

THE IMPACT OF ENTERPRISE RISK MANAGEMENT ON FIRM PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES

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Abstract

In today's hostile and highly volatile business environment, risk management is a stumbling block for every organization in each sector. Yet little is known about ERM's effectiveness and even less research papers have focused on the analysis of relation between ERM and firm performance in SMEs. Therefore, this research paper focuses on the analysis of Enterprise Risk Management (ERM) in Small and Medium Enterprises (SMEs). The author uses the data obtained from FAME database that provides financial information on firms based in UK and Northern Ireland. 208 SMEs were selected according to different assumptions (predefined incorporation dates, availability of cashflow reports, profit and loss statements etc.) and analyzed. Independent variables like the amount of auditor fees, quality score, the male/female board of directors proportion, board structure were selected as they could explain the volatility of cashflow (CF) and return on assets, respectively. Seemingly unrelated regression (SUR) was chosen as a method to allow for contemporaneous correlation between errors in these 2 regression models. Results drew various conclusions (i.e. number of executive directors has positive impact on performance, but also raises the level of cashflow volatility). However, no significant relation was found between CA and ROA using this set of variables that opens a field for future researches in this area. Finally, research paper provides a plethora of useful practical implementations for key stakeholders who are interested in the development of SMEs (investors, banks, government regulators etc.).

Keywords: Enterprise risk management, small and medium enterprises, entrepreneurship

Introduction

According to Gordon et al. managing risk is a fundamental concern in today's dynamic global environment (Gordon et al., 2009). Risk management, as Stanton puts it, "refers to the process by which an

organisation identifies and analyses threats, examines alternatives, and accepts or mitigates those threats” (Stanton, 2012, p. 69). Culp (2008) notes that so-called Enterprise Risk Management – or ERM - is viewed today as one of the main key characteristics of successful companies which enables firms to view all risks facing a company through some form of common plan. ERM has emerged as a construct that ostensibly overcomes limitations of silo-based traditional risk management (TRM). For instance, Moody’s 6 clearly states that using different assessments that focus “on reputation, litigation, product development, and health and safety risks” are “commented favourably” by this agency (Benner et al, 2004, p. 13). Hence, risk management is a value adding technique that is aimed at generating additional profit to a company by giving an overview of all risky activities, constructing recovery plans and constant monitoring of day-to-day operations.

Yet little is known about ERM’s effectiveness: different researchers tried to assess how ERM adds value to the company through different ways (McShane et al., 2011; Gordon et al., 2009; Andersen, 2008). Even less research papers have focused on the analysis of relation between ERM and firm performance in SMEs (Small and Medium Enterprises). In author’s view, a large scientific gap still exists. But it does offer beneficial implementations in real world too (and they will be stated in future sections). That’s why it is important to understand how exactly this procedure is capable of generating value for a firm. Therefore, the aim of this research paper was the analysis of the impact of ERM on the firm performance in small-sized companies and creating measures that could describe different sides of risk management. The data was generated from “FAME” - a financial database covering 3.4 million companies in the UK and Republic of Ireland with the availability of company accounts, ratios, activities, ownership and management for the largest 2.4 million UK and Irish companies. The author have chosen 208 companies from all major business sectors (except for financial ones as they weren’t included) with the accessible data over 5 financial years (2008-2012). As the method of choosing the companies was not purely random the drawbacks and disadvantages of it were outlined in the special section. Seemingly Unrelated Regression (or SUR) was chose as a quantitative technique with which it was possible to clarify links between different regressions (mainly, the dependent variables) and provide more sophisticated results.

Literature Overview

According to Nocco and Stulz risk management has grasped a new variety of multiple risks and risk measures over the last ten years (Nocco & Stulz, 2006). The risk, as Liu puts it, has become “the most important factor

that influences the goal of enterprise to realize” (Liu, 2012, p. 289). Thus, how to deal with risks and how to understand their nature became nowadays the companies’ first priority. Aabo et al. postulate that it became evident that risk was considered as one of the primary threats that, if dealt properly, could turn out into an opportunity (Aabo et al., 2005). However, as Kalita argues, “managing risk individually seems to be less talked about today, while enterprise-wide risk management (EWRM) or firm-wide risk management or integrated risk management seems to be the current buzzword” (Kalita, 2004, p. 22). It (ERM) also promises to generate higher shareholder value by introducing a company’s risk profile (or portfolio) and retain some risks while decreasing the others. The level of importance that is now paid to corporate risk management is high if one searches, for instance, for CRO (Chief Risk Officer) appointments in diverse companies (CalPERS, ANZ, Lancashire Holdings etc.). Still, having a single CRO or even a small ERM group is not enough, according to Moeller (Moeller, 2007). Effective ERM board must ensure that risk structures and links are built throughout all corporation levels.

Classic approach to calculating ERM used different measures to calculate how efficient risk management is. Rao (2007) lists such variables as the speed of adopting changes, company’s risk appetite evaluated as β in CAPM model, reduction of operational surprises and losses in monetary values, the number of multiple and cross-enterprise risks company states in its risk report, and the improvement of capital deployment.

Gordon et al. analyzed the impact on firm performance generating a class of models that could uncover the real effect of enterprise-wide risk management (Gordon et al., 2009). The results of this research paper showed that firms with higher performance take ERM “more seriously” in implementing that policy and that companies that try to increase their level of risk managements efficiently need not only to consider the variables itself but their combination in the “best practice” model. Recent study by Gates et al., where the researchers were answering their hypothesis concerning risk management, showed that there exists a significant and positive relationship between company performance and enterprise-wide management (Gates et al., 2012).

However, do all empirical researches suggest that using ERM really increases companies profit and productivity? McShane et al. state, on the contrary, that ERM is overvalued and is an exaggerated risk management practice (McShane et al., 2011). Baxter et al. provide more rigorous analysis of ERM impact on firm earnings as they analyze the effect the approach had during pre-crisis, crisis and post-crisis periods (financial global crisis) (Baxter et al., 2012). The researchers estimated that during pre-crisis period

ERM had no significant value for equity market performance as the systemic risk, according to authors, was low.

Hollman and Mohammad-Zadeh identified simple and useful techniques that can be grasped by small businesses while undertaking a five-stage risk management process (Hollman & Mohammad-Zadeh, 1984). The authors stress the importance of insurances as the main driving risk tool for SMEs – they also stress the necessity of other methods to treat risk exposures, but conclude that it may be too sophisticated for small companies as they usually lack the experience needed in this area. Weidner in his book on small and medium tour operators shows that taking the basis of COSO framework makes it possible for SMEs to implement useful risk management techniques that go well beyond simple SWOT analysis and can protect the investments of the owners and increase the company's value (Weidner, 2010). Author argue that in order for small- and medium-sized companies to prosper, grow and become large corporations they need to focus mainly on 3 key elements: safeguarding of resources (as it was stated earlier), operational objectives (especially when dealing with large players on the market) and strategic objectives (as a firm has to look forward to enhancing its value and achieving new goals). Weidner emphasizes on taking into an account such important for SMEs values (while implementing ERM) as time, knowledge and money: that are, according to researcher, the key elements that the managers should pay attention at.

As we can see little effort was taken towards assessing the impact of risk management itself on firm performance (in terms of revenue, ROI, profits, etc.) while the importance paid to risk evaluation for SMEs is really high – especially due to the attention the banks now pay when companies apply for loans: for instance, Veda Advantage, a leading Australian and New Zealand credit data agency, shows that a drastic 29.72% increase in the number of defaults in July 2011 compared to the previous month (Kevany, 2010). It is crucial, therefore, to understand how SMEs deal with risks (if they do), what are the main driving forces or main activities that these companies undertake and how it helps to boost (if it helps at all) the performance of these organizations.

Methodology

Cashflow volatility and company performance

Many authors and researchers on entrepreneurship and SMEs argue that cashflow management is crucial for young companies and if this type of management is not taken seriously (or flawed completely) a company may quickly go out of business even though it generates profit and significant revenues (Kuratko & Hodgets, 2001; Kawasaki, 2004; Allen, 2010). Barringer in his book on how to launch a new venture properly warns readers

that without planning cashflow statements and setting mandatory milestones for managers a typical entrepreneur can go bankrupt during his first operating years (Barringer, 2012). Mullins goes even further and says that without knowing (at least approximately) cash cycle's characteristics (timing of customers' payments, how long it takes supplier to deliver your goods etc.) a new venture will not likely to grow over the long term (Mullins, 2006). Therefore, as the idea of proper risk management is important for this type of companies, one needs to answer whether ERM brings any value to cashflow management.

The overview on cashflow cycles and working capital showed that there exists a direct relationship between, for instance, how fast the bills are paid (either each transaction at the same time when the receipt is formed by a supplier or all transactions that were accumulated throughout a week at a specific day) and the firm performance: Wang concluded that shorter cashflow cycles are related to better operating small- and medium-sized companies (Wang, 2002). Ng et al. identified indirect consequences of good cashflow management that can result, for instance, in strengthening long-term relationships with clients (and a possibility that if something goes wrong a company will be given additional time to recover) (Ng et al., 1999). Furthermore, Soenen underlines the most important survival strategy for SMEs as to collect the cash as soon as possible and to postpone cash outflows as long as possible (Soenen, 1993). Still, the cashflow cycle is different for each industry and firms adhere to certain industrial cashflow benchmarks when they settle their own credit and investment policies (Hawawini et al., 1986).

Having analyzed these papers and main research questions we may conclude that there is a significant relation between cashflow volatility and firm performance. Thus, two independent variables were constructed:

1) The volatility of cashflow (VC). Different authors use various measures to classify the cashflow volatility. For example, Glisten & Milgrom (1985) treated their liquidity parameter (a proxy of volatility) as a subjective assessment of the distribution of random value that represents the consensus value of the stock given all public information. However, in our case this measure was calculated as a natural logarithm of a 5-year operating cashflow standard deviation divided by a an average turnover over 5 financial years (2008-2012):

$$VC = \ln \left(\frac{\sigma_{net\ cashflow\ from\ operating\ activites\ (2008-2012)}}{\mu_{turnover\ (2008-2012)}} \right),$$

where σ stands for standard deviation and μ for mean

2) Performance (P). As with volatility, there are multiple interpretations and treatments of performance measure. For instance, Clark (1986) stressed the importance of market share concentration as an inextricably associated

with high company performance. However, as the companies were majorly small and the author did not possess the information of market share this measurement was irrelevant for usage. In addition, instead of using Tobin's Q (as the majority of our companies are non-listed ones) an average Return on Assets over 5 years (2008-2012) as a possible alternative measure of firm's performance was taken:

$$P = \text{Average ROA (2008 – 2012)}$$

Return on assets was defined as profit (or loss) before tax divided by total assets company had.

Auditor and non-auditor fees

According to Carcello and Neal audit committees are extremely important for financial and strategic stability of the company as they ensure that corporate accountability and financial reporting are done flawlessly under their monitoring and no significant problems exist (Carcello & Neal, 2000). Therefore, auditors' remuneration may impact the level of audit control itself and, consequently, affect firm performance and value. O'Keefe et al. in their paper on medium-sized companies provide evidence that suggests that there exists a strong relationship between violation of GAAS (Generally Accepted Auditing Standards) reporting standards and auditor fees level (O'Keefe, 1994). It means that, according to researchers, in order to prevent the number of violations in GAAS reporting companies have to spend more money on auditors' salaries and fees. Gordon et al. also indicate in their paper that increased compliance with different regulations and laws can be reflected through auditor fees (Gordon et al., 2009). But there is a different point of view on audit fees: Hay et al. state in their research paper that "the worse the performance of an organization, the more risk to the auditor and the higher the audit fee is expected to be" (Hay et al., 2006, p. 163).

In this study actual auditor fees (AF) and non-auditor fees (NAF) (fees paid to auditors for other additional services, like tax advisory services, strategic advisory, marketing etc.) were combined into 1 variable as colinearity diagnosis showed significant and strong positive relation between the two (correlation = 0.55; p-value < 0.05). As one is interested where these fees reduced/increased the volatility/performance of a company the author used 2008's values and scaled them by the natural logarithm of the same year's turnover:

$$CAF = \ln \left(\frac{\text{Auditor fees 2008} + \text{Non – auditor fees 2008}}{\text{turnover 2008}} \right)$$

Moreover, to test if spending on auditor and non-auditor fees had a bell-shape behavior a CAF-squared variable was added:

$$CAF_{sq} = CAF^2$$

Gender

According to many different studies researchers uncovered that male-dominated SMEs usually outperform their female-dominated rivals (e.g. Watson, 2001; Johnson, 2002). One interesting study carried out by Watson and Robinson showed that the variation of profits for “male” companies (where the decisions were taken primarily by male directors and chief officers) was higher, on average, than the variation for “female” companies (Watson & Robinson, 2003). On the other hand, a study by Johnson showed no significant between male- and female styles of running business as it had neither effect on companies’ performances, nor on their volatility of earnings (a possible measure of growth) (Johnson, 2002). Moreover, author found that high leverage ratios that are usually associated with extreme aggressive “male” style of management were also common in female-dominated companies. Nevertheless, the main limitation of these researches was a scope of female-dominated firms: usually, it was incomparable with male-dominated companies as only few firms which had more women than men on the board were found and included in samples.

Therefore, gender plays a crucial role in defining what risk management policy a firm will stick to and how well it will perform in the future. Furthermore, the board demographics can predict how threats and different issues will be understood and coped with as the gender plays a crucial role in risk management and, consequently, ERM implementation. However, how does one define whether the company is run by men or by women? One proxy measure can be a proportion of men to the overall number of board members or the level of male-domination in a company. The author used 2008’s figures as the effect the original board had on the future volatility of cashflow and performance was of a primarily interest:

$$= \frac{\text{Male Domination Index (MDI)}}{\text{Total number of execture directors 2008}}^{113}$$

Board structure

Dalton et al. acknowledge a direct link between the board size, risk management and firm performance when they argue that high level of uncertainty and volatility may lead to an increased board (Dalton et al., 1999). They (researchers) find that there exists once again a positive relation

¹¹³ Thus, a variable will take a measure of 1 if a company is fully run by men and a measure of 0 if run by women only. Nevertheless, this is only an approximation as the proportion doesn’t guarantee that there won’t be a leader who will be capable of coordinating the whole board: for example, even though the board will be majorly run by women, there might a male CEO whom all the others will follow. Moreover, there were directors who didn’t specify their gender, even though they represented a small number.

between board size and firm performance – however, it is more significant for small-sized companies than for large corporations. These results are vital for this study as the main focus of our analysis is aimed at them. However, as authors assume, the board has not to be only large, but also heterogeneous because simple, homogeneous boards “may not capture the dynamics of directors’ multiple roles” (Dalton et al., 1999). This idea is essential for ERM as, according to Moeller, efficient senior management group must be composed of key employees that have sufficient knowledge that cover all aspects of risk management (Moeller, 2007). Nevertheless, not all studies agree that large board is better for firm performance: for instance, Nguyen and Faff argue that firms do not benefit from increasing its board committee and, on contrary, can even lose some level of its value (Nguyen & Faff, 2007). Moreover, authors state that it is wiser to reduce the board size in order to improve company efficiency. Nevertheless, researchers uncover that there is no such relation between two variables and show a significant negative relationship between board size and firm performance.

Being interested in the effect original board has on volatility and company performance, the author used the number of directors in 2008 and averaged them by the same value that was used for auditor and non-auditor fees. Also, a division of the directors into executive and non-executive was performed as, according to prior research, they are the most significant ones for a firm. Finally, the variables constructed are¹¹⁴:

$$ED = \frac{\text{Number of executive directors}}{\ln(\text{turnover 2008})}$$

$$NED = \frac{\text{Number of non – executive directors}}{\ln(\text{turnover 2008})}$$

Credit rating

In this work QuiScore will be used – a rating developed by CRIF Decision Solutions Limited that takes in account a large variety of factors. These include external economic conditions in the sector, possible violations of compliances with audit standards, average timeframes to file certain financial accounts etc. However, the most important factors that contribute to this score are financial ratios, cashflow statements and profit and loss accounts. Being a single number or a band (ranging from “secure” to “high risk”) QuiScore indicate the likelihood of failure a company faces in the

¹¹⁴ The sum of both variables doesn’t add up to 1 (that’s why 2 measures were constructed for both executives and non-executives) as different type of directors exist that don’t fit in any of our variables (e.g., “Others” were usually directors who were non-executives but were involved in day-to-day company’s operations because, for instance, the company was an affiliate of a parent organization).

current period based on historical analysis. As ERM is a firm-wide framework, this credit rating is a proxy measure of organization's health, performance, and, what is even more important, of how it deals with market uncertainties and realizes opportunities. What is more important is if this rating is proved to be significant it can be grasped by banks, lenders and other financial institutions that lend money to start-ups and SMEs during reinvestment stages. Thus, one is interested how the rating is able to describe the level of volatility in a certain company and, also, how well it is going to perform in the following years. Hence, the author used QuiScore of 2008 as to test its reliability and how well it predicts the quality of risk management in a firm:

$$QS = Previous (2008)QuiScore$$

Model

As a quantitative technique Seemingly Unrelated Regression (SUR) was chosen, because, according to Adkins and Hill, it “permits equation coefficients and variance to differ, and also allows for contemporaneous correlation between the errors” (Adkins & Hill, 2011, p. 312). It is a very useful technique in our case as it allows to run two regressions with different independent variables (ROA and VC) and to test how the residuals of these regressions are correlated with each other, using GLS instead of simple OLS (thus, “minimizing” our variance):

Model of volatility of operating cashflow:

$$VC = \beta_0 + \beta_1CAF + \beta_2ED + \beta_3NED + \beta_4QS + \beta_5DS + \beta_6DL + \beta_7MDI + \beta_8AT + \beta_9CAFsq + \varepsilon_{VC}$$

Model of return on assets as a dependent variable:

$$P = \beta_0 + \beta_1CAF + \beta_2ED + \beta_3NED + \beta_4QS + \beta_5DS + \beta_6DL + \beta_7MDI + \beta_8AT + \beta_9CAFsq + \varepsilon_{ROA}$$

Hypotheses:

Our testing hypotheses will be:

H1a) Previous auditor and non-auditor fees are significantly related to the present performance of companies in our sample

H1b) Previous auditor and non-auditor fees are significantly related to the present volatility of cashflow of companies in our sample

H2a) Gender demographics of the original board of directors is significantly related to the present performance of companies in our sample

H2b) Gender demographics of the original board of directors is significantly related to the present volatility of cashflow of companies in our sample

H3a) Original number of executive directors is significantly related to the present performance of companies in our sample

H3b) Original number of non-executive directors is significantly related to the present performance of companies in our sample

H3c) Original number of executive directors is significantly related to the present volatility of cashflow of companies in our sample

H3d) Original number of non-executive directors is significantly related to the present volatility of cashflow of companies in our sample

H4a) Previous QuiScore credit rating an organization received is significantly related to the present performance of companies in our sample

H4b) Previous QuiScore credit rating an organization received is significantly related to the present volatility of cashflow of companies in our sample

H5) There is a significant and negative relation between volatility of cashflow and company's performance, meaning that if company implements ERM techniques and reduces its exposure to multiple risks it brings additional value to the company and, thus, increases its performance

Data

The analyzed companies were obtained from FAME database that provides financial information on firms based in UK and Northern Ireland. As the main focus of our work lies in small and medium companies one of the filtering criteria was the organization's incorporation date and its shift from start-up stage to SME stage. Therefore, the incorporation date was chosen between 01/01/2007 till 31/12/2007 with the availability of cashflow records, profit and loss statements and balance sheets over 5 years (from 2008 till 2012). According to Shane, if the firm survives during first 5 years of operation (however, only 45% of all companies can reach this stage, as author argues) then the marginal likelihood of failure for the following years is less drastic (the survival rate for 10 years is approximately 30%) (Shane, 2008). Also, non-financial companies represent the largest fast-growing sector in UK and Northern Ireland as 100FastTrack 2012 Report indicate: especially services and retail are the dominant sectors on the FastTrack league table (more than 80% of all companies observed). Thus, it means that out of 178,625 companies the author has chosen 211 that satisfied our selection criteria of newly established non-financial companies that have all the data needed. Three companies that lacked data on demographics were deleted from the sample and a final sample of 208 observations was composed.

Table 3 Data observations – sectors

Sector	Frequency	Percentage	Cumulative percentage
<i>Services</i>	101	48.56	48.56
<i>Wholesale & retail trade</i>	31	14.90	63.46

<i>Machinery, equipment, furniture, recycling</i>	13	6.25	69.71
<i>Transport</i>	12	5.77	75.48
<i>Construction</i>	10	4.81	80.29
<i>Chemicals, rubber, non-metallic products</i>	9	4.33	84.62
<i>Education, Health</i>	7	3.37	87.98
<i>Food, beverages, tobacco</i>	7	3.37	91.35
<i>Hotels & restaurants</i>	5	2.40	93.75
<i>Metals & metal products</i>	5	2.40	96.15
<i>Publishing, printing</i>	4	1.92	98.08
<i>Primary sector (agriculture, mining, etc.</i>	2	0.96	99.04
<i>Wood, cork, paper</i>	2	0.96	100.00
Total	208	100.00	

Inspection of how well the companies in our sample have performed over 5 financial years (2008-2012) showed, that being majorly distributed around 0 (median is 0,03) a large part of observations (72 firms) fall in the left region where their ROA ratios are negative: this can be explained by a severe financial shock that occurred in 2008 and where its consequences are still persistent. Hughes and Saleheen support this idea providing evidence on drastic negative change of UK labor productivity in comparison to advanced European countries (German, France, Norway etc.) and US (Hughes & Saleheen, 2012). Authors showed that UK's productivity was one of the lowest among many analyzed countries and was experiencing the weakest trend than in all 13 episodes of financial downturns. Also, as more than 50% of all companies in Britain were under control of consumer and business service companies, according to researchers' estimations, the effects of the crisis were primarily felt in these service-oriented sectors that give one more explanation why our sample has this certain distribution of ROA. Therefore, a dummy variable (DS) that stands for service companies was created (taking a value of 1 if it was a service company and a value of 0 if not) as service companies represent the main part in SME's sample and are fundamental blocks of UK economy.

A dummy variable (DL) that takes value of 1 if the company is publicly listed and 0 if not was introduced: we assume that publicly listed companies hold responsibility before a larger number of shareholders and, thus, are more controlled while their actions and strategies can be monitored by everyone who has a share in an organization. Contrary to publicly listed companies, unlisted companies are more closed and are not as transparent

which gives a possibility for the main directors to violate certain ERM rules and underperform, purchasing unnecessary goods/services (or simply spending investor's money) outside the organization's interests. In order to account for size effect a variable that represented a natural logarithm of average turnover over 5 financial years (AT) was plotted.

After careful examination of extreme outliers of cashflow volatility and auditor fees our distribution of this dependent variables was manually adjusted and performed logarithmization. The effect of this procedure made the distributions spread more evenly across our observations:

Table 4 Data observation – variables

Variable	Mean	Std. dev.	Min	Max
<i>P</i>	0.61	0.21	-1.08	1.15
<i>VC</i>	4.97	1.55	1.07	10.43
<i>CAF</i>	1.41	0.31	-2.59	5.69
<i>AT</i>	10.16	1.82	6.09	16.46
<i>DS</i>	0.49	0.50	0.00	1.00
<i>NED</i>	0.43	0.15	0.00	1.02
<i>ED</i>	0.41	0.32	0.00	1.71
<i>DL</i>	0.10	0.30	0.00	1.00
<i>MDI</i>	0.87	0.22	0.00	1.00
<i>QS</i>	79.91	12.33	28.00	93.00

Results

Having performed collinearity diagnostics (see Table 3) we may still notice high VIFs associated with combined auditor fees, dummy variable for listed companies and number of non-executive directors (2.36, 3.79 and 4.13, respectively). However, they are all less than 10 and our mean VIF is only 2.14. Hence, we may experience a certain degree of multicollinearity in our analysis as reducing key independent variables further may be harmful for our research and testing of hypothesis, but it will not bring serious noise to our results.

Table 5 Collinearity Diagnostics

Variable	VIF	Sqrt. VIF	Tolerance	R-squared
<i>CAF</i>	2.36	1.54	0.42	0.58
<i>AT</i>	2.19	1.48	0.46	0.54
<i>DS</i>	1.29	1.14	0.78	0.22
<i>NED</i>	4.13	2.03	0.24	0.76
<i>ED</i>	1.16	1.07	0.87	0.13
<i>DL</i>	3.79	1.95	0.26	0.74
<i>MDI</i>	1.01	1.01	0.99	0.01
<i>QS</i>	1.16	1.08	0.86	0.13
<i>Mean VIF</i>	2.14			

Table 4 presents the output of seemingly unrelated regression. Our individual regression where VC is a dependent variable has high R-squared

and χ^2 values (0.66 and 401.54, respectively). However, the regression with ROA as a dependent variable is less explained by the model that was constructed (R-squared is only 0.12). Still, the value of χ^2 of 28.25 and $p < 0.01$ indicates that our regression is meaningful and has some explanatory power. After having readjusted our regression model we concluded that previous auditor fees tend to behave in more complex way than was originally expected. The output received is highly interesting: the best options, according to it, are either not to spend money on auditor fees at all or to provide large remunerations fees that may result in a long-term assistance. The worst option is to spend only a small fraction on it and assume that benefits will be achieved immediately – on contrary, it will diminish the performance and boost the volatility. Thus, SMEs have to think carefully before paying huge salaries to independent auditors as usually these payments represent a large proportion of funds they have and which are vitally needed in order to survive first stages of development. As ERM is aimed at generating value for the company in long-term it is highly unlikely that paying last money for a piece of advice is better than spending it on additional equipment or marketing. Once again, the results represent a better understanding of how value is brought by the process of risk management if auditing is taken as a possible tool – not a contradiction in itself.

What shall a company expect if it is run mainly by women or mainly by men (*ceteris paribus*)? Our answer is that it does not matter. If the company has more male directors than female ones (during the phase of incorporation) it will not lead to more aggressive and, thus, more volatile style of management and growth. Moreover, it will not explain future average performance as it has no effect either.

Table 6 Results of the estimation of volatility of cashflow and return on assets

Variable	VC	P
<i>CAF</i>	0.50*** (0.08)	-0.04** (0.02)
<i>CAF_{sq}</i>	-0.04* (0.02)	0.01** (0.00)
<i>AT</i>	0.38*** (0.05)	-0.01 (0.01)
<i>DS</i>	0.07 (0.14)	0.07** (0.03)
<i>NED</i>	2.14** (0.93)	0.49* (0.20)
<i>ED</i>	0.49** (0.21)	0.08* (0.05)
<i>DL</i>	-0.35 (0.40)	-0.13 (0.09)
<i>MDI</i>	-0.25 (0.29)	-0.09 (0.06)
<i>QS</i>	-0.02*** (0.01)	0.00** (0.00)
<i>Constant</i>	2.34*** (0.68)	0.01 (0.15)
<i>Number of observations</i>	208	208
<i>R²</i>	0.66	0.12

Notes: (1) * p < 0.1; ** p < 0.05; *** p < 0.01
(2) The standard errors are shown in brackets

Table 7 Correlation matrix of residuals

Dependent variables	<i>P</i>	<i>VC</i>
<i>P</i>	1.00	
<i>VC</i>	-0.08	1.00

Breusch-Pagan test of independence: $\chi^2 = 1.45$, $P = 0.23$

Similarly with Johnson's (Johnson, 2002) results we argue that for SMEs there is no difference in gender of those by whom they are managed. These results may find its implementation in the same investment decisions as a company should be preferred on a basis of its performance and strategic growth – not a basis of how many men or women are there.

Number of executive directors has positive impact on both performance and cashflow volatility. According to prior works in this area, we can conclude that large boards do bring advantage to a company's future value, but it also has its drawbacks: thus, an owner of SME has to think carefully of his original team and how many people will be appointed as executives and non-executives on board. This idea is somehow similar to previous study on risk management as authors tend to promote larger boards for generating new ideas and covering all areas of business (Moeller, 2007; Stutely, 2007).

However, as a typical SME has to make decisions quickly in order to compete efficiently, it will achieve its goals when a large team with all sophisticated skills needed is composed. Also, disseminating risk plans and understanding multiple aspects of business is easier if these aspects are managed by few key directors – rather than by those who hardly understand the role of risk management in a company and are snowed under different duties and tasks. Moreover, various lenders (or, if a company is listed, shareholders) can assess how a company will perform in the future (and what variability to expect) taking into account its original team/board (as it may serve as a good indicator).

Credit score (QuiScore in our research) must be carefully monitored by every stakeholder in a small- or medium-sized company as high score is capable of explaining future higher performance (in comparison to those organizations who have low QuiScores) and lesser volatility of cashflow. Nevertheless, this credit score is an endogenous measure, meaning that it is assessed on the basis of performance and variability and it is somewhat expected of this credit rating to have impact on our dependent variables. Therefore, this indicator can serve as more useful tool for possible lenders when they make up financial decisions rather than by managers themselves (still, new managers may assess the productivity of their ex colleagues using this score).

Further research should be carried out in order to describe the performance of a SME and construct a better regression model. Our results show that not all independent variables that contribute to the performance measure were investigated and, hence, require more thorough analysis. Also, a different model may capture different links between variables – and uncover whether performance and volatility are positively or negatively correlated with each other (or support our present results).

Finally, it is interesting to note that service companies tend to perform better than their peers from other industries: that is indicated by a positive sign of DS dummy variable. According to Kirby (Kirby, 2003), service sector has a long history of success in UK (dominantly in Greater London and South East areas) and especially business service providers that

account for more than 10% of all small and medium successful companies created in last 5-6 years, according to FastTrack2012 report⁴. The same is held true for listed companies – this can be explained by various reasons, for instance, that if a firm is listed it is required to be more transparent and more moderated. This benefits the company and generates additional value for it. On the contrary, size of the company did not matter at all (insignificant results for AT variable). It means that small-sized companies who have just entered a new stage in their development (from being simple start-ups) and those who can merely be called a medium company because their turnovers and profits exceed certain standards (for example, EU standard of SME definition) have no significant difference in average performance. Similar results were achieved by Alzharani et al. who found no impact firm size has on company performance when they analyzed Saudi Arabian start-ups and SMEs (however, different results were achieved when researchers used other dependent variable in their tests) (Alzharani et al., 2012). In contrast, size variable was found highly significant and positive in relation to average volatility, proving that size matters in terms of cashflow deviations. Output shows that 1% increase in average turnover results in approximately 0,28% raise in our dependent variable. Therefore, we argue that as small companies grow larger they experience more variability in cashflow operations. One could argue that it is the results of mutual growth in performance: nevertheless, our first regression didn't find that size plays any significant value in its growth.

Conclusion

Against our expectations the author found no results that could support our hypothesis that performance and volatility are negatively and significantly related with each other. Seemingly unrelated regression that was used didn't show that such a link existed between two dependent variables meaning that further analysis should be carried out in order to capture their possible relation (or prove again that it doesn't exist).

Auditor and non-auditor fees were shown to be insignificant in explaining the performance measure, but were positively related with volatility. However, further analysis was carried out in order to capture a bell-shaped behavior of this variable and our hypotheses were adjusted where we found significant results for every coefficient in our equations was uncovered.

Number of executive and non-executive directors is positively related with future average ROA and volatility of operating cashflow. Our findings are consistent with ideas of other authors who stated that large number of board is capable of providing better picture of all activities in a company and, thus, adding value (as a board is composed of people with different

skills and experiences) (Moeller, 2007; Stutely, 2007). The author also agrees with researchers who found no significance between men- and women-dominated companies (Johnson, 2002). Our results do not support the idea that men manage a company in more aggressive way while exposing it to higher volatility and performance during first stages of growth: we suggest that gender does not matter in assessing the performance of SME and its future strategy.

Finally, we found QuiScore (credit rating) to have an explanatory power for both performance and volatility. It leads to the idea that higher credit ratings acquired by SMEs in the beginning of their production are followed by higher future average performance and reduced cashflow volatility levels. We assume that this conclusion can be used by different investors and managers to assess the viability of a new venture and suggest a strategic change (if one is needed).

Several assumptions must be underlined. First, as the sample has been already composed of companies that did not fail (and, actually, succeeded throughout 5 years of operations) meaning that our observations were skewed in terms of ROA and volatility – probably, these two variable could have a larger variance of these companies were included. Second, not all of the companies were set up as new ventures or start-ups in its original sense: some of them were affiliates of larger organizations that, evidently, received more direct support from its parent company and, consequently, did not experience severe cashflow problems. Third, return on assets is only a proxy measure of performance as it can be managed through the accounts (for example, one can “write” a goodwill with a substantial value and it would be hardly checked as this measure is highly subjective).

Next, our sample is composed of companies that actually filed their accounts and reports while the majority of SMEs keep these data only for themselves or simply do not make it publicly available. Fifth, auditor and non-auditor fees, gender, board structure and credit rating were taken as possible proxies to evaluate the company’s risk appetite and adoption of ERM strategy. Future researches in this area should take into account additional possible measures such as management qualification, average age of board, and international experience of CEO: possibly, new variables will have higher explanatory power than the ones outlined in this paper.

Another issue is the number of executive directors (NED) that may not as a perfect criterion for small enterprises in comparison to medium and large ones: for instance, current number of directors

Nevertheless, this research paper provides a plethora of useful implementations for key stakeholders who are interested in the development of SMEs (investors, banks, government regulators that are able to adjust beneficial programs aimed at aiding small companies during their first steps,

etc.) and firms owners themselves. The author also hopes that this work will build a significant (for scientific purposes and for business strategy implementations) bridge between two different areas of management – entrepreneurship and risk management. The author expects that such multidisciplinary work will lead to more clear understanding of inside processes of risk management for SMEs and new ventures.

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