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**This is the published version:**

Polonsky, Michael and Garma, Romana 2008, Are carbon offsets potentially the new "greenwash?", in *ANZMAC 2008 : Australian and New Zealand Marketing Academy Conference 2008 : Marketing : Shifting the Focus from Mainstream to Offbeat*, Promaco Conventions Pty Ltd, Canning Bridge, W.A.

**Available from Deakin Research Online:**

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# **Are Carbon Offsets Potentially the New “Greenwash?”**

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## **Abstract**

This paper explores the relationship between consumers’ knowledge and behaviours related to environmental issues and carbon offsets. We found that consumers were generally less knowledgeable about carbon offsets than about general environmental issues and increased knowledge about environmental issues does not result in more responsible environmental behaviours. Therefore, consumers may misunderstand claims made by marketers in relation to carbon offsets and thus public policy intervention is required.

## **Introduction**

Consumers have increasingly recognized that what and how they consume affects the natural environment (Nisbet and Myers 2007). Marketers have, in turn, come to the realisation that there are opportunities to take advantage of increased consumer awareness or “consumption guilt” by providing product and service offerings that incorporate environmental attributes (Ginsburg and Bloom 2004). This may come in the form of products that make environmental claims (e.g., environmentally friendly products) or offering carbon offsets to counteract the firm’s environmental damage. Such initiatives might be seen as a win-win outcome, as firms make more environmentally friendly products that can lead to increased demand profitability whilst meeting consumer needs. However, claims that firms make environmental improvements to goods are sometimes questionable or even misleading (Crane 2000). For example, Saab recently advertised that “every Saab is green” since the firm offered to plant 17 trees for every car sold. Yet this offset was only valid for the first year (Warren 2008).

The difficulty with environmental marketing claims is that they frequently have high credence value (Thorgersen 2006), that is, the veracity of claims are often difficult, if not impossible, for consumers to assess. For example, can consumers assess the accuracy of a firm’s claim that they have reduced their carbon emissions by 20%? On the other hand some environmental claims have multiple meanings. For example, biodegradable plastic bags only degrade when exposed to the natural elements and do not degrade in landfills.

Misleading green marketing resulted in regulators developing guidelines for the appropriate use of environmental or green marketing claims (Kangun and Polonsky 1995). While these guidelines may have improved corporate action, governments continue to tighten-up guidelines to minimise the potential for consumers to be misled (ACCC 2008). With marketers now incorporating carbon offsets as new green marketing tools the potential for marketing greenwash (i.e. making unsubstantiated, vague, meaningless or misleading environmental claims) is foreseeable. This paper explores consumers’ level of knowledge regarding carbon offsets and whether there is a relationship to consumers’ knowledge about environmental issues. We then explore whether consumers who have high or low knowledge about environmental issues undertake general environmental or carbon related behaviours.

## Literature Review and Hypotheses Development

Carbon offset programs implement a “measurable avoidance, reduction or sequestration of” carbon or greenhouse gasses (Ramseur 2007). Given the diversity associated with carbon offsets programs, it is unclear if consumers, even those that are environmentally aware, fully understand the nature and implications of carbon offset programs. As such, the use of carbon offsets as a green marketing tool potentially is misleading (ACCC 2008). The Kyoto Protocol sought to address global warming, which is largely attributed to the overproduction of greenhouse gases, of which carbon dioxide is the most significant. As a result countries, who signed the Protocol, set targets for reductions in their carbon production. A range of policy alternatives were proposed including carbon trading, which is where organisations ‘purchase’ permits to produce carbon dioxide and these permits can be bought and sold, thereby setting a market price for carbon (United Nations Framework Convention on Climate Change 2008). The Protocol also proposed that firms could undertake other activities that would serve to offset the carbon they produced. According to Ramseur (2007) there are four broad categories of carbon offsets: 1) *biological sequestration* whereby trees are preserved or new trees are planted, which absorb carbon; 2) *renewable energy projects* that involve activities that undertake or invest in projects that produce energy without producing carbon (e.g., solar, wind farms); 3) *energy efficiency* which involves improving energy efficiency, developing environmentally responsible buildings; or switching/funding the switch to long-life light bulbs; and 4) *reduction of non-CO2 emissions* from specific sources (e.g., phasing out greenhouse gasses) .

Academic research on carbon offsets with regard to consumer behaviour is scarce. Given the complexity of carbon offsets and the newness of these programs there is the threat that consumers may be misled, or make decisions based on an incorrect understanding of the intricacy of these programs (ACCC 2008). For example, consumers may believe that a firm investing in planting trees will reduce carbon. However in reality this will not occur for many years, assuming the trees grow to maturity? We therefore propose the following hypotheses:

H1: Consumers will have a lower level of knowledge about carbon offset programs than they do about their more general knowledge about the environment.

H2: There will be no correlation between the level of general environmental knowledge and carbon offset knowledge.

There is a range of research exploring consumer behaviour in regards to green marketing issues. For example, industry research by GfK Roper Consulting (2007) identified that 40% of US consumers purport to be committed environmental consumers. This figure is up from 22% in 1990. Possibly more important is the fact that those who are ‘environmental laggards’ have reduced from 52% in 1990 to 34% in 2007. Roper’s research (2007) also suggested that consumers are modifying the products they use (79%), what they recommend to others (77%) and where they shop based on the environmental practices of companies. Indeed they found that 40% of consumers indicating they would pay a premium for more responsible products.

While behaviour is important, researchers have long suggested that this arises based on consumers’ knowledge and attitudes (Ajzen and Fishbein 1977). These links have been explored in a range of areas (Ferrell and Gresham 1985) including environmental knowledge, attitudes and behaviours (Diamantopoulos, Schlegelmilch, Sinkovics, and Bohlen, 2003, Franj-Andres and Martinez-Salinas 2007, Kaiser, Wolfing, and Fuhrer, 1999, Maloney, Ward and Braucht 1975, Ivy, Lee and Chuan 1998, Schlegelmilch, Bohlen, Diamantopoulos 1996).

What makes these relationships more complicated is the fact that environmental issues cover a wide range of topics and thus environmentally-focused consumers can be motivated based on a range of factors (Stone, Barnes and Montgomery 1995). Furthermore, someone who is active in one set of environmental behaviours may not necessarily be equally activated in others (Kahn 2007). As such we explore whether there are links between general knowledge and actions, as well as specific knowledge and actions. That is:

H3a: Consumers with higher levels of general environmental knowledge will undertake more general environmental related behaviours.

H3b: Consumers with higher levels of carbon offset knowledge will undertake more carbon offset related behaviours.

To explore this relationship in more detail we also want to look at whether there are differences in specific carbon offset behaviours, based on an individuals' level of carbon knowledge. While on one hand it might be assumed that more knowledge results in more positive behaviour, the newness of carbon offsets might mean that there is generally limited impact on behaviour. Given the alternative views we propose that:

H4: For consumers with high general environmental knowledge, there will be no difference in carbon related behaviours between high and low carbon knowledgeable sub-groups.

### **Research Design**

A survey was developed to explore consumers' factual knowledge of environmental issues. While some authors propose that assessing factual information of consumers is difficult (Mostafa 2007) there are a range of scales that have been developed to explore factual environmental knowledge. We drew on Maloney, Ward and Braucht's (1978) instrument, which has been used by others in the area (see for example, Fraj-Andres and Martinez-Salinas 2007, Ivy, Lee and Chuan 1998). We augmented this instrument with a set of items exploring carbon offsets specifically for this study as carbon offsets have not been explored previously in regards to environmental knowledge, attitudes or behaviours.

There have been extensive studies that explore environmental behaviours. In many cases these studies have looked at behavioural intentions rather than actual behaviour (Schlegelmilch, Bohlen and Diamantopoulis 1996, Stone, Barnes and Montgomery 1995). Given our focus was on actual behaviour we sought to explore the degree to which consumers undertook activities in regards to general environmental issues (Fraj-Andres and Martinez-Salinas 2007, GfK Roper Consulting 2007). We added matching items on specific activities related to carbon offsets, which enabled us to directly compare similar types of activities. The four behavioural items asked how often people undertook the following activities (scale: 1 Never to 7 Always): 1) I investigate the specific details of firms' environmental claims or behaviour (or the carbon offset programs offered by firms); 2) I switch brands to ones that are less environmentally harmful (or offer carbon offsets); 3) I choose to pay more for products because they are less environmentally harmful (or they offer carbon offsets); and 4) I recommend to my friends firms that are environmentally responsible (or offer offsets).

The survey was administered to an on-line panel of Australian consumers. There was a targeted sample of 350 respondents and 395 responses were received of which 380 were usable. Respondent ages were evenly spread between age categories ranging from 12% for 18 to 24 years old and 23% of those over 65 years old. Forty-four percent were male and 56%

female. Education levels varied: 25% have a university or postgraduate degree, 40% have up to their higher school certificate and 32% were a trade qualification or diploma. The majority of respondents 56% were working full or part time, with 44% not working (including 5% students, 24% retired and 9% performing home duties). The majority of people were married or living with partners (63%) and 39% of the households included children.

### **Data Analysis**

The first step involved determining consumers' level of environmental knowledge. There were eight items each on general environmental issues and carbon offsets with true/false responses. Consumers with more than half of the items correct were identified as being knowledgeable (i.e. knew more than they did not know) and those who got 50% or less correct were identified as not knowledgeable. The results identify that 77% (n=288) were knowledgeable about general environmental issues and 37% (132) were knowledgeable about carbon offsets. Thirty-six percent of respondents (n=128) had both high general environmental knowledge and high carbon offset knowledge, with 102 respondents (28.7% of sample) having high general knowledge and low carbon offset knowledge. The remainder of respondents had low knowledge of general environmental issues and carbon offset (35.6%), there were three respondents who were knowledgeable about carbon offsets but not about general knowledge about the environment.

Given the newness of the carbon offsets concept and the complexity of the programs it is not surprising that a statistically lower proportion of respondents were knowledgeable about carbon offsets as compared to general environmental knowledge ( $t = -14.24$ ,  $df 355$ ;  $p=.000$ ). Thus H1 is supported. It was found that the correlation between the two types of knowledge was slightly positive ( $r=0.083$ ), but was not statistically significant ( $p=0.116$ ). Thus there is no statistically significant relationship between consumers' environmental knowledge and their knowledge about carbon offsets and thus H2 is also supported.

The second phase explored whether there are differences in the two types of behaviours (general and carbon offset) for consumers based on their level of knowledge. A reliability test using Cronbach's alphas for the two types of behaviours was undertaken and found that both composite measures were reliable - general environmental behaviour ( $\alpha=0.897$ ) and carbon related behaviour ( $\alpha=0.917$ ). This allows us to compare them further.

While we hypothesised that consumers with higher levels of general environmental behaviour would undertake general environmental related behaviour we found that it was statistically insignificant ( $t=-0.578$ ,  $p>.10$ ) for high knowledge consumers (mean 3.88, std. 1.38) as compared to low knowledge consumers (mean 3.95, std. 1.21). Thus there is no difference in behaviours for the two groups and H3a is rejected. With regard to carbon offset behaviours we found that there was a statistically significant difference in behaviours ( $t=-2.36$ ,  $p<.05$ ) between those with high carbon knowledge (mean 2.92, std. 1.42) and those with low carbon knowledge (mean 3.29, std. 1.44). However, while there is a statistically significant difference it was not in the hypothesised direction and less knowledgeable consumers undertook more carbon off set activities than knowledgeable consumers. Thus H3b is also rejected.

The final analysis explored the sub-sample of consumers who had high levels of general environmental knowledgeable (n=288) to determine if there were differences in carbon related behaviours for those with high carbon knowledge and those with low carbon knowledge. The results indicate that there is no statistical difference in carbon related

behaviours ( $t= 1.389$ ,  $p>0.10$ ) for those with low carbon knowledge (mean 3.28, std. 1.45) with high carbon offset knowledge (mean 3.02, std. 1.43), therefore H4 is supported.

### **Conclusions and Implications**

The results indicate that consumers are less knowledgeable about carbon offsets than they are about general environmental issues and there are no correlations between the two types of knowledge. As such it raises questions about how consumers are assessing the various green marketing claims that incorporate carbon offsets. Given the complexity associated with carbon offsets, basic issues such as identifying the carbon footprint of a good or service is well beyond consumers' abilities, let alone assessing whether the carbon offset provided is appropriate. As such it would appear that the use of carbon offsets in marketing campaigns could be misunderstood by consumers, as is feared by the ACCC (2008).

What makes this issue even more worrying, from a public policy perspective is that consumers who are less knowledgeable about carbon offsets are undertaking carbon offset behaviours more frequently than those who are knowledgeable about carbon offsets. This might suggest that these uninformed consumers are simply adopting/ undertaking all activities they think are environmentally responsible, without understanding the activities or associated environmental issues. Given the high profile of environmental issues this is possibly understandable (Thøgersen 2006) but it does mean that these consumers are more vulnerable to marketing using carbon offsets. There was no difference in general behaviours between knowledgeable or less knowledgeable consumers. By the same token this may mean the less knowledgeable consumers are simply adopting activities, because they know environmental issues are important, but do not understand issues, i.e. green behaviour is good thus all firms promoting green marketing activities are good.

General environmental knowledge does not seem to make individuals more aware of carbon related knowledge. In fact there was no difference in the carbon related behaviour of generally knowledgeable consumers, based on their level of carbon knowledgeable. As such those who are generally knowledgeable appear to be relying on their broader knowledge when making decisions about adopting carbon offset related behaviours, irrespective of whether they understand the issues associated with offsets. As such, regulation of carbon offset related marketing activities will better protect all consumers, even those who consider themselves well informed generally about environmental issues.

Regulators may need to do more than simply control marketers' activities, but may also need to better inform consumers on the various aspects of carbon offsets, thus enabling consumers to make better decisions. Given the variety of programs available and complexity associated with each type of program, such information programs will be difficult. For example, there can be a variety of biological sequestration programs ranging from reforestation of deforested land, planting new forests, and protecting existing forests. In addition, even within programs there are issues as to whether protecting rainforest in the Amazon is better than protecting natural forests in Canada or old growth forests in Papua New Guinea.

To facilitate the informed use of carbon offsets in marketing it may be that governmental or third part sanction programs will be necessary. Programs, possibly some form of accreditation, may provide consumers with a degree of credibility that enables them to better make decisions in regards to their consumption (Anderson and Hansen 2004, Font 2002) at least in regards to how carbon offsets affect their decisions.

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