CHAPTER II

REVIEW OF LITERATURE

Khoon and Gupta (2001) uses monthly data (from September 1988 to June 1997) on 213 stocks listed on the Main Board of the Kuala Lumpur Stock Exchange to investigate whether cross-sectional variations in stock returns are sufficiently explained by the Arbitrage Pricing Theory (APT). The study uses two approaches—factor analysis and the macroeconomic factors technique. The results indicate that the APT model is quite robust, and that two unknown factors are significant in the first approach and just one (expected inflation) in the second approach to explaining the cross-sectional variations in stock returns.

Christofi, Christofi, and Philippatos (2007) demonstrate an application of the Arbitrage Pricing Theory using canonical analysis as an alternative to the conventional factor analysis. Following the traditional view that asset prices are influenced by unanticipated economic events, the systematic effects of the major composite economic indices on a wide spectrum of industry returns are explored. The main conclusion is that profitability may be considered as the single most important factor that influences security returns. Also, the composite lagging economic indicators appear to be more useful to investors in forming market expectations than the composite leading economic indicators. Finally, it is argued that the composite index of coincident economic indicators do not exhibit any significant influence in the pricing of capital assets.
Ward (2007) contrasts the traditional and the modern approaches to the valuation of securities. The new ideas are straightforward and the models simply describe the way in which many professional investors go about the business of maximizing their wealth. The article is divided into two sections. The first focuses on modern portfolio theory to demonstrate the fundamental investment tradeoff between risk and return. The second presents a pragmatic approach to security valuation for investors who no longer believe in earnings multipliers.

Lizieri and Finlay (2010) describes two improvements to Gentry’s fully homomorphic scheme based on ideal lattices and its analysis: we provide a more aggressive analysis of one of the hardness assumptions (the one related to the Sparse Subset Sum Problem) and we introduce a probabilistic decryption algorithm that can be implemented with an algebraic circuit of low multiplicative degree. Combined together, these improvements lead to a faster fully homomorphic scheme, with a $\sim O(3.5)$ bit complexity per elementary binary add/mult gate, where is the security parameter. These improvements also apply to the fully homomorphic schemes of Smart and Vercauteren [PKC’2010] and van Dijk et al. [Eurocrypt’2010].

Sabetfar, Fah, Mohamad and Noordin (2011) provides weak evidence in support for the application of Arbitrage Pricing Theory (APT) on the Iranian stock market in the Sharia (the sacred law of Islam faith.) Based close economy. Tests conducted using the principal component analysis and canonical correlation model showed that at least one to three factors that can explain the cross-section of expected returns in this market. Financial and economical sanctions possibly explain the negative stock market returns which reflect the reaction of investors to the announcement of sanctions. Overall, the results suggest that there are four groups of
macroeconomic variables in the test period that affect stock returns for the test period, 1991 to 2008, but the significance of these factors is not consistent over time. In general the findings document a weak applicability of APT in this market.

Corner and Matatko (2007) reports that during the last decade, following the development of Modern Portfolio Theory (MPT) in the USA, associated risk and risk-adjusted measures have been developed to assess the risk and performance of portfolios and 'mutual funds' (unit trusts). This work has been further continued in the USA in the form of regular risk services relating to individual securities; for example, the Merrill Lynch 'Beta Book', which during the last year has also included beta measures for the more widely held mutual funds, and the Barr Rosenberg Associates 'Fundamental Risk Measurement Service'. Additionally in the USA, a number of organizations have developed special risk-measurement services relating to mutual funds alone.

McGowan, Jr and Dobson (1993) present a new research design to test the efficacy of the Arbitrage Pricing Theory of Ross [1976], similar to that applied by Christofi, Christofi and Philippatos [1993]. In particular, we use a combination of factor analysis and canonical correlation to test the underlying relationships between APT factors developed using factor analysis and unanticipated changes in five macro-economic variables that have been shown to be related to stock returns. The results of this paper indicate that the first factor of industry returns is strongly related to the S&P 500 while the remaining four factors are highly correlated with the term structure of interest rates, the rate of inflation, the default premium, and the industrial production, respectively.
Section II of this paper reviews the related literature, section III discusses the research design used in the study, section IV discusses the empirical results, and section V discusses the conclusions.

Shiller (2003) reports Academic finance has evolved a long way from the days when the efficient markets theory was widely considered to be proved beyond doubt. Behavioral finance that is, finance from a broader social science perspective including psychology and sociology is now one of the most vital research programs, and it stands in sharp contradiction to much of efficient markets theory. The efficient markets theory reached its height of dominance in academic circles around the 1970s. At that time, the rational expectations revolution in economic theory was in its blush of enthusiasm, a fresh new idea that occupied the center of attention. The idea that speculative asset prices such as stock prices always incorporate the best information about fundamental values and that prices change only because of good, sensible information meshed very well with theoretical trends of the time. Prominent finance models of the 1970s related speculative asset prices to economic fundamentals, using rational expectations to tie together finance and the entire economy in one elegant theory. For example, Robert Merton published “An Intertemporal Capital Asset Pricing Model” in 1973, which showed how to generalize the capital asset pricing model to a comprehensive intertemporal general equilibrium model. Robert Lucas published “Asset Prices in an Exchange Economy” in 1978, which showed that in a rational expectations general equilibrium, rational asset prices may have a forecastable element that is related to the forecast ability of consumption. Douglas Breeden published his theory of “consumption betas” in 1979, where a stock’s beta (which measures the sensitivity of its return compared to some index) was determined by the correlation of the stock’s return with
per capita consumption. These were exciting theoretical advances at the time. In 1973, the rest edition of Burton Malkiel’s acclaimed book, *A Random Walk down Wall Street*, appeared which conveyed this excitement to a wider audience.

Boor (2012) presents an analysis of the capital needs, needed return on capital, and optimal reinsurance retention for insurance companies. As an alternative to much of the present practice, it focuses on closed form expressions and closed form approximations, rather than focusing on how to estimate such values using Monte Carlo simulation. Most of the analysis is also done using a distribution-free approach with respect to the loss severity distribution, so minimal or no assumptions surrounding the specific distribution are needed when analyzing the results. This is done for the no parameter uncertainty monocline compound Poisson distribution as well as situations involving count and severity parameter uncertainty, and scenarios involving multiple lines of business within a single company. It shows how the risk of extreme aggregate losses that is inherent in insurance operations may be understood (and, implicitly, managed) by performing various calculations using the loss severity distribution, and, where appropriate, key parameters driving the parameter uncertainty distributions. Normal and lognormal approximations to the percentiles of the aggregate loss distribution are performed using the moments of the capped severity distribution and analytic formulas from the frequency distribution. Formulas are developed that estimate the capital and surplus needs of a company using the VaR approach. From those, tractable formulas for the benchmark profit need of a company are developed. An analysis of the economically efficient optimal reinsurance retention/policy limit is performed as well, with capped loss distribution/frequency distribution
equations resulting from the relationship that the marginal profit (with respect to the loss cap) should be equal to the marginal expense and profit dollar loading with respect to the loss cap. Analytical expressions are developed for the optimal reinsurance retention. Approximations to the optimal retention based on the normal distribution are developed and their error is analyzed in great detail. For sample data that is known to be difficult to approximate with a normal distribution, the results indicate that in the vast majority of practical scenarios, the normal approximation to the optimal retention is acceptable. Similar analyses within the dissertation arm that even though the sample data used has extreme skewness, the normal approximation to the upper percentiles of the aggregate distribution is often acceptable, and the lognormal approximation is generally quite good. Several consequent issues are resolved within the dissertation. As part of that analysis, it resolves the long-standing issue as to whether or not lower retentions should be purchased in the more risky lines within a multiline portfolio of insurance policies. Specially, under certain conditions the paper shows that the optimal retentions should be equal across the different lines of business. It also discusses that while most companies may potentially receive some benefit from purchasing excess of loss reinsurance, every insurance company has a certain loss limit, beyond which the cost of the insurance outweighs the benefits. The dissertation contains a brief comparison of the VaR (survival probability) and expected policyholder deceit (EPD) and VaR approaches to surplus adequacy, which concludes that the VaR approach is superior. Also, the benchmark loading for port and the amount needed to recompense investors for divers’ able risk is discussed. An analysis of whether or not the loading for divers’ able risk is needed is performed, suggesting that some small load for the randomness of insurance claims is required to support the capital employed by an insurance company. The port load needed in the rates is shown to be independent of how an insurance
company invests its assets, and as such is mostly independent of the CAPM beta" of the company as a whole. It is shown to be related strictly to the risk-free rate and the asset structure of an insurance company in the most common cases.

Another chapter discusses the advisability of insurance companies maintaining funds or reinsurance to pay very, very, large aggregate losses. It concludes that there are some very large losses for which the economic utility gained by the claimant when a claim is paid is far less than the economic utility cost of paying the premiums necessary to fund the capital needed (to assure such large claims will be paid). That is shown to be true even when: there are sufficient funds in the world at large available to insure all possible (infinite) losses; and, the value of claims payments expected by policyholders and claimants is given more weight than the premiums paid to support the claims payments.

As a prelude to a portion of the analysis, a theorem was presented indicating that the higher derivatives of a probability mass function meeting certain criteria fulfills L approaches inanity. Since the vast majority of the loss distributions used by actuaries will full the criteria, this allows determination of the relative order of converge at inanity of various higher derivatives of the mass function.

Booth and SmithII (1985) Errors In variables due to no synchronous trading and benchmark error are significant problems for capital market research. This paper develops the use of direct and reverse regression to bound true coefficient estimates when the data exhibit error structures arising from these two sources both separately and jointly. The approach appears
to have broad applicability for capital markets research. As an example, the paper reexamines the small firm effect to show that it cannot be attributed to any synchronous trading or benchmark error in the estimated variance of the market portfolio. This result is shown to hold even when the tax-selling effect is controlled for by excluding January rectums.

GREEN (1986) theoretically evaluates the robustness of the Security Market Line relationship when the market proxy employed is not mean-variance efficient. The analysis focuses on the behavior of the "benchmark errors," the deviations of assets and portfolios from the Security Market Line. First, we characterize how the location of an asset in mean-variance space determines its benchmark error. Then the continuity properties of the benchmark errors are studied. The results indicate that the magnitudes of the errors exhibit continuous but not uniformly continuous behaviors. The relative rankings based on deviations from the Security Market Line, however, exhibit some severe discontinuities. In fact, these can be exactly reversed for two proxies arbitrarily close in mean-variance space.

Bodson, Coen and Hubner (2010) revisit the traditional return-based style analysis in the presence of timevarying exposures and errors-in-variables (EIV). We apply a benchmark selection algorithm using the Kalman filter and compute the estimated EIV of the selected benchmarks. We adjust them by subtracting their EIV from the initial return series to obtain an estimate of the true uncontaminated benchmarks. Finally, we run the Kalman filter on these adjusted regressors. Analyzing EDHEC alternative index styles, we show that this technique improves the factor loadings and allows more precise identification of the return sources of the considered hedge fund strategy.
Maull, Hughes, Childe, Weston, Tranfield and Smith (1990) For a variety of reasons outlined within the body of this article, the approach taken to this research task has been strongly conceptualist and strongly processual. In summary, this is because of the dynamic nature of many companies in an environment which is producing a requirement for rapid, idiosyncratic manufacturing and computer aided production management (CAPM) adaptability both in the design and implementation of systems. The article begins by outlining the results of research into the reasons for CAPM systems failure[1]. Using these results, the research team have developed a methodology based on the concepts of flexible infrastructures those policies, procedures and practices that support the hardware/software configuration of the CAPM system. The methodology is examined stage by stage to specify the context in which the CAPM system is installed and to focus on the implementation of an appropriate CAPM systems and infrastructure configuration. The article concludes with a brief case study based on a recent application of the methodology.

Magni (2008) Purpose – In investment decision making, the net present value (NPV) rule is often used alongside the well-known capital asset pricing model (CAPM). In particular, the use of disequilibrium NPV is endorsed in corporate finance for both valuation and decision. The purpose of this paper is to test the reliability of this approach to capital budgeting valuations and decisions. Design/methodology/approach. The use of disequilibrium values for computing a project’s NPV is considered, and the consistency with the CAPM is checked. The resulting valuation and decision are contrasted with the no-arbitrage principle, which is universally considered a benchmark for rationality. Findings – The paper finds that the disequilibrium NPV
is logically deducted from the CAPM for decision-making purposes. However, this NPV provides no additive values, which makes it inconsistent with the no-arbitrage principle. Practical implications – The use of the CAPM þ NPV procedure for valuing projects is invalid if disequilibrium values are used. Its use for decision making is logically valid but practically unsafe, because decision makers may frame equivalent courses of action in different ways, resulting in different decisions, which implies that they may incur arbitrage losses. Originality/value – the literature does not distinguish between equilibrium and disequilibrium NPV or between valuation and decision. This paper explicitly makes this distinction and the resulting consequences are highlighted.

Frizelle (1991) this article describes how a generic methodology was developed for the specification, selection and implementation of computer-aided production management (CAPM). The research was motivated by the realization that existing implementations were not achieving anything like a desirable success rate and that much work had been done on why implementations failed. A recent survey in *Industrial Computing* [1] showed that companies saw CAPM as a key application for computerization. However while 60 per cent of those questioned had at least one element in place, only 23 per cent had achieved a fully working system. Moreover another 23 per cent felt that the investment had paid for itself. The first step was to identify existing methodologies for implementation. The search was not limited to CAPM but extended to include company strategy formulation, manufacturing strategy development and information technology. Key characteristics of each were identified. A superimposition process then revealed those that were common to all of the areas and those that were specific to a management function. That permitted the development of the generic methodology. It was then
examined in the light of reported experience from the field on why projects underperformed in order to identify any missing elements.

The outcome has been a three-level hierarchy with a framework of activities at each level. The top level relates to the company's ability to accommodate the changes, the second level assesses the direction the project should take to achieve better control while the lowest level addresses the actual implementation. The output for the work has been a draft workbook to aid in future field research on aspects of the proposed methodology and, ultimately, to help management wishing to implement or reimplement CAPM systems.

Khan (2012) Emerging markets like Pakistan confront with the problem to validate the CAPM in its original form. Since standard form of this model has unrealistic assumptions, different non-standardized forms have been introduced by different researchers. This paper also introduces a non-standardized form of CAPM to validate whether it is applicable in Pakistan. The data of 20 companies of different sectors, covering the period of 2007 to 2008 were collected. One year KIBOR is taken in replacement of T-bill rates. Beta 3 is calculated using an equation to show the negative relationship between interest rate and market returns. The results of regression analysis reveal mixed results. For instance, mean return of companies in cement and chemical sector is linearly related to its beta risk while other sectors have volatile results.

Suh (2009) presents the results of time-series tests of the Capital Asset Pricing Model (CAPM) and the Fama-French 3-factor (FF3) model in the estimation of equity capital from a perspective of corporate investment decision-making. The CAPM, the single-factor or market-
factor model, has been taught and tested as the primary asset pricing model in academia and used in business for the estimation of the cost of equity capital. On the other hand, the FF3 model has been widely used in academic research for testing asset pricing models mostly on portfolios. This paper addresses Fama-French (1992, “The Cross-section of Expected Stock Returns,” *Journal of Finance*) who find that the CAPM beta has little explanatory power in cross-sectional tests of the Fama-French portfolios sorted on market capitalization and book-to-market ratios. The main tests of this paper are (1) the equivalence of the predicted stock risk premia of the CAPM and the FF3 model, or how significantly the two model-predicted stock risk premia are correlated with the realized returns and (2) the inter-temporal and cross-sectional shift of the market beta regimes. This paper tests the CAPM and the FF3 model on daily returns of a wide range of individual stocks and Fama-French portfolios. All statistical tests are conducted on an individual stock and portfolio level. The regression test results of the factor loadings underline the similarities and dissimilarities between the CAPM and the FF3 model applied on individual stocks and the FF portfolios. The most consistent finding throughout the tests in this paper is that the market index is the most significant risk factor loading among three risk factors (the market index, SMB, and HML) throughout the test period and across individual stocks and the Fama-French portfolios. For individual stocks, the market index is the most significant factor loading alone or in combination with SMB and HML. The statistical explanatory power of the CAPM beta of individual stocks has intertemporally increased, particularly for micro-cap stocks. The test of individual stocks does not reject the null hypothesis that the predicted risk premia of both models are equivalent. The overall time-series test results on individual stocks and portfolios contrast with Fama-French (1992). On the other hand, the FF3-predicted risk premia for the FF25 portfolios largely outperform the CAPM predictions. The most intriguing finding on the
risk factor loadings is that the market index rarely is significant by itself for the Fama-French 25 (FF25) portfolios within the FF3 model. For the FF25 portfolios within the FF3 model, the market index loadings mostly become significant in combination with SMB, HML, or both, but not alone. SMB and HML are insignificant alone or in combination with each other for the FF25 portfolios. However, the two factors become as nearly significant as the market index in combination with the market index. The turnaround is a stark contrast with the evidence that the market beta is more significant by itself for the majority of individual stocks in the FF3 model than in combination with two other factors. The turnaround is intriguing in that the market index loadings are statistically significant for every regression for all FF25 portfolios in the FF3 model in combination with SMB, HML, or both. It’s even more intriguing that the CAPM betas also are statistically significant for every regression for all FF25 portfolios; the CAPM beta is not always significant for all individual regressions, however. It’s puzzling that SMB and HML are not significant by itself or in combination with each other for any FF portfolios, but become as nearly significant as the market index when combined with the market index for the FF25 portfolios. For the FF25 portfolios, no factor is significant by itself, but factors become highly significant in combination with the market index. A risk factor becomes significant mostly in combination with other factor for the FF25 portfolios within the FF3 model. The CAPM and the FF3 model in general are statistically equivalent in explaining individual stock returns. However, the two models are diametrically dissimilar in explaining the FF25 portfolios. The CAPM best explains large/growth (LG) portfolio returns, but is poor in explaining small/value (SV) portfolios. The high explanatory power of the CAPM for all LG portfolios is consistent, and so is the poor explanatory power for SV portfolios. The distinctive explanatory power of the CAPM between LG portfolios and SV portfolios is clear and unambiguous, and is consistent with the
CAPM or the market model structure. On the other hand, the FF3 model best explains small/value (SV) portfolios, a direct opposite of the CAPM. The FF3 model is most poor in explaining large/value (LV), not LG portfolios. In the FF3 model, the “value” portfolios are at both extremes in explanatory power. Unlike the CAPM, most growth portfolios are located in the middle of the rank-order in the explanatory power of the FF3 model. The virtual diametrical dissimilarities in explanatory power between the CAPM and the FF3 model for the FF25 portfolio and the statistical equivalence of the two models for individual stocks underline the unique return factor structures of the FF portfolios and the two risk factors (SMB and HML). The superiority of the CAPM in explaining large-cap growth stocks and the inferiority of the FF3 model in explaining large-value growth may undermine the application value of the FF3 model for the estimation of the cost of equity capital. The results of test of out-of-sample forecast using 5-year rolling regressions on monthly stock returns confirm all major findings of the test using daily data and conditioning information. For individual stocks, the mean squared errors of the out-of-sample forecast of the CAPM and the FF3 model are statistically equal, but the MSEs for the FF25 portfolios are not. The test also confirms that the market index is the most consistently significant risk factor. The cross-sectional factor loadings and statistics of the CAPM and the FF3 model for the FF25 portfolios are distinctly dissimilar. The factor structure of the FF25 portfolios appears to induce statistically significant factor loadings of SMB and HML, which are constructed on the FF25 portfolio return structure the two factors are supposed to explain. Nevertheless, the economic meaning and investment applicability of the two factor loadings are unclear. I conduct a focused test for inter-temporal and cross-sectional regime-shift of the market beta. The test is conducted on the individual firms of the electric power industry, which has been going through a restructuring and deregulation process since the 1990s. This paper focuses on
the identification of the economic sources of the regime shift, as the market and industry environment changes and a firm’s investment model and financing strategy evolve. To gain conditioning information, I examine the industry restructuring process at the market, government policy, and corporate investment and financing strategy. The test rejects the hypothesis of inter-temporal and cross-sectional constancy of beta regimes. The return volatilities of the firms which adopted competitive merchant power business dramatically increased during the restructuring period, and cross-sectionally moved their beta estimates higher and away from those firms which largely remained in the traditional utility business. The higher betas of competitive business than traditional utility business appear to have come in large part from the increased exposures to common systematic factors.

Mabrouk and Bouri (2010) have attempted to do three things. First it presents an overview on the capital asset pricing model (CAPM) and the results from its application throughout a narrative literature review. Second the paper has argued that to claim whether the CAPM is dead or alive, some improvements on the model must be considered. Rather than take the view that one theory is right and the other is wrong, it is probably more accurate to say that each applies in somewhat different circumstances (assumptions). Finally it’s argued that even the examination of the CAPM’s variants is unable to solve the debate into the model. Rather than asserting the death or the survival of the CAPM, we conclude that there is no consensus in the literature as to what suitable measure of risk is, and consequently as to what extent the model is valid or not since the evidence is very mixed. So the debate on the validity of the CAPM remains a questionable issue.
Weisbrod (2012) examinees the degree to which stockholders’ aggregate gain/loss frame of reference in the equity of a given firm affects their response to the firm’s quarterly earnings announcements. Contrary to predictions from rational expectations models of trade (Shackelford and Verrecchia 2002), I find that abnormal trading volume around earnings announcements is larger (smaller) when stockholders are in an aggregate unrealized capital gain (loss) position. This relation is stronger among seller-initiated trades and weaker in December, consistent with the cognitive bias referred to as the disposition effect (Shefrin and Statman 1985). Sensitivity analysis reveals that the relation is stronger among less sophisticated investors and for firms with weaker information environments, consistent with the behavioral explanation. I also present evidence on the consequences of this disposition effect. First, stockholders’ aggregate unrealized capital gain position moderates the degree to which information-related determinants of trade (e.g. unexpected earnings, firm size, and forecast dispersion) affect abnormal announcement-window trading volume. Second, stockholders’ aggregate unrealized capital gains position is associated with announcement-window abnormal returns, consistent with the disposition effect reducing the market's ability to efficiently incorporate earnings news into price.

McAllister and Tarbert (1999) analyses the effect of potential lease expiry on the rental negotiation process and levels of rental agreed. Several observers have noted that tenants may use the threat of lease termination at rental negotiations in order to obtain a rental and/or other concession. It is argued that it will often be rational for the landlord to make a rental concession in these circumstances and a model that identifies a theory-forecasted concession level for landlords is developed. However, the bargaining process will often cause deviation from an equilibrium solution. The concession level of the landlord will be a function of four variables:
expected landlord's cost of void, probability of tenant relocation, landlord's risk preference and the effects of the bargaining process. Utility theory is used to illustrate why the risk averse or risk neutral landlord in a potential lease termination situation will always maximize his/her utility by conceding an amount on the open market rental value provided that the landlord perceives the probability of lease termination to be greater than zero. However, although it is possible to identify a positive solution to the calculation of maximum concession, behavioral approaches to bargaining theory suggest that differences in individual negotiator's attributes, social contexts and cognitive biases will also affect the outcome of a negotiated rent setting process.

Boer (2009) investigates a strategy of investing in diversified portfolios with a historically optimal factor profile, which we refer to as ‘factor tilting’. The proposed approach approximates the optimal strategy for risk-averse investors under the assumptions of Arbitrage Pricing Theory. Moving beyond traditional mean-variance optimization, it allows the incorporation of any characteristic of the return distribution for a large number of stocks. We propose extensions to incorporate transaction costs and test factor significance.

Krawczyk (2008) Purpose – The aim of this paper is to propose and analyze policies capable of generating left-skewed pension distributions. Such policies can deliver large pension values with high probability and hence are of interest to practical fund managers. Design/methodology/approach – The paper uses a computational method capable of solving stochastic optimal control problems. The optimal strategies obtained through the method are used to simulate dynamic portfolio management. Findings – The paper finds that optimisation of locally non-concave performance measures has produced left-skewed payoff distributions of
small VaR and CVaR. The distributions remain left-skewed for relatively large values of the diffusion parameter. Practical implications – On the basis of the findings, it would seem beneficial for real-world fund managers to implement this kind of optimizing “cautious-relaxed” policy. Originality/value – A novel non-concave performance measure has been proposed in the paper to describe a portfolio manager’s aim. The computed “cautious-relaxed” policies have been shown to realize this aim.

Chiu (2010) Available empirical evidence suggests that skewness preference plays an important role in understanding asset pricing and gambling. This paper establishes a skewness-comparability condition on probability distributions that is necessary and sufficient for any decision-makers preferences over the distributions to depend on their means, variances, and third moments only. Under the condition, an Expected Utility maximizer’s preferences for a larger mean, a smaller variance, and a larger third moment are shown to parallel, respectively, his preferences for a first-degree stochastic dominant improvement, a mean-preserving contraction, and a downside risk decrease and are characterized in terms of the von Neumann-Morgenstern utility function in exactly the same way. By showing that all Bernoulli distributions are mutually skewness comparable, we further show that in the wide range of economic models where these distributions are used individuals’ decisions under risk can be understood as trade-offs between mean, variance, and skewness. Our results on skewness-inducing transformations of random variables can also be applied to analyze the effects of progressive tax reforms on the incentive to make risky investments.
Mangram (2013) noted economist, Harry Markowitz (‘Markowitz) received a Nobel Prize for his pioneering theoretical contributions to financial economics and corporate finance. His innovative work established the underpinnings for Modern Portfolio Theory an investment framework for the selection and construction of investment portfolios based on the maximization of expected portfolio returns and simultaneous minimization of investment risk. This paper presents a simplified perspective of Markowitz’ contributions to Modern Portfolio Theory, foregoing in-depth presentation of the complex mathematical/statistical models typically associated with discussions of this theory, and suggesting efficient computer-based ‘short-cuts’ to these performing these intricate calculations.

Hodnett and Hsieh (2012) reviews the development of capital market theories based on the assumption of capital market efficiency, which includes the efficient market hypothesis (EMH), modern portfolio theory (MPT), the capital asset pricing model (CAPM), the implications of MPT in asset allocation decisions, criticisms regarding the market portfolio and the development of the arbitrage pricing theory (APT). An alternative school of thought proposes that investors are irrational and that their trading behaviors are driven by psychological biases such as greed and fear. Prospect theory and the role of behavioral finance that describe investment decisions in imperfect capital markets are presented to contrast the Utopian assumption of perfect market efficiency. The paper concludes with the argument of Hirshleifer (2001) that heuristics are shared by investors and asset prices may not reflect their long-term intrinsic values as indicated by efficient capital market theories.
Resnik (2010) Investors have always struggled to control risk and diversify their portfolios. Perhaps the biggest advance in this struggle was the advent of modern portfolio theory (MPT). Where did this "modern" theory come from? It originated in the 1950s in a series of papers by Harry Markowitz of the University of Chicago. This new theory, which drew heavily on Markowitz's remarkable knowledge of mathematics, attempted to quantify the concept of investment risk. Theoretically, investment risk, once quantified, could be reduced and diversified away within a portfolio by carefully combining investments with different historical performance characteristics. This offered what looked like a scientific basis to obtain attractive rectums, while controlling risk by dividing all assets into classes and by investing in certain asset classes, whose historical returns did not correlate, that is, did not produce similar rectums over time. This was a groundbreaking theory, because understanding, defining, and quantifying investment risk was, and still is, one of the most difficult concepts for investors to understand and to manage. While the original papers describing MPT were highly quantitative, the theory was soon simplified and popularized for individuals by asset managers, private banks, and brokerage houses. In order to demonstrate the scientific nature of this theory, however, investors were deluged with MPT concepts such as the efficient market theory, efficient frontiers, and the capital asset pricing model, as well as statistics like standard deviations, beta coefficient, Sharpe ratios, correlation coefficients, and expected returns, which sought to scientifically justify the efficacy of this approach. Indeed, a whole generation of investment analysts has now been trained in this approach, and it has become nearly ubiquitous. In the past two decades, this approach became highly institutionalized and formularized. Every conceivable desired rate of rectum became identified with a portfolio allocated among equity and fixed-income asset Classes. Equities were generally perceived to be more volatile and, hence, riskier than fixed-
income investments, but they were also believed to provide higher returns over a long period of
due (often referred to as the "5% risk premium" for equities). In short, if an investor desired a
portfolio with a very high rate of return, all she had to do was dial up the parentage of equities in
her investment portfolio. Unfortunately, investors who thought their portfolios were safely
diversified incurred substantial losses when the current credit crisis hit. Losses in equities were
historically large, and there were also losses in some fixed-income securities, as well as in hedge
funds and other alternative investments. Complicating things is that the current investment
environment seems to offer only more investment challenges for investors; cash investments do
not seem to pay a return sufficient to keep up with inflation, bonds may be subject to capital
losses from both rising interest rates and increasing issuer defaults, and the growth in equities
seems to have stalled in the past 10 years.

Bai, Newsom and Zhang (2011) we show the practical values of nonlinear optimization
through the illustration of three important investment theories: modern portfolio theory
(Markowitz, 1959), capital market theory (Merton, 1972; Sharpe, 1963), and utility theory
(Copeland & Weston, 1988). This method can be implemented using Excel in an operations
research (OR) or management science (MS) course, and it is innovative because most of today’s
OR/MS textbooks (e.g., Stevenson & Ozgur, 2007; Winston & Venkataramanan, 2003) contain
limited finance applications. And the applications discussed therein tend to focus more on
corporate finance topics, not investments. For those textbooks with investment examples, the
discussion is often limited to formulating and solving the portfolio optimization problem (POP)
as a quadratic program-no link is made to capital market theory or utility theory. We make this
link and demonstrate how these three theories relate to each other. This provides students with a
better understanding of investments. Usually, investment theories are explained by mathematical derivations using calculus and linear algebra. We use Excel and its features to help students visualize these theories and thus increase their learning. We consider an investor who wants to optimize their utility, and this depends on their level of risk aversion. Risk aversion is comprised of two components: ability to take risks and willingness to take risks. The ability to take risk is based on personal factors (e.g., age, income, wealth level, etc.) that are quantifiable whereas willingness to take risk is based on psychological factors. Thus, each investor is unique. This article combines the study of portfolio optimization with that of utility maximization, and demonstrates that the two problems can be reconciled.

Wen, Wang, Zhou and Zhang (2012) compare the portfolio allocation model of multifractal detrended Fluctuation approach with the modern efficient frontier model and the asset allocation model from Chinese institution fund, the risk-return performance of the multifractal detrended Fluctuation turns out to be more optimal portfolio allocation than that from Chinese institution fund and the conclusions have implications for modern financial theory, it suggest that there is scope for more general multiracial portfolio selection models to be developed.

Bromiley (2009) Many papers in organization theory and strategy use prospect theory, but few derive their hypotheses from prospect theory’s formal model. This paper develops a prospect theory model of resource allocation under risk where projects have both positive and negative adjusted payoffs. The model assumes consistent value (rather than profit) maximizing behavior and demonstrates how resources, risk propensity, and reference levels interact to
determine allocations to risky projects. The analysis shows that prospect theory’s parameters interact in complex ways to influence risk taking, which makes simple predictions difficult. Overall, loss aversion and the reference point dominate the results, with curvature of the value function playing a secondary role and the maximum risk aversion occurring for firms near their reference points, not for firms above their reference points.

Johnson (1993) this study analyzes the variability of rates of return for 11,772 U.S. commercial banks from 1979 through 1985. The objective is to determine whether variability that is not explained by exogenous variables can be explained by prospect theory. Below target, strong correlations are shown, consistent with prospect theory. When regression analysis is applied, the results are confirmed.

Prescott (2008) Researchers have found that moral decisions are not always consistent with what is expected by moral development theory; this inconsistency suggests that moral decisions are influenced by factors not considered by moral development theory. Prospect theory, which is used to describe how people react when faced with economic decisions under risk, served as the theoretical framework for understanding the inconsistency. The purpose of the study was to determine if moral decisions, similar to economic decisions, were risk aversive for positive situations, risk seeking for negative situations, and influenced by situation framing. The researcher developed the Moral Decisions under Risk Survey to assess moral decisions under uncertainty and the Moral Comprehension Survey to assess participants’ understanding about how they should act in varied moral situations. Analysis of 110 graduate students’ responses, using binomial and chi-square tests of proportions, showed equivalent proportions for responses
to both surveys when involving positively framed situations and significantly different proportions at $p < .001$ for situations framed negatively. The conclusion is that prospect theory can be used to describe moral decisions under uncertainty similar to what is described by prospect theory for economic risk decisions; participants showed preferences for risk aversive ethical decisions for positively framed situations and they revealed preferences for risk seeking unethical decisions for negatively framed situations. Implications for social change include the importance of context and consequences when understanding behavior that results from moral decisions made under uncertainty.

Wang and Fischbeck (2004) illustrate the use of a statistical technique, finite mixture models, to fit the parameters in cumulative prospect theory. For a given decision, some individuals may adopt a gain frame, while others may adopt a loss frame. By using finite mixture models, the best fitting parameters can be obtained for the two subgroups, even though the information about subjective frames was not available. Our application uses two health insurance survey datasets collected by Rand and Chinese State Natural Science Foundation, respectively. The results are compared with previous studies on framing effects and parameterizations of prospect theory.

Kuo and Chen (2012) Purpose – The purpose of this paper is to demonstrate that various disposition patterns in terms of the price changes are plausible under the Prospect Theory (PT), which argues that investors have a greater tendency to sell assets that have risen in value since the purchase than those that have fallen. Numerous empirical evidences have shown that investors demonstrate the disposition effect (DE). This study highlights that, when the
disposition measure is defined by the stock price changes, the PT predicts the DE indeed. It also indicates other seemingly contradicting disposition patterns: the reversed disposition effect and the pattern of the symmetry over gains and losses. Design/methodology/approach – To show that the disposition effect is only one of the disposition patterns under the preference of PT, as part of this study the authors apply the mental account theory and propose two decision criteria for the gain and loss accounts, respectively, (i.e. maximum loss tolerated and minimum gain required). An empirical analysis was performed from a large-scale market Survey in Taiwan to examine individual investors’ disposition patterns. Findings – The findings show that more than 50 percent of individual investors demonstrate their disposition patterns other than the disposition effect. Many investors show the reversed disposition effect or the pattern of symmetry (holding about the same magnitude of gains or losses before realization). Originality/value – This study answers the questions which, to the authors’ knowledge, have not been incorporated in the studies of the PT or the DE: first, when do investors sell losers which they are inclined to hold on to? Second, for how long do they hold winners which they are eager to sell? The authors’ arguments allow various disposition patterns to exist simultaneously, without changing the value function in the PT of convexity over losses and concavity over gains and without requiring strict assumptions on the expected stock returns.

Cao, Deng and Li (2010) According to behavioral finance theories, in this article we develop a dynamic model with heterogeneous traders, where the asset price is determined by the interaction among four different groups of agents: trend reversers, trend followers, risk averters and risk seekers. The main purpose of the study is centered on modeling and testing how the market efficiency changes along with the changes of agent’s behavior preference without
exogenous influence. Combining with the assumption of risk appetite and prospect theory, focusing on analyzing the rules for selecting strategies, we establish a more reliable and comprehensive dynamic mechanism. In particular, our study suggests that diversified trading strategies will help to realize market efficiency.

Chou, Chou and Ko (2009) There is extensive evidence indicating a negative risk–return relation when a firm’s performance is measured based on accounting measures such as return on asset (ROA) and return on equity (ROE). Previous studies show that the risk-return paradox can be explained by the prospect theory, which predicts that managers’ risk attitudes are different for firms of different performances. However, those studies mostly use earlier data from the COMPUSTAT database, which suffers from a survivorship bias. Failure to account for delisting firms may understate the risk–return relation. We reexamine the mixture of risk-seeking and risk-averse behaviors based on an updated 20-year sample period that is free from the survivorship problem. Interestingly, our results show stronger and robust evidence supporting the prospect theory during the period from 1984 to 2003.

Alghalith, Floros and Dukharan (2012) Purpose – The purpose of this paper is to empirically test dominant theories and assumptions in behavioral finance, using data from the Standard & Poor’s 500 index. Design/methodology/approach – The empirical analysis has three parts: to test the assumption of risk aversion; to examine the dominant theory that the optimal portfolio depends on risk preferences; and to test prospect theory that decision makers prefer certain outcomes over probable outcomes.
Finally, an alternative model to test prospect theory is introduced. Findings – The proposed model is more flexible than prospect theory since it does not a priori assume what value of the portfolio induces risk aversion/seeking, while it does not a priori preclude linear preferences. Empirical results show that: investors are risk seeking; a change in the sign of preferences does not necessarily imply a change in the sign of wealth/return and vice versa; and the optimal portfolio does not depend on preferences.

Practical implications – These findings are helpful to risk managers dealing with models of behavioral finance. Originality/value – The contribution of this paper is that it successfully tests fundamental theories and assumptions in behavioral finance by providing a better alternative to prospect theory in several ways.