**Mini-Case #2: Capital Budgeting at Neuquén, Inc.**

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# Introduction

As a consultant of Neuquén, Inc., a publicly traded firm, I evaluated the proposed acquisition of Artforever.com, a private company specializing in restoring damaged artwork and vintage photographs, to aid senior management’s decision on whether the acquisition should be undertaken. To help Neuquén, Inc. make the best decision, I calculated the most appropriate discount rate for finding the value of the company, determined the relevant cash flows, found the maximum amount that should be paid for the acquisition, and provided additional considerations for a higher offer. Calculations were made based on the Artforever.com forecast data and market data analysis tables provided as well as additional given information by the case; such information can be found in the attached Excel workbook.

# Analysis

# Discount Rate Used To Find the Value of Artforever.com

To make a decision about whether or not Neuquén should acquire Artforever.com, the relevant cash flows of the company had to be evaluated. In order to do this, however, the appropriate discount rate for the company had to be calculated. This was done by using the weighted average cost of capital (WACC) formula. Because all the components of this formula were given except for the cost of equity, it was first calculated using the capital asset pricing model (CAPM). Since Artforever.com is a private company and doesn’t have a measure of market risk, the beta of the company was not provided. To obtain the levered beta of Artforver.com, I calculated the unlevered beta from a similar publicly traded company, ArtToday.net, to be approximately 1.034. I then found Artforver.com’s levered beta by adding the impact of debt from the target firm which resulted in a beta of 1.144. Once this was done, the cost of equity was calculated to be 8.792% using the risk-free rate of 2.5%, Artforver.com’s beta of 1.144, and the expected return on the market rate of 8.0%. Both the risk-free rate and expected return on the market rate were provided in Table 2 in the case as seen in the attached Excel workbook.

As previously mentioned, I then calculated the discount rate using the WACC formula. The weight of the debt (target debt to value ratio) provided was 15.0%, along with a cost of debt (cost of borrowing) of 6.2%, and a tax rate of 40.0%. Moreover, I calculated the cost of equity to be 8.792% but the weight of equity was not provided. Because assets are equal to the sum of liabilities and equity, I knew that the sum of equity and debt should equal 100%, thus the weight of equity should be 85.0% (100% - 15%). Using the previously mentioned variables, the appropriate discount rate for finding the value of Artforver.com was 8.031% as seen in Exhibit 1 in the attached Excel workbook.

# Relevant Cash Flows for Valuing Artforever.com

Once the appropriate discount rate (WACC) for finding the value of Artforever.com was found, the relevant cash flows for the following five years were calculated using the information provided in the case study (as seen in Exhibit 2). To find the earnings before interest and taxes (EBIT), the cost of goods sold (COGS) and selling, general and administrative expenses (SG&A) were deducted from the sales revenues provided for each year; COGS was 42.0% and SG&A was 15.0% of revenue from sales. Taxes, 40.0% of EBIT, were then subtracted from EBIT each year to calculate earnings before interest after taxes (EBIAT). Because depreciation is not a cash flow, it was added back to EBIAT because it had been subtracted from revenue as it was included in the COGS percentage. The values for investments in CapEx and NWC for their respective years were also subtracted from EBIAT to find the free cash flows for each year as follows: $248,000.00 in 2018, $297,500.00 in 2019, $363,750.00 in 2020, $533,800.00 in 2021 and $967,500.00 in 2022.

To accurately find the value of the company, the terminal value for the years beyond 2022 was found. The free cash flow for 2022, the given perpetual growth rate of 2.0% per year, and the discount rate (WACC) of 8.031% (found in Exhibit 1) were used to make this calculation. The terminal value of $16,362,209.63 was then added to the free cash flow of 2022 to find total cash flows. The total cash flows were then used to find the enterprise value, and ultimately the equity value, of Artforever.com.

# Maximum Price Neuquén should Pay to Equity Shareholders for Artforever.com

To find the maximum amount that should be paid to acquire Artforever.com, the enterprise value was first found using the net present value of its future total cash flows, including the terminal value. The following cash flows were entered in the NPV function on Excel: $248,000.00, $297,500.00, $363,750.00, $533,800.00, and $17,329,709.63. Today’s enterprise value of the company was calculated as $12,942,130.68. To find the equity value of the company, however, the market value of the long-term debt of $1,475,000.00 was subtracted from the enterprise value. Therefore, the maximum price that Neuquén should pay to acquire Artforever.com is $11,467,130.68 (as seen in Exhibit 3).

# Conditions Under Which Management Should Make a Higher Offer for Artforever.com

Many assumptions were made in the above calculations to determine the maximum amount that should be paid to acquire Artforever.com. If any of these assumptions are incorrect, that could affect the true amount that should be offered for the acquisition. One example of this is the forecasted perpetual growth rate of 2.0% per year for free cash flows. Because Artforever.com has been rapidly growing, it may be determined that 2.0% is too modest of a growth rate which would therefore make the predicted free cash flows lower than they should be. This would increase the value of the firm and thus management should make a higher offer for the acquisition.

In addition, if the cost of borrowing decreases, the resulting calculation of the discount rate (WACC) will also decrease, thus increasing the value of the firm; management should also make a higher offer in this case. Similarly, the Artforever.com beta was estimated from the beta of a similar publicly traded company, ArtToday.net. If upon further analysis it is determined that the beta for Artforever.com is less than the beta for ArtToday.net, the calculation of WACC would also be lower, increasing the present value of the firm and therefore increasing the maximum value that should be offered for the acquisition.

# Conclusion

In this report, I analyzed Artforever.com’s future cash flows and market data to help Neuquén, Inc.’s management determine whether they should acquire the company and how much equity shareholders should be paid. Using the capital asset pricing model (CAPM) and the weighted average cost of capital (WACC) formulas, I found the most appropriate discount rate for the company to be 8.031%. Finding the appropriate discount rate then enabled me to calculate the relevant cash flows for the following five years as well as the company’s terminal value. The net present value of the total cash flows determined the value of the enterprise to be $12,942,130.68. To find the maximum price that Neuquén should pay to equity shareholders, the long-term debt was subtracted from the enterprise value. Therefore, as a consultant of the company, I suggest that senior management acquire Artforever.com for $11,467,130.68. Furthermore, the possibility of a higher growth rate, lower cost of debt, lower beta, and lower discount rate should be considered when determining if a higher offer should be made for the acquisition.