Big Data and AI Strategies

Does earnings call sentiment contain dividend signals?

Global Quantitative and Derivatives Strategy

Peng Cheng, CFA AC
(1-212) 622-5036
peng.cheng@jpmorgan.com
J.P. Morgan Securities LLC

Rahul Dalmia
(91-22) 6157 3294
rahul.dalmia@jpmorgan.com
J.P. Morgan India Private Limited

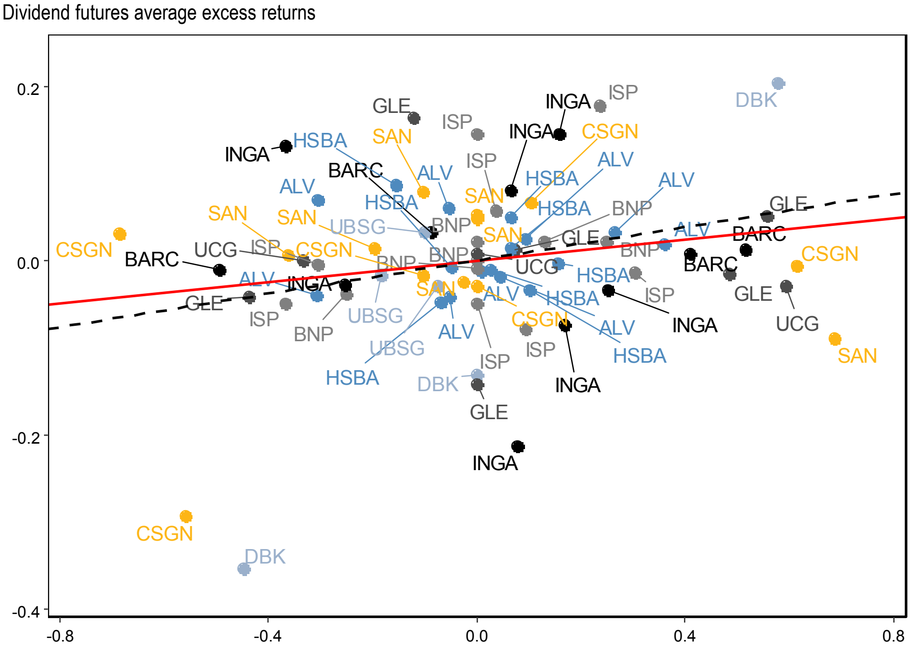
Thomas J Murphy, PhD
(1-212) 270-7377
thomas.x.murphy@jpmorgan.com
J.P. Morgan Securities LLC

Marko Kolanovic, PhD
(1-212) 272-1438
marko.kolanovic@jpmorgan.com
J.P. Morgan Securities LLC

- In this report, we examine whether sentiment information extracted from earnings call transcripts carry any predictive power on company fundamentals.
- Specifically, we focus on the sentiment on capital returns and its impact on subsequent dividend futures returns, using novel, alternative data sets.
- Our analysis shows that the effects of management sentiment appear to be moderately significant on dividend futures returns in both statistical and economic terms.
- Using more sophisticated statistical techniques, we also examine the individual effects on a single name basis.

Relationship obtained from hierarchical regression model

Dividend futures average excess returns



Source: J.P. Morgan

Change in sentiment

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Introduction

Management discussions on earnings calls form an important part of fundamental analysis. In this report, we examine whether sentiment information extracted from earnings call transcripts carry any predictive power on company fundamentals. Specifically, we focus on the sentiment on capital returns and its impact on subsequent dividends, using novel, alternative data sets.

Data

We obtain the earnings call sentiment data from Accrete, a data provider that analyzes earnings transcripts and extracts sentiment information based on certain keywords, or concepts[1]. Currently, its product, known as Topic Delta, covers US equities in most sectors. However, the data coverage of the Financials sector extends to major European banks and insurers since 2013. On every earnings call, a sentiment score ranging from -1 to +1 is produced for each concept. The score can be thought of as the ratio between positive and negative words associated with the concept on an earnings call. For banks, the concepts include general ones such as capital returns as well as industry specific ones such as loan growth, capital adequacy, etc.

For the purpose of the study, we are interested in the sentiment scores on capital returns for European Financials. Among them, we narrow down to names with relatively liquid dividend futures, including **Allianz, Barclays, BNP, Credit Suisse, Deutsche Bank, HSBC, ING, Intesa, Santander, SocGen, UBS, and Unicredit**. Since European banks tend to provide dividend guidance mainly on half year and full year results, we take the observations from those earnings calls only.

Figure 1 shows the distribution of sentiment scores across all of the banks. We observe an absence of extreme values and the mode of the distribution to be around 0.30, indicating that management sentiment on capital returns are generally conservative and skewed positively. Figure 2 shows the change in sentiment from the previous period. The distribution is much more normalized, with a roughly symmetric shape and a mean of around 0. These are also properties shared by asset return distributions. Therefore we will study the impacts of <u>changes</u> in sentiment on subsequent dividend futures returns.

[1] For more information, see www.accrete.ai

Figure 1: Distribution of capital returns sentiment scores

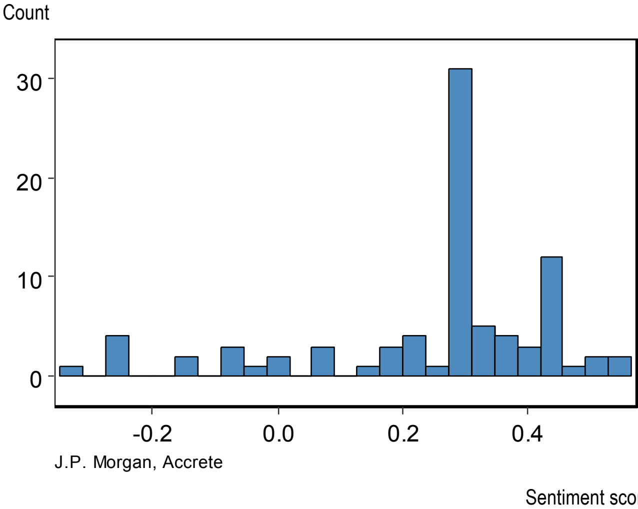

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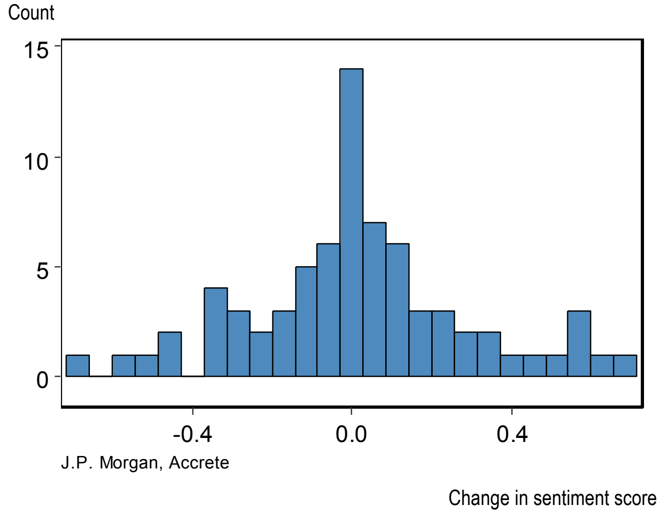
Figure 2: First difference of capital returns sentiment scores



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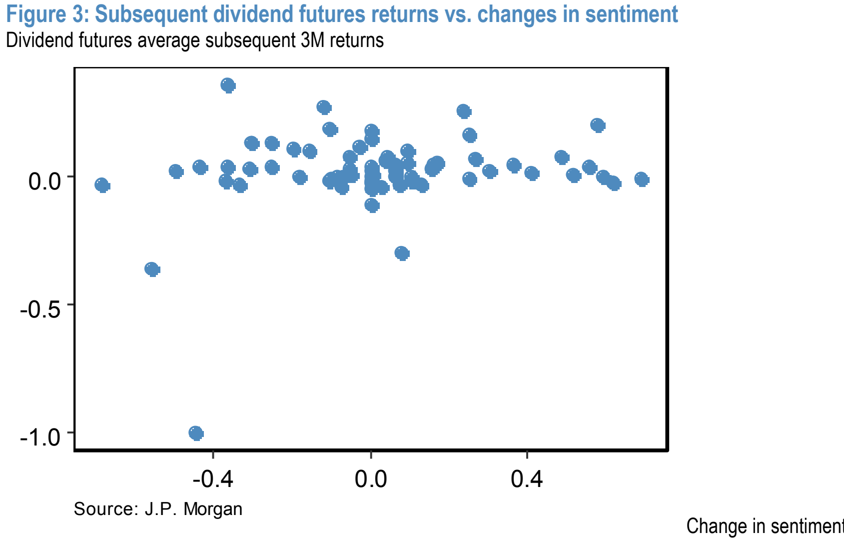
The reason for looking at dividend futures, rather than underlying equities, is that dividend futures represent a pure exposure to the capital return policy of a company, particularly for European companies which overwhelmingly rely on dividends for capital returns. Moreover, dividend futures are tradeable instruments and therefore reflect to actual market expectations on capital returns. In contrast, equity returns tend to be noisy, and as a result, may obscure the relationship that we are interested in.

We take the single stock dividend futures returns of the Financial names and compute the average of the subsequent 3-month returns of 2nd and 3rd year dividend futures (lagged by one day) following each earnings call, and pair with the change in sentiment score. The reason for averaging the dividend futures returns is to eliminate the timing risk from the dividend futures returns. Figure 3 shows the scatter plot of the two variables. In total, we have 70 observations across 12 equity tickers.

Figure 3: Subsequent dividend futures returns vs. changes in sentiment



Source: J.P. Morgan

Analysis and Results

As discussed above, we are interested in the effect of changes in capital returns sentiment on subsequent dividend futures returns. The following regression is specified:

$$div3M_i = \alpha + \beta_1 \cdot \mathrm{SentChg_i} + \beta_2 \cdot stk3M_i + \epsilon_i \tag{1}$$

Where the y variable is the average subsequent 3M returns of dividend futures (lagged by one day), and the x variables are changes in sentiment and 3M underlying stock returns. The 3M stock returns are taken over the same period as the dividend futures returns. The variable acts as a control to account for any other factors that could impact dividend futures returns.

The regression results are presented in Table 1. As we can see, the beta for SentChg is significant at the 90% confidence level. It has a value of 0.1, meaning for every 1.0 change in sentiment, the dividend futures return changes by 10%. The standard deviation of SentChg is approximately 0.29, implying that the range of impact on the 3M returns of dividend futures are likely to be within +/-5.8% as a result of changes in sentiment (we take two standard deviations, i.e. $2 \cdot StDev \cdot \beta = 2 \cdot 0.29 \cdot 0.10 = 0.058$). We find **the effects of management sentiment appear to be moderately significant on dividend futures returns in both statistical and economic terms.**

Table 1: Regression results from OLS model (1)

Variable	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.01	0.018	-0.4	66%
SentChg	0.10	0.058	1.7	10%
Stk3M	0.70	0.141	5.0	0%

Adj R2 = 0.27

Source: J.P. Morgan

We note that our dataset has a couple of features which warrants further analysis: The number of observations is relatively small, and can be naturally partitioned into groups (i.e. by ticker). To gain further insights into relationships at the individual company level, we run a similar regression using a hierarchical specification:

$$div3M_i = \alpha_j + \beta_{1j} \cdot \mathrm{SentChg_i} + \beta_{2j} \cdot stk3M_i + \epsilon_i \tag{2}$$

Where:

$$\alpha_j \sim \mathrm{N}(\mu_0, \sigma_0) \tag{3}$$

$$\beta_{1j} \sim \mathrm{N}(\mu_1, \sigma_1) \tag{4}$$

$$\beta_{2j} \sim \mathrm{N}(\mu_2, \sigma_2) \tag{5}$$

Note that we allow the regression coefficients to vary at the company level, denoted by j, while at the same time stay related by the distribution assumptions (3) – (5).

Peng Cheng, CFA
(1-212) 622-5036
peng.cheng@jpmorgan.com

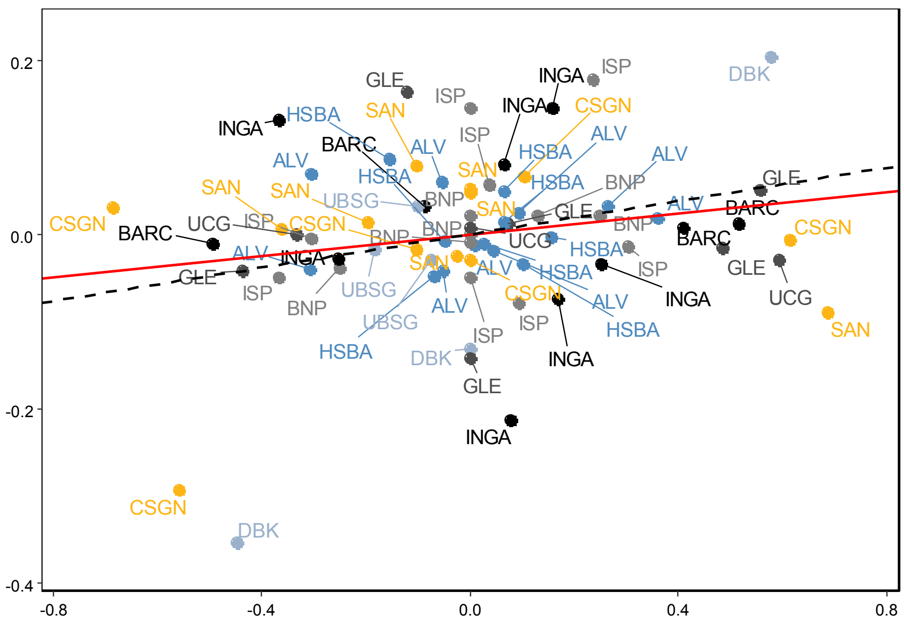
The coefficients produced by this model are in essence a weighted average between pooled and individual regressions[2].

Why don't we simply run a separate regression for each ticker? The reason is that we have relatively few observations for some of the groups. Running separate regressions would likely in result in severe overfitting as a result.

The results from our hierarchical regression are shown in Figure 4 and Figure 5. In Figure 4, the dashed line represents the regression line obtained from the OLS (1), and the red line represents μ_1, i.e. the average of β_{1j}. The coefficients from the two models show the same signs, and are relatively close to each other in terms of magnitude.

Figure 4: Overall relationship obtained from hierarchical regression model (2)

Dividend futures average excess returns



Source: J.P. Morgan

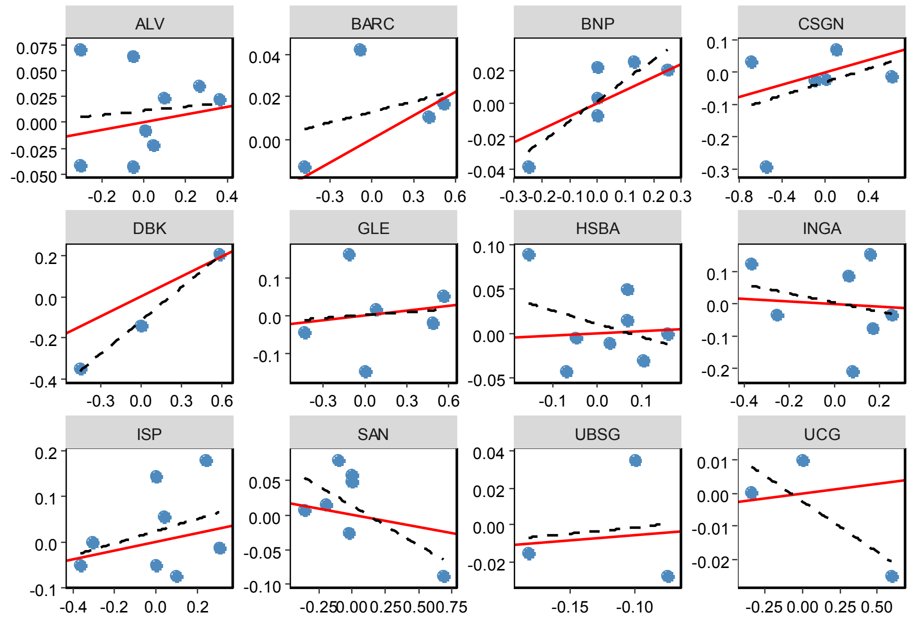
Change in sentiment

In Figure 5, the red lines are the individual regression coefficients (β_{1j}) obtained from our hierarchical regression (2), and the dashed lines are the best fit lines based on separate regressions per individual tickers. We note a couple of interesting observations: the slopes of the hierarchical regressions are in general flatter than the individual regressions. This is due to the shrinkage towards the pooled regression. In particular, hierarchical regression corrected the slopes for HSBA and UCG from negative to positive. Table 2 shows the values of β_{1j} and μ_1, which are positive and consistent for most names.

[2] See A Guide to Econometrics, P. Kennedy, 2003 MIT Press and Data Analysis Using Regression and Multilevel/Hierarchical Models, A. Gelman and J. Hill, 2007, Cambridge University Press

Figure 5: Overall relationship obtained from hierarchical regression model by ticker (2)

Dividend futures average excess returns



Source: J.P. Morgan

Table 2: Regression coefficients from model (2)

Ticker	β_1
ALV	0.039
BARC	0.036
BNP	0.079
CSGN	0.106
DBK	0.334
GLE	0.039
HSBA	0.023
INGA	(0.042)
ISP	0.099
SAN	(0.042)
UBSG	0.058
UCG	0.005
Average	0.062

Source: J.P. Morgan

Conclusion

In this report we explore the information contained in earnings call sentiment using novel, alternative data sets. Specifically we look at the relationship between sentiment on capital returns and the subsequent dividend futures returns. Our analysis shows that the effects of management sentiment appear to be moderately significant on dividend futures returns in both statistical and economic terms. Using more sophisticated statistical techniques, we also find that the effects are generally consistent across single names.

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