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Capital structure in the MENA region: empirical evidence from Morocco and Turkey

Abstract

This study examines the association of leverage with company financial attributes, such as firm size, asset tangibility, profitability and growth. It also focuses on the market timing theory of capital structure, and considers whether financial structure decisions are affected by markets conditions, such as for example issuing stock when valuations are high and debt when interest rates are low. Further, this study investigates the association between company performance, corporate governance and leverage. The findings show that, for both Morocco and Turkey, size is an important factor for financial decision-making and is positively associated with leverage. Moroccan and Turkish firms display a negative relation between asset tangibility, profitability and leverage. In contrast to Moroccan firms, Turkish firms exhibit a positive association between growth and leverage. This study also shows that firms would use equity financing when stock valuations are high and investor perceptions are positive. Firms would be inclined to use debt when interest rates are lower. The findings also indicate that, for both countries, company performance is positively related to effective corporate governance, as expressed by the presence of independent directors on the board or of institutional or foreign investors monitoring managers' actions, and negatively to leverage.

Keywords: emerging markets, capital structure, leverage, equity, corporate governance.

JEL Classification: M41.

Introduction

Emerging countries have launched in the two last decades structural changes in their financial industry in order to rationalize resources allocation according to the standardized models of the developing countries. Emerging countries are thus in a transition period where the old financing schemes are being replaced by newer ones according to international experience and practice. Capital structure theories, such as the Modigliani and Miller theory, the trade-off theory, the agency theory, the pecking order theory, and the market timing theory of capital structure, seek to explain the formulation of a company's financial structure, the factors that drive capital structure choices and the effects on firm value (Hart, 1995). A crucial research question to investigate is the determinants of firms' financial structure in emerging countries with different institutional settings. The literature has studied the relevance of financial models used to explain the financing features and the financial structures of emerging countries and has found contradicting results, which provide ambiguous evidence on the robustness of the explanatory parameters.

Capital markets in the Middle East and North Africa (MENA) region tend to be weak and can be classified as using a bank-based system, where banks are the main suppliers of financing (Turk-Ariss, 2009). Also, government intervention, exchange rate

controls, capital repatriation and ownership restrictions, financial repression policies and other financial restrictions have severely impacted on company growth and foreign capital inflows (Errunza, 1983; Chordia et al., 2005; Naceur and Omran, 2011). The combined market capitalization of MENA markets appears to be relatively limited and small compared to their overall GDP (Karemera et al., 1999; Ghysels and Cherkaoui, 2003). Although traditionally banks in the MENA region were mainly family-owned or state-owned, bank ownership has changed and is heavily influenced by private and foreign control (Turk-Ariss, 2009). Saudi Arabia and Turkey display the highest market capitalization and market turnover ratio in the MENA region (Rejichi and Aloui, 2012).

Rejichi and Aloui (2012) have reported that Israel's, Turkey's and Egypt's markets are the less inefficient markets in the MENA region (see also Zunino et al., 2010). Smimou and Karabegovic (2010) have focused on the MENA region and have shown that higher economic freedom, effective legal structures and the protection of property rights would positively affect stock market returns. Significant improvements have been reported to this end following the substantial privatization plans and the significant reinforcement of efficiency and liquidity of MENA stock markets. Naceur et al. (2007) reported that newly privatised MENA firms would grow more when strong investor protection mechanisms and law enforcement are in place (see also Boubakri et al., 2005). Naceur and Omran (2011) have also found that bank capitalization and credit risk affected the net interest margin and profitability of MENA banks in a positive manner. They also suggest that following the extensive

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financial reforms, the regulatory and institutional structures have reduced corruption and have positively affected company performance and cost-efficiency.

This study investigates firms' financial structure characteristics and the institutional framework impact on financial structure decisions in two emerging MENA countries, namely Morocco and Turkey. Both countries belong to the Secondary Emerging countries group according to the FTSE Global Equity Index Series. Morocco is based on Islamic law and French and Spanish civil law system. All banks and similar financial institutions must use IFRS for the accounting periods starting from January 1, 2008. All companies listed on the Casablanca Stock Exchange other than banks and similar financial institutions may choose between IFRSs and Moroccan GAAP. According to the World Bank, the GDP per capita (PPP) of Morocco is \$5,100 as estimated for 2011. The real GDP growth rate is 4.3%. Privatizations in Morocco started in 1988. The first ten years of privatization generated proceeds of \$6.3 billion, while a significant increase has been reported for the years after 2000 (Assaf, 2006). During the late 1980s and the 1990s, Morocco underwent significant financial reforms under the umbrella of the International Monetary Fund (IMF). In 2000, Morocco developed a free trade zone agreement with the European Union.

Turkey is based on Swiss civil law. All companies listed on the Istanbul Stock Exchange are required to follow IFRSs. The GDP per capita (PPP) of Turkey is \$14,700 as estimated for 2011. The real GDP growth rate is 8.5%. In Turkey, privatizations exhibited a significant increase after 1985, and helped the government improve the national budget, reduce inflation and increase trading activity (Assaf, 2006). The period of 1984-2004 generated proceeds of \$8.9 billion. Trade was liberalized in Turkey in 1989 and in Morocco in 1984. In 2000, a severe banking crisis took place relating to bank liquidity problems, which called for IMF and new banking regulations (Assaf, 2006). Like Morocco, Turkey presents no restrictions on foreign investors (Assaf, 2006). However, Lagoarde-Segot and Lucey (2008) argue that Turkey is closer to developed markets than Morocco.

The focus of the study on Morocco and Turkey is motivated by the following considerations. Morocco and Turkey constitute a growing and significant part of the MENA region and their stock markets play a crucial role in the regional marketplace. As discussed above, both countries have gone through significant changes in the recent past that reinforced disclosure quality and transparency. The liberalization of these markets and their growing structural development

would tend to reflect their future financial prospects, which would be useful to capture and model in order to predict companies' likely managerial behavior and assist users in making efficient investment decisions. Although the determinants of capital structure and the relationship between agency costs and capital structure have been widely investigated in the literature for developed markets, the MENA countries have not been largely examined. This would give birth to the question of whether capital structure determinants and decisions depend on market structure and quality and whether they differ significantly compared to developed markets.

The main research questions of this study are what the main factors that determine capital structure in MENA countries are, and, to what extent, capital structure determinants differ for countries with different institutional framework. In particular, this study examines the association of leverage with company financial attributes, such as firm size, asset tangibility, profitability and growth. It also focuses on the market timing theory of capital structure, and considers whether financial structure decisions are affected by markets conditions, such as for example, issuing stock when valuations are high and debt when interest rates are low. Further, this study investigates the association between company performance, corporate governance and leverage.

The study has found that, for both Morocco and Turkey, size is an important factor for financial decision-making and is positively associated with leverage. Moroccan and Turkish firms display a negative relation between asset tangibility, profitability and leverage. In contrast to Moroccan firms, Turkish firms exhibit a positive association between growth and leverage. This study also shows that firms would use equity financing when stock valuations are high and investor perceptions are positive. Firms would be inclined to use debt when interest rates are lower. The findings also indicate that, for both countries, company performance is positively related to effective corporate governance, as expressed by the presence of independent directors on the board or of institutional or foreign investors monitoring managers' actions, and negatively to leverage.

The paper is organized as follows. Section 1 presents background considerations. Section 2 shows the research hypotheses and describes the datasets. Section 3 discusses the empirical findings, and the final section concludes.

1. Background considerations

Modigliani and Miller (1958) demonstrated the non-impact of financial structure choices on firm value

in a perfect world assuming no taxes, no transactions costs, and that firm investment policies are fixed. To reduce the constraints set by the assumptions reported above, Modigliani and Miller (1963) incorporated corporate taxation in their model and demonstrated that the tax deductibility of interest increases firm value. They showed that the value of a levered firm would be equal to the value of an unlevered firm plus the present value of the respective debt-related tax shields. Miller (1977) extended the above theory arguing that while companies benefit from interest deductibility, investors pay taxes on income from interest and dividend, and on capital gains. In this case, the benefit from leverage would be a function of corporate tax rate, tax rate on equity income and tax rate on interest income.

The trade-off theory (Kraus and Litzenberger, 1973) suggests that firms seek an optimal target leverage that balances the benefits and costs of debt financing; the main benefit of debt being its tax deductibility. However, financial distress (Myers, 2001) imposes limits on the optimal level of debt that may be targeted by a firm. The agency theory, developed by Jensen and Meckling (1976), suggests that the conflict of interests between shareholders and managers plays a key role in capital structure decisions. Managers have different incentives than shareholders that may give rise to agency costs and lead to cash flow decline (Agrawal and Knoeber, 1996). Higher levels of debt would thus serve as a device monitoring managers' decisions and actions. The agency theory carries special importance for emerging markets, where parameters, such as agency relationships, information asymmetry, governance and market structures and ownership, may display significant differences and weight.

The pecking order theory (Myers and Majluf, 1984) argues that firms, which generate sufficient cash flows to meet their capital needs, tend to use retained earnings first for their financing needs. Debt appears second in the hierarchy, while equity capital is third. The market timing theory of capital structure (see Baker and Wurgler, 2002) claims that the financial structure of a company is driven by previous decisions, which relate to the issuance of shares when valuations are high, and to the issuance of debt and the redemption of shares when prices are low. In a similar vein, Graham and Harvey (2001) and Hovakimian et al. (2001) argue that companies seek 'windows of opportunity' in order to best pursue their financial structure endeavors.

Booth et al. (2001) indicate that the variables that explain capital structures in the US and Europe are also relevant in developing countries, despite the

profound differences in institutional attributes. They report evidence of significant information asymmetry in developing countries that makes external financing costly and reduces profitability. However, Glen and Pinto (1994) found that unlike firms in G7 countries, firms in developing countries rely more substantially on externally generated funds (see also Titman and Wessels, 1988; Rajan and Zingales, 1995).

Booth et al. (2001) have also found that leverage is negatively associated with market capitalization and inflation, but positively related to real economic growth and tax benefits. The findings reported above tend to vary between developed and developing countries. This variation may be attributed to significant institutional framework differences that affect firm characteristics and financial structure decisions. They also report that asset tangibility affects financing decisions significantly, since companies would need to have assets that may serve as collateral for borrowings.

Achy (2009) has found a negative association between size and leverage, implying that smaller firms would rely on debt more than larger firms. A negative relation has also been observed for profitability and leverage. On the other hand, growth has been found to be positively related to leverage, suggesting that companies would tend to use debt to finance their growth options.

2. Research hypotheses and datasets

2.1. Research hypotheses. *2.1.1. Financial structure determinants.* Rajan and Zingales (1995), Booth et al. (2001) and Achy (2009) argue that large firm size would tend to increase market visibility and reduce information asymmetry, subsequently leading to more favorable terms of financing. Harris and Raviv (1990), Shleifer and Vishny (1992) and Achy (2009) argue that tangible assets that are used as collateral increase lenders' safety margin and reduce uncertainty. Hence, a positive association would be expected between long-term debt and asset tangibility.

Myers and Majluf (1984) claim that more profitable firms would have more internal financing available; hence, a negative relationship between leverage and profitability would be expected. It might also be argued though that profitable firms use their profitability as a positive signal to obtain external financing on better terms. Higher growth prospects are likely to display higher levels of risk and would therefore tend to increase the risk premium required by lenders. Myers (1977) and Rajan and Zingales (1995) have found that growth is negatively related to leverage, reflecting the inverse association between uncertainty and financing. The hypothesis is presented below.

H_1 : Leverage is positively associated with firm size and asset tangibility and negatively with profitability and growth.

The empirical model used to test this hypothesis is based on Booth et al. (2001, p. 106) and is as follows.

$$LEV = \alpha_0 + \beta_1 \cdot \ln(\text{sales}) + \beta_2 \cdot AT + \beta_3 \cdot P + \beta_4 \cdot GP + \varepsilon, \quad (1)$$

where LEV is the long-term debt scaled by long-term debt plus equity, $\ln(\text{sales})$ is the natural logarithm of total sales, AT is tangible assets scaled by total assets and proxies for asset tangibility, P is net income scaled by total sales, GP is sales growth, ε is the error term.

2.1.2. Financial structure decisions. Valuations that prevailed when significant financing decisions were made are likely to influence firm capital structure (see Beck et al., 2008). Likewise, the surrounding internal and external financial environment of a company and the financial events that preceded certain financial structure decisions would significantly affect future financial decisions and prospects.

Huang et al. (2009) have found that companies tend to avoid equity financing when stock valuations are low. Frank and Goyal (2009) and Welch (2004)

$$(M/V)_{t-1} = \sum_{t-1} \{[(e_s + d_s) / \sum_{t-1} (e_r + d_r)] \cdot x \cdot (M/B)_s\}, \quad (3)$$

(M/B) is market value of equity to book value of equity, e is net equity issues, d is net debt issues, $MVCHA$ is market value change, SI is stock index performance as obtained from Datastream. This study has used the MASI index for Morocco and the ISE National 100 index for Turkey. CD is Treasury bill interest rate as obtained from the Central Bank, ε is the error term.

2.1.3. Agency costs, financial structure and company performance. The adoption of an optimal capital structure would aim at maximizing firm value and improving financial performance. However, the conflict of interests between managers and shareholders might give rise to agency costs and hinder company financial progress. It follows that effective corporate governance structures would smooth the communication between owners and agents and would reduce agency costs (Weir et al., 2002).

Crutchley et al. (1999) have found that the existence of significant institutional ownership within a company may lead to using more debt financing as a means to monitor managers' actions and limit managerial opportunism (see also Jensen et al., 1992; Mohd et al., 1995). Institutional ownership may also align managers' interests with shareholders' interests

have shown that share price changes are negatively related to leverage. Fama and French (2002) have reported that weighted average market to book value ratios are negatively related to leverage. Frank and Goyal (2008) have tested the impact of stock index performance and interest rates and have found a negative association with leverage.

This study predicts that financial structure decisions are closely related to market conditions. A company's financial structure would tend to place significant emphasis on stocks as opposed to debt when stock valuations are higher. In contrast, it is likely to favor debt when interest rates are lower (see Ozkan, 2000). The hypothesis and the model are presented below (see Booth et al., 2001).

H_2 : Financial structure decisions are affected by share issues when valuations are high and debt issues when interest rates are low.

$$LEV = \alpha_0 + \beta_1 \cdot (WM/B) + \beta_2 \cdot MVCHA + \beta_3 \cdot SI + \beta_4 \cdot CD + \varepsilon, \quad (2)$$

where LEV is long-term debt scaled by long-term debt plus equity, (WM/B) is the 'external finance weighted-average' market-to-book ratio as determined by Baker and Wurgler (2002, p. 12):

and reduce agency conflicts via their representative/s on the board of directors (Rhoades et al., 2000). Eng and Mak (2003) have provided evidence that companies that display higher levels of institutional ownership tend to obtain financing on more favorable terms. In a similar vein, Ang and Ding (2006) have found that companies with significant institutional ownership tend to exhibit higher stock valuations.

Goethals and Ooghe (1997), Douma et al. (2006) and Aydin et al (2007) have reported a positive relation between foreign ownership and company performance. Also, the existence of independent directors on the board is positively associated with company performance (Mak and Li, 2001). Here, the study investigates the association between agency costs, financial structure and company performance. The hypothesis is presented below.

H_3 : Company performance is positively related to effective corporate governance and negatively to leverage.

The model used to test H_3 is based on Booth et al. (2001) and is presented below:

$$(M/B) = \alpha_0 + \beta_1 \cdot \%FO + \beta_2 \cdot \%INST + \beta_3 \cdot ND + \beta_4 \cdot NID + \beta_5 LEV + \varepsilon, \quad (4)$$

where (M/B) is market value of equity to book value of equity, $\%FO$ is the percentage of foreign ownership, $\%INST$ is the percentage of institutional ownership, ND is the total number of board directors, NID is the number of independent directors on the board, LEV is the long-term debt scaled by long-term debt plus equity, ε is the error term.

2.2. Datasets. The sample consists of companies that belong to the main stock indices of Morocco and Turkey, i.e. the MASI index for Morocco and the ISE National 100 index for Turkey. This study has examined 83 Moroccan companies and 135 Turkish companies. The period under investigation is 2002 to 2011. Accounting and financial data have been collected from DataStream. The research hypotheses are tested using the OLS regression analysis. Appendix shows the explanatory variables that are employed in the analysis. The study has accounted for heteroscedasticity, autocorrelation, departure from normality and multicollinearity, where appropriate.

3. Empirical findings

3.1. Descriptive statistics. Table 1 reports the descriptive statistics for Morocco and Turkey. For Morocco leverage is 9.19%, while for Turkey it is 13.75%. The variation reported for Morocco and Turkey exhibits no significant differences.

The mean for market-to-book value for Morocco is 249%, while for Turkey it is 111%. Morocco exhibits larger size. The mean values amount to 6.29 and 5.94 for Morocco as opposed to 6.03 and 5.80 for Turkey. Turkey presents higher asset tangibility compared to Morocco. The mean values amount to 39.88% and 48.17%, respectively. The mean values of profitability for Morocco and Turkey are 15.79% and 25.98%. Turkey's profitability, however, appears to be more volatile. Turkey also presents higher growth prospects, i.e. 34.38% as opposed to 15.72% for Morocco.

The mean of the market value change that is reported for Turkey is 28.20%, while for Morocco it is 12.56%. Morocco demonstrates higher stock index performance (21.77%) as opposed to Turkey (17.41%). The mean values obtained for the Treasury bill interest rate for Morocco and Turkey are not significantly different and amount to 3% and 3.12%, respectively. Morocco displays higher mean values of foreign ownership (16.15%) than Turkey (11.56%). The mean of institutional ownership is higher for Turkey (34.46%) compared to Morocco (7.43%). The means of the number of directors and the means of the number of independent directors on the board display no significant differences for the two countries, and amount to 10.54% and 3.04% for Morocco and 12.22% and 2.96% for Turkey, respectively.

Table 1. Descriptive statistics

Variables	Panel A: Morocco		Panel B: Turkey	
	Mean	Std. deviation	Mean	Std. deviation
LEV	9.19%	16.93%	13.75%	17.41%
(M/B)	249.18%	155.28%	111.67%	128.22%
$\ln(sales)$	6.29	84.35%	6.03	82.04%
AT	39.88%	25.51%	48.17%	34.67%
P	15.79%	39.80%	25.98%	167.40%
GP	15.72%	71.76%	34.38%	116.65%
$MVCHA$	12.56%	43.88%	28.20%	75.40%
(WM/B)	531.23%	167.00%	221.88%	124.26%
SI	21.77%	47.20%	17.41%	25.55%
CD	3.00%	0.83%	3.12%	1.16%
$\%FO$	16.15%	26.66%	11.56%	22.06%
$\%INST$	7.43%	20.08%	34.46%	32.56%
ND	10.54	281.67%	12.22	472.03%
NID	3.04	148.74%	2.96	146.69%

Note: The sample period is 2002 to 2011. This study has examined 83 Moroccan companies and 135 Turkish companies. LEV is the long-term debt scaled by long-term debt plus equity. (M/B) is the market value of equity to book value of equity. $\ln(sales)$ is the natural logarithm of sales. AT is the tangible assets scaled by total assets. P is the net income scaled by total sales. GP is sales growth. $MVCHA$ is the market value change. (WM/B) is the 'external finance weighted-average' market-to-book ratio as determined by Baker and Wurgler (2002, p. 12) and presented in equation (3). SI is the stock index performance as obtained from Datastream. This study has used the MASI index for Morocco and the ISE National 100 index for Turkey. CD is Treasury bill interest rate as obtained from the Central Bank. $\%FO$ is the percentage of foreign ownership. $\%INST$ is the percentage of institutional ownership. ND is the total number of board directors. NID is the number of independent directors on the board.

3.2. Financial structure determinants. H_1 predicts that leverage is positively associated with firm size and asset tangibility and negatively with profitability and growth. Table 2 presents the regression results for H_1 for Morocco and Turkey. Panels A and B show that, for both countries, size as expressed by $\ln(sales)$ is positively associated with leverage. Firms of large size would be likely to easier get access to funding. Also, given their visibility in the market, they would tend to be more faithful to their financial obligations and debt covenants. Moroccan and Turkish firms display a negative coefficient for asset tangibility (AT), reflecting a negative association with leverage. This is in line with Achy (2009) and may be explained on the basis that firms with a higher proportion of tangible assets in their balance sheet may already possess satisfactory sources of capital that reduce the need for borrowing. Table 2 indicates that the coefficients reported above for size and asset tangibility are larger for Moroccan firms.

As predicted, the reported sign of the coefficient obtained for net income scaled by total sales (P) is negative. This is in line with Myers and Majluf (1984), Rajan and Zingales (1995) and Booth et al.

(2001), who argue that profitable companies might prefer internal capital sources to external funding. A negative coefficient for growth (*GP*) has been obtained for Morocco, implying that high growth firms that carry higher levels of risk may face difficulties in raising debt. In contrast, Turkish firms with promising growth prospects tend to display higher leverage, potentially reflecting an easier access to debt markets that may be associated with positive expectations and future prospects. This difference between the two countries may also be related to their distinctive institutional dissimilarity or market maturity.

Table 2. Financial structure determinants

Panel A: Regression results for Morocco		Panel B: Regression results for Turkey	
Variables	Coefficients	Variables	Coefficients
<i>ln(sales)</i>	0.082 (3.29)	<i>ln(sales)</i>	0.059 (4.00)
<i>AT</i>	-0.242 (-4.99)	<i>AT</i>	-0.102 (-6.56)
<i>P</i>	-0.022 (1.98)	<i>P</i>	-0.035 (2.05)
<i>GP</i>	-0.048 (2.32)	<i>GP</i>	0.075 (2.21)
Adj. <i>R</i> ²	0.276	Adj. <i>R</i> ²	0.304
Sample size	<i>N</i> = 536	Sample size	<i>N</i> = 837

Notes: *t*-statistics is reported in parentheses. *ln(sales)* is the natural logarithm of sales. *AT* is the tangible assets scaled by total assets. *P* is the net income scaled by total sales. *GP* is the sales growth.

3.3. Financial structure decisions. *H*₂ predicts that financial structure decisions are significantly affected by share issues when valuations are high and debt issues when interest rates are low. The regression results for *H*₂ for Morocco and Turkey are presented in Table 3. Panels A and B show that, for both countries, the coefficients of ‘external finance weighted-average’ market-to-book ratio (*WM/B*) carry the predicted negative sign. Market value change (*MVCHA*) carries a negative coefficient for both Morocco and Turkey. The coefficient of *MVCHA* is higher for Turkey. This finding is consistent with the works of Huang et al. (2009), who concluded that firms use equity funds when the stock market conditions are favorable. The coefficient of stock index performance (*SI*) is significantly negative for Morocco, reflecting the inverse association between leverage and equity financing. Finally, Table 3 indicates a negative relationship between leverage and interest rate (*CD*), implying that the lower the interest rates the higher the motivation for borrowing.

Table 3. Financial structure decisions

Panel A: Regression results for Morocco		Panel B: Regression results for Turkey	
Variables	Coefficients	Variables	Coefficients
<i>(WM/B)</i>	-0.011 (2.54)	<i>(WM/B)</i>	-0.055 (1.99)

<i>MVCHA</i>	-0.035 (-4.24)	<i>MVCHA</i>	-0.042 (-2.40)
<i>SI</i>	-0.076 (-2.89)	<i>SI</i>	0.003 (0.15)
<i>CD</i>	-0.589 (2.25)	<i>CD</i>	-0.601 (2.87)
Adj. <i>R</i> ²	0.210	Adj. <i>R</i> ²	0.139
Sample size	<i>N</i> = 747	Sample size	<i>N</i> = 468

Notes: *t*-statistics is reported in parentheses. (*WM/B*) is the ‘external finance weighted-average’ market-to-book ratio as determined by Baker and Wurgler (2002, p. 12) and presented in equation (3). *MVCHA* is the market value change. *SI* is the stock index performance as obtained from Datastream. This study has used the MASI index for Morocco and the ISE National 100 index for Turkey. *CD* is the Treasury bill interest rate as obtained from the Central Bank.

3.4. Agency costs, financial structure and company performance. *H*₃ predicts that company performance is positively related to effective corporate governance and negatively to leverage. Table 4 presents the regression results for *H*₃ for Morocco and Turkey. The findings indicate that market to book value (*M/B*) is positively related to institutional ownership (*%INST*) for both Moroccan and Turkish firms. This is in line with Rhoades et al. (2000), who argue that institutional ownership contributes significantly to the alignment of managers’ interests with those of shareholders. Indeed, Eng and Mak (2003) report that institutional investors can monitor managers’ actions and reduce information asymmetry. Also, Ang and Ding (2006) have found that companies with higher institutional ownership tend to display higher stock valuations. Foreign ownership (*%FO*) is statistically significant only for Turkey, suggesting that foreign ownership would serve as an additional monitoring device and would positively affect market to book values (see also Douma et al., 2006; Aydin et al., 2007). Board structure is also significant and has a positive effect on market to book values for both countries (see also Yermack, 1996). In particular, the number of independent directors (*NID*) carries a positive coefficient and indicates that independent directors would influence investor perceptions positively as they play a stabilizing role in the board and limit managerial opportunism (see also Ross, 1977; Mak and Li, 2001). Finally, the impact of leverage (*LEV*) on firm performance is negative for both Turkey and Morocco. This is consistent with Weir et al. (2002), who also found a negative relationship between leverage and performance for UK firms. It is noteworthy that this finding is significantly more evident for Morocco, which displays a coefficient of -0.298 compared to -0.175 for Turkey.

Table 4. Agency costs, financial structure and company performance

Panel A: Morocco		Panel B: Turkey	
Variables	Coefficients	Variables	Coefficients
%FO	-0.101	%FO	0.358
	(-1.49)		(2.66)
%INST	0.219	%INST	0.265
	(2.45)		(4.62)
ND	0.029	ND	-0.029
	(0.44)		(-0.99)
NID	0.104	NID	0.062
	(2.82)		(3.63)
LEV	-0.298	LEV	-0.175
	(2.08)		(2.70)
Adj. R ²	0.420	Adj. R ²	0.191
Sample size	N = 436	Sample size	N = 492

Notes: *t*-statistics is reported in parentheses. %FO is the percentage of foreign ownership. %INST is the percentage of institutional ownership. ND is the total number of board directors. NID is the number of independent directors on the board. LEV is long-term debt scaled by long-term debt plus equity.

Conclusions

This study investigated capital structure determinants in two MENA countries, namely Morocco and Turkey. The study examined the association of leverage with key company financial attributes, such as firm size, asset tangibility, profitability and growth. It also focused on the market timing theory of capital structure, and considered whether financial structure decisions are affected by share issues when valuations are high and debt issues when interest rates are low. Finally, this study investigated the association between company performance, corporate governance and leverage.

The findings have shown that for both Morocco and Turkey, size is positively associated with leverage. Size is an important factor for managerial decision-making since highly visible companies are followed by financial analysts and their actions as well as financial credibility are more prone to criticism and scepticism. Moroccan and Turkish firms display a negative relation between asset tangibility, profitability and leverage, suggesting that profitable firms may drive their quest for financing to alternative capital sources. Moroccan firms exhibit a negative association between growth and leverage, indicating that high growth firms may experience difficulties in obtaining financing on favorable terms due to the potentially higher inherent risks. In contrast, high growth Turkish firms exhibit higher leverage, implying that positive expectations about their future prospects grant them smoother access to Turkish capital markets.

This study has also shown that firms would use equity financing when stock valuations are high and

investor perceptions are positive. For both countries, 'external finance weighted-average' market-to-book values and market value changes are negatively related to leverage. However, for Morocco, stock index performance displays a negative association with leverage. With regard to debt financing, this study has found a more significant motivation for borrowing when interest rates are lower.

The findings have also provided evidence that company performance is positively related to effective corporate governance and negatively to leverage. Moroccan and Turkish firms display a positive relation between market-to-book values and institutional ownership and board structure, as expressed by the number of independent directors on the board. Turkish firms also exhibit high foreign ownership. Effective corporate governance structures would monitor managers' actions and would limit potential opportunistic behaviors. For both Morocco and Turkey, the relation reported between market-to-book values and leverage is negative.

This study has found that different institutional backgrounds would influence financing decisions in a different manner. It is notable though that under the same institutional and macro-economic environment, financing policies may also differ significantly. The principal determinants of capital structure that apply for developed economies, as presented in the accounting literature, also apply for emerging Morocco and Turkey despite their distinctive institutional attributes. This study also shows that the market timing theory of capital structure holds for Morocco and Turkey. In a similar vein, agency cost considerations have also proved to be relevant and influential with regard to efficient financial decision-making.

The policy implications for the MENA countries that stem from this study suggest that enhancing financial reporting quality and disclosure would inform investors about companies' financial and business growth options and would enable them to efficiently allocate their capital to the most profitable investment plans. Also, higher reporting transparency, corporate governance structures and shareholder protection would reduce agency costs and would increase investors' returns. The reduction of corruption and law reinforcement would attract foreign capital and investments.

To confirm and generalize the findings of this study, future research should examine a wider sample of emerging countries with different institutional and economic characteristics. For example, the empirical investigation of common-law and code-law countries, or countries with strong and poor investor protection mechanisms or countries that implement IFRS would

add significantly to the understanding of capital structure incentives and managerial motivation under different financial conditions. Future research should

also investigate if the financial liberalization measures in Morocco and Turkey have yielded higher market efficiency and optimal capital structures.

References

1. Achy, L. (2009). "Corporate Capital Structure Choices in MENA: Empirical Evidence from Non-Listed Firms in Morocco", *Middle East Development Journal*, 1 (2), pp. 255-273.
2. Agrawal, A. and Knoeber, C. (1996). "Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders", *Journal of Financial and Quantitative Analysis*, 31 (3), pp. 377-397.
3. Ang, J. and Ding, D. (2006). "Government Ownership and the Performance of Government Linked Companies: The Case of Singapore", *Journal of Multinational Financial Management*, 16 (1), pp. 64-88.
4. Assaf, A. (2009). "Extreme Observations and Risk Assessment in the Equity Markets of MENA Region: Tail Measures and Value-at-Risk", *International Review of Financial Analysis*, 18 (3), pp. 109-116.
5. Aydin, N., Sayim, M. and Yalama, A. (2007). "Foreign Ownership and Firm Performance: Evidence from Turkey", *International Research Journal of Finance and Economics*, 11, pp. 104-109.
6. Baker, M. and Wurgler, J. (2002). "Market Timing and Capital Structure", *Journal of Finance*, 57 (1), pp. 1-32.
7. Beck, T., Demirguc-Kunt, A. and Maksimovic, V. (2008). "Financing Patterns Around the World: Are Small Firms Different?" *Journal of Financial Economics*, 89 (3), pp. 467-487.
8. Booth, L., Aivazian, V., Demirguc-Kunt, A. and Maksimovic, V. (2001). "Capital Structures in Developing Countries", *The Journal of Finance*, 56 (1), pp. 87-130.
9. Boubakri, N., Cosset, J. and Guedhami, O. (2005). "Liberalization, Corporate Governance and the Performance of Privatized Firms in Developing Countries", *Journal of Corporate Finance*, 11, pp. 767-790.
10. Chordia, T., Roll, R. and Subrahmanyam, A. (2005). "Evidence on the Speed of Convergence to Market Efficiency", *Journal of Financial Economics*, 76, pp. 271-292.
11. Crutchley, C., Jensen, M. and Raymond, J. (1999). "Agency Problems and Simultaneity of Financial Decision Making", *Review of International Financial Analysis*, 8 (1), pp. 177-197.
12. Douma, S., George, R. and Kabir, R. (2006). "Foreign and Domestic Ownership, Business Groups and Firm Performance: Evidence from a Large Emerging Market", *Strategic Management Journal*, 27 (7), pp. 637-657.
13. Eng, L. and Mak, Y. (2003). "Corporate Governance and Voluntary Disclosure", *Journal of Accounting and Public Policy*, 22 (4), pp. 325-345.
14. Errunza, V. (1983). "Emerging Markets: A New Opportunity for Improving Global Portfolio Performance", *Financial Analysts Journal*, 39 (5), pp. 51-58.
15. Fama, E. and French, K. (2002). "Testing Trade-Off and Pecking Order Predictions about Dividends and Debt", *Review of Financial Studies*, 15 (1), pp. 1-33.
16. Frank, M. and Goyal, V. (2008). "Trade-off and Pecking Order Theories of Debt", in Espen Eckbo (Editor) *Handbook of Corporate Finance: Empirical Corporate Finance*, 2, pp. 135-202 (Elsevier Science/North-Holland).
17. Frank, M. and Goyal, V. (2009). "Capital Structure Decisions: Which Factors are Reliably Important?" *Financial Management*, 38 (1), pp. 1-37.
18. Ghysels, E. and Cherkaoui, M. (2003). "Emerging Markets and Trading Costs: Lessons from Casablanca", *Journal of Empirical Finance*, 10, pp. 169-198.
19. Glen, J. and Pinto, B. (1994). "Debt or Equity? How Firms in Developing Countries Choose?", IFC Discussion Paper No. 22, Washington: International Finance Corporation.
20. Goethals, J. and Ooghe, H. (1997). "The Performance of Foreign and National Take-overs in Belgium", *European Business Review*, 97 (1), pp. 24-37.
21. Graham, J. and Harvey, C. (2001). "The Theory and Practice of Corporate Finance: Evidence from the Field", *Journal of Financial Economics*, 60 (2&3), pp. 187-243.
22. Harris, M. and Raviv, A. (1990). "Capital Structure and the Informational Role of Debt", *The Journal of Finance*, 45 (2), pp. 321-349.
23. Hart, O. (1995). *Firms, Contracts, and Financial Structure*, Clarendon Press, Oxford.
24. Hovakimian, A., Opler, T. and Titman, S. (2001). "The Debt-Equity Choice", *Journal of Financial and Quantitative Analysis*, 36 (1), pp. 1-24.
25. Huang, R., Ritter, J. and Jay, R. (2009). "Testing Theories of Capital Structure and Estimating the Speed of Adjustment", *Journal of Financial Quantitative Analysis*, 44 (2), pp. 237-271.
26. Jensen, M. and Meckling, W. (1976). "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure", *Journal of Financial Economics*, 3 (4), pp. 305-360.
27. Jensen, G., Solberg, D. and Zorn, T. (1992). "Simultaneous Determination of Insider Ownership, Debt and Dividend Policies", *Journal of Financial and Quantitative Analysis*, 27 (2), pp. 247-263.
28. Karemera, D., Ojah, K. and Cole, J. (1999). "Random Walks and Market Efficiency Tests: Evidence from Emerging Equity Market", *Review of Quantitative Finance and Accounting*, 13 (2), pp. 171-188.
29. Kraus, A. and Litzberger, R. (1973). "A State Preference Model of Optimal Financial Leverage", *Journal of Finance*, 28 (5), pp. 911-922.

30. Lagoarde-Segot, T. and Lucey, B. (2008). "The Capital Markets of the Middle East and North African Region: Situation and Characteristics", *Emerging Markets Finance and Trade*, 44, pp. 68-81.
31. Mak, Y. and Li, Y. (2001). "Determinants of Corporate Ownership and Board Structure: Evidence from Singapore", *Journal of Corporate Finance*, 7 (3), pp. 235-256.
32. Miller, M. (1977). "Debt and Taxes", *Journal of Finance*, 32 (2), pp. 261-275.
33. Modigliani, F. and Miller, M. (1958). "The Cost of Capital, Corporate Finance and the Theory of Investment", *American Economic Review*, 48 (3), pp. 261-297.
34. Modigliani, F. and Miller, M. (1963). "Corporate Income Taxes and the Cost of Capital: A Correction", *American Economic Review*, 53 (3), pp. 433-443.
35. Mohd, M., Perry, L. and Rimbey, N. (1995). "An Investigation of Dynamic Relationship between Agency Theory and Financial Policy", *Financial Review*, 30 (2), pp. 367-385.
36. Myers, S. (1977). "Determinants of Corporate Borrowing", *Journal of Financial Economics*, 5 (2), pp. 47-175.
37. Myers, S. and Majluf, N. (1984). "Corporate Financing and Investment Decisions when Firms Have Information that Investors Do not Have?" *Journal of Financial Economics*, 13 (2), pp. 187-221.
38. Myers, S. (2001). "Capital Structure", *The Journal of Economic Perspectives*, 15 (2), pp. 81-102.
39. Naceur, S., Ghazouani, S. and Omran, M. (2007). "The Performance of Newly Privatized Firms in Selected MENA Countries: The Role of Ownership Structure, Governance and Liberalization Policies", *International Review of Financial Analysis*, 16, pp. 332-353.
40. Naceur, S. and Omran, M. (2011). "The Effects of Bank Regulations, Competition, and Financial Reforms on Banks' Performance", *Emerging Markets Review*, 12, pp. 1-20.
41. Ozkan, A. (2000). "An Empirical Analysis of Corporate Debt Maturity Structure", *European Financial Management*, 6 (2), pp. 197-212.
42. Rajan, R. and Zingales, L. (1995). "What do We Know about Capital Structure? Some Evidence from International Data", *Journal of Finance*, 50 (5), pp. 1421-1460.
43. Rejichi, I. and Aloui, C. (2012). "Hurst Exponent Behavior and Assessment of the MENA Stock Markets Efficiency", *Research in International Business and Finance*, 26 (3), pp. 353-370.
44. Rhoades, D., Rechner, P. and Sundaramurthy, C. (2000). "Board Composition and Financial Performance: A Meta-Analysis of the Influence of Outside Directors", *Journal of Managerial Issues*, 12 (1), pp. 76-91.
45. Ross, G. (1977). "The Determination of Financial Structure: The Incentive Signalling Approach", *Bell Journal of Economics and Management Science*, 8 (1), pp. 23-40.
46. Shleifer, A. and Vishny, R. (1992). "Liquidation Values and Debt Capacity: A Market Equilibrium Approach", *Journal of Finance*, 47 (4), pp. 1343-1366.
47. Smimou, K. and Karabegovic, A. (2010). "On the Relationship between Economic Freedom and Equity Returns in the Emerging Markets: Evidence from the Middle East and North Africa (MENA) Stock Markets", *Emerging Markets Review*, 11 (2), pp. 119-151.
48. Titman, S. and Wessels, R. (1988). "The Determinants of Capital Structure Choice", *The Journal of Finance*, 43 (1), pp. 1-19.
49. Turk-Ariss, R. (2009). "Competitive Behavior in Middle East and North Africa Banking Systems", *The Quarterly Review of Economics and Finance*, 49, pp. 693-710.
50. Weir, C., Laing, D. and McKnight, P. (2002). "Internal and External Governance Mechanisms: Their Impact on the Performance of Large UK Public Companies", *Journal of Business Finance and Accounting*, 29 (5&6), pp. 579-611.
51. Welch, I. (2004). "Capital Structure and Stock Returns", *Journal of Political Economy*, 112 (1), pp. 31-106.
52. Yermack, D. (1996). "Higher Market Valuation for Firms with Small Board of Directors", *Journal of Financial Economics*, 40, pp. 185-211.
53. Zunino, L., Zanin, M., Tabak, B., Prez, D. and Osvaldo, R. (2010). "Complexity-Entropy Causality Plane: A Useful Approach to Quantify the Stock Market Inefficiency", *Physica A: Statistical Mechanics and its Applications*, 389 (9), pp. 1891-1901.

Appendix

Table 1. Accounting measures used as explanatory variables

<i>Lev</i>	Long-term debt scaled by long-term debt plus equity.
<i>(M/B)</i>	Market value of equity to book value of equity.
<i>ln(sales)</i>	The natural logarithm of sales.
<i>AT</i>	Tangible assets scaled by total assets.
<i>P</i>	Net income scaled by total sales.
<i>GP</i>	Sales growth.
<i>MVCHA</i>	Market value change.
<i>(WMB)</i>	The 'external finance weighted-average' market-to-book ratio as determined by Baker and Wurgler (2002, p. 12) and presented in equation (3).
<i>SI</i>	Stock index performance as obtained from Datastream. This study has used the MASI index for Morocco and the ISE National 100 index for Turkey.

Table 1 (cont.). Accounting measures used as explanatory variables

<i>CD</i>	Treasury bill interest rate as obtained from the Central Bank.
<i>%FO</i>	The percentage of foreign ownership.
<i>%INST</i>	The percentage of institutional ownership.
<i>ND</i>	The total number of board directors.
<i>NID</i>	The number of independent directors on the board.