

**THE ASSESMENT OF RISK - RETURN TRADE OFF AMONG
PRIVATE EQUITY FIRMS IN KENYA**

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DECLARATION

This research project is my original work and has not been submitted for a degree in any other university

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D63/68191/2011

This research project has been submitted for examination with the approval of the university supervisor

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DEDICATION

This project is dedicated to my father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time.

ABSTRACT

The purpose of this study was to assess the risk and return trade off among private equity firms in Kenya. The study sought information from the AVCA data bank and various sources like publications journals , business magazines , websites of the firms under study and studies done by scholars in this field,

The study adopted a descriptive research design which involved a census survey where secondary data was collected. This was a census study of the entire 14 private equity firms in Kenya. Before processing the data was checked for consistency. The data was analyzed using fama and French model this model was used to measure risk and return and establish what relationship exist between these variables. The researcher also used NSE index to calculate the market return proxy. Risk free rate was calculated from the Treasury bill rates downloaded from central bank of Kenya data bank. Causal comparative research was used to explore relationships between variables. Descriptive statistical method was used to analyse data using Statistical Package for Social Sciences (SPSS) and spreadsheets. The results are presented by use of tables and percentages

The study revealed that the risk is very low for private equity firms in Kenya as the betas were negative. The study also found that the returns for the firms were quite impressive given the Treasury bill rate rose towards the end of the year 2011 and this contributed to negative beta for the firms. The study found that there is potential for higher returns given the high risk free rate of investment towards the end of 2011 and beginning of 2012. Firms with high return like centum investment had one of highest risk as compared to others. And a low return firm like the Acacia fund limited had one of the lowest risks, the principle of risk return trade off states that for a firm to get higher return it must be ready to take on higher risk.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Largely unknown outside Kenya financial fraternity, a silent industry by the name private equity is rapidly growing in influence and has begun to redefine the notion of value creation Kenyan companies. Much of what is known about this industry is concerned with allegation of excessive use of debt in acquiring companies and the subsequent asset stripping to generate what are viewed as abnormal profits. Unfortunately, very little has been done to illuminate the process of private equity value creation in order to isolate fundamental drivers of value. This research endeavours to shed more light on the question surrounding risk and return in private equity.

The famous American investor Warren Buffet once said: “Risk comes from not knowing what you’re doing”. Risk can be seen as future uncertainty which can be reduced by optimizing the power of predictions. But as the Danish scientist Niels Bohr stated, “Predicting is very difficult, especially about the future”. Finding ways to optimize predictions is therefore pivotal in the process of reducing (and managing) risk. Looking for diversification and stable and relatively high returns, investors increasingly invest in private property funds. However, because of its immaturity as both investment and research area, investment decisions in the private property funds area are shrouded with large uncertainty and optimizing the predictions of future returns has proven difficult due to the complexity of scarcely available information, making the development of good tools for risk management all the more important. Risk and return characteristics are quite different from ordinary capital market investments. Due to the unavailability of standardized and public available information, traditional risk measures such as volatility or correlations are not easy to obtain and thus it is difficult to objectify the quality of an investment in private equity.

Risk is the chance that an investment's actual return will be different than expected. Risk includes the possibility of losing some or all of the original investment. Different versions of risk are usually measured by calculating the standard deviation of the historical returns or average returns of a specific investment. A high standard deviation indicates a high degree of risk. Many companies now allocate large amounts of money and time in developing risk management strategies to help manage risks associated with their business and investment dealings. A key component of the risk management process is risk assessment, which involves the determination of the risks surrounding a business or investment.

Return consists of the income and the capital gains relative on an investment. It is usually quoted as a percentage. The general rule is that the more risk you take, the greater the potential for higher return and loss. Due to limited disclosure, studying the returns to private equity is relatively difficult. A J curve is used to illustrate the historical tendency of private equity funds to deliver negative returns in early years and investment gains in the outlying years as the portfolios of companies mature Kaplan, S. and Scholar, A., (2005),. The J Curve usually reflects performance as measured by internal rate of return (IRR). The J curve occurs because private equity involves large up-front injections of cash and usually takes a long time to return any of the benefits back to investors. In fact, the performance of private equity funds are almost always negative for a number of years before turning around and returning larger positive returns; hence the J Curve. The J Curve is caused by two main drivers.

The first cause of the J Curve is the management fees that must be taken out of the cash infusion to account for management of the fund. The second main driver of the J Curve effect is that fact that companies in the portfolio of a private equity fund that go bad tend to do so earlier in the lifecycle of the fund than the turnaround by companies that will see growth. The write-down or write-off of the unsuccessful investments early on in the fund's lifecycle serves to amplify the J Curve. The J Curve serves as a reminder to

investors that private equity is a long-term asset class and positive returns in the early years are not to be expected. The J Curve is also known as the J-curve effect. Low levels of uncertainty are associated with low potential returns in private equity. High levels of uncertainty are associated with high potential returns. The risk/return tradeoff is the balance between the desire for the lowest possible risk and the highest possible return.

A common misconception is that higher risk equals greater return. The risk/return tradeoff tells us that the higher risk gives us the possibility of higher returns. There are no guarantees. Just as risk means higher potential returns, it also means higher potential losses. On the lower end of the scale, the risk-free rate of return is represented by the return on Kenya Government Securities because their chance of default is next to nothing. Determining what risk level is most appropriate for you isn't an easy question to answer. Risk tolerance differs from person to person. Your decision will depend on your goals, income and personal situation, among other factors. The firms are Acacia fund limited, Aureos Kenya managers limited ,InvesteQ capital limited ,Business partners international limited (BPI),Grofin East Africa, Acumen fund, African agricultural capital, Miliki ventures, Africa invest capital partners, Fanisi fund, Transcentury Kenya and centum investments ,Fusion capital, ACTIS.

1.2 Statement of the problem

Although PE has experienced rapid growth in Kenya in the recent past, the risk and return profile of this asset class is not well understood. Many stories in the media suggest that PE investments yield higher returns than traditional asset classes' investigations on return and risk of private equity funds using Kenyan industries data found that very little research has been done on this area. This is because private equity is very young industry and it is reputed for lacking information which can be used for research.

In one of the most practical yet theoretical textbooks published to date, titled international private equity, Talmor and Vasvari(2011)describe private equity as a victim of its own success. The authors perceived that the abnormal returns earned by the industry in the 1990s and early years of 2000 led to acquisitions of large and public companies which drew the attention and scrutiny of the public. The disastrous effect of the 2008 global financial crisis that resulted from a credit bubble appear to have been partly fuelled by the excessive use of debt in leverage, which has also reinforced the need to monitor the private equity industry. Kaplan and Scholar (2005), finds that private equity funds outperform the S&P 500. However, he used data that suffer from potential selection bias. For example, they used Venture Economics (VE) data. These data are compiled mainly based on self-reported data provided by large private equity investors and it does not contain data from investors who choose not to report their investments to Venture Economics (VE).

It is quite likely that investors who do not have good experiences with their PE investments exit those investments or choose not to report their performance, and hence it is likely that funds that performed poorly never made it to the VE database. Additionally, the estimated performance of PE funds using VE data depends critically on the valuation of non-exited investments at the end of the sample period. For instance, Kaplan and Schoar use funds' self-reported values of such non-exited investments and find that the value-weighted performance of PE funds exceeds S&P 500 return by about five percent per year. However, Phalippou and Gottschalg (2009) argue that it is more reasonable to write-off non-exited investments after a certain period of time and they find that PE funds underperform the market by three to six percent per year.

Mwirigi (2006) found that a significant number of respondents have credit risk management policies as a basis for objective credit risk appraisal and that the involved their employees in developing the credit risk management policies. Ojung'a (2011) found that there is a relationship between venture capital performance and the explanatory

variables considered in the study namely: portfolio company characteristics, venture capital characteristics, investment process exit process, portfolio company management and external environment factors.

Mutuku (2011) on the relationship between portfolio composition and risk and return among fund management firms in Kenya found that 89% of the respondents indicated that the firms determine the percentage return of the investment portfolio. 72% of the respondents indicated that the method used by the firms in determining percentage rate of return was geometric or time weighted returns. 50% of the respondents indicated that the firms measured percentage return of the investment portfolio annually. 61% of the respondents indicated that the firms measured the riskiness of the investment portfolio returns using beta and standard deviation. The size effect that average returns on small size firms exceed those on large size firms is first documented by Banz (1981). Fama and French (1992, 1993) show that the size effect remains significant even after controlling for beta.

All above scholars through empirical studies have studied risk and return on various firms in Kenya and various other countries. Although several scholars have done risk and return studies there is still no analysis of risk return trade off among private equity firms in Kenya. As a result there is a restricted appreciation on how the industry risk and return behaves. It is important that a study is done to understand this area as it is experiencing very fast growth and it is becoming very central in our economic development. Specifically this study will seek to answer, what is the risk return trade off among private equity firms in Kenya?

1.3 Objective of the study

The objective of this study is the assessment of risk-return trade off among private equity firms in Kenya.

1.4 Value of the study

Banks, insurance companies and industrial corporations,

This study will help in the realization that Private equity businesses may also be affiliates or subsidiaries of banks, insurance companies or industrial corporations, and may make investments on behalf of their parent firms. Banks might prefer to centralize their private equity activities in a separate subsidiary, distinct from the organization's role as a commercial bank

Government

Knowledge of how private equity works will lead to more investments which will help in the growth domestic product of Kenya as it is considered to play a crucial role in the economy, by boosting innovation and growth in promising startups or expanding firms, as well as by fostering the restructuring of mature companies (e.g., Davila et al., 2003; Cressy et al., 2007).

Investment companies

The majority of institutional investors allocate most of their capital to traditional assets such as publicly traded stocks, bonds, short-term money market instruments, and similar securities. This study will help shed more light on private equity and make financial organizations increase the proportion of private equity funds in their portfolios.

General public

Private equity as an asset class is probably one of the least understood segments of today's financial markets. Therefore my study will contribute to the understanding of private equity investing and per-ups lead to greater investment by the public.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introductions

This chapter presents literature on risk and return of private equity funds related to the underlying study. It summarizes the studies done by deferent researchers in the same field of study by summarizing the theories, empirical review and general literature.

2.2 Review of theories

2.2.1 Markowitz portfolio theory

To analyze private equity in a portfolio perspective, a thorough understanding of portfolio theory is necessary. The portfolio theory developed by Nobel Prize laureate Harry Markowitz Markowitz (1952) is the most frequent used framework in the financial industry. The construction of an asset portfolio is based on maximizing return with a given level of risk. The portfolio theory provides the framework to generate the optimal portfolio for its investor. Due to diversification effects the total risk of a portfolio with assets is not equal to the aggregated risk of the included assets. The return of a portfolio is equal to the weighted average of the included assets. So APT is offered as one way to estimate value and risk on the market, but it is not the only way. Perhaps the most well-known model is the Capital Asset Pricing Model (CAPM). This model uses the risk free rate, beta and expected market return of a security to measure its likely return in comparison to the risk it presents. The CAPM relies on relatively few market factors, but it has been used by analysts looking to key into securities to determine whether the risk is, or is not, worth the expected return.

2.2.2 The arbitrage pricing theory (APT)

The arbitrage pricing theory (APT) attempts to measure the price an asset should have on the market through a number of macro-economic factors. Developed by Stephen Ross in 1976, the model is used to identify what many call "mispriced assets." These assets should be valued higher than they are, and they therefore present an opportunity for

capital appreciation. The stocks are often called value stocks, and they are thought to outperform the market as a whole in any given period of time.

Arbitrage Pricing Theory-In the financial sense, arbitrage literally means to take advantage of one or more market imbalances to reduce the risk of a financial purchase. The APT is complicated and it is made up of a number of variables, starting with two simple variables: E_j - The assets expected return B_j - The sensitivity of the asset to factor loading F - a systemic factor of the analyst's choice E_j - the assets random shock Essentially, an analyst builds an equation where the expected return is added to a series of calculations of $B_j(F)$. Each of these calculations is measuring the security's value based on a single economic factor. All of the factors are added together, the random shock is added, and the result is said to be the relative price of the asset.

2.2.3 Farma-French Model

CAPM uses a single factor, beta, to compare a portfolio with the market as a whole. But more generally, you can add factors to a regression model to give a better r-squared fit. The best known approach like this is the three factor model developed by Gene Fama and Ken French. Fama and French started with the observation that two classes of stocks have tended to do better than the market as a whole: (i) small caps and (ii) stocks with a high book-value-to-price ratio (customarily called "value" stocks; their opposites are called "growth" stocks). They then added two factors to CAPM to reflect a portfolio's exposure to these two classes:

$$R - R_F = b \times (K_m - R_F) + B_S \times SMB + B_V \times HML + \alpha$$

Here r is the portfolio's return rate, R_f is the risk-free return rate, and K_m is the return of the whole stock market. The "three factor" beta is analogous to the classical beta but not equal to it, since there are now two additional factors to do some of the work. SMB and HML stand for "small [cap] minus big" and "high [book/price] minus low"; they measure the historic excess returns of small caps and "value" stocks over the market as a whole. By the way SMB and HML are defined, the corresponding coefficients b_s and b_v take

values on a scale of roughly 0 to 1: $b_s = 1$ would be a small cap portfolio, $b_s = 0$ would be large cap, $b_v = 1$ would be a portfolio with a high book/price ratio, etc.

2.3 Review of Empirical Studies

Private equity funds initially focus on low volatility companies with a low correlation to market movements Groh & Gottschalg (2006). This allows the funds to reorganize a company without having too much market exposure with potential negative consequences. However a company is acquired with a considerable amount of leverage that increases the business risk of the equity. This leverage decreases over time and the business cycle sensitivity of the equity (or NAV) decreases as well.

Groh & Gottschalg (2006) analyzed operating and leverage risk to adjust private equity performance for systematic risk in the US. In their article comparable companies (size and sector) are “re-leveraged” to get the same risk profile as the already leveraged buyout companies. Both groups then exhibit the same equity beta. During the holding period the leverage in the buyout group decreased and so the leverage of the control group was adjusted consequently. After the holding period of the leveraged buyouts, the company values of both groups were compared. In their analysis the authors find that when adjusted for systematic risk leveraged buyouts outperform comparable companies. The method the authors used required confidential company specific information which was available for the first time. The calculations the authors used are an indirect way to measure market risks related to private equity investments. Re-leveraging comparable companies can reveal market risk exposure. Other authors also analyzed private equity performance and adjusted risks differently. The different risk adjustment methods result in different research results Ljungqvist & Richardson (2003),

One of the unique traits of private equity investing is the active ownership style, so-called ‘value-added investing’, where the investors are expected not only to bring capital but also to provide non-financial services in terms of relevant knowledge and experience,

business contacts, and certification e.g., Wright and Robbie, (1998); Hence, in contrast to most shareholders in public companies, private equity investors put a great deal of effort into monitoring, managing and restructuring their investee companies to create value Gilligan and Wright, (2010). Such operations require specific skills and practices, whereby a private equity management team consists of specialist professionals working closely with their investee companies while maintaining significant influence and control of strategic decisions and operational activities.

An important differentiator between PE firms is their respective source of capital. Although most PE firms invest funds primarily on behalf of third parties, the capital origin affects the organizational as well as the legal structure of the receiving PE firm. Some PE companies are listed on public stock exchanges, whereby the capital naturally arrives from a broad range of larger and smaller investors. Private equity businesses may also be affiliates or subsidiaries of banks, insurance companies or industrial corporations, and may make investments on behalf of their parent firms. For example, large technology companies occasionally set up special organizations that are responsible for investing in technologies of interest to the parent company. Alternately, banks might prefer to centralize their private equity activities in a separate subsidiary, distinct from the organization's role as a commercial bank; Gompers and Lerner, (2001). These firms are referred to as corporate or captive PE firms.

Other private equity entities are government-affiliated investment programs that support early-stage companies either directly through state or regional funding, or channeled through governmentally funded VC firms. Such PE firms tend to put developmental objectives related to national innovation and growth above commercial success. The most common organizational structure in the PE industry, however, is the limited partnership structure that is an investment vehicle in the form of independent and fixed-life funds Sahlman,(1990). In such structures the PE firm serves as the general partner (GP) and is fully responsible for the management of the fund, while institutional investors provide the

bulk of the capital in passive roles as limited partners. Given these closed-end fund structures, another common feature of most PE firms is that they build portfolios of investee firms. The number of portfolio companies per fund depends on the size of, and the strategic directions for, the fund Sahlman, (1990). When one fund is closed for further investments, the PE firm needs to raise new funds in order to stay in business. Yet another special feature of private equity investing is the time horizon, which tends to be longer than for many other investments. The holding periods for later stage investments are expected to be around three to five years, while the holding periods for earlier investments often are extended to five to seven years European Commission, (2006).

A final distinguishing characteristic of private equity is that paybacks and rewards to investors, to the PE management team and to the investee firm's management will be released first when an investee firm has been exited. Investments may be exited in several ways, whereof initial public offerings (IPOs) or trade sales, where the entire firm is bought by a third party, are considered the most advantageous Gompers and Lerner, (2001). Thus, a crucial task for PE firms is to successfully exit their investments. Buyout funds prefer investing in mature companies with large free cash flows and potential reorganization possibilities. Reorganization could be financial, operational or strategic. Mature companies that operate in stable sectors exhibit a lower operational risk profile than average in the market Groh & Gottschalg (2006). The free cash flows are used to repay the debt used for its own acquisition. Despite a low operational risk profile the buyout investment companies are still exposed to the general economic environment.

Several articles have identified business environment or macro economic factors that influence private equity performance. The business environment mainly influences the holding phase of the private equity fund cycle. Phalippou & Zollo (2005) find that private equity is significantly pro-cyclical. GDP growth and the average level of interest rates respectively affect private equity performance positive and negative. Both relationships

are significant. The authors find that these factors are particularly important when investments are made. Stock markets are significantly correlated with private equity performance, especially during the holding period of investments. The authors also related the returns of call options on the S&P composite index to private equity performance and found a significant positive relationship especially during the holding period of investments. Concluded from this finding is that private equity funds possess tail risk or non-linear systematic risk. Predicting private equity performance Coen Tolcamp Bauer, Bilo & Zimmerman (2001) find a positive correlation between listed private equity and stock markets. The authors also find that global GDP growth rate is significantly positively correlated. Contrary to other research Diller & Kaserer (2005) find that for European private equity funds stock markets are unrelated and that the state of the economy is negatively correlated with private equity performance. The focus of their research is the analysis of fund inflows and the effects on performance. The authors related the stock market performance of the vintage year of the fund to the final return of the vintage year. This approach is quite misleading when compared with other articles. Since private equity doesn't have easy to compute mean-variance and correlation characteristics, it is not simple to analyze private equity in a portfolio perspective as discussed in the previous section. Alternative approaches or assumptions on characteristics are used to analyze institutional portfolios with private equity added to them.

Several authors analyzed private equity investments in an institutional portfolio Koren & Szeidl (2002). In their articles they try to assign portfolio allocation weights to private equity and analyze the risks and return characteristics of the entire portfolio (in different market conditions). The authors use different proxies for private equity performance and this leads to different conclusions. At this moment there is no accurate and unanimous method to analyze private equity in a portfolio context. The agency perspective on contracting is particularly popular in finance oriented papers, typically assuming that

entrepreneurs or executives in investee companies) are agents of the PE firm whereby conflicts of interest may occur, Kaplan and Strömberg, (2004). Another popular topic within this stream of research relates to how PE firms interact with other investors. This issue was tested in the empirical context of investment syndication networks, a trend initiated by Bygrave (1987; 1988). Examples of research questions in these studies are:

Why do PE firms syndicate Lockett and Wright, (2001),

Who syndicates with whom Lerner, (1994a);

How does a PE firm's position in a network affect performances or behaviors Sorenson and Stuart, (2001 ;),

What costs are associated with investment syndications Meuleman et al., (2009)?

An area that has attained great interest from scholars, is determining the extent to which PE firms add any value, over and above the infusion of capital. The first studies within this stream simply described how PE firms, in contrast to most other investors; take on rather active roles in the development of their investee firms by providing nonfinancial services. Identified value-added areas included: acting as sounding boards, assisting in additional financing rounds, recruiting management and boards of directors, monitoring financial and operating performances, and providing access to networks and contacts Gorman and Sahlman, (1989); and Cressy et al., (2007), Or, shorter, non-financial contributions in terms of knowledge, networks and certification. Earlier studies tend to be somewhat over-enthusiastic about private equity managers' ability to bring substantial value in addition to pure capital Muscarella and Vetsuypens, (1990). Following these studies, though, a more nuanced view began to emerge wherein differences between various PE firms' capabilities to add value were identified.

To what extent an investor could contribute with anything more than money was found to be related to the individual investor's experience Sørensen, (2007), ability to create open environments Sapienza, (1992), or her learning capability Barney et al.,(1996). A few

studies have even questioned whether PE investors actually add value in addition to the capital infusions, especially within the VC stream of research Busenitz et al., (2004). Berg-Utby et al. (2007), for example, argue that there is a significant gap between entrepreneurs' expectations and the perceived contributions from venture capitalists. Along the same lines, a recent review on this topic finds little consensus in the literature about value added outcomes, i.e., whether venture capitalists contribute to the success of their investee firms tends to be unclear Large and Muegge, (2008).

Earlier studies provided a relatively unified consensus that venture capital-backed companies develop better than do non-VC backed companies (Barry et al., 1990 ;). Later studies, in line with the previous discussion, suggest that the successes of VC-backed firms to a large extent depend on the respective VC firm's capabilities to add non-financial value. The issue of causality seems, however, often to be bypassed; is better, or worse, performance merely an effect of a superior ability to pick winners cf. Cressy et al., (2007)? A few VC studies indicate that VC-backed firms do not generally perform better in terms of growth or financial returns than other companies Bottazzi and Da Rin, (2002); Florin, (2005). Research on buyout investments seems to follow the same path as the VC studies, although it has lapsed a few years behind the other field. Until recently, the overall finding put forward in this stream of research was rather univocally that BO firms add significant value to their portfolio firms by improving operational efficiency, which in turn leads to superior performance Muscarella and Vetsuypens, (1990); Harris et al.,(2005).

More recent research, however, suggests that portfolio firm performance depends to a significant extent on the backing BO firm's skills and characteristics Cressy et al., (2007). Private equity investors are principally institutional investors such as endowments and pension funds. These investors, called Limited Partners (LPs), commit a certain amount of capital to private equity funds, which are run by General Partners (GPs). GPs search

out investments and tend to specialize in either venture capital (VC) investments or buyout (BO) investments. In general, when a GP identifies an investment opportunity, it “calls” money from its LPs. When the investment is liquidated, the GP distributes the proceeds to its LPs. The timing of these cash flows is typically unknown. We can divide the literature on risk-return of private equity investments into two sets of studies. The first, and most extensive set, documents the (gross-of-fees) performance of individual venture capital investments of GPs. The second set focuses on the cash-flow stream from (to) the private equity funds to (from)LPs, which includes fee payments. The performance of individual venture capital investments made by GPs has been studied by Peng (2001),

The main challenge faced by these studies is that in the majority of cases, they observe performance only when the investment was successful. Accounting for such selection bias is difficult as successful investments account for a mere quarter of the total number of observations. Peng (2001), compute a VC index and derive the correlation between this index and a public stock market index. The index is built from discretely observed valuations (new financing round, IPOs, acquisitions, or liquidation). With similar observations, Cochrane (2005) proposes another approach. It assumes that the change in the log of the company’s valuation follows a log-CAPM and models selection bias explicitly, as it is assumed that the probability of observing a new round follows a logistic function of firm value. Using a maximum likelihood approach, the alpha and beta of the log- CAPM that are most consistent with these observations are then derived. Cummings and Walz (2004) also offer an estimate of investment-level returns, focusing on how the legal environment influences performance.

The results of these studies vary substantially. Quigley and Woodward (2003) finds gross real returns on VC investments of about 5% per quarter, which is less than the S&P 500 and the Nasdaq over the same period, but find a beta close to 0. Woodward and Hall (2003) estimate that average performance is 20% per year, abnormal performance is 8.5% per year, and beta is 0.86. Peng (2001) finds an average return of 55% per annum (1987-

1999) and estimated beta ranges from 0.8 to 4.7. Finally, Cochrane (2005) reports a 59% annual average (arithmetic) gross return and a corresponding alpha of 32%. The second set of studies focuses on funds rather than on investments. An attractive feature of fund-level studies is that they include buyout investments. This is important as private equity funds have invested more in buyouts than in venture capital. Moreover, at the fund level, the selection bias mentioned above is substantially reduced as cash flows are more likely to reflect both successful and unsuccessful investments. Nonetheless, fund-level studies encounter two related sample selection problems. First, certain funds have not liquidated all their investments. As the performance of these funds cannot be reliably computed, they cannot be included in the analysis. Second, certain funds do not release cash-flow information necessary for evaluating performance. Both situations imply that the selected sample is not representative. Four fund-level studies have been conducted to our knowledge, beginning with Gompers and Lerner's (1997) pioneering work.

This study examines the risk-adjusted performance of a single fund group (Warburg Pincus) by marking-to-market each investment, in order to obtain the fund's quarterly market value. The resulting time series of portfolio value is regressed on asset pricing factors, giving a performance "alpha". Kaplan and Schoar focuses mainly on performance persistence and performance-flow relationship. In doing this, they also report that their 746 funds have a value-weighted profitability index of 1.05 and a value-weighted IRR of 18%. Their study is discussed at length in the next section. The third study, by Jones and Rhodes-Kropf (2003), proposes and tests a model in which principal-agent problems result in competitive fund returns that increase with the amount of idiosyncratic risk. It also finds a positive but not statistically significant performance alpha. Though these findings on the pricing of idiosyncratic risk are important, the estimated alphas are noisy because they are calculated on quarterly residual values. These residual values are both artificially sticky in that they typically equal the total amount invested and subjective in that they are set at the GP's discretion e.g. Blaydon and Horvath,(2002).

The last of the four studies, by Ljungqvist and Richardson (2003), analyzes GP investment behavior, focusing on the determinants of draw-downs and capital distributions. The results are crucial to improving our understanding of the risk of private equity investments. Its reporting of high average performance, however, should be treated with caution as their sample is relatively small and, in addition, under-represents first-time funds and venture funds, both of which have lower than average performance according to Kaplan and Schoar (2005). All of the above studies provide insight into specific issues related to private equity funds. They do not, however, focus on overall performance and when they provide performance measures, it is as a descriptive statistic. My study thus provides the first comprehensive assessment of the overall performance of the private equity portfolio. In earlier work, Kaplan and Shoar (2005) acknowledge the difficulty in estimating betas because of “the lack of true market values for fund investments until the investments is exited” and assume that beta equal one. Phalippou and Gottschalg (2009), however, conjecture that “the assumption of a beta as 1 is likely to overstate relative performance” and the use an industry/size-matched cost-of-capital benchmark.

The risks inherent in the private equity market are not confined to the private equity fund managers/advisers. Rather, they affect all types of participant in varying proportions including, in particular, fund managers/advisers, leveraged finance providers, transaction advisers and investors in the relevant equity, debt and related derivative products Private equity fund investments are subject to liquidity risk. Liquidity of public securities is measured by the bid-ask spread (among others). A larger spread indicates a lower liquidity of the security. Liquidity solution affects private equity performance due to the applied discount (bid-ask spread). Secondary buyouts are expected to become one of the most important exit routes for private equity in the future. Franzoni, Francesco A., Nowak, Eric and Phalippou, Ludovic, Private Equity Performance and Liquidity Risk (August 29, 2011). Journal of finance.

Private equity funds invest in companies with specific characteristics like for example large, stable cash flows (for debt repayments), and mature industries and with the potential to improve efficiency. Although the portfolio companies are stable companies, they still are exposed to the business cycle or economic conditions. Funds starting in the same vintage year will face comparable economic exposures during their life time. For example if private equity funds of a certain vintage year experience low or even negative economic growth the underlying companies will not perform as good as in other periods. Diversification across several vintage years is a way to mitigate this risk and other business risks. Private equity performance depends largely on the leverage used in the acquisition of companies. The debt as well as the interest has to be repaid by the company. The large and stable cash flows of the company should be sufficient to repay both within a certain period, usually 5-6 years, until the exit of the company is planned. Depending on the type of debt used, changing interest rates could threaten the available free cash flow of a company. If interest rates increase substantially a portfolio company may fail to meet its financial obligations. This research will not discuss all possible (exotic) kinds of debt financing used in the private equity industry.

For institutional investors it is important that their private equity portfolio generates good results. Selecting the right private equity fund managers is of high importance. Managers differ in experience, network, strategy, sector-focus, regional focus, deal-size, reputation, integrity, historical track record, consistency of returns etc. A thorough due diligence phase prior to investing in private equity funds based on the before mentioned aspects is necessary. Manager risk can be mitigated by investing in several managers based on thorough due diligence. Due to high leverage and liquidity risk in private equity, it is said that private equity investments exhibit more risk than ordinary assets. But it is also mentioned that private equity funds strongly focus on efficiency programs and overall cost reduction. This should make portfolio companies less vulnerable to economic downturns in comparison to industry related companies. Predicting private equity

performance Coen Tolcamp (May 2007) unlike most other investments private equity is illiquid and does not exhibit continuous pricing. Changes in valuation levels are measured on a quarterly basis. For other asset classes, like stocks, it is common to measure the volatility as an indication for risk. This measure cannot be used in private equity because of the absence of unbiased and high frequent valuations. Private equity valuations are subjective and infrequent.

The return of a security can be seen as a combination of systematic return and unsystematic return. The systematic return is proportionally related to the market return. The capital asset pricing model only uses the beta of the security to determine the expected return. Alpha returns, both positive and negative, can be added to the expected return calculated according to CAPM. Alpha is a measure for excess return and related to unsystematic risks. Factors like liquidity and information asymmetry are not incorporated in the CAPM model. This model describes the return of an individual security in relation to the market Kaplan, S. & Schoar, A. (2003). Capturing private equity in the conventional CAPM framework is not as easy as with other asset classes. The underlying risk and return characteristics of private equity funds and investments are not clear and not calculated uniformly by all authors. This problem will remain as long as there is an information scarcity about private equity investments.

2.4 Conclusion

This study acknowledges the difficulty in estimating the risk of PE funds and therefore will provide an insight into risk and return trade off among private equity firms in Kenya. This is a new industry and very few studies have been done locally and information on the performance of private equity is not easy to get in turn making it hard to reliably evaluate the performance of PE funds.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the methods used in this study. It commences with an overview of the research design, and then details the methods for the quantitative study in terms of survey instrument development, sampling, survey administration and respondents. Procedures used in the qualitative phase are then explained.

3.2 Research design

According to tromp (2008), a research design can be regarded as an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance with the research purpose. In this regard, the researcher used a descriptive cross-sectional survey which sought to give the risk and return trade off among private equity firms in Kenya. Risk return trade off is the principle that potential return rises with an increase in risk. Low levels of uncertainty are associated with low potential returns, whereas high levels of uncertainty are associated with high potential returns. According to the risk-return tradeoff, invested money can render higher profits only if it is subject to the possibility of being lost. This approach has been adopted by De Lima Ribeiro et al (2006) to study the Brazilian PE/VC experience.

3.3 Population and sample

The population comprised all the fourteen private equity firms in Kenya .A census study was carried out .To indentify the firms the researcher relied on information from capital market authority and the African venture capital association (AVCA) that indicate fourteen private equity firms in Kenya. These firms are Acacia fund limited, Aureos Kenya managers limited ,InvesteQ capital limited ,Business partners international limited (BPI),Grofin East Africa, Acumen fund, African agricultural capital, Miliki ventures, Africa invest capital partners, Fanisi fund, Transcentury Kenya and centum investments

Fusion capital, ACTIS. Considering that the target population is not big enough to warrant the use of a sample, the researcher did not undertake any sampling on the population.

3.4 Data collection

Secondary data was collected from AVCA data bank and various sources like publications journals and business magazines. The figures for (GDP) were acquired from the central bank of Kenya libraries. In addition annual reports of the companies were reviewed to obtain information on the performance. This enabled the researcher to obtain information that assisted in making inferences towards the risk-return of the companies dealing in private equity. The researcher used NSE index to calculate market returns proxy. The index data is from NSE database. Chang (2009). Risk free rate was calculated from the Treasury bill rates from central bank data bank.

3.5 Data analysis and presentation

Analysis of data is a process of inspecting, cleaning, transforming, and modeling data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains Gay, (1992).

Before processing the data was checked for completeness and consistency. The data was then code to enable the responses to be grouped into various categories. Data was analyzed using the SPSS version 16. A descriptive analysis was employed descriptive statistics such as mean standard deviation and frequency distribution was used to analyze the date. The data was analyzed using Fama and French model this model has been used before in private equity risk and return by G.D. CHANG, (2009).

$$E(R_i) - R_F = b_i [E(RM) - R_F] + b_i E(SMB) + b_i E(HML)$$

Where:

$E(R_i)$ = the expected return on asset i

R_F = return on a risk free asset

$E(RM)$ = expected return on market portfolio

B_i = beta coefficient of determining portfolio risk

$E(SMB)$ = return on a portfolio for the small minus big size factor

$E(HML)$ = high book price minus low

This model was used to measure risk and return and establish what relationship exists between these variables. It is hard to realize this regression hence the use of a spread sheet. Investors will invest intelligently in the future. Here the research approach was involve the use of software tools and spread sheet to find the exposure to the three factor that are appropriate for them and then to invest in private equity funds that are designed to deliver the level of the three factors to the investor.

The researcher's tests of the Fama-French model use the standard multivariate regression framework Campbell, Lo and MacKinlay (1997) Model should explain common variation in stock return by producing an adjusted R2 of 70% and above.

3.5.2 Data validity and reliability

Data collected through the data questionnaire was also checked for discrepancies and inconsistencies that would affect the analysis in cases where data was not suitable, suppliers of the data will be contacted for correction or the entire entry was discarded.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDING

4.1 Introduction

This chapter presents the results of the analysis and findings of the study with reference to the study objective. The first section gives a summary of the data analysis method used. The second part gives the finding of the study and it includes relevant graphs that help to explain the result of the data analysis. The last part gives the summery of finding and interpretations

4.2 Data presentation

This section presents secondary data that was obtained from African venture capital association (AVCA) website, the websites of the firms under review, studies and articles written by Ernst & Young and Deloitte on the total funds invested 2008 to 2011, studies Prepared by Strategic Business Advisors (Africa) Ltd on private equity firms in Kenya. The researcher also relied on information from Nairobi stock exchange for the calculation of market return and central bank data base for data on Treasury bill rates for the whole of 2011.the monthly average Treasury bill rate was calculated to get the monthly risk free rate. Therefore the study comprised all the fourteen private equity companies operating in Kenya as at December 2011. The SMB and HMI data - small caps minus big caps and stocks with a high book-value-to-price ratio (customarily called "value" stocks; their opposites are called "growth" stocks) high minus low was downloaded from Kenneth R. French data library. Appendix 2

4.2.1 Return of companies

The data collected included fund values at the beginning of the period and at the end of the period for the firms under study. The monthly returns were calculated by dividing the annual returns where the balance sheet was not available; the researcher relied on other local studies done by Ernst & Young and Deloitte.

Table 4.1 company committed funds and Return for 2011

Company	Fund committed ksh million	Return ksh million	%
Acacia fund	5	0.75	1.68
Aureos Kenya managers	10.7	1.6	3.59
IvesteQ capital	14	1.4	3.14
Business partner international	14.1	2.5	5.61
Grofin east Africa	18	8	17.94
Acumen fund	45	2.25	5.04
African agricultural capital	10	4.4	9.86
Fanisi fund	6.7	1.0	2.24
Transcentury Kenya	15	.3	0.67
Centum investments	60	12.5	28.03
Fusion capital	10	1.5	3.36
ACTIS	33.3	5	11.21
Miliki ventures	7	1.4	3.13
Africa invest capital Partners	8.4	2.0	4.48

The calculation for the rate of return was done by dividing the funds at the beginning minus funds at the end of the period by funds at the beginning. Appendix 1

$$\text{Return} = \frac{\text{Funds at the beginning of the period} - \text{funds at the end of the period}}{\text{Funds at the beginning of the period}} * 100$$

Table 4.2 funds raised by firms from 2008 to 2011

Financial year	Amount of revenue in million ksh
2008	112,200
2009	48,960
2010	76500
2011	66,300

4.2.2 Regression analysis

Each firm had had a linear regression done using the fama French model as a basis for analysis; the data was posted into SPSS version 16.

Table 4.3 R^2 mean square and f-value

company	R^2	MEAN SQUARE	F-VALUE
	Acacia fund	0.956	0.065
Aureos Kenya managers	0.866	0.062	64.474
IvesteQ capital	0.882	0.078	74.598
Business partner international	0.806	0.044	41.424
Grofin east Africa	0.867	0.051	65.205
Acumen fund	0.824	0.013	46.798
African agricultural capital	0.95	0.089	189.765
Fanisi fund	0.762	0.051	32.043
Transcentury Kenya	0.95	0.037	191.071
Centum investments	0.602	0.04	15.105
Fusion capital	0.707	0.048	24.188
ACTIS	0.774	0.044	34.159
Miliki ventures	0.82	0.064	45.67
Africa invest capital Partners	0.939	0.077	152.774

A t-value can be computed by dividing the difference between group means by the variability of the standard error of difference between the groups. The regression results for t-values and standard error are shown below

Table4.4 t- value and standard error

COMPANY	t- VALUES			RM_RF COEFIC IENT	RM-RF STANDARD ERROR
	RM-RF	SMB	HML		
Acacia fund	-14.721	-0.462	-0.602	-1.232	0.084
Aureos Kenya managers	-8.03	-0.916	-1.114	-1.197	0.149
IvesteQ capital	-8.637	-2.473	2.491	-1.544	0.156
Business partner international	-6.438	0.197	0.786	-1.013	0.157
Grofin east Africa	-8.075	0.412	0.533	-1.084	0.134
Acumen fund	-6.841	-1.14	-2.391	-0.551	0.081
African agricultural capital	-13.775	1.873	2.275	-1.44	0.105
Fanisi fund	-5.661	-0.844	-0.959	-1.089	0.192
Transcentury Kenya	-13.823	1.007	0.486	-0.928	0.067
Centum investments	-3.887	0.117	-1.899	-0.968	0.249
Fusion capital	-4.918	1.633	0.502	-1.055	0.215
ACTIS	-5.845	-0.348	-0.461	-1.011	0.173
Miliki ventures	-6.758	-0.804	-0.646	-1.223	0.181
Africa invest capital Partners	-12.36	0.701	-0.302	-1.336	0.108

The betas for RM-RF are all negative and they range between -0.776 to -0.978. while those for SMB range from -0.258 to 0.135 and HML from 0.204 to -0.338. A positive beta means that the asset generally follows the benchmark, in the sense that the asset tends to move up when the benchmark moves up, and the asset tends to move down when the benchmark moves down. A negative beta means that the asset generally moves opposite the benchmark: the asset tends to move up when the benchmark moves down, and the asset tends to move down when the benchmark moves up. Beta measures the part of the asset's statistical variance that cannot be removed by the diversification provided by the portfolio of many risky assets, because of the correlation of its returns with the returns of the other assets that are in the portfolio.

Table 4.5 Company beta

COMPANY			
	B_1	B_2	B_3
Acacia fund	-0.978	-0.038	-0.041
Aureos Kenya managers	-0.93	-0.126	-0.128
IvesteQ capital	-0.939	-0.258	0.204
Business partner international	-0.898	0.034	0.112
Grofin east Africa	-0.931	0.059	0.064
Acumen fund	-0.908	-0.176	-0.262
African agricultural capital	-0.975	0.135	0.14
Fanisi fund	-0.873	-0.156	-0.149
Transcentury Kenya	-0.975	0.084	0.036
Centum investments	-0.776	0.029	-0.338
Fusion capital	-0.841	0.305	0.089
ACTIS	-0.88	-0.065	-0.072
Miliki ventures	-0.906	-0.129	-0.089
Africa invest capital Partners	-0.969	0.066	-0.025

Betas measure the risk added by an investment to a well diversified portfolio. It also means that an investment that when added to a portfolio, makes the overall risk of the portfolio go down, has a negative beta. A negative beta investment represents insurance against some macroeconomic risk that affects the rest of the portfolio adversely.

Table 4.6 companies and their residual standard deviation

Company	Residual standard deviation
Acacia fund	0.01656
Aureos Kenya managers	0.02951
IvesteQ capital	0.01788
Business partner international	0.03117
Grofin east Africa	0.02656
Acumen fund	0.01246
African agricultural capital	0.01649
Fanisi fund	0.03808
Transcentury Kenya	0.01328
Centum investments	0.04929
Fusion capital	0.4246
ACTIS	0.03423
Miliki ventures	0.03582
Africa invest capital Partners	0.02139

4.3 Summery and interpretation

The focal point of the results is that fourteen firms had their test for the significance of the coefficient for non linearity, thirteen firms had a R^2 of more than 70% only one firm centum investments had a R^2 of 60.2%. All the firms had an F- value of more than the critical value. Four firms had their F-values of more than 100 while three firms had their F- values of between 50 and 100 while the other seven had F values of less than 50. This shows linearity between these variables. Eleven firms hah an error term of 10% to 24.9% only three firms had an error term of below 10%, meaning that over 75% of the variables are explained by the model.

The regression result indicated negative t-values. A negative t-value indicates a reversal in the directionality of the effect, which has no bearing on the significance of the difference between groups. Thus all t-values RM-RF are negative. These are t-statistics and their associated two tailed p values used in testing whether a given coefficient is significantly deferent from zero using an alpha of 0.05. and P-values these calculated value which is compared with the critical value at 95% level of significance that is 0.05. For Acacia fund the coefficient for RM-RF -1.232 is significantly deferent from 0 because its P value is 000 which is smaller than 0.05. Aureos- Kenya managers the coefficient for RM-RF -1.197 is significantly deferent from 0 because its P value is 000 which is smaller than 0.05 in fact all the coefficients are significantly deferent from 0 because their P-values are smaller than critical value of 0.05.

The consequences of a negative beta are that the expected return on that investment in private equity was less than the risk free rate. This shows that there is a lot of potential for investment in private equity. The analysis of the constant term resulted in all companies that had negative intercept. These were the values of return that do not depend on the variation of beta. All firms had their t-values of their intercept less than the critical value. All the firms indicated a low standard deviation of 6.3%.

Residual predicted values measure the deviation of a particular point from the regression line. Residual = observed value - predicted value. The companies' residual standard deviation values are shown in table 4.6. They show that the points were fairly close to the regression line. The study also found that the returns for the firms in 2008 to 2011 were quite impressive given the Treasury bill rate rose towards the end of the year and this contributed to negative beta for the firms. The study found that there is potential for higher returns given the high risk free rate of investment towards the end of 2011 and beginning of 2012. The study found that only a few firms deal with private equity in Kenya which are still very small as compare to firms in Britain or USA. This study on private equity examined the features of the Kenya's regulatory framework that have shaped the behavior of financial intermediaries.

Private equity, have been exempt even from registration and reporting requirements, have not been required – as banks are – to hold reserves, and have faced no limits on their use of leverage. Kenya's financial market regulations have allowed these intermediaries to operate with virtually no public oversight or transparency to investors. Deregulation of financial services makes it possible for growth of large pools of private capital. The preferential tax treatment of debt relative to equity and of carried interest relative to wage and salary earnings further encouraged the expansion of alternative investments.

This study is deferent from other studies in that the researcher seeks to assess the risk return tradeoff among private equity firms in Kenya, while other studies have been done on risk and return none has come up with the relationship between them.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMEDATIONS

This chapter presents a summary of the whole research. The conclusion drawn from the finding of the study are also presented in this chapter .besides the chapter presents recommendations of the study.

5.1 Summary

This research sought to assess the risk and return tradeoff among private equity firms in Kenya. The study focused on the fourteen private equity firms operating in Kenya. Descriptive statistical method was used to analyse data using Statistical Package for Social Sciences (SPSS) and spreadsheets. Regression analysis was also used to analyze the data, fama and French model was used

The study found that firms with high return like centum investment had one of highest risk as compared to others. And a low return firm like the Acacia fund limited had one of the lowest risks, the principle of risk return trade off states that for a firm to get higher return it must be ready to take on higher risk. The research established that the risk as measured by beta is negative for all firms meaning that any additional investment goes to reduce the risk of the portfolio. The study also found that there is a huge potential for investment in private equity due to the negative beta .The firm are at the growth stage, since private equity is a new phenomenon in Kenya there is big potential for growth as many investors are coming up and new firms are opening every moment.

5.2 conclusions

From the findings on return and risk trade off among private equity firms in Kenya low risk experienced in the period of the study was as a result of high Treasury bill rate during this period. Another factor is that the financial sector was not immediately affected during the financial crisis in Europe and USA At the onset of the in Europe

recession; some commentators were pessimistic about the prospects for PE-backed buyouts in Kenya.

It also found that private equity industry being young many international firms are running in to invest because it is being argued that Kenya has a lot of potential in private equity which is unexploited the risk free rate was higher than the return in some years it is known that PE companies generally have higher financial leverage, it was found that this is often in parallel with stronger productivity growth. Private equity portfolio firms can take advantage of the young market in Kenya to mobilise capital through advertising and encouraging pension funds managers to participate.

5.3 Policy Recommendations

It is recommended that local players need to mobilise local capital for PE to reduce dependence on funding from development finance institutions. There is already a plan to Form an East Africa Venture Capital Association, for lobbying, data collection, training and networking, which will contribute to the growth of this industry in Kenya. The areas that PE funds would like to see strong lobbying are for the reduction of capital gains taxation in the region. GPs would also like to see better enforcement of transparency in reporting.

The industry ecosystem needs to expand by developing a strong early-stage venture capital community and creating incentives for secondary players.

5.4 Limitation of the study

It is important to stress the exploratory nature of this study and its limitations. First, the study only covers Kenyan private equity firms, such that the results may not apply directly to all countries in this region.

Second, the researcher had difficulty gathering some of the information necessary to conduct a comprehensive assessment of private equity state in Kenya as some of the information was not available. Third, because of the limited time, the private equity sector studies were of limited scale and scope, such that the study results may not be fully representative of the views of the relevant private sector stakeholders in the Kenya. The results of the study may have been more insightful if the data was readily available the greatest difficulty in performing a study on private equity is lack of data. Most firms do not make their data public.

Fourthly the study was limited by the amount of work that required organizing and summarizing the data provided from NSE, Central bank and various studies done by various groups.

5.5 Suggestion for further research

There is need to research more on the private equity risk and return trade off in Kenya as this area of investment has not been explored much. Internally managers` of these firms should undertake more detailed study to try and understand the risk and return trade off among private equity firms in Kenya. Due to dynamism of the Kenya's private equity market it is important to have periodic studies on risk and return to remain relevant.

Lastly, future research should try to further establish the risk inherent in private equity investments Though the study shows low risk in this industry, yet this is the first study for which risk and return trade off among private equity firms in Kenya and more studies are required before this result is established as an acceptable. Future research should also aim at validating the overall model which will help in studying the risk and return trade off among private equity firms in Kenya.

The study recommends further study on the risk measurement methods in private equity and so that firms can come up with ways to reduce it.

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APPENDICES

APPENDIX 1 RETURNS OF COMPANIES

	Acacia fund limited	Aureos Kenya manager s limited	InvesteQ capital limited	Business partners internation al limited (BPI	Grofi n East Afric a	Acume n fund	African agricultu ral capital
JANUARY	.12	.20	.18	.20	.18	.28	.154
FEBRUARY	.15	.22	.215	.22	.24	.22	.166
MARCH	.11	.25	.184	.19	.28	.24	.185
APRIL	.14	.18	.155	.24	.22	.23	.192
MAY	.18	.26	.178	.22	.23	.23	.182
JUNE	.16	.24	.199	.26	.22	.21	.183
JULY	.15	.22	.24	.27	.195	.20	.22
AUGUST	.15	.24	.28	.27	.224	.18	.23
SEPTEMBER	.18	.23	.26	.22	.24	.19	.22
OCTOBER	.165	.22	.22	.18	.25	.17	.21
NOVEMBER	.144	.196	.18	.19	.26	.18	.28
DECEMBER	.175	.30	.235	.23	.22	.18	.23

RETURNS OF COMPANIES CONTINUED

	Fanisi fund	Transcent ury Kenya	centum investments	Fusion capital	ACTIS	Miliki ventures	Africa invest capital artners
JANUARY	.25	.23	.35	.12	.22	.232	.17
FEBRUARY	.22	.24	.23	.20	.23	.18	.19
MARCH	.29	.23	.33	.18	.22	.21	.14
APRIL	.28	.25	.29	.23	.17	.23	.22
MAY	.20	.21	.36	.15	.19	.22	.21
JUNE	.22	.23	.34	.14	.15	.30	.23
JULY	.24	.22	.33	.12	.18	.28	.21
AUGUST	.27	.21	.27	.13	.14	.25	.22
SEPTEMBER	.30	.23	.25	.16	.19	.31	.23
OCTOBER	.33	.21	.35	.17	.24	.24	.23
NOVEMBER	.23	.25	.24	.24	.22	.23	.21
DECEMBER	.24	.23	.36	.22	.24	.21	.25

LIST OF FAMA/FRENCH RESEARCH FACTORS

APPEDIX 2

	SMB	HML
JANUARY	-2.16	-2.92
FEBRUARY	-1.49	4.88
MARCH	-1.38	-.01
APRIL	.04	0.71
MAY	-.24	-.031
JUNE	-.01	-0.10
JULY	-0.30	4.79
AUGUST	-.24	3.35
SEPTEMBER	-1.877	-2.58
OCTOBER	.29	.095
NOVEMBER	1.53	5.07
DECEMBER	.065	-2.04

REGRESSION RESULTS

TABLE OF MEAN AND STANDARD DEVIATION

APPEDIX 3

COMPANY	MEAN				STANDARD DEVIATION			
	Ri-RF	RM-RF	SMB	HML	Ri-RF	RM-RF	SMB	HML
Acacia fund	0.1426	0.0094	-0.481	0.9345	0.07887	0.06259	1.052	2.91
Aureos Kenya managers	0.2203	0.0094	-0.481	0.9345	0.08053	0.06259	1.052	2.91
IvesteQ capital	0.2011	0.0094	-0.481	0.9345	0.08982	0.06259	1.052	2.91
Business partner international	0.2148	0.0094	-0.481	0.9345	0.07067	0.06259	1.052	2.91
Grofin east Africa	0.2205	0.0094	-0.481	0.9345	0.07284	0.06259	1.052	2.91
Acumen fund	0.1998	0.0094	-0.481	0.9345	0.03798	0.06259	1.052	2.91
African agricultural capital	0.195	0.0094	-0.481	0.9345	0.09247	0.06259	1.052	2.91
Fanisi fund	0.2165	0.0094	-0.481	0.9345	0.07808	0.06259	1.052	2.91
Transcentury Kenya	0.219	0.0094	-0.481	0.9345	0.05956	0.06259	1.052	2.91
Centum investments	0.299	0.0094	-0.481	0.9345	0.07809	0.06259	1.052	2.91
Fusion capital	0.1623	0.0094	-0.481	0.9345	0.07852	0.06259	1.052	2.91
ACTIS	0.1898	0.0094	-0.481	0.9345	0.07193	0.06259	1.052	2.91
Miliki ventures	0.2316	0.0094	-0.481	0.9345	0.08451	0.06259	1.052	2.91
Africa invest capital Partners	0.1998	0.0094	-0.481	0.9345	0.0863	0.06259	1.052	2.91

TABLE OF R^2 MEAN SQUARE AND F-VALUE

APPEDIX 4

company			
	R^2	MEAN SQUARE	F-VALUE
Acacia fund	0.956	0.065	216.714
Aureos Kenya managers	0.866	0.062	64.474
IvesteQ capital	0.882	0.078	74.598
Business partner international	0.806	0.044	41.424
Grofin east Africa	0.867	0.051	65.205
Acumen fund	0.824	0.013	46.798
African agricultural capital	0.95	0.089	189.765
Fanisi fund	0.762	0.051	32.043
Transcentury Kenya	0.95	0.037	191.071
Centum investments	0.602	0.04	15.105
Fusion capital	0.707	0.048	24.188
ACTIS	0.774	0.044	34.159
Miliki ventures	0.82	0.064	45.67
Africa invest capital Partners	0.939	0.077	152.774

TABLE OF COMPANY BETA

APPEDIX 5

COMPANY			
	B_1	B_2	B_3
Acacia fund	-0.978	-0.038	-0.041
Aureos Kenya managers	-0.93	-0.126	-0.128
IvesteQ capital	-0.939	-0.258	0.204
Business partner international	-0.898	0.034	0.112
Grofin east Africa	-0.931	0.059	0.064
Acumen fund	-0.908	-0.176	-0.262
African agricultural capital	-0.975	0.135	0.14
Fanisi fund	-0.873	-0.156	-0.149
Transcentury Kenya	-0.975	0.084	0.036
Centum investments	-0.776	0.029	-0.338
Fusion capital	-0.841	0.305	0.089
ACTIS	-0.88	-0.065	-0.072
Miliki ventures	-0.906	-0.129	-0.089
Africa invest capital Partners	-0.969	0.066	-0.025

TABLE OF t- VALUE AND STANDARD ERROR**APPEDIX 6**

COMPANY	t- VALUES			RM_RF COEFICIENT	RM-RF STANDAR D ERROR
	RM-RF	SMB	HML		
Acacia fund	-14.721	-0.462	-0.602	-1.232	0.084
Aureos Kenya managers	-8.03	-0.916	-1.114	-1.197	0.149
IvesteQ capital	-8.637	-2.473	2.491	-1.544	0.156
Business partner international	-6.438	0.197	0.786	-1.013	0.157
Grofin east Africa	-8.075	0.412	0.533	-1.084	0.134
Acumen fund	-6.841	-1.14	-2.391	-0.551	0.081
African agricultural capital	-13775	1.873	2.275	-1.44	0.105
Fanisi fund	-5.661	-0.844	-0.959	-1.089	0.192
Transcentury Kenya	-13.823	1.007	0.486	-0.928	0.067
Centum investments	-3.887	0.117	-1.899	-0.968	0.249
Fusion capital	-4.918	1.633	0.502	-1.055	0.215
ACTIS	-5.845	-0.348	-0.461	-1.011	0.173
Miliki ventures	-6.758	-0.804	-0.646	-1.223	0.181
Africa invest capital Partners	-12.36	0.701	-0.302	-1.336	0.108

List of companies investigated

Acacia fund

Aureos Kenya managers

IvesteQ capital

Business partner international

Grofin east Africa

Acumen fund

African agricultural capital

Fanisi fund

Transcentury Kenya

Centum investments

Fusion capital

ACTIS

Miliki ventures

Africa invest capital Partners