The adoption of strategic management accounting tools in agriculture post subsidy reform: a comparative study of practices in the UK, the US, Australia and New Zealand

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1. Overview of project
1.1 Introduction
As observed in Roslender and Hart (2003), a number of organisations are beginning to practice strategic management accounting (SMA), without necessarily recognising that term. Primary agriculture producers and their advisors are increasingly using external as well as internal data, financial and non-financial, to make strategic decisions that are customer focused, more competitive and concerned with establishing a strategic position in globalised agri-food markets.

The transition to strategic planning and decision making is evident through the growing incidence of accounting tools such as benchmarking, value chain analysis, and balanced scorecards; the informal use of target costs; and wealth management.

1.2 Objectives
The primary objective of this research was to review the extent of use of strategic management accounting practices by the agricultural industry in the UK, the US, Australia and New Zealand. I also investigated who initiated the introduction of strategic tools and techniques – sources included government funded programmes, commercial consultants, supply chain partners, academics and other farmers.

My original motivation was the recent changes to direct farm subsidy payments in the European Union. Observers felt these would push more producers into actively managing their costs and engaging in more strategic planning. However, it was found that new adoption of strategic management accounting tools was only loosely related to the availability or otherwise of direct subsidies. What seemed to be more influential were reductions in commodity prices, the imposition of tight margins and the pre-existence of good basic record keeping.

1.3 What is strategic management accounting (SMA)?
Strategic management accounting is defined as ‘a form of management accounting in which emphasis is placed on information which relates to factors external to the entity, as well as non-financial information and internally generated information.’¹ There are various strategic analytical tools that could be used for the SMA, including benchmarking, balanced scorecards, value chain analysis, and Porter’s value chain model. This research project reviewed the usage of some of these analytical tools in agriculture.

1.4 Methodology and sources of information
I adopted a qualitative research methodology, gathering both primary and secondary data from various sources. The primary sources of information came from interviews in the US, the UK, Australia and New Zealand with farm consultants and advisors, bankers and accountants who between them had client bases covering thousands of farms. Other discussions were held with academics working in this area, with the owners of large farming businesses (typically 5,000 acres or more) and with the accounting team of a UK corporate farming business.

Secondary data came from published reports and statistics from government and university sources, and a small number of recent textbooks promoting a strategic approach to farming (two of the authors contributed to discussions), along with academic literature and the farming press.

In addition, I participated in a number of national and international agricultural economics and farm management conferences, a farm tour of Queensland, Australia and ‘Farm visit’ events in the UK.

Section two of this report examines each of the accounting practices I encountered:
• evaluating the extent to which they have been adopted
• identifying the significant features of how they are applied in agriculture
• outlining their potential for further exploitation by producers and supply chain partners.

The report concludes with some suggestions for further work that could be undertaken by both researchers and practitioners in agriculture and food supply chains.

2. Main findings
Research from Lincoln University in New Zealand concluded that successful farmers are ‘information rich’ (Verissimo and Woodford, 2005). I encountered a number of activities during this project where farmers and/or their advisors were exploiting information in order to be customer focused, to gain competitive advantage and/or to establish a strategic position. However, the extent to which strategic management accounting tools were adopted was limited – they were only being used by a minority of primary producers, which tended to be the more entrepreneurial and/or larger farm businesses in the industry.

The level of engagement in management accounting

practices followed a similar pattern in each country visited, although the impetus for keeping better records differed. In New Zealand, a significant event cited by all interviewees was the introduction of a 'no exemptions' goods sales tax (GST), which required all farmers to keep books for GST purposes. In the USA, a significant number of educational programmes aimed to get farmers to keep records.

The results from both countries showed that there is no evidence of a widespread use of strategic management accounting practices within the agricultural business. Nevertheless, a sizable minority of farmers use computerised cost accounting systems to manage their farms, keep budgets and make forecasts, and also participate in benchmarking programmes. This extract from an interview with a young farmer in the US demonstrates how progressive farmers use management accounting:

‘The computer programme used displays both aerial images of the farm and linear maps... for each field, separate spreadsheets can be called up which shows costs to date assigned to each crop in each field. Every time the gallon spray or a piece of equipment, supplying the product, poison or fertiliser, whatever it may be; I can go through it here. The actual trip across the field, which a lot of folks don’t count but that does cost you something...it takes us about $5 an acre to make a trip spraying fertiliser. Now you go to applied products and it shows every date and what we applied...from that, we make management decisions, especially with a year like this year when wheat was really high. Corn process was looking good. Peanuts have now been on a contract system. We could look at our costs and say, I think peanuts will be a better fit on this farm this year and that’s how we’re using it as a management tool.’

2.1 Benchmarking

2.1.1 Industry benchmarks

The setting of benchmarks based on farm financial data is a long established practice in agriculture. Economists in Europe collected data by assisting farmers with accounts preparation from 1898, whereas collecting data by survey methods began in the US from the 1920s. The mass participation data sets created by these methods are used to produce average figures for comparative farm analysis which inform producers, researchers and policy makers. However, there is only anecdotal assessment of the extent to which this data is used in farm planning by producers. It is clear that advisors and lenders do draw on the data in advising clients on strategic financial planning. There is significant criticism (particularly from Australia) concerning the confusion between setting average figures as benchmarks for comparative analysis; and best practice benchmarking.

2.1.2 Network and collaborative benchmarking

Farm business improvement groups (sometimes referred to as business clubs or benchmarking groups) have been established in New Zealand since the late 1950s, with the concept spreading to Australia in the 1980s and to the UK from the late 1990s. Only a very small number have been established in the last couple of years in the USA.

These groups follow similar patterns; the groups meet on a regular basis (monthly, quarterly or annually) and are facilitated by an advisor from either a private consultancy practice or a government or levy board funded advisory service. Typically, the group share financial and other data about their farms, which is pooled into a database run by the facilitator or their organisation. The facilitator analyses the data and presents at the meetings, stimulating a discussion on particular factors or the operations of the better performing members of the group. Regular visits to one another’s farms and invited speakers also feature.

One group member interviewed in the West of England had moved, along with other members of such a group, to block calving methods which necessitated major refitting and the replacement of full time farm labour with seasonal workers. The strategy turned the farm’s performance around into an operation generating profits sufficient to support two households.

A variation of the benchmarking group in New Zealand is the establishment of Monitor Farms, a practice established in the 1990s. One farm acts as a test bed of new innovations and practices, and is benchmarked against a group of farmers who meet to share ideas with and to learn from the Monitor Farm.

Between 2002-2007, there was a significant increase in the development of and enthusiasm for farm business clubs in the UK, following the recommendations of the Curry Report (2002) and increases in UK government funding (via the levy boards and the Food Chain Centre). The majority of clubs are run in the same way as those described above although one variation was an internal benchmarking scheme run by a corporate farm management business, where a high level of sophistication was shown in the use of diagrams to compare inter-farm management performance. The accounting team described the internal benchmarking system as follows:

‘Our benchmarking system is quite comprehensive. The technical director disappears for two months in the winter... all the accounts go in, and he also extracts things like combine hours, tractor hours, anything else he needs... he
has a set number of things that he does anyway, but from there will then spur off to areas that he's interested in, or of trends that are starting to show up and compare between different crops. It’s quite interesting the things that he suggests we should focus on. He attempted…to get the cost per ton for wheat down…when prices were £60 a tonne that was an objective for doing it, and that was actually quite a fascinating thing, of looking at what we should be doing, both in input costs, and income, using various techniques of cultivations…it was everything we could do within a farm unit to try and drive it [downwards]. The theory is that the ones at the bottom can go and get help, but we…encourage cost ideas from all the managers, via email, or any other means.’

2.1.3 Process benchmarking

There is evidence that business group benchmarking is evolving as farmers learn and seek to gain further competitive advantages. A form of process benchmarking is becoming apparent, where producers examine individual operations or expenses in depth, to reduce costs and increase efficiencies. A case study from the UK’s Food Chain Centre (FCC) demonstrated how one farm business concentrated on controlling veterinary costs before moving onto another overhead. The Joint Venture Farming Group in the UK specifically concentrates on machinery and labour costs of the machinery and labour rings set up as joint ventures. Certain groups exist for individual crops or animals which allow what is effectively a form of process benchmarking to take place.

2.1.4 Benchmarking for sustainability

A very recent development in agriculture is the setting of environmental standards. A detailed study of sustainability was outside the scope of my project, but I noted that none of those I interviewed had adopted or were actively using benchmarking directly for environmental management. However, a number of the UK farms I visited had joined and were receiving funding from the environmental stewardship schemes run by the government, which involve commitments to meet criteria or standards on environmental performance. There is evidence in Kilpatrick et al (2004) that some Australian producers are attempting to utilise existing benchmarking groups to set and monitor targets for environmental improvements in soil and water.

2.1.5 Use of benchmarking in the future

There is evidence (although not systematic research) to show that producers actively plan and make significant strategic changes to their businesses based on the information that they get through the forms of benchmarking outlined above. The development and promotion of process benchmarking in particular should be a priority for advisors, educators and policy makers in this field.

2.2 Balanced scorecards

The well established use of key performance indicators (KPIs) in each country through comparative analysis combined with a need to promote both customer and strategic focus has led to experimentation with the balanced scorecard (BSC) in three of the countries I visited. Individual projects were identified in New Zealand, in the UK and in the USA but there is no evidence yet indicating the take up or rate of success of the BSC. Although the BSC is a widely disseminated approach in general, very few of those interviewed were aware of its application to agriculture.

The earliest application of BSC was developed at Massey University and a description of the model can be found in Shadbolt and Martin (2005). The results of the first exploration of the balanced scorecard in an agricultural co-operative in New Zealand (which however did not extend the use beyond the pilot project) were published by Cardemil-Katunaric and Shadbolt in 2006. They reported that:

‘The research investigated initially among other issues whether the organisation’s competitive strategies could be implemented through the balanced scorecard framework and found that even though the co-operative had no documented implementation plan for strategy it was spontaneously using all the BSC building blocks including objectives, measures, targets and initiatives in four perspectives, namely financial, customer, internal processes and learning and growth.’

In the UK, the Food Chain Centre (FCC) ran a project in conjunction with Writtle College in Essex from 2002-2006 to develop and disseminate a balanced scorecard for use in farm businesses. The resulting manual can be found at the FCC website www.foodchaincentre.co.uk. Although facilitation sessions were developed and pilot studies run, again there has been no widespread adoption of the tool.

A joint publication in 2006 by South Dakota State University and Texas A&M University entitled ‘Using the balanced scorecard for ranch planning and management: setting strategy and measuring performance’ offers a manual for the use of scorecards. Six headings are used to reflect the nature of the ranch business: ranch lifestyle; financial; customer; agricultural commodities and production; natural resources and learning and growth. Results of this project have yet to be published.
Those involved in the New Zealand and UK projects remarked in interview that one significant issue arising is that producers are inclined to concentrate on the targets and measures relating to production rather than those in the other quadrants of the BSC, thus reducing the potential of learning through the whole business, which they see as an area for further education and coaching.

2.2.1 Use of balanced scorecards in the future

Shadbolt identified the potential for the BSC for this sector: ‘The BSC used by farm managers would provide an on going learning opportunity for the farm as it facilitates in-depth discussion about the business’ vision, strategy and critical success factors and translating them into specific measures and objectives in action’ (Shadbolt, 2007). Because of the newness of this innovation in agriculture, no-one has yet traced examples of producers using BSC on a regular basis in their farm businesses. This is an area for further research once early adopters can be identified.

2.3 Value chain analysis2 and marketing information

I encountered two instances of value chain analysis (VCA) being applied in strategy creation, although I did not examine this technique in depth as it is mostly utilised by organisations further downstream in the food supply chain than farmers. However, the following section outlines how VCA can be used to eliminate wasteful practices to gain advantage and to establish strategic plans for diversification into niche production.

2.3.1 Applying porter’s value chain model

Interviews with members of the Food Chain Centre (FCC) in the UK, drew my attention to a joint project between the FCC and Cardiff Business School in 2002-2007 that resulted in a number of cases of ‘applying lean thinking’ to food and farming. In one example, the process of picking lettuces and packaging them for transportation was improved following a masterclass with an automotive firm by:

• applying measurements to identify the main drivers of productivity
• improved rig maintenance in order to reduce the number and cost of breakdowns
• better turnaround times for the rig teams that pick lettuces
• establishing standard operations to capture best practice from one rig to another and from one season to another.

Details of this project are publicly available on

2CIMA official terminology defines Value Chain Analysis as the use of the value-chain model to identify the value adding activities of an entity. Value chain is a sequence of business activities by which, in the perspective of the end user, value is added to the products or services produced by the entity. CIMA Official terminology 2005, CIMA publishing

2.3.2 The value of knowing the market

An example of bringing together marketing and financial information to create strategic plans that both change the direction of farming businesses and create value for their owners, was the Niche Pork project in Iowa run jointly by Practical Farmers of Iowa, and the Leopold Centre for Sustainability at Iowa State University. Niche pork products are premium products – being for example, from rare breeds, or antibiotic free. Hog farmers keep and pool financial and physical records, and benchmark practices, and the facilitators bring in market information and knowledge. One of the advisors on this project explained that it was more than just a benchmarking project, and was geared to achieving value through the chain:

‘One of the ways that we were able to drive participation was by working with the companies that were buying the pigs from these farmers, because they were very interested in having their farmers be successful and they were also very interested in whether or not they were paying enough to make the farmers to be profitable for the long term because they realised that if they weren’t paying enough, they were going to lose their supplies.’

Part of the process was educating producers about the marketing and pricing aspects:

‘That’s the sort of the dilemma that I don’t really think that the farmers who are raising hogs really understand. The marketplace for the products from these hogs has certain features about it that make raising prices not necessarily a really easy thing to do, because there are limits to how high you can go on a product for a consumer or a customer, and be able to have the sales. And I don’t think the farmers are that aware of that sort of problem. And then there are all the costs of marketing and processing and all those other things that need to be added in.’

It’s clear that a focus on a particular market does drive accounting practice and I found one example of this on a large corporate farm in the UK that supplied its own farm shop, which had a significant turnover. The manager of the farm had developed his own system for monitoring costs and was able to say:

‘What I ended up with was, knowing the cost of a cow, I know what the replacement charge is, so I know what the net output is. I’ve got a very close handle on what I’ve actually done, I can transfer how we get them to the shop and then, I get my cost per kilo. I can drill it right down.’

Another example I found where marketing information...
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2.4 Target cost management

2.4.1 What is target cost management (TCM)?
As observed by Roslender and Hart (2002), target costing is better regarded as a broad based management philosophy than a management accounting technique, and is better described by the term ‘target-cost management’. It is essentially a market driven not a cost centred approach, and has three stages:

- Establish a price that customers are likely to be willing to pay in the marketplace.
- Factor in the profits or margin that the business is seeking, in the long term; this results in a floating or target cost, an upper limit which the producer must seek to accomplish.
- Re-engineer value processes – sometimes referred to as ‘design to cost’. At this stage, managers seek to identify cost reductions in advance. If none can be identified, or it is impossible to achieve a margin on price, then a project might be abandoned at this stage. The aim is continual cost reduction over time.

The final aspect of target cost management is continual monitoring of all three aspects, making continual improvements both to individual production processes, products and the business as a whole.

Targeting costing has only recently featured in the agricultural literature but during my interviews and examination of other sources during this project, I observed its presence. Intuitively, producers are starting from the market prices they can achieve and working backwards to establish the costs that they can afford to incur. The result is changes to their operations – most notably moves towards low or no tillage in crop establishment, which is very close to the concept of designing to cost in target cost management. Contracting out; joint ventures involving machinery rings; leasing and adopting low-tillage techniques were all examples cited by interviewees where producers had re-designed and re-engineered their farming practices driven by cost analysis and resulting targets.

The potential for target cost management in agriculture is explored in the companion CIMA discussion paper to this report, Towards Collaborative Target Cost Management in Agriculture.

2.5 Wealth management and financial instruments
Whole farm accounting has been a tenet of farm advice but it has become increasingly clear that gains shown in the accounts are largely attributable to the holding and selling of land rather than to the actual business of agricultural production. Three advisors interviewed (in the US and in New Zealand) advocated that their clients separate wealth management from business operations, as a basis for greater clarity in strategic decision making.

One effect of this is to allow the farmers to manage their risks in different ways. Increasingly, producers are making greater use of financial instruments to hedge the risks involved. Commodity markets and the selling forward of crops is well established in agriculture but there is an increasing use of more sophisticated futures and derivatives to firstly secure a forward price for the produce, and secondly to hedge against losses. Furthermore, in New Zealand there is evidence that farmers are hedging against interest rate and currency fluctuations in relation to their land holdings as well as their produce.

3. Conclusion and further work
Strategic management accounting tools are being adopted by primary producers, as shown by the examples given in this executive summary. However, they tend only to be adopted by a minority of primary producers, largely the larger or more entrepreneurial businesses in the industry.

The most widely adopted tool is benchmarking, in the form of comparative analysis, business improvement groups or nascent process benchmarking, which is used to provide information for decision making. The developments in strategic management offered by advisors and researchers that are most likely to be adopted are those which are based on the well established benchmarking practices in the industry.

Consultants and academics have been instrumental in introducing balanced scorecards, target cost management and value chain analysis but it is far too early to assess the long term impact of these tools or their benefits to producers. These seem to be the tools with the most potential with respect to process benchmarking, and should be developed further.

Further evidence of producers’ concern for customer focus, long term survival and strategic positioning can be seen in their strategic approaches to getting market data and managing land ownership; and their use of financial instruments. Projects that unite marketing knowledge and accounting data have the potential for producers to learn strategic thinking, to change operations in order to meet requirements and avoid waste, and to learn how to negotiate with corporate customers.

My project was designed to provide the groundwork for
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further research by identifying and bringing together developments in strategic management accounting in agriculture from four countries. There is scope therefore to extend this project to cover practices in Europe and in Canada, as well as in developing countries.

Future projects should also incorporate studies of the use of sustainable indicators in strategic planning. Action research projects in process benchmarking, balance scorecard and target cost management, as well as the monitoring of the development of these tools and techniques are needed to develop methodologies for the use of these tools in agriculture.

Finally, further work is required to develop the use of marketing data in conjunction with accounting data in land based businesses. Rather than any particular accounting tool, it is the awareness and use of marketing information alongside accounting information, and collaboration and negotiation within supply chains that would be the most beneficial development for producers in strategic management.
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References and further reading


Additional outputs of interest to the reader


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