

## Ithaca 2018 Abstract Submission

### Title

Alpha Returns in Publicly Traded Wine and Spirit Companies Worldwide

### I want to submit an abstract for:

Conference Presentation

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### Keywords

asset pricing, multifactor models, CAPM, abnormal returns, panel data

### Research Question

What are the main determinants of Alpha returns in publicly traded wine and spirit companies worldwide?

### Methods

panel data econometrics

### Results

Determinants: company diversification of products, US dollar skewness, temperature changes below extremes, Google query terms "global warming" and "renewable energy," environmental regulation in the US and changes in oil prices.

### Abstract

The wine and spirit industry is well-established worldwide with several publicly traded traditional firms producing a wide array of alcoholic beverages from wine to sake to champagne and other liquors. The risk-return trade-offs in this industry may be investigated in the framework of the capital asset pricing model (CAPM) of Sharpe (1964), Lintner (1965) and Mossin (1966). We provide empirical evidence on the potential alpha returns of companies in the wine and spirit industry worldwide.

In particular, we provide estimations of alpha returns for a large sample of 414 worldwide public firms in the wine and spirit industry sector. We have an unbalanced panel with quarterly data ranging from 1998q3 to 2017q2 of worldwide publicly traded companies that operate in the spirits production, distribution and related activities, and that include wineries and wine related activities. We estimate alpha returns by subtracting beta returns from well-established traditional and Fama and French (1993, 2004, 2015) three and five factors, and a five factors with an

additional set of firm idiosyncratic financial multiples. We then test hypothesis for a set of potential determinants of alpha returns, including firm diversification of products, the trade weighted US dollar index, variables measuring environmental concerns and weather, controlling for business cycles and time and firm heterogeneity.

The traditional CAPM shows that the expected return of equity  $i$  is related to the expected market premium. In this paper, we focus on estimating forms of the CAPM empirically to obtain estimates of abnormal returns. The standard CAPM can be estimated, using ex-post observed data, thus, it uncovers an estimate of the average abnormal returns of the company. Given the estimated parameters of the model, we subtract the market risk factor to obtain a noisy measure of abnormal returns (alpha).

We proceed to explain the variation of the abnormal returns with a set of company characteristics and aggregate factors relating to potential determinants of firm performance in the wine and spirit industry. We estimate regressions using Newey-West standard errors to adjust for the noise of the predicted abnormal returns.

We repeat the procedure for the Fama-French 3-factor model including value and size, the Fama-French 5-factor model adding profitability and investment, and a version of the Fama-French 5-factor model adding 4 idiosyncratic multiples of the firm, price to earnings ratio, EV/EBITDA, financial leverage and return on equity.

All absolute variables are denominated in US dollars. The variable `prem_co` is the quarterly return of the stock minus the three month US Treasury return, or the company stock market premium. `prem_sp500` is the return on the US S&P500 largest companies minus the three month US Treasury return, or the market stock market premium. The next variables are obtained directly from Kenneth French's data library and represent Fama and French (1993, 2004, 2015) factors for size (`smb`), value (`hml`), profitability (`rmw`), and investment (`cma`). The variable `complexity~x` is the compiled complexity index, where the median firm has about 3 activities and the standard deviation is about 2 activities. The wine variable is 1 if the company is in the wine business and we note that about 54% of the companies in our sample are in the wine business.

The next four variables refer to the trade weighted US dollar index from FRED. A higher (lower) value of the index indicates an appreciation (depreciation) of the dollar. This is a weighted average of the foreign exchange value of the US dollar against the Euro Area, Canada, Japan, United Kingdom, Switzerland, Australia, and Sweden. The moments refer to samples of rates of change of daily observations (FX) within each quarter: `_mean` is the average, `_sd` is the standard deviation, `_skewness` is the third moment and `_kurtosis` is the fourth moment.

The next set of variables refer to environmental concern and weather. First, we have quarterly averages of the weekly Google compilations of frequency of terms in the subject of environmental concerns. `term_clim_ch` is the term "climate change," `term_glo_w~g` is the term "global warming," and `term_renew~y` is the term "renewable energy." The variable `ch_temp_be~w` is from the National Centers for Environmental Information (NOAA) and is an indicator of occurrences of temperatures that are much below normal (outside the 10th percentile value) over a period of record. Finally, the variable `f_RGL` is a dynamic factor estimation of three indicators of regulation stringency in the US: number of enforcement cases on civil cleanup, the Clean Air Act and the Clean Water Act.

We find that robust determinants of alpha returns in the wine and spirit industry worldwide across all models with well-established beta factors are company diversification of products, US dollar skewness, temperature changes to low extremes, Google query terms "global warming" and "renewable energy," environmental regulation in the US and changes in oil prices. The companies that are in the wine business command a relative negative alpha return and this effect is mitigated the more diversified the company is. Companies in the wine business that are more diversified are also more sensitive to the skewness of the US dollar and to the Google query term "global warming." The models with well-established beta factors plus idiosyncratic financial multiples of the firm confirm the effects of temperature changes to low extremes, Google query terms "global warming" and "renewable energy," environmental regulation in the US and changes in oil prices on abnormal returns.