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Return Differences Between Family and Non-Family Firms: Absolute and Index Differences

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Abstract

The objective of the paper is to determine if family firms are able to provide a return premium compared to their non-family counterparts. The assumption is that some of the benefits and costs related to family ownership can be absorbed into the business model. This may mean that family characteristics could actually impact the perception of the market and in turn affect their returns. We test this by using a unique sample of 152 family firms and matching them with non-family firms on the basis their sector, stock market index and size. Three models – CAPM, Fama-French 3-factor model and Carhart model – are used to test a trading strategy, i.e. buying family firms and selling short non-family firms, on the FTSE All Share, Fledgling and AIM Index. The results showed that the strategy is able to generate an abnormal profit for the firms on the FTSE All Share and Fledgling but fails to do so on the AIM in the presence of the 'momentum' factor-mimicking portfolio. It is far more profitable to use a trading strategy of buying past winners and selling short past losers on the AIM. We further investigate into the factors that drive the returns of family and non-family firms. Using factors related to risk, price-level, liquidity and growth-potential, we find that family firm returns are driven by their growth potential where as non-family firms' need to balance their risk in order to increase returns. A similar application on the 3 indices mentioned above reveals that the AIM and the Fledgling index behave similarly but differ from the FTSE All Share portfolio of firms.

Key Words: Corporate Governance, Family Businesses, Returns, Investment, Trading Strategy

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I INTRODUCTION:

'Small businesses make a vital contribution to the overall health of the UK economy and to improving the productivity of UK business.'

- *Annual Survey of Small Businesses – UK 2004/5, Small Business Services*

Family firms exist in all countries mostly as independent private companies. In the UK at present there are 7,505 small businesses that contribute to the UK economy. About two-thirds of these firms have a sales turnover between £58,000 and £1 million and around 15% of them over £1.5 million for 2004/5. Around 71% of these firms classify themselves as family businesses. Out of this 73% of these firms were controlled by the first generation and 19% by the second. Only 6% of these family firms were run by the third and fourth generations. This is not surprising as the survey found that only 27% of these businesses will in future opt to keep the business in the family and 25% will sell their businesses. However, it is important to note that 42% of the family firms have not made any plans for the future[1].

These figures exhibit the classic problem that family firms in small businesses face today. There is clearly a lack of direction for firm growth. These small family businesses seem to perish away because of a multitude of problems, some of which stem from their firm resolve to ensure that the business is free from outside intervention. The Annual Survey of Small Businesses – UK 2004/5 found that non-family firms were more likely to go for positive growth. These facts paint a very bleak outlook for family firms planning to expand operations in the future. In our unique sample of quoted family firms in the UK we found around 199 firms that could be classified as 'family' by a set of criteria. So there is evidence that some family businesses do find a healthy balance between control and management for their firm, which serves their shareholders as well. But the concern is that the number of 'quoted' family firms in our sample is still very low compared to the number of small businesses presented above. Clearly a large part of them do not survive to reach the public investor. Therefore it is important to understand whether the ones that do survive have an advantage compared to their non-family firms. In particular, it is important to focus on the returns of these firms as it can be used as a yardstick for comparison between family and non-family firms.

[1] Data taken from the Annual Survey of Small Businesses – UK 2004/5 undertaken by the Small Business Services and the UK National Statistics

Family firms have known to exhibit a number of advantages mostly related to the presence of a founder's entrepreneurial talent (Anderson & Reeb, 2003), long-term horizon of a family firm (Stein 1988, 1989), access to cheaper debt and stable relationships with suppliers and other stakeholders (Anderson et. al., 2002). They are also benefited by reduced agency costs because of the feelings of altruism and unity within the family or due to the emotional pressure that sometimes exist in family business units (Chami, 1999; Ang, Cole & Lin, 2000; Demsetz & Lehn, 1985). One of the strong focuses of family firms is the need to pass on wealth to future generations and the 'steward' like attitude of family firm management (Van den Berghe & Carchon, 2003; Davis, Schoorman & Donaldson, 1997). This ensures that the best possible use of resources and investments are made. Family firms also tend to work better because they tend pass on 'idiosyncratic knowledge' from one generation to the next which ensures that good business policies are held on to (Bjuggren & Sund, 2001). All these characteristics may add to the appeal of family firms to investors and could give them an edge compared to their non-family counterpart. However a number of disadvantages with respect to nepotism and favouritism in the family can hamper the business's economic progress. When families are large shareholders in the firm and promote management from within the family, employers are often disgruntled about the lack of opportunities for progress (Shleifer & Vishny, 1997). Minority shareholders may be expropriated through excessive compensation schemes and dividends in favour of family members (Schack, 2001). Family firms, as large shareholders, are known to extract private benefits and use their control over the firm to use operating and financial resources for their own benefit (DeAngelo & DeAngelo, 2000). Large block holdings often discourage the market for corporate control and as such could reduce firm value (Barclay & Holderness, 1989). It is difficult to judge the exact impact on returns in the presence of these benefits and costs. Section 2 presents the literary review of research in the areas of asset pricing and family firm performance and helps to tie in the two areas in support of our main idea, which is presented below.

The objective of this paper is to evaluate if we can use a zero-cost trading strategy of buying family firms and selling short non-family firms to earn abnormal profits, on the assumption that the unique characteristics of family firms gives it an edge in the stock market. We accomplish this by using existing asset-pricing models like CAPM, Fama-French (1993) 3 factor model and the Carhart (1997) model (i.e. Fama-French 3 factor plus a fourth factor, momentum). These

models have been based on the fact that various factors like beta risk, size, book-to-market value, market returns and momentum are possible explanatory factors of the excess returns of stock assets. The aim is to see if an abnormal return can be earned over an above the portfolios mimicking the factors mentioned above.

Section 3 presents the data and methodology of the paper. We use a unique sample of 199 family firms and match them with non-family firms on the basis of sector, stock market index (i.e. FTSE All Share, Fledgling and AIM), and size. We found a match for 152 family firms based on the three demanding factors mentioned above. This brings our total 'combined' matched sample to 304 firms. The average age of the family firms is approximately 16 years. These firms are fairly young though it is not surprising as they mainly dominate the AIM index, which is known for its young growth firms. An investment of a £100 in the beginning of 2000 would give a return of 23.36% on the AIM, 19.92% on the Fledgling and 6.71% for the FTSE All share family firms at the end of 2004. We find that using the asset pricing models (which are also sometimes called performance attribution models) we are able to earn an abnormal profit from the zero-investment strategy mentioned above in most of the cases, except where momentum on the AIM is used as a factor. It shows that the strategy of buying past winners and selling short past losers will earn a higher profit than any other trading strategy on the AIM Index for our sample of firms. This is an important finding, as the AIM is known as a growth index. Therefore the fact that the expectations of a consistent growth rate drive the returns of firms on this market is an important result from the point of view of investors.

Section 4 delves deeper into the factors that drive the return differences between 'matched' family and non-family firms. We use factors related to risk, liquidity, price-level and growth as important characteristics that help in understanding the fundamental return differences between family firms and their non-family counterparts. We find that family firm returns are driven by their growth potential whereas non-family firm investors should watch the risk levels to assess their impact on returns. We use the same methodology on all (i.e. family and non-family) the firms on the three different indices and find fundamental differences between the FTSE All Share firms and the AIM and Fledgling firms. Section 5 concludes the paper.

2: LITERATURE REVIEW

2.1: Factors affecting firm returns and performance

There are a number of factors related to firms and the market that have an impact on returns of the firm. A large amount of literature in empirical research deals with providing an alternative explanation of the Sharpe (1964), Lintner (1965), and Black (1972) capital asset pricing model (CAPM), where the cross-section of the expected returns has a linear relationship with the beta of the firm. Research has found that this linear CAPM relationship between risk and the returns of a firm is not the only way if representing the risk-return trade-off. Other firm characteristics such as firm size (e.g. Banz (1981)), earning yield (e.g. Basu (1977, 1983)), Debt/Equity ratio (e.g. Bhandari (1988)), Dividend Yield (e.g. Fama & French (1988)), and the ratio of a firm's book value to its market value (e.g. Fama & French 1992)), have also been related to returns. However there has been some controversy regarding the findings of some of these studies with some researchers suggesting that the results are affected by survivorship bias in the data used (Kothari, Shanken, and Sloan (1995), Brown and Goetzmann, (1995) and Brown, Goetzmann, and Ross (1995)). Others like Black (1993), Merton (1988) and Lo and MacKinlay (1990) suggest that the results may have been derived from some kind of data snooping prior to the testing. However the results may have been obtained, the bottom line is that the fundamental nature of the results of these studies still holds.

As we have discussed above that returns can be affected by the differences in the risk or the 'style' of different portfolios. Equity, bond and macroeconomic variables have all been found to contribute to the cross-sectional market returns of a firm. Fama & French (1993) find five risk factors to explain the returns of stocks and bonds. The 3 factors related to the stock market are – firm size, book-to-market equity, excess market return and the two other factors, maturity and default risk, are associated to the bond market. The paper uses the monthly returns of NYSE stocks over a period of 28 years (1963-1991), which are regressed on the market portfolio of stock returns and portfolios mimicking size, book-to-market equity (BE/ME), and term-structure risk factors of returns. They split the sample into 25 portfolios according to firm size (i.e. share price x no. of shares) and BE/ME (i.e. Book Equity/ Market Equity) and use the excess returns of these portfolios as the dependant variable. They find that factors mimicking firm size and BE/ME can explain most of the variation in stock returns and by adding the

excess market return they find that the intercepts for the time-series regression with the portfolio mimicking factors is almost 0. Therefore market factor and the risk factors relating to size and BE/ME help in explaining the cross-section of average returns. Smaller firms earn higher returns as a reward for the risk. From a study of their data they discovered that small firms were only slightly less profitable than larger firms till 1981. However after the recession in 1982 small firms had a prolonged slump in earnings and were not affected by the boom in the late 80s. So the vulnerability of smaller firms to economic downturns that do not affect larger firms the same way, makes size an important risk factor that helps in explaining the negative relationship between size and returns. The same is true for high BE/ME firms and they also have a positive relationship with returns. Value firms are sometimes considered as 'fallen angels' and as such will require higher compensation for the higher risks.

Kothari et. al. (1995) examined the cross-section of the expected stock returns and found that there was a significant compensation of around 6-9% per annum for beta risk. This is possible when the beta is calculated from time-series regressions of the yearly portfolio returns and the annual return of an equal weighted market index. The proposed relationship between book-to-market equity and returns is weaker and less consistent than those presented by Fama & French (1992). They conjecture that the empirical results of the Fama & French paper are a result of using COMPUSTAT data, which is affected by a selection bias.

Chan & Chen (1991) study the reaction of firms of different sizes to the same economic event. They found that the structural characteristic differences between the different sized firms revealed that the small portfolio firms have a large proportion of marginal firms with poor performance, low production efficiency and high financial leverage. These firms are sensitive to price changes and are more likely to be affected by adverse economic conditions. Therefore any economic news affects the returns of smaller firms more than larger firms. To test that the 'size' effects propounded in earlier literature are actually derived from the 'marginal' firms present in the small firms portfolio, they construct two size-matched return indices of marginal firms. One index consists of the all the distressed[2] marginal firms by taking their average returns and deducting the average returns of all healthy small firms. The second index is the return difference between a portfolio of firms highly leveraged and a portfolio of low leveraged firms that are all small in size. They use the firms listed on the NYSE from 1956 to 1985 and collect

[2] The paper defines a distressed firm as a firm making substantial cutback in dividends as it portrays cash flow problems.

firm data from CRSP monthly files. They show that the time-series return differences of small and large firms is to an extent captured by the reaction to economic news of the marginal firms and the highly leverage firms. The market index, which leans heavily on the large firms in the index, is unable to capture the risks of the small firm.

Banz (1981) studied the empirical relationship between returns and the market value of the NYSE common stocks. He used a sample of firms quoted on the NYSE for at least five years for the period of 1926 to 1975. The data used in the paper are monthly returns, price and number of shares outstanding from CRSP. They divided their sample of firms into 25 equal portfolios based on market size and beta of each firm and found that smaller NYSE firms earn higher risk adjusted returns than the larger NYSE firms. This size effect is not linear and is pronounced in smaller firms and the effect is also not stable over time.

Basu (1983) studied a sample of firms on the NYSE for a period of 13 year from 1963 to 1979. To be included in the sample a firm would have to be listed as on 1st January of each year and traded for at least the first month of that year. Accounting information on earnings per share on a 12-month moving basis for the year ending December 1962 to 1978 were collected along with the stock prices, returns and common share data (i.e. to obtain market value of the firm). He found that firms with higher E/P ratios earn on average higher risk-adjusted returns than stocks with lower E/P ratios. This effect remains even when he controls for firm size.

Critics like Reinganum (1981) while commenting on a version of the paper argue that the E/P ratio effect on returns is only a manifestation of the size effect. Using a composite sample of firms from the AMEX-NYSE he finds that the size effect subsumes the E/P effect. So even though both the size and the earning yields anomalies are related to the factors causing the misspecification of the CAPM model, it seems that these factors are more closely associated with the size of the firm than the E/P ratio of the same firm. Basu (1981) argues that according to Ball (1978), the E/P ratio of a firm can be used as a direct proxy for expected returns. Thus, it stands to reason that E/P ratio is a much better factor in explaining the expected returns in the case where the asset-pricing model is misspecified. Size of a firm is not always an obvious variable directly related to the expected returns of the firm. However, he does suggest that there are some factors that can solve the misspecification of the asset-pricing model that may be correlated to the market value of a firm.

The business cycle of an economy can affect the returns that we expect from stocks and bonds. Fama & French (1989) study the relationship between expected returns of stocks and bonds and business conditions. They used a value-weighted and equal-weighted portfolio of stocks on the NYSE. The value-weighted portfolio gives emphasis to larger stocks while the equal-weighted portfolio emphasizes on smaller stock. They use a sample of monthly returns and yields of corporate bonds from 1926-1987 maintained by Ibbotson Associates. One of the explanatory variables is the Dividend Yield (D/P) on the value-weighted NYSE portfolio. They find that the dividend yield also helps in forecasting bond returns, which is unique to their research. They also identify that the two reasons for the time-variation of long-term corporate bonds are – the term spread and the default spread. They find that default spread is related to the business-condition variable. The dividend yield is correlated to the default spread and moves in a similar pattern, i.e. high during periods of depression and low during periods when economy is strong. The term-spread is related to the short-term nature of the business cycle – low near peaks and high on business-cycle troughs. The two explanations they provide are that when business conditions are poor returns from stocks and bonds need to be high to help induce the substitution from consumption to investment. The other explanation is of course the risk angle, whereby the high returns are compensation for the higher risk affecting businesses during these periods.

Chen (1991) analysed the changes in macroeconomic variables and their relations with changes in financial investment opportunities. The paper considers certain state variables - aggregate production growth, yield spreads between low grade and high grade bonds, yield spreads between long- and short-term government bonds, short-term interest rates, and dividend yields – as important influencing factors in explaining the asset pricing equilibrium and can help in forecasting the expected returns of stocks and bonds. The object of the paper was to test whether these state variables are related to the macroeconomy, which is consistent with the forecasts of the asset returns. The results show that the state variables are related to changes in the macroeconomy. The current dividend yield and the default premium are indicators of the current situation of the economy as measured by the real GNP and consumption. The current short-term interest rate, the current term structure and the lagged industrial production growth rate help in forecasting the changes in the future GNP growth rates.

Another factor that has impacted the returns of a firm are past returns of the same firm, i.e. momentum and contrarian effects. The momentum effect exists in relative strength strategies that buy past winners and sell past losers and has been studied by several researchers. Levy (1967) used this relative strength strategy (i.e. buying stocks performing consistently above the average over a 27-week time period) and found that abnormal returns could be earned. However critics like Jensen & Bennington (1970) by using the strategy over a longer time period, outside Levy's sample, found that this was not a consistent strategy and attributes Levy's results to survival bias in his data. Practitioners and researchers of mutual funds (Grinblatt & Titman (1989,1991), Carhart (1997)) have often used the momentum effect as these funds exhibit a tendency to buy stocks that have performed well over the previous financial quarter. This suggests that relative strength strategies can be useful in generating abnormal returns. Jegadeesh & Titman (1993) used the relative strength strategy on NYSE and AMEX stocks over a 3- to 12-month holding period. They realised significant profits over the sample period, i.e. from 1965 to 1989 and by testing the different sources of these profits they found that their results could be a consequence of delayed price reactions to information relating to the firm. They also find that these relative strength portfolios formed over different holding periods of 3- to 12-month horizons experience negative abnormal returns from a year after their formation and continue to have the same results until the thirty-first month.

However, another strategy, which works on the opposite assumption that it is possible to take advantage of investors' overreaction to market information, seems to have a lot of attention from researchers. Debondt & Thaler (1985, 1987) studied stock price overreactions to information and found that contrarian strategies (i.e., buying past losers and selling past winners) can achieve abnormal returns. They found that selecting the stocks that did not perform well for the last 3-5 years and holding them over the next 3-5 years achieved abnormal returns compared to a strategy of holding stocks that did do well over the same time period. However, these results have been debated and some critics feel that as the losers outperform the winner stocks only in January that it might not be an overreaction effect. Others feel that their results can simply be explained by the size effect and systematic risk. Jegadeesh (1990) while studying the predictability of stock returns found that the negative first-order serial correlations in the monthly returns of a firm are highly significant and that there are strong signs of positive serial correlation at longer lags, which suggests short-term return reversals. But it is not clear whether these results are a consequence of overreaction or develop because of some short-term

price pressure or lack of liquidity in the market. These contrarian strategies rely heavily on being able to buy and sell over a short period of time making this kind of strategy transaction cost reliant. So short-term price movements are the most important. Lo & McKinlay (1990) found that most of the results in Jegadeesh (1990) was an effect of delayed reaction to common factors rather than any kind of overreaction.

Traditionally, the emphasis of tests determining which factors affect the cross-section of expected stock returns is based on theoretical models of asset pricing (Fama & MacBeth, 1973) or variables that can explain the covariance's between stocks (Chen, 1983). If the stock market is efficient and liquid then risk is the main factor in the differences between expected returns. However, if the stocks have different liquidity or the pricing of the stocks are biased relative to the information set then many non-risk factors can be important in explaining cross-section stock returns. The Haugen Model (1996) assumes this and uses five categories of factors to help predict expected returns. These five classes are risk, liquidity, price-level, growth potential and price-history. The factor model derives the monthly payoffs from these characteristics using OLS multivariate analysis. They use monthly stocks of the Russell 3000 stock Index (i.e. 3000 of the largest U.S stock) from 1979 to 1993. Over this period they run 180 multiple regressions to help explain differential monthly returns using factors related to the five classes mentioned above. It helps in establishing the most important factors influencing cross-section expected returns. To test the model they estimate each stock's expected returns and rank them into ten equally weighted deciles. They find that the spread between the highest and the lowest return deciles is around 35%. The analysis is then extended to four other countries: 208 French Stocks, 195 stocks in Germany, 715 in Japan and 406 UK stocks from 1985 to mid 1994. The model is powerful in all cases and there is a surprising amount of commonality of factors and their signs between the different countries. The commonality does not stem from the high correlation between monthly payoffs. Their explanation for all the results is that it stems from the bias of market pricing in all of these five countries and is not related to risk.

Besides the factors mentioned above one element that seems to affect the value of the firm is corporate governance and ownership of the firm. Firms are owned by shareholders and controlled by management and if that management happens to be family-controlled then the corporate governance becomes even more complicated. All this seems to have an impact on performance of the firms and could also lead to return differences.

Gompers, Ishii & Metrick (2003) use the Fama & French model to help explain the return differences between two very distinct portfolios based on governance factors. The approach was to build an index to help measure how much power is in the hands of management on the basis of certain governance rules followed by the firm. The publications of the Investor Responsibility Research Center provide 24 different corporate-governance provisions for 1500 firms from 1990 to 1999. The firms were then ranked into deciles according to their cumulative score on the index, where the lower deciles represented firms with the most democracy for shareholders. They the return differences of a portfolio where they bought the firms in the lowest decile and sold short the 'Dictatorship' portfolio (i.e. the highest decile). They then applied the Fama-French model for their sample and found that the intercept of the Fama-French model was positive and significant meaning that differences with regards to size, BE/ME and market returns alone could not explain the return differences between the two deciles.

So why does ownership and control matter? Jensen & Meckling (1976) in their seminal work on 'agency theory' bring out the importance of aligning the interests of owners and managers. When a manager has control of the firm without any ownership issues then he can expropriate non-pecuniary benefits at the expense of other shareholders. Giving managers some ownership of the firm can be used as a disciplinary tool. However, Fama and Jensen (1983) argue that when management ownership goes beyond a certain level there might be 'entrenchment' problems, whereby the managers are secure in their positions. The heavily entrenched management makes it harder to allocate resources efficiently through takeovers, which can reduce the value of the firm. Thus it seems hard to determine the most appropriate amount of management shareholding.

There are several other studies that have examined the empirical relationship between ownership and performance[3]. However, each study presents a different share ownership threshold for the ideal balance of control and ownership, which makes it difficult to implement it as a policy. The purpose of this paper is to understand the return implications of different ownership structures and therefore we need not take any stand on this issue.

[3] Morck et al. (1988); Wruck (1989); McConnell & Servaes (1990); Stulz (1988); Mudambi & Nicosia (1995)

If ownership is an important factor in determining performance then family ownership could also be an important variable that may affect performance. Anderson & Reeb (2003) found that family firms outperformed their non-family counterparts. The relationship between performance and ownership levels is however non-linear and increases in the presence of a family CEO. The above results were obtained by using accounting measures of performance to compare family firms and non-family firms. Thomson Financial conducted a study whereby they developed a unique index for family and non-family firms in six European countries - Germany, France, Switzerland, Spain, Italy, and UK, and tracked them over a 10-year period until December 2003. In Germany, the returns of family firms led by BMW soared 203% compared to the paltry growth of 47% for their non-family counterparts. In France too the returns of the family firm index soared by 203% compared to 76% for the non-family firms. Overall family firms seem to outperform their non-family counterpart, which provides some empirical evidence as to their profitability using market values like returns of a firm. Stoy Hayward (1992a) analysed share value and found that if £1 was invested in the FT All Share Index in 1970 it would grow to £8.72 by 1991. However, if £1 was invested in quoted family firms it would have grown to £11.11. So family firms seem to provide a better return for investors than their non-family counterparts. There may be a number of factors contributing to the result. One of the reasons could be the intrinsic value of a family business, which is driven by the unique characteristics and organizational structures that exist in such establishments.

2.2: - Positive and Negative qualities associated with Family firms

The Thomson Financial Study presents a difference between the returns of family firms and non-family firms. These return differences arise because of the familial orientation of the firms than because of other differences. So what is that distinguishes family firms from their non-family counterparts and even translates into performance? Family firms seem to have a number of positive and negative attributes that are related to the intricate governance and organisational structure of the company. This develops because of the complex familial relations between the family, management, shareholders and outsiders.

Firms where the family has a large voting right can approve plans that lead to the expropriation of smaller shareholders. This can be through excessive compensation or special dividends

(Shack, 2001). Family firms tend to use their capital expansion plans to their advantage thereby ensuring the steady flow of special dividends. However, by ignoring the needs of the business and other shareholders their operating and stock market performance can be affected (DeAngelo & DeAngelo, 2000). Large shareholders tend to exert a lot of control over the company and can use it to their advantage by extracting private benefits. In the event of a potential bid for large block holdings a premium is paid to account for these private benefits. This might dissuade potential bidders and as a consequence reduce firm value (Barclay and Holderness, 1989). Shleifer & Vishny (1997) find that large shareholders often want to be part of management without the requisite qualifications or experience, thus reducing firm value. Managers have the best knowledge of a company's opportunity set and can take important investment decisions to help the growth of the business. However, in the presence of large shareholders who exert inordinate amount of control over the firm these managerial efforts can be dampened (Burkart, Gromb, & Panunzi, 1997). Binder Hamlyn (1994)[4] undertook a study of the difference between the performance of family firms and their non-family counterparts. The data set included 667 private unquoted firms in the UK over a six year time period (1988-1993). These firms had sales revenue between £2.5 and £25 million. The sales growth and average absolute employment growth is higher for the non-family firms than the family-firms. In fact, the sales growth of non-family firms is four times higher than family firms.

Family firms have a host of specific characteristics, which adds a different dimension to their business ethics. Feelings of altruism and trust unite the family and help in minimizing monitoring costs as well as the need for performance-related rewards (Chami, 1999). Emotional pressures rather than the financial pressures, which usually need to be in place to motivate non-family workers and management, drive the efforts of family members and their managers. This same unique family tie helps in reducing the agency costs of the firm. Ang, Cole & Lin (2000) studied the agency costs of firms with different ownership and management structures. They found that agency costs are higher when managed by an outsider compared to firms with insider management and this agency cost reduces with greater management shareholding. Demsetz & Lehn (1985) note that large concentrated investors may have economic incentives to curb agency problems and thereby maximize firm value. This is because their wealth is so closely

[4] As reported in Westhead, P. and Cowling, M. (1997), 'Performance Contrasts between Family and Non-family Unquoted Companies in the UK', International Journal of Entrepreneurship Behaviour and Research 3, 30-52.

related to the future viability of the business that monitoring can ensure the growth of their income.

These agency costs are also reduced because family firms aim to pass on their wealth to the next generation (Van den Berghe & Carchon, 2003). The need to secure the future of the family will ensure that the right investment strategies are undertaken. Davis, Schoorman & Donaldson (1997) present the stewardship theory whereby managers who associate their well-being and success with that of their firm will act like natural stewards, i.e. protecting the company's interests and solving organizational problems swiftly to ensure maximum value growth. Family members active in management will feel obligated to ensure that the business is successful and will continue to generate income for future generation. A number of family firms have very clear ideas of their business goals, objectives and the needs of their firm. This can sometimes give them a competitive edge (Westhead 2003). Bjuggren & Sund (2001) found that one of the advantages of the tradition of passing on the business to the next generation is the use of the 'idiosyncratic knowledge' gathered by the family over the year for the firms benefit. The advantage with family firms also lies in their long-term presence in a business. Stein (1988, 1989) found that managers suffer from 'myopia', which hinders the progress of the firm because good long-term projects may be neglected. However, family firms intend to be present in the business for generations thus allowing the development of sound relationships with all stakeholders as well as ensuring the adoption of good long-term investment projects. Anderson et. al. (2002) found that family firms were able to access cheaper debt because of this long-term commitment to the business. This feature allows for beneficial relationships to develop with suppliers and providers because of the interaction over a long period of time unlike non-family management that lasts for short-durations.

The aim of this paper is to see if these benefits and losses created by the unique governance and organisational set up of family firms translate into the returns of these firms. Also it is important to determine what structural characteristic differences between family and non-family firms' drives the cross-sectional expected return differences.

3: DATA & METHODOLOGY

3.1: The Sample

The criterion for identifying the family firms is broadly based on Shanker and Astrachans' (1996) 'Middle' definition of a family firm. The main criterion was that the family should be able to exert control on the board, i.e. through their involvement in management, and also have a substantial stake in the firm as a shareholder. We therefore classify a family firm as a firm where the family shareholding is 3% or above with at least one family member on the board. We find that the two types of family firms are usually founder or descendent(s) - run family firms and multi-founder established firms.

Data on family firms in the UK have been collected manually from various sources like the Waterlow Stock Exchange Yearbooks and Incorporation documents obtained from Companies House, Cardiff. These have been supplemented by using the biographies of directors from Hemscott Academic Guru and Mint to identify the family members. This is to ensure that the firms are influenced by family factors that may lead to the benefits and costs mentioned earlier influencing the financial and operating policies of the firm. This process gave us 199 family firms. Of these, 55 firms are part of the FTSE All Share index, 82 firms are listed on AIM and the remaining 56 firms are in the Fledgling index[5].

In order to make a comparison of returns between family and non-family firms we need a matched sample of non-family firms. Our match criteria are stock market index (i.e. FTSE All Share, Fledgling and AIM)[6], sector and firm size based on natural logarithm of total assets. We found matches for 152 family firms making the final matched sample of non-family and family firms 304. The average difference in size[7] is 0.49%. The median difference is –0.12% and the standard deviation is 8.89%.

Our aim is to discover whether there are any return differences between family and non-family firms and whether these can be attributed to some specific characteristics of these firms. Table 1 presents the returns from the family firms and non-family firms for the full sample as well as

[5] Some of the family firms exist in other Indices
[6] The other firms were listed on different Indices like the Techmark All Share

their returns within various indices (i.e. FTSE All Share, AIM and Fledgling). The returns were constructed on a portfolio basis where the family firms and non-family firms were considered as separate portfolios. What the figures indicate is a simple return from an investment of £100 in these portfolios over a year, 2 years, 3 years up to 5 years. For example if we invested a £100 in a family firm portfolio we would get £5.74 back as return for the 1st year and a total[8] return of £112.57 if you held it over the entire 5 years[9]. Comparing that with the non-family firms we see that the same investment of £100 in the non-family firms' portfolio will give a total return of £101.64 and £102.7, if you held it over a single year and five years respectively. Now these returns in the real world, where we have transaction costs, would not lead to any real major returns. However, what it does tell us is that the returns of family firms over the short-term and the long run seem to be higher than non-family firms over 2000 to 2005. Though when we look at the individual indices differences between family and non-family firms we find that over the short-term non-family firms on the FTSE All Share give back a return higher than family firms but is reversed if we hold on to them over 4-5 years. The same is however not true for the family and non-family firms on the Fledgling and AIM index. We find that over the first year the family firms will give better returns/losses than their non-family counterparts. Over the long run the firms on Fledgling will give a total return of £112.92 and the AIM family firms give a total return of £123.36 for an investment of £100 in the family portfolios in these indices in the beginning of 2000. The difference between the FTSE All Share family firms and the Fledgling/AIM family firms may be important as there are several characteristic differences and the expectations of the market differ for these classes of firms. The FTSE All Share represents 98-99% of firms in the UK and is an amalgamation of firms on the FTSE 100, FTSE 350 & FTSE Small Cap. We have only 55 family firms on this Index compared to the 82 AIM family firms, representing the fact that family firms seem to exist more in growth sectors and are also smaller in size.

[7] The difference in size is calculated by taking (1- size of family firm/ size of non-family firm).
[8] 'Total' return here refers to the original investment of £100 as well as the return over the specified period
[9] It should be noted here that the low returns over the 5 year period are caused by negative returns in the 2nd and 3rd years

Table 1: Return characteristics of the different portfolios

Year	FTSE FF	FTSE NF	FLEDG FF	FLEDG NF	AIM FF	AIM NF	FULL FF	FULL NF
1 year	2.58%	6.16%	-1.29%	-3.01%	18.9%	7.81%	5.74%	1.64%
2 years	-1.45%	7.24%	-5.83%	-4.64%	-13.27%	-9.02%	-5.59%	-0.79%
3 years	-6.31%	-4.87%	2.43%	-4.3%	-12.26%	-26.54%	-5.57%	-7.15%
4 years	20.43%	17.2%	40.1%	6.99%	50.39%	49.37%	33.17%	15.77%
5 years	6.71%	-2.46%	12.92%	4.87%	23.36%	9.35%	12.57%	2.7%

We use a portfolio approach and calculate risk-adjusted performance measurements, such as Sharpe and Treynor ratio, which are used frequently by fund managers. The Sharpe ratio is computed by dividing the excess returns on the family and non-family portfolios in each of the indices by their total risk (i.e. both the systematic and unsystematic risks). Usually this ratio is evaluated against a benchmark to determine if a portfolio has outperformed the market. The Treynor ratio uses the same principal calculation but uses the beta risk of a firm as the denominator.

Table 2 presents the results of the Sharpe ratio for the family and non-family portfolios for each of the indices. The point of this ratio is to determine that in the presence of a risk measurement whether these portfolios behave differently. We find that the Sharpe ratio for the FTSE family firms is low in the 1st year, negative in the second and third and then finally positive in the last two years. In the FTSE non-family firm portfolio we find positive returns in the first two years and the last two years and only one year of negative returns for year 3 which are lower than the negative return of the family firm portfolio in that year. It would seem that in the FTSE All Share over the long term and the short term investment in non-family firms yields a higher return. However the opposite is true for the family firm portfolios in the Fledgling. We find that studying the Sharpe ratios for all the years reveals that the family firm portfolio gets a greater return (or smaller loss) when compared with the non-family portfolio. So in the Fledgling index the family firms outperform their non-family counterparts. The AIM Index results are not so clear cut as investments in the family firm portfolio in year 1 and 2 earn lower returns/losses than the non-family portfolio. However a longer-term investment in family firms in this index bares positive and greater returns than the non-family firms in the Index. This is not surprising

as the AIM is known for as the growth market and many of the firms are lucrative investments for Venture Capitalists, who are known to favour firms with long-term prospects of returns. A look at Table 3, which presents the Treynor ratios for all the different portfolios on the Indices, helps us derive the same conclusion. On average, long term or short term investments in the FTSE All Share should only be made in the non-family firm portfolio while the opposite is true for the Fledgling Index. On the AIM only long-term investments of 4-5 years in family firms gives a positive return.

Table 2: Sharpe Ratio of the different portfolios

Year	FTSE FF	FTSE NF	FLEDG FF	FLEDG NF	AIM FF	AIM NF
1 year	0.289	0.508	-1.314	-2.107	2.263	2.677
2 years	-1.138	0.500	-2.323	-3.726	-2.780	-1.914
3 years	-2.851	-2.330	-1.049	-2.484	-2.741	-3.446
4 years	3.266	2.891	3.799	1.258	2.760	1.337
5 years	1.204	1.794	1.176	0.414	0.446	-0.338

Table 3: - Treynor Ratio for the different portfolios

Year	FTSE FF	FTSE NF	FLEDG FF	FLEDG NF	AIM FF	AIM NF
1 year	0.023	0.039	-0.09485	-0.16473	0.176479	0.286617
2 years	-0.089	0.039	-0.16767	-0.29131	-0.21682	-0.20498
3 years	-0.223	-0.179	-0.07569	-0.1942	-0.21374	-0.36885
4 years	0.255	0.223	0.274119	0.098349	0.215269	0.143135
5 years	0.094	0.138	0.084846	0.032395	0.034791	-0.03619

3.2: The trading strategy tested on Asset Pricing models

What could be a reason for these return differences? Return differences between firms have been attributed to various factors like size, book-to-market equity, momentum, beta, E/P ratio, D/Y ratios, debt-to-equity ratio and corporate governance. Could some of the return differences mentioned above be also attributed to the financial and operational policies of family firms? We use some well-known models like the CAPM, Fama-French three-factor and Carhart four-factor

model to test this. We build a zero-cost portfolio by buying the family firms and selling the non-family firms of the different indices. This means that we have 3 different portfolios for the FTSE All Share, FTSE Fledgling and the FTSE AIM firms. And we run the following equations on these portfolios:

CAPM: $R_t = \alpha + \beta R_m$ (1)

Fama-French model: $R_t = \alpha + \beta_1 SMB + \beta_2 HML + \beta_3 R_m$ (2)

Carhart Model: $R_t = \alpha + \beta_1 SMB + \beta_2 HML + \beta_3 R_m + \beta_4 Momentum$ (3)

Where,

R_t	- represents the monthly excess return differences between the family and non-family firms in our zero-cost portfolio
α	- is the abnormal monthly returns from the zero-cost portfolio of buying family firms and selling short non-family firms
SMB	- represents the portfolio mimicking the monthly return differences between the smallest and the biggest firms in the sample based on the Fama-French approach
HML	- represents the portfolio, mimicking the monthly return difference between the highest 30% BE/ME and the lowest 30% BE/ME firms in the sample based on Fama-French approach
R_m	- is the portfolio of the monthly return differences of the market returns and the risk-free rate (i.e. 3-month t-bill rate) for the sample
Momentum	- is the portfolio formed by taking the difference between an equally-weighted average of firms with the highest 30% eleven-month returns lagged one month and the lowest 30% eleven-month returns lagged one month

Thus the 'α' in these models will represent the abnormal returns in excess of what could be gained if we made passive investments in the factors mentioned above. There is a lot of debate as to whether the Fama-French and Carhart factor models are representative of risk but we do not take any stand on this issue and use them as models to determine the performance differences between family and non-family firms. We also take the family and non-family firms

of the three different indices separately as we have found that the returns in these indices behave differently.

The Fama & French and Carhart models use the SMB, HML, R_m and momentum factors to explain the cross-sectional variation in the average stock returns of firms. Taking the average values of the factors mentioned above we can evaluate the average risk premiums for these factors in a time-series approach to asset-pricing tests. Table 2 presents the mean returns and standard deviation for the three different indices. The average values of SMB for the three indices are extremely low ranging from –0.018% per month to 0.005% per month. The low mean returns indicate that for this sample of firms the SMB factor will not help in explaining much cross-sectional variation. The same goes for the average risk premiums for HML, which range between –0.009% per month to 0.005% per month. The fact that both the factors are less than 2 standard errors between 0 means that the returns are volatile and not reliably different from 0. This might not affect the power of the tests, as the common factors in returns will absorb most of the variations in stock returns. The average premiums for R_m are also trivial as they range from –0.019% per month to 0.016% per month for the three indices. The volatility however is extremely high and the average returns are less than 0.3 standard errors from 0, which means that the hypothesis that the mean returns are statistically different from 0 cannot be rejected. So we see that the Fama-French factors as such do not provide the best explanation of the cross-sectional variation in the returns in this sample. However the R_m factor for the FTSE sample of firms has a small return of 0.016% per month but is 1.99 standard errors from 0 and also has a low volatility, which indicates that market factors exert some influence on the cross-sectional variation of returns for the FTSE firms. The momentum factor has a high average premium for all the indices where all the returns are above 1% a month and they are all 15 standard errors away from 0. This makes the past returns of firms an important factor in explaining cross-sectional variation.

Table 4: Descriptive Statistics of the returns on the 3 Indices

	Mean returns	ST. DEV	T-STATS
AIMSMB	-0.0179	0.2239	-0.62
AIMHML	-0.0641	0.3364	-1.48
AIMRMRF	-0.0188	4.3377	-0.03
AIMMOM	1.1161	0.3522	24.55
FTSESMB	-0.0199	0.0979	-1.58
FTSEHML	-0.0091	0.1299	-0.54
FTSERMRF	0.0160	0.0622	1.99
FTSEMOM	1.0714	0.4488	18.49
FLEDGSMB	0.0052	0.2103	0.19
FLEDGHML	0.0045	0.2439	0.14
FLEDGRMRF	0.0036	0.1223	0.23
FLEDGMOM	1.2541	0.5854	16.59

Table 4 presents the correlation between the various factors on the three different indices. The Fama-French and Carhart models validate the use of these factors by observing a low correlation between them, which represents the fact that they will explain different elements of the cross-sectional stock returns. We find the correlation between SMB, HML and R_m is extremely high. This suggests that they are probably accounting for similar factors for the excess returns of our family vs. non-family zero-investment strategy. Only the momentum factor seems to have a low correlation with all the other factors therefore it would separately explain a part of the cross-section variations in returns. However, the high correlation between SMB, HML and R_m will not affect the 'α' of our models. We do not need to evaluate the individual contributions of these factors to the cross-sectional variation of excess returns but require evaluating whether the zero-investment strategy can produce abnormal returns beyond passive investment in these factor-mimicking portfolios.

Table 5: Correlation of the different factor mimicking portfolios

	AIMSMB	AIMHML	AIMRMRF	AIMMOM
AIMSMB	1.00	0.822	-0.326	-0.043
AIMHML	0.822	1.00	-0.182	0.068
AIMRMRF	-0.326	-0.182	1.00	0.006
AIMMOM	-0.043	0.068	0.006	1.00

	FTSESMB	FTSEHML	FTSERMRF	FTSEMOM
FTSESMB	1.00	0.822	-0.868	-0.082
FTSEHML	0.822	1.00	-0.645	-0.079
FTSERMRF	-0.868	-0.645	1.00	-0.006
FTSEMOM	-0.082	-0.079	-0.006	1.00

	FLEDGSMB	FLEDGHML	FLEDGRMRF	FLEDGMOM
FLEDGSMB	1.00	0.941	-0.960	0.155
FLEDGHML	0.941	1.00	-0.883	0.150
FLEDGRMRF	-0.960	-0.883	1.00	-0.210
FLEDGMOM	0.155	0.150	-0.210	1.00

The next 3 tables present the results of the Weighted-Least Square estimates of the equations represented by the 3 models. Table 5 presents the CAPM, Fama-French and Carhart model for all the FTSE All Share family and non-family firms in the sample. We have the excess returns of a zero-investment portfolio, where we buy all the family firms and sell short all non-family firms. This makes the value of 'α' our main focus, as it will tell us the abnormal profits we can earn if we follow this strategy. It is the excess returns that we can achieve whilst making passive investments in the size, book-to-market, market and momentum factors. This is a test to see if investing in family firms could afford any kind of return advantage. The Fama and French model predicts that the intercepts should not be significant if the zero-investment factor-mimicking portfolio's can explain all the variations in returns. But we find that for the Fama & French and Carhart model there is a positive and significant intercept. This means that there is some abnormal profit to be made. The Fama-French model 'α' gives us a .97%[10] return per month, which gives us an annualised return of 11.6% on the FTSE All Share Index. The Carhart model gives us an abnormal profit of 2.05% per month, which is an annualised return of 24.65% per month. Looking at the other factors, SMB and HML, also seem to be significant and explain a large part of the return variations but we cannot really use these figures because of the high correlation between these factors. We however do find that that both the R_m and the

Momentum effects are not significant. We find that the R^2 ' s are marginally better for the Fama-French and the Carhart models compared to the one-factor CAPM model.

Table 6: CAPM, Fama-French and Carhart model results for FTSE All Share Index

FTSERET	ALPHA	FTSESMB	FTSEHML	FTSERMRF	FTSEMOM	R^2	S(e)
CAPM	-0.0062***			-0.212204		0.15	0.18
F-F MODEL	0.00974**	0.71118***	-0.22988***	0.075432		0.39	0.075
CARHART MODEL	0.02054**	0.70349***	-0.24074***	0.09014	-0.0114	0.398	0.076

For the three models on the Fledgling Index we find positive significant intercepts. The Fama-French model gives us an abnormal return of 2.56% per month and an annualised return of 30.72%. The Carhart model, which adds the Momentum factor, gives us a higher abnormal return (i.e. 3.74% per month and 44.93% per year) on our zero-investment strategy. We find that the Fama- French and Carhart models fit better than the CAPM and can explain most of the variation in returns. The slopes of the factor mimicking portfolios on size, book-to-market and the market are significant. However this is mainly due to the high correlation between the factors and therefore we cannot properly interpret their effects.

TABLE 7: CAPM, FAMA-FRENCH AND CARHART MODEL RESULTS FOR FLEDGLING INDEX

FLEDGRET	ALPHA	FLEDGSMB	FLEDGHML	FLEDGRMRF	FLEDGMOM	R^2	S(e)
CAPM	0.01677***			-0.14143*		0.035	0.036
F-F MODEL	0.02560***	-0.51342***	0.67726***	0.260140**		0.99	0.02
CARHART MODEL	0.03744***	-0.46005***	0.639398***	0.2775532**	-0.007085	0.99	0.014

[10] Note that the units of the returns were not originally in percentage.

The next table presents the results of similar empirical applications on the AIM listed sample of firms. We find that the R^2's are stronger for the Fama-French and Carhart models. We also find that the intercept for the Fama-French model is positive and strong and we get a monthly return of 0.84% and an annualised return of 10.07%. However, with the Carhart model and the addition of the Momentum effect we have quite a different result, as the intercept is now negative and significant. If we recall the definition of the 'α' (i.e. it is the excess return we can earn from our strategy compared to the zero-investment factor mimicking portfolios) this result is interesting. This means that in a growth market like the AIM we find that a strategy of buying past winners and selling past losers gives us a positive return of 4.55% per month and 54.62% per year. None of the other indices have a similar momentum effect. With the addition of the Momentum factor we find that we get an abnormal loss from our zero-investment strategy of buying the family firms on the AIM and selling short the non-family firms on the same index. These firms are generally in the services or technology sectors making these essentially growth firms. This could be potentially important for investors in this index.

TABLE 8: CAPM, FAMA-FRENCH AND CARHART MODEL RESULTS FOR AIM INDEX

AIMRET	ALPHA	AIMSMB	AIMHML	AIMRMRF	AIMMOM	R^2	S(e)
CAPM	0.01464***			-0.20019***		0.69	0.074
F-F MODEL	0.00839**	-0.44440***	0.37526***	-0.459130		0.79	0.06
CARHART MODEL	-0.0364***	0.73479***	-0.451348**	0.085969	0.045516***	0.89	0.04

Section 3.4: Which Asset Pricing model is better for the zero-investment strategy?

We find that in Table 6, 7 and 8 that the three models – CAPM, Fama-French and Carhart – have significant intercepts and apart from the CAPM have close R^2 values. This makes it quite difficult to evaluate which model is better. We are going to use Chen's (1983) methodology to

test the Fama-French and Carhart model[11] against the CAPM. If the CAPM were not misspecified then the residual of the CAPM equation would represent noise and have a zero mean across time. However if it is misspecified then we would find that the slope of the CAPM would not capture all the information and that the residual would no longer act as a noise across time and would capture some of the missing information. If there were a model that could price the remaining part of the returns then we would find that that model could price the CAPM residual. So the test uses Weighted-Least Square estimates of the CAPM residuals as dependent variable and the various factors of the Fama-French and Carhart model as the independent variables. It is important to keep in mind that only those factors used in the WLS estimates of the models before (i.e. those in Table 6, 7 and 8) should be used. The correlation[12] between the CAPM residual, which has a market factor that shows up in the other two models as well, will not lead to spurious results as they are perfectly correlated by definition of the factor. We need to study tables 6, 7 and 8 and the results below to be able to make a proper assessment. We need to check that the same factors are still significant with the same sign and roughly the same magnitude. This together with the individual t-statistics and the F-statistic will help determine whether the CAPM is misspecified and whether the 2 models are able to correct it. Though we are not directly comparing the two models – Fama-French and Carhart – we may find that compared to the CAPM one of the models is better suited for a particular index. We find in the FTSE All Share that the CAPM is misspecified and it is picked up by both the models. The conclusion has been drawn from a comparison of the various model factors between Table 6 and Table 9. We find that all the factors that are significant have the same sign and roughly the same magnitude in both the tables. The F-statistic is significant at 1% and shows that the pricing is not by chance. An observation of Table 10 however seems to show that the Fledgling index is better priced by the Fama -French model. The addition of the momentum factor in the Carhart model does not pick up the CAPM misspecification and it is better priced using the Fama-French 3-factor model. Table 11 on the AIM listed firm's shows us that the momentum factor in the Carhart model captures the misspecification of the CAPM better than the Fama-French model. In both the cases we find that one of the factors namely the intercept behaves differently from the original results (i.e. results on table 7 & 8). This tells us that the momentum

[11] Comparing the Fama-French model and Carhart model using the Chen methodology is not possible as both the models have very similar factors except for the momentum factor. So the results could be spurious.

[12] According to Chen (1983) if the factors on two models are perfectly correlated then they will not suffer. However if they are less than perfectly correlated then the market factor from the CAPM could have affected a spurious result on the correlated market factor of the two other models. However, as the market factor is the same in all the models they are all perfectly correlated and will not suffer statistically.

factor in the Fledgling Index does not add any significance to the pricing of returns and the opposite is true for the AIM listed firms. So the results of the Carhart model are the best for the AIM firm and the Fama-French model and the Fama-French model for the Fledgling firms.

Table 9:

Regression of Residuals

$$capmresidftse = b_0 + b_1\, ftsesmb + b_2\, ftsehml + b_3\, ftsermrf$$
$$capmresidftse = b_0 + b_1\, ftsesmb + b_2\, ftsehml + b_3\, ftsermrf + b_4\, ftsemom$$

Residual from FF model	**ALPHA**	**FTSESMB**	**FTSEHML**	**FTSERMRF**	**FTSEMOM**	**F-Statistic (p-value)**
b_I	0.01566*	0.79581*	-0.22106*	0.31342		0.0001
t-stat	3.4845	3.0246	-5.1228	1.6433		

Residual from CR model	**ALPHA**	**FTSESMB**	**FTSEHML**	**FTSERMRF**	**FTSEMOM**	**F-Statistic (p-value)**
b_I	0.024337*	0.789634*	-0.229786*	0.325241	-0.009162	0.0002
t-stat	2.379754	2.997360	-5.202355	1.699974	-0.944842	

Table 10:

Regression of Residuals

$$capmresidfledg = b_0 + b_1\, fledgsmb + b_2\, fledghml + b_3\, fledgrmrf$$
$$crresidfledg = b_0 + b_1\, fledgsmb + b_2\, fledghml + b_3\, fledgrmrf + b_4\, fledgmom$$

Residual from FF model	ALPHA	FLEDG SMB	FLEDG HML	FLEDG RMRF	FLEDG MOM	F-Statistic (p-value)
b_i	0.01153*	-0.402251*	0.662393*	0.479135*		0.0000
t-stat	2.01105	-3.535072	5.999782	3.789672		

Residual from CR model	ALPHA	FLEDG SMB	FLEDG HML	FLEDG RMRF	FLEDG MOM	F-Statistic (p-value)
b_i	0.018225	-0.372080*	0.640989*	0.487836*	-0.004005	0.0000
t-stat	1.466035	-2.982819	5.502889	3.812607	-0.607699	

Table 11:

Regression of Residuals

$$capmresidaim = b_0 + b_1\, aimsmb + b_2\, aimhml + b_3\, aimrmrf + b_4\, aimmom$$
$$capmresidaim = b_0 + b_1\, aimsmb + b_2\, aimhml + b_3\, aimrmrf$$

Residual from FF model	ALPHA	AIMSMB	AIMHML	AIMRMRF	AIMMOM	F-Statistic (p-value)
b_I	-0.01778*	-0.55558*	0.288651*	-0.506247		0.0000
t-stat	-4.847984	-6.624139	5.691074	-1.376519		

Residual from CR model	ALPHA	AIMSMB	AIMHML	AIMRMRF	AIMMOM	F-Statistic (p-value)
b_I	-0.05953*	0.54323*	-0.48161*	0.001696	0.04241*	0.0000
t-stat	-9.19729	3.257766	-4.193024	0.006104	7.083918	

4: WHAT FACTORS LEAD TO THE DIFFERENCE IN THE INDICES RETURN BEHAVIOUR?

When we use the Fama-French and Carhart models to ascertain if any financial advantage could be achieved from trading family firms and non-family firms, we find that the AIM listed firms, in the presence of momentum, behaved differently from the rest of the Indices. The momentum factor on the AIM gives a higher return than the zero-investment strategy of buying the family portfolio and selling short the non-family portfolio. This leads to the conclusion that buying past winners and selling short past losers is a better trading strategy on the AIM than on the FTSE All Share or the Fledgling. The intrinsic nature of the firms on these indices may cause the difference, as growth firms mainly dominate the AIM. An investigation into the basic characteristic differences between the three indices may go some way in explaining the different results. We also find that for the FTSE All Share and the Fledgling Indices our zero-investment strategy earned substantial abnormal profits. This validates a further study into the exact return characteristics of family and non-family firms that drive these results.

We use the factors in the Haugen Model (1996) to help determine the components most important to the returns of a firm. If markets were perfectly liquid and efficient, then dissimilar risk factors alone would determine differences in expected returns. However, if there are liquidity differences or if the present information set leads to biased pricing of the stocks, then several non-risk related factors could be used to predict the cross-sectional return of firms. The Haugen model predicts five classes of factors that could have an impact on returns: risk, liquidity, price-level, growth potential and price-history. Each of these classes has a number of sub-factors used by the model to determine the payoffs of the firms. The model then uses these payoffs to determine appropriate trading strategies. Our objective here is not to determine the true payoffs for family and non-family firms but to select appropriate factors that have an influence on returns and use this information to see which characteristics help drive the returns for particular types of firms. Therefore we have not used all the factors that the Haugen model uses to calculate these payoffs. Another reason for not using all the sub-factors in each category is the unavailability of the data on some of these factors for the entire sample period.

The factors related to risk are Debt-Equity ratio and Times Interest Earned (TIE). These were chosen as opposed to Beta values because empirical evidence has sometimes found the CAPM beta lacking in capturing the risk element of the firm. The risk element is related to the amount of debt the firm is taking on as this will increase the chances of default and also means that the

shareholders of the firm will be further at risk of not recovering their investment incase of bankruptcy. So it would be expected that an increase in the debt-equity ratio would lead to greater risk and require greater returns to compensate for the added risk. Times Interest Earned is calculated by taking the EBIT (i.e. Earnings before tax and interest) and dividing that by the total interest charges of the firm. This ratio is important to judge whether the company has a healthy income to pay off all its debt obligations. It relates information regarding the number of times a firm has the resources to cover its interest charges on a pre tax basis. This ratio can give an indication of bankruptcy. So as the ratio increases it will reduce the risks related to interest rate fluctuations. If it is a true risk related variable then it should lead to a reduction of the returns of the firm as lower risk leads to lower returns. So we expect a negative relation: as the TIE ratio increases the risk reduces and the returns will no longer need to have a risk premium component.

Liquidity of a stock is important as a trader must buy stocks at the ask price and sell at the bid prices. This bid-ask spread is taken as the cost of trading. Stoll & Whaley (1983) and Amihud & Mendelson (1986) point out that to maintain the rate of expected returns, net of trading costs, it is important to ensure that the gross expected returns reflect this cost of trading. The variable we use to represent liquidity is trading volume as a proportion of the market capitalisation of the firm. Liquidity variables as such should be negative, as more liquid stocks will end up having higher overall costs of trading. Thus the gross returns should be low to reflect this higher trading cost.

Price-level variables help to judge the current stock prices in relation to various accounting variables. These ratios usually help us in discovering whether a particular stock is selling cheap or dear. We use the Book to Market Price (BM) as a representative of price-level variables that affect returns of a firm. The Fama and French model explains the relative return differences between ‘value’ and ‘growth’ firms. Growth (Value) firms will tend have lower (higher) returns. The rationale is that value stocks are ‘fallen angels’ and require higher returns for the increased risk. The other school of thought is that investors overreact to past returns, i.e. successes or failures, of a firm and that the usual channels of competition will ensure that the firms’ profit will go back to its normal level. Investors can project prolonged growth and drive the prices of growth stock up. Usually investors are caught off guard when the forces of

competition alter expected return patterns of these growth firms. The future returns from these stocks tend to be lower than expected and the opposite is true for value stocks. We also use the Dividend Yield variable in this category. An increase in this ratio can be interpreted in two ways. A positive impact on returns may mean that the firm has been rewarded for their ability to provide earnings over and above their reinvestment requirements. However, if it has a negative impact then the market interprets these dividends as a result of a lack of any other fruitful investment opportunities within the business. Therefore dividend yield also has a signaling effect which helps in determining market reactions.

Growth potential of a firm will help in evaluating its future prospects, which from an investor's point of view is important. If we assume that the present growth of the firm is sustainable over a future period, until the forces of competition bring the prices back to normal, then investors can earn a positive return. The factors we use to represent growth are the Return on Asset (ROA), Return on Equity (ROE) and Capital Turnover. ROA is taken as the ratio between operating profit and total assets where as the ROE uses total equity as the denominator. The Capital Turnover ratio is calculated by dividing total sales by total assets. This ratio helps us to gauge how the assets of the firm are being used to generate sales in the firm. The higher the ratio the better it is.

Below is a summary of the results from Fama-Macbeth regressions using factors representing 4 broad categories – Risk, Price, Liquidity & Growth potential – and the returns of the firm as the dependant variable. The Fama-Macbeth approach requires running cross-sectional regressions with all the variables for each time period and then the time-series coefficient and standard error are used to determine the t-statistics for each factor. They are then ranked according to the absolute value of their t-statistic. The full cross-sectional regression results for the family firms, non-family firms and the firms on the three indices are presented at the end of the section.

Table 12: Factors that drive the returns of family and non-family firms

	FACTORS AFFECTING RETURNS	FAMILY FIRMS	FACTORS AFFECTING RETURNS	NON-FAMILY FIRMS
1	RETURN ON EQUITY	3.99*	DEBT TO EQUITY	-1.93*
2	RETURN ON ASSET	1.70*	TIMES INTEREST EARNED	1.86*
3	CAPITAL TURNOVER	1.34	RETURN ON EQUITY	1.14
4	VOLUME	-1.10	CAPITAL TURNOVER	1.02
5	DIVIDEND YIELD	-1.02	BOOK TO PRICE	-0.41
6	BOOK TO PRICE	0.61	DIVIDEND YIELD	0.32
7	DEBT TO EQUITY	-0.39	VOLUME	-0.24
8	TIMES INTEREST EARNED	-0.09	RETURN ON ASSET	0.10

Table 12 above ranks the 'time-series' t-statistics for each factor of the family and non-family portfolios in our sample. We find that on account of the time-series standard errors being large, many of the t-statistics are not significant. However the important result is that we have clearly two separate factors that drive the returns of family firms and their non-family counterparts. The returns of the family firms in the sample are driven by the growth potential of the firm as represented by the ROE and ROA of the firm. Both the factors are positive with the Return on Equity being particularly strong. This tells us that the performance and growth opportunity of a family firm should be of paramount importance to investors. However, with non-family firms we find risk factors such as Debt-Equity ratio and Times Interest Earned seem to be particularly important. However, the sign of the Debt-Equity ratio is negative, which means that as debt grows in proportion to equity (i.e. risk increases) returns will diminish and vice-versa. The usual relationship of risk and return is positive, as higher risk requires greater compensation. Here the opposite seems to be working. If we look at the debt-equity ratio for the family firm (which is not significant) it has the same negative sign**.** This may be because this factor (i.e. Debt-Equity ratio) may not be an exact measure of risk. It is an accounting figure representing

the fact that a company has taken on too much debt compared to its equity levels and the market judges it as a risky business. Therefore the market reduces returns to represent the 'accounting' risk of the firm and warns investors. Traditional risk factors like Beta help us gauge how much risk a firms stock has compared to the market. However, accounting figures help to measure something much more intrinsic and expose the weakness in the basic finances of a company. These issues need to be addressed and probably the markets way to push the company towards better financial balance is to reduce returns. Arditti (1967) while regressing the geometric average of previous rates of return[13] on the debt-equity ratio of each industry found a negative relationship between the two. The expected positive relationship between debt risk and return was conspicuously missing in each of his 6 industry categories except 'Oil'. His explanation for the negative relationship was that it was an effect of 'omitted' non-income information[14]. Bhandari (1988) found that when controlling for beta and firm size, the expected stock returns are positively related to the debt-equity ratio of the firm and that it was not just a 'risk' related premuim.

The other risk factor 'Times-interest Earned' relates positively to returns. An increase in the measure means that the income of the company is better placed to meet its interest obligations. So an improvement in the ratio will mean that the financial health of the company is better or that the firm is paying off its debt from earnings. The company is therefore able to cope with interest rate fluctuations. The market will perceive this as positive news justifying the positive returns. However it is interesting to find that again the risk associated with this ratio, which is the interest rate risk, has a different relationship with return. As the ratio increases it is actually reducing the firms' chance of interest payment default and the market should therefore react to the reduced risk and lower returns. But this accounting ratio does not have the expected sign. In my equivalent family firms we find that the TIE is negative and insignificant. This means that the opposite is true for family firms, which is interesting. As the firm is able to pay off more and more of its debt obligations they are penalised. This is probably because of the fact that the market may not always consider the TIE as a factor reducing the financial burden of a firm. It may mean that the firm is wasting the opportunity of using their earnings, which has a low capital cost, for investment projects that would yield higher returns than the current high rate of interest that the firm would have to carry if they borrowed to expand their business. The fact

[13] The geometric mean was taken as a representation of the expected profit rate of a firm.
[14] The analysis already includes all relevant income related information through the three moments of the probability distribution of the returns, which are the independent variables in the regression.

that family firms in general tend to take on more debt, as a 'safe' source of financing that does not affect their ownership structures makes this finding even more interesting.

The other insignificant but contrasting result is in relation to dividend yield. As the dividend of the firm increases or the share price reduces, for the non-family firms it has a positive impact on returns and the opposite effect on family firm returns. Family firms typically have one or more shareholders from within the family who are dependent on the firm's dividend payout as their main source of income. However, the market may feel that the retention rate of the firm is lower than its peers and in turn reduces its market return. An increase in the BM of the family firms (i.e. Book to Price ratio) reveals a positive impact on returns. However the opposite is true for the non-family firms. Traditionally we expect a positive relationship between BM and returns (Fama & French, 1992). As we are working with a matched sample of family and non-family firms the sector growth opportunities are the same. So the difference between the two types of firms must be the extent of the growth opportunities. The negative relationship of BM and returns means that as non-family firms increase their BM ratio they achieve lower returns meaning that the potential growth of these firms may be stable or non-existent. The positive relationship of BM to returns for family firms only emphasises that these firms have a potential for rapid growth or have recently exhibited growth prospects. This is supported by the positive and significant 'growth-potential' related factors (i.e. ROA, ROE and Capital Turnover) for the family firms.

The table below exhibits the t-statistics results from the Fama-Macbeth regressions for each Index (i.e. FTSE All Share, Fledgling and AIM). We use the same approach as before, however each Index includes both the family and non-family firms in the analysis. The motivation for this approach is to evaluate if there are any particular differences between firms in general on each Index, which drives some of the results of the factor models used in the above section. Here again we find some interesting results.

Table 13: Factors that drive the returns of FTSE All Share, Fledgling and AIM firms

	FACTORS AFFECTING RETURNS	FTSE ALL SHARE	FACTORS AFFECTING RETURNS	AIM	FACTORS AFFECTING RETURNS	FLEDGLING
1	DIVIDEND YIELD	-6.51*	RETURN ON ASSET	2.86*	RETURN ON ASSET	2.61*
2	BOOK TO PRICE	2.12*	DEBT TO EQUITY	-2.59*	DEBT TO EQUITY	-2.00*
3	TRADE VOLUME	-1.43*	RETURN ON EQUITY	1.57*	DIVIDEND YIELD	-1.64*
4	CAPITAL TURNOVER	1.10	DIVIDEND YIELD	-1.45*	CAPITAL TUNOVER	1.61*
5	RETURN ON ASSET	0.87	CAPITAL TURNOVER	1.39	BOOK TO PRICE	-1.30
6	RETURN ON EQUITY	0.65	TRADE VOLUME	1.33	RETURN ON EQUITY	1.11
7	DEBT TO EQUITY	0.32	TIMES INTEREST EARNED	-0.97	TRADE VOLUME	1.08
8	TIMES INTEREST EARNED	0.10	BOOK TO PRICE	-0.48	TIMES INTEREST EARNED	-0.85

We focus first on the FTSE All Share portfolio. Price-level factors and liquidity drive the returns of the sample of firms in this index. Price-level factors are supposed to identify the true value of stocks, i.e. determining whether they are cheap or dear. When the prices are low compared to other accounting factors like dividend and book value then we see higher returns. Fama and French (1992) found that value stocks are 'fallen angels' that need to give higher returns to compensate for the risk involved. These premiums are expected and so sometimes these factors can be considered to be in the risk category. We see that book value to price follows the traditional relationship with returns, i.e. positive, unlike dividend yield. However, this result does not hold for the firms on the Fledgling and the AIM indices. They seem to exhibit a negative insignificant relationship between BM and returns. Dividend yield (dividend to price ratio) is also negative, which means as the dividend yield increases returns for that stock decreases. This could be because dividends can either be interpreted as dispensation of company profits in the absence of other investment opportunities or as a positive utilization of

firm earnings. If increasing dividends reduces returns, the market associates negativity with this type of payment. As we can see is the case for the sample of firms on the FTSE All Share. This means that the firms would do better to reinvest these funds into projects that would help to increase returns in the future. The other factor important is the Volume of trade or liquidity of the FTSE All Share portfolio of firms. The rebalancing of portfolios requires traders to buy at the ask price and sell at the bid price. This bid-ask spread is considered as the cost of trading and the gross expected returns from a stock should take into account this trading cost. Thus as the volume of trade increases, i.e. a stock has higher liquidity, then the gross returns would decrease to accommodate for the increased costs of trading. Thus the expected relationship is negative which is what we find.

When we look at the results of the time-series t-statistics for AIM and Fledgling we find very different factors than the FTSE All Share Index that drive the returns. We have 2 factors representing growth potential and a factor each representing risk and price-level categories. When we ran the Carhart regressions on the firms on the AIM we found that the zero-investment trading strategy of buying a family firm and selling short a non-family firm portfolio gives a negative abnormal return. This is a consequence of the addition of the momentum factor. Thus, the growth potentials of these firms are important to investors. We find that Dividend Yield of the firms on the Fledgling and the AIM are negative which means as dividend to price ratio rises the returns of the firms reduce. As mentioned above investors can read dividends in two different ways. The negative relationship is established because these firms can aim for better investment opportunities than sharing their earnings with investors. It is not surprising to find this result in a growth market like the AIM because research has shown that investors in technology or growth sectors expect reinvestment of earnings and as such are willing to sacrifice dividend income for greater capital gains in future. Debt-equity ratio seems to be significant though it is negative for both the Indices. Again this might mean that this ratio is not an absolute risk related factor. The surprising result is the liquidity of the firms, as represented by the ratio of the trading volume and market capitalisation, is positive but insignificant. The expected relationship would be negative because as the trading costs increase we need to ensure that the gross returns are lower so that the expected returns net of trading costs remain roughly comparable. However the positive relationship highlights that these

markets are fairly illiquid and an increase in trading activity will lend a hand in spreading the costs of trading.

Table 14: Fama-MacBeth Regression results for sample of firms on Fledgling Index

FLEDGLING FIRMS	BP	CT	DE	DP	ROA	ROE	TIE	VO
2000	-15.13	-7.46	-1.98	-5.85	-25.35	0.21	0.05	0.00294**
	(50.66)	(27.75)	(21.39)	(13.96)	(93.13)	(0.35)	(0.168)	(0.0012)
2001	-25.42*	12.82**	0.196	4.62	71.19*	0.01	-0.01	-0.00012
	(6.6)	(5.15)	(2.73)	(3.43)	(16.36)	(0.062)	(0.13)	(0.0002)
2002	-14.82*	1.75	-3.71	-1.57	78.86*	-0.01*	-0.004	-0.00025*
	(4.14)	(3.59)	(2.54)	(1.25)	(16.67)	(0.003)	(0.004)	(9.18E -05)
2003	8.76	29.07***	-0.86	-13.17**	108.33	-0.05	-0.43	0.000609**
	(7.54)	(14.66)	(0.49)	(6.1)	(65.62)	(0.17)	(0.37)	(0.0003)
2004	4.52	13.16**	-0.49	-9.44***	156.60**	0.11	0.02	6.95E-06
	(5.31)	(6.19)	(4.79)	(5.26)	(68.45)	(0.24)	(0.024)	(5.81E-05)
MEAN	-8.42	9.87*	-1.37*	-5.088*	77.93*	0.05	-0.08	0.00061
	(6.47)	(6.14)	(0.68)	(3.1)	(29.85)	(0.047)	(0.09)	(0.0006)

TABLE 15: FAMA-MACBETH REGRESSION RESULTS FOR SAMPLE OF FIRMS ON AIM INDEX

AIM FIRMS	BP	CT	DE	DP	ROA	ROE	TIE	VO
2000	-16.6	-2.44	-2.56	-0.04	-15.57	0.083	0.03	0.002**
	(31.02)	(17.75)	(16.5)	(6.7)	(68.21)	(0.21)	(0.123)	(0.0007)
2001	-15.83*	7.55**	0.52	0.045	71.71*	0.06	-0.011	-0.0001
	(4.98)	(3.81)	(2.43)	(1.47)	(14.5)	(0.05)	(0.008)	(0.0001)
2002	-9.73*	-2.47	-3.99	0.24	95.7*	-0.007	0.0004	-4.9E-05
	(2.79)	(2.91)	(2.76)	(1.12)	(14.91)	(0.013)	(0.003)	(0.0001)
2003	20.9*	27.45*	-1.18	-7.86***	65.59	-0.005	-0.13	0.0005**
	(7.44)	(7.3)	(1.83)	(4.32)	(43.13)	(0.21)	(0.092)	(0.00021)
2004	4.27***	7.83	-2.68	-3.89	134.1**	0.26*	-0.02	0.00011
	(2.46)	(5.66)	(2.37)	(2.99)	(52.69)	(0.07)	(0.05)	(0.0001)
MEAN	-3.4	7.59	-1.98*	-2.3*	70.31*	0.08*	-0.03	0.00039
	(7.13)	(5.46)	(0.77)	(1.59)	(24.61)	(0.049)	(0.03)	(0.0003)

Table 16: Fama-MacBeth Regression results for sample of firms on FTSE All Share Index

FTSE FIRMS	BP	CT	DE	DP	ROA	ROE	TIE	VO
2000	18.34***	4.07	2.29	-5.37***	45.27	-0.01	-0.0011	1.68E-07
	(10.66)	(7.43)	(4.9)	(3.001)	(71.53)	(0.013)	(0.007)	(3.07E-05)
2001	4.86	23.8*	-10.26	-2.74	-8.75	-0.157**	0.024**	-6.23E-05
	(11.16)	(7.03)	(14.98)	(1.94)	(43.42)	(0.07)	(0.01)	(0.0004)
2002	3.17	-11.4*	-2.66	-2.47***	30.8	0.44*	0.021*	-1.83E-05*
	(5.04)	(4.11)	(1.62)	(1.25)	(54.77)	(0.115)	(0.007)	(2.39E-06)
2003	9.7	17.34***	23.93*	-4.96	280.32*	-0.25	-0.05	8.77E-06
	(13.69)	(9.29)	(6.42)	(4.3)	(104.8)	(0.36)	(0.03)	(1.46E-05)
2004	44.93**	0.44	-3.98	-3.46	-82.22	0.47	0.008	-0.00019
	(22.12)	(13.44)	(18.08)	(6.9)	(217.44)	(1.04)	(0.006)	0.0005
MEAN	16.19*	6.85	1.86	-3.8*	53.09	0.098	0.0012	-5.23E-05*
	(7.65)	(6.24)	(5.87)	(0.58)	(60.96)	(0.151)	(0.013)	(0.0003)

TABLE 17: FAMA-MACBETH REGRESSION RESULTS FOR THE FAMILY FIRMS

FAMILY FIRMS	BP	CT	DE	DP	ROA	ROE	TIE	VO
2000	-3.22**	2.51	-35.4*	2.34*	-22.28**	0.143***	0.041**	-0.0012
	(1.55)	(2.64)	(8.84)	(0.122)	(10.46)	(0.085)	(0.019)	(0.0026)
2001	-5.23	1.1	-1.96	-0.57	45.99**	0.253**	-0.002	-7.69E-05*
	(5.12)	(3.17)	(4.13)	(1.32)	(21.49)	(0.116)	(0.005)	(2.78E-05)
2002	-6.92**	-3.57	-1.07	0.57	68.91*	0.395*	-0.006	-5.93E-05**
	(2.93)	(2.68)	(2.91)	(1.08)	(21.73)	(0.108)	(0.003)	(2.60E-05)
2003	27.23*	28.76*	13.8**	-5.18	4.43	0.116	-0.028	3.73E-05
	(8.29)	(6.21)	(6.25)	(3.46)	(58.92)	(0.47)	(0.033)	(3.38E-05)
2004	7.59	9.08**	7.94*	-4.69*	135.21*	0.136	-0.016	-2.49E-06
	(5.76)	(4.44)	(2.61)	(2.01)	(49.31)	(0.088)	(0.013)	(8.18E-06)
MEAN	3.89	7.58	-3.34	-1.51	46.45*	0.21*	-0.001	-0.0003
	(6.36)	(5.67)	(8.53)	(1.48)	(27.27)	(0.052)	(0.012)	(0.00024)

TABLE 18: FAMA-MACBETH REGRESSION RESULTS FOR THE NON-FAMILY FIRMS

NON-FAMILY FIRMS	BP	CT	DE	DP	ROA	ROE	TIE	VO
2000	1.65	1.34	0.61	-1.78	-33.85	-0.007	0.065***	3.61E-06
	(10.28)	(5.95)	(2.76)	(2.32)	(46.83)	(0.016)	(0.034)	(2.27E-05)
2001	-16.21*	10.62*	-1.59	1.13	77.76*	0.004	0.002	-8.23E-06
	(5.28)	(3.79)	(2.55)	(1.55)	(23.05)	(0.004)	(0.005)	(1.20E-05)
2002	-6.29***	-7.46**	-1.48	-0.84	85.51*	-0.002	0.002	-1.83E-05**
	(3.53)	(2.98)	(1.92)	(0.99)	(17.23)	(0.013)	(0.008)	(7.17E-06)
2003	9.82	26.59*	-0.95	-3.51	41.63	0.04	0.022	2.61E-05
	(6.47)	(6.41)	(1.49)	(2.59)	(35.59)	(0.17)	(0.052)	(1.50E-05)***
2004	1.9	-1.03	-4.38	8.35	-149.48	0.29	0.016	-1.25E-05
	(9.64)	(11.43)	(8.11)	(7.35)	(95.58)	(0.29)	(0.04)	(2.50E-05)
MEAN	-1.83	6.01	-1.56*	0.67	4.31	0.064	0.021*	-1.9E-06
	(4.41)	(5.91)	(0.81)	(2.06)	(43.87)	(0.056)	(0.012)	(7.86E-06)

5: CONCLUSION

The aim of the paper is to understand the return differences of family and non-family firms and evaluate if some financial advantage can be gained. The characteristics of a family firm set them apart from non-family firms. The costs and benefits usually associated with family firms are part of their operations and might influence their returns. We set up a zero-cost trading strategy of buying the family firm portfolio and selling short the non-family firm portfolio. We use three different asset pricing models to test if this strategy give us an abnormal profit compared to the portfolios mimicking beta risk, size, book to market, market return and

momentum. On setting out the model we find there is a high correlation between the size, book to market and market return mimicking portfolios. Therefore the results of these three factors in the regression cannot be analysed independently. The momentum factor however has very low correlation with other factors. A study of the mean returns of the portfolios of these factors reveals that momentum on the three indices is a profitable strategy.

Using this methodology revealed that for the FTSE All Share and Fledgling firms an abnormal profit could be achieved. This reveals that there is some premium attached to family firm returns compared to non-family firms. On the AIM Index however we find that in the presence of the momentum factor-mimicking portfolio we get an abnormal loss from the strategy. This clearly shows that on the AIM a strategy of buying past winners and selling short past losers is a better strategy. However, most of the results were obtained without taking into consideration transaction costs. Therefore this strategy, i.e. as a trading strategy, may not be successful in the presence of costs.

To evaluate which firm characteristics actually drive these results, we split the sample for comparison into family and non-family firms and a second category of firms on the three indices. We found very clear indications that family firm returns are driven by their growth potential and non-family firms by the risk they take on. However, the interesting discovery was that risk as measured by accounting figures such as Debt-Equity ratio and Time Interest Earned does not behave like other traditional risk factors such as beta.

For the firms on the individual indices, the signs and significance of the factors on the AIM and Fledgling are similar but greatly differ from those of the FTSE All Share firms. The returns of the FTSE All Share portfolio are driven by Dividend Yield, Book to Price and Trade volume. We find that as dividend yield increases it reduces the returns on the portfolio. This may be because the market may feel that the earnings could be better spent. As the trading volume increases compared to its market capitalisation the returns of the portfolio decreases. This is to accommodate the higher costs of trading, so that the net returns (i.e. gross returns net of trading costs) are comparable. As the book to price ratio increases it also increases the returns of the firm as value firms are considered as ‘fallen angels’ and require higher compensation for the added risk.

For the AIM and Fledgling portfolio of firms we find that the returns are mainly driven by their growth potential. The other factor important is the debt-equity ratio, which has a negative impact on returns as it increases. As mentioned earlier this negativity could be a product of its accounting risk rather than market risk. Dividend Yield is also significant but negative as in the FTSE All Share portfolio. Again the market may feel that earnings need to be used for future investments. The other factor, which is not significant but contrary to our results with the FTSE All Share portfolio, is the sign on trade volume. We found a positive sign for the AIM and Fledgling index. As the liquidity increases in this market it will improve returns because these markets are probably quite illiquid to begin with. So trading increases will help in spreading the costs related to trading over each transaction.

The contribution of this research is the finding that family firms can provide a return premium higher than their non-family counterparts. Although it must be acknowledged that transaction costs were not included for any of the analysis and might affect results. However, the objective was to determine if some of the benefits and costs, which are mentioned in family firm research, could actually affect the market returns of the firm. Secondly we have provided further understanding of the factors that affect the returns of 'quoted' family firms and their matched non-family firms. This has identified important characteristics that investors should be looking at, when they consider investing in family firms. Through our analysis of the individual indices we were able to determine interesting differences in the factors that influence returns. However, a more detailed examination of the differences between family and non-family firms on each of the indices could reveal further interesting points. This was not possible because of the small sample size in each individual index.

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