Capital Structure Choice and Firm Value: New Empirical Evidence from Asymmetric Causality Test

Kartal Demirgüneş[1]

[1] Faculty of Economics and Administrative Sciences, Ahi Evran University, Kırşehir, Turkey

Correspondence: Kartal Demirgüneş, Faculty of Economics and Administrative Sciences, Ahi Evran University, Kırşehir, Turkey. Tel: 90-542-688-0051.

Received: February 19, 2017 Accepted: March 2, 2017 Online Published: March 14, 2017

doi:10.5430/ijfr.v8n2p75 URL: https://doi.org/10.5430/ijfr.v8n2p75

Abstract

This study aims to analyze the possible asymmetric causal relationship between capital structure and firm value by employing the asymmetric causality test of Hatemi-J (2012), on a time series data of Turkish manufacturing industry (consisting of Borsa Istanbul listed manufacturing firms) for the period of 1990.Q1-2015.Q4. Test results point out a unidirectional asymmetric causal relationship between capital structure and firm value, indicating that capital structure Granger-cause firm value when shocks are negative, but not when shocks are positive. More explicitly, a decrease in total debt ratio leads to a decrease in the market-to-book value ratio. Considering the effect of only negative shock, this empirical finding also supports *partial* evidence to the validity of trade-off theory which predicts a positive relationship between debt level and firm value.

Keywords: capital structure theories, trade-off theory, pecking order theory, firm value, asymmetric causality

1. Introduction

Before the late 1950s, the conventional finance theory defended that a moderate debt financing increases firm value, as it is less costly compared to equity financing, implying U-shaped cost of capital function of leverage. In 1958, a new theory by Modigliani and Miller (hereafter MM), asserting that firm value is completely independent of its capital structure (choice), opened a new era in corporate finance. Forming the basis for modern thinking on capital structure, MM (1958)'s capital structure irrelevance theory is clearly seen as one of the cornerstones in the modern finance theory. However, due to its set of some unrealistic and very restrictive assumptions which do not hold in the real world and contradiction to main assumptions of mainstream academic finance, MM (1958)'s irrelevance theory has always been debatable, paving the way for the emergence of alternate capital structure theories.

The emergence of alternate capital structure theories is mostly related to researchers' attempts on introducing additional rationalizations for the irrelevance proposed by MM (1958) by relaxing its very restrictive assumptions, emphasizing that the capital structure choice may somehow be relevant to (or may directly and/or indirectly affect) firm value. To date, many theories with their extensions (models) have been proposed on capital structure relevancy focusing on optimal use of debt, as point of origin. These widely accepted theories may broadly be categorized into trade-off [proposed by Modigliani and Miller, 1963; Kraus and Litzenberger, 1973; Jensen and Meckling, 1976; Scott, 1976; Miller, 1977; Kim, 1978; DeAngelo and Masulis, 1980; Grossman and Hart, 1982; Bradley et al., 1984; Jensen, 1986; Diamond, 1989; Harris and Raviv, 1990; Stulz, 1990; Chang, 1999]; and the pecking order [Myers, 1984; Myers and Majluf, 1984] theories. Though their extensions are yet limited, signaling (Ross, 1977) and market timing (Baker and Wurgler, 2002) theories may be considered among relatively new capital structure theories. As more new theories and their extensions are also expected to be proposed as a consequence of the evolution in capital structure related studies, it can obviously be declared that neither the debate on the empirical relationship between capital structure choice and firm value is still truly clarified or conclusive nor is a consensus on it, even after about 50 years from MM (1958)'s pioneering theory. According to Titman and Wessels (1988), one possible reason why empirical studies in this area have lagged behind the theories is because variables related to firm attributes embedded in research models are expressed by fuzzy and not directly observable concepts. Deesomsak et al. (2004), Beattie et al. (2006), and Al-Najjar and Taylor (2008) also provide supportive empirical evidence on the incompleteness and inconclusiveness of understanding capital structure theories.

This paper that aims to analyze the possible asymmetric causal relationship between capital structure and firm value, addresses two-fold problem. The first is to provide an insight into the relationship between capital structure choice and firm value in an emerging market. While literature on the mentioned relationship is immense in developed markets such as United States (US) and Europe, the body of knowledge related to emerging markets (such as Turkey) is quite limited (Ebaid, 2009; Haron, 2014; Jaros and Bartosova, 2015). Studies of Chhibber and Majumdar (1999) on Indian firms; Chiang et al. (2002) on Hong Kong construction firms; Abor (2005; 2007) on listed firms in Ghana and South Africa; and Zeitun and Tian (2007) on Jordan firms are the rare ones constituting this body. Compared to developed markets, emerging capital and stock markets are relatively less efficient and incomplete with higher level of information asymmetry and considerable degree of irregularity (Eldomiaty, 2007). These adverse conditions lead an unfavorable financial environment in emerging markets that necessitates reconsideration of capital structures theories which mostly focus on the effect of optimal use of debt on firm value from their perspectives. The second is about the complexity inherent in the optimization process of capital structure theories. As stated by Myers (2001) that there does not exist any universal capital structure theory and any reason to expect one, the outcomes of capital structure theories are valid only under certain conditions and with restrictive assumptions. Therefore, these theories should be empirically readdressed by more complex statistical methodologies. This study tries to fulfill this gap by empirically testing the relationship between capital structure choice and firm value by Narayan and Popp (2010) unit root test with two structural breaks and the asymmetric causality test of Hatemi-J (2012).

The rest of the study is as follows: in section two, the theoretical background and empirical literature on capital structure theories are reviewed. Section three is about methodology and presents data, variables, the research model and empirical findings. Section four concludes and associates empirical findings with the finance theory.

2. Theoretical Background and Empirical Literature

2.1 Trade-off Theories

The capital structure of a firm is the mix of debt and equity used by the firm to finance its operations. Consequently, the capital structure choice is considered as one of the most important financial decisions confronting the firm Glen and Pinto (1994). Begun with the seminal paper of MM (1958), the debate on the relationship between capital structure choice and firm value has centered on whether there exists an optimal capital structure or at least a target capital structure or not. While optimal capital structure is the debt-equity mix that maximizes the firm value as defined by Weston and Brigham (1996), target capital structure is the financing mix toward which firms move their capital structure over time (Frydenberg, 2011).

MM (1958)'s theory of capital irrelevance has two propositions stating that (1) in (competitive, frictionless and complete) perfect capital markets with homogenous expectations, no taxes and no transaction costs, firm value is a constant, regardless of the proportions of market values of debt and equity; and (2) the weighted average cost of capital is also a constant, in other words, capital structure of a firm has no effect on its weighted average cost of capital [see Fama (1978) for the requirements of MM (1958)'s first proposition]. However, the very restrictive assumptions of this original theory that do not hold in the world led MM (1963) to adjust their earlier proposition by incorporating tax benefits as determinants of capital structure of firms. By this adjustment, MM (1963) do not only propose that firms should finance their operations by as much debt as possible to maximize their value, as interest paid on debt is a tax-deductible expense; but also, provide a basis for the emergence of trade-off theories of capital structure.

The idea behind trade-off theories of capital structure is that firm has options on choosing an optimal debt-equity mix to finance its investments by balancing related costs and benefits. These theories can be categorized into two groups as static and dynamic trade-off theories. Static trade-off theories suggest that the benefits versus costs of debt such as tax savings versus direct and indirect bankruptcy costs are traded off against each other and the firm determines an optimal capital structure to a specified point, where marginal costs of debt and equity are equal. The notion static here implies focusing on only a single period decision. Static trade-off theories lack of target capital structure adjustments in the long run, because in these theories firm's debt ratio is determined by considering only a single period trade-off.

In the original version of the static trade-off theory by MM (1963) and its ancestors by Kraus and Litzenberger (1973), Scott (1976) and Kim (1978), only the corporate tax benefits of debt has been in the foreground. According to these theories, the levered firm's value is higher than the unlevered firm's value depending on the amount of debt tax savings. Miller (1977) extends these previous versions of the trade-off theory by considering both corporate and personal tax benefits together, and implies that the effect of debt on firm value might be much more than when only corporate tax benefits are considered. In another extension, DeAngelo and Masulis (1980) analyze leverage-firm value relationship from the perspective of non-debt tax shields such as depreciation deductions, investment tax credits and depletion allowances. They conclude the existence of negative relationship between leverage and non-debt tax shields, and positive relationship between leverage and corporate tax rates.

Apart from these tax-based trade-off theories, some other types of debt related costs such as bankruptcy and agency costs are also taken into account in empirical studies of Scott (1976), and Jensen and Meckling (1976). Scott (1976)'s study, though it resembles Kraus and Litzenberger (1973)'s and Kim (1978)'s studies in terms of considering only corporate taxes, also deals with bankruptcy costs. According to Scott (1976), a non-bankrupt firm's future expected earnings and assets' liquidation value determine its market value. He also concludes the existence of a positive relationship between the optimal capital structure of the firm and its assets' liquidation value, the corporate tax rate and size. Weighting the agency costs against the tax benefits of debt, Jensen and Meckling (1976)'s agency theory argues the existence of an optimal capital structure with minimal agency costs. Their theory is based on two types of agency costs as agency costs of equity and those of debt, resulting from two types of conflicts between outside stockholders and managers, and those between stockholders and debtholders. Agency costs of equity are an inevitable consequence of delegation of financial and decision making rights of (mostly dispersed) stockholders holding well-diversified portfolios to corporate managers, because this delegation eventually leads managers to act on their own interests conflicting with those of outside stockholders. Though Rozeff (1982) and Easterbrook (1984) suggest to increase dividend payments as an alternate to reduce agency costs of equity, Jensen and Meckling (1976) propose two other ways: increasing managers' common stock ownership in the firm and boosting use of debt. However, the latter proposition contradicts with the former one giving rise to agency costs of debt, as higher debt ratio means lower equity financing. Besides, stockholders may transfer wealth from debtholders to themselves by bidding them less-risky projects but undertaking the risky ones (Jensen and Meckling, 1976: 335). As Jensen and Meckling (1976)'s agency theory argues the existence of an optimal capital structure with minimal agency costs without assumptions related to both taxes and bankruptcy costs, it can be regarded as complementary -rather than competing- to static trade-off theories as it considers debt as a control mechanism.

Another agency cost of debt related capital structure theory considering debt as a control mechanism is the free cash flow theory of Jensen (1986). He defines benefits of using debt in his own words as "control hypothesis" (see Jensen, 1986: 324). As the free cash flows are controlled by firm managers, they may tend to waste firm's resources by allocating them to relatively low-return projects instead of dividend payments, leading possible declines in the stock prices. To overcome this problem of agency costs of free cash flow, substitution of debt for equity is favored, as use of debt reduces the amount of cash controlled by firm managers. This argument on the effect of leverage as a control mechanism is also supported by Grossman and Hart (1982), and Williams (1987) from a different perspective as through the threat of liquidation which eventually causes losses in salaries and reputation of firm managers.

According to the proponents of trade-off theories, relatively profitable firms tend to borrow more to utilize tax advantages, as they have higher income to be shielded. Therefore, the relationship between debt level and such firms' financial performance (in terms of both profitability and market value) is expected to be positive. However, related empirical literature yields mixed results. Though empirical studies of Taub (1975), Givoly et al. (1992), Bos and Fetherston (1993), Petersen and Rajan (1994), Roden and Lewellen (1995), Champion (1999), Ghosh et al. (2000), Hadlock and James (2002), Abor (2005), Mollik (2005), and Berger and Bonaccorsi di Patti (2006) support this expectation; several researchers testing the effects of debt on financial performance have reached contrary results. Fama and French (1998)'s study on the interrelationship among taxation, financing decisions and firm value concludes that excess use of debt does not create any tax benefits due to agency problems resulting in negative relationship between debt level and financial performance. Studies of Kester (1986), Graham (2000), Booth et al. (2001), and Mesquita and Lara (2003) also emphasize the same negative relationship. Myers (1993) considers this inverse relationship between debt level and financial performance as the most devastating evidence contrary to the validity of the trade-off theories. Another serious deficiency of these theories is the inconsistency between the firms' debt ratios predicted by the theories themselves and those of observed in the real world. According to Custodio and Ferreira (2013)'s study on the sample consisting of observations of Compustat firms from 1976 to 2008, the mean debt ratio of US firms is 0.27, a relatively very low ratio compared to what the trade-off theories predict.

Though limited in number, related literature also includes empirical studies on agency and bankruptcy costs. Friend and Lang (1988), and Firth (1995)'s studies on the agency problem proposed by Jensen and Meckling (1976) indicate the existence of negative and positive relationships between debt level and management ownership; and between debt level and external ownership, respectively. Empirical studies on the effect bankruptcy costs on capital structure choice mostly focus on the significance of this effect. Warner (1977)'s study on twenty railroad bankruptcies during the period of 1930-1935 reveals that bankruptcy costs are approximately 1% of a firm's market value long before bankruptcy. However, as time to bankruptcy approaches, these costs acceleratingly increase up to more than 5%.

Studies of Miller (1977), Robertson and Tress (1985), and Pham and Chaw (1989) confirm this finding.

By the beginning of the 1980s, static trade-off theories have begun to become discredited and fall out of fashion due to related incongruent empirical findings, and the era of dynamic trade-off theories have begun. Though the history of dynamic trade-off theories may be dated back to Stiglitz (1973)'s study on taxation, this study is not directly related to corporate finance theory, as the effects of taxation have been examined from the public finance perspective. Therefore, it is more appropriate to mention that the first dynamic trade-off theories of capital structure have been proposed by Brennan and Schwartz (1984), and Kane et al. (1984). These theories weight tax savings against bankruptcy costs under uncertainty, ignoring transaction costs. Though the rationale behind them is as the same as the static ones, they have some distinguishing features. One distinguishing feature is that they consider multiple periods allowing dynamic adjustments in the firm's capital structure. In this regard, firstly Brennan and Schwartz (1984), Kane et al. (1984) and then Fischer et al. (1989) and Lewis (1990) argue the existence of a debt rate corridor within which firm's debt ratio is allowed to float over time. In cases that the debt ratio crosses the bounds of the corridor, firm reactively adjusts its capital structure to the optimal level. This adjustment, as the outstanding characteristic of the dynamic trade-off theories, allows these theories to be used in adoption of their static versions with the other capital structure theories that reject the existence of an optimal (or at least a target) capital structure, such as the pecking order and market timing theories. The adjustment may somehow be costly and its speed may differ. According to Leary and Roberts (2005), and Strebulaev (2007), the effect of adjustment costs is perceived mostly on leverage, rather than on capital structure changes. Therefore, the adjustment is required to be made gradually over time at a certain speed of adjustment, as supported by the extant literature (*see*, Welch, 2004; Kayhan and Titman, 2007; Bessler et al., 2008; and Huang and Ritter, 2009). However, there is no consensus on the magnitude of speed of adjustment. While related studies of DeMiguel and Pindado (2001), Ozkan (2001), Hussain (2005), and Flannery and Rangan (2006) indicate that the speed of adjustment is relatively high, some other studies of Fama and French (2002), and Huang and Ritter (2009) support evidence for relatively low speed of adjustment. The other distinguishing feature is that while the static trade-off theories restrictedly address benefits versus costs of debt such as tax savings versus direct and indirect bankruptcy costs; the dynamic trade-off theories broadly deal with the trade-off between the benefits of debt tax shields and a wide range of diverse debt related costs, including not only bankruptcy costs, but also agency costs and other various costs of debt (Cheng and Tzeng, 2014). Modigliani (1982)'s study as an extension of Farrar and Selwyn (1967) on the interaction between marginal value of debt and inflation, Barnea et al. (1987)'s multiperiod capital structure model on the differential costs of debt and equity financing, and firm growth possibility; and Goldstein (2001)'s study on the option values of shifting leverage related decisions to the next period as the other earlier extensions and studies of Sarkar and Zapatero (2003), Leary and Roberts (2005), Alti (2006), and Hovakimian (2006) as more recent extensions support empirical evidence for the validity of the dynamic trade-off theories of capital structure.

2.2 The Pecking Order Theory

The origin of the pecking order theory dates back to Donaldson (1961)'s book including a survey study on US firms. Refuting the argument of existence of an optimal (or at least a target) capital structure, he suggests firstly internal funds to be used for financing, and following this the preference of debt to equity. The empirical justification of his suggestion is that the insistence on debt financing for profitable firms should be unreasonable and become slighter due to incremental increase in profits, as such profits could be used for financing with minimum cost. Unfortunately, his suggestions were not only paid so much attention, but also faced destructive criticism by some scholars such as Myers (1984), Shyam-Sunder and Myers (1999), and Fama and French (2002). Later on, advancing Donaldson (1961)'s pioneering study, Myers (1984), and Myers and Majluf (1984) have increased the awareness of the so-called the pecking order theory. Though their theory is similar to its originated theory of Donaldson (1961) in terms of financing hierarchy, it differs from its ancestor by incorporating asymmetric information and adverse selection, and signaling problems that have previously been discussed by Leland and Pyle (1977), and Ross (1977).

Myers (1984), and Myers and Majluf (1984) base their theory on the assumptions of perfect capital market, except that only owner(s) and/or manager(s) (insiders) of the firm have true information about the true value of firm's assets and growth opportunities, but the outside investors do not. Therefore, the precise valuation of securities to be issued to finance new investments is unfeasible for the outside investors. As a result of this information asymmetry between insiders and outsiders, market value of firm's new stocks may be undervalued relative to their fair value in non-existence of information asymmetry. In such cases, as issuance of new stocks may destroy existing stockholders' value; financing of new investments will firstly be made by internal resources (i.e. retained earnings), then -if internal resources may remain insufficient- by debt financing over equity financing. Due to this financing hierarchy, the pecking order theory rejects the existence of an optimal (or at least a target) capital structure for firm to be pursued and the debt ratio of the firm reflects the cumulative requirement for external financing decisions, as contrary to trade-off theories. Consequently, the relationship between debt level and firms' financial performance (in terms of both profitability and market value) is expected to be negative for this theory.

Related empirical literature on the pecking order theory also yields mixed results. Studies of Kester (1986) on a comparison of debt policies of US and Japanese manufacturing firms; Krasker (1986), Narayanan (1988), Titman and Wessels (1988), Pinegar and Wilbricht (1989) on US firms; Heinkel and Zechner (1990), Remolona (1990) on US, United Kingdom, German and Japanese firms; Allen (1993) on Australian firms; Koh et al. (1993) on Singapore firms; Griner and Gordon (1995) on United Kingdom SMEs; Kamath (1997) on New York Stock Exchange listed firms; Wald (1999) and Booth et al. (2001) on firms from different countries; Colombo (2001) on Hungarian firms; Fama and French (2002), and recent studies of Bharath et al. (2009), Autore and Kovacs (2010), and Bessler et al. (2011) all provide empirical evidence supporting this theory. In accordance with these empirical findings, Shyam-Sunder and Myers (1999) clearly evaluates the pecking order theory as an excellent first order descriptor of corporate finance behavior. Though it is obvious that the pecking theory is widely accepted, there exists an empirical literature inconsistent with above mentioned empirical findings. For instance, studies of Mikkelson and Partch (1986), Brennan and Kraus (1987), Noe (1988), Constantinides and Grundy (1989), Ang and Jung (1993), and Bos and Fetherston (1993) contradict with assumptions of the pecking order theory. In another study of Frank and Goyal (2003), it is indicated that for US firms, the priority and domination of debt financing over equity financing is not valid and deficits are mostly financed by equity, as contrary to financing hierarchy suggested by the pecking order theory. This finding may be clarified by Zhang and Kanazaki (2007: 34)'s comparison of "ideal vs. reality". The pecking order theory ideally assumes that while relatively small firms having more severe problems with asymmetric information and adverse selection have tendency to finance their deficits by debt, the larger ones having insignificant problems with asymmetric information and adverse selection mostly prefer equity financing. However, the realization is quite different that smaller firms face with more bankruptcy risks and agency problems leading difficulties in debt financing. Therefore, they rely heavily on equity issues rather than debt issues. Contrary to this, relatively large firms with lower bankruptcy risks, more reliable management and easier access to debt financing mostly issue debt to finance their deficits.

2.3 Signaling Theory

In the trade-off and pecking order theories, capital structure serves as part of solution to problems of over- and underinvestment and changes in capital structures of firms cannot be regarded as a signal of quality of their financial position. This inefficacy has led researchers to propose alternate theories in which investment is fixed and capital structure serves as a signal of private insider information (Harris and Raviv, 1991). Ross (1977)'s theory is the ancestor of so-called signaling theory. His theory, assuming that the true distribution of firm returns is only known by managers -not by investors-, states that while firms with favorable prospects can raise additional capital by debt issuance, firms with unfavorable prospects can raise additional capital by equity issuance. Therefore, relatively high debt levels are considered as a signal of higher quality for the firm. Managers of such highly leveraged firms are also considered as successful, as the market overvalues their securities. On the other hand, managers of low quality firms with unfavorable prospects cannot imitate higher quality firms by issuing more debt, because marginal expected bankruptcy costs for any debt level for those firms is higher. Heinkel (1982), Poitevin (1989) and Stein (1992) have extended the signaling theory by using models similar to Ross (1977)'s, but with some different assumptions, concluding that managers' choices of leverage are determined by subjective considerations. Supporting evidence for the signaling theory, Baker and Wurgler (2002), Welch (2004), and Kayhan and Titman (2007) indicate that a firm's capital structure is significantly related to its historical stock prices. Masulis (1980), Baker et al. (2003), and Antweiler and Frank (2006) also support the signaling theory assembling evidence on the positive market reaction on leverage increasing transactions. However, Agrawal and Mandelker (1987), Friend and Lang (1988) and Berger et al. (1997)'s empirical findings contradict with the signaling theory.

2.4 Market Timing Theory

Till the end of 1990s, some firm-specific variables such as profitability, size, asset structure and tangibility were at the center of the debate on capital structure determinants. However, since the beginning of 2000s, Baker and Wurgler (2002), and Alti (2006)'s studies on the effects of capital market variables (such as issuance of stocks) on capital structure have led the emergence of a contemporary capital structure theory named market timing. Until this theory, the idea that stock market performance is a determinant of issuance of new stocks as empirically tested by Lucas and McDonald (1990), and Korajczyk et al. (1992) has not gained dominance as a new strand of capital structure theories.

Baker and Wurgler (2002) define the term “market timing” as the practice of issuing new stocks when the existing ones are perceived to be overvalued and buying them back when they are undervalued. The fluctuations in stock prices in such opportune times of under- and over-valuation affect capital structure of the firm as a determinant. In times of under-valuation, debt issuance becomes preferable. However, in times of over-valuation, the existing stockholders benefit from issuance of new and over-valued stocks. According to the market timing theory of Baker and Wurgler (2002), the effect of equity (stock) market timing on capital structure is persistent. They develop an external financing-weighted average market-to-book value ratio to analyze market timing attempts and empirically demonstrate that their ratio is negatively related to leverage, indicating the effects of external financing on capital structure.

Compared to trade-off and pecking order theories, both theoretical and empirical studies regarding market timing theory are yet underdeveloped and very rare. Leary and Roberts (2005), and Kayhan and Titman (2007)’s studies on the role of market timings in capital structure related decisions, and Rossi and Marotta (2010)’s study on Brazilian IPOs in the period of 2004-2007 are among these rare studies supporting market timing theory.

3. Methodology

3.1 Data, Variables and the Research Model

The data used in the analysis focuses on the period of 1990.Q1-2015.Q4 for the Turkish manufacturing industry, consisting of Borsa İstanbul (BIST) listed manufacturing firms. Research model includes two variables: market-to-book value ratio (denoted as *M/B*) as the dependent variable, and total debt ratio (denoted as *TD*) as the independent variable.

M/B is a widely-used proxy for firm value in finance literature. It indicates both the value of common equity attributed by the market (Lee and Makhija, 2009) and the ability of firm managers to use its assets effectively. Besides, M/B is also an indicator of riskiness of the firm (Griffin and Lemmon, 2002). In studies of Nayyar (1993), Becker and Gerhart (1996), Wiggins and Ruefli (2002), Chang (2003), Cho and Pucik (2005) and Short et al. (2007), *M/B* is used as a market measure reflecting firm value.

Total debt ratio as a variable indicating the proportion of debt used to finance firm’s assets is included in the research model regarding the capital structure of the firm. Though there exists a very vast literature regarding capital structure, the concept of leverage (debt used for investment purposes) does not have a clear-cut definition. The main problem here is whether or not to use book value or market value of debt in calculations. According to the defenders of book value, it is more reliable than market value, as it does not fluctuate over time; and it is a more conservative approach to estimate debt ratios with their book values (Porras, 2011: 119-120). Besides, calculating the market value of debt is quite difficult, as the number of firms carrying their debt in bond form is relatively rare. Therefore, in this study, the book value of debt is used in calculations.

Definitions and calculations about the variables of the study are summarized in Table 3.

Table 1. Variables of the Research Model

Variable Name	*Calculation*	*Symbol*
Firm Value (Market-to-Book Value Ratio)	Market Value of Common Equity / Book Value of Common Equity	*M/B*
Capital Structure (Total Debt Ratio)	Total (Short and Long Term) Debt / Total Assets	*TD*

3.2 Empirical Findings

This study aims to find out the possible effect of capital structure on firm value via various empirical analyses including the unit root test with two structural breaks developed by Narayan and Popp (2010) and the asymmetric causality test of Hatemi-J (2012).

3.2.1 Narayan and Popp (2010)’s Unit Root Test with Two Structural Breaks

In this study, one of the unit root tests with structural breaks which was recently introduced into the literature developed by Narayan and Popp (2010) is performed to test whether a time series variable is non-stationary and possesses a unit root. According to Perron (1989), ignoring structural breaks as in Dickey Fuller test may lead to false acceptance of the unit root null hypothesis. Therefore, he develops the augmented Dickey Fuller test with one break. Later, Narayan and Popp (2010) propose a test allowing for structural breaks which resembles Lee and Strazicich (2004)'s test in the context of null hypothesis.

Narayan and Popp (2010) consider some unobserved components model to represent the data generating process (DGP). The DGP of a time series y_t has two components, a deterministic component (d_t) and a stochastic component (u_t) as given below:

$$y_t = d_t + u_t \tag{1}$$

$$u_t = \rho u_{t-1} + \varepsilon_t \tag{2}$$

$$\varepsilon_t = \Psi^*(L)_{e_t} = A^*(L)^{-1}B(L)e_t \tag{3}$$

with $e_t \sim iid(0,\ \sigma_e^2)$. It is assumed that the roots of the lag polynomials $A^*(L)$ and $B(L)$, which are of order p and q, respectively, lie outside the unit circle. Narayan and Popp (2010) consider two different specifications which are both for trending data. One of the specifications allows for two breaks in levels (as denoted by $M1$), while the other allows for two breaks in levels as well as slope (as denoted by $M2$). Both $M1$ and $M2$ model specifications differ in terms of how the deterministic component, d_i, is defined:

$$d_t^{M1} = \alpha + \beta_t + \Psi^*(L)\big(\theta_1 DU'_{1,t} + \theta_2 DU'_{2,t}\big) \tag{4}$$

$$d_t^{M2} = \alpha + \beta_t + \Psi^*(L)\big(\theta_1 DU'_{1,t} + \theta_2 DU'_{2,t} + \gamma_1 DT'_{1,t} + \gamma_1 DT'_{1,t}\big) \tag{5}$$

With

$$DU'_{i,t} = 1\big(t > T'_{B,i}\big), \qquad DT'_{i,t} = 1\big(t > T'_{B,i}\big)\big(t - T'_{B,i}\big), \qquad i = 1, 2. \tag{6}$$

Here, $T'_{B,i}, i = 1, 2$, denote the true break dates. The parameters, θ_i and γ_i, indicate the magnitude of the level and slope breaks, respectively. The inclusion of $\Psi^*(L)$ in Equations (4) and (5) allows breaks to occur slowly over time.

The test equations for $M1$ and $M2$ have the following forms:

$$y_t^{M1} = \rho y_{t-1} + \alpha_1 + \beta^* t + \theta_1 D(T'_B)_{1,t} + \theta_2 D(T'_B)_{2,t} + \delta_1 DU'_{1,t-1} + \delta_2 DU'_{2,t-1} + \sum_{j=1}^{k} \beta_j \Delta y_{t-j} + \varepsilon_t \tag{7}$$

with $\alpha_1 = \Psi^*(1)^{-1}[(1-\rho)\alpha + \rho\beta] + \Psi^{*'}(1)^{-1}(1-\rho)\beta$, $\Psi^{*'}(1)^{-1}$ being the mean lag, $\beta^* = \Psi^*(1)^{-1}(1-\rho)\beta$, $\emptyset = \rho - 1$, $\delta_i = -\emptyset\theta_i$ and $D(T'_B)_{i,t} = 1\big(t = T'_{B,i} + 1\big), i = 1, 2.$

$$y_t^{M2} = \rho y_{t-1} + \alpha^* + \beta^* t + \kappa_1 D(T'_B)_{1,t} + \kappa_2 D(T'_B)_{2,t} + \delta_1^* DU'_{1,t-1} + \delta_2^* DU'_{2,t-1} + \gamma_1^* DT^*_{1,t-1} + \gamma_2^* DT^*_{2,t-1} + \textstyle\sum_{j=1}^{k} \beta_j \Delta y_{t-j} + \varepsilon_t \tag{8}$$

where $\kappa_i = (\theta_i + \gamma_i), \delta_i^* = (\gamma_i - \emptyset\theta_i)$, and $\gamma_i^* = -\emptyset\gamma_i, i = 1, 2.$

The t-statistics of $\hat{\rho}$, denoted $t_{\hat{\rho}}$, in Equations (7) and (8) is used to test the unit root null hypothesis of $\rho = 1$ against the alternative hypothesis of $\rho < 1$. The break dates are selected using the sequential procedure.

The empirical results of Narayan and Popp (2010)'s unit root test with two structural breaks given in Table 2 indicate that *M/B* is stationary at level; and *TD* is stationary at first difference and is integrated of order one, I(1) for both *M1* and *M2*. Some of the structural break dates estimated such as 1998.Q2, 1999.Q3 and 2000.Q4 point out periods during which Turkish economy has faced with severe economic and financial crises, while the others, 2003.Q3 and 2004.Q1, refer the beginning years of economic recovery and growth following these crises.

Table 2. The Results of Narayan and Popp (2010)'s Unit Root Test

Variable Name		*Test Statistics and Break Dates*	
		M1	*M2*
M/B	Level	-4.59** (1998.Q2; 1999.Q3)	-4.82*** (1998.Q2; 1999.Q3)
	First Difference	-11.93*	-11.68*
TD	Level	-3.94 (2003.Q3; 2004.Q1)	-5.24** (2000.Q4; 2004.Q1)
	First Difference	-5.43*	-5.28**
Critical Values	1%	-5.26	-5.95
	5%	-4.51	-5.18
	10%	-4.14	-4.78

Notes: Break dates are given in parenthesis. Critical values are obtained from Narayan and Popp (2010). *, ** and *** denote significance levels of 1%, 5% and 10%, respectively.

3.2.2 The Asymmetric Causality Test of Hatemi-J (2012)

The starting point of analyzing the causality relationship between time series (i.e., determining whether one time series is useful in forecasting another one) can be attributed to Granger (1969) causality test which uses a vector autoregressive (VAR) model in analyzing the causality relationship. However, the F test procedure in this test loses its validity if the data are non-stationary, and it is known that time series data are mostly non-stationary leading the problem of spurious regression (Maddala, 2001). To overcome this problem, Toda and Yamamoto (1995) propose a superior test which can be performed in case of existence of integrated variables and even if there exists no cointegration between the variables. Unfortunately, Toda and Yamamoto (1995)' test on Granger non-causality cannot be performed to examine the possible asymmetric relationship between the variables. Later on, Hatemi-J (2012) suggests an asymmetric causality test by extending Granger and Yoon (2002)'s study to test only cointegration, -which is based on the idea of transforming data into both cumulative positive and negative changes-, to causality analysis.

Hatemi-J (2012) examines the casual relationship between two integrated variables y_{1t} and y_{2t} defined as the following random walk processes:

$$y_{1t} = y_{1t-1} + \varepsilon_{1t} = y_{10} + \sum_{i=1}^{t} \varepsilon_{1i} \tag{9}$$

and

$$y_{2t} = y_{2t-1} + \varepsilon_{2t} = y_{20} + \sum_{i=1}^{t} \varepsilon_{2i} \tag{10}$$

where $t = 1,2,\dots T$, the constants $y_{1,0}$ and $y_{2,0}$ are the initial values, and the variables ε_{1i} and ε_{2i} signify white noise disturbance terms. Positive and negative shocks are defined as given: $\varepsilon_{1i}^{+} = \max(\varepsilon_{1i}, 0)$, $\varepsilon_{2i}^{+} = \max(\varepsilon_{2i}, 0)$, $\varepsilon_{1i}^{-} = \min(\varepsilon_{1i}, 0)$, and $\varepsilon_{2i}^{-} = \min(\varepsilon_{2i}, 0)$, respectively. Therefore, it can be expressed as $e_{1i} = \varepsilon_{1i}^{+} + \varepsilon_{1i}^{-}$ and $e_{2i} = \varepsilon_{2i}^{+} + \varepsilon_{2i}^{-}$. It follows that

$$y_{1t} = y_{1t-1} + \varepsilon_{1t} = y_{1,0} + \sum_{i=1}^{t} \varepsilon_{1i}^{+} + \sum_{i=1}^{t} \varepsilon_{1i}^{-} \tag{11}$$

and

$$y_{2t} = y_{2t-1} + \varepsilon_{2t} = y_{1,0} + \sum_{i=1}^{t} \varepsilon_{2i}^{+} + \sum_{i=1}^{t} \varepsilon_{2i}^{-} \tag{12}$$

It is possible to define the positive and negative shocks of each variable can be defined in a cumulative form as $y_{1t}^{+} = \sum_{i=1}^{t} \varepsilon_{1i}^{+}$, $y_{1t}^{-} = \sum_{i=1}^{t} \varepsilon_{1i}^{-}$, $y_{2t}^{+} = \sum_{i=1}^{t} \varepsilon_{2i}^{+}$, and $y_{2t}^{-} = \sum_{i=1}^{t} \varepsilon_{2i}^{-}$. Here, each positive and negative shock has a permanent impact on the underlying variable.

In the next step, the causal relationship between these components is tested by focusing only on the case of testing for causal relationship between positive cumulative shocks by using the vector $y_t^{+} = (y_{1t}^{+}, y_{2t}^{+})$. It is also possible to conduct tests for causality between negative cumulative shocks by using the vector $y_t^{-} = (y_{1t}^{-}, y_{2t}^{-})$. The causality test is implemented by using vector autoregressive model of order p, VAR (p) given as:

$$y_1^{+} = v + A_1 y_{t-1}^{+} + \cdots + A_p y_{t-1}^{+} + u_t^{+} \tag{13}$$

where y_t^+ is the 2×1 vector of variables, υ is the 2×1 vector of intercepts, and u_t^+ is a 2×1 vector of error terms which corresponds to each of the variables representing the cumulative sum of positive shocks. The matrix A_r is a 2×2 matrix of parameters for lag order $r(r = 1, \dots, p)$. The optimal lag order (p) is selected by using the information criterion suggested by Hatemi-J (2003) (*HJC*) given below:

$$HJC = \ln\left(\left|\widehat{\Omega}_j\right|\right) + j\left(\frac{n^2 lnT + 2n^2 \ln(lnT)}{2T}\right), \quad j = 0, \dots, p. \tag{14}$$

where $\left|\widehat{\Omega}_j\right|$ is the determinant of the estimated variance-covariance matrix of the error terms in the VAR model based on lag order j, n is the number of equations in the VAR model and T is the number of observations.

After selecting the optimal lag order, the null hypothesis that kth element of y_t^+ does not Granger-cause the ωth element of y_t^+. The following denotations are used in order to define a Wald test in a compact form:

$Y := (y_1^+, \dots, y_T^+)$ $(n \times T)$ matrix,

$D := (\upsilon, A_1, \dots, A_p)$ $(n \times (1 + np))$ matrix,

$$Z := \begin{bmatrix} 1 \\ y_t^+ \\ y_{t-1}^+ \\ . \\ . \\ . \\ y_{t-p+1}^+ \end{bmatrix} \quad ((1 + np) \times 1) \text{ matrix, for } t = 1, \dots, T,$$

$Z := (Z_0, \dots, Z_{T-1})$ $((1 + np) \times T)$ matrix, and

$\delta := (u_1^+, \dots, u_T^+)$ $(n \times T)$ matrix.

The VAR (p) model can compactly be defined as given below:

$$Y = DZ + \delta \tag{15}$$

The null hypothesis of non-Granger causality, $H_0 : C\beta = 0$, is tested by the test method given below:

$$Wald = (C\beta)'[C((Z'Z)^{-1} \otimes S_U)C']^{-1}(C\beta), \tag{16}$$

where $\beta = vec(D)$ and *vec* indicates the column-stacking operator; $\otimes$ represents the Kronecker product, and C is a $p \times n(1 + np)$ indicator matrix with elements ones for restricted parameters and zeros for the rest of the parameters. S_U is the variance-covariance matrix of the unrestricted VAR model estimated as $S_U = \frac{\hat{\delta}'_U \hat{\delta}_U}{T-q}$, where q is the number of parameters in each equation of the VAR model. When the assumption of normality is fulfilled, the Wald test statistics in Equation (16) has an asymptotic χ^2 distribution with the number of degrees of freedom equal to the number of restrictions to be tested (in this case equal to p).

However, as financial data do not usually follow a normal distribution, the existence of autoregressive conditional heteroscedasticity (ARCH) effects is mostly inevitable. Therefore, to overcome these problems, the bootstrapping simulation technique is used [see Hatemi-J (2012: 451) for details].

The null hypothesis of non-Granger causality is rejected at the α level of significance, if the Wald test generated in the final step is greater than the bootstrap critical value. The bootstrap critical values are produced for three different significant significance levels as 1%, 5% and 10%, respectively.

The empirical results of Hatemi-J (2012) asymmetric causality between the market-to-book value ratio (*M/B*) and the total debt ratio (*TD*) are given in Table 3. Based on these results, only the 6th null hypothesis that TD^- *does not Granger-cause* M/B^- can be rejected, while all other null hypotheses cannot be rejected. This result points out a unidirectional asymmetric causal relationship between *TD* and *M/B*, indicating that total debt ratio Granger-cause market-to-book value ratio when shocks are negative, but not when shocks are positive. More explicitly, a decrease in total debt ratio leads to a decrease in the market-to-book value ratio.

Table 3. The Results of the Asymmetric Causality Test of Hatemi-J (2012)

Null Hypothesis	Test Statistics	Critical Values[a]		
		1%	5%	10%
1^{st} ⇒ *M/B⁺ does not Granger-cause TD⁺*	0.17	8.33	4.25	2.86
2^{nd} ⇒ *M/B⁻ does not Granger-cause TD⁻*	2.16	7.86	4.36	2.92
3^{rd} ⇒ *M/B⁻ does not Granger-cause TD⁺*	0.35	8.20	4.18	2.86
4^{th} ⇒ *M/B⁺ does not Granger-cause TD⁻*	0.59	7.42	4.02	8.82
5^{th} ⇒ *TD⁺ does not Granger-cause M/B⁺*	0.00	8.50	4.19	2.83
6^{th} ⇒ *TD⁻ does not Granger-cause M/B⁻*	5.14^{**}	8.94	4.51	3.07
7^{th} ⇒ *TD⁻ does not Granger-cause M/B⁺*	0.01	8.01	4.05	2.74
8^{th} ⇒ *TD⁺ does not Granger-cause M/B⁻*	0.35	8.20	4.18	2.86

Notes: Maximum lag length is 4, and the HJC is used to determine the optimal lag length. [a] Critical values are obtained through 10,000 bootstrap replications. ** denotes significance level of 5%.

4. Conclusion

Despite the existence of a vast theoretical and empirical literature on the relationship between capital structure and firm value, there is still no consensus on an answer to the question of what the optimal leverage that maximizes firm value is. The debate on this subject centers on whether there exists an optimal (or at least a target) capital structure or not. The idea behind trade-off theories of capital structure [proposed by Modigliani and Miller, 1963; Kraus and Litzenberger, 1973; Jensen and Meckling, 1976; Scott, 1976; Miller, 1977; Kim, 1978; DeAngelo and Masulis, 1980; Grossman and Hart, 1982; Bradley et al., 1984; Jensen, 1986; Diamond, 1989; Harris and Raviv, 1990; Stulz, 1990; Chang, 1999] is that firm has options on choosing an optimal (or at least a target) capital structure to finance its investments that maximizes firm value by balancing related costs and benefits of debt. However, the pecking order theory of Myers (1984), and Myers and Majluf (1984); and market timing theory of Baker and Wurgler (2002) reject the existence of an optimal capital structure.

This apparent incompleteness and inconclusiveness of understanding capital structure theories has been subject to the studies of Titman and Wessels (1988), Bevan and Danbolt (2002), Deesomsak et al. (2004), Beattie et al. (2006), Al-Najjar and Taylor (2008), and Haron (2014). According to these studies, the variety, ambiguousness and complexity of variables related to firm attributes embedded in research models; both theoretically and empirically concentration on only a few of the developed theories, and using very different leverage definitions may be the major reasons. One solution to overcome the problem of incompleteness and inconclusiveness may be empirically readdressing capital structure theories by more complex statistical methodologies. The other scantiness of studies on capital structure theories is the lack of diversity in sample choice. While most of related studies focus on developed markets such as United States (US) and Europe; the body of knowledge related to emerging markets have remained quite limited (Ebaid, 2009; Haron, 2014; Jaros and Bartosova, 2015). This study tries to fulfill these gaps by empirically testing the relationship between capital structure choice and firm value by Narayan and Popp (2010) unit root test with two structural breaks and the asymmetric causality test of Hatemi-J (2012) by using an emerging market time series data.

In the analysis, firstly, the stationarity of variables is tested by Narayan and Popp (2010) unit root test with two structural breaks. The estimated break dates refer to dramatic turning points in Turkish economy. Some of these dates (1998.Q2, 1999.Q3 and 2000.Q4) point out periods during which Turkish economy has faced with severe economic and financial crises. Following the Asian and Russian crisis in 1997 and 1998, the attention of foreign investors to Turkey began to diminish as a result of loss of confidence. This led a sharp decrease in capital inflows into Turkey causing the economic growth rate decrease down from 7.5% in 1997 to 2.5% in 1998. Along with a very destructive earthquake in August 1999 hitting the major industrial zones of Turkey, the economy fell into a deep recession. On 22 December 1999, an exchange rate based stabilization program -also supported by the International Monetary Fund- was announced by the government in order to decrease the inflation rate to 10% by the end of 2001. However, this program fell short of solving problems. During 2000 and 2001, Turkish economy experienced very severe banking crises. Following this turmoil, a political crisis triggered by a dispute between the prime minister and the president about solving the problem of corruption in the banking sector emerged (Özatay and Sak, 2002). Trust in the sustainability of the program disappeared quickly and a currency crisis occurred. These adverse economic conditions also adversely affected market capitalization and capital structure of Turkish firms. Market value of BIST (formerly known as Istanbul Stock Exchange) listed firms fell down to US$ 34.4 billion in 2002, compared to US$ 114.3 billion in 1999 (CMB, 2002). After the 2000 and 2001 banking crises, the share of bank loans in total corporate sector liabilities declined sharply. Firms either tended towards self-financing or began to use other forms of debt including trade credits. The increase in use of trade credits may also result from banks' panic and unwillingness on the supply of credit to corporate sector and from the absence of a well-developed bond markets.

The other break dates (2003.Q3 and 2004.Q1) refer the beginning years of economic recovery and growth following above mentioned crises. Between 2001 and 2006, Turkish economy grew approximately 7% in average terms, the inflation rates began to reduce and foreign direct investments (FDIs) sky-rocketed especially after 2004. In 2006, the amount of FDIs to Turkey reached up to US$ 20 billion, compared to only US$ 16 billion between 1980 and 2003. The trust on banking sector was restored. The ratio of non-performing loans to total loans was reduced to 0.4% in 2007, compared to 16.6% in 2001. The market value of BIST listed firms increased to approximately US$ 190 billion in 2007 (USAK, 2008).

Then, to test the possible asymmetric causal relationship between capital structure and firm value, a recent approach of Granger causality developed by Hatemi-J (2012) is performed. The superiority of this test is that it considers the impacts of both positive and negative shocks of one variable on the other, remarkably differentiating from others allowing no asymmetry in the causality testing. The empirical results support evidence on the existence of a unidirectional asymmetric causal relationship between capital structure and firm value, indicating that capital structure Granger-cause firm value when shocks are negative, but not when shocks are positive. More explicitly, a decrease in total debt ratio leads to a decrease in the market-to-book value ratio. Considering the effect of only negative shock, this empirical finding also supports *partial* evidence to the validity of trade-off theory. Because, the trade-off theory assumes that there are benefits to use debt within a capital structure, till the optimal capital structure is reached. Therefore, decrease in total debt within the capital structure will inevitably cause decrease in firm value.

References

Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *Journal of Risk Finance, 6*(5), 438-447. http://dx.doi.org/10.1108/15265940510633505

Abor, J. (2007). Debt policy and performance of SMEs: evidence from Ghanaian and South Africa firms. *Journal of Risk Finance, 8*(4), 364-379. http://dx.doi.org/10.1108/15265940710777315

Agrawal, A., & Mandelker, G. (1987). Managerial incentives and corporate investment and financing decisions. *Journal of Finance, 42*(4), 823-837. http://dx.doi.org/10.1111/j.1540-6261.1987.tb03914.x

Allen, D. E. (1993). The pecking order hypothesis: Australian evidence. *Applied Financial Economics, 3*(2), 101-112. http://dx.doi.org/10.1080/758532828

Al-Najjar, B., & Taylor, P. (2008). The relationship between capital structure and ownership structure: new evidence from Jordanian panel data. *Managerial Finance, 34*, 919-933. http://dx.doi.org/10.1108/03074350810915851

Alti, A. (2006). How persistent is the impact of market timing on capital structure?. *Journal of Finance, 61*(4), 1681-1710. http://dx.doi.org/10.1111/j.1540-6261.2006.00886.x

Ang, J. S., & Jung, M. (1993). An alternative test of Myers' pecking order theory of capital structure: the case of south Korean firms. *Pacific Basin Finance Journal, 1*(1), 31-46. http://dx.doi.org/10.1016/0927-538X(93)90015-A

Antweiler, W., & Frank, M. Z. (2006). Do U.S. stock markets typically over-react to corporate news stories?. *Working Paper*, University of British Colombia and University of Minnesota.

Autore, D. M., & Kovacs, T. (2010). Equity issues and temporal variation in information asymmetry. *Journal of Banking and Finance, 34*(1), 12-23. http://dx.doi.org/10.1016/j.jbankfin.2009.06.016

Baker, K. H., Powell, G. E., & Veit, E. T. (2003). Why companies use open-market repurchases: a managerial perspective. *Quarterly Review of Economics and Finance, 43*(3), 483-504. http://dx.doi.org/10.1016/S1062-9769(02)00151-5

Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *Journal of Finance, 57*(1), 1-32. http://dx.doi.org/10.1111/1540-6261.00414

Barnea, A., Haugen, R. A., & Talmor, E. (1987). Debt and taxes: a multiperiod investigation. *Journal of Banking and Finance*, *11*(1), 79-97. http://dx.doi.org/10.1016/0378-4266(87)90023-9

Beattie, V., Goodacre, A., & Thomson, S. J. (2006). Corporate financing decision UK survey evidence. *Journal of Business, Finance and Accounting*, *33*(9-10), 1402-1434. http://dx.doi.org/10.1111/j.1468-5957.2006.00640.x

Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: progress and prospects. *Academy of Management Journal*, *39*(4), 779-801. http://dx.doi.org/10.2307/256712

Berger, A., & Bonaccorsi di Patti, E. (2006). Capital structure and firm performance: a new approach to testing agency theory and an application to the banking industry. *Journal of Banking and Finance*, *30*(4), 1065-1102. http://dx.doi.org/10.1016/j.jbankfin.2005.05.015

Berger, P., Ofek, E., & Yermack, D. (1997). Managerial entrenchment and capital structure decisions. *Journal of Finance*, *52*(4), 1411-1438. http://dx.doi.org/10.1111/j.1540-6261.1997.tb01115.x

Bessler, W., Drobetz, W., & Grüninger, M. (2011). Information asymmetry and financing decisions. *International Review of Finance*, *11*(1), 123-154. http://dx.doi.org/10.1111/j.1468-2443.2010.01122.x

Bessler, W., Drobetz, W., & Pensa, P. (2008). Do managers adjust the capital structure to market value changes? Evidence from Europa. In Breuer, W. & Gürtler, M. (Eds.), *Zeitschrift für Betriebswirtschaft - Special Issue - 50 Years After MM: Recent Developments in Corporate Finance* (pp. 113-145). Wiesbaden, Gabler, Germany.

Bevan, A., & Danbolt, J. (2002). Capital structure and its determinants in the UK: a decompositional analysis. *Applied Financial Economics*, *12*(3), 159-170. http://dx.doi.org/10.1080/09603100110090073

Bharath, S. T., Pasquariello, P., & Wu, G. (2009). Does asymmetric information drive capital structure decisions?. *Review of Financial Studies*, *22*(9), 3211-3243. http://dx.doi.org/10.1093/rfs/hhn076

Booth, L., Aivazian, V., Demirguc-Kunt, A. E., & Maksimovic, V. (2001). Capital structure in developing countries. *Journal of Finance*, *56*(1), 87-130. http://dx.doi.org/10.1111/0022-1082.00320

Bos, T., & Fetherston, T. A. (1993). Asian capital markets gaining recognition and maturity. In (Eds.), *Research in International Business and Finance: Rising Asian Capital Markets: Empirical Studies* (Vol. 10, pp.1-20). Conn. and London: JAI Press, Greenwich.

Bradley, M., Jarrell, G. A., & Kim, E. H. (1984). On the existence of an optimal capital structure: Theory and evidence. *Journal of Finance*, *39*(3), 857-880. http://dx.doi.org/10.1111/j.1540-6261.1984.tb03680.x

Brennan, K., & Kraus, A. (1987). Efficient financing under asymmetric information. *Journal of Finance*, *42*(5), 1225-1243. http://dx.doi.org/10.1111/j.1540-6261.1987.tb04363.x

Brennan, M. J., & Schwartz, E. S. (1984). Optimal financial policy and firm valuation. *Journal of Finance*, *39*(3), 593-607. http://dx.doi.org/10.1111/j.1540-6261.1984.tb03647.x

Champion, D. (1999). Finance: the joy of leverage. *Harvard Business Review*, *77*(4), 19-22.

Chang, C. (1999). Capital structure as optimal contracts. *North American Journal of Economics and Finance*, *10*(2), 363-385. http://dx.doi.org/10.1016/S1062-9408(99)00028-5

Chang, S. J. (2003). Ownership structure, expropriation, and performance of group-affiliated companies in Korea. *Academy of Management Journal*, *46*(2), 238-253. http://dx.doi.org/10.2307/30040617

Cheng, M.-C., & Tzeng, Z.-C. (2014). Effect of leverage on firm market value and how contextual variables influence this relationship. *Review of Pacific Basin Financial Markets and Policies*, *17*(1), 1-63. http://dx.doi.org/10.1142/S0219091514500040

Chhibber, P., & Majumdar, S. (1999). Capital structure and performance: evidence from a transition economy on an aspect of corporate governance. *Public Choice*, *98*(3), 287-305. http://dx.doi.org/10.1023/A:1018355127454

Chiang, Y., Chang, P., & Hui, C. (2002). Capital structure and profitability of the property and construction sectors in Hong Kong. *Journal of Property Investment and Finance*, *20*(6), 434-453. http://dx.doi.org/10.1108/14635780210446469

Cho, H. J., & Pucik, V. (2005). Relationship between innovativeness, quality, growth, profitability, and market value. *Strategic Management Journal*, *26*(6), 555-575. http://dx.doi.org/10.1002/smj.461

CMB. (2002). *Annual Report*. Capital Market Board of Turkey.

Colombo, E. (2001). Determinants of corporate capital structure: evidence from Hungarian firms. *Applied Economics, 33*(13), 1689-1701. http://dx.doi.org/10.1080/00036840010015057

Constantinides, G. M., & Grundy, B. D. (1989). Optimal investment with stock repurchases and financing as signals. *The Review of Financial Studies, 2*(4), 445-466. http://dx.doi.org/10.1093/rfs/2.4.445

Custodio, C., & Ferreira, M. (2013). Why are US firms using more short term debt?. *Journal of Financial Economics, 108*(1), 182-212. http://dx.doi.org/10.1016/j.jfineco.2012.10.009

DeAngelo, H., & Masulis, R. W. (1980). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics, 8*(1), 3-29. http://dx.doi.org/10.1016/0304-405X(80)90019-7

Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure evidence from the Asia Pacific region. *Journal of Multinational Financial Management, 14*(1), 387-405. http://dx.doi.org/10.1016/j.mulfin.2004.03.001

DeMiguel, A., & Pindado, J. (2001). Determinants of capital structure: new evidence from Spanish panel data. *Journal of Corporate Finance, 7*(1), 77-99. http://dx.doi.org/10.1016/S0929-1199(00)00020-1

Diamond, D. W. (1989). Reputation acquisition in debt markets. *Journal of Political Economy, 97*(4), 828-860. http://dx.doi.org/10.1086/261630

Donaldson, G. (1961). *Corporate Debt Capacity: A Study of Corporate Debt Policy and The Determination of Corporate Debt Capacity*. Boston: Division of Research, Harvard School of Business Administration.

Easterbrook, F. (1984). Two agency-cost explanations of dividends. *American Economic Review, 74*(4), 650-659.

Ebaid, E. I. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *The Journal of Risk Finance, 10*(5), 477-487. http://dx.doi.org/10.1108/15265940911001385

Eldomiaty, T. (2007). Determinants of corporate capital structure: evidence from an emerging economy. *International Journal of Commerce and Management, 17*(1/2), 25-43. http://dx.doi.org/10.1108/10569210710774730

Fama, E. F. (1978). The effects of a firm's investment and financing decisions on the welfare of its security holders. *The American Economic Review, 68*(3), 272-284.

Fama, E. F., & French, K. R. (1998). Taxes, financing decisions and firm value. *Journal of Finance, 53*(3), 819-843. http://dx.doi.org/10.1111/0022-1082.00036

Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies, 15*(1), 1-33. http://dx.doi.org/10.1093/rfs/15.1.1

Farrar, D. E., & Selwyn, L. L. (1967). Taxes, corporate financial policy and return to investors. *National Tax Journal, 20*(4), 444-454.

Firth, M. (1995). The impact of institutional stockholders and managerial interests on the capital structures of the firms. *Managerial and Decision Economics, 16*(2), 167-175. http://dx.doi.org/10.1002/mde.4090160207

Fischer, E. O., Heinkel, R., & Zechner, R. (1989). Dynamic capital structure choice: theory and tests. *Journal of Finance, 44*(1), 19-40. http://dx.doi.org/10.1111/j.1540-6261.1989.tb02402.x

Flannery, M. J., & Rangan, K. P. (2006). Partial adjustment toward target capital structures. *Journal of financial Economics, 79*(3), 469-506. http://dx.doi.org/10.1016/j.jfineco.2005.03.004

Frank, M., & Goyal, V. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics, 67*(2), 271-281. http://dx.doi.org/10.1016/S0304-405X(02)00252-0

Friend, I., & Lang, L. H. P. (1988). An empirical test of the impact of managerial self-interest on corporate capital structure. *Journal of Finance, 43*(2), 271-281. http://dx.doi.org/10.1111/j.1540-6261.1988.tb03938.x

Frydenberg, S. (2011). Capital structure theories and empirical tests: an overview. In Baker, K. & Martin, G. S. (Eds.), *Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice*. Kolb Series in Finance, John Wiley and Sons, Inc. http://dx.doi.org/10.1002/9781118266250.ch8

Ghosh, C., Nag, R., & Sirmans, C. (2000). The pricing of seasoned equity offerings: evidence from REITs. *Real Estate Economics, 28*(3), 363-384. http://dx.doi.org/10.1111/1540-6229.00805

Givoly, D., Hayn, C., Ofer, A. R., & Sarig, O. (1992). Taxes and capital structure: evidence from firms' response in the Tax Reform Act of 1986. *Review of Financial Studies, 5*(2), 331-355. http://dx.doi.org/10.1093/rfs/5.2.331

Glen, J., & Pinto, B. (1994). Debt or equity? How firms in developing countries choose. *Discussion Paper*, International Financial Corporation (IFC), Washington.

Goldstein, R., Ju, N., & Leland, H. (2001). An ebit-based model of dynamic capital structure. *Journal of Business*, *74*(4), 483-512. http://dx.doi.org/10.1086/322893

Graham, J. R. (2000). How big are the tax benefits of debt?. *Journal of Finance*, *55*(5), 1901-1941. http://dx.doi.org/10.1111/0022-1082.00277

Granger, C. W. J. (1969). Investigating causal relations by econometric models and cross spectral methods. Econometrica, *37*(3), 424-438. http://dx.doi.org/10.2307/1912791

Granger, C. W. J., & Yoon, G. (2002). Hidden cointegration. *Department of Economics Working Paper*, University of California, No:2002-02. http://dx.doi.org/10.2139/ssrn.313831

Griffin, J. M., & Lemmon, M. L. (2002). Book-to-market equity, distress risk, and stock returns. *Journal of Finance*, *57*(5), 2317-2336. http://dx.doi.org/10.1111/1540-6261.00497

Griner, E. H., & Gordon, L. A. (1995). Internal cash flow, insider ownership, and capital expenditures: a test of the pecking order and managerial hypothesis. *Journal of Business Finance and Accounting*, *22*(2), 179-199. http://dx.doi.org/10.1111/j.1468-5957.1995.tb00678.x

Grossman, S. J., & Hart, O. (1982). Corporate financial structure and managerial incentives. In J. McCall (Ed.), *The Economics of Information and Uncertainty*. Chicago: University of Chicago Press.

Hadlock, C. J., & James, C. M. (2002). Do banks provide financial slack?. *Journal of Finance*, *57*(3), 1383-1420. http://dx.doi.org/10.1111/1540-6261.00464

Haron, R. (2014). Capital structure inconclusiveness: evidence from Malaysia, Thailand and Singapore. *International Journal of Managerial Finance*, *10*(1), 23-38. http://dx.doi.org/10.1108/IJMF-03-2012-0025

Harris, M., & Raviv, A. (1990). Capital structure and the information role of debt. *Journal of Finance*, *45*(2), 321-349. http://dx.doi.org/10.1111/j.1540-6261.1990.tb03693.x

Harris, M., & Raviv, A. (1991). The Theory of Capital Structure. *Journal of Finance*, *46*(1), 297-355. http://dx.doi.org/10.1111/j.1540-6261.1991.tb03753.x

Hatemi-J, A. (2003). A new method to choose optimal lag order in stable and unstable VAR models. *Applied Economics Letters*, *10*(3), 135-137. http://dx.doi.org/10.1080/1350485022000041050

Hatemi-J, A. (2012). Asymmetric causality tests with an application. *Empirical Economics*, *43*(1), 447-456. http://dx.doi.org/10.1007/s00181-011-0484-x

Heinkel, R. (1982). A theory of capital structure relevance under imperfect information. *Journal of Finance*, *37*(5), 1141-1150. http://dx.doi.org/10.1111/j.1540-6261.1982.tb03608.x

Heinkel, R., & Zechner, J. (1990). The role of debt and preferred stock as a solution to adverse investment incentives, *Journal of Financial and Quantitative Analysis*, *25*(1), 1-24. http://dx.doi.org/10.2307/2330885

Hovakimian, A. (2006). Are observed capital structures determined by equity market timing?. *Journal of Financial and Quantitative Analysis*, *41*(1), 221-243. http://dx.doi.org/10.1017/S0022109000002489

Huang, R., & Ritter, J. R. (2009). Testing theories of capital structure and estimating the speed of adjustment. *Journal of Financial and Quantitative Analysis*, *44*, 237-271. http://dx.doi.org/10.1017/S0022109009090152

Hussain, M. I. (2005). Determination of capital structure and prediction of corporate financial distress. *Unpublished PhD Thesis*, University of Putra, Malaysia.

Jaros, J., & Bartosova, V. (2015). To the capital structure choice: Miller and Modigliani model. *Procedia Economics and Finance*, *26*(1), 351-358. http://dx.doi.org/10.1016/S2212-5671(15)00864-3

Jensen, M. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review*, *76*(2), 323-339. http://dx.doi.org/10.1017/CBO9780511609435.005

Jensen, M., & Meckling, W. H. (1976). Theory of the firms: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360. http://dx.doi.org/10.1016/0304-405X(76)90026-X

Kamath, R. R. (1997). Long-term financing decisions: views and practices of financial managers of NYSE firms. *The Financial Review*, *32*(2), 331-356. http://dx.doi.org/10.1111/j.1540-6288.1997.tb00428.x

Kane, A., Marcus, A. J., & MacDonald, R. L. (1984). How big is the tax advantage of debt?. *Journal of Finance*, *39*(3), 841-853. http://dx.doi.org/10.1111/j.1540-6261.1984.tb03678.x

Kayhan, A., & Titman, S. (2007). Firms' histories and their capital structures. *Journal of Financial Economics*, *83*(1), 1-32. http://dx.doi.org/10.1016/j.jfineco.2005.10.007

Kester, W. C. (1986). Capital and ownership structure: a comparison of United States and Japanese manufacturing corporations. *Financial Management*, *15*(1), 5-16. http://dx.doi.org/10.2307/3665273

Kim, F. H. (1978). A mean variance theory of optimal capital structure and corporate debt capacity. *Journal of Finance*, *33*(1), 45-64. http://dx.doi.org/10.1111/j.1540-6261.1978.tb03388.x

Koh, F., Phoon, K.-F., & Tan, V. (1993). An empirical study of the capital structure behavior of firms in Singapore. In (Eds.), *Research in International Business and Finance: Rising Asian Capital Markets: Empirical Studies* (Vol. 10, pp. 67-81). Conn. and London: JAI Press, Greenwich.

Korajczyk, R. A., Lucas, D. J., & McDonald, R. L. (1992). Equity issues with time-varying asymmetric information. *Journal of Financial and Quantitative Analysis*, *37*(3), 685-708. http://dx.doi.org/10.2307/2331327

Krasker, W. (1986). Stock price movements in response to stock issues under asymmetric information. *Journal of Finance*, *41*(1), 93-105. http://dx.doi.org/10.1111/j.1540-6261.1986.tb04493.x

Kraus, A., & Litzenberger, R. H. (1973). A state preference model of optimal financial leverage. *Journal of Finance*, *28*(4), 911-922. http://dx.doi.org/10.1111/j.1540-6261.1973.tb01415.x

Leary, M. T., & Roberts, M. R. (2005). Do firms rebalance their capital structures?. *Journal of Finance*, *60*(6), 2575-2619. http://dx.doi.org/10.1111/j.1540-6261.2005.00811.x

Lee, J., & Strazicich, M. (2004). Minimum LM unit root test with one structural break. *Working Paper*, 04-17, Department of Economics, Appalachian State University, Boone, North Carolina.

Lee, S. H., & Makhija, M. (2009). Flexibility in internalization: is it valuable during an economic crisis?. *Strategic Management Journal*, *30*(5), 537-585. http://dx.doi.org/10.1002/smj.742

Leland, H., & Pyle, D. (1977). International asymmetries, financial structure, and financial intermediation. *Journal of Finance*, *32*(2), 371-387. http://dx.doi.org/10.1111/j.1540-6261.1977.tb03277.x

Lewis, C. M. (1990). A multiperiod theory of corporate financial policy under taxation. *Journal of Financial and Quantitative Analysis*, *25*(1), 25-43. http://dx.doi.org/10.2307/2330886

Lucas, D. J., & McDonald, R. L. (1990). Equity issues and stock price dynamics. *Journal of Finance*, *45*(4), 1019-1043. http://dx.doi.org/10.1111/j.1540-6261.1990.tb02425.x

Maddala, G. S. (2001). *Introduction to Econometrics* (3rd ed.).John Wiley & Sons, USA.

Masulis, R. W. (1980). The effects of capital structure change on security prices: a study of exchange offers. *Journal of Financial Economics*, *8*(2), 139-178. http://dx.doi.org/10.1016/0304-405X(80)90015-X

Mesquita, J. M. C., & Lara, J. E. (2003). Capital structure and profitability: the Brazilian case. *Paper presented at the Academy of Business and Administration Sciences Conference*, July 11-13, Vancouver.

Mikkelson, W. H., & Partch, M. M. (1986). Valuation effects of security offerings and the issuance process. *Journal of Financial Economics*, *15*(1-2), 31-60. http://dx.doi.org/10.1016/0304-405X(86)90049-8

Miller, M. (1977). Debt and taxes. *Journal of Finance*, *32*(2), 261-275. http://dx.doi.org/10.2307/2326758

Modigliani, F. (1982). Debt, dividend policy, taxes, inflation and market valuation. *Journal of Finance*, *37*(2), 255-273. http://dx.doi.org/10.1111/j.1540-6261.1982.tb03549.x

Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review*, *48*(3), 261-275.

Modigliani, F., & Miller, M. (1963). Corporate income taxes and the cost of capital: a correction. *American Economic Review*, *53*(3), 433-443.

Mollik, A. T. (2005). Capital structure choice and the firm value in Australia: a panel data analysis under the imputation tax system. *Working Paper presented at the 13th Annual Conference on Pasific Basin Finance*, Economics and Accounting, June 10-11, New Jersey.

Myers, S. C. (1984). The capital structure puzzle. *Journal of Finance*, *39*(3), 575-592. http://dx.doi.org/10.2307/2327916

Myers, S. C. (1993). Still searching for optimal capital structure. *Journal of Applied Corporate Finance*, *6*(1), 4-14. http://dx.doi.org/10.1111/j.1745-6622.1993.tb00369.x

Myers, S. C. (2001). Capital structure. *Journal of Economic Perspectives*, *15*(2), 81-102. http://dx.doi.org/10.1257/jep.15.2.81

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187-221. http://dx.doi.org/10.1016/0304-405X(84)90023-0

Narayan, P. K., & Popp, S. (2010). A new unit root test with two structural breaks in level and slope at unknown time. *Journal of Applied Statistics*, *37*(9), 1425-1438. http://dx.doi.org/10.1080/02664760903039883

Narayanan, M. P. (1988). Debt versus equity under asymmetric information. *Journal of Financial and Quantitative Analysis*, *23*(1), 39-51. http://dx.doi.org/10.2307/2331023

Nayyar, P. R. (1993). Performance effects of information asymmetry and economies of scope in diversified service firms. *Academy of Management Journal*, *36*(1), 28-57. http://dx.doi.org/10.2307/256511

Noe, T. (1988). Capital structure and signaling game equilibrium. *Review of Financial Studies*, *1*(4), 42-55. https://doi.org/10.1093/rfs/1.4.331

Özatay, F., & Sak, G. (2002). *Banking sector fragility and Turkey's 2000-01 financial crisis*. Brooking Trade Forum: Currency Crisis, Washington D. C.

Perron, P. (1989). The great crash, the oil price shock, and the unit root hypothesis. *Econometrica*, *57*(6), 1361-1401. http://dx.doi.org/10.2307/1913712

Petersen, M. A., & Rajan, R. G. (1994). The benefits of lending relationships: evidence from small business data. *Journal of Finance*, *49*(1), 3-37. http://dx.doi.org/10.1111/j.1540-6261.1994.tb04418.x

Pham, T., & Chaw, D. (1989). Some estimates of direct and indirect bankruptcy costs in Australia: september 1978-May 1983. *Australian Journal of Management*, *14*(1), 75-92. http://dx.doi.org/10.1177/031289628901400105

Pinegar, M. J., & Wilbricht, L. (1989). What managers think of capital structure theory: a survey. *Financial Management*, *18*(4), 82-91. http://dx.doi.org/10.2307/3665800

Poitevin, M. (1989). Financial signaling and the "deep-pocket" argument. *Rand Journal of Economics*, *20*(1), 26-40.

Porras, E. R. (2011). *The cost of capital*. Palgrave Macmillan Publications, UK.

Robertson, D. K., & Tress, R. B. (1985). Bankruptcy costs: evidence from small firm liquidations. *Australian Journal of Management*, *10*(1), 49-60. http://dx.doi.org/10.1177/031289628501000104

Roden, D. M., & Lewellen, W. G. (1995). Corporate capital structure decisions: evidence from leveraged buyouts. *Financial Management*, *24*(2), 76-87. http://dx.doi.org/10.2307/3665536

Ross, S. A. (1977). The determination of financial structure: the incentive signaling approach. *Bell Journal of Economics*, *8*(1), 23-40. http://dx.doi.org/10.2307/3003485

Rossi, J. L. J., & Marotta, M. (2010). Equity market timing. *Revista Brasileira de Finanças*, *8*(1), 85-101.

Rozeff, M. S. (1982). Growth, beta and agency costs as determinants of dividend payout ratios. *Journal of Financial Research*, *5*(3), 249-259. http://dx.doi.org/10.1111/j.1475-6803.1982.tb00299.x

Sarkar, S., & Zapatero, F. (2003). The trade-off model with mean reverting earnings: theory and empirical tests. *The Economic Journal*, *113*(490), 834-860. http://dx.doi.org/10.1111/1468-0297.t01-1-00156

Scott, J. H. (1976). A theory of optimal capital structure. *Bell Journal of Economics*, *7*(1), 33-54. http://dx.doi.org/10.2307/3003189

Short, J. C., Ketchen, Jr., D. J., Palmer, T. B., & Hult, G. T. M. (2007). Firm strategic group, and industry influences on performance. *Strategic Management Journal*, *28*(2), 147-167. http://dx.doi.org/10.1002/smj.574

Shyam-Sunder, L., & Myers, S. C. (1999). Testing static trade-off against pecking order models of capital structure. *Journal of Financial Economics*, *51*(2), 219-244. http://dx.doi.org/10.1016/S0304-405X(98)00051-8

Stein, J. (1992). Convertible bonds as backdoor equity financing. *Journal of Financial Economics*, *32*(1), 3-21. http://dx.doi.org/10.1016/0304-405X(92)90022-P

Stiglitz, J. E., (1973). Taxation, corporate financial policy, and the cost of capital. *Journal of Public Economics*, *2*(1), 1-34. http://dx.doi.org/10.1016/0047-2727(73)90008-X

Strebulaev, I. A. (2007). Do tests of capital structure mean what they say?. *Journal of Finance*, *62*(4), 1747-1787. http://dx.doi.org/10.1111/j.1540-6261.2007.01256.x

Stulz, R. (1990). Managerial discretion and optimal financing policies. *Journal of Financial Economics*, *26*(1), 3-27. http://dx.doi.org/10.1016/0304-405X(90)90011-N

Taub, A. J. (1975). Determinants of the firm's capital structure. *Review of Economics and Statistics*, *57*(4), 410-416.

Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *Journal of Finance*, *43*(1), 1-19. http://dx.doi.org/10.1111/j.1540-6261.1988.tb02585.x

Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics*, *66*(1-2), 225-250. http://dx.doi.org/10.1016/0304-4076(94)01616-8

USAK. (2008). *From crisis to recovery: Quo vadis Turkish economy?*. International Strategic Research Organization (USAK) Papers, No. 08-01.

Wald, J. (1999). How firm characteristics affect capital structure: an international comparison. *Journal of Financial Research*, *22*(2), 161-187. http://dx.doi.org/10.1111/j.1475-6803.1999.tb00721.x

Warner, J. N. (1977). Bankruptcy costs: some evidence. *Journal of Finance*, *32*(2), 337-347. http://dx.doi.org/10.2307/2326766

Welch, I. (2004). Capital structure and stock returns. *Journal of Political Economy*, *112*(1), 106-131. http://dx.doi.org/10.1086/379933

Weston, J. F., & Brigham, E. F. (1996). *Essentials of Managerial Finance* (11th ed.).The Dryden Press, USA.

Wiggins, R. R., & Ruefli, T. W. (2002). Sustained competitive advantage: temporal dynamics and the incidence and persistence of superior economic performance. *Organization Science*, *13*(1), 82-105. http://dx.doi.org/10.1287/orsc.13.1.81.542

Williams, J. (1987). Perquisites, risk and capital structure. *Journal of Finance*, *42*(1), 29-49. http://dx.doi.org/10.1111/j.1540-6261.1987.tb02548.x

Zeitun, R., & Tian, G. (2007). Capital structure and corporate performance: evidence from Jordan. *Australian Accounting Business and Finance Journal*, *1*(4), 40-53. http://dx.doi.org/10.2139/ssrn.2496174

Zhang, R., & Kanazaki, Y. (2007). Testing static tradeoff against pecking order models of capital structure in Japanese firms. *International Journal of Accounting and Information Management*, *15*(2), 24-36. http://dx.doi.org/10.1108/18347640710837335