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TITLE: The Dark Side of EO: Insights into the EO-as-experimentation Perspective by Investigating the Effect of EO on Firm Performance and Failure

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Keywords: EO, firm performance, innovativeness, proactiveness, risk taking

The following paper is quantitative.

Objectives (200 words)

The objective of this paper is to advance knowledge on the entrepreneurial orientation (EO) construct and its effect on firm performance and survival. The EO construct has become an essential concept in the entrepreneurship and strategic management literatures, thus it is of significance to pursue.

In this paper we provide evidence for the EO-as-experimentation perspective, which has been overlooked by the EO-firm performance literature (Wiklund & Shepherd, 2011). Most of the literature aligns with the EO-as-advantage perspective and considers that EO as a gestalt construct is advantageous to a firm's performance (Rauch et al., 2009). Overlooking the EO-as-experimentation perspective is dangerous because this perspective predicts a dark side to EO. Furthermore, the results align with the ignored multidimensional view of EO (Lumpkin & Dess, 1996).

Here we aim to answer a vital research question: what is the effect of EO and its separate dimensions on firm performance/survival? Unusually, the paper examines the effect of EO on firm performance along a longitudinal timeframe from the pre-crisis (fiscal year 2000) until the post-crisis period (fiscal year 2014). Furthermore, it develops objective proxies to measure the main EO dimensions and considers short term and long term measures of firm performance.

Literature review (+/- 300 words)

EO was initially defined by Miller (1983) as a three-dimensional gestalt construct. Most of the research has summed the separate EO dimensions into an index and examined the effect of that index on firm outcomes based on the Miller (1983) and Covin and Slevin (1989) summated scales. A recent meta-analysis conducted by Rauch et al. (2009) revealed that a majority of studies examined EO as a gestalt construct and concluded that EO is beneficial for firms. This is prevalent even though it has been shown that the EO dimensions have differential effects on firm's performance (Hughes & Morgan, 2007).

The gestalt conceptualization of EO aligns with the EO-as-advantage perspective. The alternative perspective proposed initially by Wiklund and Shepherd (2011) considered the adverse possible outcomes of EO, prominently failure (Slevin & Terjesen, 2011). The perspective was brought forth by the authors after they found that EO was also high among failed firms. Thus, it is possible that EO might contribute to a firm's failure. This could be due to the risk-taking dimension of EO, which entails uncertain outcomes, but EO may carry additional costs.

The EO-as-experimentation perspective considers that EO might lead to positive outcomes for some firms, yet it might also lead to higher probability of failure for other firms. Thus, unlike the EO-as-advantage perspective, the EO-as-experimentation perspective considers EO's performance *variability* and its double-edged nature (Patel et al, 2014).

In accordance to the EO-as-experimentation perspective, this study hypothesizes that EO has a positive effect on firm performance among active firms whereas it has a negative effect on firm performance among inactive firms. The study also hypothesizes that EO might lead to a higher probability of failure. Finally, in light of the multi-dimensional conceptualization, this study hypothesizes that each of the EO dimensions have separate effects on a firm's performance.

Approach/Method (200 words)

The sample was large US firms (> 500 employees) in the high-tech industry in accordance to the 4-digit Standard Industrial classification of Loughran and Ritter (2004). The measures were obtained from Compustat-North America and Center for Research in Security Prices. The dataset was in a longitudinal form from 2000 until 2014. The data was coded in the Statistical Analysis software and the fixed effect panel regressions were run in STATA. The Cox proportional hazard regression was used for running the survival analysis. The final dataset had 742 firms (342 active and 401 inactive firms) and 5,011 observations.

The measures of performance were Tobin's Q (long-term performance) and Return on Assets (short-term performance). The main predictor variables were innovativeness (R&D/total assets), proactiveness (retained earnings/total assets), and risk taking (standard deviation of residuals from running the regression of daily stock returns on the market returns) (Miller & Le-Breton Miller, 2011). Firm failure was measured as the interaction between number of months and the firms' status. The control variables were investment opportunity, firm size, firm age, liquidity, leverage, and systematic risk. The high-tech dummies were included in the Cox regressions and the time dummies in the fixed effect regressions.

Results/Findings (300 words)

The preliminary results revealed that the EO dimensions have differential effects on firm performance, in which it was shown that innovativeness is beneficial on long-term performance ($p < 0.05$), but has a negative effect on short-term performance ($p < 0.001$). Being proactive has an insignificant effect on long-term performance, yet a positive effect on short-term performance ($p < 0.001$). Furthermore, risk taking has a negative effect on long term performance ($p < 0.05$) and an inverse U-shaped relationship with short term performance ($p < 0.001$). EO was shown to have an inverse U-shaped relationship on long term firm performance ($p < 0.05$) as well as short-term performance ($p < 0.001$). It was also revealed that higher values of EO have a negative effect on the two measures of firm performance ($p < 0.01$).

Among inactive firms, it was shown that innovativeness had a positive effect on long-term performance ($p < 0.05$) and a negative effect on short-term performance ($p < 0.001$). Proactiveness had a negative effect on long-term performance ($p < 0.01$) and a positive effect on short-term performance ($p < 0.001$). Risk taking had a negative effect on long-term performance ($p < 0.001$) without the time dummies and an inverse U shaped relationship with short-term performance ($p < 0.01$). EO revealed to have a negative effect on long-term performance ($p < 0.05$) as well as on short-term performance ($p < 0.001$).

As for the survival analysis, it was revealed that innovativeness decreases the risk of firm failure by 5.6 % ($p < 0.05$). Proactiveness increases the risk of firm failure by 65.6 % ($p < 0.001$). Risk taking increases risk of failure by 49.7 % ($p < 0.001$). Finally, EO showed that it increases the risk of firm failure by 62.6 % ($p < 0.001$). It was also shown that firms with a higher level of EO exhibit a higher probability of failure ($p < 0.001$). Finally, it was shown that the firms in the sub-high-tech software industry have a higher probability of failure than the rest of the sample.

Value and Implications (200 words)

The results reveal the hazardous effects of EO on a firm's performance and its survival. This has not been considered in the literature as most of the studies do not include inactive firms in their sample, thereby containing an inherent survivor bias. The results of the study align more with the multi-dimensional conceptualization of EO by Lumpkin and Dess (1996) and reveal that indeed the different dimensions have differential effects, and across long- and short-term performance. Even when examining only a singular form of EO, it was shown to have opposing effects on short-term versus long-term firm performance. Thus, this reveals that studies have been biased since they have relied on short-term measures of firm performance, examined EO-firm performance along a cross-section, and have used summated scales to measure EO which mask the independent effects of each of EO's dimensions. Researchers should thereby rely on objective proxies that allow them to examine the EO-firm performance along a longitudinal timeframe. The implications of the results also give insights to managers on the implications of the dimensions of EO and what may need to be done to beneficially coordinate their effects on short- and long-term firm performance.