this the closet indexers, momentum investors and technical investors and we have a significant percentage of the market that is not relying on fundamental analysis. Therefore these types of investors are not helping the price discovery process, but rather are trading on noise. The research paper attempts to model the market behavior of three types of investors;

1. Fundamental investors,
2. Index investors,
3. Momentum investors.

A simulation model using the three types of investors is developed and the weight of each investor class is varied in an attempt to examine price behavior. The findings offer some interesting insights into market behavior. Here are the principal results as stated by Bird et al;

1. Confirmation that a market largely composed of fundamental investors will result in a high level of market inefficiency in that prices will quickly react to the release of new information,
2. The introduction of index investors into the model progressively slows this reaction to new information as they come to represent an increasing proportion of the market,

3. Finally, the addition of another investor type, momentum investors, further slows the market reaction to new information, but will invest when a drift in prices becomes established, which eventually leads to an overreaction.

Even though the study is not based on a *real world* scenario, it is nonetheless thought provoking and warrants further examination.

Hirschleifer et al. (2004) tackle the information asymmetry issue and the lack of efficiency in the markets from a different perspective. They state;

Limited investor attention and processing power cause systematic errors that affect market prices. (Hirschleifer et al., 2004, page 3)

Furthermore, they believe investors tendency to focus on a few well-known and widely-followed variables leads to the failure by many to assess the *complete* financial profile of companies. This complete financial assessment process takes time and explains, in part, why prices adjust slowly to fair value.

Interestingly, Hirshleifer et al. use the formula put forward by Penman as the DNA of the modern accounting system;

- Net Operating Assets = (sum of Operating income) – (sum of FCF)

They investigate a phenomenon they refer to as *balance sheet bloat* and develop a trading strategy based on this concept. According to the authors, NOA is a cumulative measure of the deviation between accounting value added and cash value added, hence *balance sheet bloat*. An increase in accounting earnings without a commensurate increase in free cash flow (FCF) puts into doubt future profitability.

The authors put forward some reasons behind underperformance by high NOA firms. They postulate that NOA may be an indication of earnings management by the firm. Even in the case where it is not the result of earnings management, but just coincidence the outlook is still negative for the company.

The results of the hypothetical trading strategy indicate that NOA is a *strong and robust* indicator of future performance for at least three years. Hence, investors overestimate future performance of high NOA firms. The adjustment process afterwards takes time and the company is likely to disappoint for an extended period of time. The opposite is also true as firms with a low NOA may be underappreciated by the market and are likely to outperform going forward.

2.2 Efficient Markets and Information Asymmetry: George Soros

In his most recent book, *The New Paradigm for Financial Markets*, George Soros, the billionaire investor and philanthropist, argues that the theory that markets always move towards equilibrium is a flawed theory that has led us dangerously close to the edge of a disaster, especially given the amount of leverage and the mind-numbingly complicated nature of many modern financial instruments. In an interview for Bloomberg News Soros adds;

The belief that markets tend towards equilibrium is directly responsible for the current market turmoil. It encouraged the regulators to abandon their responsibility and rely on the market mechanism to correct its own excesses. (Soros, 2008)

A 25-year secular decline in interest rates along with the political/academic belief that markets tended towards fair value due to the efficient market hypothesis has culminated in a major crisis that has practically paralyzed global credit markets. Soros goes on to state that rather than rational behavior a vicious two-way feedback loop that he calls *reflexivity* that revolves around misjudgments and misconceptions that can influence market prices for extended periods of time. While Soros' relies heavily on anecdotal evidence and on personal opinions his work remains thought provoking and has enriched the global debate.

2.3 Reflexivity

The theory of reflexivity is particularly interesting when considering when considering EMH;

Reflexivity refers to the circular relationship between cause and effect. A reflexive relationship is bi-directional; with both the cause and effect affecting each other in a situation that renders both functions causes and effects. Reflexivity presents a problem for science because if a prediction can lead to changes in the system that the prediction is made in relation to, it becomes difficult to assess scientific hypotheses by comparing the predictions they entail with the events that actually occur. Reflexivity is discordant with equilibrium theory, which states that markets move towards equilibrium and that non-equilibrium fluctuations are merely random noise that will soon be corrected. Reflexivity asserts that prices do in fact influence the fundamentals and that these newly-influenced set of fundamentals then proceed to change expectations, thus influencing prices; the process continues in a self-reinforcing pattern. Because the pattern is self-reinforcing, markets tend towards disequilibrium – a case in which every outcome is uniquely different from the past in a visible absence of equilibrium. Flanagan (1981) and others have argued that reflexivity complicates all three of the traditional roles that are typically played by a classical science; explanation, prediction and control. The fact that individuals and social collectivities are capable of self-inquiry and adaptation is a key characteristic of real-world social systems, differentiating the social sciences from the physical sciences. Reflexivity, therefore, raises real issues regarding the extent to which the social sciences may ever be 'hard' sciences analogous to classical physics, and raises questions about the nature of the social sciences. (Wikipedia)

Nelson (Legg Mason – 2008) believes that short-sellers in the financial market have seized upon Soros' theory of reflexivity, especially since the uptick rule was removed in July 2007, to endlessly hammer down stocks and sometimes through the spreading of false rumors. Nelson believes that financial stocks, due to the high degree of leverage, are very susceptible to this as any loss of "confidence" is detrimental to business.

2.4 The stock market as complex adaptive system

As questions grow around the efficient market hypothesis, new theories develop that attempt to build upon existing theory (EMH) by incorporating work from other domains where theory has already evolved a little further. According to Maboussin (2002), the markets can be described as a complex adaptive system dominated by potentially irrational participants operating with incomplete information and relying on various decision rules. While the efficient market hypothesis has served us well Maboussin believes the current evidence now longer supports the theory and it does not stand up to the available empirical evidence given that numerous researchers have discovered tradable anomalies. Inherently, it is the discovery of these trading anomalies, which after being put into practice help restore the market to its efficient state, but that at that point there are probably other anomalies that will be discovered, hence a complex adaptive system.

The assumption that investors are rational and well-informed is also questionable. Capital markets theory is based on the assumption of normal returns; the reality is that the return distributions exhibit high kurtosis with fat tails. It is precisely these fat tails that have led us into trouble, or rather the discounting of these fat tails as highly unlikely events that has led us into trouble. Maboussin believes that while traditional capital markets theory has served us well, it is time to build upon this theory and move to the next phase. Maboussin proposes what he calls, *the stock market as complex adaptive system*. This theory builds upon theories already used in other sciences such as physics and biology. A complex adaptive system contains several essential mechanisms and properties;

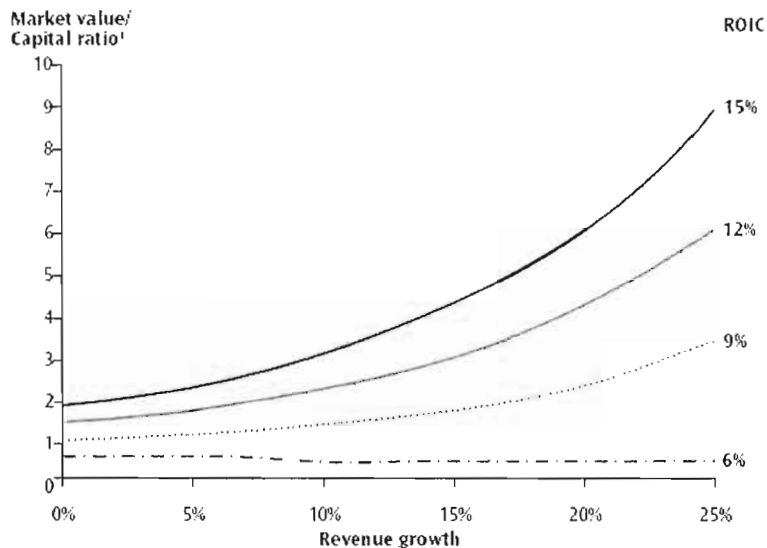
1. Aggregation; the emergence of complex, large scale behaviors from the collective inter-activeness of many less complex systems,
2. Non-linearity; cause and effect may not be simplistically linked, but may instead interact to produce exaggerated outcomes,
3. Feedback loops; amplify positive feedback and dampen negative feedback (i.e. momentum investors)

2.5 Relationship between Market Value, ROIC and Growth

Exhibit 2.1. Theoretical Relationship between Market Value, ROIC and Growth

Exhibit 4.1 Theoretical Relationship between Market Value, ROIC, and Growth

WACC = 8 percent



¹Assumes a competitive advantage period of 10 years, after which ROIC = WACC is assumed.

Source; McKinsey (2005)

According to McKinsey (2005), the well-regarded international consulting firm, while irrational behaviour can drive stocks in the short-term, the stock market is ultimately grounded in fundamental economic logic. ROE, growth and free cash flow drive long-term value with the market paying up for higher returns and higher growth. McKinsey believes in efficient markets, but acknowledges swings caused by emotions exist. “Market-wide price deviations are short-lived: over the past few decades, the market corrected itself within a few years to price levels consistent with economic fundamentals.” (McKinsey, Valuation, p. 70)

McKinsey claim that cash flow, lead by a combination of revenue growth and return on capital drives the firm value. There is a strong relationship between total return to shareholders and changes in performance expectations.

The market is not interested in accounting choices, but rather investors care about the firm's underlying financial performance. McKinsey contend the market is efficient, but inefficiency can last up to four years. This ends up being a question of semantics, but I must admit that four years is a long time given that the average holding period of market participants is closer to 1 year.

2.6 Distribution of Stock Market Returns

The mathematical characterization of stock market movements has been a subject of intense interest. The conventional assumption that stock markets behave according to a random Gaussian or normal distribution is incorrect. Large movements in prices (i.e. crashes) are much more common than would be predicted in a normal distribution. Research at the Massachusetts Institute of Technology shows that there is evidence that the frequency of stock market crashes follows an inverse cubic power law. This and other studies suggest that stock market crashes are a sign of self-organized criticality in financial markets. In 1963, Benoît Mandelbrot proposed that instead of following a strict random walk, stock price variations executed a Lévy flight. A Lévy flight is a random walk which is occasionally disrupted by large movements. In 1995, Rosario Mantegna and Gene Stanley analyzed a million records of the S&P 500 market index, calculating the returns over a five year period. Their conclusion was that stock market returns are more volatile than a Gaussian distribution but less volatile than a Lévy flight. Researchers continue to study this theory, particularly using computer simulation of crowd behavior, and the applicability of models to reproduce crash-like phenomena. (Wikipedia – 2008)

What do we glean from the above extract? Well, knowledge of the day and belief systems is fluid and what is believed to be true today, may not be tomorrow, next week or one year from now. Consequently, accounting researchers can continue to challenge established beliefs and move in new directions with new theories and experiments. This also goes beyond the Efficient Market Hypothesis (EMH) debate and extends to the broader debate around Modern Portfolio Theory (MPT). MPT is being questioned as long-held beliefs surrounding risk, return and diversification come under closer scrutiny. In times of crisis the correlation of returns between asset classes believed to have low correlations appears to have increased.

CHAPTER III

FUNDAMENTAL ANALYSIS

3.1 Financial Statements - Are They Still Relevant?

The world is a funny place subject to many changes in trends and fashions. This also holds true for the financial markets. The 1990s saw the emergence of the technology bubble that eventually bust at the start of the new millennium. Investors were often encouraged to look beyond the current financial statements and extrapolate certain unrealistic and unsustainable growth expectations well into the future in an attempt to justify bloated stock prices. The value and esteem of financial statements went down in the eyes of the investing public.

What followed was a stock market crash, scandals and enormous wealth destruction. Strangely the argument quickly shifted to how financial statements and accountants let investors down by not properly protecting investors from the capital destruction. The evidence was to a certain degree already in the financial statements, but investors chose to ignore it.

Penman (2002) acknowledges that the concept of accounting quality is vague and hard to define. Penman looks at the issue from the *proprietorship prospective* of accounting theory whereby financial statements are prepared for the benefit and use of common shareholders. This contrasts with the *entity perspective* where financial statements are prepared for the benefit of the firm. Penman points out some of the main criticisms of the entity perspective starting with the absence of discussion regarding property rights, the division of claims to the firm that result in *non-discriminating and even ambiguous accounting*.

Earnings or rather the quality of earnings and their usefulness in predicting future earnings is a central theme of Penman's work. Investors pay for future earnings, but use current earnings as an input in the future earnings prediction model.

Penman's poor features of GAAP earnings;

1. Little emphasis on the shareholder equity statement,
2. Not enough clarity on the debt versus equity financing and its impact on earnings,
3. Prices in financial statements,
 - a. Mark-to-market of equity investments,
 - b. Pension asset gains.

Penman's good features of GAAP earnings;

1. Prices not in financial statements,
2. Revenue recognition and matching,
3. Accrual accounting,
4. Knowledge assets.

Penman rebuffs the notion that financial statements are backward looking or merely a snapshot of historical events. He points to various studies that highlight how current earnings can act as an indicator to future investors as well as the many investment strategies based on financial statement analysis that are able to consistently generate positive alpha.

According to Penman, financial statement analysis is useful in predicting future earnings because of the inherent *structural feature of the financial reporting model*;

- Operating income = free cash flow + change in net operating assets

Furthermore, the interaction between variables in the double-entry accounting process results in a chain reaction throughout the financial statements. This trail can be followed

through diligent financial analysis. So the problem lies not in GAAP or accounting standards, but in the decline of firms' and accountants desire to act in good faith.

In 1998, then chairman of the SEC, Arthur Levitt, gave a speech in entitled *The Numbers' Game*, which was a scathing review of earnings management practices. The timing of the speech is interesting from a historical perspective, as we all know what happened just a few years later. Levitt was concerned that Wall Street's obsession with quarterly earnings was leading to a breakdown in corporate ethics and the quality of earnings was in serious doubt as managers scrambled to hit earnings targets through the use of sometimes-dubious practices. At the core of the problem, at least in Levitt's view, was that some managers were trying to fool the market by exploiting the inherent flexibility in the accounting process; a flexibility that was built into the system to allow it to adapt to current innovations, not manage earnings.

The Chairman highlighted several areas where practices were particularly disturbing including;

1. *Big bath* charges,
2. Creative acquisition accounting,
3. Miscellaneous *cookie jar reserves*,
4. Materiality,
5. Revenue recognition.

An action plan was also proposed focusing on three areas;

1. Technical rule changes (more rules and strict guidelines),
2. Enhanced oversight (enforcement),
3. Cultural change at the corporate level (corporate governance).

While I agree with two of the Chairman's points including the need for cultural change at corporate level and more enforcement, I disagree in the area of more rules in place to limit flexibility. Prior research has not confirmed that US GAAP produces financial statements of superior quality to IAS, despite being more rules-based.

In response to Levitt's call for more rules in his 1998 speech, Lundholm (1999) tackled the issue of information quality in financial statements from another angle. He argues that the call for stricter guidelines will eventually have the reverse effect on financial statements and lead to less informative statements. Lundholm adopts the viewpoint that rather than mandating new standards in an attempt to eliminate discrepancies, a more pro-active approach should be adopted. Firms should be encouraged to choose the best measures themselves and augment disclosure. Companies will be encouraged to provide disclosure on past estimations (i.e. accruals) and re-evaluate past balances. Investors will then be able to see what percentage really occurred and how much were false estimates. The market will likely punish those firms that do not take advantage of this.

Lundholm suggests increasing the leeway in the current system, but at the same time putting in place mechanisms that would allow regulators and investors the ability to make a value judgment on the attainability of future results (i.e. accruals). This method would be useful for soft items such as accruals and research and development.

The method is also useful in that it will help improve comparability between companies, while providing some past reference guidance for investors. Firms take more responsibility for reporting and auditors will be in a better position to assess prior estimates.

The CFA institute released a working paper in July 2007 entitled *A comprehensive Business reporting Model – Financial reporting For Investor*. The crux of the paper was to highlight the importance of financial statement reporting for investors and investment professionals. The financial statements and the business reporting model is the *lens* through which investors can analyze a company's results and a key element of the investment analysis process. Financial statements and disclosures provide critical information to investors;

The ability to make high-quality, independent, objective and reliable investment decisions depends not only on our expertise in the use of analytical and valuation techniques, but also on the quality of the information available for us to collect, analyze and incorporate into our valuation models. (CFA Institute, 2007, page 7)

For a long period of time capital markets based empirical research in accounting relied heavily on the premise of market efficiency. This began to change in the 80s and 90s as work from Penman, Ohlson and others pushed for more emphasis on valuation. The quest for intrinsic value and the use of accounting information to identify mis-priced stocks intensified in recent years. This type of research has also gained in popularity because of the potentially large economic benefits associated with identifying high value-added (generate alpha through implementation of trading strategy) information relationships.

Garcia-Ayuso and Rueda (1999) published an interesting article during the last stock market bull run, - *Is Accounting Information losing Relevance – Evidence From Spain*;

Investors seem to attach little or no relevance at all to earnings and book values when they assess the value of firms operating in fast-changing, technology intensive industries...if investments in intangibles result in earnings and book values that do not reflect the true financial position of the firm, a growing trend in these investments is likely to result in a decreasing value relevance of accounting numbers. Ayuso & Rueda 1999, page 5)

My how this idea was shattered with the advent of the Millennium!

Valuation is a mix of history and future prospects (Barth, Beaver and Landsman 2000). Equity market values lead accounting information in reflecting value relevant information. Equity market values contain more than just past accounting information, but this does not mean that certain accounting information (i.e. accruals) cannot help in determining future value or have predictive power. A main controversy of valuation-based research is that the main market (demand) is non-academic;

Value relevance studies typically do not lead to normative conclusions or specific policy recommendations. (Barth et al., 2000, page 12)

3.2 The Role of Fundamental Analysis

The strength of the Efficient Market Hypothesis has been eroded in recent years as market prices may trend towards efficiency over the long-term, but prices can hover above or below fair value for extended periods of time. An adaptive process of efficiency is in place. The analysis of accounting information and its impact on equity markets is a very active and often controversial research issue in accounting and finance (Briginshaw 2004). On the one hand there are those who back efficient market hypothesis and believe the output of fundamental analysis is already *in* the share price, while at the same time there is a huge demand for any profitable trading strategies derived from fundamental analysis.

If we look at the recent credit crisis there were some investors who made enormous amounts of profits by positioning themselves *short* the financial sector and more specifically investment banks. The balance sheets of institutions such as Washington Mutual, Bear Stearns, Citigroup and Leman were examined as early as 2005 by certain investors and these shrewd investors realized that; 1) leverage was way too high (30x in some instances), and 2) the quality (value) of assets was deteriorating (risk increasing). An exogenous event such as dislocations in credit markets, a slowing economy or a bursting of the construction cycle could (and did) potentially result in the need for banks to undertake significant de-leveraging initiatives, which is what started to happen in mid-2007. Briginshaw (2004) suggests that fundamental analysis is in essence an attempt to list stocks from most to least preferred.

Exhibit 3.1.: Types of Fundamental Screens

Type	Order stocks by	Example	Description
1	Intrinsic value	Frankel & Lee (1998)	Use accounting fundamentals to estimate intrinsic value, and so order stocks
2	Intermediate value indicator	Ou & Penman (1990)	Use accounting fundamentals to predict future values of a statistic deemed to be important for value, such as change in earnings
3	“Stock screen” type indicator	Soliman (2003)	Use accounting fundamentals to directly guide the formation of portfolios

Source; Briginshaw (2004)

According to Mohanram (2003) the market is complex, but also inherently simple. Investors are concerned with the big picture and key off signals such as growth, quality (ROE) and trend (improving ROE). Mohanram (2003) found that the use of fundamental analysis, when properly modified, can help in the selection of growth firms – separate future winners from losers. Lots of work has been done on high book/market stocks, but very little work has been done on the importance of fundamental analysis when related to growth stocks – an area where the fundamentals sometimes take a back-seat to more abstract interpretations of valuation.

In separating winners from losers Piotroski (2000) looks at profitability, cash flow profitability, operating efficiency and liquidity as key differentiating factors. Both Piotroski (2000) and Mohanram (2003), when discussing fundamental analysis state that being profitable is important, but more important is showing an increased trend of profitability. Firms that are currently profitable are likely to continue being profitable in the future. Firms increasing profitability are assigned a higher value as the market extrapolates the improving trend into the future. Firms that generate cash flows tend to have higher quality earnings that are more likely to persist into the future. Improving margins and operating growth on the back of a lower equity base means that operating efficiency is improving. Given that cash flow is viewed as the life-blood of all firms, a firm that can generate enough cash through operations to auto-finance growth, while at the same time paying out cash to shareholders is making a demonstration of quality and strength. Less use of debt and equity markets is positively viewed by the market.

Contrary to other studies that found that the market is too quick to assume current high growth continues indefinitely into the future Mohanram (2003) finds that the market does not fully discount the current fundamentals, but rather is surprised when the strong firms remain strong and the weak firms remain weak.

CHAPTER IV

ACCOUNTING-BASED MARKET STUDIES

4.1 The Low Book-to-Market (BM) Anomaly

There have been many research studies in recent years on the book-to-market (BM) phenomenon and its impact on performance. Low BM firms are expected to underperform going forward, while high BM firms are expected to outperform. This is the classic value versus growth debate. Expectations for low BM (growth) firms may be too high leading to eventual deception, while high BM firms may be underestimated, thus surprising to the upside.

Piotrosky (2000) tackles a common theme of high BM firms' tendency to outperform, but with a twist. Piotrosky applies an accounting-based fundamental analysis strategy to improve the risk/return profile of a high BM portfolio. Typically high BM portfolio returns are driven by the outperformance of a few star performers. Piotroski tries to find evidence of certain characteristics that can be analyzed that will allow the cream of the high BM stocks to rise to the top. The goal is to identify those companies, which are simply undervalued because the market is missing the positive aspects of the story from those firms that are simply unattractive stocks. The high BM stocks are particularly suited to this type of fundamental analysis because they are often firms followed by relatively few analysts and less influenced by market noise.

Piotroski points out that high BM firms tend to be neglected stocks with very little available forecast data because analysts do not spend time on these often small and thinly traded names. This may be a clue that the market may be underestimating the future potential of certain firms, leaving room for upside surprises. Financial statements are ideal or rather are the most appropriate method to analyze these types of companies because a useful

consensus of future earnings and cash flows are not available making the traditional discounted cash flow models inappropriate.

An investment strategy based on nine variables in three categories is used to separate the winners from the losers;

1. Profitability
 - i. ROA
 - ii. CFO
 - iii. Change in ROA

2. Leverage
 - i. Change in leverage
 - ii. Change in liquidity
 - iii. Capital increase

3. Operating Efficiency
 - i. Change in margin
 - ii. Change in asset turnover
 - iii. Accruals

The sample uses Compustat data from the period including 1976-1996. 14043 high BM firms across 21 years are examined. The use of these particular ratios to differentiate quality from non-quality firms results in superior performance. The author stresses that the ratios chosen are not necessarily the most optimal factors, but they nonetheless are useful in continuing that financial statements can be used to develop moneymaking strategies.

The results of Piotroski's test contradicts Fama & French's claim that the high BM firms outperform simply because they are financially distressed firms, thus creating a high risk and high return scenario. According to Piotroski's findings;

The evidence supports the view that the financial markets slowly incorporate public historical financial information into prices and that the sluggishness appears to be concentrated in low volume, small and thinly followed firms. (Piotroski, 2000, page 34)

Mohanram (2004) uses financial statement analysis to find signals of over-excitement and conservatism. The interesting part of this study is that it concentrates on low BM firms as he attempts to separate the future winners from losers. Hence, which growth firms are the real deals and which are merely flashes in the pan?

Mohanram's strategy is to buy the companies with the strongest growth fundamentals and shorting the firms with the weakest fundamentals. The strategy relies entirely on publicly available historical financial information statements. Using these financial statements three types of signals were developed;

1. Fundamental profitability and cash flow
 - i. ROA > industry median
 - ii. Cash flow ROA > industry median
 - iii. CFO > net income

2. Naïve extrapolations of present data
 - i. Earnings variability < industry median
 - ii. Sales growth variability < industry median

3. Low BM because of conservative accounting
 - i. R&D > industry median
 - ii. Cap Ex > industry median
 - iii. Advertising > industry median

4. Mohanram analyses the fundamentals from a mispricing perspective and not a risk effect.

Data used and time frame;

1. Compustat 1979-1999
2. All low BM firms

The results of the study are fascinating because it provides evidence that fundamental analysis can be useful even in a growth firm environment where the traditional focus has been on non-fundamental analysis to justify high share prices.

4.2 Future Earnings Growth

Earlier in this report we highlighted Penman's (1992) view that researchers should try to decipher what financial information helps predict future growth. Li (2003) builds on this idea and tries to not only find factors that can predict future earnings, but he also tries to quantify (forecast) future earnings growth several years out. This implied earnings growth from the financial statement analysis is then compared to analysts' growth forecasts. This approach is relevant because earnings are a key element in determining stock prices. Investors pay for earnings with the most common financial models trying to estimate future earnings and then discounting the results back to a present day value.

Li isolates operating income in an attempt to exclude leverage and focus on value generating activities. Performance measures from existing studies and strategies (ROA, accruals) are used to develop a template that is supposed to generate a useful earnings growth forecast model.

The study proposes three findings;

1. Financial statement analysis can yield dependable forecasts of long-term earnings growth.
2. Analysts' long-term earnings forecasts do not fully reflect or incorporate financial statement information.
3. The market does not fully reflect financial statement information, thus leaving the door open to financial statement based strategies.

While Li's study adopted an interesting perspective, the actual results were weak as the model had only minimal explanatory power, making the predictive nature of the model weak. Alas, more work needs to be done building on Li's work.

4.3 SUE – Standardized Unexpected Earnings

Collins & Hribar (1999) examine two well-known anomalies – post earnings announcement drift and the accrual anomaly in order to gauge if these anomalies *capture the same market inefficiency* or whether they are unrelated anomalies.

Post-earnings announcement drift refers to the tendency of share prices to drift in the same direction as the initial direction of a share price move following an earnings surprise. This *drift* tends to last in upwards of 120 days. Investors extrapolate the good news into the future.

Accrual anomaly recognizes that the market does not recognize that accruals are less reliable than cash flows, leading them to overvalue shares of firms with bloated accrual levels. This subsequently leads to underperformance.

Collins and Hribar build on Sloan's zero net investment hedge portfolios;

1. Long firms with largest negative accruals,
2. Short firms with largest positive accruals.

Sloan's strategy was able to generate positive excess returns. The authors modify Sloan's study by shifting it to a quarterly basis from an annual basis in order to make it work along side the earnings-drift anomaly. The researchers confirm that the market *systematically mis-estimates* the accrual anomaly. This mispricing of accruals sets the stage for earnings drift, which is also, occurs afterwards. The two mis-pricing anomalies present appear to be independent of each other, thus allowing a strategy that integrates the two to generate greater excess returns.

As is often the cases in research settings, academics do not always agree and evidence can sometimes be contradictory. While there have been many studies focusing on earnings drift strategy, Johnson and Schwartz (2000) present us with evidence that the capital markets do in fact pay attention to accounting research when it is believed to be relevant to real world applications. Johnson and Schwartz provide an encouraging study on how the earnings drift phenomenon has essentially diminished, at least according to their study, because the investment community seized on the work of accounting researchers and have effectively shut down this particular anomaly making excess returns unlikely going forward.

The two researchers examine post-announcement earnings drift from 1991-1997 and conclude that the opportunities for excess gain have been *substantially eliminated*;

As investors learn about earnings surprise profit opportunities, they tilt their portfolios toward strategies designed to arbitrage the opportunities, and this alters the behavior of post-earnings announcement stock returns. (Johnson and Schwartz, 2000, page 2)

The authors refer to this process as the *adaptive efficient* stock market theory put forward by Daniel and Titman (1999). This also confirms what the theory put forward by Penman that markets are not efficient and that it takes time for information to be fully compounded into security prices allowing for fundamental strategies to work.

This seems normal to me in the context that if it can be proven that a strategy works and the strategy in question is easily applicable in a cost-effective manner then investors will definitely act on this strategy. While the earnings-announcement drift anomaly may have been played out, the door remains wide open for new strategies. It is then up to the researchers to come up with the next strategy or anomaly and as we all know there will always be ways to earn excess returns.

CHAPTER V

FAIR VALUE

5. Fair Value

FAS157 - Definition of Fair Value;

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. (FASB, 2008)

The solution to one problem almost always contains the seed of another. (Davies, 2008, Financial Times)

Credit Suisse's David Zion (2008) put forward the case in favour of fair value in a recent research paper. As a greater portion of the balance sheet is at marked-to-market (fair value), the stated book value becomes more meaningful and the balance sheet gives investors a much clearer picture of the economic value being created by the business. This allows the users of the financial statements to get a better handle on key exposures, risks and the underlying factors that drive the value of the assets and liabilities, while allowing for the proper oversight. Zion answers an important question; why would you pay more than book value for a company? There are essentially three reasons to pay more than book value for a firm;

1. Value of future business,
2. Excess returns,
3. Business division with cash flows not well-captured on the balance sheet.

There is a large and ongoing debate around the merits of fair value accounting. Fair value requires organizations to mark-to-market certain assets. While this may appear to be a good idea on the surface the implications can be quite unsettling to the financial markets. The complexity of financial products is a key factor to consider when considering the fair value question (Economist 2008). Liquidity is another major issue that needs to be considered;

There is a saying among bankers that a shortage of capital kills you slowly and a shortage of liquidity is like a bullet in the head. (Geoffrey Wood, Case Business School from Bloomberg Article 09/22/2008 NYC Loses More Jobs, London Homes Drop as Banks Reel, By Sharon L. Lynch and Thomas Penny)

Investors must differentiate between fair value and market value, which ties this issue into to the market efficiency debate. There is evidence that fair value rules have in essence fueled the booms and made down cycles more painful through its impact on leverage at financial institutions.

The fair value issue is one that clearly highlights the importance and the real world impact of accounting considerations. Plantin, Sapra and Shin (2007) make the case that accounting is relevant because we live in an imperfect world, where price paid does not necessarily equal the hypothetical value that would prevail in a perfectly controlled or transparent (frictionless) market. Those in favor of marking-to-market believe that market value is a better representation of value because it is a truer reflection of the price at which an asset/liability can be traded for today. This allows market participants to have a better understanding of a firm's potential value and risk profile.

Plantin, Sapra and Shin (2007) study whether fair value accounting results in much higher than volatility in transaction prices. Is this volatility a function of accounting rules or the underlying fundamentals? They draw from the *Theory of the Second Best* from welfare economics. Does correcting one problem amongst many make things better or does it have the perverse affect of worsening overall welfare? The authors conclude that while historical cost accounting has many deficiencies simply marking to market does not solve all the problems, but also creates new issues such as increased volatility and greater periods of disequilibrium. This is specifically true when the assets/liabilities being looked at are long-term in nature and illiquid. This presents particular problems for banks and other financial institutions.

Plantin, Sapra and Shin (2005) also add to the body of knowledge on mark-to-market with a paper that focuses on how the *quest for yield* amplifies financial volatility. Their

findings in a sense confirm the Theory of Reflexivity. 2005 was a period of low interest rates across the yield curve, limited spreads between asset classes and low implied volatility. Investors began to move towards riskier assets to achieve higher yields. The increase in demand for these riskier assets caused the yields to compress further given the inverse relationship between price and yield for fixed income instruments. This led some to increase leverage further and move into even riskier assets. Three years later we now that these moves resulted in near catastrophic consequences for the global financial system. A massive oversight of risk management had occurred and billions of mortgage-related write downs ensued. Spreads have remained fairly tight for certain debt markets such as emerging market debt, but it is only a matter of time before this shoe also drops.

Plantin et al. (2005) restate their case that fair market accounting is uncontested in *completely frictionless markets*, but as soon as an imperfection is introduced the case is no longer strong. They go on to suggest that the price of a security in the market is not only a reflection of the current trading environment, but also a stimulant for future movements. Actions (decisions) are taken not only because the underlying investment case is solid, but because the price action spurs further action – “a loop is created as prices affect actions, and actions affect prices”. The end-result is increased cyclicality as booms are exaggerated as risk is under-priced and leverage increased as assets appreciate in value. The opposite happens when as asset prices come down. The real world implications of this can be quite significant as we are witnessing today.

Allen and Carlett (2006) provide an example of how issues in one sector (insurance) can lead to contagion in another sector (banking) when the sectors hold the same asset and are forced to mark-to-market even when this is a long-dated asset that does not need to be monetized any time soon.

Let's assume the insurance company and the bank hold the same long asset. The insurance company encounters difficulty and is forced to liquidate the long asset. Selling the long asset is not easy as the liquidity (buyers) is in short supply. If historic cost accounting issued then there is no contagion, but if the bank is forced to mark-to-market then its assets

decrease, which will force it to sell further assets to de-leverage or stop issuing loans. The added illiquidity makes the problem worse.

Penman (2006), in his 2006 speech, listed what he believed to be the pros and cons of fair value accounting.

- Marking to model rather than marking to market,
 - Introduces excess volatility into system,
 - Feedback effects could potentially heighten system risk,
 - Does not capture economics of business.
-
- + Investors concerned with value not costs,
 - + With time historical prices become irrelevant,
 - + Reflects true economic substance,
 - + Reports economic income,
 - + Unbiased measurement, consistent across time and entities.

Penman's conclusion – While fair value sounds like good old-fashioned common sense the case is no that straight forward. Perhaps Penman's biggest issue with fair value accounting is the notion that revenue as we have historically perceived it becomes less relevant as income is impacted by changes in fair value that flow through the balance sheet and income statement.

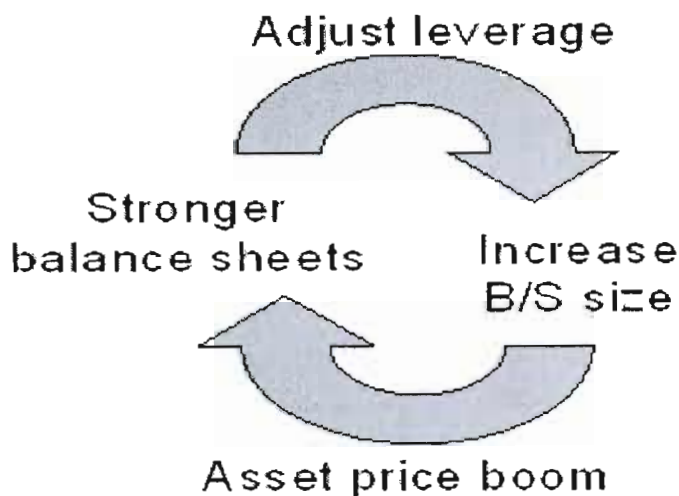
Another point of contention is that fair value means different things to different people. Each user – shareholder, bondholder, manager – has a different notion of fair value and its impact on the public, investors and regulators.

Looking at the issue from the shareholder perspective is Penman's preferred point of analysis. Penman states that accounting is a product and should be judged on how well it serves customer needs. Shareholders use accounting information for two reasons; 1) valuation and 2) stewardship. If fair value accounting improves welfare, adopt it, but if we gain on end only to lose out on another then the debate becomes less clear. Penman considers

the plus/minus for the 3 levels of assets according to FASB's classification. While the value of Level 1 assets are easily derived in active markets, the same cannot be said for Level 2 and Level 3 assets, which are often valued on hypothetical market prices. Penman goes on to conclude that fair value accounting is a potent concept at the conceptual level as equity value is clearly stated on the balance sheet. The problem is that concept and reality are two very different issues. He believes that fair value works for investment funds where a NAV can be determined and investors trade in and out. The notion of fair value breaks down when looking at a firm trying to run a business based on a business plan and strategy. Penman gives the example of Coca-Cola – should the value of Coca-Cola's brand be constantly re-valued and passed through the income statement?

Exhibit 5.1. Feedback Loops

Figure 2.6: Adjustment of Leverage in Booms



Source: Adrian and Shin (2008)

Adrian and Shin (2007) add to the literature making the case that fair value adjustments can have very pro-cyclical effects on cycle (up and down). Mark-to-market results in increased leverage at the top of the cycle and decreased leverage at the bottom, which amplifies the highs and lows. The result is that leverage is choked out in bad times, when it is needed most to re-start the economy. For financial institutions marking-to-market results in balance sheets that appear (incorrectly) under-leveraged in strong economic times. There is pressure to put more capital to work and keep returns high. This results in the assumption of more and more leverage all the way to the top of the cycle at which point the process reverses. Adrian and Shin (2007) point to the active management of balance sheets, where leverage is positively correlated with asset growth. If marking-to-market has no impact on the market (simply accounting) then the relationship with asset growth would be inverted.

Once again a feedback loop is created whereby appreciating assets lead to greater demand for the asset, which in turn pushes up prices further. Asset prices have real life consequences on balance sheets and the economy (financial system). In a low interest rate

environment with lots of available liquidity the consequences can be quite dire if allowed to develop unchecked. Adrian and Shin (2007) highlight the sub-prime mortgage crisis as an example of how the system can spiral out of control. Expanding balance sheets lead to the need to put more capital to work. When the supply of credit-worthy mortgage borrowers ran out the market started giving capital to people who had no business receiving a loan. In essence a Ponzi scheme was created! Once the available pool of mortgage candidates was completely exhausted and there was know left to buy a house the whole house of cards came tumbling down.

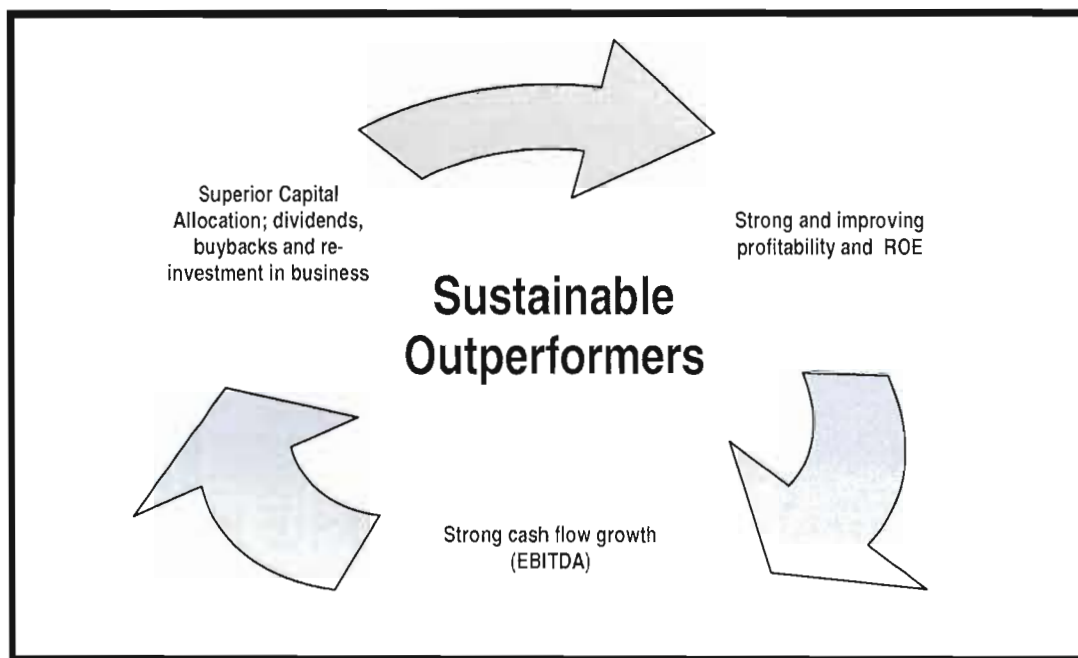
In the end it was human greed and not the accounting system that failed, but the mis-interpretation of accounting rules did play a role in the crisis. It was not fair value that created these feedback loops, but rather poor management and a lack of rigorous risk management. Agency issues come into play as compensation is often unlinked to longer-term economic goals.

CHAPTER VI

Experiment and Supporting Research

6.1 Background

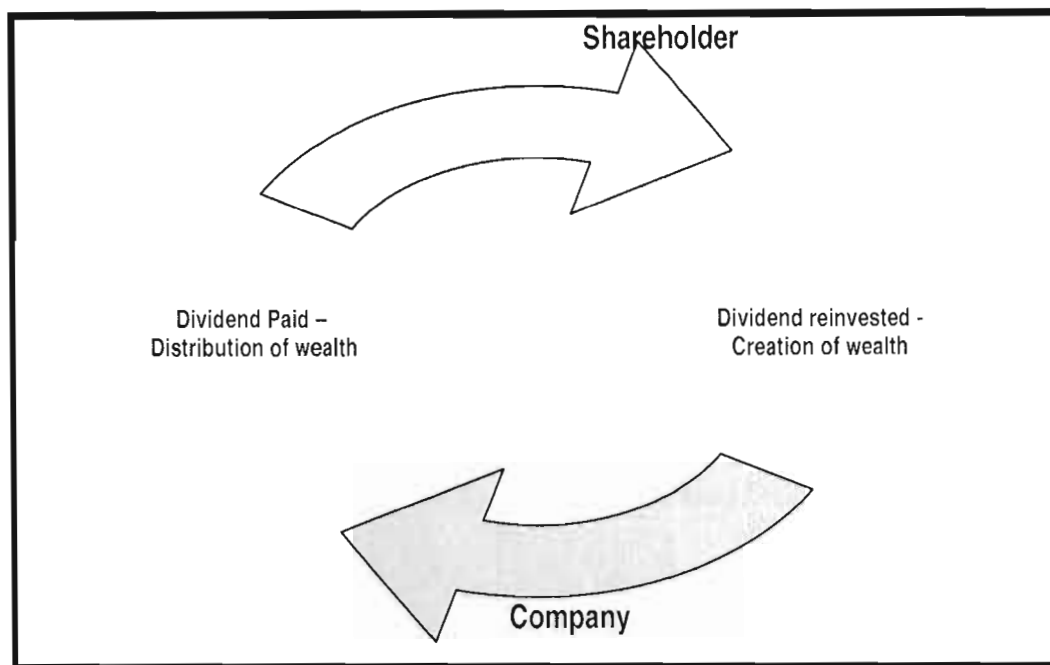
Drawing from our past investment experience and supported by academic (i.e. Damodoran) and institutional research (i.e. Goldman Sachs) we have focused our experiment on expectations of future growth and profitability, which are based on internal characteristics (past performance, product range, and management's capabilities) and the external environment (economic, political, social, and regulatory). We also focus on cash flow generation (the lifeblood of a company) and the ability (propensity) to return cash to shareholders. The investment community is especially enamored with improving performance (Piotroski 2000 and Mohanram 2003). Again based on existing research and our own investment experience we have developed a stock selection screen that tries to identify companies with attractive growth and profitability profiles while controlling for the payout yield (dividends plus share repurchases). The implied assumption is that a portfolio of companies with superior growth and profitability profile relative to the market while also maintaining an attractive payout yield has a solid chance of outperforming throughout an investment cycle.

Exhibit 6.1 Sustainable Outperformers

Source; Zaccardelli (2008)

A company that can distribute cash yet still grow at an above average rate must be an efficient allocator of capital (ROE greater than cost of equity). The market will compensate this and the steady stream of cash can be re-invested in the company regardless. This usually signals the quality of earnings are strong and that management is spending wisely as apposed to make value destructive acquisitions or empire building. The payout yield also acts as an indirect control on valuation. We do not screen for valuation specifically.

Exhibit 6.2. Distribution / Creation of Wealth



Source; Zaccardelli (2008)

6.2 Theoretical Support of Our Investment Process

6.2.1 Payout Yield Research

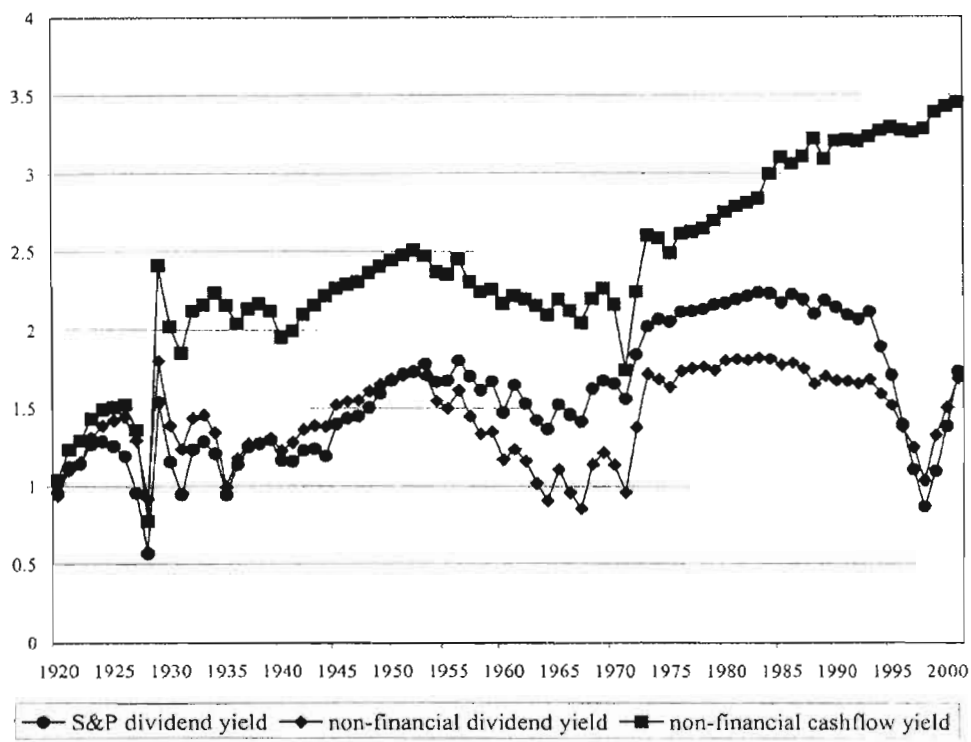
Robertson & Wright (2006) point out that numerous studies have called into question the long-held belief that dividend yields are a good predictor of future stock returns. Robertson & Wright suggest that the changing nature of payouts may be behind the decrease in the explanatory power of dividends. The cash flow yield (dividends plus net buybacks) may have stronger predictive power. Dividend trends have changed, with companies relying more and more on share buybacks for various reasons. According to Robertson & Wright the cash flow yield displays *a strong and predictive power* over a long time horizon. The use of the cash flow yield re-validates earlier theory about the predictive power of dividends. The researchers concede that while the predictive regressions are stronger for the cash flow yield when

compared to the dividend yield of the non-financial dividend yield and the S&P 500 Index dividend yield, is risky the R^2 remains relatively weak implying that a trading strategy based on the cash flow yield is risky.

Exhibit 6.3 Predictive Return Regressions

PREDICTIVE RETURN REGRESSIONS

FIGURE 2.—RECURSIVE T-STATISTICS FROM PREDICTIVE REGRESSIONS



Source; Robertson & Wright (2006)

6.2.2 Support for Dividends

In bull markets dividends become less important or simply receive less attention, but the focus eventually returns once the bear market dampens investor euphoria. The perception and importance of dividends has varied over time, but the companies listed on the stock markets of developed countries for the most part pay dividends. On top of that these markets tend to have a group of investors who focus on dividends as a key element of investment

decisions (Manley, Muller & Glissman 2007). There is no set target for dividends and each company adopts its own policy, but nonetheless a large body of work has developed around the theory that there is a strong link between dividends and equity value. Hence, the equity value of equities should reflect the discounted value of future dividends. Timing varies, but ultimately firms return cash to shareholders.

6.2.3 Return on Equity

There has been a paradigm shift in recent years as the emphasis in valuation has moved from simply looking at growth prospects to looking at profitable growth – *excess returns* (Damodoran 2007). Return on equity (ROE) measures the return on the equity portion of the investment after taking into consideration debt servicing. Damodoran believes three issues need to consider when using an accounting-based return such as ROE.

1. A single period return may not be a true estimate of the long-term,
2. Book value of equity leaves us exposed to accounting choices,
3. Issues with accounting and tax rules will show up in ROE.

There are no fool proof measures and cash flow based analysis is not necessarily better than measures based on accounting earnings because it inevitably requires analysts to make assumptions about future cash flow and invested capital that may prove to be inaccurate (Damodoran 2007);

The ROE of a firm that pays a large dividend or buys back stock will increase after the transaction because the book value of equity will decrease disproportionately, relative to net income. (Damodoran, 2007, page 39)

Net income is also affected as the cash generated a return in previous periods. When looking at firms with large cash balances it may be worthwhile to look at non-cash ROE that focuses on operating ROE;

Value is ultimately determined by expected returns on future investments. While there is no guarantee that high returns today can be maintained ROE is likely to remain relatively stable over a 12 to 24 month period. (Damodoran, 2007, page 48)

Factors that need to be considered when looking at ROE (Damodoran 2007);

A firm that generates return on equity that exceeds its cost of equity is earning a positive excess return. The presence of these returns will draw in competitors over time putting downward pressure on these returns. Revenue growth trends revert quickly to average levels while ROE can remain high for extended periods. Ultimately, positive excess returns have to come from competitive advantages or barriers to entry into sectors. Stronger and more sustainable competitive advantages should lead to larger excess returns over longer periods. Thus, firms that have generated high returns in the past may continue to make these returns for the next few years, but the excess returns will start decreasing as firms become larger and competition increases. (Damodoran, 2007, page 56)

1. Life cycle,
2. Accounting differences,
3. Barriers to entry,
4. Reversion to the mean,
5. Luck,
6. Management quality,
7. Competitive advantages.

6.2.4 How Do Accounting Variables Explain Stock Price Movement?

Equity values are a function of two factors; invested capital and the profits (ROE) earned on the invested capital (Chen and Zhang 2006). Valuation work is done by trying to forecast the level and rate of future invested capital and ROE. Thus, stock returns are a function of company's future growth and profitability. Chen and Zhang build a model that examines 4 cash flow related factors;

1. Earnings yield,
2. Capital investment,
3. Changes in profitability,
4. Growth opportunities.

They conclude that equity returns are positively correlated to the four factors. The information used in the study comes from publicly available information using Compustat data from 1983 to 2001. The profitability related information (earnings yield and profitability change) have the greatest explanatory power.

Valuation literature has typically analyzed market efficiency, abnormal returns and financial ratios (Kamstra 2003). The use of accounting information to try to value firms really became popular in the 1990s (Lee 1999). The domain has since flourished given the vastness of the subject matter and a strong demand from both academics and practitioners. Valuation research is now a *central theme* in the accounting domain (Lee 1999). Share prices reflect all sorts of distorted beliefs about growth, management's abilities, the political situation and social issues. The role of accounting information in valuation is to help breakdown these beliefs into fact and fiction to determine a true value. Lee (1999) highlights five concepts that he believes are key to understanding valuation. Valuation is;

1. Prospective; PV of F(CF) is subjective and imprecise (art),
2. Inter-disciplinary skills including accounting, marketing, strategy, finance, economics and marketing,
3. Valuation models are merely "pro-forma accounting systems",
4. Facilitates forecasting.

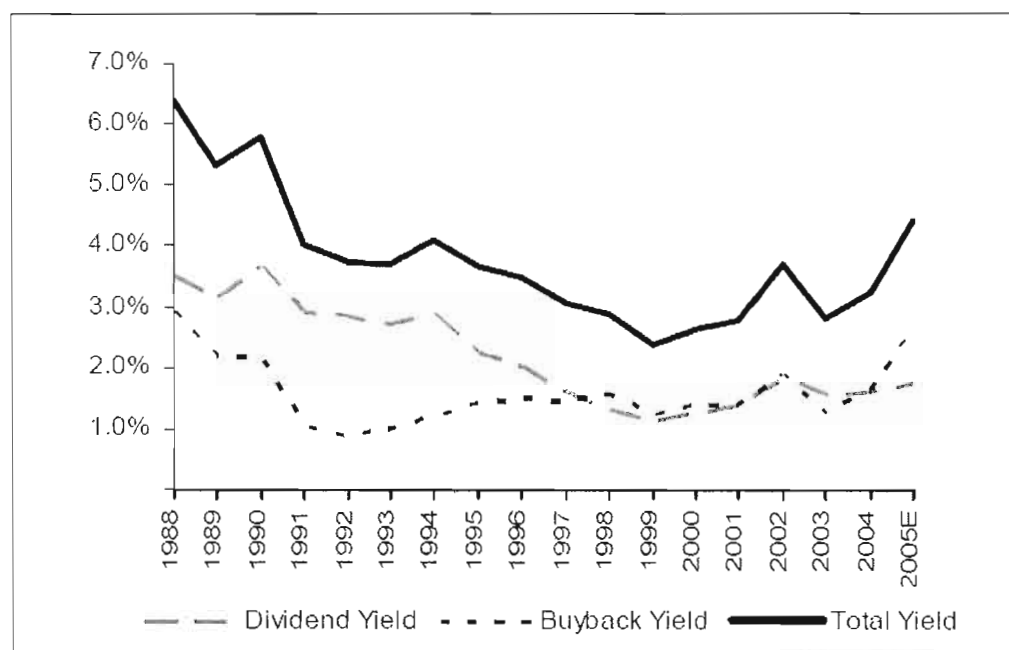
Valuation is as much art as science as it is forecasting that breathes life into the valuation model;

Fundamental analysis may be viewed as the art of using existing information, such as historical financial statements, to make better forecasts. (Lee, 1999, page 4)

Valuation models are tools, that we use to improve our forecasts, but forecasting is an inherently subjective task. Each person brings his own biases to the table.

There has been a shift in recent years from looking at contemporaneous relationships between accounting information and returns to the use of accounting information in a more predictive fashion – residual income model. Economic profit has now gained widespread acceptance as growth for the sake of growth is no longer reared. The market looks for profitable growth.

Exhibit 6.4 Payout Yield Through Time



Source: Empirical Research Partners.

Source; Maboussin (2006)

We use payout yield because aggregate share buybacks are now larger than dividends. The decision to buy back shares is not simply about boosting EPS, but is a function of capital allocation alternatives including;

- Core business use
 - Capital expenditures
 - Working capital requirements
 - Mergers and acquisitions

- Return cash to shareholders
 - Dividends
 - Share buybacks
 - Debt repayment

We look for a high payout yield because it send a signal to the market (i.e. stock is cheap), but we do not look solely for EPS growth because we want core operating growth to be strong. The ability to maintain a high payout yield – add economic value – is important. Higher EPS growth thus becomes a bonus of a more efficient capital structure.

The rules governing a share buyback are typically that a share buyback is appropriate when a share is trading below fair value assuming management properly assesses the firm's outlook. Also, a buyback is appropriate when no other attractive investment opportunities are available. Buybacks are also used to manage EPS, but we obviously view this as bad. Buybacks are used to reduce dilution (we look at net buyback) and they are used to increase leverage to achieve a more optimal capital structure.

Maboussin (2006) states that ROE in and of itself has substantial limitations, but when combined with payout policy can shed considerable light on growth prospects.

$$\text{Earnings growth} = (1 - \text{payout ratio}) * \text{ROE}$$

Maboussin states that current ROEs are elevated by historical standards. He does not believe earnings growth will exceed historical levels given that growth is driven by macro factors like GDP growth. Therefore, the payout ratio will have to rise to bring earnings growth back down to normal levels.

ROE = net margin * asset turnover * leverage

- net margins are already high
- asset turns have improved significantly
- leverage unlikely to decrease as balance sheets ex-financials are in good shape

6.2.5 Stock Repurchases and the EPS Enhancement Fallacy

Oded and Michel (2008) provide further insight into the notion that simply buying back shares to increase EPS is a useless policy that does not provide real economic value to shareholder. In perfectly frictionless markets payout policy is irrelevant. Alas, we do not have the luxury of frictionless markets, thus the payout policy does have a real-life impact on share price performance. Zhou and Ruland (2006) demonstrate that high dividend payouts are a predictor of higher future earnings growth. Intuitively, the opposite should be true based on the previous formula. Ode and Micheh (2008) focus on repurchases as a substitute for dividends that drives EPS growth, but does not necessarily provide economic profit. The researchers provide a scenario analysis –

1. No payout (cash accumulation),
2. Dividends,
3. Repurchase.

Total value (firm value plus cash paid out) remains unchanged in each scenario;

Expected EPS is higher in the repurchase scenario than in the cash accumulation scenario because the expected return on the firm's assets increases with share repurchases. The reason is that the retirement of cash causes the relative weight of the safe asset (cash) in the firm's asset composition to decrease whereas the relative weight of the risky assets increases. No value is added, however, for the existing shareholders. Instead of having safe cash in the firm, the shareholders now have safe cash in their pockets – and riskier shares. (Oded and Michel, 2008, page 65)

The objective is to look for the optimal risk/reward and generate real economic value-added. This is once again true in a perfectly frictionless market, but in actuality factors such as taxes, information asymmetry and agency costs make the payout policy decision quite relevant to value creation;

For example, in actual situations, firms that engage in share repurchases probably believe one or both of the following; (1) Their shares are undervalued; (2) given the projects available for them to invest in, the remaining mix of risky and safe assets after a share repurchase will be optimal for them. To the extent that managers are correct in either of these beliefs, the shareholders that hold their equity stake from time zero may have a greater probability of maximizing overall wealth in reality than they do in theory. Achieving the higher EPS in the repurchase scenario, however, depends partly on the firm's ability to continue to generate at least as much profitability in the future from its changing mix of assets (including riskier assets that can introduce volatility as in the past. That is, given that an optimal mix of assets and cash exists in real-life situations and given that information is asymmetrical, a repurchase is good news. It reveals to the public that the firm is persistently generating free cash, which the firm removes from its composition of assets through stock repurchases so that the firm will revert back to its optimal mix. Similarly, when markets are not perfect, the cost of capital generally differs from the return on investment. A firm that holds more cash than needed for its operations – namely, a firm that does not disburse its free cash – is usually destroying value for its shareholders because the return on the cash that it generates is lower than its cost of capital. In fact, this is often the reason that shareholder activists urge firms with cash hoards to initiate share repurchase programs. (Oded and Michel 2008, page 71)

Feltham and Ohlson (1999) review the empirical implications of the model they created in 1995 – the residual income model, which has become the reference point for a host of research since its initial publication. The FO model equates a firm's market value to accounting information and other relevant data including dividends, the discount rate and market value. In an attempt to better understand their own model; in 1999 they took a look at the impact of growth in relation to the backbone of the model, which is current earnings and book value.

Feltham and Ohlson (1999) believe that expectations of future growth and earnings are more important than historical accounting information, but the historical data remains the starting point for analysis. The past is often extrapolated into the future. This reasoning is generally accepted by most researchers. The Feltham-Ohlson Model provides a foundation

(historical accounting information) from which to build using expectations to derive future accounting data. Feltham and Ohlson highlight growth in net operating assets as a key independent variable. This is why we screen for EBITDA growth, a close approximation for cash flow growth. The Feltham-Ohlson model also makes the case that financial assets should essentially be valued at market value. The market pays for core operating growth.

Gode-Ohlson (2006) highlight some of the weaknesses with a dividend-based approach including the propensity of many growth companies to not pay dividends, the fact that dividend policy is value neutral unless managers hoard cash or have sub-optimal financing policies and that dividends represent wealth distribution as opposed to wealth generation. Gode-Ohlson (2006) state that multiples are useful because they are easy to compare and communicate to end-users. The problems with a with discounted cash flow Analysis (DCF) include the difficulty of understanding operating cash flow, the ease with which cash flow can be manipulated and difficulty in forecasting free cash flow. Gode-Ohlson confirm that price is greater than Book Value if ROE is greater than the cost of equity and a market premium over Book Value is anticipated economic profit to be generated in the future.

6.2.6 Changing Motives for Share Repurchases

Net share repurchases have increased in both absolute and relative to cash dividends (Weston and Siu 2002). A major motive in the 1990s was to offset dilution. Firms that began repurchase in the 1990s maintained characteristics similar to non-dividend paying firms of previous periods. The repurchases were initiated for several reasons including;

1. Tax benefits,
2. Takeover defense,
3. Optimize financial structure,
4. Greater flexibility,
5. Agency issues.

Accounting for buybacks

1. book equity reduced,
2. cash reduced,
3. cash valued at 1,
4. equity valued at greater than 1,
5. result id higher ROE,
6. Signal further improvements in cash flow and undervaluation.

Rate of return of share repurchase = Cost of equity / (1 - % undervalued)

$R = \text{cost of equity} / (\text{price}/\text{Value})$

1. Rational only if the share repurchase generates a return higher than potential investments,
2. Market inefficiency is required.

6.2.7 Study of US Utilities Sector; High Performance and ROEs

Many companies focus on EPS as the main performance indicator (Azagury 2007). Regulators also focus on net income and not capital discipline. The data confirms that capital markets focus on capital discipline – ROE and ROIC less WACC – as the main driver of value. These metrics correlate highly with total return to shareholders at the Top 40 Public Utilities in the United States. Thus capital returns drive shareholder returns.

Despite the common belief that investors in utility stocks are interested only in high yields, recent studies have shown a significant negative correlation between dividend yields and total shareholder returns. A negative correlation was also seen between dividend yield and both ROE and expected EPS growth. Azagury surmises that while dividends are a sign of financial strength, the market believes that economically attractive projects are present and is rewarding those companies that can make value-additive financial decisions. Azagury highlights that active (value-added) management of a utility cannot be implemented properly

unless robust management and operating systems are in place (maintenance, capital expenditures and prioritization). These attributes are directly linked to return on equity (ROE). It takes a total company effort to improve ROE to top-tier levels including organization, processes, governance, and access to information and decision-support tools. Thus, leading companies really do execute better than second and third tier companies.

6.2.8 Payout Yield

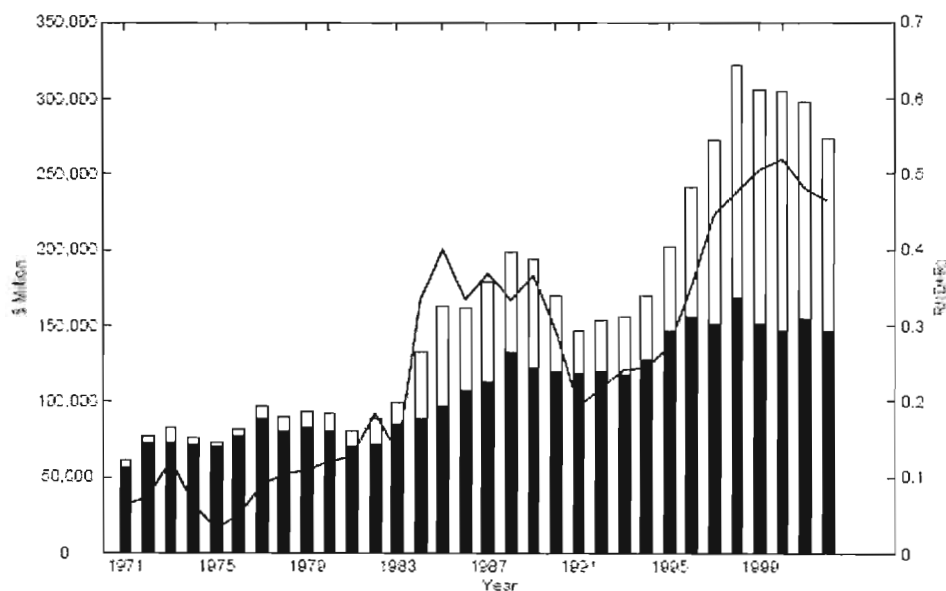
There is significant evidence that repurchases have been used as a substitute for dividends over the last 10 to 15 years. Total cash return to shareholders is what the focus should be on today and in the future. Thus, dividend and repurchase policies are not independent (Boudoukh, Michaely, Richardson and Roberts 2003).

Exhibit 6.5 Aggregate Dividends and Repurchases Over Time

Figure 1

Aggregate Dividends and Repurchases Over Time

The sample consists of firms from the annual COMPUSTAT data files that have no missing values for book equity, earnings, book assets, common dividends, repurchases of common stock and market capitalization. The height of the dark shaded portion of the bars corresponds to the total dollar amount of dividends paid to common share holders. The height of the unshaded portion of the bars corresponds to the total dollar amount of common share repurchases. Both dollar figures are inflation adjusted to 2000 dollars using the all-urban CPI. The line plot presents the ratio of total common share repurchases (R) to the sum of common share repurchases and common dividends (D).



Source; Boudoukh, Michaely, Richardson and Roberts (2003)

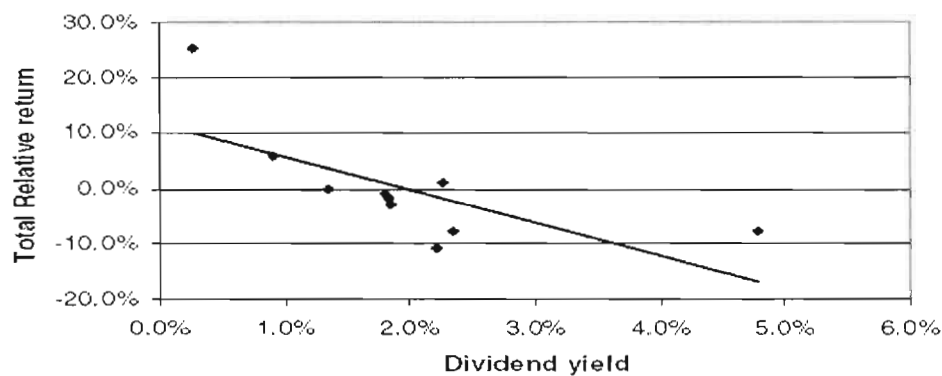
Boudoukh, Michaely, Richardson and Roberts study the relationship between returns and dividend yields, then expand the study to look at the returns and total payout yields. They find evidence of stock return predictability is higher using the payout yield.

Payout yield can also be used as a quasi-economic indicator, rising as the economy improves. This is why it is important to not only focus on yields, but quality to position portfolio for the next upturn. In difficult times the screen leads us to the higher quality names. While not immune to the economic cycle there is a built in adjustment for the economic

cycle. The dividend becomes more important naturally in the down-cycle. As the economy improves we capture growth and improving ROE, which should lead to continued outperformance.

Exhibit 6.6 Average Annual Sector Dividend Yields and Relative Returns

Exhibit 2: Average annual sector dividend yields and relative returns
S&P 500 firms at December 31, 2002, data from 1993-2002



Source: Goldman Sachs Portfolio Strategy, Compustat.

Source: Goldman Sachs (2003)

According to Goldman Sachs research dividends have been negatively correlated with stock returns. They suggest focusing solely on the fundamentals of a company (EPS growth and profitability). This being the case they found that that *abnormal* stock returns could be generated by identifying companies who are poised to increase their dividends resultant to strong underlying fundamentals.

So there is a negative relationship between dividends and returns, but the analysis becomes more interesting when an analysis of the fundamentals and return sis combined with a control for dividend yields;

The measures of the underlying fundamentals are intended to capture the firm's profitability, expected earnings growth, cash generating ability and stability of cash flows. ROE is used as a measure of profitability, earnings yield as a

measure of expected earnings growth, cash from operations (CFO) capital expenditures and working capital as cash flow inflow and outflow. The results suggest that for any given dividend level investors could have increased their returns by considering a firm's underlying fundamentals. (Goldman Sachs, 2003, page 5).

Exhibit 6.7 Regression of Relative Returns on Dividends and Fundamental Factors

Exhibit 4: Regression of relative returns on dividends and fundamental factors
S&P 500 firms, 1993-2002

Dependent Variable

Total Relative Shareholder Returns

Independent Variables	Coefficient	t-statistic
Intercept	42.0197	8.08
dividends per share	-10.7880	-5.97
return on equity	1.1439	10.20
earnings yield	-5.8993	-15.75
cash from operations	1.5355	3.10
investment in working capital	-1.7495	-3.68
capital expenditures	-0.6037	-1.49
standard deviation of cash flows	-0.0011	-0.82

R-squared = 14.8%

N = 3,629

Source: Goldman Sachs Portfolio Strategy, Compustat.

Source; Goldman Sachs (2003)

Goldman surmises that an unexpected increase in dividends is a positive for stock returns. A dividend increase is a signal from management that cash flow is sustainable. It imposes discipline on management and reduces investments in low-return projects, while increasing overall productivity. An overly high dividend suggests future decline.

Gaspar, Massa, Matos, Patgiri and Reham (2005) found that firms held by short-term investors are more likely to buy back shares as opposed to increasing the dividend payout. Management appears to be catering to short-term investors who make the most noise (pump

and dump stock strategy). Investor time horizons have become much shorter and greater attention is placed on each quarterly result. This being the case the market attributes lower signalling power to buybacks by firms under pressure from short-term investors. Studies help shed light on the popularity of buybacks as investors time horizons have decreased. Institutional investors now hold more than 50% of total equity outstanding. This shift in ownership structure may help explain shifts in corporate payout policies. Mutual fund holding periods have come down from 6 years in 1970 to 1 year in 2000.

In a perfect market payout choice is irrelevant, but in reality markets are not perfectly efficient and there is a certain degree of information asymmetry between a firm's management and investors. Short-term investors prefer repurchases because;

1. They do not have the incentive to fully understand a firm's investment opportunities,
2. A dollar in hand is worth more than a potential dividend further down the road,
3. A share repurchase is more likely to boost the share price immediately.

Arnott and Asness (2001) ask some interesting questions about the relationship between dividend policy and earnings growth.

1. Are low payout ratios an indication that future growth will be higher?
2. Are low payout ratios an indication that current earnings are not sustainable?
3. Are earnings being retained for the purpose of empire building?

Arnott & Asness (2001) conclude that managers convey through dividend policy private information (signal) that they will pay out more when the future is bright and less when it is dim. They also find that low payout ratios precede low earnings growth rates that managers tend to pay out a larger share of earnings when they are optimistic and smaller share when they are less optimistic. Also, low payout ratios lead to inefficient capital allocation to fund less than ideal projects leading to poor subsequent growth. Finally, high payout ratios lead to more carefully chosen projects.

Grullon and Michaely (2002) showed that in 1980 repurchases accounted for 13% of dividends and the figure rose to 113% in 2000 as repurchases were larger than dividend payments for the first time in history. Since 1990 the majority of firms have initiated payouts first through buybacks rather than cash dividends while the total payout ratio has remained relatively constant. The larger, well-established firms have partially financed repurchases by foregoing certain dividend increases. The dividend irrelevance theory of Modigliani and Miller (1961) implies that in “perfect” capital markets dividends and share repurchases are perfect substitutes;

The combined trend of a decreasing reliance on dividend payment and the increasing reliance on repurchases also implies that nowadays, a more appropriate tool of valuation is total payout rather than dividend payout. For example, some researchers argue that the historically low level of dividend yield is another indication of stock market overvaluation. The evidence here indicates that if we examine the total payout yields this conclusion may be premature. (Modigliani and Miller, 1961, page 411- 433)

According to Harris and Nissim (2004) – Convergence Trends for Profitability and Payout Equity values are a reflection of future profitability and growth. Growth is a function of ROE and payout. To value the equity we need to know how profitability and payout evolve over time.

6.3 Summary of the Investment Concept and Approach

- Investment Universe
 - Invest in US and Canadian companies
 - Reference Index – MSCI North America (approximately 900 companies)

- Stock Selection Process
 - A 5-factor model with emphasis on core operating income growth, cash flow, ROE (level & trend), dividends and buybacks
 - Companies in top quartile of screening on all five factors
 - Quarterly rebalancing

- Used forward estimates available at the time, thus we could have chosen losers (Enron, Nortel etc...)
- Emphasis on sustainable growth, profitability and cash flow while controlling for payout yield (dividends & buybacks)
- A targeted total return approach with a built in base total return of 7% to 11% excluding alpha
 - Dividends plus share buybacks 3% - 5%
 - Nominal GDP growth 4% - 6%
- Results versus the market is a portfolio with;
 - Valuation in line, but
 - Higher growth rate (operating income and cash flow)
 - Higher quality (ROE, dividends and share buybacks)
- The *TWIST* - most high yield portfolios offer low growth - not the case here
 - Portfolio seeks sustainable growth, while fully participating in market rallies
 - Objective is to be more resilient in down market
 - Payout yield provides support in down markets

6.4 Description of Investment Model

As previously discussed our investment model is based on a stock screening system anchored in both academic research and our own investment experience.

7.4.1 Investment Universe

The investment universe used a reference index is the MSCI North America Equity Index, a broad-based reference index composed of approximately 900 of the largest companies in Canada and the United States across all 10 major sectors – Consumer Staples,

Consumer Discretionary, Energy, Financials, Healthcare, Industrials, Technology, Telecommunications, Materials and Utilities. The Index is a free float-adjusted market capitalization weighted Index designed to measure the performance of the US and Canadian equity markets.

6.4.2 Time Frame

The study was conducted over a period of six and a half years starting on December 31, 2000 and ending on June 30, 2007. We believe this is appropriate time frame for the purposes of our analysis because it encompasses an entire economic cycle from boom to bust. Also, the time period is relatively recent and having lived through it we have a solid understanding of the prevailing dynamics in the market, which allows us to better interpret the results.

6.4.3 Data

The data used in the study was obtained from the Factset database. Factset is a division of Reuters, a leading provider of high quality and reliable information analytics to the global investment community.

6.4.4 Stock Screening and Selection Process

We wanted to screen for factors that were relevant to future share price performance based on an analysis of existing academic research and our own investment experience. The research highlighted in previous sections of this report indicates that share prices are in part driven by underlying expectations for growth and profitability over the long term. There is further evidence that improving profitability is viewed positively and that all things being equal (growth and profitability) the market appreciates above an average payout yield. Our stock looks at 5 factors;

- EBITDA growth in the current year
- EBITDA growth next year
- Absolute return on equity (ROE)
- Improving ROE
- Payout yield (dividend plus net share buyback)

Each company receives either a “0” or a “1” for each factor. A “1” is a positive signal and means the company passes the hurdle that particular factor (screen). The results of the five factors are added up to create a score for each company that ranges from 0 to 5 (perfect score).

For the rising ROE we look at the absolute level and assign a “1” if ROE is expected to rise in the current year. For the absolute ROE and the two EBITDA growth factors we assign a “1” if the company’s results are equal to or greater than 70% of the median result for the market. 70% is used as the cut-off factor in order to obtain a sufficient number of companies to build a portfolio. A more stringent % requirement resulted in an insufficient number of companies qualifying for the portfolio.

We look at EBITDA growth in order to capture core operating growth and because it is a close approximation of cash flow. Since we are screening for payout yield also we want to avoid companies that are simply increasing EPS through share repurchases, which may not be sustainable if core growth is anemic. We are looking for profitable companies that are growing and allocating capital efficiently.

The payout yield factor is viewed as key controlling factor and what differentiates the model from many other models. To receive a score of “1” a company’s payout yield must be at least 1.5x the market median. We do not run any valuation screens (i.e. P/E, P/B etc...), but rather the payout yield will act as a de-facto valuation control for the portfolio.

6.4.5 Use of Median

We have a large number of companies in the screen and to avoid the impact of outlier results we found the median to be a more suitable comparison factor than the simple average, although in most cases they are quite close.

6.4.6 Portfolio Construction and Rebalancing

In order for a company to pass the screen and be included in the portfolio a stock must achieve a score of “5” meaning it passes the filter for all five factors that we screen for. The portfolio is rebalanced on a quarterly basis using the actual data and consensus estimates available at that particular time. Thus, this removes the possible influence of survivorship bias from the results. Potential “torpedo” stocks such as Enron, Nortel and WorldCom could have potentially passed the filter and hindered performance. The fact that only data available at the time is being used increases the robustness of the model. The rebalancing process does not include transaction costs, but the goal is to keep turnover low, thus we run the screen at the end of each quarter. The model assumes the exiting stocks and those stocks about to enter the portfolio are bought and sold at the closing price at quarter end. A sample output of the screening process can be seen in the chart below. Out of the approximately 900 stocks in the screen a list of stock that passed each filter are shown. All these companies would be included in the portfolio. In total 79 companies have qualified for the portfolio (as of June 30, 2007). The stocks in the portfolio are equal weighted.

Exhibit 6.8 Sample of companies from the 5-Factor Screen (June 30, 2007)

By sector 70%		1	1	1	1	1	5		
NA market		Screen Type							
MEAN All mkt		17 434.76							
MEDIAN All mkt		6 592.21							
MEAN		27 348.39	Greater	Greater	Greater	Greater	Greater		
MEDIAN		14 949.75	0	6.13	9.78	8.27	13.46		
			150%	70%	70%	70%			
Ticker	Name	Sector	Market Cap	Rising ROE	Div+BB LTM yld	EBITDA g 2007	EBITDA g 2008	ROE 2007	Score
CCL^	Carnival Corp.	Consumer Discretionary	38 723.38	1	1	1	1	1	5
DLTR^	Dollar Tree Stores Inc.	Consumer Discretionary	4 340.35	1	1	1	1	1	5
KSS^	Kohl's Corp.	Consumer Discretionary	22 799.63	1	1	1	1	1	5
MAR^	Marriott International Inc.	Consumer Discretionary	16 841.98	1	1	1	1	1	5
MHP^	McGraw-Hill Cos.	Consumer Discretionary	24 097.52	1	1	1	1	1	5
ODP^	Office Depot Inc.	Consumer Discretionary	8 374.90	1	1	1	1	1	5
ROST^	Ross Stores Inc.	Consumer Discretionary	4 292.17	1	1	1	1	1	5
*SJR,B^	Shaw Communications Inc. (CI B)	Consumer Discretionary	9 676.68	1	1	1	1	1	5
TIF^	Tiffany & Co.	Consumer Discretionary	7 209.53	1	1	1	1	1	5
VIA^	Viacom Inc. (CI A)	Consumer Discretionary	28 837.12	1	1	1	1	1	5
VIA,B^	Viacom Inc. (CI B)	Consumer Discretionary	28 857.92	1	1	1	1	1	5
WEN^	Wendy's International Inc.	Consumer Discretionary	3 517.12	1	1	1	1	1	5
WYN^	Wyndham Worldwide Corp.	Consumer Discretionary	6 904.53	1	1	1	1	1	5
AVP^	Avon Products Inc.	Consumer Staples	16 217.77	1	1	1	1	1	5
KO^	Coca-Cola Co.	Consumer Staples	121 254.59	1	1	1	1	1	5
MKC^	McCormick & Co. Inc.	Consumer Staples	4 987.22	1	1	1	1	1	5
CAM^	Cameron International Corp.	Energy	8 025.34	1	1	1	1	1	5
*COS,U^	Canadian Oil Sands Trust	Energy		1	1	1	1	1	5
GSF^	GlobalSantaFe Corp.	Energy	16 651.48	1	1	1	1	1	5
NE^	Noble Corp.	Energy	13 125.41	1	1	1	1	1	5
RIG^	Transocean Inc.	Energy	30 994.33	1	1	1	1	1	5
WFT^	Weatherford International Ltd.	Energy	18 769.95	1	1	1	1	1	5
AXP^	American Express Co.	Financials	73 354.63	1	1	1	1	1	5
AMP^	Ameriprise Financial Inc.	Financials	15 345.25	1	1	1	1	1	5
SCHW^	Charles Schwab Corp.	Financials	25 861.63	1	1	1	1	1	5
EV^	Eaton Vance Corp.	Financials	5 585.92	1	1	1	1	1	5
FII^	Federated Investors Inc.	Financials	3 981.10	1	1	1	1	1	5
FITB^	Fifth Third Bancorp	Financials	22 122.17	1	1	1	1	1	5
FHN^	Firat Horizon National Corp.	Financials	4 869.77	1	1	1	1	1	5
*GWO^	Great-West Lifeco Inc.	Financials	30 789.29	1	1	1	1	1	5
IGM^	IGM Financial Inc.	Financials	13 712.11	1	1	1	1	1	5
JPM^	JPMorgan Chase & Co.	Financials	187 718.60	1	1	1	1	1	5
*MFC^	Manulife Financial Corp.	Financials	61 632.48	1	1	1	1	1	5
MER^	Merrill Lynch & Co. Inc.	Financials	72 270.27	1	1	1	1	1	5
*PWF^	Power Financial Corp.	Financials	28 509.71	1	1	1	1	1	5
PRU^	Prudential Financial Inc.	Financials	46 000.00	1	1	1	1	1	5
*SLF^	Sun Life Financial Inc.	Financials	29 034.72	1	1	1	1	1	5
WM^	Washington Mutual Inc.	Financials	40 272.59	1	1	1	1	1	5
WFC^	Wells Fargo & Co.	Financials	118 774.36	1	1	1	1	1	5
WSH^	Willis Group Holdings Ltd.	Financials	6 741.30	1	1	1	1	1	5
BMY^	Bristol-Myers Squibb Co.	Health Care	61 920.72	1	1	1	1	1	5
ESRX^	Express Scripts Inc.	Health Care	13 567.71	1	1	1	1	1	5
HNT^	Health Net Inc.	Health Care	5 907.00	1	1	1	1	1	5
LH^	Laboratory Corp. of America Holdings	Health Care	9 563.37	1	1	1	1	1	5
MCK^	McKesson Corp.	Health Care	17 593.80	1	1	1	1	1	5
MHS^	Medco Health Solutions Inc.	Health Care	22 496.09	1	1	1	1	1	5
MDT^	Medtronic Inc.	Health Care	59 297.11	1	1	1	1	1	5
UNH^	UnitedHealth Group Inc.	Health Care	68 783.29	1	1	1	1	1	5
CHRW^	C.H. Robinson Worldwide Inc.	Industrials	9 067.95	1	1	1	1	1	5
HON^	Honeywell International Inc.	Industrials	45 057.29	1	1	1	1	1	5
MAN^	Manpower Inc.	Industrials	7 846.86	1	1	1	1	1	5
PLL^	Pall Corp.	Industrials	5 618.05	1	1	1	1	1	5
SPW^	SPX Corp.	Industrials	5 160.24	1	1	1	1	1	5
TXT^	Textron Inc.	Industrials	13 829.35	1	1	1	1	1	5
UTX^	United Technologies Corp.	Industrials	70 625.00	1	1	1	1	1	5
GWV^	W.W. Grainger Inc.	Industrials	7 822.49	1	1	1	1	1	5
A^	Agilent Technologies Inc.	Information Technology	15 683.52	1	1	1	1	1	5
CEN^	Coridian Corp.	Information Technology	4 916.99	1	1	1	1	1	5
DBD^	Diabold Inc.	Information Technology	3 424.09	1	1	1	1	1	5
EBAY^	eBay Inc.	Information Technology	44 038.71	1	1	1	1	1	5
EMC^	EMC Corp.	Information Technology	38 414.34	1	1	1	1	1	5
INTC^	Intel Corp.	Information Technology	136 884.30	1	1	1	1	1	5
NTAP^	Network Appliance Inc.	Information Technology	10 713.61	1	1	1	1	1	5
PAYX^	Paychex Inc.	Information Technology	14 949.75	1	1	1	1	1	5
STX^	Seagate Technology Inc.	Information Technology	12 538.39	1	1	1	1	1	5
SNPS^	Synopsys Inc.	Information Technology	3 715.21	1	1	1	1	1	5
VCLK^	ValueClick Inc.	Information Technology	2 928.72	1	1	1	1	1	5
VSEA^	Varian Semiconductor Equipment Int	Information Technology	3 113.47	1	1	1	1	1	5
XLNX^	Xilinx Inc.	Information Technology	7 921.30	1	1	1	1	1	5
APD^	Air Products & Chemicals Inc.	Materials	17 460.43	1	1	1	1	1	5
ECL^	Ecolab Inc.	Materials	10 732.08	1	1	1	1	1	5
PX^	Praxair Inc.	Materials	23 098.77	1	1	1	1	1	5
SEE^	Sealed Air Corp.	Materials	5 004.46	1	1	1	1	1	5
SON^	Sonoco Products Co.	Materials	4 304.55	1	1	1	1	1	5
VZ^	Verizon Communications Inc.	Telecommunication Services	119 866.67	1	1	1	1	1	5
AEE^	Ameren Corp.	Utilities	10 125.47	1	1	1	1	1	5
ETR^	Entergy Corp.	Utilities	21 756.38	1	1	1	1	1	5
NFG^	National Fuel Gas Co.	Utilities	3 612.17	1	1	1	1	1	5
PGN^	Progress Energy Inc.	Utilities	11 671.04	1	1	1	1	1	5
XEL^	Xcel Energy Inc.	Utilities	8 337.37	1	1	1	1	1	5

6.5 Results of Study

The results of the back-test were quite encouraging as the portfolio outperformed the benchmark over the course of the experiment.

6.5.1 Portfolio Performance versus Benchmark Performance

Over the 6.5 year duration of the experiment the portfolio's cumulative return was 81.05% versus the benchmark's return of 34.40%. The cumulative value added (alpha) was 46.65%. The best quarter relative to the benchmark was Q1'01 with 12.63% of outperformance. The worst quarter was Q3'06 with a relative underperformance of -2.69%. The best rolling 12-month period generated an outperformance of 20.63%, while the poorest rolling 12-month period saw -2.80 of underperformance.

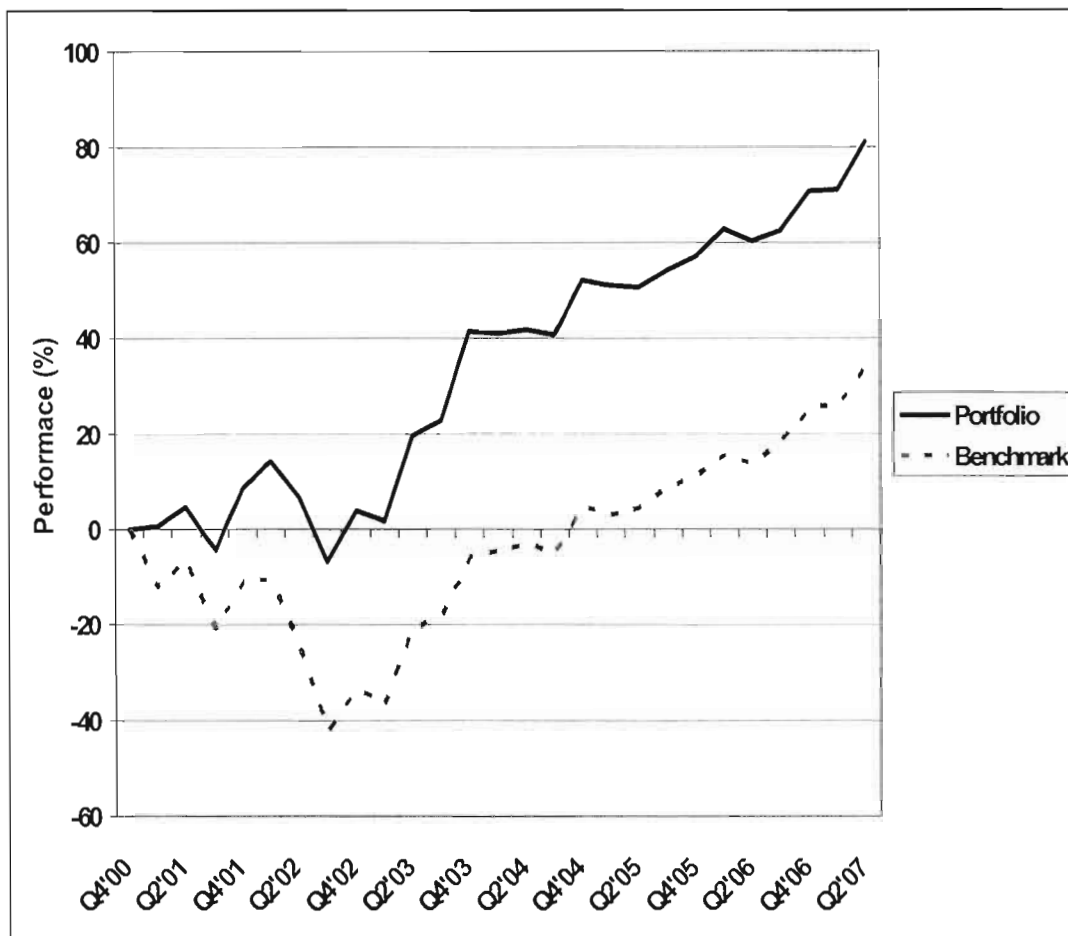
Usually when investors think of payout yield they assume a defensive portfolio that does well in down markets, but then lags in up markets. This is not the case here as the payout yield acts as a control on valuation, but what the screening process really captures is growth and profitability (momentum characteristics also strong). We were particularly interested to discover that the portfolio not only keep up with the market during the rally that began Q2'03, but continued to outperform.

The beta of the portfolio averaged 0.82 and once again rose throughout the experiment as the bull market gained momentum. It appears that the screen captures momentum, which allows it to keep pace with the market during rallies.

Exhibit 6.9 Performance Summary

	Q1 '01	Q2 '01	Q3 '01	Q4 '01	Q1 '02	Q2 '02	Q3 '02	Q4 '02	Q1 '03	Q2 '03	Q3 '03	Q4 '03
# stock	21	23	28	31	31	36	31	40	32	31	32	35
PF Beta	0.67	0.57	0.50	0.65	0.85	0.82	0.61	0.86	0.88	0.74	0.71	0.85
PF perf	0.55	4.17	-9.11	12.81	5.99	-7.61	-13.76	10.94	-2.16	17.73	3.46	18.46
Bench perf	-12.07	5.82	-14.68	9.89	0.22	-13.99	-17.38	8.49	-2.82	15.56	2.64	12.28
Diff	12.63	-1.65	5.57	2.92	5.77	6.38	3.62	2.45	0.67	2.18	0.81	6.17
PF perf Last 12 mth				8.43	13.87	2.09	-2.57	-4.43	-12.58	12.76	29.98	37.49
Bench perf Last 12 mth				-11.03	1.26	-18.55	-21.25	-22.65	-25.69	3.85	23.87	27.66
Diff Last 12 mth				19.46	12.60	20.63	18.68	18.21	13.11	8.91	6.11	9.83
PF perf since Inc.	0.55	4.72	-4.38	8.43	14.42	6.81	-6.95	4.00	1.84	19.57	23.03	41.49
Bench since Inc.	-12.07	-6.25	-20.93	-11.03	-10.81	-24.80	-42.17	-33.68	-36.51	-20.95	-18.30	-6.02
Diff since Inc.	12.63	10.97	16.54	19.46	25.23	31.61	35.23	37.68	38.35	40.52	41.34	47.51

	Q1 '04	Q2 '04	Q3 '04	Q4 '04	Q1 '05	Q2 '05	Q3 '05	Q4 '05	Q1 '06	Q2 '06	Q3 '06	Q4 '06	Q1 '07	Q2 '07	Avg
# stock	35	35	45	38	31	36	47	31	34	42	57	44	55	71	37
PF Beta	1.07	0.90	0.82	0.76	0.67	0.68	0.81	0.88	0.88	1.07	1.05	1.02	1.01	0.99	0.82
PF perf	-0.28	0.56	-0.87	11.36	-1.27	-0.19	3.45	2.91	5.84	-2.58	2.25	8.07	0.49	9.83	3.12
Bench perf	1.35	1.37	-1.53	9.43	-1.85	1.56	4.37	2.23	4.28	-1.58	4.94	6.62	1.05	8.17	1.32
Diff	-1.64	-0.82	0.66	1.93	0.58	-1.75	-0.92	0.68	1.56	-1.00	-2.69	1.45	-0.55	1.66	1.79
PF perf Last 12 mth	39.36	22.19	17.86	10.76	9.77	9.03	13.35	4.89	12.01	9.62	8.42	13.58	8.23	20.64	12.38
Bench perf Last 12 mth	31.84	17.65	13.48	10.62	7.42	7.61	13.51	6.31	12.44	9.31	9.88	14.27	11.03	20.78	6.24
Diff Last 12 mth	7.53	4.53	4.38	0.14	2.35	1.42	-0.16	-1.41	-0.43	0.31	-1.46	-0.69	-2.80	-0.14	6.14
PF perf since Inc.	41.20	41.76	40.89	52.25	50.98	50.79	54.24	57.14	62.99	60.41	62.66	70.73	71.22	81.05	
Bench since Inc.	-4.67	-3.29	-4.83	4.60	2.76	4.31	8.68	10.91	15.19	13.62	18.56	25.18	26.23	34.40	
Diff since Inc.	45.87	45.06	45.72	47.65	48.22	46.48	45.55	46.23	47.79	46.79	44.10	45.54	44.99	46.65	



6.5.2 Portfolio Payout Yield

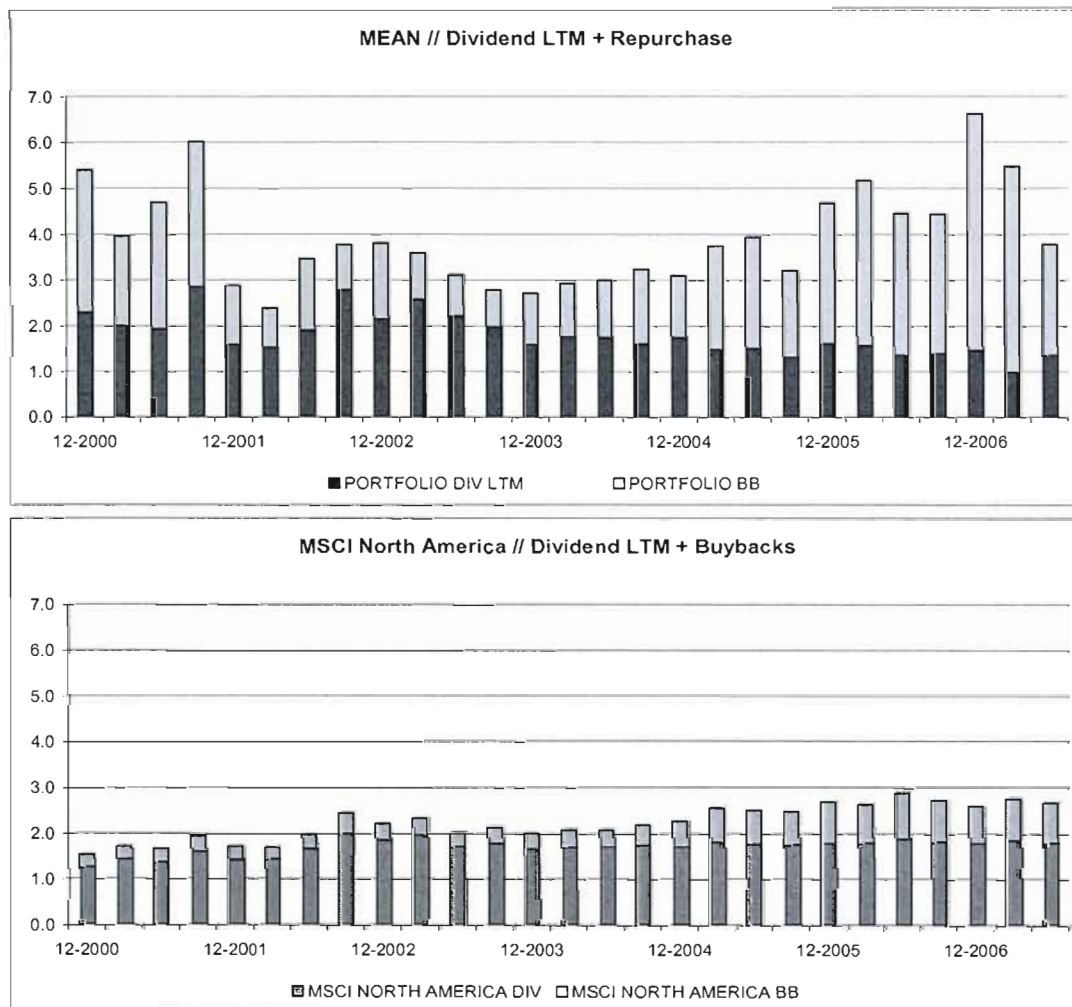
The portfolio's initial payout yield was skewed towards buybacks as we were in the last stages of the bull market. Buybacks were actually more important than dividends. As the economy soured and the stock market declined sharply from 2000 to 2002 the balance between dividends and buybacks tilted back towards dividends. The majority of the payout yield came from dividends in the 2001 to 2003 time period.

As the economy and the financial markets gained momentum in 2003 and throughout 2004 we start to see a shift in the composition of the payout yield as share buybacks make a comeback. The dividend yield remains fairly steady throughout the process, but it is the share buybacks that tend to vary depending on what phase of the economic cycle we are in. The

peak in terms of buybacks occurs in 2006 when buybacks are 2 times to 3 times greater than the dividend component.

The focus on the total payout (dividends plus buybacks) allows the portfolio to adapt to the current market conditions. In bear markets the screen tilts towards “safer” companies with dividends, while in the bull market phase the screen captures those companies that are doing well, generating excess cash and using that excess cash to buy back shares, which is something the market likes.

The dividend buyback split also acts as a sort of market gauge. A very low dividend component signals a potential peak in the market, while extremely low buybacks signal a potential trough in the overall market. What is interesting is that the screen adjusts well to the changing macro-economic dynamics capturing the momentum of the market well.

Exhibit 6.10 Portfolio Payout Yield Summary

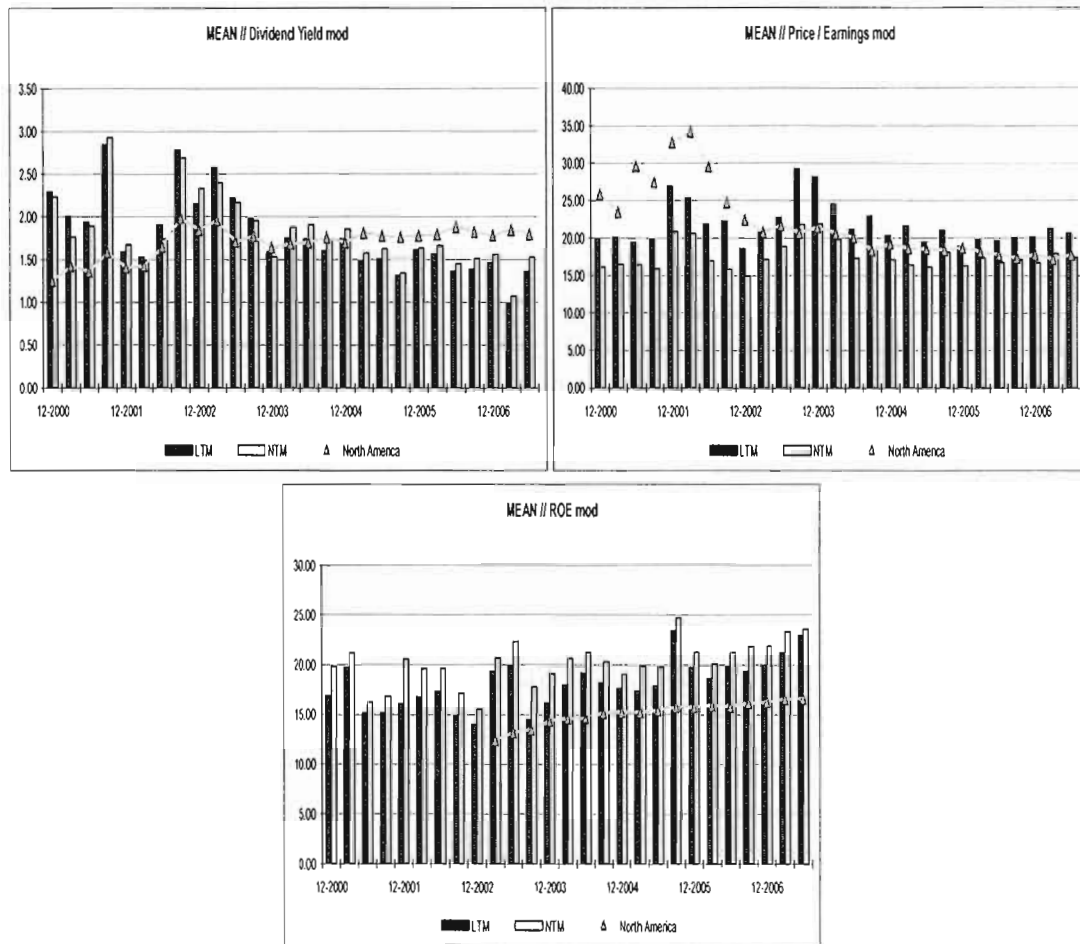
6.5.3 Importance of Overall Portfolio Characteristics

It is extremely important to monitor the overall portfolio characteristics through the experiment. It's like the health check-up of the process. If we can consistently put together a portfolio of stocks that as a group have superior characteristics to the market, then we stand a reasonable chance of outperforming the reference index over the long-term. It is important for the portfolio to have superior growth characteristics, above average profitability and a higher payout yield compared to the index. The characteristics of the virtual portfolio displayed these characteristics. Sales, EBITDA and EPS growth were consistently better than

the market average. The quality of the portfolio was strong with an above average ROE. The dividend was basically in-line, but the payout yield was superior. Thus, the three key elements were all in place – growth, profitability and payout. Other important characteristics were also in place including a lower debt profile than the market (in terms of net debt to EBITDA), lower valuation (in terms of P/E and EV/EBITDA) and superior momentum characteristics.

Exhibit 6.11 Portfolio Characteristics Compared to the Benchmark

QUALITY							VALUATION						
	pfmodif		MSCI NA modif		premium / disc			pfmodif		MSCI NA modif		premium / disc	
	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN		MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN
Market Cap	43 497	22 278	21 806	10 110	99.5%	120.4%							
EV	68 908	25 641	33 507	12 502	105.7%	105.1%							
ND/ EBITDA	0.69	0.68	1.21	0.79	-42.8%	-14.0%							
ROE													
LTM	22.92	20.72	17.38	15.81	31.9%	31.0%							
NTM	23.60	21.30	17.68	16.22	33.4%	31.3%							
2007	24.12	22.59	17.87	16.43	35.0%	37.5%							
2008	23.47	20.95	17.58	16.19	33.5%	29.4%							
2009	23.26	20.00	17.93	15.99	29.8%	25.1%							
Div yield													
LTM	1.36	1.09	1.48	0.96	-8.3%	12.9%							
NTM	1.53	1.18	1.54	1.04	-0.4%	13.1%							
2007	1.42	1.13	1.52	1.01	-6.2%	12.0%							
2008	1.63	1.24	1.58	1.10	2.6%	12.3%							
2009	1.66	1.26	1.54	0.91	7.4%	39.0%							
Div+BB	3.73	4.00	0.94	1.97	296.1%	103.4%							
Total Return													
1 month	-1.13	-1.46	-1.72	-1.94	-34.4%	-24.7%							
3 month	8.01	6.97	5.85	5.06	36.8%	37.6%							
1 year	25.96	20.09	21.92	18.15	18.4%	10.7%							
3 year	78.86	62.33	75.07	54.45	5.1%	14.5%							
5 year	141.36	122.24	172.14	102.44	-17.9%	19.3%							
P/E													
LTM	20.64	20.21	22.51	19.80	-8.3%	2.1%							
NTM	17.47	17.18	19.90	17.27	-12.2%	-0.5%							
2007	18.97	18.65	21.56	18.55	-12.0%	0.5%							
2008	16.35	15.90	18.49	16.09	-11.6%	-1.2%							
2009	14.43	14.39	16.60	14.64	-13.1%	-1.7%							
PEG NTM	1.47	1.40	2.02	1.47	-27.0%	-5.0%							
EV/EBITDA													
LTM	11.61	10.80	11.42	10.48	1.7%	3.0%							
NTM	9.98	9.59	10.21	9.33	-2.3%	2.7%							
2007	10.96	10.24	11.00	10.02	-0.4%	2.2%							
2008	9.37	9.08	9.57	8.91	-2.2%	1.9%							
2009	8.22	8.10	8.56	7.95	-4.0%	1.9%							
EV/Sales													
LTM	2.91	2.33	3.28	2.57	-11.4%	-9.3%							
NTM	2.56	2.16	2.99	2.33	-14.3%	-7.1%							
2007	2.78	2.36	3.13	2.44	-11.2%	-3.1%							
2008	2.42	2.02	2.86	2.22	-15.4%	-8.9%							
2009	2.10	1.90	2.64	2.06	-20.4%	-8.0%							
P/B													
LTM	3.85	4.07	3.25	3.17	18.5%	28.3%							
NTM	3.63	3.68	3.05	2.91	18.8%	26.3%							
2007	3.78	3.95	3.14	3.04	20.1%	30.0%							
2008	3.42	3.31	2.84	2.62	20.6%	26.4%							
2009	3.15	2.94	2.72	2.42	16.0%	21.7%							
GROWTH							MOMENTUM						
	pfmodif		MSCI NA modif		premium / disc			pfmodif		MSCI NA modif		premium / disc	
	MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN		MEAN	MEDIAN	MEAN	MEDIAN	MEAN	MEDIAN
EPS g							EPS 3mth rev						
NTM	17.82	15.45	12.58	12.14	41.7%	27.2%	LTM	5.59	4.56	3.58	2.82	56.2%	61.7%
2007	21.21	16.31	10.60	10.94	100.0%	49.1%	NTM	6.10	5.68	3.58	3.63	70.5%	56.7%
2008	15.79	13.78	14.79	13.30	6.8%	3.5%	2007	2.14	1.65	-0.66	0.48	-425.6%	239.8%
2009	13.50	13.63	12.35	11.91	9.3%	14.4%	2008	2.62	1.82	0.55	0.70	377.6%	160.0%
3Yr avg	17.11	15.21	12.50	12.12	37.0%	25.4%	EBITDA 3mth rev						
EPS LTG	15.01	12.48	14.02	12.50	7.1%	-0.2%	LTM	2.82	2.44	1.57	1.47	79.3%	65.8%
EBITDA g							NTM	2.60	2.69	1.56	1.71	66.7%	57.8%
NTM	15.61	13.64	12.67	10.56	23.2%	29.2%	2007	1.11	0.83	-1.29	-0.16	-186.0%	-637.1%
2007	19.04	14.31	12.02	10.69	58.4%	33.8%	2008	1.55	1.13	0.31	0.32	392.3%	248.0%
2008	13.00	12.06	14.13	10.37	-8.0%	16.2%	SALES 3mth rev						
2009	9.36	8.77	9.75	8.68	-4.0%	1.0%	LTM	3.45	2.58	2.34	2.00	47.7%	28.8%
3Yr avg	14.30	13.07	12.21	10.25	17.1%	27.5%	NTM	3.39	2.91	2.19	2.05	54.8%	42.0%
SALES g							2007	0.92	0.76	0.18	0.16	421.5%	387.6%
NTM	11.21	8.50	8.38	7.19	33.7%	18.3%	2008	1.31	0.98	0.43	0.28	208.4%	248.0%
2007	12.64	9.54	9.11	7.89	38.8%	20.9%							
2008	9.69	8.21	8.17	7.11	18.7%	15.5%							
2009	8.32	6.88	7.04	6.37	18.1%	8.1%							
3Yr avg	10.48	8.91	8.12	7.03	29.0%	26.8%							



Note: LTM - last twelve months (actual results), NTM - next twelve months (expected results bases on analyst forecasts).

CONCLUSION

The relevance of accounting-based research and fundamental analysis has been questioned numerous times through the years, but just when it seems like the future importance of fundamental analysis is in serious doubt a new crisis emerges that highlights: 1) the importance of this work and 2) the potential rewards from an analysis grounded in the logic of the financial statements. This time around it is the credit crisis that has shown us that fundamental accounting-based analysis is relevant.

One of the key elements of the investment process is financial statement analysis and fundamental analysis such as looking at margin trends, leverage analysis, asset quality, and cash flow. In essence investors need to look at anything that can provide insight into the sustainability of current performance.

Throughout the essay we have highlighted numerous studies have shown that investors can earn *abnormal returns* (generate alpha) through the use of fundamental analysis of financial statements. These abnormal gains are made possible by the fact that the financial markets do not correctly discount all the information available in the financial statements (Desai, Krishnanurthy and Venkaturaman 2007) and because the built-in assumptions about future results are often erroneous. There tends to be a time-lag prior to adjustment that allows traders to put in place arbitrage trades that eventually close the *information gap*. For example Desai, Krishnanurthy and Venkaturaman found that short sellers targeted firms with high sales growth and high accruals because this is a potential sign that current performance is not sustainable into the future. The current mortgage-related crisis provides further evidence of this. Several hedge funds put in place negative “bets” on the mortgage market starting in 2005 and 2006 after carefully analyzing the balance sheets of mortgage lenders and housing market data. While these trades eventually proved to be extremely profitable in some cases

the investors needed to be very patient and wait up to two years for certain mortgage-related equities to collapse. It took some time, but eventually the information gap was closed.

We often asked, what is the role of accounting-based research in relation to the equity markets and more precisely to share price valuations? We strongly believe accounting research can play an important role. Moreover this is an area with great public and private interest, thus the profile of accounting researchers can benefit from providing high quality and relevant research to the marketplace.

Bauman (1996) believes fundamental analysis involves an assessment of a firm's value (without reference to the actual price), activities and prospects through published financial reports, as well as other sources of information. Given that financial statements are one of the primary tools and perhaps the most important source of information used in fundamental analysis that is better placed to analyze financial statements than accounting researchers?

Articles by Ball & Brown and Beaver are generally regarded as turning points in the history of accounting research. Post 1968 research has tilted towards empiricism, has been deemed normative and follows the *positive* line of thought as apposed to the *prescriptive and descriptive* approaches that dominated the literature prior to 1970 (Gaffikin, 2007). The *systematic* use of empirical data was facilitated by the widespread availability of financial databases along with easier access to more and more powerful computers that made number crunching easy allowed a myriad of theories to be tested in much less time than was the case in prior generations(Gaffikin, 2007). The backbone of this research was the Efficient Market Hypothesis (EMH), developed by Fama and French that hypothesizes that security prices reflect all available information.

The Efficient Market Hypothesis (EMH) role as the foundation of capital markets research in accounting has weakened in recent years. It remains the starting point of most discussions, but the endgame has proven to be very diverse. Over the long haul the market and individual stocks ultimately move towards *fair value*, but this process can take extended periods of time and the fair value scenario may only hold up for short periods of time as the market overshoots to both the upside and then subsequently to the downside. Given that securities

only spend a relatively short period time at true fair value levels the opportunity for alpha generating strategies exists and can be successfully employed by practitioners. As the arguments in favor of efficient markets weaken the idea of a rational investor properly processing all value-relevant information has also come under increased criticism as information asymmetry and irrational behavior are quite common in the financial markets. Generating alpha on a consistent basis remains a difficult task, but it can and has been done.

While accounting information and fundamental analysis is often brushed aside as being boring and irrelevant the truth is that for a boring topic accounting research sure does generate a lot of interest and the impact of things like fundamental analysis and accounting rule changes can have significant impacts on the equity markets (i.e. fair value). The controversy surrounding the analysis of accounting information and its impact on equity markets is unlikely to go away anytime soon, thus ample opportunities for research in this area remain. The backers of the efficient market hypothesis believe the output of fundamental analysis is already *in* the share price, but ironically there is a huge demand for any profitable trading strategies derived from fundamental analysis. Briginshaw (2004) suggests that fundamental analysis is in essence an attempt to list stocks from most to least preferred.

Historically, research in this area has focused on the informational perspective of accounting and the traditional valuation models such as the dividend discount model. The fundamental analysis school of thought believes a firm's value can be derived through financial statement analysis. Stocks are believed to deviate from their true fundamental value, sometimes for extended periods of time, but eventually the price moves back to its fundamental value. Ou & Penman (1989) believe an analysis of published financial statements can uncover mispriced stocks and that investment strategies can be derived using the fundamental information in financial statements.

Ball and Brown's seminal 1968 study built upon existing research in finance and economics, which focused on fundamental analysis of which studying financial statements was a key element. Ball and Brown (1968) tried to identify the usefulness or importance of accounting information for the security markets and the subsequent impact on security prices (Gaffikin,

2007). What information moves share prices and what information is useful in identifying future stock movements.

Most researchers and market participants have changed their point of view regarding the efficient market hypothesis (EMH) concept developed by Fama. According to Lee (2001), stock prices do not adjust to information instantly, but rather price converges toward fundamental value through time as various types of traders (both sophisticated and non-sophisticated) act on pieces of available information. The presence of anomalies such as post-announcement drift and the interpretation of accruals once again call into question the efficiency of the capital markets. Lee believes accounting research has a golden opportunity to add value in this type of environment.

Bird et al. suggest the availability of information (lack of information asymmetry) and the existence of a large number of rational, profit maximizing investors are necessary to the concept of efficiency. The increasing popularity of index funds has led to greater than 25% of funds in many developed equity markets being managed in this manner. Add to this the closet indexers, momentum investors and technical investors and we have a significant percentage of the market that is not relying on fundamental analysis. Therefore these types of investors are not helping the price discovery process, but rather are trading on noise.

In recent years George Soros has become one of the most outspoken critics of the efficient markets hypothesis and has railed against the trends towards deregulation that have increased risk across the marketplace. Soros argues that the theory that markets always move towards equilibrium is a flawed theory that has led us dangerously close to the edge of a disaster, especially given the amount of leverage and the mind-numbingly complicated nature of many modern financial instruments. Soros believes that rather than rational behavior a vicious two-way feedback loop that he calls *reflexivity* has evolved around misjudgments and misconceptions that can influence market prices for extended periods of time.

Naturally as questions about the validity of the efficient markets hypothesis gained momentum a quest for new theories and potential explanations has ensued. Amongst some of the more interesting theories is the idea of the market as complex adaptive system brought

forward by Maboussin. According to Maboussin (2002), the markets can be described as a complex adaptive system dominated by potentially irrational participants operating with incomplete information and relying on various decision rules. Maboussin believes that efficient markets theory were a good starting point in past years, but now the stream of research and thought needs to move forward. Rather than criticize efficient market theory it needs to be viewed as a natural historical process and should be used as one of the building block of current theories. While the efficient market hypothesis has served us well Maboussin believes the current evidence know longer supports the theory and it does stand up to the available empirical evidence given that numerous researchers have discovered tradable anomalies. An adaptive process of efficiency is in place.

The argument is far from over as McKinsey, the very influential consulting firm, continues to support the efficient market theory. McKinsey believes that while irrational behaviour can influence stocks in the short-term, ultimately the fundamentals prevail. ROE, growth and free cash flow drive long-term value with the market paying up for higher returns and higher growth. Mckinsey believes in efficient markets, but acknowledges swings caused by emotions exist. "Market-wide price deviations are short-lived; over the past few decades, the market corrected itself within a few years to price levels consistent with economic fundamentals."

Finally, we concluded the essay with a discussion of the findings from an equity screening process we set up over a 6 and a half year time frame. A hypothetical equity portfolio was created and run from December 30, 2000 through June 30, 2007. The portfolio was developed around the idea that the market rewards growth, profitability and that keeping these factors constant a higher payout yield could only improve the results. The results are a portfolio that significantly outperformed in a down market, while keeping pace with the market during rallies. The *virtual* results were encouraging and the information collected during the experiment was eventually used as the framework behind the investment process that is being used to manage a *real* investment portfolio as of September 2008.

The market price of a stock is based on expectations of future growth and profitability, which are based on internal characteristics (past performance, product range, and management's

capabilities) and the external environment (economic, political, social, and regulatory). The market also appreciates companies with improving dynamics (Piotroski 2000 and Mohanram 2003). Based on the compilation of existing research and from our own years investment experience an equity screening process was developed that sought to identify companies with attractive growth and profitability profiles while controlling for the payout yield.

We highlight below several studies that served as guide in the development of our investment screening process.

Research from Robertson & Wright (2006) put forth evidence that the total payout yield, which includes not only dividends, but also share buybacks had greater explanatory power than simply looking at dividends yields.

According to Damodoran (2007) there has been a major shift in recent years as the emphasis has moved from simply looking at absolute levels of growth towards profitable growth. Companies generating true economic profits are being rewarded. Return on equity (ROE) measures the return on the equity portion of the investment after taking into consideration debt servicing.

Research from Goldman Sachs has suggested that looking solely at dividends is a flawed investment approach given that research shows that dividends have historically been negatively correlated with stock returns. Goldman Sachs suggests paying closer attention to the fundamentals such as EPS growth and profitability. Interestingly, they found that excess returns can be generated when combining a dividend focus with strong underlying fundamentals.

As a reference index we use the MSCI North America Equity Index, which is a broad-based reference index composed of approximately 900 of the largest companies in Canada and the United States. The study was conducted over a period of six and a half years starting on December 31, 2000 and ending on June 30, 2007. We felt this was an appropriate time frame for the purpose of our analysis because it encompasses an entire economic cycle from boom to bust. The data used in the study was obtained from the Factset database. Factset is a

division of Reuters, a leading provider of information analytics to the global investment community.

The actual stock screening and security selection process was based on factors derived from our own experience and supported by the academic research previously cited. There is evidence that an analysis method based on future growth expectations and profitability is able to highlight attractive investment ideas. Also, all things being equal (growth and profitability) the equity markets appear to appreciate an above average payout yield. The stock screen examines 5 factors;

- EBITDA growth in the current year
- EBITDA growth next year
- Absolute return on equity (ROE)
- Improving ROE
- Payout yield (dividend plus net share buyback)

The results of the experiment were positive and the virtual portfolio outperformed the benchmark throughout the studied time frame. For the entire 6.5 year duration of the experiment the portfolio's cumulative return was 81.05% versus the benchmark's return of 34.40%. The portfolio screen naturally shifted the emphasis from buybacks to dividends within the payout yield as the economy moved from a weak economic state to a steady period economic expansion. In order to be successful the portfolio need to have a strong combination of growth, profitability and payout yield versus the market. The characteristics of the virtual portfolio displayed these characteristics. Sales, EBITDA and EPS growth were consistently better than the market average. The quality of the portfolio was strong with an above average ROE. The dividend was basically in-line, but the payout yield was superior. Thus, the three key elements were all in place – growth, profitability and payout. Other important characteristics were also in place including a lower debt profile than the market (in terms of net debt to EBITDA), lower valuation (in terms of P/E and EV/EBITDA) and superior momentum characteristics.

The results of the experiment were encouraging and allowed us to move forward with the project, which we discuss in the annexe. The experiment has also allowed us to demonstrate that even with a relatively simple premise we were able to put together a portfolio of stocks that consistently outperformed the market throughout an entire economic cycle. While there is no guarantee that this particular set of screens will work going forward it nonetheless provides evidence that the development of alpha generating trading strategies is possible. These strategies will always work indefinitely over time because once a strategy becomes widely known arbitrage opportunities diminish, but this may take several years. A good example of this is the carnage in the hedge fund sector in 2007 and 2008 as many funds were employing the same strategies. As these strategies were forced to be unwound it created a negative spiral effect that has hurt the entire industry. Nonetheless, a strategy that can work well for a few years until the arbitrage opportunity is eliminated is still interesting and highlights that the market takes time to move towards efficiency.

While liquidity and risk premiums also play a role in determining value, we do not address risk premiums and liquidity in our study as we are trying to identify the relative winners within the market versus a specific benchmark and not the absolute winners.

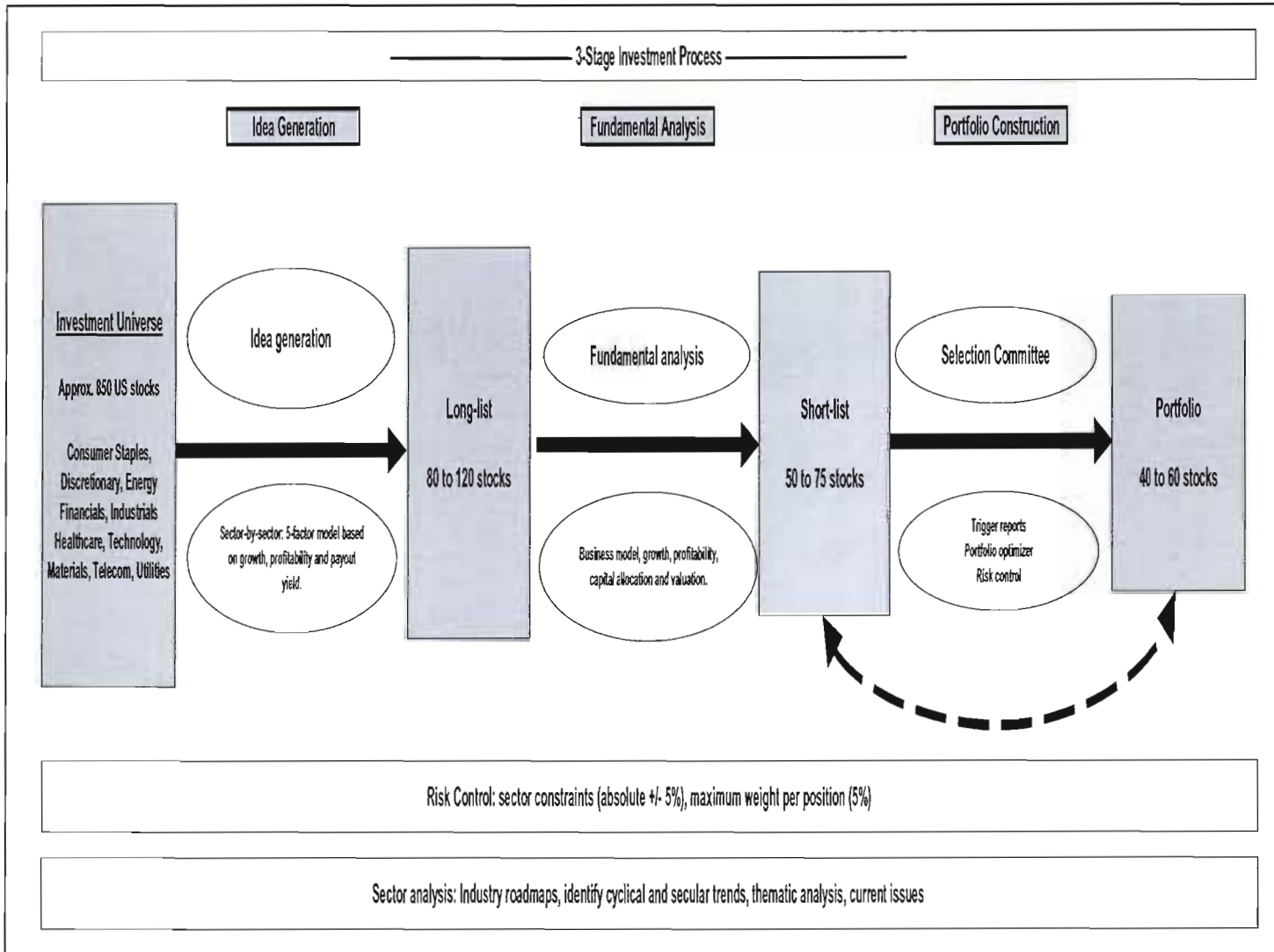
In conclusion, accounting research, financial statements and fundamental analysis are very important parts of the price discovery process that drives the world's financial markets. As long as the financial markets exist there will be opportunities to exploit investment opportunities through the use of fundamental analysis.

APPENDICE A

The investment concept and the information we obtained during the experiment was used as the framework for the investment philosophy and process used to manage a US Mutual Fund. Following the encouraging results obtained from the back test a “virtual” fund was created and managed from July 1, 2007 through August 31, 2008. The virtual fund tried as much as possible to simulate real life conditions, which included all transactions being booked on our internal systems with fictitious transaction costs applied. The green light for the real fund was given during the summer of '08 and we took over management of a US mutual fund on September 1, 2008.

The real fund differs from the experiment in that the 5-factor screen is used in the initial step of a bottom-up investment process. Thus the screen is a source of idea generation. The factors used remain the same although some modifications to the approach have been made. The screens are now run on a sector by sector basis in order to generate ideas for sector. Please see the chart below for a quick overview of the current investment process.

Exhibit A.1 Investment Process



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