Seeking Alpha α

A Portfolio Of Long/Short Pairs Based On Pay For Performance

Jul. 19, 2017 11:32 AM ET2 comments
by: Stephen O'Byrne

Summary

- Long/short pairs selected based on pay for performance.
- 15 long/short pairs, matched by sub-industry and size, with predicted annualized excess return differences of 9%+.
- In general, our long positions have strong incentives and moderate pay premiums at industry average performance, while our short positions have weak incentives and high pay premiums at industry average performance.
- But our matching strategy highlights some unexpected opportunities, e.g., a high-paying company with strong incentives that matches attractively with another high-paying company with very weak incentives.

Most investors believe that management incentives matter a lot, but few investors incorporate any quantitative analysis of management incentives in their buy and sell decisions.

In this paper, we provide a step-by-step illustration of a long/short investment strategy based on pay for performance analysis. We present 15 long/short pairs, matched by sub-industry and size, with predicted annualized excess return differences of 9%+. In general, our long positions have strong incentives and moderate pay premiums at industry average performance, while our short positions have weak incentives and high pay premiums at industry average performance.

But our matching strategy highlights some unexpected opportunities that aren't apparent in individual company governance analysis, e.g., a high-paying company with strong incentives that matches attractively with another high-paying company with very weak incentives.

We show how to:

1. Measure the three dimensions of pay for performance, i.e., incentive strength, alignment and performance-adjusted cost, using 10 years of historical CEO pay data,
2. identify and adjust for small sample problems that can make historical pay measures poor proxies for their future values,
3. identify the range of incentive strength that contributes to excess returns, unmask pay premiums hidden by ineffective pay leverage and quantify the trade-off between pay leverage and pay premium,
4. correct for the upward bias in historical pay leverage that occurs when the industry component of the stock return is small,
5. select long/short pairs that are matched by sub-industry and size to reduce exposure to other risks, and
6. rank the long/short pairs by predicted excess return difference.

After presenting the investment strategy, we provide some corporate governance background to help persuade skeptical investors that our insights from historical pay data may not be fully reflected in current prices. We show that:

1. The measures companies use to communicate with investors - percent of pay at risk and target pay percentile – are not meaningful measures of incentive strength or performance-adjusted cost and explain only 1% of the variation in ten-year relative

TSR (vs. 8% for our measures *after* adjusting for the upward bias in pay leverage caused by the percent excess return),

2. the measures used by the leading proxy advisor ISS – relative degree of alignment, multiple of median and pay-TSR alignment – don't capture incentive strength or alignment, and only provide three poor proxies for performance-adjusted cost, and

3. major institutional investors show some awareness of the importance of pay leverage, but they don't publicize their view of the correct ways to measure pay leverage and performance-adjusted cost and they make no effort to encourage their portfolio companies to measure and disclose incentive strength and performance-adjusted cost.

We conclude with several ideas of how the strategy might be refined.

15 LONG/SHORT PAIRS BASED ON PAY FOR PERFORMANCE ANALYSIS

Table 1 shows 15 long/short pairs ranked by the difference between the predicted excess returns of the long and short positions. The paired companies are in the same GICS sub-industry and have differences in revenue no greater than 3x.

Table 1: 15 Long/Short Pairs Based on Pay for Performance Analysis

Predicted Return Rank	Long Position	Ticker	Short Position	Ticker	GICS Sub-industry	Sales of Long Company ($mil)	Sales of Short Company ($mil)
1	C H ROBINSON WORLDWIDE INC	CHRW	EXPEDITORS INTL WASH INC	EXPD	Air Freight & Logistics	13,144	6,098
2	WINTRUST FINANCIAL CORP	WTFC	TCF FINANCIAL CORP	TCB	Regional Banks	1,134	1,397
3	MARATHON OIL CORP	MRO	EOG RESOURCES INC	EOG	Oil & Gas Exploration & Productior	4,031	7,363
4	STEPAN CO	SCL	SENSIENT TECHNOLOGIES CORP	SXT	Specialty Chemicals	1,769	1,383
5	ESSEX PROPERTY TRUST	ESS	AMERICAN CAMPUS COMMUNITIE	ACC	Residential REITs	1,365	792
6	TAUBMAN CENTERS INC	TCO	NATIONAL RETAIL PROPERTIES	NNN	Retail REITs	682	534
7	INTL PAPER CO	IP	WESTROCK CO	WRK	Paper Packaging	21,079	14,278
8	BASSETT FURNITURE INDS	BSET	ETHAN ALLEN INTERIORS INC	ETH	Home Furnishings	433	804
9	SOUTHWEST GAS HOLDINGS INC	SWX	UGI CORP	UGI	Gas Utilities	2,460	5,728
10	DANAHER CORP	DHR	ABBOTT LABORATORIES	ABT	Health Care Equipment	16,882	20,853
11	PNM RESOURCES INC	PNM	ALLIANT ENERGY CORP	LNT	Electric Utilities	1,363	3,320
12	ROCKWELL COLLINS INC	COL	CURTISS-WRIGHT CORP	CW	Aerospace & Defense	5,298	2,109
13	HAYNES INTERNATIONAL INC	HAYN	CASTLE (A M) & CO	CASL	Steel	409	533
14	LENNOX INTERNATIONAL INC	LII	NCI BUILDING SYSTEMS INC	NCS	Building Products	3,642	1,693
15	AMETEK INC	AME	HUBBELL INC	HUBB	Electrical Components & Equipme	3,840	3,505

Source: Shareholder Value Advisors

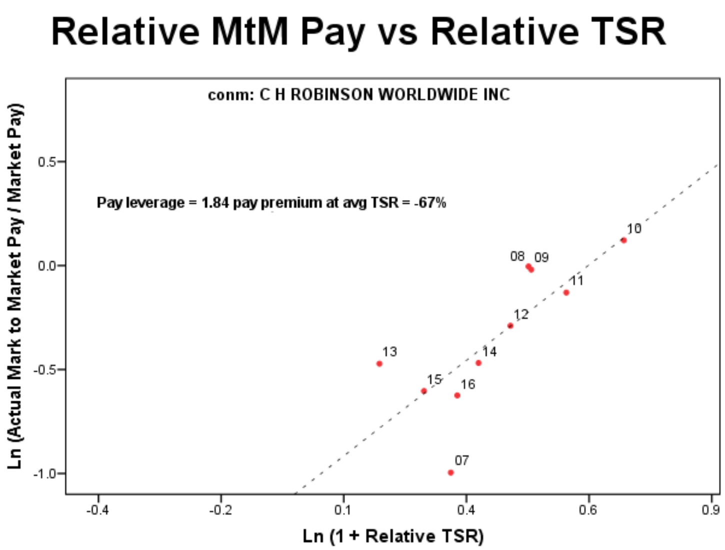
The predicted excess returns are based on pay leverage and performance-adjusted cost measured over the period 2007-2016.

HOW WE MEASURE INCENTIVE STRENGTH, ALIGNMENT AND PERFORMANCE-ADJUSTED COST

Figure 1 shows our historical CEO pay for performance analysis for C H Robinson, while Figure 2 shows our historical CEO pay for performance analysis for Expeditors International. Both graphs plot relative pay on the vertical axis against relative TSR on the horizontal axis, using log scales for both pay and performance.

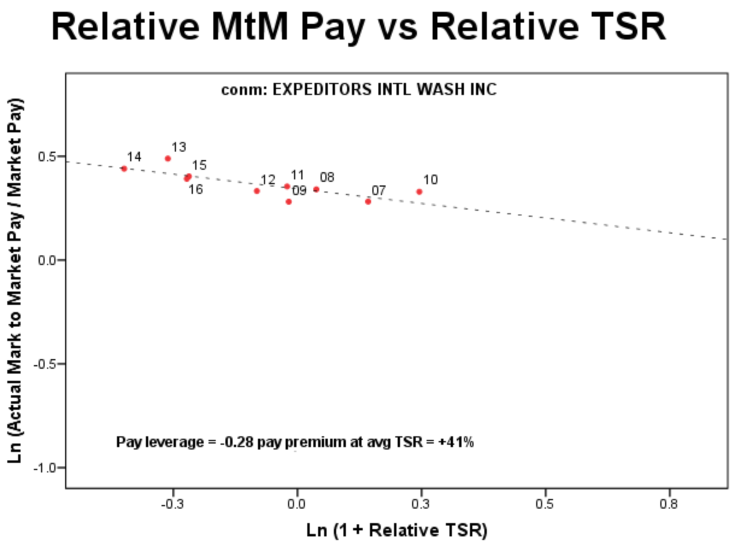
Relative pay is [cumulative actual pay / cumulative market pay] where actual pay is measured on a “mark to market” basis and market pay is average pay for position, industry and company revenue size.[i] Relative TSR is [(1 + TSR) / (1 + industry TSR)] - 1 where industry TSR is the market weighted return of S&P 1500 companies in the company’s GICS industry, adjusted for the company’s “industry beta.” Our recent Seeking Alpha piece on Pay for Performance at S&P 1500 Companies (Pay For Performance At S&P 1500 Companies) explains our methodology in more detail.

Figure 1



Source: Shareholder Value Advisors

Figure 2



Source: Shareholder Value Advisors

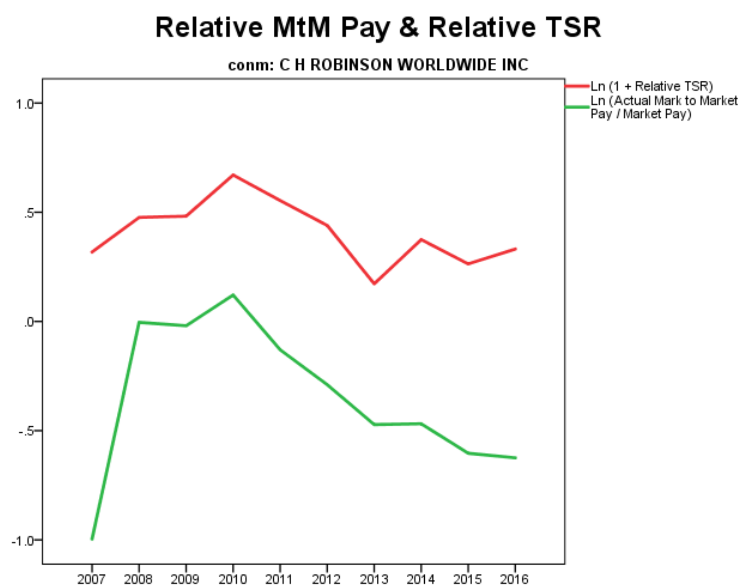
The regression trendline in each graph quantifies three dimensions of pay for performance. The slope of the line is a measure of incentive strength, what we call "pay leverage." The correlation is a measure of "pay alignment" and the intercept is a measure of performance-adjusted cost, i.e., the ln pay premium at industry average performance. Since we use log scales for relative pay and relative performance, pay leverage is the percent change in pay associated with a 1% change in relative shareholder wealth.[ii]

C.H. Robinson's (NASDAQ:CHRW) pay leverage of 1.84 implies that a 1% change in relative shareholder wealth increases relative pay by 1.8%, while Expeditors' International's (NASDAQ:EXPD) pay leverage of -0.28 implies that a 1% change in relative shareholder wealth reduces relative pay by 0.3%. C H Robinson's pay alignment (r-sq) is 60%.

This means that relative performance explains 60% of the variation in relative pay over the ten years. Expeditors' International's pay alignment (r-sq) is 0% since we don't consider relative pay "explained" by a negative relationship with relative performance. C H Robinson's percentage pay premium at industry average performance is -67%, while Expeditors' International's pay premium at industry average performance is +41%.[iii]

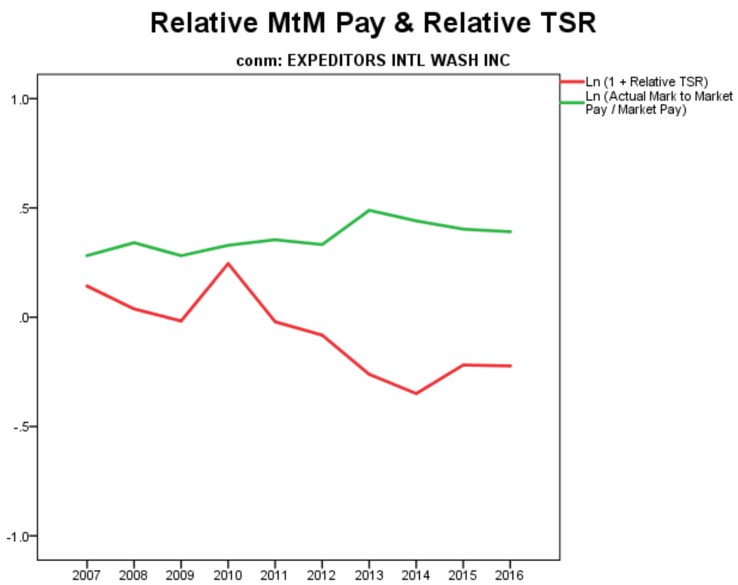
Figures 3 and 4 show relative pay and relative TSR in a time series format. The red line in both graphs is ln (1 + relative TSR) and we can see that both C H Robinson and Expeditors International suffered declining relative performance over the ten years 2007-2016. The green line in both graphs is ln relative pay and we can see that C H Robinson's relative pay declined as its relative performance was declining, while Expeditors International's relative pay increased as its relative performance was declining. This is why C.H. Robinson has substantial positive pay leverage of 1.84, while Expeditors International has negative pay leverage of -0.28.

Figure 3



Source: Shareholder Value Advisors

Figure 4



Source: Shareholder Value Advisors

PAY MEASURES AND PREDICTED EXCESS RETURNS FOR THE LONG/SHORT PAIRS

Table 2 shows historical pay leverage, pay alignment and the pay premium at industry average performance for all 30 companies in the top 15 long/short pairs. The median pay leverage of the 15 long positions is 1.31, while the median pay leverage of the 15 short positions is negative, -0.12. The median alignment (r-sq) of the 15 long positions is 71%, while the median alignment (r-sq) of the 15 short positions is 0%. The median percentage pay premium at industry average performance of the 15 long positions is -29%, while the median percentage pay premium of the 15 short positions is +90%.

Table 2: Historical Pay Leverage and Performance Adjusted Cost for 15 Long/Short Pairs

Predicted Return Rank	Long Company Ticker	Short Company Ticker	Long Pay Leverage	Long Pay Alignment (r-sq)	Long Percent Pay Premium at Industry Average Perfor-mance	Short Pay Leverage	Short Pay Alignment (r-sq)	Short Percent Pay Premium at Industry Average Perfor-mance
1	CHRW	EXPD	1.84	60%	-67%	-0.28	0%	41%
2	WTFC	TCB	1.89	71%	-58%	-1.18	0%	-23%
3	MRO	EOG	0.92	63%	-21%	0.38	26%	129%
4	SCL	SXT	0.86	80%	-50%	-0.41	0%	172%
5	ESS	ACC	1.57	81%	-38%	-0.08	0%	90%
6	TCO	NNN	1.54	34%	1%	-0.12	0%	141%
7	IP	WRK	0.98	55%	70%	0.21	15%	121%
8	BSET	ETH	0.94	88%	-53%	-0.26	0%	-11%
9	SWX	UGI	1.20	50%	36%	0.33	9%	139%
10	DHR	ABT	3.38	83%	-29%	-1.03	0%	141%
11	PNM	LNT	1.63	75%	116%	-0.49	0%	58%
12	COL	CW	0.84	44%	75%	-2.41	0%	56%
13	HAYN	CASL	1.22	67%	-66%	0.09	24%	-59%
14	LII	NCS	1.57	89%	-63%	0.36	74%	193%
15	AME	HUBB	1.31	86%	0%	0.21	49%	88%
	Median		1.31	71%	-29%	-0.12	0%	90%

Source: Shareholder Value Advisors

Each company's predicted excess return is based on pay leverage and performance-adjusted cost after adjusting for pay leverage values with low statistical significance, the limited pay leverage range [0,1] that affects historical excess returns and the bias created by the historical percent excess return. Table 3 shows the predicted excess return, adjusted pay leverage and adjusted percentage pay premium for the each of the 30 companies in the top 15 long/short pairs.

The formula for the predicted value of ln(1 + 10 year relative TSR) is -0.55 + 1.14 x pay leverage – 0.34 x ln pay premium.[iv] Our analysis of the S&P 1500 identified 48 additional pairs – within the 1,092 companies with 2016 proxy data - that have predicted excess return differences of 4%+.

Table 3: Adjusted Pay Leverage & Predicted Excess Returns for 15 Long/Short Pairs

Predicted Return Rank	Long Company Ticker	Short Company Ticker	Predicted Annual Return Difference: Long - Short	Long Predicted Annual Excess Return	Long Pay Leverage Adjusted for Effective Range & Percent Excess Return	Long Adjusted Percent Pay Premium at Industry Average Perfor-mance	Short Predicted Annual Excess Return	Short Pay Leverage Adjusted for Effective Range & Percent Excess Return	Short Adjusted Percent Pay Premium at Industry Average Perfor-mance	Long Percent Excess Return	Short Percent Excess Return
1	CHRW	EXPD	14.7%	8.2%	0.95	-52%	-6.5%	0.00	44%	37%	-38%
2	WTFC	TCB	13.6%	8.4%	0.97	-52%	-5.2%	0.00	-4%	31%	-13%
3	MRO	EOG	13.4%	6.8%	1.00	-18%	-6.7%	0.15	148%	-100%	72%
4	SCL	SXT	13.2%	5.0%	0.73	-46%	-8.2%	0.00	141%	100%	84%
5	ESS	ACC	12.4%	6.2%	0.90	-31%	-6.2%	0.10	79%	47%	53%
6	TCO	NNN	12.1%	5.0%	0.95	14%	-7.1%	0.08	120%	10%	71%
7	IP	WRK	12.0%	4.2%	1.00	71%	-7.8%	0.05	155%	-67%	100%
8	BSET	ETH	11.8%	7.9%	0.92	-53%	-3.9%	0.13	-2%	57%	-59%
9	SWX	UGI	11.5%	5.1%	1.00	30%	-6.4%	0.17	144%	-43%	74%
10	DHR	ABT	11.4%	4.2%	0.88	15%	-7.3%	0.00	80%	48%	29%
11	PNM	LNT	11.2%	4.6%	1.00	52%	-6.6%	0.00	46%	-100%	54%
12	COL	CW	10.5%	3.5%	0.96	77%	-7.0%	0.00	66%	-90%	22%
13	HAYN	CASL	10.1%	9.7%	0.97	-66%	-0.4%	0.23	-51%	4%	-100%
14	LII	NCS	9.9%	5.1%	0.79	-35%	-4.7%	0.51	362%	92%	-100%
15	AME	HUBB	9.7%	3.2%	0.84	31%	-6.5%	0.09	95%	76%	69%
	Median		11.8%	5.1%	0.95	-18%	-6.5%	0.08	80%	31%	53%

Source: Shareholder Value Advisors

Table 3 shows that our matching strategy highlights some unexpected opportunities. Rockwell Collins is a good example. It has a 77% pay premium at industry average performance, so it's an unlikely candidate for outstanding pay for performance. Its pay leverage of 0.96 gives it a positive predicted excess return of 3.5%, but that's the second lowest of the 15 long positions. It makes our list because it's an attractive match up with Curtiss-Wright (NYSE:CW), which has a similar pay premium, but zero pay leverage.

CORRECTING FOR SMALL SAMPLE PROBLEMS

Our pay for performance trendlines are based on only ten observations, so they can suffer from three small sample problems that will make historical pay leverage and performance-adjusted cost poor proxies for their future values. The three problems are low statistical significance, influential observations and time trends. When pay leverage is not statistically significant at the conventional 5% level, i.e., the “t-stat” is less than 1.96, we use a weighted average of calculated pay leverage and industry average pay leverage, giving more weight to industry average pay leverage as the t-stat declines.[v]

Once we adjust pay leverage, we recalculate the pay premium at industry average performance.[vi] None of the 15 long positions have low statistical significance, but ten of the 15 short positions have low statistical significance and our adjustments for low statistical significance increase the average pay leverage of the 15 shorts from -0.31 to -0.17.

An “influential” observation is a single observation that materially changes measured pay leverage. A systematic search for influential observations requires ten re-calculations of pay leverage, each one excluding one of the ten observations used for the basic pay leverage calculation. For this paper, we use a simpler methodology to identify companies with influential observations and then exclude the worst 10% of companies from consideration for the long/short pairs.[vii]

A time trend exists when pay leverage or the pay premium at industry average performance varies with time. We test for time trends by running two factor regressions. To test for a pay leverage time trend, we use time x ln(1 + relative TSR) as a second explanatory variable. To test for a pay premium time trend, we use time as a second explanatory variable. To measure the significance of the time trend, we calculate the difference in predicted excess return with and without taking account of the time trend. We exclude companies from consideration for the long/short pairs if the change in predicted excess return falls in the worst 5% of companies.

IDENTIFYING THE RANGE OF INCENTIVE STRENGTH THAT AFFECTS EXCESS RETURN

Our goal is to select long/short pairs based on (1) the likely values of future pay factors and (2) the likely relationship between future pay factors and future excess return. We use the relationship between contemporaneous excess return and current pay factors as a proxy for the relationship between future excess return and future pay factors.

Our expectation is that incentive strength and alignment have positive impacts on returns, while a higher pay premium at industry average performance has a negative impact. Alignment (r-sq) is bounded by zero and one and we expect all increases in alignment to have a positive impact on returns. But pay leverage ranges from -1.98 at the 1st percentile to 4.31 at the 99th percentile. We expect positive pay leverage to increase returns, but we don't know whether negative pay leverage reduces returns nor whether incremental pay leverage has no benefit above some level.

Similarly, we expect positive pay premiums at industry average performance to have a negative impact on returns, but we don't know whether negative pay premiums will have a positive impact on returns or a neutral impact because the financial benefit of below market pay is offset by a productivity cost due to limited ability to recruit top talent. Finally, we don't know the trade-off between pay leverage and pay premium. Is the positive impact of a .01 increase in pay leverage sufficient to offset the negative impact of a 1% increase in the pay premium?

To answer these questions about effective ranges and trade-offs, we developed a regression model of 10-year relative return as a function of the three pay for performance dimensions, i.e., pay leverage, pay alignment and performance-adjusted cost. The sample is 1,553 ten-year periods for S&P 1500 companies. The sample represents the latest available ten-year period with complete data for the companies in Execucomp.[viii] For 70% of the sample, the last year of the ten-year period is 2016. For the remaining companies, we use a ten-year period ending before 2016.

The dependent variable is ln(1 + relative TSR) where relative TSR is adjusted for industry beta. The independent variables are pay alignment (r-sq), pay leverage, and the pay premium at industry average performance. All four variables are “winsorized,” that is, truncated at the 1st and 99th percentiles.

The three pay factors explain 15.0% of the variation with a standard error of 1.06. The regression equation is:

Predicted ln(1 + 10 year relative TSR) =

-0.73 + 0.25 x pay leverage + 0.76 x pay alignment – 0.19 x ln pay premium

All three pay factors are highly significant, based on conventional measures of statistical significance.[ix] A similar regression without adjusting pay leverage for low statistical significance explains 13.6% of the variance in ln(1 + relative TSR), as shown in Table 4.

Before we consider restricting the range of pay leverage, it’s important to understand how pay leverage converts the gross pay premium into performance-adjusted cost. The pay for performance trendline implies that the ln pay premium at industry average performance = mean ln relative pay – [pay leverage x mean ln(1 + relative TSR)].[x] In words, the performance-adjusted pay premium is the gross pay premium minus pay leverage times the mean excess return.

If mean ln(1 + relative TSR) is 0.50, pay leverage of 2.0 makes the performance-adjusted ln pay premium 1.0 less than the gross ln pay premium, while pay leverage of 1.0 makes the performance-adjusted ln pay premium only 0.5 less than the gross ln pay premium. When we restrict pay leverage to a range where it's correlated with ln(1 + relative TSR), we use the formula above to re-compute the pay premium at industry average performance.

If, as we show below, pay leverage above 1.0 has no discernable impact on returns, then a company with pay leverage of 2.0 and a mean ln(1+relative TSR) of 0.50 has a ln pay premium at effective pay leverage that is 0.5 greater than its regression pay premium.

The scatterplot of ln(1 + relative TSR) vs. pay leverage shows little positive relationship when pay leverage is below zero or above 1. To test the contribution of negative pay leverage, we truncate pay leverage at zero, re-calculate the pay premium at industry average performance for the companies with adjusted leverage and re-run the regression of ln(1 + relative TSR) on pay leverage, pay alignment and the pay premium at industry average performance.

Table 4 shows that truncating pay leverage at zero increases the r-squared from 15.0% to 16.1%. This tells us that negative pay leverage is just “noise” with no explanatory power for excess returns. Next, we truncate pay leverage on the upper end at 2, re-calculate the pay premium at industry average performance for the companies with adjusted pay leveraged and re-run the regression. This restriction on pay leverage increases the r-squared from 16.1% to 18.8%, as Table 4 shows.

This tells us that pay leverage above 2 is just noise with no explanatory power for excess returns. Two more passes show that restricting pay leverage to [0,1.5] increases the r-squared from 18.8% to 20.1% and further restricting pay leverage to [0,1] increases the r-squared from 20.1% to 21.3%, as Table 4 shows.

Table 4 shows that restricting the range of pay leverage raises the coefficient on pay leverage and reduces the coefficient on pay alignment (r-sq). For example, when pay leverage is truncated at [0,2], the coefficient on pay leverage is 0.61 and the coefficient on pay alignment (r-sq) is 0.42. But when pay leverage is truncated at [0,1], the coefficient on pay leverage is 1.39 and the coefficient on pay alignment (r-sq) is 0.08 with a t-stat of only 0.71.

Once we restrict the range of pay leverage to [0,1], pay alignment (r-sq) provides no additional information, so we can reduce our excess return model to a two-factor model, using only pay leverage and the pay premium at industry average performance.

Our model assumes that the positive effect of a negative ln pay premium of -0.2 is equal in absolute value to the negative effect of a positive ln pay premium of +0.2. We tested the validity of this assumption by adding an additional variable for the positive pay premium and found that there is no statistically significant difference in the impact of positive and negative ln pay premiums.

The last two regressions reported in Table 4 document the importance of checking for small sample problems. The second to last regression shows that the r-squared increases from 21.3% to 23.5% when we exclude the top 10% of companies on three measures of “outlier distance” (for mark to market pay, grant date pay and the first year of mark to market pay). The last regression shows that the r-squared increases from 23.5% to 23.6% when we also exclude the top 5% of companies based on time trend significance. We exclude all of these companies, 32% of the total sample, when we select the long/short pairs.

Table 4: Measure Refinements and Their Impact on Variance Explained in Ln (1 + Relative TSR)

Variance In Ln (1 + Relative TSR) Explained	Explanatory Variables	Coefficients: Constant	Pay Leverage	Pay Alignment	Pay Premium	Sample Size
1.1%	Average percent of pay at risk, average grant date pay premium					
13.6%	Pay leverage, pay alignment, pay premium at industry average performance	-0.70	0.22	0.78	-0.12	1,553
15.0%	Pay leverage, pay alignment, pay premium at industry average performance with pay leverage adjusted for low statistical significance	-0.73	0.25	0.76	-0.19	1,553
16.1%	Pay leverage, pay alignment, pay premium at industry average performance with pay leverage adjusted for low statistical significance and truncated at zero	-0.76	0.30	0.74	-0.22	1,553
18.8%	Pay leverage, pay alignment, pay premium at industry average performance with pay leverage adjusted for low statistical significance and truncated at [0,2]	-0.84	0.61	0.42	-0.24	1,553
20.1%	Pay leverage, pay alignment, pay premium at industry average performance with pay leverage adjusted for low statistical significance and truncated at [0,1.5]	-0.91	0.86	0.25	-0.25	1,553
21.3%	Pay leverage, pay alignment, pay premium at industry average performance with pay leverage adjusted for low statistical significance and truncated at [0,1]	-1.05	1.39	0.08	-0.25	1,553
21.3%	Pay leverage, pay premium at industry average performance with pay leverage adjusted for low statistical significance and truncated at [0,1]	-1.05	1.44		-0.25	1,553
23.5%	Pay leverage, pay premium at industry average performance with pay leverage adjusted for low statistical significance and truncated at [0,1] and sample reduced by 26% to exclude influential observations	-1.09	1.59		-0.31	1,148
23.6%	Pay leverage, pay premium at industry average performance with pay leverage adjusted for low statistical significance and truncated at [0,1] and sample reduced by 32% to exclude influential observations and substantial time trends	-1.15	1.65		-0.32	1,054

Source: Shareholder Value Advisors

TAKING OUT THE IMPACT OF PERFORMANCE ON PAY LEVERAGE

The biggest challenge in developing the long/short portfolio using current pay leverage as a proxy for future pay leverage is addressing the danger that current pay leverage is driven by current performance, not vice versa. Our results from restricting the pay leverage range give us confidence that there is substantial causality running from pay leverage to relative TSR. If pay leverage were correlated with relative TSR just because relative TSR drives up pay leverage, we would not expect that restricting the range of pay leverage would increase the correlation of relative TSR and pay leverage.

Relating current pay leverage to future performance eliminates the problem of causality but makes it much more difficult to think through the measurement issues (e.g., how should we measure incentive strength? What range of incentive strength matters? How should we measure compensation cost?) because the regressions reflect pay measure stability as well as pay measure causality.

A key goal of this paper is to convince investors that there is likely to be an attractive payoff from better measurement of incentive strength and performance-adjusted cost. To make our causal inferences more reliable while keeping our focus on the relationship between current pay leverage and current performance, we adjust for one identifiable bias in the relationship of current pay leverage and current performance.

A 2015 Wall Street Journal story about Apple (NASDAQ:AAPL) CEO Tim Cook (Apple's Pay-For-Performance Plan Works There, Not Elsewhere) highlights this identifiable bias, i.e., a high stock return that is overwhelmingly excess return can cause high leverage and alignment. The article presents a scatterplot of ln relative pay vs. ln(1 + relative TSR) for Cook showing alignment (r-sq) of 96% and pay leverage of 1.15, but also explains that Apple followed two pay policies that don’t normally produce high alignment.

First, Apple was intent on paying for size, even changing its peer group to include Exxon (NYSE:XOM) as it got bigger. Second, Apple made stock grants without performance conditions. By contrast, the perfect performance share plan (highlighted in our earlier Seeking Alpha piece (Pay For Performance At S&P 1500 Companies)) that automatically achieves perfect alignment of relative pay and relative TSR follows two quite different rules: target pay is tied to trailing relative performance, not company size, and every stock grant has vesting conditions that tie vesting inversely to industry performance.

Greg Millman, the WSJ reporter, explains why Apple’s bad policies led to nearly perfect pay for performance. First, the correlation of sales growth and shareholder return at Apple was ten times greater than average for the S&P 1500. Second, industry performance accounted for almost none of the Apple's shareholder return. Together, these two unusual circumstances meant that tying target pay to sales was essentially tying target pay to relative TSR and vesting was not needed to take out the industry component of the stock return because the industry component was close to zero.

To develop estimates of pay leverage that are not biased by "percent excess return," we first develop a model of pay leverage as a function of grant date pay leverage, "percent excess return" x average percent equity compensation and average percent equity compensation[xi]. These three factors explain 45% of the variation in truncated pay leverage.

We control for grant date pay leverage and percent equity compensation on the ground that they reflect deliberate policy decisions of the Compensation Committee, and hence, the correlation of grant date pay leverage and relative TSR (0.214) reflects the impact of grant date pay leverage on relative TSR, not vice versa. The regression implies that an extreme excess return, like that at Apple, increases CEO truncated pay leverage by 0.3.

Once we have the model of pay leverage as a function of percent excess return, we can calculate the pay leverage each company would have if it had the average value of percent excess return rather than its actual value. The mean adjustment to pay leverage is -0.11 for companies with positive excess returns and +0.08 for companies with negative excess returns. We use each company's adjusted pay leverage to re-calculate its pay premium at industry average performance and then re-run our regression model of excess return as a function of pay leverage and pay premium.

Re-running the regression model reduces the pay leverage coefficient from 1.44 to 1.14 and pay premium coefficient from -0.25 to -0.34 (which increases the negative impact of high pay on relative TSR).[xii] Not surprisingly, our adjusted measures don't explain excess returns as well as the unadjusted measures. The r-squared drops from 21.3% to

8.2% for the full sample and from 23.6% to 9.0% for the sub-sample excluding outliers. We use this model to calculate the predicted excess returns we use to select the long/short pairs.

SELECTING THE LONG/SHORT PAIRS

We select the long/short pairs based on predicted excess return differential subject to three constraints to limit risk. We limit the long positions to companies with pay leverage that's statistically significant at the conventional 5% level. We limit the pairs to companies in the same GICS sub-industry with a revenue size differential of 3x or less and we limit the portfolio to one pair from each GICS sub-industry. With these constraints, we can identify 63 pairs with a predicted excess return differential of 4%+. These 126 companies represent 12% of the 1,092 companies in the Execucomp database with 2016 compensation data.

Our matching strategy highlights investment opportunities that aren't apparent in individual company governance analysis. International Paper is a good example. Table 3 shows that it has a 71% pay premium at industry average performance, so it's an unlikely candidate for outstanding pay for performance. Its pay leverage of 1.00 gives it a positive predicted excess return of 4.2%, but that's the third lowest of the 15 long positions. It makes our list because it's an attractive match up with Westrock, which has a much higher pay premium and pay leverage of only 0.05.

CORPORATE GOVERNANCE PRACTICE SUGGESTS THAT THE IMPORTANCE OF PAY LEVERAGE AND PERFORMANCE-ADJUSTED COST IS POORLY UNDERSTOOD

The vast majority of public companies highlight percent of pay at risk and their target pay percentile in communicating executive pay to investors. Dow Chemical, for example, says that one of its four basic compensation objectives is to "create an ownership alignment with stockholders" and that this objective is achieved because "approximately 65-70% of NEO pay is equity-based where the value is directly linked to share price appreciation and TSR."

Another of Dow's four objectives is to "attract and retain the most talented executives to succeed in today's competitive marketplace" and this objective is achieved because "pay opportunities are targeted at the median of the Survey Peer Group that we compete with for talent."[xiii] Across our sample, the ten-year average percent of pay at risk explains only 4% of the variation in mark to market pay leverage. This shows that percent of pay at risk is a terrible proxy for incentive strength.

The average grant date pay premium, which we use as a proxy for the target pay percentile, is more informative but still explains only 41% of the variation in the mark to market pay premium at industry average performance. This shows that the measures companies use to communicate to investors are poor proxies for pay factors that affect performance, i.e., pay leverage and the pay premium at industry average performance.

In theory, proxy advisors such as Institutional Shareholder Services (NYSE:ISS) and Glass-Lewis should be able to get companies to provide more meaningful disclosure. The proxy advisors do focus on relative pay vs. relative performance, but few companies provide any disclosure of relative pay vs. relative performance.

The limited impact of ISS may be due to the weaknesses of its own analytical framework. In a 2012 study (Achieving Pay for Performance by Stephen F. O'Byrne :: SSRN), I compared the ISS measures with pay leverage, pay alignment, and the pay premium at peer group average performance across a sample of 15,860 five year periods for S&P 1500 companies, and found that RDA (Relative Degree of Alignment) had correlations of -.02 with pay leverage, -.01 with pay alignment and -.45 with the pay premium at peer group average performance; PTA (Pay-TSR Alignment) had correlations of .02 with pay leverage, .02 with pay alignment and .10 with the pay premium at peer group average performance, and MOM (Multiple of Median) had a correlation of 0.46 with the pay premium at peer group average performance.

The second line of defense to weak company disclosure is major institutional investors. They show some awareness of the importance of pay leverage, but don't disclose their pay leverage calculation methodology nor encourage their portfolio companies to report pay leverage and performance-adjusted cost. BlackRock, for example, says that it examines "realizable compensation…to assess the pay plan's sensitivity to the performance of the company" but it doesn't publicize its methodology for measuring pay sensitivity nor does it encourage companies to develop and disclose their own pay sensitivity analysis.

Instead, it asks companies to "disclose how incentive plans reflect strategy and incorporate long-term shareholder value drivers." T. Rowe Price looks at the "correlation of executive pay and company performance over periods of three, four and five years" but doesn't provide any detail on the analysis.

CONCLUSION AND SUGGESTIONS FOR REFINING THE INVESTMENT STRATEGY

A basic objective of this paper is to convince investors that there are substantial profit opportunities from a more sophisticated analysis of executive pay that (1) looks beyond percent of pay at risk and target pay percentile to develop more meaningful measures of incentive strength and performance-adjusted cost and (2) identifies long/short pairs that allow investors to profit from superior governance knowledge without exposing themselves to other investment risks.

The analysis presented in this paper can be refined in many ways. One is to explore alternative populations, e.g., top 5 executives, corporate directors or the average employee, and alternative time frames. A second is to explore pay leverage to alternative measures of performance. Equity analysts and investors often try to reduce the complexity of executive compensation by focusing on the company's stated performance measures, e.g., return on capital.

But they generally overlook the fact that the payout for return on capital is tied to a target bonus that largely depends on revenue size, and hence, the use of a return on capital measure may not reflect a strong return on capital incentive. By changing the performance measure in the pay for performance regression from relative TSR to ROIC, an analyst can test whether a company actually does have a strong return on capital incentive.

A third way to improve the analysis is to develop better analytics for assessing the persistence of pay leverage and performance-adjusted cost. We use a relatively crude calculation of "outlier distance" to exclude influential observations. A more sophisticated analysis could compute pay leverage and performance-adjusted cost excluding all sub-populations and then combine these calculations into a better estimate of future pay leverage and performance-adjusted cost. The estimates could be further refined with the use of Monte Carlo simulation.

A fourth way to improve the analysis is to develop and test re-evaluation and selling rules. The long/short pairs ranked by predicted excess return difference define our beginning portfolio but they don't tell us how to update the predicted excess returns for new information, e.g., next year's compensation data, nor how to react to changes in the predicted excess return. A fifth way to improve the analysis is to refine the risk control parameters. Our analysis assumes that matching by GICS sub-industry and revenue size will largely neutralize other investment risks.

[i] “Mark to market” pay for a period values equity compensation based on the market price of the stock at the end of the period and estimated vesting multiples. It’s often referred to as “realizable” pay.

[ii] Technical, the slope is the ratio of the change in ln relative pay to the change in ln(1 + relative TSR). For small changes in ln(1 + relative TSR), the ratio of the log changes is very close to the ratio of the percentage changes.

[iii] The intercept in the C H Robinson pay for performance graph is -1.10. This is the ln pay premium at industry average performance. The percentage change is exp(-1.1) – 1 = -67%.

[iv] The predicted annual excess return = exp(predicted ln(1 + relative 10 year TSR)/10) – 1 and the ln pay premium = ln(1 + percentage pay premium).

[v] Our calculation is weighted pay leverage = regression pay leverage x min(1,absolute value(t-stat)/2) + industry group pay leverage x (1 – min(1,absolute value(t-stat)/2)).

[vi] The adjusted pay premium at industry average performance = mean ln relative pay – [adjusted pay leverage x mean ln(1 + relative TSR)].

[vii] For each year, we calculate the relative pay difference from the average relative pay of the other nine years and the relative TSR difference from the average relative TSR of the other nine years and then calculate “outlier distance” as [relative pay difference – industry average pay leverage x relative TSR difference]. A year is an influential observation if its outlier distance is a large percentage of the aggregate outlier distance of all ten years.

We calculate outlier distance for mark to market pay, grant date pay and first year mark to market pay and exclude from consideration as long/short pairs all companies that fall in the top 10% of outlier distance for any of the three measures. We use first year mark to market pay as one of our measures to avoid flagging companies that may have low pay leverage because they are trying to correct extreme over or under pay that exists at the start of the ten-year period.

[viii] Companies in Execucomp, the S&P executive compensation database, are almost all current or former members of the S&P 1500.

[ix] The t-statistics are 6.9 for pay leverage, 7.8 for pay alignment and -5.7 for the positive pay premium at industry average performance.

[x] This is true of any regression. If y = a + bx is the regression trendline, a = mean y – b * mean x.

[xi] Our calculation of percent excess return is excess return/(1 + excess return) or (TSR – industry TSR)/[(1 + TSR)/(1 + industry TSR)]. We truncate percent excess return at [-1,1]. Grant date pay leverage is also truncated at [-1,1]. This truncation increases the correlation with mark to market pay leverage truncated at [0,1] from 0.508 to 0.529.

[xii] The final regression equation, which is based on the sample excluding influential observations and time trends case, is ln(1 + 10 year relative TSR) = -0.849 + 1.144 x pay leverage – 0.341 x ln pay premium. To calculate the predicted excess returns, we adjust for the regression equation to make the mean predicted value zero. The mean value of ln(1 + relative TSR) is -0.295 and the regression makes the mean predicted value equal to the mean actual value. To make the mean predicted value equal to zero, we increase the regression constant by 0.295.

[xiii] Dow Chemical 2017 proxy statement, p. iii. Dow’s other two compensation objectives are to “support the achievement of Dow’s vision and strategy” and “motivate and reward executives when they deliver desired business results and stockholder value.”

Disclosure: I/we have no positions in any stocks mentioned, and no plans to initiate any positions within the next 72 hours.

I wrote this article myself, and it expresses my own opinions. I am not receiving compensation for it (other than from Seeking Alpha). I have no business relationship with any company whose stock is mentioned in this article.

Comments (2)

spindr0
I just skimmed the your article so my comments may or may not be relevant to what you wrote or what you are doing. What I gleaned is that you have a complex analysis for predicting the excess return differential of long/short pairs. Sounds pretty nifty but unless you have a successful track record over time with more than a finite sample, then at this point, it's more academic than realistic.

I have traded a boatload of pairs with a lot of success in one area - highly correlated issues from the same issuer. But that's a different story. For pairs from within the same sub-industry, there are so many variables that can throw a pair into disarray - analyst upgrades and downgrades, lawsuits, earnings announcements, and any news that moves price significantly. What might be interesting is a cross correlation pairs hedging using options for the short side so that one side of the pair is risk is limited. The options would add a certain amount of decay to overcome but that would be minimal compared to the potential short loss it eliminates. I've done a bit of this but not enough to state that it warrants taking on size.

19 Jul 2017, 09:46 PM

happyshorter
OMG!
I have also traded pairs..
But one is there to hedge for the other.
Some are extremely easy, like BABA/AABA.

I have seen complicated strategies, but this one... sorry too much for me.
The arguments that I could present have been expressed by spindr0 here above.

20 Jul 2017, 03:02 AM