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Corporate entrepreneurship and financial performance: The role of management

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It is hypothesised that a positive relationship exists between the financial performance of an organisation and the level of intrapreneurship within the organisation with causation running from entrepreneurship to financial outcomes. Using a three-factor key intrapreneurship model developed by Goosen, De Coning and Smit (2002) and financial outcomes from a sample of companies listed in the industrial sector of the Johannesburg Stock Exchange, this proposition is put to the test. The results support the hypothesis that the key factors innovativeness, proactiveness and management's internal influence all significantly contribute to financial performance if regarded individually, but that the last factor dominates the first two external factors when used simultaneously. The conclusion underscores the importance of the impact of leadership on financial outcomes.

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Introduction

Over recent years corporate intrapreneurship or intrapreneurship has been viewed as a means of invigorating corporate organisations. This view is based in part on the belief that intrapreneurial elements will assist the organisation to be more dynamic and more competitive. What is not known is what the quantitative effects of higher levels of intrapreneurship will be. A number of authors have alluded to the possibility that there could be a relationship between financial performance and intrapreneurship.

In the light of this, this study investigates the relationship between financial performance and intrapreneurship in the South African context, specifically in industrial organisations utilising a composite index that represents financial performance and key factors representing intrapreneurship. The financial index is based on previous work done on the Industrial Sector of the Johannesburg Stock Exchange. The intrapreneurship key factors are based on the work of various authors. Two of the three key factors used in the study, focus organisationally outwards and one inwards. The two outward focussing key factors are taken from the 'classical' model for intrapreneurship as represented by the ENTRESCALE (Knight, 1997). The key factor that focuses inwards is a new contribution and it examines the effects of management on intrapreneurship (Goosen, De Coning & Smit, 2002).

It is shown that there is a relationship between financial performance and intrapreneurship as represented by the three key factors. The key factors that represent the classical model correlate moderately with the financial index. The key factor, management contributed by the study is a significant predictor of financial success. Organisations with

higher levels of intrapreneurship, as defined by this variable, are therefore more likely to be financially successful than those that have lower levels of intrapreneurship.

The article is structured as follows. Section 2 offers a literature review, followed by an explanation of the methodology followed in Section 3. Section 4 deals with the data analysis and Section 5 discusses the results and their implications. A brief conclusion is offered in Section 6.

Literature review

Much work has been done to quantify intrapreneurship and its effects. The work of Covin and Slevin (1989, 1990), Davis (1997), Morris, Davis and Allen (1994), Jennings and Seaman (1992), Shafer (1991), Zahra (1986), Zahra and Covin (1995), Morris and Sexton (1996), De Castro and Chrisman (1995) and Manu and Sriram (1996) either directly support the fact that a relationship exists between organisational performance and intrapreneurship, or contribute to the reasoning that such a relationship could exist.

A number of authors support the view that the creation and introduction of new products and technologies, which are usually associated with intrapreneurship, lead to higher levels of financial performance, for example Cheney, Devinney and Winer (1991) or Lengnick-Hall (1992).

The work of Morris and Sexton is of particular relevance. They found that "there is reason to believe that the level of entrepreneurial intensity may positively affect performance outcomes in a company" (Morris and Sexton, 1996: 8). Their findings lend specific support to similar research done by Covin and Slevin (1989) and Zahra and Covin (1995), in

that a relationship exists between intrapreneurship (the degree and the amount of entrepreneurial behaviour in organisations) and financial performance.

Still, one should note that the intrapreneurship–performance relationship should preferably be viewed longitudinally. Morris and Sexton (1996: 11), Zahra (1995: 242) and Zahra and Covin (1995: 55) found that the relationship between corporate entrepreneurship and financial performance strengthens over time. (One of the factors that may cause short-term negative profits might be the investment made in research and development to produce new innovations).

Van der Post (1997: 75) proposes that financial performance is a sound basis on which to make inferences about organisational effectiveness as it encompasses the outcomes of all system dimensions of an organisation. It can be reasoned with Cornwall and Perlman (1990: 15) that intrapreneurship, is in essence, a system for generating wealth and as such the calculation of shareholders' wealth will be indicative of the measure of intrapreneurship found in organisations. Zahra and Covin (1995: 47) support this view. They state that there are at least two reasons for expecting a relationship between entrepreneurial activities and subsequent organisational performance. Firstly, innovativeness can be a source of competitive advantage for an organisation. Innovative companies develop strong, positive market reputations. They also adapt to market changes and exploit markets or opportunity gaps. Sustained innovation moreover distances intrapreneurial organisations from their industry rivals, and thus increases financial returns. Secondly, intrapreneurial organisations are by definition, more proactive than traditional organisations. Their quick market response therefore gives them added competitive advantage. Zahra and Covin (1995) point out that Dess and Miller in 1993 and Lieberman and Montgomery in 1988 noted that quick market responses can be translated into superior organisational performance. However, the manner in which organisations are structured and managed could have significant influence on performance. Organisational make-up should therefore be examined.

Organisational structure is the design of an organisation. It is the formal pattern according to which people and jobs are grouped. Business processes take place within organisations' structures. Cornwall and Perlman (1990: 106) hold that structures and communication are the factors that bind organisations together. Policies, practices and measurements make intrapreneurship and innovation possible (Drucker, 1993: 148). Once an organisation has decided on the core elements of its strategy, it should build structures that will support that strategy. Tropman and Morningstar (1989: 157) are emphatic that if this strategy includes innovation, then the organisation must create a structure that will support entrepreneurship. Ironically, this fact is well understood but not easily executed in existing organisations. The organisation has to devise relationships that centre on intrapreneurship. It has to ensure that its rewards and incentives, its compensation, personnel decisions and policies all reward the appropriate entrepreneurial behaviour.

In the comparison between entrepreneurial organisations and traditional organisations, the bureaucratic structure comes to mind. Power and decision-making are often centralised at the top in a bureaucracy. Bureaucracies are moreover characterised by excessive rules and procedures that restrict originality and freedom. Systems are mechanistic at their core. Cornwall and Perlman (1990: 107) propose, in stark contrast to this, that the entrepreneurial organisation be structured for empowerment by low centralisation, low formalisation and limited size. Self-managed teams should replace the bureaucratic functional unit and jobs should steer away from high levels of specialisation. Essentially, the entrepreneurial structure should enhance co-operation and allow freedom that will facilitate innovation. Cornwall and Perlman (1990: 111) sound the warning that empowerment and delegation must not be equated with anarchy, and that entrepreneurial structures should be controlled.

Methodology

Intrapreneurship

The 'key factor' intrapreneurship instrument developed by Goosen, De Coning and Smit (2002) was used in the study to measure corporate entrepreneurship because of its focus on the effect of management on organisations internally. The instrument consists of three factors of which two focus internally and one externally. The instrument is based in part on the ENTRESALE (Knight, 1997), which was initially developed by Khadwalla (1977). It was subsequently refined by Miller and Friesen (1984), and Covin and Slevin (1989). The remainder of the instrument that was used focuses internally into organisations and represents management's influence on structures and processes as well as relations within the organisation.

The ENTRESALE contributed two factors to the instrument that was used. The first, Innovativeness, represents the dimensions Product lines, Product changes and R&D leadership. The second factor Proactiveness, represents New techniques, Competitive posture, Risk-taking propensity, Environmental boldness and Decision-making style.

The third key factor, management's internal influence, especially on structures and processes, as well as relations, represents the dimensions Goals, Creativity systems, Rewards, Intrapreneurial and Communications systems, Staff input, Intrapreneurial freedom, Problem solving culture, Intrapreneurial championing and Empowerment.

Financial performance

The literature considers several approaches to measuring financial performance. Some relate to financial dimensions and others to operational dimensions such as market share, market positioning or to change (Murphy, Trailer & Hill, 1996). Examples are the views of Zahra and Covin (1995), Cron and Sobol (1983), Teo and King (1996), Byrd and Marshall (1997).

This study however, uses the measure as proposed by Van der Post (1997) based on ease of access, simplicity and previous testing in a South African environment. Four measures were used namely, return on average assets (ROAA), return on average equity (ROAE), total asset growth (TAGR) and share return (SR).

The research model

Based on what has been stated above a research model was formulated. It is depicted in Figure 1 below.

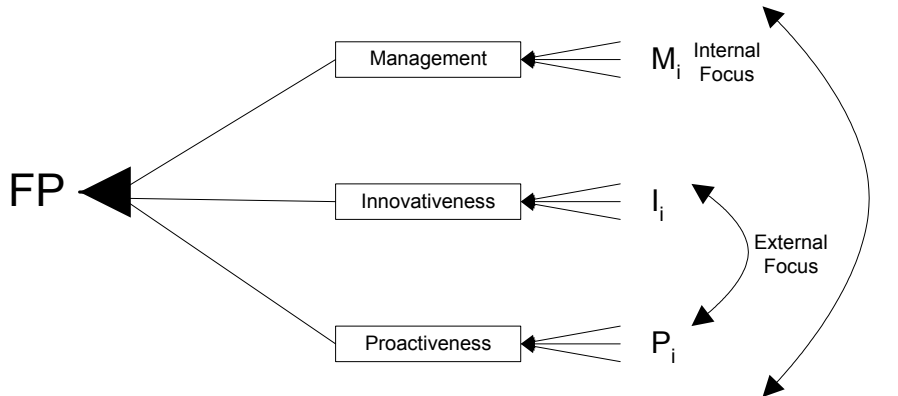


Figure 1: The research model

In this model FP is financial performance which is an index factorised from the measures (ROAA), return on average equity (ROAE), total asset growth (TAGR) and share return (SR), whilst the key factors M_i , I_i and P_i , represent intrapreneurship, I.

the years 2001 to early 2002. The post hoc views of management should therefore have bearing on the financial details. A period of ten years seemed inappropriate and it was thus decided to use the published information over a shorter period.

Financial parameters and organisations included in the study

Financial data is from the Bureau of Financial Analysis (a bureau within the Graduate School of Business of the University of Pretoria). The Industrial Sector of the Johannesburg Stock Exchange was examined. It was not possible to do a longitudinal study nor to measure perceptions and then analyse financial data. Perceptions were measured post hoc.

It is generally accepted that planning in organisations fall in three categories, short-term, medium-term and long-term. Many organisations, including governmental institutions, follow a ‘rolling’ three or five year planning period for medium-term plans in which planning is an annual, but continuous process for three to five years. Mitchell (1978: 296) confirms this as preference for corporate planning. It was thus decided to analyse the financial data for a period of three years, as closely as possible to the measurement of management’s perceptions.

Zahra and Covin (1995) suggest that financial measurements, in the testing for a relationship with corporate entrepreneurship, should be measured over longer periods. This should be done in order to ensure that the results of entrepreneurship within the organisation have manifested in the financial performance. It is therefore preferable to measure financial results over periods as long as ten years. However, it can be debated whether this methodology is applicable when associated with post hoc measurements. In this study the relationship between intrapreneurship, as expressed through the views of executive management, and financial performance was examined. The views of management were probed during

A factor analysis confirmed that the four financial variables load on a single factor. The Corporate Financial Index was constructed for the 231 organisations as a weighted average using the four factor loadings. A further 12 organisations, that operated outside of South Africa, were eliminated from the study as they were delisted or were suspended from the Johannesburg Stock Exchange at the time of measurement. The final population for the study consisted of 219 organisations of which only 109 organisations finally participated in the entrepreneurial survey. Of these responses 19 proved not to be useful.

Data analysis

Data were summarised, and the quality of the data determined. Measures of normality, location and variability were computed. The SPSS program (SPSS, 2001) used for the statistical analysis identified ten values as extreme or as ‘outliers’. Four organisations were identified as falling outside of three standard deviations of the mean. This was confirmed by the fact that in the regression analysis there are four values with standardised residual values exceeding either +3.3 or -3.3 which can be categorised as ‘outliers’ (Tabachnick & Fidell, 1996: 139). To improve the usability of the data for this purpose it was decided to remove the four data lines. This resulted in 86 valid data sets for use in the statistical analysis. This final sample size conforms to Tabachnick and Fidell’s (1996:132) recommendation for regression analysis that

$$N > 50 + 8m \text{ where } m = \text{number of independent variables thus } 50 + (32), \text{ or } 82.$$

The data detailing participating and non-participating organisations, with their respective financial indices, were also tested to establish if a relationship could be found between the financial performance of organisations and their decision to participate or not. A non-parametric test indicated that there is not a significant relationship between financial performance and the choice to participate or not at the 5 percent level of significance.

The main research hypothesis states that there is no relationship between the financial performance index and the key intrapreneurship factors. The research question is therefore expressed as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

where

- Y = the dependent variable financial performance;
- X₁ = management;
- X₂ = innovativeness;
- X₃ = proactiveness and α and β_i are regression coefficients.

The stepwise regression’s ANOVA table reports a significant F statistic (19.888). The coefficient summary is detailed in Table 1 below.

Table 1: Results of stepwise regression

Stepwise regression model	Beta	Significance
Retained variable		
Management	0,416	0,000
Excluded variables		
Innovativeness	0,006	0,958
Proactiveness	0,140	0,233

This result indicates that there is only one major predictor of the dependent variable – the independent variable Management. The stepwise regression model explains

17,3% of the variation in the dependent variable Financial Performance. This is not unexpected, as financial performance is the result of a number of variables and not only management’s influence on relations in an organisation. Khandwalla (1977: 665) alludes to this by suggesting that organisational performance consists of demographic variables, environmental variables, strategic variables, technological variables and structural variables, amongst others.

The results of the regression analysis lead to the rejection of the null hypothesis as there is a relationship between the composite financial index and at least one of the key factors.

The regression output was examined to ensure that the classical assumptions of regression analysis were valid.

The relationship between the independent variables was tested for multicollinearity using condition indices. Condition indices are computed as the square roots of the ratios of the largest eigenvalue to each successive eigenvalue. Values greater than 15 indicate possible problems and values larger than 30 suggest a serious problem with multicollinearity (SPSS: 2001). No factor had an index greater than 15.

Normality, linearity, homoscedasticity and the independence of residuals refer to the nature and the underlying relationships between variables. All these assumptions were investigated by examining the residuals scatter plots. Residuals are the differences between the obtained and the predicted dependent variable scores. Residual scatter plots are used to investigate:

Neither the histogram nor the P-P plot indicated that there is a significant deviation from normality. This is confirmed by the residual statistics in which the standardised residuals have a mean of 0 and a standard deviation of 0,976.

The data were also inspected for outliers using Mahalanobis distances. A Mahalanobis distance is the distance of a particular case from the centroid of the remaining cases, where the centroid is the point created by the means of all the variables (Pallant, 2001: 220). It is used to detect any case that has a strange pattern of scores across all the variables, four in the case of this study. Mahalanobis distances were inspected and two cases, were found to exceed the critical values (Pallant, 2001: 144) However, given the size of the data file, and the fact that four data points had already been removed before the analysis, the data points and information were retained.

A standardised scatter plot of the standardised predicted dependant variable by the standardised residuals shows a random pattern across the range of the standardised predicted dependant variable and as such indicates that the assumption of homoscedasticity is not materially violated.

Linearity of data can be inspected by inspection of the scatter plots. An inspection of the observed versus the predicted values (for regression analysis) indicates data points that are symmetrically distributed around a diagonal line – an indication of linearity. Similarly the distribution

around a horizontal line of the scatter plot of residuals versus predicted values confirms linearity. A further rule of thumb that can also be used as an indicator is the comparison of the standard deviations of the dependent variable and the residuals. An indication of non-linearity is when the standard deviation of the residuals exceeds the standard deviation of the dependent variable (Garson, 2002). The data were inspected and it indicated the following:

- Standard deviation of the dependent variable: 6,265
- Standard deviation of residuals: 5,5427

These confirmed the assumption of linearity.

The independence of observations is normally tested by the Durbin-Watson coefficient. Independent observations will result in a Durbin-Watson statistic of between 1,5 to 2,5 (SPSS, 2001: 401). The analysis results in a Durbin-Watson statistic of 2,114, which indicates independence of observations.

Having determined the form of the relationship between the variables, the findings are confirmed during correlation analysis, which determines the strength and direction of the relationship between variables. All key factors had significant correlations with the composite financial index. The results of the correlation analysis are listed in Table 2.

Table 2: Spearman's rank-order correlation coefficients indicating the relationship between financial performance and the intrapreneurship key factors (N=86)

Key factor	Correlation coefficient	P
Innovativeness	0,277	< 0,01
Proactiveness	0,329	< 0,01
Management	0,504	< 0,01

Discussion of the results

It was the main goal of this research to examine the relationship between the key intrapreneurship factors and a calculated financial index that would represent an organisation's performance. This goal originated from the belief that entrepreneurial activity could possibly result in positive increases in financial performance. The work done by Zahra (1986) and especially Covin and Slevin (1986) had to be examined in the South African context. They found a moderate correlation of $r = 0,39$ ($p < 0,001$) between entrepreneurial posture and a financial performance scale. When tested individually, the ENTRESALE's intrapreneurship factors had significant (at a $p < 0,01$ level) correlations between the financial index and key factors with $r = 0,344$ for Innovativeness and $r = 0,375$ for Proactiveness.

The contribution of this research added to this in that the correlation for Management was $r = 0,504$. The individual dimensions that constitute the key factor relations are briefly discussed below to ascertain their individual contribution.

To assist in the interpretation of the key factor Management, a principal component factor analysis was done on the raw data that represent the key factor. The raw data set was examined for its suitability for factor analysis. The Kaiser-Meyer-Olkin measure of sampling is 0,841. The proximity to 1 indicates the suitability of the data for factor analysis. This is confirmed by Bartlett's test of sphericity, which is significant at 0,000. The resulting component matrix is detailed below in Table 3.

Table 3: Component matrix for Management

Dimension	Item correlation
Goal setting	0,891
Innovation and creativity systems	0,714
Rewards	0,934
Intracapital system	0,871
Communication	0,884
Staff input	0,737
Intrapreneurial freedom	0,702
Problem solving	0,706
Intrapreneurial championing	0,672
Empowerment	0,722

Goal setting loaded 0,891 on the key factor. Demanding management is sometimes seen as applying pressure. However, cognisance must be taken of the work of Faul (1986) that establishes the link between goal-orientated pressure and productivity. Intrapreneurial dimensions (such as innovative behaviour) should be included in the setting of goals.

Innovation and creativity systems loaded 0,714 on the key factor. The literature study has shown that intrapreneurial organisations manage innovation and creativity. Organisations should implement systems that would allow the development and active support of creativity and innovation. These systems should furthermore allow for the prudent assessment and evaluation of new ideas.

Rewards loaded 0,934 on the key factor. This dimension points to the rewarding of appropriate innovative behaviour in intrapreneurial organisations.

Intracapital loaded 0,871 on the key factor. *Intracapital* denotes the specific and procedural management of capital expenditure for intrapreneurship projects or ventures. It takes cognisance of, and discounts risk before expending the capital.

Communication loaded 0,844 on the key factor. Intrapreneurial communication points to free and open communication, in which ideas are shared and information is freely exchanged.

Staff input loaded 0,737 on the key factor. Input into the organisation and management's decisions, work methodology, views, to name but a few, could lead to richer decisions (of management) that are thus more informed and this could lead to more profitable results. An example is the inclusion of collective intelligence in business planning. Collective intelligence is the sum of the observations and

contact of all personnel rather than only a few analysts. In a hypothetical instance a member of staff involved in marketing can add value to the planning processes with his or her observations at the 'coal face'. Similarly, engineering staff might propose a simple solution to a production problem, which could otherwise be expensive to the organisation. As such it is possible to conceptualise the correlation between staff input and financial performance.

Intrapreneurial freedom and empowerment loaded 0,702 and 0,722 respectively on the key factor. It embodies the ability of staff to make certain decisions, to contribute to innovations, and to add to ideas and suggestions through their creativity. In some instances it can also imply the involvement in venturing. This wider concept or dimension touches on virtually every area within the organisation (production, human resource management, etc.), therefore it could have an effect on performance.

Problem solving culture loaded 0,706 on the key factor. It embodies an organisation's collective will to find answers to problems, and to contribute to solutions as individuals and as groups. It is the opposite of simply accepting circumstances, and it is the looking for optimisation and excellence. It points to a spirit of dynamism in the organisation. The findings of the study concur with Faul (1986) that a problem solving culture contributes to financial performance.

Executive championing of intrapreneurship is a very important dimension of the key factor Management. This dimension loaded 0,672 on the key factor. The dimension alludes to intrapreneurship in the wider context, and consequently explains a portion of the correlation between Management and organisations' financial performance. An executive cannot champion intrapreneurship by simply verbalising understanding and support. It includes the actions of the executive in his subscription to intrapreneurship. It is associated with the direct support of all the elements that constitute intrapreneurship including the structuring of the organisation, systems and processes to facilitate intrapreneurship and financial support. It will also set the tone for risk affinity or risk aversion, which in turn will influence innovative behaviour.

Earlier it was stated that even though an organisation might be intrapreneurial in terms of its posture, many opportunities would be lost if internal conditions were not conducive to intrapreneurship. A typical example of this could be when an organisation wants to compete aggressively in terms of its market share, but loses opportunities because of internal factors such as the potential of its employees remaining unharnessed, or because there is little communication between management and staff. The correlations found between financial performance and management's internal influence, point to the fact that organisations could add to their financial performance by implementing the proposed model.

Conclusion

The topic of the influence of leaders on organisational outcomes is well researched. The work of Baum *et al.* (1998), House, Spangler and Woycke (1991), Smith, Carson and Alexander (1984), House and Singh (1987), Day and Lord (1988), and Barling, Weber and Kelloway (1996) indicates that positive organisational outcomes are associated with higher levels of leadership. This study provides additional support for this, and contributes to current understanding by indicating the positive relationship between the intrapreneurship factors, specifically management's influence (viewed internally), and financial performance.

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