Fama and french: corporate finance assignment

Business

Studying the time lag from when new Information Is published to the change In the security price can suggest efficiency; the market Is efficient If the time lag Is short, indicating that Information Is integrated into stock prices very quickly. There are three defined forms of efficient market hypothesis. A market is weak form if all information built into previous prices is also incorporated into the security price (Bradley et a', 2008). The implication of this form is that technical analysis cannot be employed to obtain abnormal returns since all security market data Is already built Into security prices.

A market Is semi-strong form If all security market data and all public Information (e. . Political) have been built into stock prices (Bradley et al. 2008). The implication of this form is that fundamental analysis cannot be used to generate abnormal returns. A market is strong form if all security market data, public information and also private information are built into security prices. The significance of this form is that nobody including insiders can produce Irregular profits.

Male explains market efficiency that " such markets do not allow Investors to earn above-average returns without accepting above-average risks" (Malice, 2003, p. 60). The capital asset pricing model (CAMP) is an equilibrium model of stock pricing. The security market line (SMS) displays the relationship between risk and expected return on an investment and is computed by: E(Ri) = RFC + ;(Ram – RFC). If all securities are priced correctly, the market Is In equilibrium, and all investments are positioned on the SMS.

Ram – RFC specifies the excess return of the market (market risk premium). RFC is the Intercept. It is not possible to obtain excess returns when

Investing in a portfolio that is made up of only risk free assets. The market beta of a security is “ the variance of its return with the market return divided by the variance of the market return,” (Fame and French, 2004, p. 28) and this reveals the magnitude of a security systematic risk. The market portfolio has a beta equal to 1 .

In a competitive market the expected excess return of a security Is proportional to the degree of systematic risk (Bradley et al, 2008) In CAMP, the expected excess returns of a security (dependent variable) is explained utilizing only one predictor, risk premium of market, but is one explanatory variable enough? Fame and French show that average stock returns on firms with small market optimization have been significantly higher than the average returns for “ large cap” firms. Explanations for this result will be explored and whether the findings equal to the “ stock price times shares outstanding” (Fame, 1970, 1578).

Evidence suggests returns can be forecasted from historical returns. Lo and Macmillan (1988) (cited in Fame 1970, p. 1 578) discover that a positive autocorrelation exists for weekly returns on portfolio of NYSE stocks. Furthermore the autocorrelation from small stocks is found to be larger. When autocorrelation is not equal to zero, then future aloes of a variable can be explained by current and past values of its own variable. After shrinking the impact of non-synchronous trading Conrad and Gaul (1988) (cited in Fame 1970, p. 579) obtain evidence that also support the findings of Lo and Macmillan. They determine that the first order autocorrelation of weekly returns from the largest 10% of NYSE stocks between 1962 and 1985 is equal to 0. 09. However those returns from the smallest 40% of stocks

produced a first order autocorrelation of approximately 0. 3. There if both small and large stocks had previously performed ere well, it is more likely that small stocks will produce high future returns than large stocks since small stocks show a stronger positive autocorrelation. Fame and French (1991) (cited in Fame, 1970, p. 591) state that a relationship exists between size and book-to-market equity. Periods of difficulty and reduced stock prices lead to a reduction in the market equity of stocks, causing stocks to have increased book-to-market equity ratios. High book-to-market equity ratios are linked to larger expected returns. For Japanese and US stocks, book-to market equity is a strong predictor of average stock returns. The graph below indicates that small stocks or high book-to-market equity produce a higher return than large stocks or low-book-to market equity, since the intercept of both lines are positive.

Bandier (1988) (cited in Fame, 1970, p. 1 591) indicates that many smaller stocks include those companies with high gearing; this may be due to financial distresses such as the inability to repay creditors on time. Highly geared companies are risky. Bandier notes that there is relationship between gearing and expected return in tests that involve the market betas. When gearing is high, the expected stock returns re also higher. In addition Fame and French (1991) (cited in Fame, 1970, p. 592) suggest that there is a correlation between gearing and book-to-market equity. Gearing reduces the market value of the stock and therefore the book-to-market equity increases, which as previously explained is linked to larger expected returns. Moreover, Remaining (1981) and Bass (1983) (cited in Fame, 1970, p. 1 591) say that small stocks often have high earnings to price ratio, which in turn offer

higher expected rates of return than those stocks with low earnings to price ratio that are associated with lower expected rates of return.

Increased returns have also been associated with seasonal periods such as January. Often termed the “ January effect,” (Malice, 2003, p. 63) in the opening two weeks of the New Year returns have particularly been abnormally high for small stocks. Between 1941 and 1981, average monthly returns between February to December on the CROPS small stock portfolio was 1. 48% and for the S; P 500 was 0. 96%. However for returns during the January only, the CROPS small stock portfolio obtained 1. 34% tama, 1970, p. 588). According to CAMP, excess returns of an asset are explained by the excess returns of the market only. If beta is the only appropriate risk factor, then the size effect on expected returns must be assumed as an anomaly and inefficiency in the market. However, as indicated below, the relationship between beta and average risk premium between 1966 and 1991 has not grown as beta increases as CAMP predicts. Source: F. Black, “ Beta and Return,” Journal of Portfolio Management 20 (Fall 1993), up. 8-18.

The relationship between beta and the average risk premium is flat rather than upward sloping as CAMP predicts, therefore beta is not the only appropriate risk factor. Some investor portfolios with low beta were positioned about the SMS, and Hereford are under-priced since actual expected return ; fair return as predicted by CAMP, alpha is positive. Some investor portfolios with higher beta were positioned below the SMS, and therefore are overpriced since actual expected return ; fair return as predicted by CAMP, alpha is negative.

Consequently the market is in disequilibrium and investors can construct arbitrage portfolios to generate risk free returns due to security misprinting. There are other factors influencing expected risk premium since the locations of the ten portfolios is not supported by CAMP. To conclude, the explanations of the higher stock returns of small stocks versus large stocks known as the size effect, challenges the notion of " random walk" associated with stock prices in efficient markets.

Having shown that expected returns on both small and large stocks exhibit an autocorrelation, are affected by seasonal period and can be explained by variables such as size, earnings to price, book-to-market equity and also gearing, this immediately provides the indication that the market is inefficient. However economists in support of efficient market hypothesis may refuse o accept the above explanations for various reasons, such reasons may include data mining.

With adequate time and data analysis; it is possible to extract virtually any pattern out of data, and therefore relationships between variables may in fact be artificially manufactured and entirely false. Furthermore seasonal effects such as the January period for returns are often eliminated rapidly if any real exploitable opportunity exist (Malice, 2003, p. 72). The graph below supports market efficiency since more than 80% of European equity managers have underperformed in comparison to the MASC.' Europe index (Malice, 2005, p.).

I believe that the higher returns obtained from small stocks versus large stocks do not disprove market efficiency, however employing a CAMP is

flawed since only one independent variable, the market risk premium is used to explain expected returns. However my findings strongly suggest that size and book-to-market equity are important predictors of expected stock returns which also should be incorporated. Therefore the 3 factor model developed by Fame and French will generate a far more market risk premium, size and book-to-market equity. This model accurately reflects all risk factors of expected returns.