

# CASE STUDY

## Ameritrade

Class 22 - Group Name: Cookies

Matteo Colombo

3021727

Mattia Degiovanni

3013836

Riccardo Maltese

3013607

Esther Martelanz

3030558

Pietro Menoni

3012800

## **Executive Summary**

In mid-1997, Joe Ricketts, Ameritrade Chairman and CEO, is evaluating an investment of up to \$100 million in technology enhancements, paired with an increase of the advertising budget to \$155 million for the 1998 and 1999 fiscal years combined. The investments are aimed at improving the competitive position of the company in the discount brokerage sector by taking advantage of economies of scale that would emerge from the growth of the customer base. The following analysis reveals that the project would be profitable if the return on the investment expected by Joe Ricketts is correct.

## **Summary of Facts**

Ameritrade will proceed with the investment if the expected return exceeds the companies cost of capital. The technological enhancements (necessary to ensure reliability and faster execution of transactions) and increased marketing expenditures fit in the context of the company's strategy of targeting self-directed investors, thus becoming the largest brokerage firm based on number of trades. Ricketts believes expected returns on the investment to be in the range of 30% to 50%, while some members of the management team estimate only 10% to 15%. Ameritrade's CFO often uses a 15% cost of capital, while some managers believe the borrowing cost of 8-9% to be the appropriate discount rate. Given Ameritrade's business model, virtually all revenues are linked to the performance of the stock market. Recent valuations of discount brokerage firms employed tech companies as comparables.

## **Statement of Problem**

The calculation of the cost of capital requires to determine the appropriate market return, which depends on benchmark and historical period of reference, and risk free rate, which depends on length of the investment's cash flows. In order to estimate the company's beta, it is imperative to identify the correct comparable companies: direct discount brokerage competitors, other investment firms and financial institutions or tech companies.

## **Analysis**

*Factors of the investment decision*

First of all, while computing the NPV of the advertising program and the technology developments, we must consider carefully the time horizon of the project: we suggest to adopt a 5-year horizon for the advertising campaign and a 10-year one for the more demanding investment in technology. After this step, we must proceed by computing an adequate cost of capital that will be used as discount factor in the computations. We advise to use directly the cost of equity due to the fact that Ameritrade has no debt other than payables. Consequently, we assume that  $\beta_D = 0$  and that the weighted average cost of capital (WACC) can be substituted by the CAPM, due to the negligibility of debt (**Exhibit 0**).

#### *Estimates of the risk-free rate and of the market risk premium*

In order to compute the most precise value of the cost of equity  $r_E$ , we need to evaluate the correct risk-free rate  $r_f$  and market risk premium ( $r_m - r_f$ ). Based on the time horizon of the investment, the prevailing yield on a 10-year bond ( $i = 6.34\%$ ) would be an adequate estimate of  $r_f$ . Regarding the market risk premium, we took into account the fact that at the present valuation Ameritrade is not a large cap company, however, considering the credible expectation of strong future growth due both to the sector growth for internet-related companies and Ameritrade's expansion strategy, computing the mean of the average annual return of large company stocks and small company stocks could provide the most representative estimate of the expected market return  $r_m$  (as shown in **Exhibit 2**)

Therefore, the appropriate estimate of the risk premium is 9.56%.

#### *Computing $\beta$ and selecting comparable firms*

In order to estimate Ameritrade's cost of capital using the CAPM it is necessary to calculate  $\beta$ , the measure of a firm's sensitivity to market risk. Considering Ameritrade's recent IPO in March 1997, the estimation of its  $\beta$  is computed using monthly returns of comparable firms. Among the available discount brokerage firms E\*Trade is excluded from the comparison since it has gone public only recently. Similarly, internet firms were not included in the choice of comparables due to the lack of available data on historical stock returns. Furthermore, the recent trend of adopting internet comparables for discount brokers is partly fueled by the desire to obtain more favourable valuations. Investment banks are likewise excluded because of the low contribution of the brokerage business to

overall revenues, and because they are highly leveraged in comparison to Ameritrade. Investment services firms A G Edwards and Raymond James Financial, not being large investment banks, having a low leverage and deriving most of their revenues from brokerage could be used as comparables. However, we have preferred to employ only discount brokerage firms Quick & Reilly Group, Charles Schwab Corp and Waterhouse Investor Srvcs as comparables, since they derive virtually 100% of their revenues from brokerage and are direct competitors of Ameritrade. A regression analysis (where  $\beta$  is the slope of the regression line) has been run on each comparable firm's monthly returns over VW NYSE AMEX, & NASDAQ market returns in the relevant time period (**Exhibit 1** and **Exhibit 4**). In order to acquire accurate data, a 13-year period ranging from 1984 to 1997 has been used. However, shorter time periods, i.e. 1987 to 1997 and from 1987 to 1996, are used for Charles Schwab Corp and Waterhouse Investor Srvc, respectively, due to the absence of available data. The monthly returns are adjusted to dividends and stock splits accordingly:  $(P_t - P_{t-1} + D_t) / P_{t-1}$  if there is no stock split and  $(x/y * P_t - P_{t-1} + x/y * D_t) / P_{t-1}$  if there is an x for y stock split.

After having obtained the  $\beta_{\text{asset}}$  of each comparable firm, assuming it is equivalent to  $\beta_{\text{equity}}$  since  $\beta_{\text{debt}}$  is equal to zero, an equal weighted average has been computed in order to derive Ameritrade's  $\beta$ , equivalent to 1.9730. The resulting cost of capital is 25.20%. **Exhibit 3** also presents alternative cost of capital estimates obtained by including A G Edwards and Raymond James Financial to the comparables and/or by using the return on small/large cap companies as expected market return.

## **Recommendations**

According to an estimated 30% to 50% expected rate of return on the investment, the CEO should view the 25.20% cost of capital in a very favorable manner: given that his optimistic expectations for the investment rate of return exceed the cost of capital, i.e. the hurdle rate, the new investment project ought to be accepted. However, contradictory enough, the management estimated a mere 10% to 15% expected rate of return on the investment which evidently would lead to a rejection. Therefore, it is strongly recommended to take into account the NPV of the project using the estimated cost of capital prior to taking any action.

## Exhibits

**Exhibit 0:** Cost of Capital Equations with and without Leverage.

	Cost of Capital
Leverage	$WACC = r_D \cdot (D/D+E) + r_E \cdot (E/D+E)$
No Leverage	$WACC = r_E = r_f + \beta \cdot (r_m - r_f) = CAPM$

**Exhibit 1:** Beta and R squared estimates of the five comparables.

	$\beta$	$R^2$
Charles Schwab 87-97	2.3372	0.4210
Quick & Reilly 84-97	2.1798	0.4739
Waterhouse Investor 87-96	1.4020	0.1085
AG Edwards 84-97	1.8372	0.5549
Raymond James 84-97	1.6749	0.4180

**Exhibit 2:** Beta of Ameritrade computed with and without the investment firms A G Edwards and Raymond James.

	$\beta$
AMERITRADE (w/out investment firms)	1.9730
AMERITRADE (with investment firms)	1.8862

**Exhibit 3:** Cost of Capital of Ameritrade computed with and without the investment firms A G Edwards and Raymond James, considering three different Historic Average Annual Returns on Common Stocks of small, medium and large capitalization companies.

	Large cap = 14.0%	Mid cap = 15.9%	Small cap = 17.8%
Cost of Capital (w/out investment firms)	0.2145	0.2520	0.2895
Cost of Capital (with investment firms)	0.2079	0.2437	0.2796

**Exhibit 4:** Regression analyses of the five comparable firms chosen.

