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# On the effect of CEOs' personal characteristics in transport firm value? A stochastic frontier model

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#### ABSTRACT

The aim of this paper is to investigate the effect of managerial personal characteristics on his/her firm value. Especially, we seek to determine the impact of CEOs' age, education nature and tenure on their firm value. In fact, we try to explain why transport firms do not arrive to trade in their optimal value summarized by the Tobin-Q. Using a stochastic analysis frontier model, we generate the optimal firm value that a transport firm can realize if their CEOs act in a full rational way and use their production factors in optimal manner ( $Q^*$ ). We try then to explain the shortfall on firm value that represents the difference between the optimal firm value ( $Q^*$ ) and its observed value (Q). The shortfall ( $Q^* - Q$ ) represents the inefficiency term on transport firm value and it is explained by CEOs' characteristics. Departing from a sample of 53 transport firms from a multinational context publicly traded from 2000 to 2011, our results show that CEOs' age and technical education can reduce the shortfall and so increase firm's value while a long tenure of CEOs can reduce the firm value. Transport firms should be aware that CEOs' personal characteristics can largely affect their value and policy makers are invited to provide the optimal CEOs' characteristics that can avoid such distortions on firm value.

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#### 1. Introduction

How a top executive manager in transport firms affects corporate value? The transport literature largely ignored this question while there are some answers from the financial literature since it has been assumed that economic agents and CEOs are fully rational and so manager personal traits cannot affect firm value. The financial literature mainly refers to four theories in order to answer such interrogation: the agency theory (Jensen and Meckling, 1976; Jensen, 1986), the asymmetric information theory (Myers and Majluf, 1984), the corporate governance theory and the behavioral finance which document that some psychological, emotional and cognitive factors can be used to explain distortions on corporate policy and value (Heaton, 2002; Malmendier and Tate, 2005a, 2005b, 2008; Lin et al., 2005; Huang et al., 2011; Campbell et al., 2011).

The determinants of firm's value are dominated by factors that refer to the firm level or the market level but the existing literature

largely ignore the possible role that individual managers may play (Bertrnard and Schoar, 2003). Recently, a wave of research papers focus on the effect of CEOs' personality traits on their decision making (Bertrnard and Schoar, 2003; Hackbarth, 2008; Heaton, 2002; Malmendier and Tate, 2005a,b, 2008; Lin et al., 2005; Huang et al., 2011; Campbell et al., 2011; Ben Fatma et al., 2013; Baccar et al., 2013; Ben Mohamed et al., 2012, 2014a). Their results document that managerial trait of personality can largely affect their management style (Bertrnard and Schoar, 2003), corporate investment decision (Heaton, 2002; Malmendier and Tate, 2005a, 2005b; Lin et al., 2005; Huang et al., 2011), firm's capital structure and financing decision (Hackbarth, 2008) and firm's acquisition strategy acquisition (Malmendier and Tate, 2008). A key feature in the existing literature is the absence of studies regarding the effect of such personality traits on firm value. Hence, this paper contributes to the transport literature by investigating the effect of some CEOs' personal characteristics on firm value.

In this paper, we explore the effect of CEOs' personal characteristics, other than behavioral factors, on firm value.

The contribution of this paper on the transport literature is that this is the first paper that seeks to explain why the firms, that operate in the transport sectors, do not arrive to trade in their

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optimal value summarized by the Tobin-Q. In fact, we use a stochastic frontier model in order to generate the optimal value that a transport firm can realize if their CEOs act in a rational manner and use the production factors in an optimal way  $(Q^*)$ . We then try to explain the shortfall  $(Q^*-Q)$  that represents the distance between the current transport firm value (Q) and the optimal firm value  $(Q^*)$ . More specifically, we tend to demonstrate the effect of managerial characteristics such as his/her age, education nature and tenure on transport firm value.

The remainder of this paper proceeds as follows. In Section 1 we present review around the potential effect of CEOs' personal characteristics on firm value and we formulate our hypothesis. In Section 2 we introduce our approach, model and variables. In Section 3 we describe our database and it sources. Section 4 presents and discusses our results. Finally, Section 5 concludes.

#### 2. Literature review and hypothesis development

The relationship between CEOs' personal characteristics and transport firm value was largely ignored in the financial and economic literature. The existing literature only gives insights on the effect of managerial trait of personality on his/her corporate decision. The originality of this paper is guaranteed since the existing literature on public transport and on transportation sciences are still discussing the efficiency of transport firms and explaining the sources of inefficiency.

The literature on assessing efficiency or, more generally, public transport efficiency is extensive. Analyses have focused both on developing methods for assessing public transport efficiency and on using efficiency findings to make different policy recommendations (Karlaftis and Tsamboulas, 2012). Such efficiency assessment studies have been very popular in public transport literature in a large part because of the interest in reforming public transport operations and assessing the effects of these changes on efficiency. On this subject, Jarboui et al. (2012) offer an interesting overview.

Our research aims to investigate if these traits can affect firm's value. We focus mainly on the CEO's age, CEO's financial education, CEO's technical education, and his/her tenure, traits that are still unexplored in the transport literature. This literature mainly focuses on how technology and financial variables can affect transport firms' efficiency.

#### 2.1. CEO's age and transport firm value

Taylor (1975) argues that older decision makers tend to take longer time to reach decisions. He finds that older decision makers were able to diagnose the value of information more accurately than younger decision makers. A key feature in their empirical conclusion is that older decision makers were shown to be less affected to their overconfidence bias, a trait that positively influences their decision making quality. Ben Mohamed et al. (2012) show that CEO's optimism decreases with manager's age. They argue that older CEOs are supposed to be more rational since they have a long experience. The same idea was adopted by Taylor (1975) who finds that decision makers' age increases the performance of their decision making. Ben Mohamed et al. (2012) demonstrated that CEO's age can reduce the probability and according to it the manager will be frapped by optimism bias. Shefrin (2001) affirms that personal risk aversion appears to increase with age and it may decline after the age of 70.

Many studies suggest that the age of the CEO can have an important effect on corporate financial policy choices, firm performance, and the existence of agency costs within a firm. Davidson et al. (2006) as well as Wiersema and Bantel (1992) argued that age influences duality. Age can, expectedly, positively relate to duality as human capital accumulates through years of experience.

Holmstrom (1999) and Scharfstein and Stein (1990) developed market learning models, which lead to the prediction that younger CEOs are more risk averse and, therefore, invest less aggressively than older CEOs. In sum, we can predict that older CEOs will act more rationally and so they can contribute to an increase in transport firm value. Hence, we can hypothesis that:

H<sub>1</sub>. Transport firm value increases with CEOs' age.

#### 2.2. CEO's background and Transport firm value

Academics show some interest on how CEO's education influences their firms (Gottesman and Morey, 2010). A key feature in this literature is that they are divided into studies which examine the type of education and the firm's behavior (Tyler and Steensma, 1998; Finkelstein and Hambrick, 1996; and Barker and Mueller, 2002; Graham and Harvey, 2001, 2002; Graham et al., 2005) while the second branch essays to investigate the effect of CEO's education on firm performance (Deary, 2004; Frey and Detterman, 2004; Ben Fatma et al., 2015; Ben Mohamed, 2014b). The relationship between this variable and firm value is still unexplored. In order to predict the influence of this variable on firm value we can refer to its effects on managerial decisions.

Baker and Muller (2002) affirm that CEO's background is important in her receptivity to innovative ideas and activities. Chen et al. (2011) argue that manager's education level and his professional background are positively associated also with the firm's innovation effort. Deary (2004) and Frey and Detterman (2004) report strong evidence on the positive impact of CEO's education on firm's performance while Tonello and Torok (2011) finds no strong evidence of a relationship between CEO's education and firm performance. In his study, he found that only the CEOs having a MBA degree from a Top 20 business school enabled better operating performance and Tobin's Q.

Malmendier and Tate (2005a) argue that CEO's financial and technical education can affect investment cash flow sensitivity. Ben Mohamed et al. (2012) demonstrated that especially CEO's technical education can succeed to reduce managerial optimism and its effects on corporate distortions among NYSE manufacturer firms during 1999–2010.

More recently, a study by Ben Mohamed et al. (2012) shows that CEOs' education can positively affect the quality of corporate decisions, and it can reduce the bad effects of managerial optimism. In fact, they demonstrate that CEOs' education can reduce irrationalities in corporate decision making.

Financial education represents a dummy variable that takes one if CEO has undergraduate and graduate degrees in accounting, finance, business and economics. Technical education is a dummy variable and it takes one if CEO has a graduate or undergraduate degree in engineering, physics, operations research, chemistry, mathematics, biology, pharmacy and other applied sciences. We can so hypothesize that:

 $\mathbf{H_{2a}}$ . CEO's financial education increases transport firm value.

 $H_{2b}$ . CEO's technical education increases transport firm value.

#### 2.3. CEO's tenure and transport firm value

Firm value plays a crucial role in CEO turnover research: on one hand, performance is viewed as a proxy for CEO effort and, therefore, the likelihood of CEO turnover is expected to increase following financial distress and performance decline. On the other hand, the relationship between CEO turnover and company performance is viewed to mirror the efficiency of the firm's governance mechanisms as the turnover performance sensitivity is

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