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Blue Ocean *versus* Competitive Strategy: Theory and Evidence

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Abstract: Blue ocean strategy seeks to turn strategic management on its head by replacing 'competitive advantage' with 'value innovation' as the primary goal where firms must create consumer demand and exploit untapped markets. Empirical analysis has been focused on case study evidence and so lacks generality to resolve the debate. We provide a methodological synthesis of the theories enabling us to bring statistical evidence to the debate. Our analysis finds that blue ocean and competitive strategies overlap and managers do not face a discrete either/or decision between each strategy. Our evidence for the Dutch retail industry indicates that blue ocean strategy has prevailed as a dominant long term viable strategy.

Keywords: blue ocean strategy, competitive advantage, innovation, entrepreneurial discovery, retailing

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Introduction

Kim and Mauborgne (2005a) contest the dominant position that competition is assumed to play in strategic management.[1] At the heart of this debate is Kim and Mauborgne's view that in the long term firm profits need not be negatively related to the number of firms in its industry. They argue that firms can find markets where they can grow their profits without competition. By contrast, competitive strategy (Porter 1980, 1985) is related to economics' concepts where long term competition and imitation are dominant forces (e.g. Cool *et al.*, 1999). In this framework, even if firms adopt highly innovative strategies leading to enhanced performance (Hamel and Prahalad, 1994, and Hamel, 2002), the axiomatic underlying assumption of competitive strategy is that these will be temporary/transient advantages that sooner or later will be imitated and improved upon by other firms. This focus on competition in the literature means that the ability of firms to generate a 'competitive advantage' is the central objective permeating most areas of strategic management (de Wit and Meyer, 2005).

Both competitive strategy and blue ocean strategy emphasize the importance of firms avoiding intense competition. In the competitive strategy framework avoiding competition has much to do with a resource based view of the firm (Penrose, 1959) where unique resources limit imitation and create a sustainable competitive advantage and enhance profits (Barney, 1991, Amit and Schoemaker, 1993, and Peteraf, 1993). Of course, over time it becomes increasingly possible for other firms to replicate what was once a unique resource. Since market opportunities continuously change, unless a firm continues developing new unique resources and new sustainable competitive advantages, a greater number of firms should simultaneously increase competition while reducing profits. Consistent with these observations, Black and Boal (1994), Teece *et al.* (1997) and Winter (2003) highlight the importance for firms to develop the dynamic capabilities necessary to continually create new unique resources facilitating new sustainable advantages over competitors thus aligning the firm to future profit opportunities.[2] Cohen and Levinthal (1990), Zollo and Winter (2002) and Kim and Mauborgne (2005c) emphasize the critical role played by learning and managing information. In turn, McEvily and Chakravarthy (2002) and Lee *et al.* (2000) deal with the next level of the imitation challenge which is the propensity for dynamic capabilities themselves to be replicated by others. Obviously, the faster this imitative process happens, the faster and more intensely firms find themselves in a situation leading to reduced profits. Porter (1980, 1985) argues that this process happens quickly. In fact, it is sufficiently fast that the main concern of strategic management ought to be survival and winning inter-firm competition. Put differently, innovation can provide a short term panacea but in the long term imitation forces firms to engage in and win competitions with close rivals.

So despite the lack of radically different theoretical dispositions, there are valuable differences between blue ocean and competitive strategy centered on completely different empirical conjectures regarding the speed at which profits generated by innovation are eroded by imitative behavior. In essence, the proponents of the blue ocean strategy take a more optimistic view of the impact of innovation on firm profitability. If there are barriers to imitation and if firms can continually find uncontested markets or create new consumer demand through innovation, then the main strategic concern of firms is not managing competition, but rather managing innovation. It requires different managerial objectives. Kim and Mauborgne (2005a, b and c) view the blue ocean strategy as a generic option for management because they take an empirical view that through 'value innovation' firms will be able to find sufficient untapped markets thus creating consumer demand and ultimately

[1] See also Kim and Mauborgne (2004 and 2005b).

[2] See Eisenhardt and Martin (2000) for a more explorative and deep account of dynamic capabilities.

growing while avoiding confrontation with competitors. By contrast, the view of the competitive strategy school of thought is that there is no guarantee that a plentiful supply of untapped markets exists and even if it is found, it only temporarily distracts from the core business activity: competition among firms.

Therefore the key question arising from the recent interest in blue ocean strategy centers on which set of assumptions dominates. Do more firms mean more competition with a static pool of potential profits and hence lower average firm profits, as predicted by competitive strategy, or does it mean more firms engaging in value innovation thus generating a larger pool of profits across an entire industry, as predicted by blue ocean strategy?

Determining whether the effects are different in both the short- and long-term is also an important part of understanding whether a blend of the blue ocean and competitive strategy can occur. Perhaps blue ocean strategy dominates in the short term while competitive strategy dominates in the long term such that profits are positively related to the number of firms in the short term but negatively related in the long term. This pattern suggests that innovation by new firms generates short-term competitive advantage with associated higher profits but through imitation and concomitant competition the long-term effect of an increased number of firms would reduce profits. The alternative inverted scenario has competitive strategy dominating in the short term with blue oceans emerging in the long term. This scenario reflects a situation where innovation driven strategies take time to bear fruits – perhaps due to inherent commercialization time lags – so that in the short term more firms fight over a given market but in the long term 'value innovation' creates new markets so that a positive relationship between the number of firms and average profits per firm exists. These are the questions addressed in this paper and to answer them we take advantage of a unique, rich data set on the Dutch retail industry over the period 1982 to 2000.

The paper makes two main contributions to the literature. *Firstly*, a methodology to test the dominance of blue ocean versus competitive strategy in both short and long-term time horizons is introduced. This approach provides a general blueprint which can be used to ascertain the dominant form of strategy in industries. Remarkably, to the best of our knowledge, there appears to have been no statistical analysis either rejecting or supporting blue ocean strategy. So far, blue ocean support relies on a data base of case studies that does not statistically analyze overall patterns. Instead, Kim and Mauborgne (2005a, b, and c) and Kim *et al*. (2008a and b) base their evidence on case by case observation of the popularity and success of blue ocean strategy among a set of firms. While blue ocean strategy may have worked for these particular firms it leaves open the critical question whether it can be used as a *generic* strategy. Statistical analysis is used to answer this question. Our methodological approach ascertains at the industry level whether average profits can be enhanced by firms adopting the blue ocean approach thus bringing statistical evidence to bear on this key but largely unexplored area of strategic management decision making.

Secondly, we apply this method to a unique and rich data set covering the Dutch retail industry in order to generate the first statistical test of blue ocean versus competitive strategy; pertinently in a major and highly relevant industry test bed. Retailing in the Netherlands has undergone the same innovation revolution that occurred in most of the developed world. It manifests the strategies that blue ocean strategists suggest: product differentiation, innovation, branding, chain stores, product proliferation, accelerated product life cycle, and segmentation, to name some (Verhoef *et al*., 2000 and OECD, 2008). Accordingly it provides a relevant real life social science laboratory which tests the prevalence and success of both blue ocean and competitive strategy. The results from this analysis provide, to our knowledge, the first statistical evidence supporting the claim that blue ocean strategy is successfully used at a generic level within an industry. Our analysis reveals a long-term positive relationship between the number of firms and average profits per firm in Dutch retailing (consistent with blue ocean strategy) but simultaneously indicates that in the short term competitive strategy effects dominate. In particular, when the average profit level is above sustainable levels, new firms enter and average profits fall. While providing some rare statistical evidence to support blue ocean strategy our results do indicate that at least in the short term blue ocean strategy does not 'make competition irrelevant' (Kim and Mauborgne, 2005a). However if one is more concerned with long-term profitability, then our evidence supports the blue ocean perspective that Dutch retailers have, *ceteris paribus*, been able to increase their numbers and profits despite short-term negative competitive effects that initially resulted from an increasing number of outlets.[3]

The next section outlines the theory framework and hypotheses. The propositions are grounded using an adaptation of beach theory which has the advantage of embracing the properties of both blue ocean and competitive strategy as well as being a well known model in both management and economics.

In section three, the statistical methodology used to test the two theories is presented. An error-correction model (based on Salmon, 1982) to test a central assumption of the competitive strategy literature is used. This determines if a dynamic and sustainable number of firms exists in an industry at any point in time. This implies short run adjustment effects where an excessive number of (competing) firms will subsequently result in fewer firms, while too few firms will result in opportunities for firms to enter the industry. Within this framework we test the long-term relationship between average profits and the number of firms in the industry. A negative relationship supports a dominant competitive strategy in both the short and long run. A positive relationship shows that the blue ocean model can be a long term generic strategy even in the presence of short run competing firms, or red oceans. Rejection of the error-correction model combined with the existence of a long term positive relationship between average profits and the number of firms support dominant blue ocean strategy across both short and long term horizons. Our theoretical model highlights that the statistical test does not provide outright vindication for either school of strategic thought but rather is an empirical test showing inter temporally which strategy dominated the Dutch retailing sector in the period 1982-2000.

In the fourth section, the data is discussed. A unique rich data set on the Dutch retail industry during a highly innovative period is used. Between 1982 and 2000 consumer retailing expenditures soared, the sector grew with intensive innovation leading to new markets, brand proliferation, product differentiation and rejuvenation of some mature segments. In fact, all of the ingredients of blue ocean strategy - value innovation, demand creation and untapped market potential - appear to exist. Therefore, if blue ocean theory can really insulate firms from the negative consequences of competition on firm profits, then Dutch retailing over this period provides a good scientific test bed.

The final sections of the paper present the results of the statistical analysis, followed by discussion and conclusions.

Theory

Beach theory is a common theoretical framework within which competitive strategy

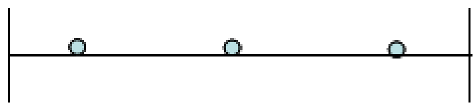
[3] As we will show in the Data section, in many Dutch retail industries the number of firms actually decreased over the period studied. However, when we abstract from the main causes for this development – diversification by larger retail shops and increased alternative earnings for entrepreneurs in the wage sector –, i.e., when we make the usual ceteris paribus assumption, we find a positive relation between the number of firms and average profits, indicating that significant areas of uncontested market space have been exploited by Dutch retailers.

and blue ocean strategy are nested for comparison. The core features of beach theory can easily accommodate the central assumptions of both strategic schools of thought. Beach theory is also a useful way to communicate the relevance of our analysis to a wider audience since it is an easily understood and a popular construct in strategic management education. Moreover, it is also understood by economists since it has its origins in economics theory (Hotelling, 1929).

Long-term relation between the number of firms and average profits

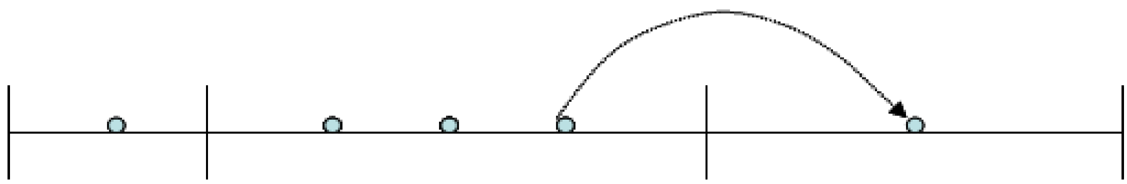
The essence of beach theory is depicted by ice cream vendors (firms) which are identical in products and services, save for one characteristic: the location along a beach. Therefore, the only feature which differentiates one firm from another from a beach goer's perspective is the convenience of the firm's location: consumers buy ice cream from the stand which is the shortest distance away. In Figure 1 we present the optimal location/differentiation strategies of three firms selling ice cream on a beach where consumer density is distributed equally along the beach. Porter's competitive strategy draws from the competitive process depicted in Figure 1. Firstly, all firms maximize their profits by trying to differentiate themselves from one another while still competing for customers. Furthermore, if a fourth firm enters the market it will cause existing firms to further differentiate themselves by relocating along the beach. But with one extra firm competing for customers on the same beach, each firm faces tougher competition and ultimately lower profits. Therefore, in line with Porter (1980, 1985) more firms means more competition and lower profits.

Figure 1: One beach and three ice cream sellers



In Figure 2, common ground between competitive strategy and blue ocean strategy is introduced. Two new beaches without ice cream sellers are added - untapped markets. Demand for ice cream on the new beaches may not be apparent to others until a new firm starts selling ice cream on them.[4] The strip of sand may not even be considered a beach without the ice cream stand. In Figure 2 we show what happens if one firm relocates from the current beach to one of the new beaches and simultaneously a new firm enters the other new beach. The number of firms in the beach ice cream industry has increased and the average profit has increased because the new firms have found untapped markets. They achieve this by innovating (entering or relocating to new markets) in order to align their offerings with the needs of these untapped markets and to differentiate themselves. They are now located further apart and each has larger consumer bases and profits than before. The entrepreneurial discovery of new value sources for consumers paid off.

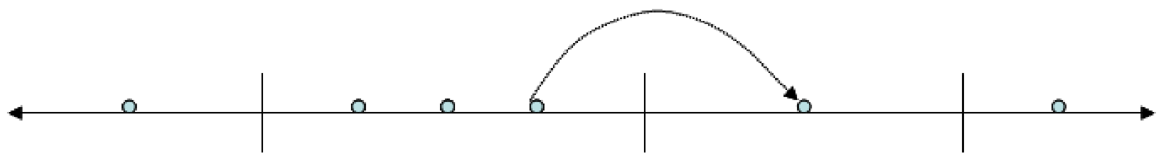
Figure 2: Three beaches with a mix of competitive and blue ocean strategies



[4] It does not have to be a "real" new beach. It can also be the case that there are consumers between two vendors who consider the current distances too great. There is untapped demand "on the beach".

The results depicted in Figure 2 are consistent with both competitive strategy and blue ocean schools of thought. The question then is why does blue ocean emphasize a long-run positive relationship between the number of firms and average profits while competitive strategy views it negatively?

Figure 3: Unlimited untapped beaches with a mix of competitive and blue ocean strategies



The answer lies in an implicit assumption regarding the availability of untapped market demand. If there are only three beaches in existence as depicted in Figure 2 then over the long-term average profits of firms will decline as more firms enter the beach ice cream industry and compete for limited markets. A different scenario is depicted in Figure 3 where the arrows on the left and right of the diagram indicate the existence of other untapped beaches populated by consumers who want ice cream but have no access to it. If new firms enter these untapped markets rather than entering known beaches and competing with existing firms then the increase in firms should lead to increasing profits. From the discussion so far two theorems are developed:

Theorem 1: In the long term a negative relationship between average profits in an industry and the number of firms is consistent with the dominance of competitive strategy over blue ocean strategy

Theorem 2: In the long term a positive relationship between average profits in an industry and the number of firms is consistent with the dominance of blue ocean over competitive strategy

In this setting the key difference between the two strategic schools of thought becomes the difference in a belief that there are (blue ocean) or are not (competitive strategy) sufficient numbers of untapped markets that can be accessed through innovation (differentiation) to the extent that more firms means less competition. Regardless of the empirical analysis which is to follow, this observation is important because it means that competitive strategy and blue ocean strategy are not generic strategies but in fact market conditional specific strategies. Or, in terms of the ice cream vendor business, whether or not there is enough untapped sandy coast ready to be transformed into a beach. Therefore, the challenge for managers is not to pick one strategy exclusively but to evaluate the situation assessing both the scale of untapped market demand that can be accessed through value innovation and gauging the severity of the competitive process as a force that erodes gains from innovation. Given the assumptions of both schools of thought, the empirical analysis maps out a way to assess the scale of previously untapped demand successfully exploited in an industry's recent history.[5]

Short-term relation between the number of firms and average profits

We now consider the short-term time horizon. In the analysis above we have considered the long-term effect where we give the firm and market sufficient time (e.g. to find and establish a new beach) for the consequences of blue ocean strategy to have an impact on profits. In practice, there is usually a time lag between a firm deciding to adopt an innovation strategy and the innovation making an impact on the market (e.g. time taken to bring an innovation to the market).[6] Throughout this duration the significant costs associated with value innovation (such as premises refit, new product development, brand development costs, etc.) can reduce profits thereby causing a negative short-term association between the number of firms and average profits.[7] In this case low profits may in fact be a signal that many firms are engaging in investment in value innovation which in turn alerts us to the expectation of the availability of enhanced profit opportunities in the future. Even if there are negligible innovation costs, the short-term effect of an increase in the number of firms may be to make existing beaches more competitive with the concomitant effect of a reduction of profits. In essence, the short-term need for cash flow necessitates the need to compete for customers in existing beaches before the viability of new beaches can be created. Alternatively, if blue ocean strategy is implemented without any time lag then the short-term effect of an increase in the number of firms (who use blue ocean strategy) could be either an increase in average profits if these firms are immediately successful, or no change, or a decrease in average profits if the creation of new markets/consumers takes time to materialize. So, in general, there is no unique predictive relationship between profits and the number of firms for blue ocean strategy theory as positive, negative and insignificant relationships are all possible. The same is also true for competitive strategy. In the short term more imitative firms can raise competition and reduce profits. Alternatively, more innovative firms using Porter's differentiation or cost leader strategies could likewise generate temporary sustainable competitive advantages leading to higher average profits in the short term.[8] Only in the longer term when these have been imitated might the negative effects of an increase in the number of firms on profits materialize. Therefore, in general, we observe that the sign on short-run relationships between profits and firms does not lend itself (in the same way as the long-term relationships do) to support or reject either school of strategic management thought. However, they do provide information about the relative impact of innovation and competition in the short run.

Adjustment process between short-term and long-term relation

The discussion so far has focused on the sign of the short and long-term relationships between the number of firms and average profits per firm. We established that the sign of the long run relationship (which will be captured by parameter γ_2 in the model described in the next section) indicates empirical support for either blue ocean or competitive strategy but that

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[5] Whether one might want to take our model one step further and test its ability to forecast untapped market demand might be an area worth future investigation.

[6] For an overview of the knowledge creation/R&D and commercialisation process see Link and Siegel (2007) and for an insightful account of the time taken by new ventures to commercialise new knowledge/ideas see Bhide (2000).

[7] The logic here is similar to the fixed and sunk cost challenges originally outlined in the seminal work of Nordhaus (1969) where innovators suffer short term losses which can only be recouped in the future when the commercial gains from their innovation can be realised.

[8] In essence this view derives from the very foundation of the theory underlying differentiation strategy dating back to the work of Chamberlin (1933).

the signs of the short run relationships (captured by model parameters α_2 and β_2) do not inform us which school of thought dominates for a given market. There is however a third set of parameters which is also able to inform us about the degree to which blue ocean or competitive strategy prevails in practice. These are the so-called speed of adjustment parameters, both in terms of the number of firms, and in terms of the average profit level. If average profits are above a certain sustainable level (i.e., if profits are 'too high'), imitative entry will occur and as a result average profits will drop. The speed of adjustment tells us how fast this process of returning to the sustainable profit level (called error-correction) will take place. Coefficient α_7 will capture the speed of this adjustment (error-correction) process. If the process is fast, the innovations are apparently easy to copy and, consistent with competitive strategy, the profits for the innovators are of a very temporary nature. On the other hand, if the process is slow, the innovators have a lot of time to enjoy the high profits resulting from their innovative efforts. In this case the competitive process is a weak mechanism in bringing profits from value innovation back down to normal levels. So weak that its negative effects on profits take so long to come into effect that it gives value innovators a sufficiently long interval of enhanced profits to make blue ocean strategy the optimal strategy approach. In beach theory terms, it implies that if a firm finds and creates demand on a new beach a sufficient number of other firms will take a long time to enter and compete for custom on this new beach so that finding new beaches as a generic strategy can become profitable, if not optimal. Therefore, it would indicate that although the (monopolistic) profits derived from any form of innovation (including blue ocean value innovation) can be temporary, the duration of this period can be sufficiently long to justify blue ocean strategy, even when competition has been found to be 'significant' rather than 'irrelevant' as described in blue ocean speak. In this instance the gains from value innovation, even in the face of competition, sustain themselves long enough to justify blue ocean as sustainable strategy.

A similar adjustment process occurs for the number of firms. When the number of firms is below sustainable levels, there is room for new firms to enter and gain a share of the industry profits. On the other hand, when the number of firms is relatively high, some marginal entrepreneurs sooner or later will have to leave the market. In the model described below coefficient β_7 will capture the speed of this adjustment (error-correction) process for the number of firms. This leads to theorems 3 and 4.

Theorem 3: A rapid adjustment process of the number of firms and excessive profit levels back to sustainable levels (high speed of adjustment) is consistent with the dominance of competitive strategy over blue ocean strategy

Theorem 4: A slow adjustment process of the number of firms and excessive profit levels back to sustainable levels (low speed of adjustment) is consistent with the dominance of blue ocean strategy over competitive strategy

The above theoretical exposition contextualizes the interplay between blue ocean and competitive strategy. It indicates the significant degree of agreement of theory between the two. It also uncovers core theoretical differences in the long-term relationships between the number of firms and profits that provides opportunities to test the prevalence and impact of either form of strategy in each of these time horizons. We now move on to outlining a methodology in order to prepare these relationships for empirical analysis.

Model specification

The model is constructed in order to test the theorems while making sure to separate out extraneous influences by including control variables. Theorems 1 and 2 refer to the long range relationships between average profits and the number of firms which we estimate in equations 3a and 3b. We use error correction variables in equations 1 and 2 in order to test theorems 3 and 4 which relate to the *existence* and *speed* of an adjustment process when actual average profits and the number of firms deviate from their long run sustainable levels. This model, while incorporating the previously discussed theory, also accounts for differing causality directions between the variables by defining two equations with (changes in) average profits and number of firms as dependent variables. Several control variables influencing short-term changes in profits and the number of firms are also included. In so doing, we borrow from the industrial organization literature (Schmalensee, 1989, Carree and Thurik, 1994) as we must control for many influences and nuances in order to isolate and test the four established theorems which are relevant for strategy decisions.

More concretely, we specify an error-correction model where deviations between the sustainable (dynamic equilibrium) and the actual number of firms have consequences for the number of firms in subsequent periods. In other words, the model dynamically allows for situations where an unsustainable number of firms in one year will lead to a reduction in the number of firms in the subsequent year. For example, an over supply of shoe stores relative to the number of customers in one year will lead to a reduction in subsequent years. The sustainable number can vary from year to year depending on the full range of factors, macro and micro, affecting business viability. An analogous equation for profits which accounts for a dynamic process where through competitive forces excessive/unsustainable profit levels regress to sustainable levels in a similar error-correction process is defined. The existence and power of this adjustment process gives us an indication of the importance of these pivotal forces which are assumed to be strong under competitive strategy theory. In addition to average profit levels, the sustainable number of firms for a particular shop type depends on the entrepreneurs' next best alternative career option, the demand for goods and services sold in the shop type, entry and exit barriers in the shop type, and the cost of business operation (Carree and Thurik, 1994). We also test for other short-term determinants by including changes in average profit levels which depend on lagged changes in average profits and number of firms, changes in average turnover, business cycle changes (both generic and specific) as well as changes in entry and exit barriers. Furthermore, changes in firm numbers is influenced by changing unemployment, business cycle changes as well as entry and exit barriers (Carree and Thurik, 1994). The detailed rationale behind the model is provided at the end of this section.

The model reads as follows:

$$\begin{aligned}\Delta\pi_{it} = {} & \alpha_1\Delta\pi_{i,t-1} + \alpha_2\Delta NOF_{it} + \alpha_3\Delta Q_{it} + \alpha_4\Delta MI_t + \alpha_5\Delta CS_{it} + \\ & \alpha_6\Delta TUR_{it} + \alpha_7(\pi_{i,t-1} - \pi^*_{i,t-1}) + \varepsilon_{it}\end{aligned} \tag{1}$$

$$\begin{aligned}\Delta NOF_{it} = {} & \beta_1\Delta NOF_{i,t-1} + \beta_2\Delta\pi_{it-1} + \beta_3\Delta UN_t + \beta_4\Delta MI_t + \beta_5\Delta CS_{it} + \\ & \beta_6\Delta TUR_{it} + \beta_7(NOF_{i,t-1} - NOF^*_{i,t-1}) + \eta_{it}\end{aligned} \tag{2}$$

$$NOF^*_{it} = \gamma_{1i} + \gamma_2\pi_{it} + \gamma_3 MI_t + \gamma_4 CS_{it} + \gamma_5 TUR_{it} + \gamma_6 IR_t + \gamma_7 HP_t \tag{3a}$$

$$\pi_{it}^{*} = \frac{NOF_{it} - \gamma_{1i} - \gamma_3 MI_t - \gamma_4 CS_{it} - \gamma_5 TUR_{it} - \gamma_6 IR_t - \gamma_7 HP_t}{\gamma_2} \tag{3b}$$

where:

π	logarithm of the average profit per store (in 1990 prices)
π^{*}	logarithm of the equilibrium average profit per store (in 1990 prices)
NOF	logarithm of the number of firms
NOF^{*}	logarithm of the equilibrium number of firms
Q	logarithm of the average turnover per store (in 1990 prices)
MI	logarithm of the average modal income (in 1990 prices)
CS	logarithm of the total consumer spending (in 1990 prices)
TUR	logarithm of turbulence (sum of entry and exit)
UN	logarithm of the number of unemployed
IR	ten years interest rate
HP	average house price index
ε, η	disturbance terms of equations (1) and (2), possibly correlated
i, t	indices for shop type and year, respectively
Δ	first difference operator

Therefore, our model is a two-equation error-correction model where the endogenous variables are growth of average profit per firm and growth of the number of firms. Both equations consist of three parts. The first part contains the lagged effects of the endogenous variables. The lagged dependent variables capture autocorrelation effects (effect of lagged profit growth on current profit growth, for instance) on the one hand, and short-term dynamics between the dependent variables on the other hand (effect of change in number of firms on current profit growth, and vice versa).[9] The second part of the equations consists of exogenous explanatory variables. Combined these first two parts describe the short-term relations between the endogenous and exogenous variables in the model.

Finally, we look at the long-term relationship (Bosma *et al.*, 2005). Variables playing a role in the long term relation are included as levels, see equations (3a) and (3b). Furthermore, some parameter restrictions are imposed as the equilibrium relation is used in both equations (the γ parameters in the model).[10] We are particularly interested in the long-term relationship between the number of firms and profit levels. This relationship is captured by parameter γ_2. Parameters α_7 and β_7 measure the effect of being out-of-equilibrium (actual level deviating from the long run sustainable level) on the growth of average profits and the growth of the number of firms, respectively (i.e., speed of adjustment). In the next subsection the full rationale behind the model specification (1)-through-(3) is presented.

We have shown that the blue ocean and competitive strategy schools view the relationship between profits and the number of firms differently. In the equations the

[9] Equation (1) includes the *contemporaneous* change in the number of firms while equation (2) includes the *lagged* change in average profit level as a right-hand-side variable. As the stock of firms is measured at the start of year t, and the profit variable is a flow variable (rather than stock), variable ΔNOF_{it} precedes variable $\Delta\pi_{it}$ on the time line, consistent with the direction of causality implied by equation (1). For the same reason, a lagged profit variable is included in equation (2), instead of a contemporaneous one.

[10] Note that equations (3a) and (3b) are equivalent. Equation (3a) is defined in terms of the equilibrium number of firms while equation (3b) rewrites the relation in terms of the equilibrium profit level. This way of formulating facilitates comparison of the speeds of adjustment of both equations (parameters α_7 and β_7).

relationship is captured through five parameters. Parameter α_2 measures the short-term effect of net-entry (ΔNOF) on changes in the average profit level of a shop type, while the reverse effect (changes in profit levels influencing net-entry) is measured by parameter β_2. Importantly, for theorems 3 and 4 the parameters α_7 and β_7 measure the speed of error-correction with respect to profits and the number of firms, respectively. Finally, the long-term association between profits and the number of firms, from theorems 1 and 2, is captured by parameter γ_2. Table 1 presents the expected signs of these five parameters as expected by both blue ocean and competitive strategy.

Competitive strategy

If competitive strategy is the dominant form of strategic management then, in the short term, an increase in the number of firms reduces average profits. However, it is possible that new innovative firms enter the market thus temporarily driving up average profits. Hence the short-term parameter α_2 is either negative or positive. Regarding the sign of parameter β_2, short-term increases in profit levels are expected to attract new firms. On the other hand, incumbent firms earning higher average profits indicates a monopolistic state and the presence of barriers to entry for new firms, implying a negative effect. Hence, under competitive strategy, parameter β_2 may be either negative or positive.

In addition, if the number of firms for a shop type is below equilibrium (and hence average profits are above equilibrium), the number of firms will subsequently increase leading to decreasing average profits. These adjustments towards equilibrium are captured by the error-correction parameters α_7 and β_7, which are both negative. Under competitive strategy, these adjustment processes occur relatively fast, as imitation takes place quickly so that innovators do not have much time to appropriate the value of their innovation. Hence, excess profits are only temporary (theorem 3). In the long term, competition between firms inevitably leads to lower profits. Hence, under theorem 1 the long-term relation between profits and the number of firms (parameter γ_2) is negative.

Blue ocean strategy

Since firms adopting a blue ocean strategy may not immediately find or establish new markets, in the short term the costs of innovation before the revenues have materialized can be challenging, particularly in cases where new market demand is being created. The firm may be obliged to compete in red oceans before the fruits of value innovations allow them access to the new market. Hence, new firm entry targeting specific new markets will, in the short term, lead to lower profits, consistent with a negative α_2. Alternatively, if implementation of blue ocean strategy is immediately successful, then the short-term effect of an increasing number of firms using blue ocean strategy will be an increase in average profits, consistent with a positive α_2.

Similar to competitive strategy, blue ocean will see short-term increases in profit levels which should attract new firms. However, as noted in the theory section, if R&D and investment in innovation occurs before the profit gains from value innovation, thereby reducing short-term profits, then a negative value of β_2 is also consistent with blue ocean. Low profits may signal the availability of future profit opportunities which can be exploited through value innovation which attracts new firms. Therefore, as before, parameter β_2 can be either positive or negative.

As the assumptions underlying dominant blue ocean strategy do not necessarily involve an equilibrium process, the error-correction parameters α_7 and β_7 need not have any impact, unlike competitive strategy theory where they should be negative. Industries completely dominated by blue ocean will lack an equilibrium mechanism with the parameters α_7 and β_7 equal to zero. In this extreme scenario there is no long term equilibrium relation, so the γ parameters do not apply.

As previously described, under blue ocean the error-correction parameters α_7 and β_7 should be either negative or zero, although this latter case is unlikely as it implies a complete absence of red oceans. Under blue ocean, imitation by new entrants takes place slowly and innovators have a lot of time to appropriate the value of their innovations. In other words, the speed of adjustment is expected to be slow, as predicted by theorem 4. Long term implementation of blue ocean should generate a positive long term relationship between the number of firms and average profits. Therefore, as predicted by theorem 2 we expect γ_2 to be either zero or positive.

Table 1: Expected signs of key parameters for different schools of strategic thought

	Dominant (Red Ocean) Competitive Strategy	Dominant Blue Ocean Strategy
Short-term effect net-entry on profits (α_2)	-, 0, +	-, 0, +
Error-correction effect profits (α_7)	- (high speed of adjustment) (Theorem 3)	-, 0 (low speed of adjustment) (Theorem 4)
Short-term effect profits on net-entry (β_2)	-, 0, +	-, 0, +
Error-correction effect number of firms (β_7)	- (high speed of adjustment) (Theorem 3)	-, 0 (low speed of adjustment) (Theorem 4)
Long-term equilibrium association number of firms and profit level (γ_2)	- (Theorem 1)	0, + (Theorem 2)

Expected signs of the control variables utilized in equations (1)-through-(3)

The expected signs for the remaining parameters in the model are now discussed. Turnover and profits should move together. However, instead of using the growth of the profit ratio (profit divided by turnover) as a variable, we allow for separate development of profits and turnover. Nevertheless, we expect parameter α_3 to be close to unity. An increase in general income level may signal an overall upturn of the economy from which shopkeepers will benefit (Carree and Thurik, 1994). Hence, parameter α_4 is expected to be positive. Likewise, an increase in average consumer spending in certain shop types signals increasing demand, which may lead to higher profits (Nooteboom, 1985). Parameter α_5 is positive. The sum of entries and exits in a shop type, i.e. turbulence, can be seen as an inverse indicator of entry and exit barriers. High turbulence indicates low barriers, and hence a higher threat of potential competitors (Dunne *et al.*, 1988). Hence the expected sign of α_6 is negative.

Concerning the number of firms equation (2), we expect an increase in unemployment to positively affect the number of firms (β_3 positive), as unemployed individuals may experience more difficulties finding wage-employment, and hence may be more inclined to start new firms (Thurik *et al.*, 2008).[11] Change in modal income is an indicator for the growth of wage rates and increased wages imply higher opportunity costs of starting a business (Nooteboom, 1985). We expect β_4 to be negative. A higher demand for products and services sold in a certain shop type will encourage entry and discourage exit (Schmalensee, 1989, Evans and Leighton, 1989). Hence we expect a positive parameter β_5. Higher turbulence indicates lower entry barriers (Beesley and Hamilton, 1984), and so β_6 should be positive.

Regarding the equilibrium relation (3a), we allow the long term number of firms in a shop type to depend on the self-employment income (i.e., net profit), the opportunity costs of self-employment (i.e., modal income), the demand for products and services sold in the shop type, the entry and exit barriers present in the shop type, and the costs of operating a business. Similar to the short term parameters we expect γ_3, γ_4 and γ_5 to be negative, positive and positive, respectively.[12] The interest rate and the average house price are indicators for the cost of capital and cost of property (for example floor space rent), respectively, and if these costs increase over time, fewer people may be inclined to start businesses (γ_6 and γ_7 negative).[13] In addition, we include shop type-specific constants γ_{1i} (i.e., fixed effects). These dummy variables capture structural differences between industries such as the minimum efficient scale, capital requirements, market size, etc.

Data of the Dutch retail industry

A database for 41 shop types in the retail sector over the period 1980-2000 is used. It combines variables from two major sources: the Dutch Central Registration Office (CRK) and a panel of independent Dutch retailers (establishments) called 'Bedrijfssignaleringssysteem' (interfirm comparison system) operated by the EIM Business and Policy Research group based in Zoetermeer, The Netherlands. The data are complemented using information from several sources. As the number of shop types investigated in the 'Bedrijfssignaleringssysteem' varied throughout the 1980s and 90s, the database is an unbalanced panel. Overall there are 28 shop types with data for the 1980s and 90s, while 13 shop types have data only for the 1990s. The exact data period per shop type is given in Table 2. The table also contains averages for the main variables in the model. The averages are computed based on the sample used in the final

[11] Note that, with the exception of the variables change in average turnover in equation (1) and change in unemployment in equation (2) (parameters α_3 and β_3, respectively), equations (1) and (2) are symmetric. As, by construction, change in average turnover (i.e., change in average firm size) is inversely related to the change in the number of firms, it is not included in equation (2). Furthermore, increases in the number of unemployed may be associated with lower average profit levels because they signal poor economic conditions. However, we do not include the unemployment variable in equation (1) because we already have two other indicators of developments in the business cycle in this equation (variables ΔMI and ΔCS). Therefore, equations (1) and (2) are not completely symmetric.

[12] As both the number of firms and the turbulence level are included in levels, parameter γ_5 may to some extent also capture market size differences between the industries.

[13] As we expect house prices and interest rates to have an impact on the number of firms in the long term rather than in the short tern, these variables are included in the long term equation (3) rather than in the short tern equation (2).

estimations, fully discussed in the results section.[14] As shown in the table, for about half of the shop types, average profits increased while the number of firms decreased. Details on the measurement and source for each variable are given below. Several corrections to the raw data are applied in order to make the data ready for analysis.

Raw data on the number of firms (NOF) and turbulence (TUR) are obtained from the Dutch Central Registration Office (CRK). CRK provides data on the number of new registrations and deregistrations of establishments for each shop type. The sum of new registrations and deregistrations equals TUR. Several times the CRK changed the sectoral classification of shop types so it was necessary to correct and adjust trend breaks due to these changes.

Raw data on average (net) profit per store, π, and average turnover per store, Q, are taken from the 'Bedrijfssignaleringssysteem' (BSS). This panel was started by EIM in the 1970s and each year a large number of firms are asked for their financial performance. Although the panel varies from year to year (each year some firms exit the panel while others enter), it is important to note that the relative change in average profits or average turnover is based on only those firms present in the panel in two consecutive years. Hence, the dynamics of these variables are not influenced by changes in panel composition.[15] Until the beginning of the 1990s average profit and turnover levels are computed based on about seventy individual retail stores per shop type but from the beginning of the 1990s the coverage of the panel decreases, i.e., fewer firms participate so that shop type averages become less reliable. Fortunately, the timing of this decrease coincides with the start of average financial performance registration by Statistics Netherlands (CBS) at low sectoral aggregation levels. Hence, from the early 1990s onwards, we have information on the development over time of these variables from two sources: BSS and CBS. Differences between these two sources are small which supports the reliability of our constructed times series. From 1994 onwards we use the average of the annual relative change implied by these two sources.[16]

Data on total consumer spending on the products and services sold in a certain shop type, CS, is taken from Statistics Netherlands (publication 'Budgetonderzoeken' or Budget statistics).[17] The variables modal income, MI, and unemployment, UN, are also taken from Statistics Netherlands, while the ten years interest rate, IR, and the average house price index, HP, are taken from ORTEC, a distinguished financial research firm based in the Netherlands. Finally, for the variables profits, turnover, modal income and consumer spending a consumer price index to correct for inflation is used.

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[14] Note that the periods in the table start in 1982 instead of 1980. Two years are lost due to our model specification. We use a time lag of a year and we also use variables in first differences.

[15] Hence we choose a base year to compute the level of average profits or turnover, and next we compute the levels for the other years making use of the relative changes of only those firms present in two consecutive years. As most firms stayed in the panel for many years, these relative changes are also based on a substantial number of firms, but this way we correct for trend breaks introduced by a changing composition of the panel (e.g. when a firm with exceptionally high profits would enter or exit the panel). For the base year we always choose a year for which the number of participating firms in the panel is high.

[16] Ideally, one would like to use information from Statistics Netherlands (CBS) as this is the national statistical office in the Netherlands. However, as the number of firms in a shop type (which is approximately fourth digit level) is often small, and the number of firms is rounded to thousands in CBS statistics, using the CBS data also implies some extent of measurement error. Therefore we use information from both sources to estimate the dynamic pattern of the profit and turnover variables.

[17] Total consumer spending was computed by multiplying the variables average household spending, the total number of households in the Netherlands and the share of a certain shop type in total household spending .

Table 2: Descriptive statistics for shop types (655 observations)

Shop type	Period	$\Delta\pi$	ΔNOF	Turbulence rate	N
Grocers/supermarkets	1982-2000	0.031	-0.020	0.195	19
Greengrocers	1982-2000	0.008	-0.028	0.199	19
Liquor stores	1982-2000	0.028	-0.019	0.188	19
Shoe stores	1982-2000	0.024	-0.009	0.164	19
Furnishing + furniture (mixed)	1982-2000	0.011	-0.021	0.158	19
Bicycle stores	1982-2000	0.030	-0.012	0.108	19
Jewelries	1982-2000	0.050	0.003	0.175	19
Drug stores	1982-2000	0.029	0.007	0.153	19
Florists	1982-2000	0.018	-0.002	0.237	19
Butchers	1982-2000	-0.012	-0.028	0.188	19
Fish shops	1982-2000	0.009	-0.002	0.227	18
Bakers	1982-2000	0.006	-0.015	0.174	19
Confectioners	1982-2000	0.013	-0.010	0.226	19
Tobacco shops	1982-2000	0.027	-0.035	0.139	19
Households goods shops	1982-2000	-0.009	-0.004	0.195	19
Paint, glass, wall-paper	1982-2000	0.021	-0.030	0.143	19
Hardware stores	1982-2000	0.020	-0.018	0.152	19
Photographer's shops	1982-2000	0.023	-0.002	0.168	19
Pet shops	1982-2000	0.011	0.003	0.206	19
Textiles men’s wear	1991-2000	0.016	-0.052	0.144	10
Furniture	1982-2000	0.081	0.016	0.245	19
Dairy shops	1982-2000	-0.010	-0.050	0.140	19
Electrics	1982-2000	0.027	-0.020	0.158	19
Audiovisual devices	1982-2000	0.028	0.009	0.289	19
Sewing-machines	1982-2000	-0.009	-0.027	0.164	19
Glass, porcelain and pottery	1982-2000	0.028	0.007	0.251	19
Office and school materials	1982-2000	0.000	0.001	0.207	19
Opticians	1982-2000	0.063	0.025	0.175	19
Toys	1982-2000	0.073	0.040	0.282	19
Poultry	1994-2000	0.010	-0.049	0.192	7
Clothing materials	1991-2000	0.060	-0.055	0.171	10
Musical instruments	1991-2000	0.031	0.012	0.174	10
Do-it-yourself shop	1991-2000	-0.006	0.020	0.227	9
Videotheques	1991-1997	0.057	0.016	0.683	7
Gardening centers	1991-2000	0.040	0.057	0.245	10
Reform	1991-2000	0.065	0.076	0.347	10
Baby’s clothing	1991-2000	0.046	-0.018	0.311	10
Children’s clothing	1991-2000	0.017	0.079	0.474	10
Textiles underwear	1991-2000	0.038	0.055	0.344	10
Leather goods	1991-2000	-0.003	-0.006	0.232	10
Sport and camping equipment	1991-2000	0.025	0.044	0.265	9

Note: The second column indicates the period for which the variables are available. The second through fourth columns contain the period averages for annual profit growth (averaged per store), annual growth of the number of firms in the shop type and the turbulence rate, defined as (entry+exit)/number of firms (note that this is not the same as the variable TUR which is used in our model). The final column contains the number of observations on which the shop type averages are based (655 observations for the whole database).
Source: Dutch Central Registration Office (CRK) and EIM Business and Policy Research.

Results

Our model consisting of equations (1)-through-(3) is estimated using the three stage least squares method (3SLS) because the error terms of equations (1) and (2) may be correlated. When estimating the model we have to take care of a number of methodological issues.

First, the variance of the error terms differs from shop type to shop type. Development over time for some shop types is stable, such as shoe stores, while others suffer from greater variance, such as the audiovisual sector. White-heteroskedasticity tests confirm our suspicions. We correct for this by estimating the variance of the error terms per shop type and adjusting the models accordingly. Estimates of these variances are obtained by regressing the squared residuals of the uncorrected models on a set of shop type dummy variables. Our models are then adjusted by dividing each explanatory and dependent variable by the appropriate square root of the estimated variance. This is in effect similar to a weighted least squares estimation and solves the problem of heteroskedasticity that otherwise occurs across different shop types (Stewart, 1991).

Second, another type of heteroskedasticity can arise if variances change over time. The effect of a year dummy on the estimated variance is determined in the same manner as were shop type dummies. No empirical indications were found that this type of heteroskedasticity was present in our models.

Third, we tested for stationarity of our endogenous variables, i.e., the change in average profit levels $\Delta\pi_{it}$ and the change in the number of firms ΔNOF_{it}. A series of (augmented) Dickey Fuller (ADF) tests (Dickey and Fuller, 1979) indicated that our endogenous variables are indeed stationary.

Our database is an unbalanced panel of 655 observations of averages distributed over 41 shop types. Jarque-Bera statistics indicated normally distributed residuals for both equations. Estimation results are in Table 3.

Table 3: Estimation results

Short-term relation I: Dependent variable $\Delta\pi_{it}$			
Parameter	Variable	Coefficient	P-value
α_1	$\Delta\pi_{it-1}$	-0.020	0.637
α_2	ΔNOF_{it}	2.26	0.000
α_3	ΔQ_{it}	0.998	0.000
α_4	ΔMI_t	1.39	0.000
α_5	ΔCS_{it}	0.059	0.319
α_6	ΔTUR_{it}	-0.148	0.000
α_7	$\pi_{it-1} - \pi^*_{it-1}$	-0.158	0.000
Short-term relation II: Dependent variable ΔNOF_{it}			
Parameter	Variable	Coefficient	P-value
β_1	ΔNOF_{it-1}	0.314	0.000
β_2	$\Delta\pi_{it-1}$	-0.022	0.001
β_3	ΔUN_t	0.014	0.015
β_4	ΔMI_t	-0.091	0.020
β_5	ΔCS_{it}	-0.008	0.415
β_6	ΔTUR_{it}	0.038	0.000
β_7	$NOF_{it-1} - NOF^*_{it-1}$	-0.057	0.000
Long-term relation: dependent variable NOF^*_{it} [1]			
Parameter	Variable	Coefficient	P-value
γ_2	π_{it}	0.666	0.000
γ_3	MI_t	-0.881	0.075
γ_4	CS_{it}	-0.119	0.224
γ_5	TUR_{it}	0.819	0.000
γ_6	IR_t	-0.570	0.707
γ_7	HP_t	-0.004	0.000
Number of observations		655	

[1] Industry fixed effects dummies not reported.

Table 3 displays the results. First, the estimation results are consistent with the concept of a dynamic equilibrium relationship between average profits and the number of firms. The estimates for the error-correction parameters α_7 and β_7 are significant while also evidence for a long term relationship between the number of firms, the average profit level, modal income, house prices and the level of turbulence in an industry (witness the various significant γ parameters) is found. These results do not support the premise that the retailers use blue ocean to the point of making competition irrelevant. In contrast, the existence of equilibrating forces indicates that competitive forces influence the number of sustainable firms and profits in the short term. However and reassuringly for those who favor innovation and blue ocean, we find a positive long term relation between the number of firms and average profit levels (γ_2 is significantly positive).

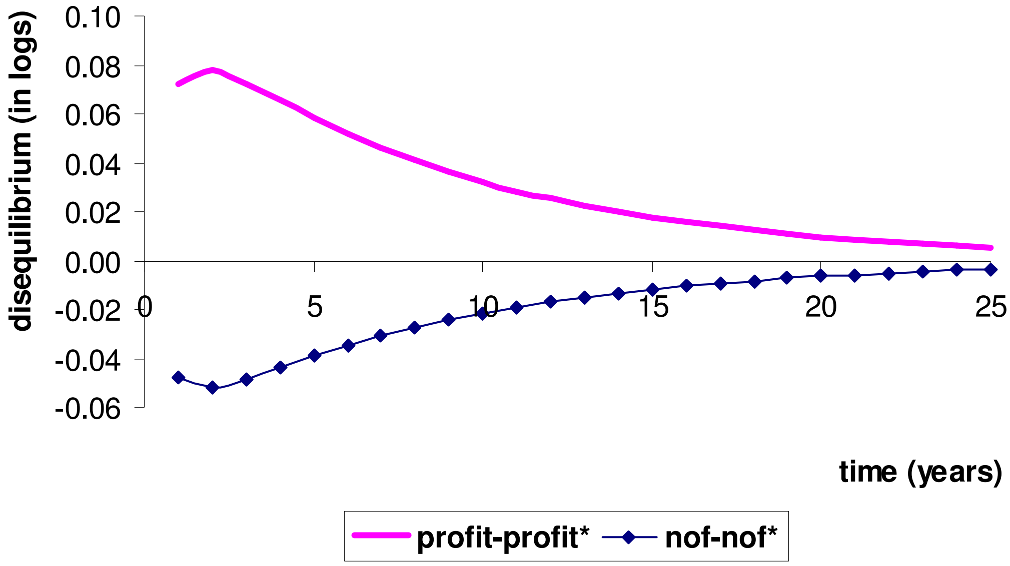
This viewpoint is supported by the slow speed of adjustment back to equilibrium (the coefficients of α_7 and β_7 have low values), consistent with the dominance of blue ocean strategy under theorem 4. When profit levels are above equilibrium (consistent with the number of firms being below equilibrium), there is a market correction, as shown by α_7 being significant. The speed of adjustment is 0.158 implying that, *ceteris paribus,* in the course of a year the distance between the actual and the equilibrium profit level decreases by 15.8%. It is likely to be in part caused by the increased entry reflected in parameter β_7: when the number of firms is below equilibrium, the net-entry rate will increase in the subsequent period due to competition by imitators. Hence, in case there are too few firms in the market (which may be labeled 'undershooting' of the market), new firms will enter, and average profits drop. The *autonomous* speed of adjustment of the number of firms (5.7%) is lower than the speed of adjustment of the average profit level (15.8%).

However, the dynamics of our model are more complex than suggested by these numbers, for two reasons. First, the model contains lagged endogenous variables on the right hand side, so that exogenous shocks have an impact on the system not just via the error-correction mechanism (adjustment parameters α_7 and β_7) but also through the short-term dynamics of the model (parameters α_1, α_2, β_1 and β_2).

Second, the equilibrium relationship is itself dynamic: a shock to the number of firms or to the average profit level not only impacts on the *actual* number of firms and the actual profit level but also on the *equilibrium/sustainable* number of firms and the equilibrium profit level, see equations (3a) and (3b). Therefore, as an illustration, Figure 4 pictures the development of the extent of disequilibrium ($NOF - NOF^*$) and ($\pi - \pi^*$), following an exogenous shock of 10% to the number of firms (i.e., a shock of log (1.1) to the logarithm of the number of firms).[18] It takes the system some 20 to 25 years to converge on equilibrium, demonstrating that for this industry competitive forces, while not irrelevant in blue ocean terms, are weak enough to ensure that the profits from blue ocean are sustained for long periods of time. The number of firms converges somewhat faster than the average profit level: the shock to the number of firms implies an even greater shock to the average profit level (parameter α_2 is greater than one). As shown, the immediate impact is actually smaller than 0.10 because the *equilibrium* levels NOF^* and π^* – and hence the extents of disequilibrium ($NOF - NOF^*$) and ($\pi - \pi^*$) – also change as a result of the shock to the number of firms. See equations (3a) and (3b).

[18] We assume an initial situation where the system is in equilibrium, hence all variables in differences are zero.

Figure 4: Convergence process towards equilibrium following an exogenous shock to the number of firms of 10%.



Concerning the effect of the number of firms on average profit level, there is a positive short term effect (parameter α_2 positive). For the long term, the statistical association between profits and number of firms (parameter γ_2) is also positive. When new technologies or untapped markets emerge, there is an increase of new 'value innovating' firms which obtain the higher profits associated with the establishment of new markets. In addition, there is also a counter effect of imitative style competition captured by the error-correction mechanism (parameters α_7 and β_7 are significantly negative). Combined, these results indicate that blue ocean and competitive strategy co-exist even if one strategy dominates in a particular industry, in a particular region over a particular time period, i.e., in our case in Dutch retailing between 1982 and 2000. Note that the long term dominance of blue ocean in our empirical analysis is consistent with the low speed of adjustment towards equilibrium as illustrated by Figure 4.

The impact of average profits on the number of firms (parameter β_2) is negative. This is consistent with blue ocean where R&D/innovation costs can have a short-term negative effects on profits, but where the market sees these short-term effects as a positive signal for future long-term profit opportunities available to value innovators. In essence, it depicts an entrepreneurial business environment where there is a time lag between the costs of start-up and the return on that investment (see our test below to account for a temporal increase in the importance of an entrepreneurial business environment). An alternative view more consistent with competitive strategy is that the higher profits signal increased entry barriers for small firms, implying a negative effect. Note however that the coefficient is small when compared, for instance, with counterpart parameter α_2.

Last, but not least, the parameters for the control variables are either insignificant or consistent with the hypotheses. In the profit equation a positive effect of the change in turnover (parameter α_3) is found. As expected, the coefficient is approximately one. Consistent with expectations, a positive effect of changes in modal income (parameter α_4), is found. Consumer spending (α_5) is insignificant.[19] The effect of changes in turbulence on profits (parameter α_6) is negative. Higher turbulence levels indicate that the industry is easy to enter and hence the threat of potential competitors is high, meaning that excess profits are hard to maintain in these shop types.

In the number of firms equation a positive effect of the lagged dependent variable (parameter β_1) is found indicating that changes in the number of firms usually last for several years. There is a positive but small effect of the number of unemployed (parameter β_3). The effect of changes in modal income (parameter β_4) is negative and significant, implying that starting a business is less attractive when wages are higher. As in the profit equation consumer spending (parameter β_5) is insignificant. Perhaps expanding incumbent firms, instead of new firms, capture increased consumer spending. Finally, as expected, the estimate of parameter β_6 is positive: higher turbulence rates are associated with lower entry barriers, and hence higher net-entry rates.

Concerning the equilibrium relation, the number of firms in a shop type is significantly negatively related to modal income (parameter γ_3), positively related to turbulence levels (parameter γ_5), and negatively related to costs of property (parameter γ_7). These results are all as expected. Neither the long term effects of consumer spending (parameter γ_4) nor the cost of capital (parameter γ_6) is significant.

Discussion

This paper is motivated by the need to both contextualize the theoretical contribution of blue ocean strategy and to investigate its empirical robustness using industry-wide analysis. With respect to the former, existing blue ocean literature does not provide distinction between short-term and long-term strategic time horizons. This means that managers choose either blue ocean or competitive strategy irrespective of any time horizon. We construct a model capable of investigating this time horizon and find that the short term (i.e., the period during which equilibrium-restoring forces are at work) appears dominated by competitive strategy (red ocean) effects while the long term appears consistent with blue ocean. As a result, the analysis provides a level of synthesis between blue ocean and competitive strategy uncovering a more complex environment where managers implement an inter-temporal strategic blend of blue ocean and competitive strategy. Put differently, a firm which is currently in a competitive (red ocean) market and which aspires to find a blue ocean, will still need to be able to compete in the short term in order to remain viable while it gradually achieves this longer term blue ocean objective. This evidence is in fact consistent with the innovation strategy outlined by the Boston Consulting Group's seminal business portfolio matrix where a firm can use revenue from a 'cash cow' which is gradually becoming a 'dog' (i.e. in an increasingly red ocean market) to fund the development of 'question marks' into 'rising stars' (i.e. to find a blue ocean).

Turning to the empirical motivation of the paper, the validity of blue ocean strategy as a generic approach to strategic management depends on two axiomatic but testable assumptions: (1) the prediction that competition can be made irrelevant and (2) the belief that there are sufficient blue oceans available for it to be chosen as a successful generic industry-wide strategy. The fact that these empirical claims were only based on firm level case studies of

[19] We checked for possible multicollinearity between change in average turnover and change in average consumer spending in a shop type. However, the correlation is only 0.17.

successful firms rather than industry wide statistical analysis of *all* firms means that the theory lacked evidence. An empirical methodology in order to ascertain the relative importance of competitive and blue ocean strategies is outlined. Applying this to a rich panel dataset on Dutch retailing covering 1982-2000, it is found that blue ocean appears to be the dominant strategy employed by firms at an industry level. Furthermore the strategy appears to have been successful, *ceteris paribus*, in terms of a positive long term relationship between average profits and numbers of firms. Notably the usage of blue oceans has not 'made the competition irrelevant'. Consistent with competitive strategy there appears to be a limit to the number of sustainable firms in the Dutch retail industry at any point in time and that deviations from this sustainable number causes an adjustment in the number of firms and profits in line with competitive strategy theory. However this competitive mechanism is weak. In fact, it is so weak that innovation appears to have been a generic viable strategy for Dutch retailing over the sample period. Therefore, one major finding of the paper is to uncover the first, to our knowledge, statistical evidence showing that blue ocean is a generic and successful strategy at an industry-wide level.

This leads us back to the theory. Does this evidence vindicate blue ocean over competitive strategy? It is unlikely: blue oceans are rarely purely blue and there is always some red water; especially in the short term. In other words, blue ocean does not make competition irrelevant. Successful long-term blue ocean strategy means having a viable short term competitive strategy in place both to survive and perhaps fund value innovation. Equally, the presence of competition in the face of firms employing blue ocean strategy does not mean that imitation and competition undermines its usefulness. In fact, the evidence indicates that for Dutch retailing over the period 1982–2000 competitive forces, although active, are overpowered by the firm performance enhancing effects of value innovation.

This leads to the question of whether blue ocean strategy is saying anything new, or if it is just Schumpeter's (1934) message that innovation is the primary driver for firm performance recast. The most relevant contribution of blue ocean strategy is to draw out the implications of the subtleties in entrepreneurship and innovation research. This literature owes much to Schumpeter (1942) who introduced the idea that the creative destruction of markets and firms came from innovative companies. In this framework, like blue ocean strategy, firms are less concerned about price competition and more focused on innovation as a way to create advantages in terms of product features valued by consumers along the lines advanced by Chamberlin (1933). But, unlike Chamberlin, Schumpeter believes that the competitive process is slow enough to award significant sustainable profits for innovators. The key, even in the face of imitation by other firms, is that these rewards are sustainable enough for a significant number of firms and industries to choose it as a generic strategy. The implication of arguments mooted by Kim and Mauborgne (2005a, b and c) involves breaking apart these two features of Schumpeterian innovation. In other words, it is proposed that one can have innovation *without* the competitive battle associated with creative destruction. Innovation without creative destruction implies finding new markets thus creating new consumer demand. Theoretically, this subtle alteration to Schumpeter's assumptions leads to a dramatic shift in the optimal form of strategic management. In fact, innovative managers can, in theory, ignore competitors.[20]

[20] Demonstration that this subtle nuance in theoretic assumptions can have a dramatic effect is evident by Porter (1980, 1985) who embraces the importance of innovation in the competitive strategy framework. Drawing on the importance of knowledge spillovers in the innovation process (Saxenian, 1994 and Audretsch and Feldman, 1996), Porter (1998, 2000) combines the concepts of innovation and competitive strategy to highlight the importance of economic clusters. The resulting model is one where innovation is prevalent but unlike blue ocean, it does not disengage firms from competition. In this framework innovation allows managers to generate competitive advantages over rivals but competition does not become irrelevant – certainly not in the short term when innovators expect imitation.

This raises the question of what makes innovation under blue ocean so different from competitive strategy, as discussed by Porter (1998, 2000). The answer is that it is a different type of innovation. This is not about creating an improved product or service which gives a firm an edge over a direct competitor. Instead, it is about the type of innovation that has preoccupied the entrepreneurship literature: innovating to find and exploit new markets/beaches/oceans. Blue ocean innovation activity is the same type of innovation discussed in the entrepreneurship literature, including being focused on innovation (Demsetz, 1973), alert to new market opportunities (Kirzner, 1973) and being imaginative/visionary (Von Mises, 1949). Audretsch, Baumol and Burke (2001) show that when mainstream economists embraced these concepts, far from causing a paradigm shift, they illustrated the complementary nature of the schools of thought: when combined, the two provide a richer and more realistic depiction of economic performance. Thus, in reality the strategic choice ought to be based on an assessment of business and market circumstances as these determine the degree of scope for effective blue ocean and/or competitive strategy. Furthermore, what blend or emphasis should be given to either form of strategy across short and long-term time horizons – a conclusion which we proposed in our theoretical assessment above – is apparent in most innovative companies competing in short term red oceans while significant energies are devoted to the long-term goal of developing innovation that creates and accesses new markets[21].

Conclusion

Blue ocean strategy seeks to turn strategic management on its head by replacing 'competitive advantage' with 'value innovation' as the primary goal, where firms must create consumer demand and exploit untapped markets. So far empirical analysis has focused on case studies of successful firms and thus has been limited in its ability to generalize. This is a significant shortcoming because the debate straddles skepticism (competitive strategy) and faith (blue ocean) in the belief that a sufficient number of untapped market opportunities exist for most firms to adopt blue ocean as a generic managerial approach, thus making 'competition irrelevant'. By contrast, competitive strategy proposes that a limited number of short-term opportunities exist for firms to find untapped market which in the long term will be eroded by imitation and competition; in these cases competitive strategy is the focus for managers.

To investigate the prevalence of either strategic school of thought in reality, a *theoretic* model is outlined illustrating how blue ocean and competitive strategies are not necessarily discrete choice substitutes but may co-exist as short and long-term strategic priorities. Statistical evidence is brought to bear on this debate via an *empirical* model which tests hypotheses using a comprehensive data set on the Dutch retail industry. The prevalence of blue ocean versus competitive strategy in the short and long term in this industry over the period 1982-2000 is investigated. This is a useful scholarly laboratory for this debate as retailing has undergone a strategic revolution over the last 20 years. New brands and differentiation strategies have been rife leading to increased market segmentation, deeper and wider market boundaries and the rejuvenation of some previously regarded 'tired' sectors such as cafés and hardware stores. Using an error-correction model the short and long term relationship between the number of firms and the average profits per firm in the Dutch retail industry is estimated.

Results show that blue ocean appears to have been the dominant long-term form of strategic management in this industry over the sample period 1982-2000. It appears to have been successful as evidence of a long-term positive relationship between the number of firms and average profits is found. However, the fact that the analysis also verifies the validity of an error-correction model shows that in the short term, competitive strategy effects appear to

[21] The logic underlying the game theoretic model of Arend (1999) can also generate a similar outcome.

dominate. Therefore, the results do not support the notion that blue ocean 'makes competition irrelevant'. Nevertheless, we find that the competitive strategy (red ocean) adjustment process back to equilibrium is docile, taking approximately 20-25 years to bring a 10% deviation between the actual and the equilibrium number of firms back to equilibrium. The timidity of this competitive process appears to provide the platform from which blue ocean generates sustainable increases in profits without fear of extensive rapid erosion through competition.

In sum, our analysis of Dutch retailing shows that firms appear to have employed blue ocean as their long term main strategy but that in the short term competitive strategy is engaged. Thus, while the analysis provides much needed empirical statistical and industry level support for blue ocean, it simultaneously shows that blue oceans are rarely purely blue and blue oceans typically have stretches of red water. Put differently, based on this evidence, modern strategic management does not appear to make a discrete choice between using blue ocean or competitive strategy but rather faces the more difficult challenge of finding an optimal blend of these two strategies across both short and long-term horizons. R&D and innovation are often funded out of firm's current profits. Indeed, our evidence appears to indicate that having an effective competitive (red ocean) strategy capable of surviving competitive markets in the short term is a way of funding the development of blue oceans that sustain the firm in the long term. Therefore, our findings indicate that, far from encouraging managers to adopt an either/or decision between blue ocean and competitive strategy, the optimal strategic approach appears to involve adopting a blend of both strategies with different temporal emphasis.

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