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## Is there an optimal board structure? An analysis using evolutionary-algorithm on the FTSE Bursa Malaysia KLCI

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### Abstract

Optimal board structure suggests a firm can operate efficiently and experiences better firm performance, given its board composition. We explore whether in-sample (pre-Global Financial Crisis) companies with optimal board—which subscribes to the corporate governance best practice—dominates the so-called non-optimal board firms, and if they remain the best companies out-of-sample (Global Financial Crisis period). Using two common measures of accounting performance—return on equity (ROE) and earnings per share (EPS)—we utilize evolutionary algorithm to optimize board compositions of CEO duality, board size and independent, non-executive directors. Out-of-sample, our results indicate that optimal board firms outperform their non-optimal counterparts in terms of the ROE and EPS, although insignificant. We argue that while board composition is a popular corporate governance measure, determining an optimal board structure for superior firm performance might be elusive.

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### 1. Introduction

Investors perceive favourable event or condition to affect firm performance positively. As a result, they trade stocks or build optimal portfolios that attempt to benefit from these criteria. One such criterion is corporate governance (CG). Indeed, over the past decade, its importance for investment decision making is acknowledged, for

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example, by mutual funds that construct and market real-life portfolios of companies with good CG. Furthermore, a number of studies show that higher corporate governance scores lead to higher firm values (e.g. Gompers, Ishii and Metrick, 2003; La Porta, López-de-Silanes, Shleifer & Vishny, 2002).

In this study, we explore whether optimal board firms prior to the Global Financial Crisis (GFC) dominate the non-optimal board, and if they remain the best firms in the holdout sample (GFC) period. Our definition of board structure (also called board composition) is based on the descriptions made by Tricker (1994) and Zahra and Pearce (1989), among others. In short, we focus on whether role duality is present among the CEO and chairman of the board, the number of board members, as well as directors who hold independent, non-executive functions. The roles of the board of directors are to monitor and advise the management of the firm. A good CG is therefore expected to guide the conduct of the board of directors to the interests of shareholders and this increases firm value (Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Yet a question arises on what constitutes an optimal CG that brings about superior firm performance. For example, the latest Malaysian Code on Corporate Governance (MCCG, 2012) merely comprises of broad principles and recommendations of best practices. Specifically, whilst there is a recommendation on the split of duties between chairman and chief executive officer (CEO), the code gives the liberty to determine the board size and constitution of independent, non-executive directors, to firms own circumstances.

In this context, Jensen (1993) states that an optimal board has relatively more independent directors, smaller board size and a dual leadership structure. Existing literature, however, find that the linkage between the above three characteristics with firm performance yield inconclusive results. Firm performance can be linked to smaller (e.g. Yermack, 1996) or larger (e.g. Coles, Daniel & Naveen, 2008) board size; firm without CEO duality (Strickland, Wiles & Zenner, 1996), or the leadership structure is insignificant to firm performance (e.g. Dalton, Daily, Ellstrand & Johnson, 1998); board with higher proportion of independent directors (e.g. Rosenstein & Wyatt, 1990) or no association (Klein, 1998). In this study, we attempt to design two optimal portfolios of CG that maximize accounting performances, in the Bursa Malaysia. While prior studies typically focus on using linear regression, we contribute by taking one step further—by building optimized portfolios in-sample for out-of-sample validation.

The rest of this paper is structured as follows. Section 2 presents the data and method. Section 3 provides the results and discussion. Section 4 concludes and discusses the implications.

## **2. Data and Method**

### *2.1. Data*

We use the data of 30 firms from the FTSE Bursa Malaysia KLCI during the years 2006 to 2009. The four-year sample period is further divided into two non-overlapping subperiods: 2006-2007 (pre-GFC) and 2008-2009 (GFC period). Such period and partition allow us to explore whether firms with optimal boards can outperform those with non-optimal boards, and if they remain the best performing firms even during a different market phase. Table 1 shows the in-sample and out-of-sample statistics for EPS, ROE, DUAL, INED and BSIZE.

Some comments can be made on the statistics. DUAL shows that most of the sample firms are led by different persons who hold the CEO and chairman positions, and this is consistent with the MCCG (2012) recommendation for separate top leadership. Board size ranges from four to 13. A mean of nine directors is in line with the proposal made by Lipton and Lorsch (1992) for effective board. On average, over 40% of the directors hold independent, non-executive roles. With the exception of skewness in INED, the mass of distribution and relative peakedness in the factors are consistent (in regard to signs) during both periods, although kurtosis increased considerably for EPS during the financial crisis.

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