Analyzing premium risk behavior of European retail distribution companies in the period 2010-2015

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**Abstract**

This study is a practical case to determine the behavior of companies quoting at different stock markets and comparing those with their respective market indices. Sharpe’s methodology is applied to identify the market line that measures the relationship between each stock value and the market trends. The objective is to identify behavior patterns of the selected companies, quantifying its level of dependence with the market movements. Finally, the assets are classified according to their Beta values as aggressive, defensive and neutral. This study is useful for the financial agents when selecting assets of investment according to the investors risk profile.

**Keywords:** premium risk; stock market; market index; Sharpe’s model; retail distribution companies.

**Introduction**

The present study consists of a practical case to determine the behavior of companies quoting at different stock markets and comparing those with their respective market indices (Suárez, 2005). Sharpe’s methodology is applied to identify the market line that measures the relationship between each stock value and the market trends (Siegel, 1998). The main objective is to identify behavior patterns of the selected companies, quantifying its level of dependence with the market movements. Finally, the assets are classified according to their Beta values as aggressive, defensive and neutral ones. This study is useful for the financial agents when selecting assets of investment according to the investors risk profile (Arguedas, 2012).

**Methods**

The first step consisted of selecting the companies of analysis. We chose a Spanish company (Dia), a French (Carrefour) and a British one (Tesco). The sample of companies quote at three different stock markets, due to this fact we employ three different market indicators: IBEX35, CAC40 and FTSE100 for the Spanish, French and British markets.

The information of the time series of market returns and the stocks to be studied will be obtained from the time series of stock prices and the market indices. These series are available for monthly periods www.yahoo.es in the Finance section. For both the market indices and also the shares, we access to "Historical Prices" collecting the trend in months and years, from January 2010 to April 2015, with the exception of the company Dia that started quoting in the market in July 2011.

The annual and monthly return is calculated for both the selected companies and the market indices. Then, we compared the annual and monthly performance of each assets and contrast their relationship with their respective market indices. Thus, the Sharpe’s market model or characteristic line is applied:
\[ ri = \alpha + \beta \times rm + \varepsilon \]

Where:

\( ri \) = return required to the stock or to the company

\( rm \) = market return (average return of all securities) measured by a stock index, for example, the Ibex 35.

The computed returns employed in the Sharpe’s model are annual and monthly ones. As a result, different values of \( \alpha \) and \( \beta \) can be obtained for monthly and annual computations of each company. Also, by applying Ordinary Least Squares (OLS), we obtain the goodness of fit of each market line.

To estimate the OLS Excel spreadsheet was employed, although there are other statistical programs such as SPSS and Statgraphics more complete.

**Results**

The market line employing the monthly returns of the retail distribution companies Día, Carrefour and Tesco are shown in Figure 1, 2, 3 respectively.

**Figure 1. Día Market line**

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<th>Monthly returns</th>
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\[ y = 0.5262x + 0.0226 \]
\[ R^2 = 0.2204 \]

*Source: Own performance*

Figure 1 shows a slight relationship between the market return measured throughout the stock index IBEX35 and Día. The results show Día can be considered a defensive value considering monthly (Beta=0.53) and also annual returns (Beta=-0.25).

**Figure 2. Carrefour Market line**

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\[ y = -0.2543x + 0.3304 \]
\[ R^2 = 0.0236 \]
Figure 2 shows a closer relationship between the market return measured throughout the stock index CAC and Carrefour when considering annual returns compared with monthly returns. The results show Carrefour can be considered an aggresive value considering monthly returns (Beta=1.18) and even more taking annual returns (Beta=2.36).

Figure 3 shows how in annual terms Tesco stock is greater related to the British stock market (measured by the FTSE100) than its trend in monthly terms. As a result, we can identify Tesco as a defensive asset (Beta=0.23; Beta=0.27).
Conclusions
The results show different patterns between the selected companies of retail distribution sector in the stock market. Also, taking into account monthly and annual returns we can clearly identify different trends at each company.

Particularly, Carrefour is classified as an aggressive value, showing a stronger relationship with the market in annual terms than in monthly terms. On the other hand, Tesco becomes a defensive asset due to its independence from the market movements in both annual and monthly terms.

Thus, Día is classified as a defensive asset, highly independent from the market; becoming inverse to the market trend in annual terms.

The estimation of these premium risks becomes a necessary financial tool for the financial agents when selecting assets of investment according to the investors risk profile.

References
www.yahoo.es