

Yeats valves
business evaluation
essay sample



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Executive Summary We have been asked to advise Yeats Valves and Controls Inc. (YVC's) how they should proceed with their business. On the next pages we are discussing if a merging with TSE International Corporation (TSE) makes sense. YVC's and TSE have different strategies. YVC's makes the largest part of its profit in one area - aerospace and defense sector. They are producing high quality products. TSE is a large company with a wide range of products. They are operating international and are known as a low cost producer. In chapter three we are discussing if the two strategies between those companies match together.

First we calculated the weighted average cost of capital (WACC). It is based on the assumption of a stable debt/equity ratio. YVC's has no outstanding debt. We first had to compute return on equity and return on debt. To calculate return on debt for TSE we have taken the rating of a Baa Corporate Bond.

To find the present value of the future cash flows we used the discounted cash flow (DCF) method. It can be used to find the fair value of a firm. This method of valuing asset or a company uses the concepts of the time value of money. In our calculation we considered working capital, capital expenditures and depreciation.

Furthermore we calculated a price multiple. We just took price/earnings (P/E) ratio into account, because we did not have enough data to calculate further ratios. With those ratios it is possible to make estimation for the future value of stock returns as well as of the total value of the company. We recognized that the stocks for both companies are undervalued.

All calculations are done with number from 1999 except the cash flows within the DCF- Analysis. The detailed calculations are available in a separate excel sheet.

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Issue Statement

YVC's has been founded in 1980. Since retirement neared Yeats, CEO of the firm, started to make future plans for the company. Serious negotiations about a merging with TSE International Corporation, a well-known competitor, started in the late of 1999. If the merging would take place Bill Yeats would remain as CEO of YVC's and the company would become a subsidiary of TSE. Nearly 50% of the profit of YVC's is derived from special applications for the defense and aerospace industries.

Auden Company, which held later 20% of the common stock of YVC's, was a major foreign distribution channel. About 15% of sales from Yeats products were generated by Auden. Even through the currency crisis YVC's stayed stable. Better market conditions and the introduction of new products in the aerospace and defense industries provided an auspicious future outlook for the growth opportunities of the company. Auden Company indicated their interests in merging with YVC's. The idea had not been further developed. As time passed selling the company seemed nearly necessary. Reasons were the retirement, which got closer as well as the fact that the company needed

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a partner to be able to expand further their research and development (R&D) projects.

Furthermore, YVC's would gain from the access to a distribution network and to a well developed marketing area. Therefore Bill Yeats concluded, even the company was successful in its niche; if the products were widely available and actively marketed they could enter into more segments. The company could also profit from the production knowledge of the partner. Additionally, the merging company has to be well financed to survive in the on-going competition.

As the possibility of merging with TSE International Company came up Bill Yeats decided to make the best out of this opportunity. Yeats was also thinking about joint ventures, but it did not seem to be the best option. They were also thinking about moving on alone, but than they would have to raise new debt and equity to finance the growth of the company.

Negotiations with TSE seemed to get serious followed by the announcement of a U. S. government contract called " Widening Gyre". It was about a development of advanced hydraulic-controls system, which would be used in military and commercial applications in aerospace, transportation industries and automotive. The program already created options for on-going R&D and precious patents. TSE had a range of products from advanced industrial components, cables, bolts and other similar products. They also produced parts for aerospace propulsion and control systems. The debt of TSE was currently rated at Baa. The factory of the company was well equipped. 4

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Negotiations between YVC's and TSE considered assets for stock exchange and common-forcommon exchange. The second option was expected to be the most likely outcome. Stockholders of both companies had to agree on one of those possibilities. YVC's had 560 stockholders. About 70% were held by members of the board of directors and their families. Auden Company owned a part of 20%.

The merger proposal was discussed with Auden Company due to their amount of shares. Auden was not convinced about the merger but decided not to refuse the offer. Instead of they announced that they would sell their shares of YVC's. Director of YVC's, Kate Porter, believed that the company may would be more valued if it were a part of a large company. YVC's had lately a P/E ratio of 10.3. It might reflect the risks associated to a small firm.

Is there a strategic fit between Yeats and TSE?

About 50% of YVC's profits were generated by special applications for the aerospace and defense area. Those products required complex engineering work. Only a few firms were able to fulfil the requirements. The company of Bill Yeats had an excellence reputation. They often did prime contract work for the government. In their niche they are successful. The company would like to expand their R&D projects to develop further products for their niche segment. If they would have access du marketing and distribution possibilities of a large firm they could offer their products to more clients. Furthermore they could enter into new segments.

TSE has a wide range of products which they are manufacturing. They are also operating in the aerospace industry. One division produces control systems with a wide range of intermediate products and parts for aerospace propulsion. The company is well-equipped. It is known as a low-cost producer with unusual production knowledge. TSE has the reputation of a tough competitor. The strategies of those companies do not fit together. YVC's is a company with traditional values. About 70% of the shares are held within the board of directors. They set a high value on their stockholders.

Definitely a merger would have advantages, but TSE might not be the right partner. Even Bill Yeats would still be the CEO of the division they would not be so flexible anymore regarding client demands. The needs of YVC's do not match with the one of TSE. YVC's would be just a part of a large company in case of a merging would take place. They would lose their identical value. Furthermore due to the fact that TSE is a low-cost producer it might be hard to meet the requirements which are needed to produce special applications for the defense and aerospace industries.

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Data Analysis

As a part of the negotiations between the YVC's and the TSE are the discussions about the appropriate takeover price it is necessary to come up with some calculations about the fair value of the YVC's. One step further it <https://assignbuster.com/yeats-valves-business-evaluation-essay-sample/>

is also important to know whether the merger of YVC's and TSE generate a benefit for the new company. Thus if it results in a higher firm value due to emerging synergies. Two different methods are used to evaluate in a first step the firm value of YVC's and TSE and secondly the one of the merging firm. These are the method of discounted Cash Flows (DCF) as well as the Price-Earning ratio.

3. 1

Calculation of the WACC

As the DCF analysis convert monetary amounts from the future to a former date a discount rate is needed. This rate depends on the term structure of the market as well as on the risk of the corresponding Cash Flows (CF). In finance the weighted average cost of capital measure (WACC) is used to determine the discount rate. Therefore it follows that the first part of the value analysis is the calculation of the WACC.

The WACC is a measure of the expected return, which represents the overall, costs of a company's liabilities, hence the debt as well as the equity capital.

From this explanation it follows the formula: $WACC = (D/C) \cdot (r_D \cdot (1-T)) + (E/C) \cdot r_E$

For the YVC's these are the below-mentioned numbers:

WACC	MV debt	MV equity	r _D	r _E	t
	Market value of debt	Market value of equity	Return on debt	Return on equity	Tax rate
	41'040'000. 00 USD	0. 00 USD	40. 00%	0. 00	

Since Yeat's does not have interest bearing liabilities there is no market value of debt for the WACC. However the balance sheet of TSE does include

some interest bearing liabilities. The estimation of the market value of debt is difficult since not all liabilities are traded on the market. Therefore it is common to use the book value of the liabilities for the calculation of the WACC. This approach is possible because the book value is not far from market value especially for healthy firms. The market value of equity is the market capitalization of the year 1999.

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Due to the reason that we do not know all of these variables to compute the WACCs yet we first have to calculate the r_E and the r_D accordingly.

3. 1. 1 Return on equity

The r_E is simply calculated by using the Capital Asset Pricing Model (CAPM) as follows. CAPM $r_E = r_f + \beta (r_M - r_f)$

CAPM r_f (1999)	β	RP (continuous)	r_M	Risk free return	Beta	Risk Premium
Market return	4.64%	1.50	5.50%	10.14%		

We chose the r_f rate from 1999 as the 3-month U. S. Treasury bill yield and the continuous RP as the geometric average equity market-risk premium for the period 1926 until 1999, which together with the r_f results in the r_M . By plug in all these numbers in the formula the CAPM provided us with a r_E of 12.89% for YVC's. Since TSE does not have such a high beta as the YVC's and therefore is less risky. Their r_E shows a result of 9.32%. Due to the equity beta of TSE being below one ($\beta_{TSE}: 0.85$) the required return of the

shareholders of TSE is smaller than the average required return of investors from the market.

This leads to the conclusion, that the rating of TSE with Baa is on average higher than the ratings of the total market. With the merger of YVC's and TSE the new r_E is substantial. All numbers equal despite of the β . The required return on equity of the merged firm is 11.64%. To determine the β of the new firm we first calculated the unleveraged β 's and then adjusted them by the leverage ratio of the merged firm.

We added these two β 's together and took the average as the β of the merged firm, which is then 1.27. This approach is only possible since β is only dependent on the leverage according to the CAPM. As we can easily see the YVC's has a higher impact on the variables of the merged firm. The r_E as well as the β is closer to the numbers of YVC's.

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Merged firm Difference to YVC's r_E β - 1.25% + 0.23% Difference to TSE +
2.32% - 0.42%

3.1.2 Return on debt

The second unknown variable is the r_D , which is the required return of the lender of debt capital. The r_D is typically lower than the r_E this is simply due to a lower risk of the debt. The creditors of debt are satisfied before the shareholders as a consequence of a bankrupt. The return on debt for the TSE

is 7.88%, which is the yield on a corporate bond with a rating of Baa in the year 1999.

By taking this yield we assume that the maturity of this bond is equal to the maturity of the bonds of TSE. To come up with the required measures for the merged firm we used the same yield on a corporate Baa bond and multiplied this by its β (10.03%). By doing so we made an adjustment for the higher risk of the merged firm due to the lower rating of YVC's. We used this approach due to the reason that the absolute amount of interest rate payments on debt is not available to us. With the additional information of the income statement it would have been possible to search for the actual return of debt.

After computing all the missing numbers for the WACC calculation it is now possible to find the WACC for the two companies separately and for the merged firm: WACC YVC's TSE Merged firm 12.89% 8.35% 10.48%

Having a look at the WACC we can clearly see that the investors of YVC's require a much higher return than those of the TSE this is mainly due to the higher risk, which is represented, by the different ratings. By taking the average of these two WACC's we get a WACC of 10.62% for the merged firm. This is slightly higher (0.14%) than the actual WACC of 10.48%. This means that there is a positive synergy effect of the merger, which is covered by the lower WACC. Since the r_E exceeds the average of YVC's and TSE and the r_D for the merged firm is higher as the one of TSE as well the required returns cannot lead to this lower WACC.

Therefore we must have a look at the other figures, which are given by market value of debt and the market value of equity. To find the market value of debt and equity of the merged company we just added the appropriate values of the two single companies. Due to this there is a change in the Debt/Capital and the Equity/Capital ratio compared to the average numbers of the two single companies.

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D/C YVC's TSE Average Merged firm 0. 00% 18. 66% 18. 66% 18. 10%

E/C 100. 00% 81. 34% 90. 67% 81. 90%

As a result of the merger we can see a shifting from equity to debt capital, which is our synergy effect. Due to the reason that the required rate of return on debt is lower than the one of equity, the WACC for the new merged firm is lower. Within the WACC we can also see that the YVC's has a higher impact than the TSE, but it is less distinctive than for the r_E and the β and therefore it results in a better WACC.

3. 2

DCF Analysis

Since we already calculated the WACC of the YVC's, the TSE and the merged firm respectively there is only one more variable to determine before we can start with the DCF- Analysis. To come up with a fair value of the companies we use the free cash flows of the future years. Forecasts of sales, earnings
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and other income available for the YVC's and the TSE until the year 2004. For the time period thereafter we calculated an approximately growth rate of the company to get the necessary numbers. From the predicted net income of the balance sheets we computed the Free cash flows (FCF's) for the years 1999 until 2004 as follows.

Net income balance sheet - Tax shield Income before taxes + Depreciation
CF before taxes - Tax shield CF - Capital Expenditure + Working capital
needs FCF The FCF's indicate the effective change in the liquid assets.
Therefore we have to add the depreciations, further expenditures and
earnings that do not influence the liquidity of the company to the net
income. Since there are no data available for other non-deductible positions
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zon we only considered the depreciations. We made especially the same for
the merged firm by just adding the amounts of YVC's and TSE together. The
FCF's for the time period after 2004 are dependent on a company growth
rate. With this approach we assume that the company growth is reflected in
the Free cash flows (FCF's) as well. The growth rate is composed of the
return on equity (ROE) and the retention rate (RR) of each company.

Growth rate YVC's TSE Merged firm 8. 90% 8. 05% 8. 11%

In contrast to the rE, the β and the WACC of the merged firm the growth rate
is more influenced by the TSE than the YVC's. Meanwhile the YVC's lost 0.

79% of its growth rate the TSE gained 0.06%. The difference occurred because the growth rate of YVC's is higher than the one of TSE whereas the TSE has better numbers for the other variables. The large difference between the growth rates of the YVC's and TSE leads to a dramatically lower growth rate of the merged firm as the average of the growth rates of YVC's and TSE by 0.36%.

However these calculated growth rates do not conform to the reality. We therefore made a more realistic assumption for the perpetual growth rate of 2.00%. With this growth rate we are not able to calculate the FCF for the years after the year 2004. After computing all FCF's we are now able to come up with a fair value of all companies by taking the sum of the present values of all these FCF's. To calculate the present values we used the following formulas with the above computed WACC's. Where the DCF formula without growth is used for all the FCF's until 2004 and the other one to calculate the present value of all FCF's after 2004.

DCF without growth $\sum (FCF_t / (1 - WACC)^t)$

DCF with growth $\sum (FCF_{t+1} / (WACC - g)) / (1 - WACC)^t$

As a result we get the following firm values for the beginning of the year 2001. The firm values are calculated for the year 2001 due to the reason that the YVC's and the TSE were still in negotiation in April 2000 and believe that the earliest date for the merger will be at the beginning of the year 2001. We have to look carefully at these firm values because we used all data despite the FCF's

from the year 1999 and wanted to find the value of 2001. The values are correct if there are only slight changes in the underlying conditions.

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Firm value YVC's TSE Sum Merged firm Difference 124'791'009. 08 USD
3'365'825'033. 18 USD 3'490'616'042. 25 USD 2'671'508'464. 32 USD
819'107'577. 93 USD

The firm value of the merged firm is about 23. 5% lower than the sum of the values of the YVC's and TSE.

3. 3

Using multiples what is the value of Yeats?

Price multiple approaches are widely used. Behind this approach is the law of one price. Two comparable assets should have the same price. Common ratios for valuation are price/earnings per share, price/sales per share, price/book value per share and price/CF per share. They can be used in cross-sectional comparisons and in time series. Many of these price multiples have been useful for predicting stock returns as well as the value of a firm. We just had a look at the P/E ratio, because we do not have sufficient data to calculate further price multiples of peer firms. P/E ratio is a firm's stock price divided through earnings per share.

It is an indicator at which price a stock should trade. For Yeats we got a P/E ratio of 7. 36 USD and TSE has a ratio of 6. 41 USD. Bill Yeats mentioned that <https://assignbuster.com/yeats-valves-business-evaluation-essay-sample/>

his company has hidden value which is not reflected in the share price.

Therefore the stocks are undervalued. If we take a look at the average P/E ratios of comparable peer firms of 11.07 USD in the industrial machinery sector the ratio of both companies are low. The ratio of the merged firm is 6.57 USD. Compared to the average in industry the stock is undervalued.

With the P/E ratios of the companies and the average P/E ratio of a peer group of this company we are able to come up with a firm value of the YVC's, the TSE and the merged firm. We can compute the firm value of YCV's for example by multiplying the average peer group P/E ratio by the total earnings of YCV's. The table below shows the generated firm values based on the P/E ratios.

Firm value	P/E	YVC's	TSE	Sum	Merged firm	Difference
61'743'125.00 USD	1'816'754'075.00 USD	1'878'497'200.00 USD	1'878'497'200.00 USD	0.00 USD	11	

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61'743'125.00 USD 1'816'754'075.00 USD 1'878'497'200.00 USD

1'878'497'200.00 USD 0.00 USD 11

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In contrast to the the DCF- Analysis there is no difference between the sum of the values of the YVC's and the TSE and the value of the merged firm.

3.4

Comparison firm value and stock value

By looking at these firm values it is important to compare them with the current market capitalization of the companies to get an idea whether this

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calculated values are reliable. Firm value based on DCF 124'791'009. 08 USD
 41'040'000. 00 USD 3'365'825'033. 18 USD 1'073'605'869. 78 USD
 2'671'508'464. 32 USD 1'114'645'869. 78 USD Difference - 83'751'009. 08
 USD Difference - 2'292'219'163. 40 USD Difference -1'556'862'594. 54 USD

YVC's

Firm Value Stock Value Firm Value Stock Value Firm Value Stock Value

TSE

Merged firm

This tables summaries the firm values and the stock value of the companies YVC's and TSE as well as the firm value of the merged firm. As we can see, the calculated firm value based on the DCF approach is in all cases much higher then the market capitalisation of the companies. Although the managers of YVC's believe that their stock is not fair priced until now, we have to be careful with this large difference of 16. 93 USD per share of YVC's.

A reason is especially the sharply reduced growth rate to a more realistic level. Firm value based on P/E 61'743'125. 00 USD 41'040'000. 00 USD
 1'816'754'075. 00 USD 1'073'605'869. 78 USD 1'878'497'200. 00 USD
 1'114'645'869. 78 USD Difference - 20'703'125. 00 USD Difference -
 743'148'205. 22 USD Difference -763'851'330. 22 USD

YVC's

Firm Value Stock Value Firm Value Stock Value Firm Value Stock Value

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TSE

Merged firm

With the second approach to determine the firm value of the companies YVC's and TSE as well as of the merged firm the picture is nearly the same. All firm values calculated with the P/E ratios are higher than the stock values of the companies. However, the method of P/E ratio is better compared with the stock value because the differences are smaller with this approach than with the DCF- Analysis.

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Recommendations

After our careful analysis of the merger plan of the YVC's and the TSE we are able to answer the question from the beginning. Does this merger make sense? Due to the strategy analysis of the YVC's and the TSE we would recommend that the YVC's should not merge with the much larger company TSE. We believe that the strategy of the smaller YVC's with its good quality products for the niche will not survive as a result of this merger. From our point of view it would be much more interesting for the YVC's to make some agreements with the TSE to profit in the right areas.

The recommendation based on the strategy analysis is affirmed by the calculations. Although the WACC becomes smaller with the merger there are
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more negative points. By looking at the growth rate the YVC's would make a loss of -0.36% per year.

WACC YVC's TSE Merged firm 12.89% 8.35% 10.48% Growth rate YVC's
TSE Merged firm 8.90% 8.05% 8.11% Average 8.47% Difference -0.36%
Average 10.62% Difference 0.14%

The most important figure is the firm value after the merger. This number will show whether there are emerging synergy. We used to different methods to determine this value. With the DCF- Analysis the value of the merged company is more than 20.00% lower then the sum of the two single companies and also with the P/E ratio approach the firm value of the merger does not show impressive results. The difference of the value of the merged firm and the sum of the two single firms is 0.00.

Firm value based on DCF YVC's TSE Sum Merged firm Difference Andrea
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124'791'009.08 USD 3'365'825'033.18 USD 3'490'616'042.25 USD
2'671'508'464.32 USD 819'107'577.93 USD 13

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Firm value based on P/E YVC's TSE Sum Merged firm Difference 61'743'125.
00 USD 1'816'754'075.00 USD 1'878'497'200.00 USD 1'878'497'200.00
USD 0.00 USD

However due to our analysis we recommend to Bill Yeats and his manager team to do not make this merger and search for an alternative way.

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