Risks and Returns of Relative Total Shareholder Return Plans

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INTRODUCTION

When determining or evaluating the efficacy of a company's executive compensation programs, it is essential to consider whether they meet certain pay-for-performance criteria. While there continues be some debate over how to best measure a company's performance, the dominant approach is comparing its total shareholder return (TSR) relative to an index or a group of peer companies. This has become the default performance measure for proxy advisory firms that provide say-on-pay voting recommendations, large institutional shareholders, the media and regulators. Companies, compensation committees and their advisers should not ignore relative TSR, even if they believe there are other, perhaps more relevant, ways to measure performance.

To demonstrate a strong pay-for-performance relationship, a number of board compensation committees have embraced relative TSR by adopting performance share plans that pay out based on the company's TSR rank against other companies. Relative TSR plans typically pay a target amount (often expressed as a number of shares) if the company's TSR ranks at a certain percentile compared to the TSR of peer companies (e.g., the median), pay fewer shares for attaining a lower threshold percentile rank (e.g., pay 50% of the target shares if TSR is at the 25th percentile), and pay more shares for attaining a higher maximum percentile rank (e.g., pay 200% of the target shares if TSR is at or above the 75th percentile). Usually, there is some linear interpolation to determine payouts for performance that falls between threshold and maximum.

These performance share plans are often intended to address one of the common criticisms of stock options – that stock option gains might merely be the result of broad-market gains providing unearned pay to executives (i.e., a rising tide lifts all boats). Relative TSR plans, on the other hand, are commonly viewed as providing a stronger pay-for-performance link than stock options because the rising-tide effect is believed to be eliminated since payout is based on a requirement to beat the stock returns of peer companies. Stock returns that exceed peers are presumed to be due to management's ability to make superior decisions that are within its control. These plans could be effective at isolating management's contribution to value if the company and each of its peers have similar exposure to broad market returns. However, if the company's exposure to market returns differs significantly from its peers' exposure, a relative TSR plan can still reward -- or penalize -- executives for market or industry gains.

The remainder of this article demonstrates how some concepts from Modern Portfolio Theory can be applied to analyze two examples of relative TSR plans currently implemented, one of which uses a small group of industry peers while the other uses companies that comprise a broad market index. The findings from this analysis provide strong evidence that relative TSR plans can be an effective way to isolate management's contribution to value, if:

- Industry peers are used or
- Returns are adjusted to remove the impact of market returns.

DECONSTRUCTING RISK AND RETURN

Modern Portfolio Theory (MPT) is an investment approach that seeks to maximize the expected return for a portfolio given an amount of risk or to minimize risk for a given level of expected return. This is accomplished through diversification by selecting a portfolio of assets that collectively has lower risk than any of the individual assets in the portfolio. Diversification is accomplished by investing in a number of different assets that change value in opposite ways.

For any particular stock, the total risk that shareholders bear is typically measured with the volatility of the stock's returns (i.e., the amount of fluctuation in an asset's value). This is often calculated as the standard deviation of the total returns to shareholders over some time period. Higher fluctuations in prices mean an asset is more volatile or more risky. This total risk can be deconstructed into systematic risk – the risk related to broad market returns (i.e., the amount of the fluctuation that is correlated with broad market returns) – and unsystematic risk – the risk that is unrelated to broad market returns (i.e., the amount of fluctuation that is uncorrelated with broad market returns which includes industry-specific and company-specific risks) by using the following formula: $\sigma_s^2 = \beta_s^2\sigma_m^2 + \sigma_{\varepsilon_s}^2$. The left side of this equation is the total risk of a company's stock (i.e., volatility squared), the first term on the right side of the equation is the company's exposure to systematic risk and the second term on the right side of the equation is the company's unsystematic risk. Beta is calculated as the covariance of the stock and market returns divided by the total variance (i.e., volatility squared) of the market returns.

Similarly, total return for an individual asset can also be separated into systematic returns – the return that is correlated with, and assumed to be caused by, the return of the overall market and unsystematic returns – the returns that are presumed to be unrelated to market returns. The unsystematic return for a given time period is the difference from the realized return for the stock and the theoretical expected return for the stock. This value is commonly referred to as Jensen's alpha, which can be calculated as the difference between the stock's actual return over a given time period and its predicted return. If Jensen's alpha is positive for a given time period, then the stock "beat the market" for that period (and the converse is true if Jensen's alpha is negative). The following formula is used to solve for Jensen's alpha: $R_s = R_f + \beta_s(R_m - R_f) + \alpha_s$, where the left side of the equation is the total realized return for a stock over a given time period, the first term on the right side of the equation is the risk-free return over the same time period, the second term on the right side is the risk premium that depends on only the systematic risk of the stock during the same time period and the third term on the right side of the equation is the stock's return that is unsystematic (Jensen's alpha). This formula essentially calculates the predicted return of the stock using the Capital Asset Pricing Model (CAPM) with realized market returns as an input (instead of expected market returns). Jensen's alpha is the stock's residual return that is presumed to be independent from the market's return.

According to MPT, the unsystematic risk from an individual asset can be reduced or eliminated with diversification, while systematic risk cannot. Accordingly, MPT asserts that the expected return of an asset depends only on its exposure to systematic risk. This exposure to market returns is measured with the beta of a company's stock. Beta measures a stock's correlation to market movements and is used to deconstruct a company's risk and return into systematic and unsystematic components. To consider the impact of industry movements in a peer group, an industry beta can be calculated by assuming the companies that comprise the peer group represent the market. While this is a departure from MPT since the industry component of the returns would ordinarily be considered part of the unsystematic return, this approach allows control for industry impacts so that participants in a plan would not benefit or be penalized for this component.

CHOOSING COMPARATORS FOR RELATIVE TSR PLANS

When designing a relative TSR plan, there are two basic approaches to defining the group of peer companies: (1) select peers that have similar characteristics (e.g., industry peers or companies that comprise an industry subset of a broad index) or (2) use the companies that comprise a broad market index (e.g., the constituent companies of the S&P 500). The emphasis on systematic and unsystematic risk and returns can be dramatically different between these two approaches.

Use of Industry Peers

When comparator companies are also industry peers, a relative TSR plan places emphasis on the company's specific risk and mitigates its exposure to systematic and industry risk. Unless the company can significantly change its exposure to systematic or industry-specific risk, executives who participate in such a plan have an incentive to increase the company's exposure to company-specific risks by seeking to invest in core business projects rather than diversifying operations. For example, a company that focuses on oil refining could invest in additional refineries rather than investing in exploration.

Chevron provides an example of a relative TSR plan that uses industry peers to test the hypothesis that a relative TSR plan that uses close industry competitors for its peer group rewards executives for company-specific returns that exceed the company-specific returns of peers and provides little, if any, reward or penalty for systematic or industry returns.

According to Chevron's 2012 proxy disclosure, there are only four peer companies to which the company compares itself: ExxonMobil, BP, Royal Dutch Shell and ConocoPhillips. The performance period for Chevron's plan is three years (currently calendar years). Table 1 shows the payout schedule:

TABLE 1: Chevron TSR Plan Payout Schedule

TSR Rank	Unit Value Paid
1	200%
2	150%
3	100%
4	50%
5	0%

While having a small peer group can create issues if one or more of the peers drop out (e.g., because of M&A activity), the companies that comprise Chevron's peer group have been stable over the past decade. Another issue that might arise from using a small peer group is that there can be large incremental payouts for small incremental performance. In other words, a very small improvement in TSR can result in a jump in ranking and a corresponding jump in payout. To Chevron's credit, this issue is mitigated somewhat by considering Chevron's TSR rank a tie if the measured TSR is within 1% of the nearest peer(s), in which case, the payout is the average payout of the tied ranks. This can result in either a decrease or increase in payout depending on which side of the tie Chevron is on, but does have the effect of smoothing the payout.

For Chevron and three of its peers (other than BP), the unsystematic risk over the 2009–2011 performance period represented a relatively small portion of the total volatility and betas fell within a fairly narrow range. (See Appendix for details.) Systematic returns over the same period also had a fairly narrow distribution (corresponding to the distribution of beta) while the unsystematic returns varied across all of the companies. All of this suggests that the TSR ranking among each of these companies is highly dependent on returns associated with unsystematic risk generally, and company-specific risk specifically, and that payouts, which could be significant, might depend on only a small portion of each company's return. Given this set of circumstances, it is reasonable to expect a close race among the companies. Chevron's disclosure of its performance ranks for the seven performance cycles through 2011 is consistent with this premise. Four of the seven performance ranks were considered tied, including the cycle completed in 2011.

If Chevron's relative TSR plan is effective at isolating company-specific risks and returns among the chosen peer set, it would be expected that the TSR ranking of each company's total return should be the same as the TSR ranking based on only unsystematic returns. Looking at the 10 performance cycles through 2011, the ranks are indeed identical for all but the 2001–2003 cycle (for purposes of this analysis, performance cycles were assumed to be based on calendar-year periods, see Appendix for details), providing evidence that this particular relative TSR plan is effective at isolating company-specific returns, which presumably represents management's contribution to value, and removing market and industry effects. Unless the executives at Chevron can increase its exposure to market returns (i.e., increase its beta and exposure to systematic risk) relative to its peers, this plan clearly provides rewards for accepting more company-specific risk.

Use of Broad Market Peers

Some companies use comparators that comprise a broad market index such as the S&P 500 for purposes of a relative TSR comparison. Clearly, betas will vary widely when using a large peer group containing companies from many different industries. If a company with a low beta adopts such a plan, it might put itself at a disadvantage when the market rises and an advantage when the market declines. The inverse would be expected for a company with a high beta and a similar plan.

CenturyLink is an example of a company that has a relatively low beta (0.56 measured over 2009 - 2011) and uses a relative TSR performance share plan based on its percentile rank compared to the companies that comprise the S&P 500. CenturyLink adopted this plan in 2012. Table 2 shows the payout schedule, according to the company's proxy disclosure.

TABLE 2: CenturyLink TSR PAYOUT SCHEDULE

Percentile Rank	Unit Value Paid
≥75th	200%
50th	100%
25th	50%
≤25th	0%

CenturyLink's beta ranked below the 15th percentile over the 2009–2011 period, which means that its systematic stock return was correspondingly lower than about 85% of the companies in the S&P 500.

However, CenturyLink's total return over the same period ranked at the 55th percentile due to strong unsystematic returns (see Appendix for detail). Had CenturyLink adopted this relative TSR plan in 2009, the payout would have been just under 120% of target. After removing the impact of market returns from each of the stocks (i.e., if only unsystematic returns are evaluated), CenturyLink's hypothetical payout would have been significantly higher, demonstrating that CenturyLink's low beta was a handicap during this time period. To its credit, CenturyLink had an unsystematic return over the 2009–2011 period that approximates the 68th percentile. Had CenturyLink adopted a relative TSR plan that only evaluated unsystematic returns, it would have paid about 172% of target, an increase of roughly 50% of target vs. the conventional TSR plan it recently adopted.

This phenomenon isn't unique to CenturyLink. A change in rank was determined for each company in the S&P 500 by taking the difference between the TSR rank using total returns vs. the TSR rank using only unsystematic returns. As shown in the Appendix, the correlation between this change in rank and each company's beta is significant.

It is interesting to note that CenturyLink's2012 proxy had a shareholder proposal to require that this plan pay out only if its TSR rank is at least at the 50th percentile of the chosen peer group. The shareholder argued that providing a 50% payout at the 25th percentile is too easy. The above analysis provides some evidence that when the market rises, the company's low beta may result in payouts that are lower than this shareholder expects. Of course, payouts might be higher than expected if the market declines, which clearly would not please most shareholders.

DESIGN CONSIDERATIONS

When designing a relative TSR plan, some questions should be considered:

- Should the plan provide incentive to focus on unsystematic (or company-specific) returns?
- Should the plan provide incentive to increase or decrease exposure to market returns?

Beta-Neutral Design

For most companies in mature industries, changing the exposure to market returns is not realistic unless there is a dramatic change in strategy. It would be expected that the beta for these companies would not drastically change compared to other industry peers. For these companies, there would likely be a desire to provide an incentive to seek increased returns by investing in projects that have company-specific characteristics. These returns might come from the innovation of new products or development of efficiencies that give the company an advantage over its industry peers. Investment in these types of projects increases exposure to unsystematic risks with the hope that a successful investment increases the returns to shareholders. It might have the effect of increasing the overall volatility of the company, but not due to an increase in the correlation with market returns (i.e., market exposure).

For these companies, a relative TSR plan should seek to mitigate or remove the influence of broad market returns when rewarding executives. This is most commonly accomplished by comparing to industry peers, each of which would have similar exposure to market returns (i.e., betas). Even among industry peers, it is possible to have significant differences in market exposure, so it is essential to examine the betas for each of the peers. If a compensation committee does not believe a comparable group of industry peers exists, it can take one of three approaches to mitigate or remove the impact of market returns:

- Compare to non-industry companies with similar betas
- Compare to companies that comprise a broad market index, but set the target payout to correspond to the company's beta rank
- Compare to companies that comprise a broad market index, but remove the impact of systematic returns using Jensen's alpha.

The first approach, while relatively simple, might draw criticism from shareholder watchdogs for "cherry picking" peer companies. This might be addressed by choosing companies that are similar in size and providing detailed description in the company's disclosure.

The second approach considers the company's beta ranking when setting the target performance percentile. For example, if the company's beta ranks at the 60th percentile, the plan would consider paying the target payout if the company meets the 60th percentile TSR. However, compensation committees should be mindful that using beta ranking to set payout ranges around target (i.e., threshold and maximum) could result in wider payout ranges for companies with higher betas since companies with higher betas will have a steeper expected return as a function of the market return (i.e., the Security Characteristic Line derived from MPT).

While the third approach might be the most complicated for participants and shareholder watchdogs to understand, it is more effective at removing the impact of systematic returns than the second approach. Using Jensen's alpha for the company and each of the peers allows the plan to pay out only based on unsystematic returns, which is the approach demonstrated by the CenturyLink example.

Providing Incentive to Change Market Exposure

Some companies might pursue a significant change in strategy that could essentially change exposure to market returns. For example, a company might consider making acquisitions that would effectively diversify the overall business and provide more exposure to market returns or divest in businesses to focus on a core strategy. With such strategies in place, the compensation committee might want to design a plan to encourage a change in the company's beta. This could be accomplished by eliminating the influence of unsystematic risk from the company and each of its peers, essentially focusing on beta ranking among companies and not on relative TSR.

Other Considerations

While most relative TSR plans measure returns that exceed the returns of peers, payouts are typically in full shares of stock (i.e., the payout includes more than just the excess return). If a company wanted payouts based only on excess returns, then a plan can be designed to pay only an incremental amount representing only the company's unsystematic returns. This could be accomplished by making payout a function of Jensen's alpha (or a variant that uses industry betas). This approach might start to resemble an indexed option if the number of units were held constant.

CONCLUSION

One common criticism of relative TSR plans is that they fail to provide strong line-of-sight to participants – that executives do not know what actions they should take to increase a company's TSR ranking, and that rankings tend to be capricious, making the awards analogous to a lottery ticket more than an incentive program. It's not clear if this criticism applies to all relative TSR plans, plans that compare to companies with similar market exposure (e.g., close industry peers) or plans that compare to companies with varying exposure to the market (e.g., peers that comprise the S&P 500).

A company with a relative TSR plan should consider taking the following steps:

- Determine the beta for itself and each of its peer companies
- Evaluate how wide or narrow the range of betas are
    - If the betas are in a narrow range, then it is likely that the current plan is effective at isolating company-specific risks and returns
    - If the betas are in a wide range, then:
        - Consider changes to the peer group by finding companies with betas that are similar to the company or
        - Set targets and ranges to reflect the company's beta rank or
        - Measure only unsystematic returns when determining payouts.

By choosing close industry peers, a relative TSR plan provides an incentive to focus on increasing company-specific returns through innovation or efficiencies. Alternatively, when using a broad market index, returns can be adjusted to provide similar focus on only unsystematic returns. Even if returns are not adjusted in such a plan, just being cognizant of the different types of risks and returns might help compensation committees and executives understand the approaches that can be taken to impact payouts of a well-designed plan.

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APPENDIX

Table 1 deconstructs risk into its different components for Chevron and each of its peers measured over the 2009–2011 performance cycle.

TABLE 1: Risk Components for Chevron and Peers

Risk Measured Over 2009 - 2011					
		Market	Volatility		
	Beta	Volatility	Total	Systematic	Unsystematic
Chevron	0.9276	25.64%	26.03%	23.78%	10.58%
ExxonMobil	0.8234		23.41%	21.11%	10.13%
BP	1.1755		36.17%	30.14%	20.00%
Royal Dutch Shell	1.0276		29.47%	26.34%	13.22%
ConocoPhillips	1.0459		29.80%	26.81%	13.00%

Note that to calculate beta for each of the peers, the market has been assumed to be an equally weighted portfolio of the five stocks representing Chevron and each of the peers. As mentioned, using industry betas is a departure from MPT but allows us to consider both market and industry returns. To test the validity of this approach, the results from two regressions were compared. The first regression used both the S&P 500 index returns as well as the industry "portfolio" returns as independent variables with Chevron's returns as the dependent variable. The second regression used industry returns as the only independent variable (both regressions assume that the S&P 500 index is a fair representation of the broad "market"). The adjusted R-squared for each regression differed by only 0.02 and the volatility of residual returns (which equals the unsystematic risk) differed by less than 1%. This suggests that the using industry peers alone explains the vast majority of the variation in Chevron's returns providing comfort in using industry betas.

Using Jensen's alpha, Table 2 shows how stock returns are decomposed into systematic and unsystematic components. For purposes of this analysis, total shareholder return is calculated based on beginning and ending stock prices, which differs from Chevron's plan which uses 20-day average stock prices for both the beginning and ending data points.

TABLE 2: Systematic and Unsystematic Components of Chevron and Peers' Stock Returns

Annualized Return Over 2009 - 2011			
	Total	Systematic	Unsystematic
Chevron	16.91%	11.10%	5.81%
ExxonMobil	4.53%	10.14%	-5.61%
BP	1.63%	13.40%	-11.77%
Royal Dutch Shell	20.53%	12.03%	8.50%
ConocoPhillips	16.55%	12.20%	4.35%

Table 3 is a comparison of Chevron's TSR rank over the past 10 three-year cycles based on total returns and only unsystematic returns. Note that the ranking matches for all but the 2001 – 2003 performance cycle. Similar results can be demonstrated for each of the peer companies. For purposes of this analysis, it has been assumed that performance cycles were measured over calendar years, which differs from Chevron's actual practice for grants made prior to 2006.

TABLE 3: Chevron's TSR Rank

Chevron's TSR Rank		
Performance Cycle	Total Return	Unsystematic Return
2009 - 2011	2	2
2008 - 2010	1	1
2007 - 2009	1	1
2006 - 2008	2	2
2005 - 2007	2	2
2004 - 2006	3	3
2003 - 2005	2	2
2002 - 2004	5	5
2001 - 2003	3	2
2000 - 2002	4	4

Table 4 shows that CenturyLink's risk is relatively low as compared to other S&P 500 companies (data have been arrayed independently):

TABLE 4: CenturyLink's Comparative Risk

Risk Measured Over 2009 - 2011					
		Market	Volatility		
	Beta	Volatility	Total	Systematic	Unsystematic
25th Percentile	0.6985		28.53%	18.89%	20.37%
50th Percentile	0.9472		36.86%	25.62%	25.28%
75th Percentile	1.2600	25.64%	46.33%	34.08%	32.05%
CenturyLink	0.5645		24.21%	15.27%	18.79%
Percent Rank	*14.8*		*12.3*	*14.8*	*19.1*

Similar to the approach taken above for the Chevron analysis, the market is assumed to be an equally weighted portfolio of the 485 stocks that comprised the S&P 500 as of October 18, 2012 and that had data for the entire 2009–2011 time period.

TABLE 5: CenturyLink's Annualized Return

Annualized Return Over 2009 - 2011			
	Total	Systematic	Unsystematic
25th Percentile	7.61%	13.45%	-9.61%
50th Percentile	17.33%	17.35%	0.88%
75th Percentile	29.39%	22.25%	11.44%
CenturyLink	20.16%	11.35%	8.82%
Percent Rank	*54.9*	*14.8*	*67.9*

Table 6 shows CenturyLink's percent rank over the past 10 hypothetical performance cycles based on both total returns and unsystematic returns. The market return is provided for reference.

TABLE 6: CenturyLink's Rank in Total and Unsystematic Returns

		CenturyLink's TSR Percent Rank	
Performance Cycle	Market Return	Total Return	Unsystematic Return
2009 - 2011	18.17%	54.9%	67.9%
2008 - 2010	0.06%	82.5%	81.0%
2007 - 2009	-3.59%	48.5%	43.8%
2006 - 2008	-9.26%	53.5%	47.3%
2005 - 2007	12.57%	37.3%	41.9%
2004 - 2006	17.31%	37.6%	53.7%
2003 - 2005	24.97%	12.0%	21.3%
2002 - 2004	13.10%	23.9%	26.6%
2001 - 2003	6.34%	27.0%	26.6%
2000 - 2002	-1.95%	21.4%	19.5%

As shown in Table 7, the correlation between rank change and beta is significant. Note also that when the market premium (the difference between the market return and an assumed risk-free interest rate of 2.5%) is positive, so is the correlation (and vice versa), which shows that when the market declines, companies with higher betas tend to experience higher payouts from a plan that evaluates only unsystematic returns.

TABLE 7: Correlation Between CenturyLink's Rank and Beta

Performance Cycle	Market Premium	Correlation between Beta and Change in Rank
2009 - 2011	15.67%	0.8501
2008 - 2010	-2.44%	-0.7938
2007 - 2009	-6.09%	-0.7090
2006 - 2008	-11.76%	-0.8170
2005 - 2007	10.07%	0.7460
2004 - 2006	14.81%	0.7671
2003 - 2005	22.47%	0.8254
2002 - 2004	10.60%	0.7801
2001 - 2003	3.84%	0.7332
2000 - 2002	-4.45%	-0.6546