THE IMPACT OF EXTERNAL FINANCING ON FIRM VALUE AND A CORPORATE GOVERNANCE INDEX: SME EVIDENCE

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Abstract

This paper investigates the effect of external financing needs on both firm value and corporate governance mechanisms within the UK SME context. This framework is of importance because of the limited external financial resources SMEs might face.We consider the endogeneity problem between corporate governance mechanisms and firm value, and hence, the three stages least squares (3SLS, hereafter) and the Instrumental Variables (IV, hereafter) based on Two Stages Least Squares (2SLS, hereafter) estimation methods are employed.We find a positive relationship between external financing needs and firm value. In addition, we detect that size and profitability are positively associated with firm value in our sample. Concerning the corporate governance index, we detect that big SMEs and those with low debt levels have better corporate governance structures.

Keywords: SMEs, Corporate governance index, external financing needs

Introduction

There has been a growing body of literature on the relationship between firm value and corporate governance. For example, Chen *et al.* (2010) stress the importance of the effect of external funding on corporate governance and firm value. Using Gompers *et al.*'s (2003) index, they report that corporate governance affects firm value. Most of the studies relate to large firms, with limited evidence on SMEs. Different studies, such as Al-Najjar (2015), Belghitar and Khan (2013), and Michaelas *et al.* (1999), provide evidence that the finance theory is applied in the SME context.

Given the importance of SMEs in the UK, as they represent the major employer of the UK market, we are interested in providing the first evidence on the relationship between corporate governance and firm value within the listed UK SMEs. To tackle the issues related to SME data, this study is interested in investigating publicly traded SMEs. These firms provide full financial statements, and in turn, most of their corporate governance and financial data are available. From 2550 SMEs across all industries (included in the FAME database), we find that only those publicly traded firms provide the required information. These SMEs follow different recommendations of good governance practices (such as The Cadbury Report (1992)); for example, they appoint independent directors and have board sub-committees, and hence, they are keen to minimise information asymmetry. The premise of this study is to investigate the effect of external financing needs on firm value and corporate governance, as this factor (external financing needs) is very important for SMEs given the limited sources of external funding they might face.

We adopt a corporate governance index for the UK SMEs that is constructed using 10 corporate governance variables, and we examine its relationship to firm value. We also examine factors that may affect corporate governance mechanisms by applying different models, including logistic modelling. This paper adds to the extant literature in several dimensions. First, we test for the relationship between firm value and the corporate governance index. In addition, this paper focuses on the under-researched context of UK listed SMEs. Moreover, we include ownership structure factors to investigate their impact on firm value. The findings show no evidence linking the corporate governance index and improved firm value in our sample. This result can be explained by the weak role of governance mechanisms in UK SMEs. Nevertheless, we provide evidence of a positive relationship between external financing needs and firm value. Concerning firm-specific factors, firm size and profitably are positively related to firm value. Furthermore, we detect some evidence of relationship between firm value and corporate governance. Finally, we report that large SMEs have better corporate governance mechanisms.

The remainder of the study is organised as follows: Section 2 presents a literature review; Section 3 presents the theoretical framework and hypotheses; Section 4 discusses the development of the corporate governance index; Section 5 describes the data and methodology; Section 6 reports the findings; and Section 7 concludes.

Literature Review

Prior studies emphasise the association between corporate governance mechanisms and firm value in large firms. Gompers *et al.* (2003) developed a corporate governance index that has been widely used in different studies (see for example, Chen *et al.*, 2010). They argue that firms with strong corporate governance mechanisms have more firm value and, consequently,

a higher level of sales. However, contradicting the results of Gompers *et al.* (2003), Chen *et al.* (2010) document a negative association between the governance index and firm value.

Regarding the relationship among the need for external financing, firm value, and corporate governance, it is argued that a high level of outside financing enhances firms' corporate governance structures. As stated by Durnev and Kim (2005), highly profitable firms are seen to adopt good corporate governance frameworks. This is because such firms utilise more internal resources and less outside financial resources. However, based on the assumptions of Durnev and Kim (2005), Chen *et al.* (2010) find evidence that external financing should be bound within a minimum level of cash flow rights. Therefore, firms with profitable investment opportunities are anticipated to increase outside financing to exhibit proper corporate governance viability. This is because investment opportunities are likely to reflect good corporate governance practices (see Durnev and Kim, 2005). Myers and Majluf (1984) argue that firms with positive investment incentives are more likely to increase outside financing costs due to asymmetric information. Chung (2006) posits that a good corporate governance framework is a tool to reduce information asymmetries. Firms with good governance practices are in a position to reduce external financing costs and, hence, increase firm value. Therefore, we stress the important effect of corporate governance mechanisms on firm value and outside financing costs.

Ownership structure also has an important effect on firm value. Agency problems arise when managers are involved in the process of pursuing self-incentive interests instead of working for the benefit of shareholders. However, firms can mitigate such problems by improving shareholders' rights because they are in a better position to control management and, hence, divert managers' self-pursuing interests. In so doing, firm value will increase as a result of strong monitoring of shareholders over managers.

Jensen and Meckling (1976) suggest the existence of converging interests between managers and shareholders as a result of a high level of ownership. This is because with higher ownership levels, directors can monitor management more effectively and thus reduce agency costs, which in turn will increase firm value. In the UK context, Short and Keasey (1999) and Weir *et al.* (2002) find evidence of a non-linear relationship between ownership structure and firm performance. High levels of institutional ownership will lead to greater control and monitoring over management, which will lead to better firm performance and value. Consistent with this argument, Shleifer and Vishny (1986) posit that external ownership is positively associated with firm performance.

Several studies have investigated the factors affecting firm value, more specifically, firm-level factors. Such factors include firm size, profitability, debt and investment opportunities. For example, Agrawal and Knoeber (1996) regress Tobin's Q on ownership structure variables and firm-specific factors including leverage and firm size. They find that a higher percentage of insider ownership helps enhance firm value. Regarding the firm level aspect, they document a negative association between size and leverage on firm value, arguing that less corporate debt improves firm performance.

Bhagat and Bolton (2008) adopt Gompers *et al.*'s (2003) corporate governance index and find that it affects operating performance in a positive fashion. Other evidence of firm value and corporate governance is put forward by Bebchuk *et al.* (2009), who analyse the effect of Gompers *et al.*'s (2003) corporate governance index on firm value. They also include firm-specific factors such as profitability, firm size, and leverage in their model with Tobin's Q as the dependent variable. They document a positive relationship between corporate governance index and firm value, suggesting that firms with a better corporate governance index are likely to improve their firm performance. They further posit that a

lower debt level enhances firm value. As for firm size, inconclusive results are obtained. Finally, Al-Najjar (2015), using a sample of UK SMEs, detects no relationship between the corporate governance index and SMEs' cash holdings decisions. In addition, Belghitar and Khan (2013) investigate the relationship between corporate governance and cash holdings in SMEs and report that UK SMEs with institutional investors and greater volatility in their cash flows hold more cash.

Because the focus of this paper is the need for external financing, it is argued that firms with external financing needs provide incentives for investment opportunities, thus increasing firm value.

Theoretical Framework and Hypothesis development

The theoretical basis regarding corporate governance and external financing needs draws on different dimensions. Concerning firm value, there are several discussions as to how corporate governance mechanisms affect firm value. Good corporate governance practices help enhance firm value and performance. The inclusion of outside financing needs involves the availability of investment opportunities for the firm, which will consequently increase firm value.

The first theoretical foundation regarding the relationship between external finances and firm value is the pecking order theory (Myers and Majluf, 1984). Different studies have investigated this theory in the SME context (see, for example, Al-Najjar, 2015). Asymmetric information between management and external investors leads firms to follow a specific pattern to finance their projects. The first and cheapest option for the firm is retained earnings, then issuing debt and, as a last resort, issuing equity (Myers and Majluf, 1984). The cost of external financing (in the presence of information asymmetry) is higher than the cost

of internal funds. Firms with external financing use investment opportunities that are available to them. This induces firms with profitable investment opportunities to enhance corporate governance practices and consequently improve their value.

Proper corporate governance mechanisms can stand as a platform to mitigate costs of capital related to outside financing. Hence, outside financing opportunities with good corporate governance practices can affect firm value.

Another perspective is agency theory, which has been examined in the SME context in different papers. Al-Najjar (2015) argues that this theory is applied in the SME context since SMEs have information opacity that creates more information asymmetry problems for such firms. In the presence of information asymmetry, there is a high likelihood that such firms will face agency costs. These costs are related to conflicts of interest arising between management and shareholders. Agency conflicts prevail in situations where managers are inclined to pursue their own interests instead of maximising shareholders' wealth. Managers tend to pursue their objectives in cases where such objectives increase their status, salary and other advantages in enhancing their company's positions (Jensen and Meckling, 1976). Nevertheless, firms can mitigate agency conflicts by adopting good corporate governance mechanisms. These mechanisms can be internal and external and can involve board structure, ownership structure, and sub-committee structure. In this study, we rely on the agency framework in associating corporate governance aspects and outside financing to firm value. This enables us to understand how corporate governance mechanisms are linked to external financing needs and firm value in UK listed SMEs.

Hence, different theoretical frameworks explain how corporate governance and outside financing needs can influence firm value (Chen *et al.*, 2010). We borrow this framework from large firms, since different studies, such as Al-Najjar (2015), Belghitar and Khan (2013), and Michaelas *et al.* (1999), find that the finance theory is applied in the SME context, and related theories have been examined in different aspects within the SME context.

In this section, we put forward a discussion of the investigated variables. We start with the corporate governance index, followed by external finance. Finally, we discuss the control variables (firm-specific factors).

Corporate Governance Index

As mentioned earlier, this study adopts a corporate governance index with the available corporate governance information of UK SMEs. The index shows that the higher the scale, the better the corporate governance mechanisms. It is argued that a positive relationship is expected between the corporate governance index and Tobin's Q. Gompers *et al.* (2003), using their corporate governance index, find that firms with strong corporate governance mechanisms have more firm value and higher sales. However, Chen *et al.* (2010) document a negative association between the corporate governance index and firm value. Using a governance index, Bebchuk *et al.* (2009) provide evidence that the firm entrenchment index fully drives the relation between firm value and the governance index. Cremers and Nair (2005) find that the ''external governance index'' impedes firm performance and valuation. Given the contradictory arguments and the endogeneity between the corporate governance index and firm value, we posit the following:

H1 (a): There is a relationship between the corporate governance index (CGI) and firm value.

H1 (b): There is a relationship between firm value and the corporate governance index.

External Financing Needs

External financing needs are also defined as outside financing. This factor has been used in previous empirical studies, such as Demirgüç-kunt and Maksimovic (1998), Durnev and Kim (2005) and Chen *et al.* (2010). All of these studies define the need for external financing as the difference between the annual growth rate and the sustainable growth rate, where the sustainable growth rate is calculated as the ratio of (ROE/1-ROE). Thus, if a firm's external financing needs are positive, a value of 1 is assigned, and 0 otherwise.

Profitable firms have more internally generated funds and will rely less on external funding (Demirgüç-Kunt and Maksimovic, 1998). Durnev and Kim (2005) suggest that firms with high "profitable investment opportunities" will tend to have better corporate governance practices.

We adopt the approach of Chen *et al*. (2010) and Durnev and Kim (2005) and argue that profitable investment opportunities generate more external financing, and thus, firms with more external financing opportunities tend to have better corporate governance. Hence, we posit the following hypotheses:

H2 (a): There is a positive association between external financing needs and firm value.

H2 (b): There is a positive relationship between external financing needs and the corporate governance index.

Ownership Structure

A large body of research discusses the relationship between ownership structure and firm value (see Hermalin and Weisbach, 1991; McConnell and Servaes, 1990; and Morck *et al*.,

1988). McConnell and Servaes (1990) indicate that the relationship between ownership structure and firm value is an inverted U-shape. If the ownership level increases, the firm value is likely to improve. At a certain point, however, the firm value falls even if the level of ownership is high. Faccio and Lasfer (1999) find a positive relationship between managerial ownership and firm value for US firms. Chaganti and Damanpour (1991) observe a positive association for a US sample, as do McConnell and Servaes (1990). Other studies, such as Agrawal and Knoeber (1996), have not found any significant link. The presence of institutions is beneficial, as they serve as a platform in alleviating agency problems arising between managers and shareholders. Accordingly, the following hypothesis is proposed:

H3: There is a positive relationship between institutional/ managerial ownership and firm value.

Firm-Specific Variables (control variables)

The following firm-specific variables are controlled for:

Firm Size: We use the natural logarithm of total assets as a proxy for firm size. If firms are large in size, they are more diversified, and hence, their value is likely to increase. Large firms normally have a large asset base, which can be utilised for investment opportunities and maximising firm value. Baek *et al.* (2004) report a positive relationship between firm size and firm value. Also, Chen *et al.* (2010) document a positive association between size and Tobin's Q. A positive relationship is also expected between firm size and corporate governance mechanisms. This is because large firms have greater opportunities to enhance their corporate governance frameworks.

Leverage: We use the ratio of short-term debt to total assets as our leverage indicator. Debt can help enhance firm performance (see, for example, Chen *et al.*, 2010). Stulz (1990) argue

that leverage provides incentives for management to increase value. In assessing the effect of debt structure on the corporate governance index, it is argued that less corporate debt will eventually lead to higher viability in corporate governance.

Capital Expenditures Ratio: We employ the ratio of capital expenditures to sales as a proxy for investment opportunities (see, Berger and Ofek, 1995; Chen *et al*., 2010). We argue that firms with good investment opportunities employ proper corporate governance mechanisms (see Durnev and Kim, 2005).

Profitability: We use the ratio of earnings before interest and tax over sales as our profitability index. Prior studies, such as Berger and Ofek (1995), use a similar measure. It is argued that highly profitable firms are likely to have higher values (Chen *et al.*, 2010).

The Development of a Corporate Governance Index (CGIndex)

We adopt the approach of Al-Najjar (2015) for an SME corporate governance index based on different corporate governance variables, namely, board size, board independence, board meetings, audit size, audit independence, audit meetings, existence of the remuneration committee, remuneration committee independence, existence of the nomination committee and nomination committee independence. The corporate governance index is assessed from a scale of 0 to 10. If a firm in a year meets all of the components of the corporate governance index then, it is assigned an index of 10; and for firms that have not met any of the criteria sustained in the index a value of 0 is assigned. The construction of the index is based on the recommendations of The Cadbury Report (1992) and The UK Corporate Governance Code (2010).

In cases where there is no specific indication of the recommended views on corporate governance details, the average of the variable is taken, where if a firm's governance

indicator is greater than the overall average of the sample's indicator, a value of 1 is assigned, and 0 otherwise. We employ this criterion for *board size*, as the evidence indicates that the larger the board, the better the performance. Larmous and Vafeas (2010) detect a positive association between board size and firm value, and thus, large boards will lead to higher firm value. Coles *et al.* (2008) argue that the benefit of having larger boards is that it enables firms to develop better advisory control terms. *Board meetings*: we argue that board meetings serve as a better index for the internal monitoring role, since firms can adopt new board meeting policies easier than changing their size or structure. Vafeas (1999) supports this point of view, and Lasfer (2002) argues that the higher board diligence infers more monitoring capacity in enhancing firm value. *Nomination independence*: independent directors serving on the board or sub-committees will improve the monitoring mechanisms. Concerning *sub-committees*, Klein (1998) posits that remuneration committees set an overview of remuneration plans for senior management; a value of 1 is given to firms having a remuneration committee, and 0 otherwise (the same criterion is adopted for the nomination committee). We suggest that the presence of these committees will improve firms' monitoring.

Following the recommendations of The Cadbury Report (1992) and The UK Corporate Governance Code (2010), an independent board should be composed of a minimum of 3 independent directors: "*all boards will require a minimum of three non-executive directors*" (Sec 4.11: 22). Also, "*there should be a minimum of three members*" for audit committee size (Sec 4.35 (a): 28). As far as audit independence is concerned, the following is recommended: "*the board should establish an audit committee of at least three or in the case of small companies two independent non-executive directors*" (Sec C.3.1: 19). Hence, because the emphasis of the paper is on SMEs, two non-executive directors are taken as the benchmark

for audit independence. Regarding the frequency of audit meetings, The Cadbury Report indicates that "*meetings shall be held not less than twice in a year*" (Annex 4, Cadbury Report). Furthermore, it is mentioned that "*in the case of smaller companies' two independent non-executive directors*" should be on the remuneration committee (Sec D.2.1: 23). Firms that meet these recommendations are given 1 and zero otherwise. Finally, we assign a corporate governance index for each firm on an annual basis, wherever corporate governance details are disclosed.

We present summary statistics of the corporate governance variables used in the construction of the corporate governance index. From Table 1, on average, 6 directors form the board in our sample. Concerning the audit characteristics, we find that audit size has a mean of 2 members on the audit committee, which is in line with The Cadbury Report (1992). In addition, audit independence is in line with the recommendations of the Report that the board should be mainly composed of independent directors. Furthermore, the average number of meetings is 2, which is in line with the meeting frequency of audit committees recommended in The Cadbury Report. Other information about sub-committees, such as the nomination committee, indicates that, on average, 2 members are on the committee. Regarding the nomination committee's independence, there is a high level of independent directors on the committee board.

[Insert Table 1 about here]

Data and Methodology

Data

Our sample consists of UK listed SMEs that meet the criteria of The British Department of Trade and Industry and is based on The Company's Act 2006 and Collis (2008). According to the turnover and the number of employees, the new thresholds for the number of employees should be within 50 and 250 employees, and the turnover should be within £6.5m to £25.9m (for the years 2008 and 2009) (see Collis, 2008). Before 2008, the number of employees should be within the range of 50 to 250, and the turnover should be within £5.6m and £22.8m. The final sample derived, after satisfying such criteria, is 307 firms, after excluding 34 financial-related firms.

We use different sources to collect our data: FAME, DataStream, firms' annual reports and the Thomson One Banker database. Financial data are collected from FAME and DataStream for the period 2000 to 2009. Information about shares owned by directors, board meetings, and audit meetings are hand-collected from firms' annual reports. Other corporate governance characteristics, such as board structure and sub-committees, are collected from Thomson One Banker.

[Insert Table 2 about here]

Table 2 shows summary statistics of the variables applied in the analysis. We find that our sample has an average Tobin's Q of approximately 55%. The variable of interest, which is the corporate governance index (CGIndex), has a mean of 3.3, ranging from a minimum of 0 to a maximum of 10, which is not high. One explanation is that we are dealing with SMEs that do not provide all information regarding corporate governance. On average, external financing needs have a mean of 0.526. This indicates that, on average, the external financing

needs of UK SMEs stand at approximately 53%. Interestingly, there is a low level of managerial ownership in the sample, with a mean of 20.1%. However, institutional ownership shows a higher percentage, with a mean of 41.6%.

[Insert Table 3 about here]

Table 3 presents the correlation matrix of the variables employed in the study. We find that the correlation coefficients are not high, and hence, multicollinearity is not a concern in our models.

Methodology

To investigate whether external financing needs affect corporate governance and firm value within the UK SME context, we employ different techniques to provide an in-depth analysis. To consider the endogeneity problem between the corporate governance index and firm value, we employ 3SLS and an instrumental variable (IV) based on 2SLS estimation methods. The Hausman test indicates that there is significant evidence of endogeneity in some of our models. Similarly, Hermalin and Weisbach (1991) posit that corporate governance characteristics in a regression analysis lead to the endogeneity problem. Therefore, the three stages least squares (3SLS, hereafter) and the Instrumental Variables (IV, hereafter) based on Two Stages Least Squares (2SLS, hereafter) estimation methods will provide robust results. The following model is adopted:

$$Tobin's\ Q_{it} = \beta_0 + \beta_1 CGIndex_{it} + \beta_2 EFN_{it} + \beta_3 MOwn_{it} + \beta_4 InstOwn_{it} + \beta_5 Size_{it} + \beta_6 Lev_{it} + \beta_7 EBITS_{it} + \varepsilon_{it}$$

Where Tobin's Q $_{it}$ is calculated as the market value of common equity plus the book value of preferred equity and long-term debt divided by the book value of assets; CGIndex is an index for each firm i in year t scaling from 0 to 10; EFN is a dummy variable that

takes 1 for firms with a positive difference between annual growth rate and sustainable growth rate, and 0 otherwise; MOwn is the ratio of the number of ordinary shares outstanding outstanding held by directors to the total number of shares outstanding; InstOwn is closely held shares from institutions; Size is the natural logarithm of total assets; Lev is the ratio of short-term debt to total assets; EBITS is the ratio of earnings before interest and tax to sales; and ε_{it} is the error term for firm i in year t.

The second model is also regressed using the OLS, 3SLS, and IV approaches. The regression model is set as follows:

$$CGIndex_{it} = \beta_0 + \beta_1 Tobin'sq_{it} + \beta_2 EFN_{it} + \beta_3 Size_{it} + \beta_4 Lev_{it} + \beta_5 Capex_{it} + \varepsilon_{it}$$

The variables are as defined previously with the exception of Capex, which is the ratio of capital expenditures to sales, and ε_{it} is the error term for firm i in year t.

We provide further evidence by conducting additional tests. First, we introduce a new variable by partitioning the sample based on the corporate governance index by taking its average and dividing the sample between those firms with a better or worse corporate governance index (BCGI). In so doing, we estimate the following model:

$$Tobin's\ Q_{it} = \beta_0 + \beta_1 BCGI_{it} + \beta_2 EFN_{it} + \beta_3 MOwn_{it} + \beta_4 InstOwn_{it} + \beta_5 Size_{it} + \beta_6 Lev_{it} + \beta_7 Capex_{it} + \varepsilon_{it}$$

Furthermore, we use a non-linear approach, namely, a logistic technique to examine which factors affect firms with a better or worse corporate governance index (CGI).

$$BCGI_{it} = \beta_0 + \beta_1 Tobin's\ Q_{it} + \beta_2 EFN_{it} + \beta_3 Size_{it} + \beta_4 Lev_{it} + \beta_5 Capex_{it} + \varepsilon_{it}$$

Where BCGI is a dummy variable taking the value of 1 for firms having a BCGI greater than average, and 0 otherwise. The other variables are previously defined; ε_{it} is the error term for firm i in year t.

We follow the argument of Aivazian *et al*. (2006:445) that "*the simultaneity problem is much reduced when the dependent variables are qualitative rather than continuous*". Hence, we estimate these models using logit and OLS estimators.

Results

[Insert Table 4 about here]

Table 4 reports the estimation results of three different models. Model 1 is regressed using pooled OLS; Model 2 applies IV estimation with 2SLS; and Model 3 uses a 3SLS technique. In panel A, we investigate the factors that affect firm value (which is measured by Tobin's Q). In Panel B, we examine whether our variables of interest (that is, external financing needs and Tobin's Q) can affect the corporate governance index in UK SMEs. R^2 is not reported, as it infers no statistical meaning in 2SLS or 3SLS, as maintained by Goldberger (1991). Throughout the three models, the coefficient of external financing needs is significant and positive, which indicates that firms with more outside financing have better firm value. This finding is consistent with Chen *et al.* (2010). This strong evidence indicates that UK SMEs with external financing needs enhance their value. However, we detect no evidence that corporate governance mechanisms enhance firm value. Also, ownership structure shows no impact on firm value. We can explain these results as follows: corporate governance mechanisms in UK SMEs are not active in monitoring firms, and, in turn, they do not improve firm value. Similar results are reported in the UK literature. For example, Guest

(2008) argues that independent directors in the UK are not as active as in the US, and Ozkan (2007) reports a weak link between independent directors and firms' monitoring.

Regarding firm-specific variables, the coefficient of size is positive and significant throughout the models. This shows that larger firms have more value because they are more diversified, and hence, size can enhance firm value. This is in accordance with the findings of Chen *et al.* (2010), who report a positive relationship between firm size and firm value. Profitability is positively associated with Tobin's Q. This result is consistent with Chen *et al.* (2010). Concerning leverage, we find a weak negative association with firm value (Model 1), which explains why firms with high debt ratios are more likely to reduce their value. Similar results are documented by Chen *et al.* (2010). A plausible explanation may be that high debt ratios increase the likelihood of financial distress and thus lower firm value.

In panel B, we investigate how external financing needs and firm-specific variables impact the corporate governance index. Our results show no evidence of a relationship between outside financing and the corporate governance index. Consistent with our hypothesis, the results show some positive evidence of a relationship between firm value and the corporate governance index, indicating that firms with better values are keen to adopt better governance mechanisms. The coefficient of firm size is positive and significant throughout the models, indicating that large firms that are more diversified have better corporate governance structures. Other variables, such as leverage, are found to be negatively associated with the corporate governance index, suggesting that firms with high debt ratios have weaker governance mechanisms.

[Insert Table 5 about here]

To provide more evidence on the effect of external financing needs on corporate governance and firm value, we run additional tests. The sample is split based on the average value of the corporate governance index, where firms with an higher than average index are categorised as having a better CGI, and vice versa. Two models are estimated as shown in Table 5. Model 1 applies pooled OLS, while Model 2 applies a logistic model.

From Model 1, we report that outside financing positively affects firm value. This is consistent with the argument that firms involved in outside financing have more incentives in enhancing firm value. In addition, we find no evidence on the relationship between ownership structure and Tobin's Q. Regarding the firm-specific variables, the results show a positive sign for size, leverage and capital expenditures. This shows that large firms with a better corporate governance structure improve their firm value.

Leverage is positively associated with Tobin's Q for firms with good corporate governance mechanisms. Such firms increase their debt behaviour for investment opportunity purposes, and hence, they are more likely to enhance their firm value. In Model 2, we create a dummy variable categorising firms with a value of 1 as having a good corporate governance index and 0 otherwise. The results show that firm size is positively associated with the probability of adopting a good corporate governance structure. Firms with low leverage tend to improve the likelihood of adopting a good corporate governance structure, perhaps because high leverage ratios may lead to financial distress. Finally, outside financing needs and firm value have no impact on a firm's likelihood of adopting a good corporate governance structure.

It is worth noting that when we re-estimate the models and include the squares of the institutional ownership and the managerial ownership to capture the non-linear relationship, we find that there is no evidence of a non-linear relationship of the ownership structure. The

results of the other variables are not substantially different from what we report in our tables.

Concluding Remarks

This paper is the first to assess the relationship between firm value and the corporate governance index in the UK SME context. We adopt a corporate governance index based on 10 corporate governance features reported by the selected SMEs. The score is based on The Cadbury Report (1992) and The UK Corporate Governance Code (2010). We investigate the impact of external financing needs on corporate governance framework and firm value.

The findings indicate that outside financing needs are positively related to firm value. Nevertheless, we report no evidence of a relationship between the corporate governance index and firm value within our sample. This indicates that SME governance mechanisms, in our sample, are not active, as in large firms. Therefore, policy makers in the UK need to draft rules and regulations for SMEs to encourage such monitoring practices. Regarding the factors affecting the corporate governance index, the results show that firms with high value enhance corporate governance tools, and hence, SMEs are encouraged to improve their governance mechanisms.

There are a few limitations to this study. First, our sample is limited to listed firms. This is because of the availability of the required governance information. Other unlisted SME studies would improve our understanding of governance mechanisms in such a context. Second, our corporate governance index employs information provided in our sample. Other governance data (such as CEO characteristics and external governance tools) would improve our understanding of the relationship between governance mechanisms and firm value. Finally, adding new dimensions such as corporate social responsibility would be of interest in SMEs.

Several contributions are achieved in this study. To our knowledge, this is the first study to analyse the impact of external financing needs on the corporate governance index and firm value for UK SMEs. Also, new evidence is reported that outside financing needs increase SMEs' value in the UK.

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Table 1 Summary Statistics of Corporate Governance Index

Variables	Observations	Mean	Minimum	Maximum
Bsize	2414	6	1	21
BoardInd	2414	0	0	1
BMeet	754	9	2	20
AudSize	1620	2	1	4
AudInd	1620	1	0	1
AudMeet	805	2	1	6
RemSize	1619	2	1	6
RemInd	1619	1	0	1
NomSize	841	2	1	8
NomInd	840	1	0	2

Bsize is defined as the number of directors on board; BoardInd is the ratio of non-executive directors to total number of board directors; BMeet is the total number of meetings; AudSize is the number of directors on audit committee; AudInd is defined as the ratio of directors to total number of directors on audit committee; AudMeet is the total number of audit meetings held in a year; RemSize is the total number of directors on remuneration committee; RemInd is the ratio of number of non-executive directors to total number of directors on remuneration committee; NomSize is the total number of directors on nomination committee; NomInd is the ratio of non-executive directors to total number of directors on nomination committee

Table 2 Descriptive Statistics

Variable	Observations	Mean	Minimum	Maximum
Tobin's Q	1222	0.545	0	0.999
CGIndex	3067	3.313	0	10
EFN	2314	0.526	0	1
Mown	1431	0.201	0.000012	0.950
InstOwn	2390	0.416	0	1
Size	2457	9.521	1.386	14.974
Lev	2447	0.067	0	0.917
Capex	2300	0.067	0	1
EBITS	2139	-0.003	-1	0.946

Note: Tobin's Q is calculated as the market value of common equity plus the book value of preferred equity and long-term debt divided by the book value of assets.; CGIndex is the corporate governance index giving a value from 0 to 10 for firm i in year t; EFN is defined as external financing needs, which a dummy variable that gives a value of 1 for firms with a positive difference between annual growth rate and sustainable growth rate, 0 otherwise; MOwn is the ratio of number of ordinary shares outstanding held by directors to the total number of ordinary shares outstanding; InstOwn is closely held shares; Size is defined as the natural logarithm of total assets; Lev is assessed as the ratio of short term debt to total assets; Capex is the ratio of capital expenditures to sales; EBITS is defined as the ratio of earnings before interest and tax over sales.

Table 3 Correlation Matrix

Variables	**Tobin's Q**	**CGIndex**	**EFN**	**MOwn**	**InstOwn**	**Size**	**Lev**	**Capex**	**EBITS**
Tobin's Q	1.000								
CGIndex	0.033	1.000							
EFN	0.096	-0.043	1.000						
Mown	-0.043	-0.248	-0.021	1.000					
InstOwn	-0.015	-0.215	0.031	0.453	1.000				
Size	0.090	0.374	-0.168	-0.297	-0.235	1.000			
Lev	0.098	-0.153	0.006	0.043	0.0009	-0.093	1.000		
Capex	0.114	0.040	0.026	-0.126	-0.047	0.258	-0.018	1.000	
EBITS	0.085	0.044	-0.253	0.057	0.068	0.118	-0.092	0.032	1.000

Variables as defined in Table 3

Table 4 Regression Results on Firm Value & Corporate Governance Index

Variables	**Pooled**	**IV**	**3SLS**
Panel A: Dependent Variable – Tobin's Q			
CGIndex	0.0004 (0.940)	-0.112 (0.191)	-0.118 (0.165)
EFN	0.065** (0.001)	0.072** (0.018)	0.077** (0.011)
Mown	-0.015 (0.831)	-0.194 (0.203)	-0.054 (0.706)
InstOwn	0.010 (0.866)	-0.120 (0.330)	-0.016 (0.886)
Size	0.024** (0.044)	0.109* (0.107)	0.127* (0.057)
Lev	0.260** (0.002)	-0.077 (0.790)	-0.094 (0.743)
EBITS	0.160** (0.008)	0.162** (0.043)	0.162** (0.041)
Constant	0.328** (0.011)	0.134 (0.556)	-0.091 (0.681)

Panel B: Dependent Variable – CGIndex			
Tobin's Q	0.984** (0.012)	-0.137 (0.974)	1.207 (0.753)
EFN	-0.104 (0.485)	-0.010 (0.960)	0.062 (0.822)
Size	0.807*** (0.000)	0.918*** (0.000)	0.925*** (0.000)
Lev	-2.435** (0.001)	-2.471* (0.059)	-3.251** (0.012)
Capex	-0.638 (0.442)	-0.692 (0.597)	-1.841 (0.148)
Constant	-4.301*** (0.000)	-4.580** (0.009)	-4.875** (0.005)

***, **, * significant at 1 %, 5 %, and 10 % levels respectively. Variables are defined in table 3.

Table 5 Regression Results for Better CGIndex

Variables	**Pooled**	**Logit**
	Dependent Variable: Tobin's Q	*Dependent Variable: BCGI =1 if firm's CGIndex is above average, 0 otherwise*
Tobin's Q		0.495 (0.127)
BCGI	-0.013 (0.574)	
EFN	0.065** (0.001)	0.044 (0.745)
Mown	-0.018 (0.810)	
InstOwn	0.006 (0.917)	
Size	0.026** (0.027)	0.548*** (0.000)
Lev	0.253** (0.003)	-1.746* (0.072)
Capex		0.402 (0.599)
Constant	0.322** (0.012)	-5.489*** (0.000)
No. of Observations	615	1131
F-Test	3.90** (0.001)	38.02*** (0.000)
R^2	0.0520	0.0789

***, **, * significant at 1 %, 5 %, and 10 % levels respectively. Variables are defined in table 3.