WHAT DRIVES REGIONAL EXPORT PERFORMANCE? COMPARING THE RELATIVE SIGNIFICANCE OF MARKET DETERMINED AND INTERNAL RESOURCE FACTORS

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ABSTRACT: Previous analysis of networking activities among SME exporters in regional NSW, Australia indicates that they tended to be isolated entrepreneurs, who relied primarily on their internal innovation and marketing capacities rather than on local networks and clusters as suggested by regional development theory (Vaessen and Keeble, 1995). Many of these firms were small, new 'born global' firms that had entered world markets with an innovative niche product and helped by the very low Australian exchange rates prevailing at that time.

To be a successful exporter, the small firm must acquire sufficient resources to cover the higher risks of operating in international markets, as well as adopt strategies that are consistent with prevailing market conditions. In this study, SME exporters are divided into four categories based on their growth performance between 1996/97 and 2000/01: negative, modest, good and fast. Each group is analysed to determine the relationship between their export growth performance and a series of market orientated and internal resource variables. This analysis is performed using logistical equation models, controlling for a number of structural variables.

Key findings were that export growth increased in line with export intensity. Fast and good export growth was associated with the use of partnerships and collaborations and foreign direct investment, while these factors were either insignificant or negative for the other firms. Most of the fast growth firms were new exporters or 'born global' and tended to use early stage export strategies, while for the larger good and modest growth firms, introducing equity was positively associated with export growth. Most types of R&D were positively associated with good export growth. Adapting products from the market and developing technology in partnerships were also associated with export growth. Good export growth performance was associated with strategies focusing on client service, flexible production, technical innovation and product quality. Their marketing strategies were based on innovation but also recognised the importance of price (low exchange rates) and product quality in achieving export sales.

1. INTRODUCTION

Australian product markets have become increasingly integrated into a global economic system as tariff and other trade barriers have been systematically reduced since the mid 1980s. Firms of all sizes sell their products throughout the world with many new 'born global' firms now being established with the express purpose of exporting. However, Australia continues to suffer chronic trade deficits and improved export performance is essential to maintaining future economic wellbeing.

There is a substantial literature addressing the question of what drives export

growth, derived from a number of disciplinary approaches. The economic approach has focused on conditions in the external market place, often and particularly when econometric modelling is involved, assuming pure competition as a good approximation of competitive trading conditions. In the economic approach, price and the exchange rate, costs of production, trade barriers and trading agreements are the main drivers of export performance. The international business approach developed the economic perspective in an imperfectly competitive environment. The export modes used by firms to export such as direct exporting, agency arrangements, foreign direct investment and networking, and market knowledge are seen as major determinants of export performance. Analysts from the management perspective on the other hand, have focused on the internal resources of the firm and the entrepreneurial capacities of its owners and/or managers as an explanation of performance. All these approaches provide important insights into what drives export performance. Unfortunately, until recently, each discipline area has worked in isolation and the different approaches have been seen as competing explanations of export performance.

It is now accepted that entrepreneurial competency is an essential aspect of firm performance, as cited in the next section. Recent papers have acknowledged that it is important to combine market environment conditions with internal capacity factors to provide a full explanation of entrepreneurial behaviour and firm outcomes (for example, Priem and Butler 2001). As the managerial approach becomes more quantitative, there are opportunities to combine its insights on internal capacities with analyses of market conditions and to move towards a fuller explanation of export performance.

This paper utilizes a database derived from a survey of 146 NSW regional exporters and examines whether a combined approach provides a fuller explanation of export performance than the traditional uni-disciplinary approach. The details of these firms are provided in Appendix A. The survey gathered information for the period 1996/97 to 2000/01 and was initially investigated using international business or stage theory frameworks (Hodgkinson, 2004; 2006). While this approach provided a partial explanation of export performance, large elements were left unexplained. In this paper, variables identified under both the international business 'stage theory' approach and the resource based view from management are combined to provide a more complete explanation of the export process in regional NSW. The survey did not collect data for 'pure' economic variables, so at this stage, these cannot be included in the analysis.

2. ENTREPRENEURIAL BEHAVIOUR AND EXPORT PERFORMANCE

There are a number of different approaches to explaining the relationship between entrepreneurial behaviour and the various measures of firm performance. Each theoretical approach attempts to explain why firms have differential performances, and particularly how they obtain a sustained competitive advantage in their product markets based on the different qualities of

the assets available to them and on the capacity of their entrepreneur or decision-makers to identify and exploit opportunities to utilize these assets to enter new markets (Barney, 1991; Enders and Woods, 2006). There is now a substantial literature on questions related to entrepreneurship and export performance. Reviews of this literature are provided in Priem and Butler (2001), Acs and Audretsch (2003), Thorpe et al. (2005) and Enders and Woods (2006). The different theories are divided into market based and internal resource based approaches.

In the market-based view (MBV), the firm's superior performance is due to competitive assets that arise from interaction with entities in its external environment. As applied to export performance, these competitive assets can include experiential knowledge that develops as the firm becomes more experienced as proposed by stage theory (Eriksson et al, 2000), external relationships that a firm develops in each of the markets in which it operates (Griffith and Henry, 2001), advantages that arise from the particular location as developed in regional creative milieu theory (Simmie, 1997), or from government export assistance programs (Carrier, 1999). The MBV is related to the economic 'theory of the firm' or industrial organisational approaches developed by Baumol (1968), Williamson (1975), and most recently and influentially Porter (1985). In this approach, the firm operates in an imperfectly competitive market, either monopolistic competition if innovations can be relatively easily duplicated by competitors and thus any competitive advantage is short lived, or competitive oligopoly if it cannot be duplicated and hence competitive advantage is sustained (Barney, 1991). The Austrian School, associated with Schumpeter (1934) and Kirzner (1973), is also essentially a market based approach, where the entrepreneurial role is to search for opportunities for gainful exchange activated by price signals (Enders and Woods, 2006). The MBV approach has been criticised in that it cannot adequately explain heterogeneous firm performance and particularly how the firm's decision makers combine their available assets to exploit these perceived market opportunities. The discretionary role of the entrepreneur is most marginalised in the neoclassical economic approach but is felt to be inadequately explained in all the market based approaches (Enders and Woods, 2006).

The alternative resource-based view (RBV) focuses on operations within the firm itself in terms of identifying individual entrepreneurial behaviour to explain how "firms obtain sustained competitive advantages by implementing strategies that exploit their internal strengths, through responding to environmental opportunities, while neutralizing external threats and avoiding internal weaknesses" (Barney, 1991, p. 99). To implement successful strategies, firms utilize their value creating resources which "include all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" (Draft, 1983, quoted in Barney, 1991, p. 101). These internal assets can be divided into capital related advantages associated with innovation and investment, human resource related advantages associated with the qualities of the entrepreneurs themselves and their key

employees, and organisational advantages associated with the strategies that they choose to utilize (Dhanaraj and Beamish, 2003). A fourth source of organisational advantage arises from the quality of the information obtained by the entrepreneur, and the use of information and communication technologies (ICT) in obtaining and disseminating this information (Thorpe et al, 2005).

The RBV is now well established in managerial strategic analysis but it too has been criticised in that it can become too prescriptive by ignoring the implications of change in the demand and cost aspects of the relevant product market. Value is determined in the market and so RBV approaches need to be integrated into an economic market model in order to provide actionable recommendations for practitioners (Priem and Butler, 2001). An analysis of exporting is one of the dimensions of firm performance that is studied with the RBV framework. While much of this research has focused on the question of why firms export and the behavioural differences between exporters and non-exporters, the question of what factors contribute to high levels of export activity has also been important. Analysts have looked to the RBV to provide a theoretical framework which can link strategy and performance and explain the relationships between the explanatory variables in empirical studies of export performance (Dhanaray and Beamish, 2003). This paper lies in this area by explaining the different growth rates of SME exporters in regional NSW utilizing a number of internal resources and market related variables.

3. CONCEPTUAL FRAMEWORK

The variables used in this analysis are shown in the framework depicted in Figure 1, which was initially developed in Hodgkinson (2007), from a review of the managerial and economic literatures on entrepreneurship, and where the rationale and literature related to choice of variables was discussed in detail.

Performance variables are the dependant variables in this analysis. Profitability data was not collected in the survey as entrepreneurs are normally reluctant to reveal this information to outside researchers. Good data was obtained for sales between 1996/97 and 2000/01, which was used to calculate growth in sales over that period. It is assumed following Wolff and Pett (2006), that there is a positive relationship between sales growth and profitability. Good data was also obtained for export sales over the same period, which was used to calculate growth in exports, the main performance measure used in this study. Simple regression analysis was undertaken which established a significant relationship between export growth and sales growth in the survey firms.[1] This established that export growth added to firm's sales, rather than substituting for domestic sales, and hence it is further assumed that export growth is related to profitability, and thus provides a valid performance measure on which to assess the impact of the different market related and internal resource variables analysed in this study.

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[1] Log(Sales growth) = -0.255 + .028 (export growth) + e
(-4.367)*** (3.616)***
R^2 = .112 F = 13.078***

Table 1. Conceptual Framework of Variables

PERFORMANCE	MARKET RELATED ASSETS	INTERNAL RESOURCE ASSETS
Sales Growth	***Degree of Internationalisation***	***Capital Assets***
	* Export Intensity	* Innovation
		- Technology sourcing
		- R & D
	* Number of Export Markets	* Investment
Export Growth	***External Relationships***	***Human Resource Assets***
	* Alliances & partnerships	* Entrepreneurship
	* Agency relationships	- years of exporting
	* FDI	experience
	* Org. Intensity Index[2]	- age of firm experience
	Regional Variables	* Labour
	* Local Networking	- employment size
	* Location	- training & recruitment
	Government Assistance	***Organizational Assets***
	* Austrade	* Corporate strategy
	* NSW Government	* Production Strategy
		* Marketing Strategy
		* Export Strategy
		Information Seeking
		* External
		* Use of IT

The market related asset variables have been developed from the international business and regional development literature on export performance. They are defined as areas of business decision making which are not completely within the prerogative of the business manager, and where correct strategies are determined by prevailing market conditions rather than by entrepreneurial capacity or internal firm resources. The degree of internationalisation is measured by the level of export intensity (exports to sales ratio) which reflects both commitment to exporting and the level of experiential export knowledge, and by the number of export markets which reflects the pursuit of new market opportunities through geographical expansion over time (Dhanaraj and Beamish, 2003; Lu and Beamish, 2001). External relations reflect the firm's decision to pursue exports either in cooperation with other organisations (agency, partnerships and collaborations, joint ventures, equity investments) or alone (FDI via subsidiaries, direct exporting, internet sales). However, even if the latter modes are chosen, the firm needs to establish long term relationships with customers, suppliers and the government to be successful (Johanson and Mattson, 1988; Lu and Beamish, 2001; Chetty and Campbell-Hunt, 2003; Hodgkinson, 2006).

[2] This index measures the relative resource intensity of the mix of export modes used by a firm (Hodgkinson 2004).

The regional variables reflected local networking and geographical location. It has been widely argued that regional firms can overcome resource constraints through networking both in joint projects or, as is measured here, by participation in local activities which exposes them to different perspectives and introduces new knowledge into the region (Verhees and Meulenberg, 2004; Thorpe et al, 2005; Thornton and Flynn, 2003). It is also argued that location in a creative region or innovative milieu supports entrepreneurship and provides expose to new technologies and ideas will enhance export performance (Scott, 1999; Thornton and Flynn, 2003; Asheim and Cooke, 1998; Florida, 2002; Evans, 1995). Appropriate government assistance should have a positive link between innovation and growth (Thorpe et al, 2005; Carrier, 1999).

Resource based assets are defined as those areas where decision making is at the sole discretion of the firm's entrepreneur (owner or key senior manager). Capital assets reflect the firm's level of technological intensiveness (R & D and sources of new technology and products) and investment, which should impact on their export performance (Dhanaraj and Beamish, 2003; Cohen and Levinthal, 1990; Wolff and Pett, 2006; Verhees and Meulenberg, 2004). Human resource assets should reflect the qualities of the entrepreneur and the firm's key personnel. Unfortunately, data which could measure the entrepreneurs' skill, knowledge and experience were not directly collected in the survey and proxy variables such as years of business experience and age of firm have had to be used for this component (Eriksson et al, 2000). Firm size has been used as a proxy for managerial and financial resources available to the firm (Dhanaraj and Beamish, 2003) and of labour skill (Thorpe et al, 2004). Data on training and recruitment of skilled labour were also used.

The survey collected a range of information on the types of strategies the firms used to expand exports. Corporate strategy is whether the firm is focused on clients and product development or production costs or quality or both. The production strategy reflects alternatives such as various forms of flexible production or standardised mass production (Ebben and Johnson, 2005). The marketing and export strategies used here do not appear to have been incorporated into empirical studies previously. The marketing strategy is a construct of the firm's perceived areas of primary and secondary competitive advantage. Primary competitive advantage is also included in the analysis as a separate variable. The exporting strategy is a construct of the firm's perceived primary and secondary reasons as to why they achieved export sales. Data on where the firms obtained their market intelligence is included (Verhees and Meulenberg, 2004). The use of ITC is also increasingly considered a possible determinant of export performance (Thorpe et al, 2004). Use of ITC has been included in various parts of the analysis, particularly e-commerce sales as an external relations variable, and collection of information from the internet as an information seeking variable.

4. METHODOLOGY

As described above, data on a large number of variables was collected in the survey. Most of this data was binary, although quantitative data was collected for the performance variables and in some other areas, particularly the human resource variables such as firm size and years of export experience. As there were a high number of independent variables relative to the number of observations, the analysis was conducted at two different levels. The first level looked at each group of variables in the conceptual framework separately to identify significant and insignificant variables. Only a summary of these results is provided in this paper. The full set of results is available from the author on request (Hodgkinson, 2007). The second level of analysis combines all the significant variables from above to determine whether combining both MBV and RBV approaches provides a superior outcome. The results from this analysis are discussed in detail in this paper.

Where quantitative data was available, multiple regression analysis was conducted utilizing SPSS software. As most of the independent or determining variables are categorical, the analysis was first conducted using the categorical or group measures of export growth, utilizing the binary logit model in the EViews software package based on whether groups of firms had fast, good, moderate, or negative export growth over the 1996/97 to 2000/01 period.[3] Data from small business surveys often exhibits high variability and this one was no exception. To control for the covariance among the indicators used in this study, the GLM condition which improves the standard errors was used (QMS, 1994, p. 452). A number of control variables related to industry, size and some dominant strategy choices were used in these equations to improve the goodness of fit of the models used. Firms with zero export growth have been excluded from this analysis as many had not yet began exporting or had only been exporting for a short period of time. The test statistics used for the logit models are the McFadden R-squared, the LR statistic which tests the overall significance of the model, and the probability (LR) which is the p-value of the LR statistic, distributed as a chi-square variable (QMS, 1994, p. 410).

As the study was intended as an exploratory analysis, no explicit hypotheses were formulated. However, it could be expected that most of the identified factors would have a positive relationship with fast and good export growth and a negative relationship with negative growth. While the direction of their relationships with modest growth was less determined, generally a negative relationship was expected. A summary of the results from the first level analysis where significant relationships were found is shown in Table 2.

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[3] These categories were determined simply by taking the non-negative growth firms and dividing their performances into quartiles, where the last quartile was zero. Modest growth equates with 0.1 to 16.5 percent per annum, good growth with 16.6 to 75.5 percent per annum, and fast growth with 75.6 percent and above per annum (Hodgkinson et al, 2003, p. 54).

Table 2. Summary of Logit and Multiple Regression Results (Significant Indicators Only)

Variables	Fast export growth	Good Export growth	Modest export growth	Negative export growth
Market Related Factors				
Degree of Internationalisation[4]				
External Relationships	R^2 = .127	R^2 = .108	R^2 = .195	R^2 = .173
Partnerships and collaborations	+0.302*			-0.450**
Foreign direct investment	+1.027 **	+1.620***		
Agency relationships			+0.576 **	
Equity capital		+0.718**	+1.020 **	
Own export capacity: Direct exporting	+0.384 **		-0.800**	
Own export capacity: Internet sales	+1.298***		+1.020**	-1.474***
Regional Variables				
Government Assistance				
Internal Resource Related Factors				
Capital Related	R^2 = .124	R^2 = .106	R^2 = .176	R^2 = .218
R&D: New product development	-1.012***	+0.567**	-0.424*	+1.601***
R&D: Develop product range		+0.480**	+0.485**	-0.886***
R&D: Substantial changes to processes		+0.416**	-1.133***	+1.246***
R&D: Continuous production change				+1.307***
Sources of technology: Self developed		-1.511***	+1.957***	-0.980***
Sources of technology: Adapt from market	+0.619 ***	+0.676***	-1.577***	
Sources of technology: Partner & collaborate	+0.983***	-0.521**	+0.802***	-1.334 ***
Sources of technology: Licence		+1.146***		
Sources of technology: Transfer from parent	-1.124**		+0.745**	-1.408***
Sources of technology: public research institutions.			-0.950***	
Investment: Increase capital	+0.467**			-0.932***
Human Resources[5]				

[4] (log) export growth = 3.275 + 0.234 (increase in intensity) + 0.004 (increase in markets) + e
(18.613)*** (5.063)*** (0.269)

Statistics: R^2 = .208; F = 12.850***; D.W. = 2.082 (> du 1.72).

[5] (log) export growth = 4.545 + .042(age) + .039 $(age)^2$ - .784 (years exporting)
(6.019)*** (.488) (.140) (-3.721)***

+ .537 $(years\ exporting)^2$ - .972 (employment) + .727 $(employment)^2$)
(2.500)** (-2.264)** (1.942)**

Variables	Fast export growth	Good Export growth	Modest export growth	Negative export growth
Entrepreneurship				
Labour skills				
Business Strategies	R^2 =.133	R^2 =.121	R^2 =.165	R^2 =.186
Corporate orientation: Clients & product dev.	+1.151**			-1.670***
Corporate orientation: Both clients & production	+1.466 **	-0.559***		
Production strategies: Mass production		-1.225***		+0.492**
Production strategies: Flexible, small batch	+1.147***	-1.554***		
Production strategies: Differentiated product range	+1.492***	-2.369***		+0.918***
Production strategies: Customisation	+1.617***	-1.989***	-0.668**	+0.618**
Competitive advantage: Technical innovation	+0.552*		+3.796***	-0.971***
Competitive advantage: Product differentiation	+0.544*	-0.544**	+1.769***	-1.285***
Competitive advantage: After sales & client service	+0.588*	+0.549**	+1.354***	-1.535***
Competitive advantage: Market development		+1.000***	+1.645***	
Competitive advantage: Price competition			+1.151*	+1.833***
Marketing strategy	R^2 = .150	R^2 = .120	R^2 = .163	R^2 = .159
Mixed	+1.225***			
Pure Innovator		+0.892**		+0.774***
Innovator/Marketer	+0.783***	+1.162***		+0.776***
Innovator/Producer	+0.682**	+0.621*		+0.782***
Marketer/Producer	+1.151***			
Exporting strategy	R^2 = .118	R^2 = .138	R^2 = .225	R^2 = .149
Mixed			+1.206***	
Product quality			+3.249***	
Market opportunist	+0.464**		+1.185***	+1.633***
Price competitor		+1.090**	+2.466***	
Quality plus service	-0.658 ***		+1.901***	+0.524 **
Quality plus opportunism	-0.658***	+1.280***	+1.527***	+0.524 **
Quality plus price		+1.124***	+2.288***	+1.421***
Market information	R^2 = .130	R^2 = .114	R^2 = .206	R^2 = .161
Service providers		-0.483**		
Industry publications	+0.785***		+0.594 **	-0.843***
WWW and email	+0.308*		-0.978***	+0.459 **
Travel	-1.1136***		+1.202***	
Capital city	+1.115 ***	-0.502 **		

+ .015 (in house training) - .073 (external trainers) + .150 (recruit locally)
(.163) (-.742) (1.607)*

+ .043 (recruit Aust.) + .158 (recruit overseas) + e
(.383) (1.372)

Statistics: R^2 = .313; F = 3.564***

Variables	Fast export growth	Good Export growth	Modest export growth	Negative export growth
Trade and business magazines	-1.106 ***			
Equipment and other suppliers	-0.572 ***	+0.407**	+0.867***	

Notes: *** significant at 0.001 (99%) confidence level; ** significant at 0.05 (95%) confidence level; * significant at 0.10 (90%) confidence level.

5. DISCUSSION OF RESULTS – FIRST LEVEL ANALYSIS

5.1 Market Related Factors

The results for the market related factors are broadly consistent with those expected from a stage theory export expansion process. Export growth increased in line with increasing export intensity or export to total sales ratios. Fast and good export growth was associated with the use of partnerships and collaborations and foreign direct investment, while these factors were either insignificant or negative for the negative growth firms. Thus an increasing resource commitment to exporting appears to be related to better export growth performance.

The fast growth firms also had a positive relationship with direct exporting and internet sales, which are early-stage exporting modes. This can be explained as these firms, despite having high export growth and export intensity ratios, were generally small, young firms with limited business and export experience, and hence more likely to be also using early stage export modes. Good and modest export growth was positively associated with introducing equity capital. These firms were more experienced exporters and generally larger than the fast growth firms. Hence, they were more likely to be in a position of needing capital injection to maintain growth. Thus this indicator also seems to be associated with export growth.

5.2 Internal Resource Related Factors

The internal resource related factors were divided into capital, human resource and organisational indicators. Research and development did not show a clear predicted pattern in that it was not positively related to fast export growth. This, again, may be because these firms were relatively new and may have completed their initial R & D program and were now focused primarily on commercialising a previously developed innovation. Most types of R & D were positively associated with good export growth, while the modest growth firms had predominantly negative associations with R & D.

However, the negative growth firms had predominantly positive R & D associations, which is contrary to expectations. Thus, while R & D was significantly associated with export performance, it did not display the expected pattern. This suggests that R & D may be a necessary but not sufficient condition to explain export performance.

Of the different sources of technology, adapting from the market and

partnerships with other firms most clearly had patterns consistent with expectations. The limited results from the other sources were generally consistent with expectations. This was also the case for increased capital expenditure which was positive for the fast growth and negative for the negative growth firms. Self developed technology and transfers from parents generally showed the expected reverse pattern. Thus, overall, capital related factors produced the expected results with use of external sources of technology and capital investment positively associated with fast and good growth firms and negatively associated with modest and negative growth.

The impact of entrepreneurial and labour skills could only analysed using proxy indicators and the results were generally contrary to expectations. Years of export experience and size of firms were negatively related to export performance. These results reflected the situation where the fastest growing firms were new, small exporters, or 'born global' firms. This category needs better quality data to provide a more definitive analysis.

The most innovative aspect of this paper involved the analysis of the impact of a large number of corporate strategies on export growth. Overall, it is expected that good export growth performance would be associated with strategies focusing on client service, flexible production, technical innovation and product quality. Fast growth firms did have this expected focus in their corporate, production and primary competitive advantage strategies. However, their marketing strategies were quite mixed and their export strategy was simply market opportunism. This suggests that they fit with the Austrian school analysis of entrepreneurship in that they predominantly search the market for opportunities triggered by price incentives, in this case the prevailing low exchange rates for the Australian dollar. The good growth firms did not clearly fit the expected corporate, production and competitive advantage strategies. However, they clearly had a marketing strategy based on innovation and were relatively realistic about the importance of price (low exchange rates) as well as product quality in achieving export sales.

The negative growth firms generally fitted the expected pattern of corporate, production and competitive advantage strategies, with negative associations matching the positive elements in the fast growth firms but with positive associations with mass production and price competition, which are not considered appropriate strategies for smaller firms in world markets. Their marketing and exporting strategies however, were based on innovation and product quality, which is not expected to be associated with poor export performance. This suggests there may be a mismatch between their business strategies based on mass production and price competition and attempting to market these products based on innovation and product quality.

Given the vast amount of data analysed here, it is perhaps not surprising that definitive results were not achieved. The data analysis itself had limitations. Although all the models reported were significant (at least at 90 percent confidence level, and most at the 95 percent level), the R-squared percentages were generally low even for logistic models, generally lying between 10 and 20 percent, implying that each factor analysed in itself, does not well explain export

performance. In order to improve the quality of the analysis, a second level of binary logic equation analysis was undertaken combining all the significant variables found above.

6. ANALYSIS LEVEL 2 – COMBINED BINARY LOGISTIC EQUATIONS

The original purpose of this paper was to investigate whether a combination of market related and internal resource capacity factors provides a better explanation of export growth performance than each approach taken in isolation. In this section, the results of binary logistic equations which combine all the significant variables found in the Level 1 analysis above are presented. In all cases, these result in much superior R squared and LR statistics than achieved when each group of variables is taken in isolation. As the growth in export intensity variable contained negative values, it cannot be used in this analysis and has been replaced with a variable coded 'xcl01b'. This variable shows the export intensity class of each firm in 2001, based on a variation of the Cavusgil (1999) classes widely used in international business analysis. The results of the combined equations are discussed under the following headings: market related factors, capital assets, human resource assets, business strategies (corporate focus, production strategies, areas of competitive advantage), marketing strategies, export strategies and information sources. Dummies representing industry sector and firms size (small, large, medium) are included where appropriate. The equations discussed below are provided in Appendix B.

6.1 Fast Growth Firms

Fast growth firms achieved export growth rates of over 75 percent per annum in the 1996/97 to 2000/01 period. The R squared for the equation is .575, and the LR statistic is 90.0, with a p value of .000 or 99 percentage confidence level. It is noteworthy that the R squared rose from .292 when only market related, capital and human resource categories were included to .34 when business strategy variables were added to .575 when all categories were included. The main findings were as follows:

- Market related variables were positive indicating that fast export growth was associated with rising export intensity and with partnerships and collaborations, direct exporting and internet sales. Thus fast export growth is associated with networking in terms of export partnerships and with utilizing modern e-commerce facilities.
- The capital related variables were relatively unimportant for fast growth firms, with only increased capital investment being both significant and positive. New product development R & D was negatively associated as was transfers of technology from parents (indeed few of these firms had parent corporations).
- The human resource variables were both significant and negative. This indicates that fast export growth firms were relatively young and small, and indeed other work has supported this finding in identifying fast

export growth with born global type firms (Hodgkinson, 2004).

- Fast export growth was associated with firms which adopted a corporate focus on both product development and client needs and improving the cost and quality of their products. It was also positively associated with utilizing flexible, small batch production, producing a differentiated range of products and customisation of products. The competitive advantage variables were not significant. This pattern is consistent with the 'post-Fordist' view of modern business behaviour.
- Four marketing strategies were significantly associated with fast export growth, these being: mixed, innovator/marketer, innovator/producer, and marketer/producer. These results indicated that a multi-focused marketing strategy was most successful for these exporters.
- A market opportunist exporting strategy was the only one positively and significantly associated with fast export growth.
- Obtaining information from industry publications and attending meetings of organisations in the capital city were positively related to fast export growth, while travel to visit clients, etc. and using trade and business magazines were negative.

Overall, then, these results indicated that fast export growth firms are typically small, and young or 'born global' firms, with post-Fordist business strategies and whose export expansion behaviour is similar to the opportunity searching hypothesis of the Austrian School. They utilize flexible production strategies as expected of small exporters. These firms also utilize partnerships and collaborations and internet technology to sell their product, as might be expected from networking hypotheses indicating that they are well adapted to operating in modern global markets. They source information particularly from organizations in capital cities. This is consistent with the global cities concept in economic geography (Scott, 2006) with successful exporting associated with using Sydney to access new international information.

6.2 Good Growth Firms

The combined equation for good export growth firms achieved an R squared of .372 and a LR statistic of 59.0, significant at .001 or 99 per cent confidence level. The model for these firms was thus somewhat less satisfactory than for the other groups. The major findings were:

- Good export growth was significantly and positively associated with increasing export intensity and with using Foreign Direct Investment, which is consistent with older versions of export stage theory (Johanson and Vahlne, 1993).
- Good export growth was associated with R & D activities involving making substantial improvement to production processes, and with obtaining new technologies by adapting products from the market and licensing products from other firms. Self development of new products and technology partnerships were negatively associated with good export growth. Thus these firms appear to have relatively low level innovation strategies, emphasising cost saving and quality improving

R&D and utilizing 'follower' type strategies in relation to new product development.

- Both human resource variables, while negative, were insignificant.
- Almost all the business strategy variables were either negative or insignificant making it difficult to categorise these firms. Product differentiation and customisation were significant but negative, implying that they did not utilize these strategies. The only positive competitive advantage variable was market development (advertising, etc.), which was significant at 90 percent confidence level.
- Good growth firms had significant, positive associations with three marketing strategies: pure innovator, innovator/marketer, and innovator/producer. This implies that they market their products in terms of innovation. Yet, their capital asset results suggested the opposite.
- Good growth firms also had significant, positive associations with three exporting strategies: price competitor, quality plus opportunism, and quality plus price. These results are more consistent with their capital asset results, indicating an emphasis on price and product quality in achieving export sales.
- Their main source of information is equipment and other suppliers, which is again consistent with a focus on production improvements in their capital asset responses.

Overall, the good growth firms appear to be followers rather than innovators, who rely on improving existing products and selling on the basis of price to achieve export sales. Their marketing strategies somewhat contradictorily emphasise innovation. If these firms' export performance has mainly been due to price competitiveness in world markets, they may have been adversely affected when the Australian dollar began to appreciate over the last two to three years. These firms have significant negative associations with a number of variables that were positively associated with fast export growth: partnerships and collaborations, differentiated production, customisation, and attending meetings in the capital city. This suggests that a change of strategy in these areas might improve future export performance.

6.3 Modest Growth Firms

These firms achieved positive but relatively low export growth over the five year study period. The drivers of their export performance are thus hard to interpret, as this is not necessarily a desirable outcome. This equation had an R squared of .487 and a LR statistic of 67.8, significant at .000 or 99 percent confidence level. The main findings were as follows:

- The market related variables were generally insignificant or negative. Only introduction of equity capital was significantly and positively related to modest export growth. This implies these firms may have used the injection of external capital as a means of improving their resource base in order to improve performance in the future. Direct exporting and internet sales were significantly but negatively associated

with modest growth, in contrast to their positive association with fast export growth.

- Both human capital resource variables were significant. Modest growth was positively associated with years of export experience and negatively associated with employment size after controlling for 'large size', indicating that they were generally older, larger firms.
- A large number of R & D and technology variables were associated with modest growth. The most significant R & D variable indicated that these firms were not involved in improving production processes but were involved in improving their product range. Technologies were more likely to be self developed or transferred from parents, but they were less likely to adapt products from the market or work with public research institutions. Most production strategies were insignificant, but these firms were less likely to utilize customisation.
- No marketing strategies were significant for these firms. However, all the exporting strategies were significant, so no clear idea of their strategic behaviour is provided.
- These firms obtained information from industry publications, equipment suppliers and particularly from travel to visit clients, agents, etc. but not from the internet.

No clear pattern is provided as to the drivers of modest export growth from this data. Overall, these firms appear as larger, older and traditional firms, which relied on themselves or their parents for new technologies and product development.

6.4 Negative Growth Firms

Negative growth is clearly an undesirable outcome and thus negative coefficients provide evidence of what should be done to avoid poor performance. This equation has an R squared of .56 and a LR statistic of 60.3, significant at .002 or 99 percent confidence level. The main findings were:

- Negative growth was associated with low levels of export intensity and with not using partnerships and collaborations and internet sales. This provides the reverse scenario to the fast growth firms and reinforces the importance of market related factors to export growth.
- No human resource factors were significant for negative growth firms.
- A large number of capital related factors were associated with negative growth. All the R & D variables were significant, with only development of the product range being negative. By contrast, no R & D variable was positive and significant for the fast growth firms. Self developing technology, technological partnerships and transferring technology from parents were all negatively associated with negative growth as was increased investment. By contrast, technological partnerships and increased investment were positive for fast growth firms.
- Negative growth firms utilized mass production, product differentiation and customisation as production strategies. In terms of perceived

competitive advantage, negative growth firms were less likely to focus on after sales and client service and more likely to focus on price competitiveness. These results provide some evidence that they fit into the older Fordist model of business behaviour.

- Negative growth firms were not involved in pure innovator, innovator / marketer, or marketer / producer marketing strategies.
- Negative growth firms were positively associated with market opportunist, quality plus service, quality plus opportunism and quality plus price exporting strategies.
- Negative growth firms did not utilize the internet as a means of obtaining information but did utilize industry publications.

Overall, a relatively clear pattern emerges for negative growth firms as mass production, price competitors, with little involvement in networking or modern IT activities. There is a relatively good contrast with fast growth firms, particularly in the market based activities.

7. CONCLUSIONS

The combined approach provides superior statistical results and allows different categories of drivers to be discussed in conjunction with each other.

Market related factors are significantly related to export growth performance, in particular export growth is associated with rising export intensity and with the utilization of 'global' strategies such as export sales partnerships and collaborations and internet (e-commerce) sales. The market related results are consistent with Stage Theory explanations of export growth in that Fast and Negative growth firms had opposite results. The findings are consistent with previous analyses of this data base undertaken in a stage theory framework (Hodgkinson, 2004; 2006). It provides a strong argument that export growth is associated with:

- firms with high levels of export intensity that have moved rapidly to high export intensity classes;
- use of partnerships and collaborations as an international networking mechanism; and
- use of e-commerce sales through the internet.

These appear to be the best explanatory variables as to what is driving export growth.

Capital related strategies related to R & D and sources of technology for new product development are generally not important explanatory variables. R & D did not show a significant, positive relationship with export growth performance. Almost all firms in the survey undertook some forms of R & D. Thus it appears R & D is a necessary but is not a determining cause of export performance. Technology sourcing strategies were not clearly associated with export performance outcomes. However, undertaking technology partnerships and collaborations and increasing capital investment appear to be strategies that are positively associated with fast growth but not with negative growth, and thus appear to be another set of drivers of export performance.

The human resource proxies were only significant for the fast growth firms, and this indicated that they were small and young 'born global' firms, rather than measuring the importance of entrepreneurial or key labour variables. No conclusions regarding the type of firms likely to experience the other growth outcomes can be made with this analysis. However, only proxy variables were used here and it would need further analysis utilizing sharper variables to assess this category of drivers.

There is no clear pattern associating production choices with export performance. The clearest differentiation is that fast growth firms are more likely to use flexible, small batch production while negative growth firms are more likely to use mass production. This result is consistent with 'post Fordist' perceptions of the suitability of using flexible production over mass production in small firms operating in international markets.

The marketing and exporting strategy analyses added to the descriptive qualities of the equations by increasing their significance values, but did not provide strong insights into what drives export performance. In the initial analysis, some clear patterns in terms of competitive advantages were shown, indicating that fast growth firms focused on technical innovation, product differentiation and after sales service, while negative growth firms had the opposite results and focused on price competition. However, in the combined equations, most of these factors became insignificant, and no clear patterns emerged. Marketing strategies do appear to be associated with export growth performance. In particular, the innovator / marketer strategy was positively associated with fast and good growth and negatively associated with negative growth, providing some indication that this may be an appropriate strategy to improve export performance. There was some indication that utilization of quality plus service and quality plus opportunism exporting strategies did not facilitate export growth, being negatively associated with fast and positively associated with negative growth. The market opportunist strategy, which was positively associated with fast growth, was also positively associated with negative growth and thus is not a good driver of export performance. Information sourced from the internet / web was positively associated with fast export growth and negative with modest and negative growth.

The best results from the combined equations were achieved for the fast growth firms, both statistically and in terms of providing insights into the determinants of export performance. These firms had business strategies consistent with the established literature related to the use of networking and the new information technologies, flexible production strategies and the role of capital cities as an effective source of new ideas. Further, their emphasis on market opportunism as a marketing strategy is consistent with the Austrian school approach to entrepreneurship and export performance. As these firms were generally small and young, however, the results do not provide insights into the importance of entrepreneurial skill or experience as a determinant of export performance. The importance of these findings is enhanced when compared to the negative growth firm results, which were frequently the opposite of those for fast growth firms.

A further limitation of this work is that it utilizes a survey confined to NSW, Australian regional exporters and thus the results cannot be extended to metropolitan exporters or to other countries, except for comparative purposes. The data collected predominantly relates to the second half of the 1990s, at a time of export expansion facilitated by low exchange rates. It would be interesting to repeat the exercise in the second half of the 2000s under appreciated exchange rates, to determine the extent that these exports were achieved by low exchange rates (price factors) and to what extent innovative products and effective corporate strategies were responsible.

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APPENDIX A – CHARACTERISTICS OF SURVEY FIRMS (SOURCE: HODGKINSON (2006)).

Table A1. Characteristics of NSW Regional Exporters.

Size (# of Employees)	*Age in* 0-5	*Years* 6-10	*as at 30* 11-15	*June 2001* 16-30	*(% of firms)* 31 plus
1-9	**57.7**	**44.4**	**29.0**	**36.1**	4.0
10-19	**23.1**	18.5	**29.0**	19.4	4.0
20-49	15.4	18.5	**25.8**	19.4	**32.0**
50-99	3.8	14.8	9.7	8.3	16.0
100-199	0.0	3.7	3.2	11.1	24.0
200+	0.0	0.0	3.2	5.6	20.0

Statistics: Chi-square sign. at .001, Pearsons R = .456 (.000 sign.), Spearmans Corr. =.458 (.000 sign.).

Table A2. Years exporting.

# of Years Exporting	*Age in* 0-5	*Years* 6-10	*as at 30* 11-15	*June 2001* 16-30	*(% of firms)* 31 plus
One or less	**40.0**	14.8	10.0	2.8	0.0
2-4	**44.0**	**25.9**	**36.7**	**27.8**	**28.0**
5-7	16.0	**37.0**	16.7	**25.0**	**24.0**
8-11	0.0	22.2	23.3	8.3	16.0
12+	0.0	0.0	13.3	**36.1**	**32.0**

Statistics: Chi-square sign. at .000, Pearson R= .460 (.000 sign.), Spearmans Corr. =.447 (.000 sign.).

Table A3. Time to export (years).

# of Years to Export	*Age in* 0-5	*Years* 6-10	*as at 30* 11-15	*June 2001* 16-30	*(% of firms)* 31 plus
One or less	**44.0**	**29.6**	23.3	13.9	0.0
2-4	**52.0**	**40.7**	13.3	8.3	0.0
5-7	4.0	**29.6**	**60.0**	**27.8**	4.0
8-11	0.0	0.0	3.3	**50.0**	20.0
12+	0.0	0.0	0.0	0.0	**76.0**

Statistics: Chi-square sign. at .000, Pearson R=.744 (.000 sign.), Spearmans Corr. =.743 (.000 sign.).

APPENDIX B – COMBINED BINARY LOGIC EQUATIONS

Table B1. Fast Growth Firms.

Variable	Co-efficient	Std Error	z-Statistic	P - value
Constant	-7.401	1.438	-5.148	0.000
Market Related				
*Export Intensity Class	0.526	0.121	4.349	0.000
*Partnerships & collaborations	1.188	0.294	4.041	0.000
*Direct exporting	0.670	0.333	2.010	0.044
*Internet sales	4.941	0.515	9.586	0.000
Capital Related				
*New product development	-2.455	0.400	-6.143	0.000
*Adapt from market	-0.351	0.274	-1.281	0.200
*Partnerships and collaborations	0.176	0.335	0.526	0.599
*Transfer from parent	-5.869	0.806	-7.279	0.000
*Increase capital investment	2.137	0.313	6.826	0.000
Human Resource Related				
*Years export experience	-0.613	0.064	-9.596	0.000
*Employment	-0.024	0.008	-2.827	0.005
Business Strategies				
*Focus on clients and product development	0.599	0.851	0.704	0.481
*Focus on clients and production	2.565	0.861	2.980	0.003
*Flexible small batch production	2.981	0.424	7.027	0.000
*Differentiated product range	4.305	0.543	7.933	0.000
*Customisation of products	2.674	0.476	5.618	0.000
*Technical innovation C.A.	0.188	0.325	0.579	0.563
*Product differentiation C.A.	-0.061	0.488	-0.125	0.901
*After sales and customer service C.A.	0.207	0.445	0.465	0.642
Marketing Strategies				
*Mixed	4.850	0.571	8.493	0.000
*Innovator/Marketer	1.184	0.486	2.438	0.015
*Innovator/Producer	4.349	0.579	7.514	0.000
*Marketer/Producer	4.605	0.631	7.300	0.000
Export Strategies				
*Market opportunist	2.731	0.395	6.916	0.000
*Quality plus service	-1.364	0.567	-2.406	0.016
*Quality plus opportunity	-0.830	0.332	-2.501	0.012
Information Strategies				
*Industry publications	4.878	0.556	8.769	0.000
*Internet services	0.301	0.314	0.957	0.339
*Travel to visit clients, agents, suppliers	-2.880	0.478	-6.022	0.000
*External Meetings of organisations	1.382	0.343	4.026	0.000
*Trade and business magazines	-5.011	0.570	-8.786	0.000
Control variables				
*Small Size	0.697	0.492	1.419	0.156
*Machinery and Equipment Sector	2.610	0.388	6.722	0.000
Statistics				
*McFadden R-squared	0.575			
*LR statistic (33df)	90.606			
*Probability LR statistic	0.000			

Table A2. Good Growth Firms.

Variable	Co-efficient	Std Error	z-Statistic	P - value
Constant	-2.806	2.172	-1.292	0.196
Market Related				
*Export Intensity Class	0.458	0.263	1.741	0.082
*Foreign Direct Investment	2.743	1.505	1.823	0.068
*Equity Capital	-0.056	1.544	-0.037	0.971
Capital Related				
*New product development	0.486	1.076	0.452	0.651
*Substantial process changes	0.660	0.622	1.062	0.288
*Develop product range	0.133	0.778	0.171	0.864
*Self developed	-1.106	0.885	-1.250	0.211
*Adapt from market	1.234	0.627	1.969	0.049
*Partnerships and collaborations	-0.860	0.695	-1.238	0.216
*Licensed from other firms	2.337	1.074	2.176	0.030
Human Resource Related				
*Years export experience	-0.003	0.045	-0.059	0.953
*Employment	-0.000	0.002	-0.099	0.921
Business Strategies				
*Focus on clients and production	-1.141	0.692	-1.647	0.100
*Mass production	-0.871	0.695	-1.254	0.210
*Flexible small batch production	-0.198	0.686	-0.288	0.773
*Differentiated product range	-2.135	0.744	-2.871	0.004
*Customisation of products	-1.494	0.674	-2.218	0.027
*Product differentiation C.A.	-1.457	0.345	-4.219	0.000
*After sales and customer service C.A.	0.294	0.313	0.940	0.347
*Market development C.A.	0.621	0.370	1.680	0.093
Marketing Strategies				
*Pure innovator	1.467	0.383	3.825	0.000
*Innovator/Marketer	2.324	0.356	6.534	0.000
*Innovator/Producer	0.665	0.403	1.651	0.099
Export Strategies				
*Price competition	2.206	0.490	4.498	0.000
*Quality plus opportunity	2.042	0.281	7.281	0.000
*Quality plus price	1.603	0.373	4.301	0.000
Information Strategies				
*Visits from service providers	-1.129	0.277	-4.079	0.000
*External Meetings of organisations	-1.047	0.245	-4.279	0.000
*Equipment and other suppliers	0.667	0.235	2.837	0.006
Control variables				
*Machinery and Equipment Sector	-2.063	0.366	-5.630	0.000
Statistics				
*McFadden R-squared	0.372			
*LR statistic (30df)	58.961			
*Probability LR statistic	0.001			

Table B3. Modest Growth Firms

Variable	Co-efficient	Std Error	z-Statistic	P - value
Constant	-10.889	1.511	-7.205	0.000
Market Related				
*Export Intensity Class	0.125	0.110	1.132	0.258
*Agency representatives	-0.323	0.272	-1.190	0.234
*Equity Capital	1.297	0.460	2.818	0.005
*Direct exporting	-1.078	0.273	-3.949	0.000
*Internet sales	-2.266	0.471	-4.815	0.000
Capital Related				
*New product development	-0.529	0.439	-1.206	0.228
*Substantial process changes	-1.085	0.309	-3.505	0.001
*Develop product range	0.591	0.348	1.700	0.090
*Continuous process changes	0.483	0.327	1.478	0.139
*Self developed	4.323	0.635	6.813	0.000
*Adapt from market	-1.849	0.296	-6.238	0.000
*Partnerships and collaborations	0.556	0.372	1.493	0.135
*Transfer from parent	2.022	0.568	3.558	0.000
*Collaborate with public research institutions	-1.147	0.442	-2.593	0.010
Human Resource Related				
*Years export experience	0.193	0.025	7.578	0.000
*Employment	-0.013	0.002	-6.344	0.000
Business Strategies				
*Customisation of products	-2.453	0.457	-5.372	0.000
*Technical innovation C.A.	-0.899	0.562	-1.601	0.109
*Product differentiation C.A.	0.148	0.540	0.273	0.785
*After sales and customer service C.A.	-0.580	0.609	-0.952	0.341
*Market Development C.A.	0.186	0.614	0.303	0.762
*Price competitive C.A.	-0.402	0.723	-0.556	0.578
Marketing Strategies				
Export Strategies				
*Mixed	2.855	0.564	5.061	0.000
*Product quality	6.891	0.963	7.159	0.000
*Market opportunist	2.442	0.573	4.263	0.000
*Price competition	3.966	0.734	5.407	0.000
*Quality plus service	1.764	0.607	2.905	0.004
*Quality plus opportunity	2.885	0.570	5.061	0.000
*Quality plus price	3.461	0.712	4.861	0.000
Information Strategies				
*Industry publications	0.878	0.345	2.547	0.011
*Internet services	-1.394	0.320	-4.350	0.000
*Travel to visit clients, agents, suppliers	3.453	0.722	4.784	0.000
*Equipment and other suppliers	0.921	0.302	3.052	0.002
Control variables				
*Large Size	7.499	1.054	7.113	0.000
*Food and Beverage Sector	-0.807	0.326	-2.474	0.013
Statistics				
*McFadden R-squared	0.487			
*LR statistic (31df)	67.823			
*Probability LR statistic	0.000			

Table A4. Negative Growth Firms

Variable	Co-efficient	Std Error	z-Statistic	P - value
Constant	-1.995	0.906	-2.203	0.028
Market Related				
*Export Intensity Class	-1.454	0.152	-9.585	0.000
*Partnerships and Collaborations	-0.753	0.301	-2.499	0.013
*Internet sales	-3.362	0.785	-4.284	0.000
Capital Related				
*New product development	2.307	0.600	3.849	0.000
*Develop product range	-2.158	0.401	-5.387	0.000
*Substantial process changes	3.114	0.342	9.112	0.000
*Continuous process changes	1.942	0.432	4.495	0.000
*Self developed technologies	-2.253	0.490	-4.593	0.000
*Partnerships and collaborations	-1.311	0.484	-2.708	0.007
*Transfer from parent	-4.473	0.671	-6.670	0.000
*Increase capital investment	-2.150	0.305	-7.040	0.000
Human Resource Related				
Business Strategies				
*Focus on clients and product development	-1.760	0.346	-5.091	0.000
*Mass production	2.048	0.460	4.451	0.000
*Differentiated product range	4.436	0.564	7.864	0.000
*Customisation of products	2.923	0.410	7.136	0.000
*Technical innovation C.A.	-0.013	0.332	-0.040	0.969
*Product differentiation C.A.	0.800	0.538	1.487	0.137
*After sales and customer service C.A.	-1.853	0.484	-3.827	0.000
*Price competitive C.A.	7.847	0.878	8.933	0.000
Marketing Strategies				
*Pure innovator	-0.760	0.442	-1.721	0.085
*Innovator/Marketer	-1.918	0.437	-4.389	0.000
*Marketer/Producer	-2.319	0.768	-3.020	0.002
Export Strategies				
*Market opportunist	4.823	0.505	9.548	0.000
*Quality plus service	4.284	0.496	8.623	0.000
*Quality plus opportunity	1.784	0.465	3.836	0.000
*Quality plus price	3.435	0.601	5.716	0.000
Information Strategies				
*Industry publications	0.644	0.363	1.772	0.076
*Internet services	-0.647	0.310	-2.090	0.037
Control variables				
*Medium Size	-1.992	0.319	-6.248	0.000
*Chemicals Sector	2.967	0.498	5.962	0.000
*Machinery and Equipment Sector	4.864	0.510	9.531	0.000
*Trade and transport Sector	4.842	0.712	6.798	0.000
Statistics				
*McFadden R-squared	0.560			
*LR statistic (32df)	60.334			
*Probability LR statistic	0.002			