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# IS IT A LEMON OR A CHERRY? MARKOV MODELING OF ENTREPRENEURIAL GROWTH AND PROFITABILITY (INTERACTIVE PAPER)

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**INTERACTIVE PAPER**

# IS IT A LEMON OR A CHERRY? MARKOV MODELING OF ENTREPRENEURIAL GROWTH AND PROFITABILITY

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**Principal Topic**

In both the academic literature and popular media, firm growth – especially high growth - is considered a sign of entrepreneurial success. While the existing literature considers firm growth a desirable goal research results on the relationship between growth and profitability is inconclusive. This desirability of growth for young ventures is challenged by Davidsson et al (2008). Their study shows that a high profitability- low growth firm is more likely to make the transition to high profitability – high growth than a firm that starts off with low profitability. Our study expands on the work of Davidsson et al. (2008). Our study is limited to a narrow empirical context – life science ventures in Finland.

**Method**

We use a 2x2 matrix where each firm is positioned as either above or below the LS sector average on growth and profitability; low-low (poor), high-low (growth), low-high (profit), high-high (star). Using Markov chain analysis financial data of 90 small privately held Finnish Biotech firms over three years (2004-2006) was analyzed to estimate the transition *probabilities* between the states over consecutive time periods. Growth is measured as growth in sales, profitability as EBIT. The data consisted of 12 different firm categories, with different strategic orientation ranging from drug development firms to service companies.

**Results and Implications**

Our results concur with those of Davidson et al (2008). The transition probabilities indicate a clustering in two main categories: {star, profit} and {growth, poor}. The probability for a firm in the former category to remain there is over 70%. Whereas a firm in the latter category will remain there has a probability of 56-60%. In fact, a firm focusing on profitability will remain profitable or switch to a star with probability exceeding 80%. A growth-firm has a lower probability to switch into a profit or star than has a poor firm. This evidence suggests that emphasizing growth may be more destructive for a low-profit firm than a more balanced strategy. The strategic orientation of the firm did not impact the results.

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