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# Evaluating the Effect of Top Management Attributes on the Probability of Default

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**Abstract:** A few studies have focussed on the relationship between the top management team and probability of firm default. This research aims to evaluate the effect of CEO and CFO attributes, as top management, on the firm's probability of default.

The research adopts a quantitative research methodology, of 642 companies on the FTSE all Share index. The findings show that as remuneration and tenure increased the probability of default decreased. This research proposes a regression model that ascertains the causal effect of an increase in the tenure and compensation of the Top Management Team on the Probability of default of a firm over a 3-year period.

The findings will have a direct implication on management tenure and remuneration for firms to reduce their probability of default. This research can be developed further by undertaking a time series analysis of the data to see how the changes over time would affect the relationships.

**Keywords:** Top Management Team, Probability of Default, CEO, CFO, KMV.

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## 1. INTRODUCTION

The global financial crisis proved to be a difficult trigger point for many companies and eventually played a big role in the collapse of many. The landscape of the UK high-street retailers has been continuously changing with each year providing a further challenge to these companies. One can argue that the companies that kept afloat within this difficult environment was as a result of strong management skills and management decisions relating to various aspects of the business before and during the crisis.

There have been various studies investigating different management attributes and their relationship with the performance of a firm. However, only a few studies have focussed on the relationship between the top management team and probability of firm default. A majority of the focus within the top management team has been on the CEO and Chairman with few studies focusing on the role of the CFO. This research aims to evaluate the effect of CEO and CFO attributes, as top management, on the firm's probability of default. A similar research within the UK environment has not been undertaken before highlighting the gap within the literature this research aims to address.

This study uses the Merton's Distance to Default (1974) model to measure the probability of default of firms. The study will then aim to measure the correlation between the management (CEO and CFO) tenure, compensation and the default probability of the firm (as measured by Bloomberg 3Year default probability). The Bloomberg probabilities of default are calculated based on the principles of the KMV model along with some further factors.

Tenure and compensation for the purpose of the study is the sum of the individual tenures and compensation of the CEO and CFO. This was primarily done to reduce collinearity within the regression model as the tenure and compensation between the CEO and CFO showed a significant positive correlation.

In practice the relevance of the study is of importance to corporate stakeholders especially shareholders, managers and regulators. It provides some evidence on any particular management team attributes that would support a firm undergoing financial distress or on the other end of the spectrum provide evidence to support that there is no relationship between a financially distressed firm's performance and management attributes. This would then provide motivation for further research to explore what other

operational attributes could have an impact on a financially distressed firm.

**2. AIM AND OBJECTIVES**

The aim of this research is to identify if there is a relationship between the joint tenure of the TMT and the probability of default.

The specific objectives are:

- To identify the relationship between the joint tenure of the Top Management Team and the firm’s probability of default
- To identify the relationship between the joint compensation of the Top Management Team and the firm’s probability of default
- To provide a regression model to explain the relationship between the variables and the default probability
- To identify other top management team variables that have a significant impact on the probability of default

**3. RESEARCH GAP**

There is very little research focusing on the impact of the Top Management Team on the probability of default. The research that has been undertaken mostly focuses on the CEO and Chairman as the top management team, however this research pursues the top management team as the CEO and CFO. In addition, a similar research for UK companies has not been undertaken before.

*Memba and Nyanumbajob (2013) identified the following causes of Financial Distress in their study:*

Rank	Financial Distress Cause	Weighted Mean Score
<b>Most Significant Causes</b>		
1.	Improper Capital Decision	4.5465
2.	Inadequate Financing	4.4884
3.	Lack of Access to Credit	4.4651
4.	Shortage of Skilled Manpower	4.3372
5.	Highly Geared	4.2558
6.	Poor Accounting Records	4.1860
7.	Poor Internal Management	4.1395
<b>Significant Causes</b>		
8.	High Turnover of Workers	3.9767
9.	Dividing Productivity & Profitability	3.7093
10.	Financial Indiscipline	3.3721
11.	Lack of Proper Keeping Financial Records	3.3488
12.	Poor Management Succession	3.1512
13.	Policy Changes of Government	3.0233
<b>Insignificant Causes</b>		
14.	Inadequate Financial Control & Lack of Awareness	2.8488
15.	The Business is in Price War	2.4651
16.	Low Price Overseas	2.1628
17.	Counter Party Defaults	2.1047
18.	Poor Customer Loyalty to the Product	2.0698
19.	Contingent Problem	1.8372

**4. LITERATURE REVIEW**

There have been various studies investigating different management attributes and their relationship with the performance of a firm, such as the negative relationship between the probability of management turnover with firm performance and with stock returns (Warner et al., 1988; Coughlan and Schmidt, 1985; Kim, 1996 and Weisbach, 1988).

Vo and Phan (2013), a Vietnamese study, found that female board members, duality of CEO (boards chairman also the CEO), boards working experience and boards compensation all have a positive correlation with a firm’s performance. However, Clarke, Lindorff and Johnson (2013), an Australian study, found no relationship between the education qualification of the CEO and the firm’s performance.

There is little research on the relationship between management attributes and firm default risk. Significant accounting scandals, such as Enron and WorldCom, have brought firm default risk in to more public light. The few studies linking top management attribute and financial distress showed some interesting results. Kallunki and Pyykko (2012), a Finnish study, found that CEO’s and Directors past personal default entries increased the likelihood of the future financial distress of the firm. It was also further noted by Galloway and Jones (2006) that firms in financial distress usually did not prepare at all for top management succession.

The top seven (Most Significant) causes could easily be related to management decisions showing the strong relationship between financial distress and the top management of a firm.

Memba and Nyanumbajob (2013) further identified the effects of Financial Distress as follows:

Rank	Item likely to be affected	Mean Average Score
1.	Management Turnover / Management Replacement	4.6793
2.	Employees	4.5411
3.	Dividends	4.3588
4.	Corporate Social Responsibility	4.3248
5.	Lenders	4.1827
6.	Suppliers	4.0032
7.	Investors	3.9625
8.	Retained Earnings	3.8273
9.	Market Share	3.6772
10.	Government	3.4231
11.	Customers	3.1537
12.	Value Of The Firm	3.0299
13.	Ownership Structure	2.7321
14.	Shareholders	2.2719

This shows an important impact of financial distress and at the top of the list is Management turnover/Management replacement. This strongly suggests that the responsibility and impact of financial distress lies with the top management team. This indicates that top management team should help a financially distressed firm perform better (relative to other financially distressed firm).

Memba and Nyanumba Job (2013) also identified the following endogenous and exogenous variables as a conceptual framework for their study:

2.5. Conceptual Framework

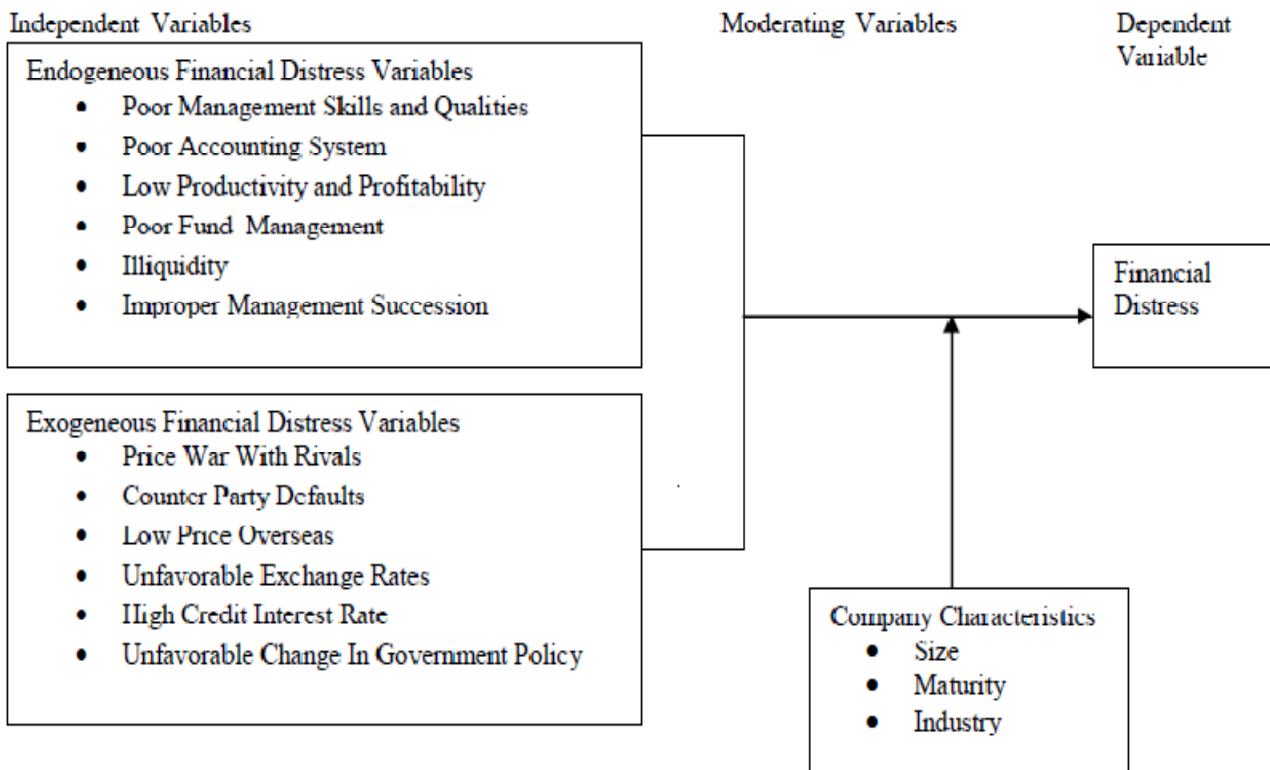


Figure 1: Conceptual Framework

Research showed that firms facing financial distress not only had a higher probably of management turnover but there is improvement in the firm's performance after a change in the top management which in turn increases value. This was supported by the findings of Denis and Denis (1995) and Huson et al. (2004) who found substantial improvement in firm performance after the top management were replaced following poor firm performance. Assessing performance with the probability of default or default risk, Ting (2011) found that the risk of default was higher prior to top management turnover and lower than other firms after the replacement.

There is also research associating management turnover, fraud and probability of default. Sun and Zhang (2006) found that firms associated with fraud have higher management turnover than a matched sample of non-fraud firms. This could be down to managers of firms facing financial distress are likely to undertake accounting misrepresentation to show the firm in better light. A study of financially distressed firms showed that majority of the firms with top management turnover were either in default on debt or declared bankrupt. (Gilson. 1989; Ofek, 1993; and Gilson, 1989).

A majority of these studies only focus on financially distressed, bankrupt or fraudulent firms. For stakeholders it is more important to be able to accurately predict the probability of non financially distressed, bankrupt or fraudulent firm to default. And although there are well established measures for the measurement of the default its relationship with the top management team is not clear. This research focuses on not just financially distressed or bankrupt or fraudulent firms but all firms listed on the FTSE All Share Index.

Another unique focus of this study is that of the role of the CFO and the impact of the attributes of this role on the firm's probability of default. This research uses default probabilities predicted by the KMV model developed from the Black and Scholes (1973) and Merton (1984) option pricing model.

Agrawal, Goldie and Huyett (2013) highlighted how the role of the CFO has changed over the years and has moved beyond the core responsibilities. Many CFOs play a stronger role in corporate portfolio management and capital allocation while others play an important role as representatives of the company to investors and to the board, as leaders in performance management, and as exporters of finance-experienced personnel to the rest of the organization. The CFO is integral to all decisions that feed into the various indicators that help predict the probability of the firm default (examples: capital structure, sources of finance, pricing of securities, investments etc.)

The "CFO typically oversees the firm's financial reporting process and therefore he/she likely has the most direct impact of all the senior managers on the accounting related decisions

of the firm, such as choosing accounting methods and making accounting adjustments" (Mian 2001; Geiger and North 2006; Gore, Matsunaga, and Yeung 2008). This provides a strong argument to analyse the impact of the CFO attributes of financial distress as their growing role has direct relevance to the performance of the firm.

The following Hypothesis is predicted:

H1: A negative relationship exists between firms default risk and Top Management Team joint tenure

H2: A negative relationship exists between firms default risk and Top Management Team joint compensation

## 5. METHODOLOGY

The research adopts a quantitative research methodology commencing with a Univariate analysis of the key variables, followed by a bivariate analysis, which feeds, into a regression model to undertake a multivariate analysis. Data on probabilities of default as computed by Bloomberg probabilities of default (developed from the KMV model) for 9 months, 1 Year, 2 Year, 3 Year, 4 Year and 5 Year were collected. The probabilities show the likelihood of default of the company of the different periods of time. Compensation and Tenure of the CEO and CFO for 642 companies for the FTSE All Share Index was collected as on 18th August 2015. The sum of each variable was then taken as a joint Tenure and joint Compensation of the CEO and CFO. In addition, data on the companies ROA was collected to provide validity to the data. Vasiliou et al. (2003) found that firms with higher profitability ratios tend to amass less debt than firms that do not generate high profits and they also found that firms with higher debt have a higher probability of default. Therefore, similar results on the ROA will help provide validity to the findings of this research.

## 6. FINDINGS

The following regression model is proposed for this study:

$$BB3YDefault_f = \alpha_f + TMTcomp_f + TMTtenu_f + ROA_f + \varepsilon_f$$

This model ascertains the causal effect of an increase in the tenure and compensation of the Top Management Team on the Probability of default of a firm over a 3-year period. The findings of the regression model show a highly significant causal relationship. The correlation matrix shows a significant negative correlation between the 3 Year probability of default and the joint compensation of the CEO and CFO. The matrix also shows significant negative correlation between the 3 Year probability of default and the joint tenure of the CEO and CFO.

The above findings are validated by the results of the significant negative correlation achieved between the ROA and the 3 Year probability of default. This result is in agreement with findings of earlier research as highlighted above.

Some other interesting findings were achieved as a result of the additional variables focused on. There was a significant negative correlation between Bloomberg 9 month, 1 Year probability of default and the compensation of the top management team. There is also a significant negative relationship between Bloomberg 2 Year, 3 Year, 4 Year, 5 Year probability of default and top management team Tenure & Compensation

Both T-test and ANOVA show a significant association between Bloomberg 9 Month, 1 Year, 2 Year, 3 Year, 4 Year, 5 Year default probability and CEO Promoted Within the Company. The findings showed that the companies where the CEO was promoted from within the company had an overall lower probability of default compared to where this was not the case.

The Mann-Whitney U Test rejected the null hypothesis for the association between Bloomberg 6 Month, 9 Month, 1 Year, 2 Year, 3 Year, 4 Year, 5 Year and the CEO on the board and former CEO on board. This shows that there is a significant relationship between the probability of default and the presence of the current CEO and former CEO on the board. The interesting finding here was that firms where the former CEO was on the board on an average had a lower probability of default which is interesting as this is not in agreement with good corporate governance practice.

This could possibly be explained by the experience/knowledge of the former CEO adds value to the firm. It could also act as a monitoring/support mechanism for the new CEO and help maintain the performance of the firm. However, this could also be due to firms facing financial distress usually replace their top management team and therefore if the CEO has voluntarily completed the term and serving on the board then the firm is not in financial distress. This finding does require some further research to identify the precise reasons behind it as this will help future governance best practice.

Hence, we accept both Hypothesis 1 and 2 as true i.e. a negative relationship exists between firms default risk and Top Management Team joint tenure; and a negative relationship exists between firms default risk and Top Management Team joint compensation

## 7. LIMITATIONS/SCOPE FOR FURTHER RESEARCH

There are some specific limitation of this research which can be overcome by further research. Firstly, the research analyses data from a point in time, however stronger results will be

achieved undertaking a longitudinal study. Some further variables such as Chairman (Compensation/Tenure) and other governance variables representing the Top Management Team can be considered. A doctoral study is currently being undertaken to pursue the broad topic of this study and these limitations will be overcome in the research.

## 8. CONCLUSION (300 WORDS)

This research provides both academics and practitioners with a different perspective of the top management team and their effect on a firm's probability of default. The findings should help develop discussions for policy makers around governance issues, more specifically the term and remuneration. The findings show a significant negative relationship between the joint compensation and tenure of the Top Management Team (CEO/CFO) and the firm's probability of default. This has some significant implications as governance and firms try to reduce terms of individuals in a role and as there is further public scrutiny over executive remunerations.

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