



Risk exposure and corporate financial policy on the Ghana Stock Exchange

Risk exposure
and corporate
financial policy

323

Godfred A. Bokpin, Anthony Q.Q. Aboagye and Kofi A. Osei
Department of Finance, University of Ghana Business School, Legon, Ghana

Abstract

Purpose – The purpose of this paper is to examine the extent to which corporate managers alter their capital structure in response to risk exposures on the Ghana Stock Exchange (GSE).

Design/methodology/approach – A panel data covering the period from 2002 to 2007 was employed under the framework of the seemingly unrelated regression approach.

Findings – The paper finds that the direction and magnitude of the impact of risk exposures depends on capital structure measurement variables; namely, financial leverage, debt ratio, or short-term debt to equity. The paper also finds that corporate managers adjust their capital structure differently in response to different kinds of risk exposures namely business risk or financial risk. Specifically, operating risk, bankruptcy risk, and bankruptcy cost in addition to other firm level characteristics such as asset structure, firm size and profitability are found to be significant driving factors in shaping corporate financial policy on the GSE.

Originality/value – The main value of this paper is to analyze the relationship between risk exposures and corporate financial policy from a developing country perspective.

Keywords Financial risk, Corporate finances, Ghana, Stock exchanges, Capital structure

Paper type Research paper

1. Introduction

Empiricists have underscored the importance of capital structure to firm value after the Miller and Modigliani theory of 1958. Thus, the concept of capital structure has been explored both theoretically and empirically. Theoretically, the pecking order theory, the free cash flow theory, the capital signaling theory, the trade-off theory, the agency theory, the market timing theory (windows of opportunities), and the fact that capital structure is voluntarily chosen by managers (Zwiebel, 1996) have passed the test of time. The relevance of the signaling theory in explaining capital structure is well understood but the relationship between various measures of firm quality and the use of debt is still somewhat unclear especially the “reverse causation” problem of whether or not managers take risky actions before issuing long-term debt or the other way around. The spin-off problem of the famous chicken and egg paradox where it cannot be determined whether the chicken came first or the egg.

Standard corporate finance also asserts that, the firm’s decision to change its capital structure results in an agency problem, which may increase the degree of the firm’s risk. Consequently, Barnea *et al.* (1981) and Leland and Toft (1996) argue that, using short-term debt reduces this agency conflict, thus reducing the associated degree of risk. Hamada (1972) relates that approximately 21-24 percent of the observed systematic risk of common stock can be explained merely by the use of debt and preferred stock. Bradley *et al.* (1984) found a negative relationship between risk and the use of debt (MacKie-Mason, 1990). Myers and Majluf (1984) have alluded that under



asymmetric information, firms may prefer debt to equity financing (Ross, 1977; John, 1987). Thus, the financial-agency problems indicate that both investors and firms' managers must be quite aware of the effects of changing capital structure on the degree of systematic risk associated with their investments (Eldomiaty and Azim, 2008).

The level of corporate borrowing on the Ghana Stock Exchange (GSE) certainly raises questions both in terms of the determinants of corporate leverage and the implications for corporate risk exposure. The benefits of high leverage in restricting non-value-maximizing behavior by managers (Jensen, 1986, 1989) must be balanced with the increased concern of whether the increased leverage makes firms excessively vulnerable to a downturn (Friedman, 1986; Bernanke and Campbell, 1988). According to Gertler and Hubbard (1993), the risk is whether the existing corporate financial structure is not designed to insulate firms optimally against the risk of the business cycle. When firms are exposed to certain risks, it has to make certain changes to its capital structure to deal with the highly likely associated agency problems. Given that, information asymmetry is pervasive on the GSE, the extent of firms' capital structure sensitivity to risk must be explored. This is because; the asymmetric information may leave corporate insiders in Ghana with a degree of residual uncertainty leading to the pecking order effect, i.e. the relative preference of equity financing consistent with Noe (1988). Thus, we hypothesize that, risk exposure could change managerial predisposition towards the utilization of debt or equity on the GSE. Empiricists have suggested that, the presence of bankruptcy costs is to induce firms to minimize business risk by decreasing debt levels in their capital structures indicating a negative relationship between bankruptcy costs and capital structure. The question is to what extent does bankruptcy cost or probability of bankruptcy influence the capital structure decisions of firms on the GSE.

Despite the studies that have been carried out (Abor and Biekpe, 2005; Bokpin and Isshaq, 2008), there is a dearth of literature on the sensitivity of capital structure dynamics to various measures of risk exposure on the GSE. This research is important in filling the void in literature since in addition, theories of capital structure have basically evolved in the USA where the stock market is more vibrant and the financing instruments are more readily available than any of the developing economies such as Ghana. We then employ panel data analysis using a sample size of 19 firms from 2002-2007 to ascertain the extent which evidence from Ghana differs from both developed and developing economies?

The rest of the paper is organized as follows. Section 2.0 considers literature on the sensitivity of firms' capital structure to risk. Section 3.0 discusses data used in the study and also details the model specification used for the empirical analysis. Section 4.0 includes the discussion of the empirical results. Finally, Section 5.0 summarizes and concludes the paper.

2. Review of related literature

Businesses are faced with one kind of risk or the other that come from different sources including operating risk interpretable as common risk or idiosyncratic risk. But their consequences can be categorized as impacting business operating performance or financial performance (variation in return on assets or return on equity). The financing decision of a firm concerns the choice between debt and equity capital (Glen and Pinto, 1994). This financing decision varies from country to country, partly explained by

firm-specific factors, institutional and legal environment, as well as macroeconomic factors. Corporate finance theory hence suggests that firms' choice of capital structure result from agency problems which may increase the degree of firms' risk. Consequently, capital structure decisions are made jointly with the firms' risk exposure even though researchers have raised concerns that existing corporate financial policy is not designed to insulate firms optimally against the risk of the business cycle and other risks. Leland and Toft (1996) argue that using short-term debt reduces this agency conflict, thus reducing the associated degree of risk.

Under the agency problem, Kim and Sorensen (1986) argue that debt commits the firm to pay out cash, thus reducing the amount of free cash flow available to managers to engage in self-interest activities. This is consistent with Harris and Raviv (1990) who suggest that debt can be used as a disciplinary device to mitigate this agency problem by giving debtholders the chance to force liquidation of the firm if cash flows are poor. But the existence of bankruptcy costs is to also induce firms to minimize business risk by decreasing debt levels in their capital structures. This presupposes that the higher the probability of bankruptcy, the less debt a firm will include in its capital structure in order to secure its going concern. Thus, under the trade-off theory, Kim and Sorensen (1986) and Graham (2000) suggest that more use of debt should be preferred if the expected cost of bankruptcy is lower than the tax shield or other benefits of using debt. In this way, the trade-off theory suggests a negative relationship between leverage and expected bankruptcy costs (Lasfer, 1995). Firms' will alter their capital structure in response to the firm's risk exposures. Also according to Johnson (1997), firms with more volatile earnings growth may experience more states where cash flows are too low for debt service suggesting an inverse relationship between risk exposure and debt levels. According to Castanias (1983), the tax shelter-bankruptcy cost theory of capital structure determines a firm's optimal leverage as a function of business risk.

Ross (1977) relates that under asymmetric information, firms may prefer debt to equity financing. Mitigating the costs of financial distress requires that the outside lender absorbs the aggregate risk implying that the optimal contract is no longer pure debt, but a mixture of debt and equity, where equity is the mechanism through which the firm shifts (at least some of) the aggregate risk to its creditors (Gertler and Hubbard, 1993). Thus, when firms' are exposed to certain risks, they have to make certain changes to their capital structure to deal with the highly likely associated agency problems. Hamada (1972) relates that a firm's capital structure has a considerable effect on its systematic risk when he opines that approximately 21-24 percent of the observed systematic risk of common stock can be explained merely by the use of debt and preferred stock. Kale *et al.* (1991) had earlier concluded that level of risk is said to be one of the primary determinants of a firm's capital structure.

The pecking order theory, suggested by Jensen and Meckling (1976), Myers and Majluf (1984) and Myers (1984), holds that there is no such theoretical, well-defined target of debt-equity mix, and that due to information asymmetry between insiders and outsiders of firms, managers prefer internal financing to external financing. Consistent with this, Ezeoha (2008) using emerging market data confirmed an over-bearing influence of the pecking order theory in the financing patterns of Nigerian-quoted firms – by revealing that the relationship between profitability and financial leverage is highly significant and negative.

3. Data and model specification

The study pooled observations from 19 firms listed on the GSE from the period 2002 to 2007. The panel character of the data allows for the use of panel data analysis. Data were obtained mainly through the GSE FactBook, annual reports, and financial statements of the listed companies. The regression results however exclude financial institutions because of their peculiar liquidity needs and the need to meet regulatory requirements.

Analytical framework

The general form of the panel regression model is stated as:

$$y_{it} = \alpha + X'_{it}\beta + \mu_{it} \quad i = 1, \dots, N; \quad t = 1, \dots, T \quad (1)$$

where subscript i and t represent the firm and time, respectively. In this case, i represents the cross-section dimension, t represents the time-series component, Y is the dependent variable (which is a measure of capital structure), α is a scalar, β is $K \times 1$, and X_{it} is the i th observation on K explanatory variables. We assume that the μ_{it} follow a one-way error component model suggesting:

$$\mu_{it} = \mu_i + \nu_{it} \quad (2)$$

where μ_i is time-invariant and accounts for any unobservable individual-specific effect that is not included in the regression model. The term ν_{it} represents the remaining disturbance, and varies with the individual firms and time.

Model specification

Consistent with existing literature, we estimate the following specific multiple regression model:

$$\text{Deb}R_{it} = \alpha + \delta'RISK_{it} + \gamma'CTR_{it} + \mu_{it} \quad (3)$$

$$\text{STDE}_{it} = \alpha + \delta'RISK_{it} + \gamma'CTR_{it} + \mu_{it} \quad (4)$$

$$\text{LTDE}_{it} = \alpha + \delta'RISK_{it} + \gamma'CTR_{it} + \mu_{it} \quad (5)$$

where:

$\text{Deb}R_{it}$ represents debt ratio signifying ratio of total debt (both short- and long-term debt) total assets for firm i in time t .

STDE_{it} denotes ratio of short-term debt to equity for firm i in time t .

LTDE_{it} represents long-term debt to equity for firm i in time t .

RISK_{it} is a vector of risk exposure made up of the following:

Business risk measured by volatility in earnings, bankruptcy risk consistent with White and Turnbull (1974) computed as:

$$\frac{\text{FixedCharges} - \text{EBIT}}{\sigma \text{ of earnings}}$$

and finally bankruptcy cost measured by debt coverage ratio which has also been calculated as expected current earnings/debt payment. This is used as a proxy of failure also consistent with Castanias (1983).

CTR_{it} represents control variables including asset tangibility, growth in sales, dividend measuring transaction cost, taxes, age of the firm, profitability, and liquidity.

The form of the model is such that the pure fixed effects or random effects will be inappropriate. To avoid problems of endogeneity in the estimation and to mitigate problems of multicollinearity due to the collinearity in the explanatory variables, the seemingly unrelated regression (SUR) approach was adopted to jointly estimate a regression of leverage, debt ratio, and short-term debt to equity.

4. Empirical results

4.1 Descriptive statistics

Table I reports the descriptive summary statistics of both the dependent and the independent variables. Financial leverage records an overall mean of 1.7506 and shows variations across the sample size and over the period. Debt ratio registers an overall mean of 0.5268 with variations as shown by the standard deviation whilst short-term debt to equity records 1.2638. The risk measures namely; operating risk measured by volatility in earnings registers an overall mean of 0.1309, bankruptcy risk also registers -2.29×10^8 with bankruptcy cost registering 26.62039 as an overall mean. The risk variables all demonstrate variations over the period and across the sample size. Liquidity also registers 1.3704 and varies systematically across the time period and across the firms. Overall, mean value of tax is 0.2802, asset tangibility registers 0.4130, age registers 38.1442, with dividend registering 0.0449. Overall, mean for profitability is 0.0629 with size registering 3.9851.

4.2 Industry classification and debt levels of listed companies in Ghana

Table II reports debt levels of the various industries. Debt levels vary among the various industries. In all, financial institutions appear to be heavily leveraged especially with short-term borrowings. Even though, the GSE was established to

Variable	Observations	Mean	SD	Min	Max
Financial leverage	114	1.7506	5.8928	0	40
Debt ratio	114	0.5268	0.1892	0	0.9062
Short-term debt to equity	114	1.2638	0.9895	0	4.6255
Volatility	114	0.1309	0.1683	0	0.9483
Bankruptcy risk	98	-2.29×10^8	1.88×10^9	-1.53×10^{10}	7.29×10^9
Bankruptcy cost	83	26.62039	95.5299	-6.0893	828.05
Liquidity	106	1.3704	0.6304	0.3826	3.5889
Tax	114	0.2802	0.1928	-0.0562	1.0305
Tangibility	114	0.4130	0.2092	0	0.8551
Age	114	38.1842	16.5677	10	83
Dividend	114	0.0449	0.1026	0	0.88
Profitability	114	0.0629	0.0865	-0.1676	0.2965
Size	114	3.9851	1.4557	0.0566	6.361

Table I.
Descriptive summary
statistics of both the
dependent and the
explanatory variables

encourage the issuance of equity, it appears most firms listed on the GSE finance their operations more from debt.

In Table III, we report the regression results. Three dependent variables were employed to explain the sensitivity of capital structure to risk. The analysis therefore has been performed bearing in mind all the three measures of capital structure namely; financial leverage, debt ratio, and the ratio of short-term debt to equity. We find that, there is a negative but statistically insignificant relationship between business risk (operating risk) measured by volatility in earnings and two of the measures of capital structure namely financial leverage and choice of short-term debt over equity but statistically significant in terms of total debt to total assets (debt ratio). Firms will rebalance their capital structure according to the uncertainties surrounding their businesses on the GSE. Firms will reduce their debt levels when faced with increased operating risk consistent with theoretical predictions and empirical findings (Johnson, 1997). Bankruptcy risk exhibits a positive and statistically significant relationship with all the measures of capital structure. The literature suggests that the existence of bankruptcy risk is to induce firms to minimize business risk by decreasing debt levels in their capital structures (Castanias, 1983) but we did not confirm these findings on the GSE. Rather we report a positive relationship between bankruptcy risk and usage of debt by firms on the GSE. Probably managers' motivation in the usage of debt could come from the increased benefit of using debt (present value of tax savings as against the cost of financial distress) hence the positive relationship observed. Alternatively, investors will mark down or discount the value of issued equity when firms are faced with increased financial risk as a result of debt utilization hence the need to resort more to borrowing.

But we report a negative relationship between bankruptcy cost and capital structure. The relationship is statistically insignificant in the case of financial leverage and choice of short-term debt over equity whilst the relationship is statistically significant for debt ratio. Thus, as the cost of bankruptcy increases firms will cut down on the use of debt in their capital structure. Ozkan (2001) shows in the literature that, liquidity of firms exerts a negative impact on firms' borrowing decisions, we confirm these findings in case of debt ratio and the choice of short debt over equity but we report a different relationship with the choice of long-term debt over equity. Firms with higher liquid assets will issue long-term debt instruments in place of equity and will rather reduce short-term borrowings as they can use the liquid assets as a source of short-term financing.

Industry	Financial leverage	Debt ratio	Short-term – equity
Beverage	0.244094	0.516972	1.04835
Agric and agro-processing	0.765139	0.491562	1.400124
Manufacturing and trading	0.406312	0.515574	1.221914
Paper converters	1.150044	0.543861	1.345417
Metal and oil	11.84828	0.676642	1.828092
Finance and insurance	0.78502	0.782703	5.986497

Table II.
Industry classification
and debt levels

Source: Authors' own compilation

Equation	Obs	Parms	RMSE	R^2	χ^2	p
Leverage	82	9	1.0849	0.1712	16.36	0.0597
Debt ratio	82	9	0.1174	0.6016	121.43	0.0000
short-term	82	8	0.8199	0.4164	51.36	0.0000
	<i>Coef.</i>	<i>SE</i>	<i>Z</i>	$p > Z $		
<i>Leverage</i>						
Volatility	-0.7764	0.9174	-0.85	0.397		
Bankruptcy risk	1.24×10^{-10}	6.55×10^{-11}	1.90*	0.058		
Bankruptcy cost	-0.0020	0.0025	-0.80	0.423		
Liquidity	0.3977	0.1876	2.12**	0.034		
Tax	-0.1565	0.6610	-0.24	0.813		
Tangibility	0.0207	0.6886	0.03	0.976		
Age	-0.0170	0.0108	-1.58	0.114		
Dividend	1.3738	2.1050	0.65	0.514		
Profitability	-3.8587	1.5973	-2.42**	0.016		
Size	0.0359	0.0942	0.38	0.703		
<i>Debt ratio</i>						
Volatility	-0.1774	0.0981	-1.81*	0.071		
Bankruptcy risk	1.59×10^{-11}	7.00×10^{-12}	2.27**	0.023		
Bankruptcy cost	-0.0004	0.0003	-1.65*	0.099		
Liquidity	-0.0959	0.0168	-5.68***	0.000		
Tax	0.0611	0.0708	0.86	0.388		
Tangibility	-0.5206	0.0737	-7.07***	0.000		
Age	0.0007	0.0011	0.63	0.526		
Dividend	0.3792	0.2245	1.69*	0.091		
Profitability	-0.5576	0.1706	-3.27***	0.001		
Size	0.0160	0.0100	1.60*	0.109		
<i>Short-term debt</i>						
Volatility	-0.5142	0.7083	-0.73	0.468		
Bankruptcy risk	8.47×10^{-11}	5.05×10^{-11}	1.68*	0.093		
Bankruptcy cost	0.0019	0.0018	-1.01	0.310		
Liquidity	-0.4897	0.2029	-2.41**	0.016		
Tax	0.4901	0.5115	0.96	0.338		
Tangibility	-2.7246	0.5318	-5.12***	0.000		
Age	0.0037	0.0083	0.46	0.647		
Dividend	1.6257	1.6089	1.01	0.312		
Profitability	-4.6081	1.2293	-3.75***	0.000		
Size	0.1396	0.0715	1.95*	0.051		

Note: Means significant at *10, **5, and ***1 percent level of significance, respectively

Table III.
Regression results

On the control variables, tax shows different impact on the various measures of capital structure even though the impact is statistically insignificant. Asset structure (asset tangibility) shows mixed impact on capital structure. Whilst we report a negative and statistically significant relationship with debt ratio and the choice of short-term debt over equity, the relationship is positive but statistically insignificant in the case of financial leverage. Age of the firm was found not to be significant with any of the measures of capital structure measures. Whilst there is a statistically significant positive relationship between dividend payment and debt ratio, the relationship is statistically insignificant in the case of financial leverage and choice of short-term debt over equity. We also report a statistically significant negative relationship between

profitability and all the measures of capital structure. Thus, more profitable firms will alter their capital structure by cutting down on their debt levels consistent with most empirical evidence. Firm size, which is used here as a measure of transactional demand on firms exhibits a positive and statistically significant relationship with all the measures of capital structure with the exception of financial leverage where the relationship is insignificant.

5. Conclusions and implications

The paper examines the impact of risk exposures on capital structure decisions of firms on the GSE. Three measures of capital structure were employed under three main types of risks using a panel data analysis under the framework of SUR. We find that firms carry a substantial debt in their capital structure and the various industry classifications exhibit higher debt levels especially firms in the finance and insurance (financial institutions).

Corporate managers on the GSE adjust their capital structure in response to business uncertainties as we find a negative relationship between business risk (volatility in earnings) and all the measures of capital structure but the magnitude of the adjustment depends on the measure of the capital structure in line with Al-Ajmi *et al.* (2009). Contrary to exiting literature, we report a positive relationship between bankruptcy risk and all the measures of capital structure. Whilst, Castanias (1983) reports a negative relationship between bankruptcy risk and debt levels, our findings were at variance as our regression results portray a positive relationship. Corporate managers will resort to more borrowing as bankruptcy risk increases since probably issuing equity will expose the firm to more public scrutiny, which will lead to a mark down on the company. Firms on the GSE will respond to increase bankruptcy cost by cutting down on corporate borrowings. Several firm level characteristics are also important determinants of capital structure namely profitability, asset structure or asset tangibility and firm size. Thus, a myriad of factors account for the adjustment of firms' capital structure on the GSE. This paper principally considers risk at the firm level on the GSE, but there could be other risks at the macroeconomic level such as inflation, exchange rate that could impact firm's capital structure (Frank and Goyal, 2003). Institutional risk should also be considered to present a comprehensive understanding of the relationship between risk exposure and capital structure dynamics on the GSE.

References

- Abor, J. and Biekpe, N. (2005), "What determines the capital structure of listed firms in Ghana", *African Finance Journal*, Vol. 7 No. 1, pp. 37-48.
- Al-Ajmi, J., Hussain, H.A. and Al-Saleh, N. (2009), "Decisions on capital structure in a Zakat environment with prohibition of riba: the case of Saudi Arabia", *Journal of Risk Finance*, Vol. 10 No. 5, pp. 460-76.
- Barnea, A., Haugen, R.A. and Senbet, L.W. (1981), "An equilibrium analysis of debt, financing under costly tax arbitrage and agency problems", *Journal of Finance*, Vol. 36, pp. 569-81.
- Bernanke, B. and Campbell, J.Y. (1988), "Is there a corporate debt crisis?", *Brookings Papers on Economic Activity*, Vol. 1, pp. 83-125.
- Bokpin, A.G. and Isshaq, Z. (2008), "Stock market development and financing decisions of listed firms in Ghana", *African Journal of Business Management*, Vol. 2 No. 11, pp. 209-16.

- Bradley, M., Jarrell, G. and Kim, E. (1984), "On the existence of an optimal capital structure", *Journal of Finance*, Vol. 39, pp. 857-78.
- Castanias, R. (1983), "Bankruptcy risk and optimal capital structure", *Journal of Finance*, Vol. 38, pp. 1617-35.
- Eldomiatiy, T.I. and Azim, M.H. (2008), "The dynamics of capital structure and heterogeneous systematic risk classes in Egypt", *International Journal of Emerging Markets*, Vol. 3 No. 1, pp. 7-37.
- Ezeoha, A.E. (2008), "Firm size and corporate financial-leverage choice in a developing economy: evidence from Nigeria", *Journal of Risk Finance*, Vol. 9 No. 4, pp. 351-64.
- Frank, M.Z. and Goyal, V.K. (2003), "Testing the pecking order theory of capital structure", *Journal of Financial Economics*, Vol. 67 No. 2, pp. 217-48.
- Friedman, B. (1986), "Increasing indebtedness and financial instability in the United States", in Axelrod, S.H. et al. (Eds), *Debt, Financial Stability and Public Policy*, Federal Reserve Bank of Kansas City, Kansas City, KS.
- Gertler, M. and Hubbard, R.G. (1993), "Corporate financial risk, taxes and macroeconomic risk", *RAND Journal of Economics*, Vol. 24 No. 2, pp. 286-303.
- Glen, J. and Pinto, B. (1994), "Debt or equity? How firms in developing countries choose", Discussion Paper No. 22, IFC, Washington, DC.
- Graham, J.R. (2000), "How big are the tax benefits of debt?", *Journal of Finance*, Vol. 55, pp. 1901-41.
- Hamada, R.S. (1972), "The effects of the firm's capital structure on the systematic risk of common stocks", *Journal of Finance*, Vol. 27, pp. 435-52.
- Harris, M. and Raviv, A. (1990), "Capital structure and the informational role of debt", *Journal of Finance*, Vol. 45 No. 2, pp. 321-49.
- Jensen, M.C. (1986), "Agency costs of free cash flow, corporate finance, and takeovers", *American Economic Review*, Vol. 76, pp. 323-9.
- Jensen, M.C. (1989), "Active investors, LBOs, and the privatization of bankruptcy", *Journal of Applied Corporate Finance*, Vol. 2, pp. 35-44.
- Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3, pp. 305-60.
- John, K. (1987), "Risk-shifting incentives and signalling through corporate capital structure", *Journal of Finance*, Vol. 42, pp. 623-41.
- Johnson, S.A. (1997), "An empirical analysis of the determinants of corporate debt ownership structure", *Journal of Financial and Quantitative Analysis*, Vol. 32, pp. 7-69.
- Kale, J.R., Thomas, H.N. and Ramirez, G.G. (1991), "The effect of business risk on corporate capital structure: theory and evidence", *Journal of Finance*, Vol. 46, pp. 1693-715.
- Kim, W.S. and Sorensen, E.H. (1986), "Evidence on the impact of the agency costs of debt on corporate debt policy", *Journal of Financial and Quantitative Analysis*, Vol. 21, pp. 131-44.
- Lasfer, M.A. (1995), "Agency costs, taxes and debt: the UK evidence", *European Financial Management*, Vol. 1, pp. 265-85.
- Leland, H.E. and Toft, K.B. (1996), "Optimal capital structure, endogenous bankruptcy, and the term structure of credit spread", *Journal of Finance*, Vol. 51, pp. 987-1019.
- MacKie-Mason, J. (1990), "Do taxes affect corporate financing decisions?", *Journal of Finance*, Vol. 45, pp. 1471-93.
- Myers, S.C. (1984), "The capital structure puzzle", *Journal of Finance*, Vol. 39, pp. 575-92.

-
- Myers, S.C. and Majluf, N.S. (1984), "Corporate financing and investment decisions when firms have information that investors do not have", *Journal of Financial Economics*, Vol. 13, pp. 187-221.
- Noe, T.H. (1988), "Capital structure and signalling game equilibria", *The Review of Financial Studies*, Vol. 1, pp. 331-55.
- Ozkan, A. (2001), "Determinants of capital structure and adjustment to long-run target: evidence from UK company panel data", *Journal of Business Finance & Accounting*, Vol. 28, pp. 175-98.
- Ross, S.A. (1977), "The determination of financial structure: the incentive-signalling approach", *Bell Journal of Economics*, Vol. 8, pp. 23-40.
- White, R.W. and Turnbull, S.M. (1974), "The probability of bankruptcy for American industrial firms", Working Paper IFA-4-74, London Graduate School of Business Studies, London.
- Zwiebel, J. (1996), "Dynamic capital structure under managerial entrenchment", *American Economic Review*, Vol. 86 No. 5, pp. 1197-215.

Corresponding author

Godfred A. Bokpin can be contacted at: gabokpin@ug.edu.gh

To purchase reprints of this article please e-mail: reprints@emeraldinsight.com
Or visit our web site for further details: www.emeraldinsight.com/reprints

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.