Editorial

Business Landscaping for Strategic Advantage: Evidence from a Multi-Sector Study

Themin Suwardy*
Janek Ratnatunga**

Abstract

This paper sets out to make a significant contribution to research both by introducing a quantitative approach to landscaping the intensity of industry competition, and then demonstrating its applicability using cross-industry data. The underlying framework is Porter's Five Forces Model, which has wide acceptance in landscaping competitive intensity because of its simplicity, adaptability and flexibility, but is frequently hard to operationalise because it does not specify procedures for quantifying competitive factors. This paper presents a multivariate approach (i.e., the ICM framework) that enables the operationalisation of Porter's model in a quantitative manner, both at a firm and industry level. This framework is then applied to a total of 19 Australian industries. The results indicate that the degree of competition varies widely among Australian industries, characterized by high intensity of rivalry, low bargaining power of buyers, minimal bargaining power of suppliers, high threat of new entrants and wide-ranging threat of substitutes.

Keywords

Australian Industry Competitiveness
Porter's 5-Forces Model
Cross Industry study
Business Landscaping

* Singapore Management University
**University of Southeastern Florida

Introduction

The origins of management accounting can be traced to Commerce along the 'Silk Road', where traders calculated the cost of the venture and the profit they could make by undertaking such trade.

Because competition is the "heart of our economic system" (Schoeffler et al., 1974), strategic marketing requires constant monitoring of the competitive landscape. Many authors have written on its dynamic, comparative, multi-dimensional and complex nature (Clark, 1961; Economic Planning Advisory Council, 1991; Day and Reibstein, 1997; Hooley et al., 1998). Hunt and Morgan (1995) distinguished marketing orientation from the marketing concept because it includes a focus on competition, not customers alone. It has been shown that in the area of competition, there has been a strong interrelationship and a migration of ideas between strategic management and marketing (Brownlie, 1989; Brownlie, and Moutinho, 1989).

A number of different approaches are available to map the competitive landscapes. The primary purpose for such analysis is to formulate a strategy that enables a company to take a relatively higher position on the landscape in terms of long-term economic profitability (Ghemawat et al., 1999). Among the different approaches, the competition-based framework postulated by Michael Porter (1980; 1985) is a widely accepted model.

Many companies as well as business schools use it (Ghemawat et al., 1999). A survey by the consulting firm Bain suggests a very high (25 per cent) usage rate within a decade of its conceptual introduction (Rigby, 1994). Because of its relative ease of application, the Porter model has been extensively used to map single industries (Boyle et al.,, 1993; Munk and Shane, 1994; Ratnatunga, 1995).

Evidence from cross-industry mapping, however, is limited. What cross-industry evidence exists come from case studies of different industry sectors. We lack a direct application of the Porterian model in a quantitative manner across a number of industries at the same time, that is, in a

multivariate manner at both the firm and industry level simultaneously.

Cross-industry evidence can increase our understanding of the competitive factors in a more systematic way. It can address some of the criticisms aimed at the Porter model, including criticisms that few of the signals command strong empirical support ((Schmalensee, 1985, 1989) or that the model adds extra links and dimensions - of rivals, substitutes and new entrants - that exceed scientific evidence (Ghemawat et al., 1999). A quantitative approach to competitor analysis will provide significant, if not complete, mapping of a strategic landscape.

The organization of the paper is as follows. The first section briefly surveys the existing literature on mapping the competitive landscape. The second section introduces a more holistic, integrative approach - the ICM framework – to quantitatively map a competitive landscape. Results from a multi-sector study in Australia are then used to discuss the contribution of competitive factors underlying perceptions of overall competition.

The paper concludes with a discussion of the implications and limitations of the proposed framework.

Models for Mapping Business Landscapes

A number of different approaches map the competitive landscapes. The primary purpose for such analysis is to formulate a strategy that enables a company to take a relatively higher position on the landscape in terms of long-term economic profitability (Ghemawat *et al.*, 1999). Mapping such landscapes requires simple, but structured, approaches to capture the complexities of the real world. Three such structured approaches are supply–demand analysis (Marshall, 1890), industrial organization (IO) economics (Mason, 1939; Bain, 1951; Caves and Porter, 1977, Zou and Cavusgil, 1996) and the value-net approach (Brandenburger and Nalebuff, 1996).

One model that is used extensively in perceptually mapping the business landscape is Porter's Five Forces model (1980; 1985). Use of this model requires the determinants of competition to be measured not only at the higher "five forces" level (Goldsmith, 1991) but also at the underlying competitive factor level. Each force has several underlying factors (as listed in Table 1), and the strength of its respective competitive factors determines each of the five forces. The relationships between the five competitive forces (and their respective competitive factors) that shape industry competition are complex and it is difficult to see the effect of one competitive force on the overall degree of competition. Therefore, the challenge is to develop an industry competition measurement framework based on information regarding the five forces as well as their respective competitive factors.

Various attempts to measure industry level factors exist including a multi-item scale developed by Pecotich *et al.*, (1999) and used by Weerawardena, *et al.*, (2006); as well as single- item measures used by researchers such as Galbreath and Galvin (2008). Central to all these measures are managerial perceptions of industry structure, perceptions that influence how firms pursue "innovative ways of performing activities of the value chain" (Weerawardena, *et al.*, 2006, p. 42).

The ICM Framework

This paper extends and improves upon the work of Pecotich, *et al.*, (1999). It uses an analytical approach, termed the Industry Competition Measurement (ICM) Framework, which generates quantifiable measure of competition from managers (Figure 1).

Perceptions relating to Porter's five forces model are within both a firm and industry level and the ICM framework quantifies the degree of perceived industry competition in reference to a hypothetical firm or industry with an average state of competition.

In Porter's model, an industry is most competitive when all five forces are high. The ICM framework in this study measures the level of competition as a departure from the average or par value; thus, it examines competition from a comparative perspective. As Hunt and Morgan (1995) have argued, "competition is the constant struggle among firms for a comparative advantage in resources that will yield a market place position of competitive advantage and, thereby, superior

financial performance" (p. 13). Industries that are more competitive than this average state of competition would have a positive (or increasing) level of competition (i.e., their level of competition is above par), while those where competition is low would be below par and have a negative (or decreasing) level of competition. A zero competition level thus does not mean an absence of competition, but merely a state where competition is perceived to be at par with average level of competition.

The ICM framework is built from perceptual data gathered from multiple respondents within a firm, within an industry, and across industries. It assumes that one can extrapolate the overall perception of the state of competition from the perceptions of competition that managers of individual firms within an industry hold of that industry, and that this measurement of perception is a surrogate measure for the intensity of competition in that industry. It is based on a multivariate analysis of the competitive factors listed in Table 1. A most competitive industry, as per the five forces model, would have every factor for every force rated as high for a particular industry; it would then be hypothetically the most competitive industry under the Porterian model. It is also possible to imagine a least competitive industry situation with the reverse ratings (i.e., all factors rated low). One can also imagine a situation where competition is hypothetically moderate, that is, when all the competitive factors are rated as average. This average point of competition plays a critical role in the measurement of competition in the ICM methodology.

The method underlying the ICM framework has seven relatively simple steps, of which six are computational (see Figure 1).

Figure 1: Industry Competition Measurement (ICM) Framework (6 Stages)

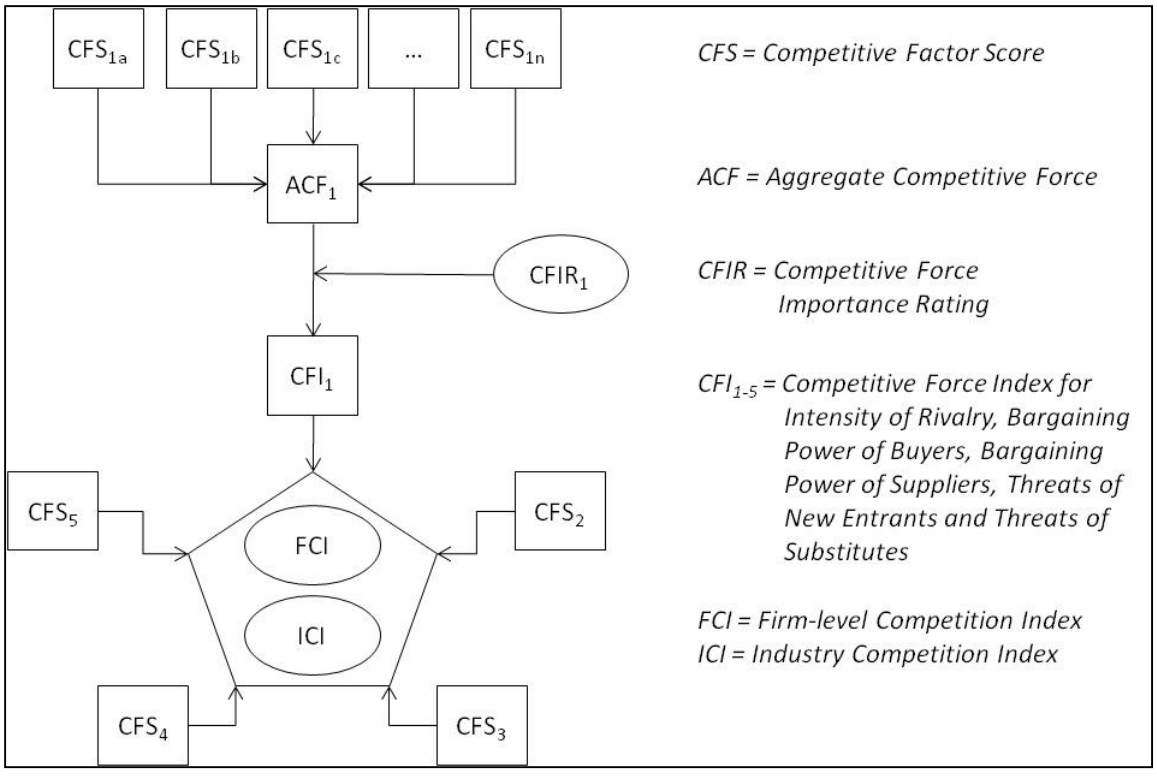


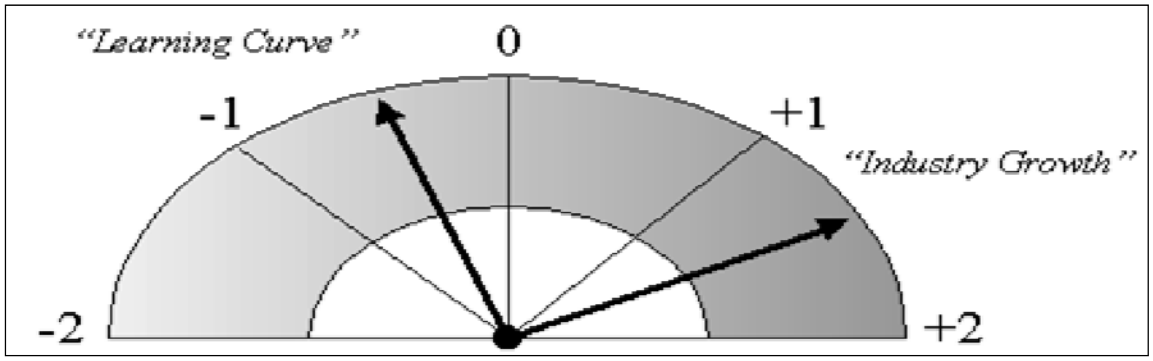
Table 1: Competitive Factors Underlying Five Competitive Forces

CF_1: Intensity of Rivalry (11 factors)	
low industry growth high surplus production capacity high variability of demand high informational complexity high exit barriers low product differentiation	low value-adding activities high corporate stakes low switching costs high diversity of competitors low industry concentration
CF_2: Bargaining Power of Buyers (6 factors)	
high number of competing products low number of buyers high importance of buyers' purchases volume	high knowledge of cost structure low importance of industry outputs high buyer's threat of backward integration.
CF_3: Bargaining Power of Suppliers (7 factors)	
high supplier switching costs high importance of supplier's input low number of suppliers low importance of sales volume to suppliers	low availability of substitutes high threat of supplier's forward integration low threat of industry's backward integration
CF_4: Threats of New Entrants (6 factors)	
low economies of scale low capital requirements high access to distribution channels	low learning curve high level of pro-competition government policy high expectation of retaliation from existing firms
CF_5: Threats of Substitutes (2 factors)	
high availability of substitutes	low substitutes switching costs

Perceptual Data Collection: The first step is obtaining perceptual data from relevant individuals using a 5-point Likert scale. The respondents are asked to consider the mid-point of the Likert scale as the neutral response. The Competitive Factor (CF) Scale consisted of 32 items based on Porter's list of competitive factors (1980, 1985) (see Table 1) and expressed as reasonably short, meaningful and bipolar (low and high) statements to which respondents can indicate their agreement or disagreement (the questionnaire is available upon request).

Competitive Factor Score (CFS): The second step involves constructing the CF scores. After the ratings have been generated, the 5-point Likert scale is translated into a dispersion scale where the neutral midpoint (3 on the Likert scale) is set to 0. Figure 2 shows two sample competitive factor scores. If the mean Likert score on the industry growth competitive factor is, say, 4.5, the dispersion score of 1.5 (i.e., 4.5–3) will be the Competitive Factor Score (CFS). Similarly, if the mean Likert score for the Learning Curve factor is 2.6, the CFS will be –0.4 (i.e., 2.6–3).

Figure 2: Competitive Factor Scoring Methodology



The Aggregate Competitive Force (ACF)*:* The third step is the computation of the ACF which is the composite CFS, taking into account the number of competitive factors within the force. This averaging process ensures that a competitive force will not ultimately become more significant merely because it had more competitive factor items (see Table 1 for list). These dispersions are used to study significant differences in competitive factor scores across industries.

For ease of readability, the scale from minus 2 to plus 2 can be translated into percentages. Thus, in the aggregation of CF measures, the scale converted to minus 100% represented the minimum level of minus 2, and plus 100% the maximum level (plus 2). This conversion is done by expressing these aggregates as a percentage of the maximum scale values for a respective competitive force (+2 in the positive direction and –2 in the negative direction). This is shown in the following equation:

$$(\sum_{1}^{n} CFS\ ) / (\text{n x } 2)$$

where CFS = Competitive Factor Score and n = the number of competitive factors in the respective competitive force, with the number 2 representing the maximum value on the scale.

Competitive Force Importance Rating (CFIR): The next step is to incorporate the importance of each competitive force in the industry's aggregate score. Various authors (including Porter) caution that, as the importance of an individual competitive force differs from industry to industry, the measurement framework must also take into account the degree of importance of the competitive force in the industry. A Competitive Force Importance Rating (CFIR) is therefore used to assess the perceived degree of importance of each competitive force (Khandwalla, 1972; Fry, 1996; Bjornsson, and Lundegaard, 1992; Abraham, Bervaes, Guinotte, and Larcoix, 1993). The CFIR is a weighted average percentage calculation using a scale of 1–5 (1 being least important, 5 being very important). The 1+2+3+4+5 responses total 15, which is then used as the base.

If the degree of importance of a particular competitive force is 4.00, for example, then CFIR weight works out to be (4/15), or 26.7%. Another industry may perceive the same competitive force as less important, say 2, which translates to a CFIR of (2/15) or 13.3%.

Competitive Force Index (CFI): Using CFIR's as weights we can now calculate CFIs. The following equation shows the CFI for each force and demonstrates how the ratings were factored into the individual Competitive Force Index (CFI) as shown in Table 2, and again shows the values as a percentage of the minimum and maximum scale values obtainable.

$$\text{CFI} = [(\text{ACF x \%CFIR}) \text{ x } 5]$$

Firm Level Competition Index (FCI): The aggregate of all five CFIs shows the level of competition faced by a firm, termed the Firm Level Competition Index (FCI), and is computed as follows:

$$[\sum(CFI_1, CFI_2, CFI_3, CFI_4, CFI_5)]/5$$

Industry Competition Index (ICI): This is the final computational stage, and is a function of the collective firm competition indices (FCI) for all members of the industry.

In summary, CF refers to a factor within an individual competitive force, for example, the

growth rate factor within the Intensity of Rivalry competitive force (with a measurement range between –2 and +2) for an individual firm. ACF refers to the aggregate of CF scores in a competitive force for an individual firm (given as a percentage of the maximum score of 2 for ease of readability and interpretation). As each individual competitive force may have varying degrees of importance for different industries, a CFIR (a weighted percentage) determines an adjusted individual competitive force, called CFI (with a measurement range between –100% and +100%) for an individual firm. Having adjusted for the relative importance of each CFI using the CFIR weighting, the FCI for an individual firm is calculated by adding the five individual CFI scores, and then dividing by 5. This represents the average score of the five competitive forces within an individual firm, again with a value range between –100% and +100%. These individual firm CFIs can also be summed across an industry, to obtain an industry CFI (again with a measurement range between –100% and +100%).

By surveying its senior executives, a firm's management could use such a hierarchical multivariate approach to obtain a quantitative composite perception (i.e., FCI) of the impact of the five industry forces of competition on the firm.

Figure 3: Competitive Factor Scoring Methodology

Industry (responses/n)	**CFI_1** (Rivalry)	**CFI_2** (Buyers)	**CFI_3** (Suppliers)	**CFI_4** (Entrants)	**CFI_5** (Substitutes)	**ICI** (Average)
Medical Services (6/11)	21.39%	-35.19%	7.14%	17.31%	-31.11%	**-4.09%**
Pastoral and Agricultural (6/10)	7.13%	-25.46%	8.33%	13.89%	-19.44%	**-3.11%**
Industrial Services (17/33)	9.95%	-41.98%	-1.58%	29.34%	-8.72%	**-2.60%**
Automotive (6/8)	41.48%	-24.07%	-22.86%	29.81%	-35.00%	**-2.13%**
High Technology (12/30)	11.71%	-25.91%	1.75%	21.24%	-14.09%	**-1.06%**
Chemicals (3/6)	14.26%	-22.22%	0.00%	33.33%	-22.22%	**0.63%**
Developers & Contractors (17/36)	16.73%	-29.80%	-7.21%	20.13%	22.61%	**4.49%**
Transport (8/13)	43.83%	-22.92%	1.43%	29.17%	-19.50%	**6.40%**
Retail (14/25)	41.74%	-22.89%	-9.54%	20.88%	7.25%	**7.49%**
Engineering (18/32)	34.12%	-23.66%	6.40%	25.02%	-2.92%	**7.79%**
Computer & Office Serv. (12/22)	14.64%	-27.08%	8.98%	30.14%	23.33%	**10.00%**
Paper and Packaging (4/9)	35.00%	3.33%	-23.57%	16.67%	18.75%	**10.04%**
Building Materials (10/25)	31.33%	-10.63%	0.60%	21.00%	11.11%	**10.68%**
Alcohol and Tobacco (8/14)	52.86%	-23.33%	-6.03%	34.27%	0.00%	**11.55%**
Insurance (6/8)	42.50%	-42.22%	-11.43%	40.00%	36.00%	**12.97%**
Tourism and Leisure (17/25)	42.25%	-26.08%	-19.49%	35.72%	33.82%	**13.24%**
Banks and Finance (11/15)	35.10%	-50.94%	-7.14%	31.03%	67.27%	**15.06%**
Food and Household (12/29)	38.75%	-5.71%	1.90%	24.14%	24.07%	**16.63%**
Media (8/23)	26.67%	-7.29%	4.29%	36.56%	45.00%	**21.05%**

This would be faster (and arguably more objective) than similar more subjective reports undertaken either by an industry expert commissioned by the firm, or by an in-house researcher based on face-to-face unstructured interviews of its key managers.

This multivariate and quantitative approach to analysing the five-forces model is the key contribution of this paper. The approach was first pre-tested using the perceptions of MBA students for a single (telecommunication) sector in Australia and found to be able to better capture group perceptions that the more qualitative approaches to analysing industry competitiveness[1]. The approach was next used for a multi-sector analysis, and these results are now reported in Figure 2 of this paper.

An Empirical Investigation

The study involved 19 industries in Australia, using an industry classification scheme based on the Australian Stock Exchange (ASX) that contains 24 main industry and 124 industry subgroups. The selection procedure included industries with more than 10 members, diversified industries, and using industry subgroups in place of miscellaneous industry groups. A total of 19 industries were selected for inclusion in the study, and all firms in these industries were surveyed (n = 463). The questionnaire was mailed out to the highest managing personnel in the organizations as listed by the ASX, mostly Managing Directors (56%), CEOs (16%) and Chairmen (16%). Data were collected with a timeframe for completion of two weeks, followed up by two reminders. Of the 463 questionnaires sent out, 374 (80.7%) were returned, of which 195 (52.14%) were useable. Early and later respondents displayed no significant difference.

CFIs for each of the five forces in the 19 industries were calculated using the ICM framework. Table 2 shows the Industry Competition Index (ICI) – the arithmetic averaging of the 5 CFI competitive forces, with a value range between –100% and +100%.

[1] The results of this pre-test are available from the authors upon request.

Industry Competition Index (ICI)

Table 2 summarizes the ICI in ascending order of perceived competition. It is apparent that a large difference exists between the least competitive industry (Medical Services, ICI of –20.45%) and the most competitive industry (Media, ICI of 105.22%). (CFI_1 to CFI_5 refer to Intensity of Rivalry, Bargaining Power of Buyers, Bargaining Power of Suppliers, Threat of New Entrants, and Threat of Substitutes, respectively).

A noticeable consistency appears in the impact of the five competitive forces. The CFIs of both Intensity of Rivalry and Threat of New Entrants have a positive effect across all 19 industries, whereas the CFIs for Bargaining Power of Buyers of all but one industry (Paper and Packaging) have a negative impact on competition. Bargaining Power of Suppliers and Threat of Substitutes have mixed effects across the 19 industries.

Intensity of Rivalry (CFI_1)

Although it varied considerably from one industry to another, with a range of 7.13% to 52.86% and an average of 29.55%, the perception of intensity of rivalry was positive for all industries. The perception of intensity of rivalry generally leads to an increase in the state of competition in all industries.

Significant differences in CFS and CFIR measurements across industries were tested using one-way ANOVA with Bonferroni post hoc tests, which adjusts the significance level by the number of tests performed, with a significance level of 0.05. For reasons of brevity, and only to show as an example, Table 3 reports only the significant results (which arose mainly in the Intensity of Rivalry competitive factors). Note that out of the 32 competitive factors listed in Table 1, the Intensity of Rivalry force had four factors within it that showed significant differences from industry to industry, while the bargaining power of buyers and the bargaining power of suppliers had just one each.

The data in Table 3 highlight significant differences in the variability of demand, growth rate, exit barriers and product differentiation competitive factor scores across industries. Porter's model states that the more variable the demand, the more intense the industry rivalry. Variability of demand, for

example, is significant ($F = 3.34$, $p < .00$). Variability is greater in industries such as Retail (.71), Transport (.75) and Tourism and Leisure (.82) which operate with well-established seasonal patterns (e.g., the Christmas shopping period, summer or mid-year holiday periods, and other events-based fluctuations of demands). These results are consistent with conventional views and other statistical data on competition. Banks and Finance (–1.27), on the other hand, appear to have less than average variability in the demand for their products and services.

Although the variability in demand was perceived to be lower than average, the amount of industry rivalry in the banking industry is demonstrated by the rivalry CFI in Table 2 (35.1%). This perception probably comes from a shift in competitive emphasis caused by changes in regulatory protection and other collective imperfections worldwide that previously provided sustainable advantage in the banking industry (see Mehra, 1996). It must be noted, however, that this study was completed before the more recent global financial meltdown, and the significant government regulation now imposed on the finance sector.

Similarly in Table 2, the Alcohol and Tobacco (52.9%), Insurance (42.5%) and Tourism and Leisure (42.3%) industries were rated as low-growth industries and scored higher on perceived industry rivalry. In its *Insurance Industry Handbook*, Investopedia (2005) noted, for instance, that insurance is now more like a commodity, and that the insurance company with the lowest cost structure, greater efficiency, and better customer service will beat competitors. These factor ratings confirm both the signals given in the Porter model that says that low growth equals more intense rivalry, and the perception of these industries as mature markets in Australia (and thus indicating higher intensity of rivalry for market share). Conversely, Computer and Office Services (14.6%), and Industrial Services (9.95%) are widely considered to be higher growth areas in Australia, as indicated by perceptions shown in Table 3.

The factor scores in Table 3 also show that product differentiation ($F = 2.22$, $p < .00$) plays a more crucial role in the Alcohol and Tobacco and Tourism and Leisure industries than in the Building Materials industry, which is consistent with conventional marketing wisdom.

Table 3: Intensity of Rivalry - Significant Differences in Competitive Factor

Competitive Factor (F ratio, F prob)	**Differences observed (μ_x and $\mu_{y(1, 2, \ldots n)}$)**
Growth Rate (3.44, .00)	*Engineering* (2.78), *Alcohol and Tobacco* (0.88), *Computer and Office Services (-1.25), Tourism and Leisure (-1.18), Industrial Services* (-1.18)
Variability of Demand (3.34, .00)	*Retail* (.71), *Transport* (.75), and *Tourism and Leisure* (.82); *Banks and Finance* (-1.27), *High Technology* (-.83), *Computer and Office Services* (-.75), *Engineering* (-.67)
Exit Barriers (2.19, .00)	*Tourism and Leisure* (.59) and *Computer and Office Services* (-1.00)
Product Differentiation (2.22, .00)	*Building Materials* (-.50) and *Tourism and Leisure* (1.78), and *Alcohol and Tobacco* (1.50)

Bargaining Power of Buyers (CFI2)
Except for Paper and Packaging (3.3%), Bargaining Power of Buyers negatively impacts ICI; it ranged from –50.94% to 3.33% with a fairly low average of –24.42% (Table 2). The data show that the perceptions of respondents do not support the marketing notion that "customer is king". Clearly, the data suggest that the industries perceive an advantageous position in dealings with their customers. The industries showing the least bargaining power for their buyers are Banks and Finance (–50.94%), Insurance (–42.22%) and Industrial Services (–41.98%). The study found no significant difference in terms of the degree of importance of Bargaining Power of Buyers across industries.

One-way ANOVA tests reveal only one notable difference amongst the 19 industries – the purchase volume ($F = 2.56$, $p < .00$) competitive factor (not shown in Table 3, which reports only the significant factors of the Rivalry force). The Food and Household industry had a mean of 1.17 for this factor, confirming evidence from other studies that show the presence of high collective bargaining power in the food and household industry (Ratnatunga, 1995; Dobson *et al.*, 2001).

Purchasing volume was a significant negative competitive factor in the Banks and Finance (–.64), Developers and Contractors (–.58), and Insurance (–.47) industries. The results suggest that individual customers or buyers in these industries have significantly less purchasing volume, which weakens their overall bargaining power. It is important to draw the distinction here between individual and corporate buyers with regard to banking and insurance products and services. While individuals have little bargaining power, large corporate clients, such as airlines or pharmaceutical companies, may well have considerably more influence in these industries (Barrados, 1998; Investopedia, 2005).

Bargaining Power of Suppliers (CFI3)
Compared to buyers, suppliers had more power in their dealings with the industries, but only at about a par level of competitive bargaining strength. With a range of –23.57% to 8.98% and an average of –3.58%, their bargaining power was not a dominant force (Table 2).

In comparison to other industries, the Paper and Packaging (CFI_3 of –23.57%), Automotive (CFI_3 of –22.86%) and Tourism and Leisure (CFI_3 of –19.49%) industries rated their suppliers as having very little power (Table 2). In such industries the suppliers are likely to be fragmented; thus, their bargaining power is low, which leads to a lower level of competition. One significant difference across industries was noted ($F = 2.14$, $p = .006$) in the Food and Household industry, which rated the importance of its supplier's inputs highly, with a mean of 1.17.

The study found no significant difference in terms of the degree of importance of bargaining power of suppliers across industries.

Threat of New Entrants (CFI4)
The data suggest that the industries face an average CFI_4 of 26.82, ranging from the lowest threat of new entrants in the Pastoral and Agricultural industry (CFI_4 of 13.89) to the highest threat in the Insurance industry (CFI_4 of 40.00).
The perception of the Insurance industry as susceptible to new entrants runs counter to the conventional association of industries. While this raises questions on the robustness of the ICM framework approach, further analysis indicates that the robustness of the conventional wisdom is questionable. The *Insurance Industry Handbook* (2005) notes that, while the average entrepreneur cannot easily start a large insurance company, the threat of new entrants lies within the insurance industry itself. Some companies have carved out niche markets in which they underwrite insurance and are fearful of the big players squeezing them out. Another threat for many insurance companies is other financial services companies entering the market.

The study found no significant difference in the degree of importance of this competitive force across industries.

Threat of Substitutes (CFI5)
The Threat of Substitutes in the industries selected for study is the most varied of the five competitive forces, and the ICM framework provided surprising insights in this area. The range stretches from Automotive (–35.00%) to Banks and Finance (67.27%), with an average of 7.17% (see Table 2), which translates to a range of over 100 CFI points. In

comparison, the ranges of the other competitive forces, that is, Intensity of Rivalry, Bargaining Power of Buyers, Bargaining Power of Suppliers and Threat of New Entrants, are only 45, 55, 32 and 26 CFI points, respectively.

The perceived threats of substitutes are highest in the Banks and Finance (CFI_5 of 67.27%), Media (45%) and Insurance (36%) industries. Further analysis of these results showed that the proliferation of non-traditional mortgage providers and the increased blurring of the industry boundaries can perhaps explain the threat of substitutes in the Banks and Finance and Insurance industries. Many new firms now offer services traditionally the domain of banks, finance or insurance industries through innovative channels such as the Internet.

The Internet, of course, is a direct substitute for many members of the Media industry (newspapers, television) (Hie and Hillygus, 2002; Robinson *et al.*, 2000). The high level of this perception implies that managers are well aware of how important the Internet is to their overall operations, and are taking this threat to their industry seriously in their strategic planning. The activities of groups such as AOL–Time Warner and MSNBC show the blurring of industry boundaries.

On the other side of the spectrum, the Chemicals, Medical Services and Automotive industries do not see themselves threatened from any substitute products or services. It is unclear whether the respondents actually perceive that no substitutes exist for their products or services, or whether the substitutes pose little credible threats (e.g., hard to switch and expenses involved in the switching process).For example, alternative medicines are a possible substitute to the services of Medical Services, but respondents rated the threat of substitutes as very low.

Once again other signals were similar and no significant differences arose in terms of the competitive force ratings for threat of substitutes across industries.

Strategic Implications

This cross-industry comparative study provides insights regarding competitive intensity in different industries in Australia and the contribution of the five competitive forces. The 19 industries included in the empirical investigation range in competitive intensity from higher than average (Media, Food & Household, Banks & Finance, Tourism & Leisure, etc.) to much lower levels (Medical Services, Pastoral & Agricultural, Industrial Services, etc.). Competitive factors identified as significantly different offer grounds for firms and industries to improve their respective competitive positions. Firms will improve their performance *within* their industry through the deployment of idiosyncratic advantage-generating resources tuned to industry conditions, while industries will improve performance *relative* to other industries through attention to ICM factors.

The business landscape, in general, is perceived to be more competitive in industries that target household consumers – Media, Food & Household, Banks & Finance, Tourism & Leisure, & Insurance – than those that target business customers (Industrial Services, Chemicals, Pastoral & Agricultural). There is also apparent consistency in the impact of the five competitive forces; managerial perceptions are characterized by high intensity of rivalry, low bargaining power of buyers, minimal bargaining power of suppliers, high threat of new entrants and wide-ranging threat of substitutes.

Across those industries with higher competitive intensity, three forces are particularly impactful – threat of new substitutes, threat of new entrants and intensity of rivalry – forces that deal with direct and indirect, current and future competitors. Media, Banks and Finance, Tourism and Leisure and Insurance industries are particularly sensitive to these three factors. For those industries with lower competitive intensity, threat of new substitutes is perceived to be much lower. For instance, both the medical services and the automotive industry, which perceived high intensity of rivalry and threat of new entrants, did not perceive high levels of threat of new substitutes. These perceptions are aligned with the emergence of new technologies such as the Internet and e-commerce which are particular threats to the Media, Finance and Tourism industries. Managerial response in terms of strategic alternatives has to differ greatly from those industries where threat of new substitute is low.

While the threat of substitutes is the most varied of the five competitive forces, the threat of new entrants is real and credible. It may appear surprising that the Insurance industry perceives threat from new entrants, but linking this threat to other industries such as Banks and Finance makes the result more understandable. What would it take, for instance, for a bank or investment bank to start offering insurance products? The *Handbook* (2005) notes that, in many countries, it is only regulations that prevent banks and other financial firms from entering the industry. If those barriers were broken down, as they were in the U.S. with the Gramm–Leach–Bliley Act of 1999, the perception is that the floodgates would open as they did in 2008 when few boundaries in the business landscapes of the banking, finance, and insurance industries remained, resulting in the meltdown of the financial sector in the U.S. Fjeldstad and Ketels (2006) state that industries (such as banking) are using their value networks rather than the value chain to acquire new customers in industries previously not considered, or are defending themselves from other industries entering their traditional markets.

It is interesting to note the differences in perceptions regarding the bargaining power of buyers in relation to forces that deal with direct and indirect competition. Without exception, perceived bargaining power of buyers is low across all industries. Clearly, managers in most industries perceive an advantageous position in their dealings with customers. This is true even among those industries where customers are business customers and likely to be fewer in number and purchasing greater volumes such as in Chemical, Engineering, Computer and Office Services. Considering the distinction between marketing orientation and marketing concept (Hunt and Morgan 1995), the managers in our study seem to focus on competitors more than customers. This emphasis has implications for strategies adopted to define and gain competitive advantage.

While the bargaining power of suppliers is not a dominant force in many industries, they are perceived as having higher bargaining power in their dealings within their industry than are the buyers. The only exception is Paper and Packaging industry where buyers are perceived to have more bargaining power than suppliers and the Automotive industry which appears to believe that bargaining power of both buyers and suppliers is comparable.

These are important findings as these ranking can be used when considering supply-chain strategies. In terms of suppliers, the findings can be used to explore issues of balance and how to develop advantageous relationships. For example, if the supplier is exploiting its strong bargaining position (such as steel makers in the automotive industry) then a strategic response might be to explore alternative sources of supply, even alternative materials or processes so as to reduce this dependence. Equally, if the supplier power is weak, one can exploit this weakness by tying the supplier into price reduction or other contract requirements.

Contributions

The paper sought to address a gap in our understanding of the competitive landscape across industries. By investigating and quantitatively measuring the competitive factors in a more systematic way, we were able to assess the impact of the various signals and generate empirical support for the relative impact of the five forces. The Industry Competition Measurement (ICM) Framework was able to convert the numerous competitive factors in the Porter model into quantifiable signals of competition and examine the competitive positions of firms and industries from a comparative, rather than an absolute, point of view. The results, as discussed above, show that there are consistencies across industries as well as variations within them.

The second contribution of the paper is in the application of the model to selected Australian listed industries. In recent years, we have seen increasing efforts to examine competitive landscapes using various perspectives in different contexts. Eriksen and Knudsen (2003) examined SMEs in Denmark, while Australia was the context of choice by Galbreath and Galvin (2008) as well as Weerawardena, et.al. (2006). This paper adds to our understanding of the industry level and firm level relationships outside a North American context.

The above discussion demonstrates that the ICM framework is a good starting point for a more detailed industry analysis and insights

into possible strategic response. The specific ranking of competitiveness in Australian industries provides benchmarks for future studies. The model provides a clear focus to the direction of this extended analysis, and is therefore of practical value to managers and other users.

One of the goals of the paper was to improve upon the multi-item approach developed by Pecotich, *et al*. (1999) which generated 126 competitive factors based on the competitive literature and then grouped them into the Porterian five-forces model. These 126 factors were then reduced to 55 competitive factors (but not per the original Porter's Five Forces model; e.g. each competitive force has more than 10 factors). The challenge was to develop an instrument that is easy to administer and yet elicit responses that are meaningful and useful. The ICM framework used in this research involved a simpler, easy-to-use 32 item scale (Competitive Factor Scale) based on Porter's list of competitive factors. As a result, we were able to generate perceptions of the competitive landscape from highly-placed managerial respondents across 19 industries in Australia.

Future application of the ICM framework will assist managers, industry analysts, researchers and policy makers to further understand the numerous competitive signals in a firm or an industry, or across industries. At a firm level, managers can identify critical benchmarks of their firm's current position through an understanding of the factors that affect competitiveness. They can also crosscheck the results with their own qualitative research within the industry. At an industry level, the application of the framework can guide in decisions on comparative investment and other opportunities across industries. Similarly, academics can investigate relationships between competition and other constructs of interest.

Limitations and Future Research Directions

As with any empirical investigation, this study has limitations and shortcomings that warrant further attention in future research. First, clarifying industry boundaries and including more firms within a particular industry would further enhance the study. Even though the response rates to the mailed questionnaire were high, the underlying number of listed firms in Australia is low, resulting in only a handful of responses in some industries. Similarly, the research was conducted in one cultural and market setting (Australia); replication in other countries would help us understand which constructs are applicable across national boundaries.

Second, although popularly accepted, the results of the study hinge upon on how well Porter's five forces model fits reality. For example, the Porter model argues that an industry with high growth rate is likely to be less competitive than one that has a low growth rate. This does not seem to apply to many newer industries such as Telecommunications, Internet and other technology industries, where both competition and growth rates appear to be high. Since Porter developed his model nearly a quarter of a century ago, a possible future research area is to test if the competitive factors in the Porter model adequately explain competition in the 21st century.

A further limitation of the research pertains to the role of the managerial categorization processes (i.e., the formation of managerial perceptions with regard to competitive groups) – how do managers form beliefs about competitors, and how do their perceptions, decisions and actions interact in the creation of competitive boundaries? Some researchers argue that competitive boundaries are socially constructed; that is, the structure of an industry not only influences a manager's cognitions, but is itself determined by the manager's cognitions. This suggests that inter-firm monitoring and coordination create rather than result from industry structure (see Porac *et al*., 1989; Porac and Thomas, 1990; Dornier and Karoui, 2003). Any future research must consider these cause-effect relationships.

We did not incorporate measures of industry competitiveness such as market concentration, market size, organization density and size. Similarly, we did not address performance measures such as profitability. Future research could focus on the interaction of industry factors, as developed here, with firm-specific factors, to explain more fully performance variations among firms within industries. Specifically, a study that correlates industry competitiveness with firm (and industry)

profitability would be interesting, as would a study on how distribution impact upon the (evolution of the) shape of the underlying resource landscape. To the extent that accounting returns measure the presence of economic rents, by far the most important sources of rents in businesses derive from resources or market positions that are specific to particular business units rather than to corporate resources or to membership in an industry. Put simply, business units within industries differ from one another a great deal more than industries differ from one another. In this regard, insights from the resource-based view developed over the past two decades in the strategic management literature could usefully be combined with the model developed above (Rumelt, 1991; Wernerfelt, 1995).

Finally, another possible area of refinement is to aggregate markets that are business-to-business from supplier to end-user. A tailor-made study could consider the impact of the five forces across a specific number of firms in industries linked across a supply chain. For example, a study of the fast-moving consumer goods industry in Australia may show that those industrial processing firms supplying to supermarket chains in the retail industry would perceive that the bargaining power of their buyers (the supermarket chains) was high. Thus, an application of the model to supermarket supply chains should show the bargaining power of their suppliers (the food processors) to be low.

In summary, the comparative cross-industry study of competitive landscape in Australia provided empirical support for Porter's five forces model using the ICM framework. The results appear credible and real, consistent with other studies, and offer insights into how various competitive factors increase or decrease the level of competition in an industry. Based on managerial perceptions, the application of the ICM framework as a tool of business analysis has the potential to significantly enhance the understanding of how competition works.

References

Abraham. J.P.. Bervaes. N.. Guinotte. A. and Larcoix. Y. 1993. *The competitiveness of European international financial centers.* Research Monographs in Banking and Finance Institute of European Finance. Bangor.

Bain. J.S. 1951. Relation of profit rate to industry concentration: American manufacturing 1936–1940. *Quarterly Journal of Economics.* 65(3): 293–324.

Barrados. A. 1998. *Banking on Consumer Power: The Issues for a Canadian Consumer Coalition for the Banking Industry*. Consumer Association of Canada. Ottawa. Ontario.

Bjornsson. H. and Lundegaard. R. 1992. Corporate competitiveness and information technology. *European Management Journal*. 10(3): 341–347.

Boyle. S.E. 1972. *Industrial Organization: an Empirical Approach*. Holt. Rinehart and Winston. Inc.. New York.

Brandenburger. A.M. and Nalebuff. B.J. 1996. *Co-Opetition*. Doubleday. New York.

Brownlie. D.T. 1989. The migration of ideas from strategic management to marketing on the subject of competition. *European Journal of Marketing*. 23(12): 7-20

Brownlie. D. and Moutinho. L. 1989. Managing the competition: Strategic insights and implication. *European Management Journal*. 7(3): 332-340.

Caves. R.E.. Porter. M.E. 1977. From entry barriers to mobility barriers: Conjectural decisions and contrived deterrence to new competition. *The Quarterly Journal of Economics.* 91(2): 241–262.

Clark. J.M. 1997. *Competition as a Dynamic Process*. Brookings Institution. Washington DC.

Day. G.S. and Reibstein. D.J. editors 1997. *Wharton on Dynamic Competitive Strategy*. John Wiley and Sons. New York.

Dobson. P.W.. Clarke. R.. Davies. S. and Waterson. M. 2001. Buyer power and its impact on competition in the food retail distribution sector of the European Union. *Journal of Industry Competition and Trade*. 1(3): 247–281.

Dornier. R. and Karoui. L. 2003. Cognitive strategic groups elicited by top managers: Which degree of homogeneity? *Association Internationale De Management Strategique Conference Proceedings*. November.

Economic Planning Advisory Council 1991. *Competitiveness: The policy environment*. Commonwealth of Australia. Canberra.

Eriksen. B. and Knudsen. T. 2003. Industry and firm level interaction: Implications for profitability *Journal of Business Research*. 56: 191-199.

Fjeldstad. O.A. and Ketels. C.H.M.2006. Competitive advantage and the value network configuration: making decisions at a Swedish life insurance company. *Long Range Planning*. 39(2): 109–131.

Fry. M.R. 1996. Management of the IT industry. *Australian Computer Journal*. 28(3. 88–95.

Galbreath. J. and Galvin. P. 2008. Firm factors. industry structure and performance variation: New empirical evidence to a classic debate. *Journal of Business Research*. 61: 109 -117.

Ghemawat. P.. Pisano. G.P.. Collis. D.J. and Rivkin. J.W. 1999. *Strategy and the business landscape*. Prentice Hall. Princeton NJ.

Goldsmith. N. 1991. Linking IT planning to business strategy. *Long Range Planning*. 24(6): 67–77.

Hie. N.H. and Hillygus. D.S. 2002. Where does internet time comes from? A reconnaissance. *IT and Society*. 1(2): 1–20.

Hooley. G.J.. Möller. K. and Broderick. A.J. 1998. Competitive positioning and the resource-based view of the firm. *Journal of Strategic Marketing*. 6(2): 97–115.

Hooley. G.J.. Saunders. J. and Piercy. N.F. 1998. *Marketing strategy and competitive positioning 2nd Edition*. Prentice Hall. Princeton NJ.

Hunt. S.D. and Morgan. R.M. 1995. The comparative advantage theory of competition. *Journal of Marketing*. April. 1–15.

Investopedia 2005. *The Industry Handbook Insurance.* Forbes Digital Publishing. http://www.investopedia.com/features/industryhandbook/insurance.asp accessed Sept 2005

Khandwalla. P.N. 1972. The effect of different types of competition on the use of management controls. *Journal of Accounting Research.* 10: 275–285.

Mason. E.S. 1939. Price and production policies of large-scale enterprise. *American Economic Review*. 29(1): 61–74.

McGahan. A.M. and Porter. M.E. 1997. How much does industry matter really? *Strategic Management Journal*. 8: 15–30.

Munk. M.P. and Shane. B. 1994. Using competitive analysis models to set strategy in the northwest hardboard industry. *Forest Products Journal.* 44(7): 11–18.

Pecotich. A.. Hattie. J. and Low. L.P. 1999. Development of Industruct: a scale for the measurement of perceptions of industry structure. *Marketing Letters*. 10(4): 409-422

Porac. J.F. and Thomas. H. 1990. Taxonomic mental models in competitor definition. *Academy of Management Review*. 15: 224–240.

Porac. J.F.. Thomas. H. and Baden-Fuller. C. 1989. Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers. *Journal of Management Studies* 26: 397–416.

Porter. M.E. 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press. New York.

Porter. M.E. 1980. *Competitive Strategy: Techniques for Analyzing Industries and Competitors.* Free Press. New York.

Ratnatunga. J. 1995. The impact of structural factors on the performance of the Australian food processing industry. *British Food Journal.* 97(2): 21–33.

Rigby. D.F. 1994. Managing the management tools. *Planning Review*. September–October. 20–24.
http://www.bain.com/bainweb/home.asp

Robinson. J.P.. Kestnbaum. M.. Neustadtl. A. and Alvarez. A. 2000. Mass media and social life among internet users. *Social Science Computer Review*. 18(4): 490–501.

Rumelt. R. 1991. How much does industry matter? *Strategic Management Journal*. 12(3): 167–185.

Schmalensee. R. 1985. Do markets differ much? *American Economic Review*. June 75(3): 341–351.

Schmalensee. R. 1989. Inter-industry studies of structure and performance in Schmalensee. R. and Willig. R.D. editors. *Handbook of Industrial Organization.* North-Holland. Amsterdam.

Schoeffler. S. Buzzell. R.D. and Heany. D.F. 1974. Impact of strategic planning on profit performance. *Harvard Business Review*. Mar–Apr: 137–145.

Weerawardena. J.. O'Cass. A. and Julian. C. 2006. Does industry matter? Examining the role of industry structure and organizational learning in innovation and brand performance. *Journal of Business Research*. 59: 37-45.

Wernerfelt. B. 1995. The resource-based view of the firm: Ten years after. Strategic Management Journal. 16(2): 171–174.

Zou. S. and Cavusgil. S.T. 1996. Global strategy: a review and an integrated conceptual framework. *European Journal of Marketing*. 30(1): 52-69.