Constellation Software

Last year I asked my friends to send me the names of the companies run by able and honest managers like Warren Buffett. Without hesitating both of them mentioned about Mark Leonard, a terrific guy who runs Constellation Software. I promptly added it to my reading list. In a recent interview, Shane Parrish mentioned about Mark Leonard.

> Berkshire has an incredibly unique model of writing to shareholders, and frankly no one else is as good. One that's slightly off the beaten path, although it's become a lot better known over the past few years, is a Canadian company called Constellation Software (CSU). **The CEO there is truly doing God's work as far as how he reports to shareholders. Very clear presentation of the financial performance of the business, and a lucid and honest discussion of what's going on. -** Shane Parrish

Shane told that Mark is doing god's work and his comment made me to analyze and write about Constellation Software Inc. ("CSI"). Take a look at the table shown below. The company went IPO in 2006. In nine years, Mark compounded shareholders wealth by 41 percent. Definitely Mark has done god's work to the shareholders of CSI.

	2006	2015	CAGR
Revenue per share	$10.01	$86.75	27%
Operating cash flows per share	$1.36	$18.68	34%
Share price	$19.35	$415.35	41%

Business

CSI was founded in 1995 and it's headquartered in Toronto, Canada. It is an international provider of market leading software and services to a select number of industries, both in the public and private sectors. It acquires, manages, and builds vertical market software businesses. What does a vertical market software mean?

Software programs like word processors and spreadsheet programs can be used in wide array of industries. They are called as horizontal market software. On the other hand, vertical market software is developed for and customized to a industry specific needs. Constellation has comprehensive suite of software targeting Homebuilders is an example of vertical market software.

As of 31-Dec-2015, CSI had 182 business units ("BU") serving more than 75 verticals, run by 158 BU managers that are rolled up into CSI via 6 operating groups. Except for some cases, each BU is organized to serve a single vertical. BU managers are autonomous, compete vigorously with each other, and are held accountable only for their own results. Most of the operating decisions are taken at the BU level. CSI organization structure appears very similar to Berkshire Hathaway.

If CSI depended only on organic growth then serving multitude of vertical markets wouldn't have been possible. The company is able to serve so many vertical markets as it acquired hundreds of companies during the last decade by deploying far more than 90 percent of its free cash flow. Except for some cases, CSI acquisitions are small in the $2 to $4 million range.

In 2015, CSI generated $1.84 billion in revenue. Around 69 percent of this revenue came from selling products and services to public sector comprising of government and government-related customers. The remaining 31 percent came from private sector comprising of commercial customers. Around 54 percent of revenue comes from United States and 12 percent comes from Canada. No single customer represents revenue in excess of 5 percent.

(in millions)	2013		2014		2015	
Total revenue	$1,210.8	100.00%	$1,669.3	100.00%	$1,838.3	100.00%
Public sector	$832.2	69%	$1,171.6	70%	$1,263.6	69%
Private sector	$378.6	31%	$497.7	30%	$574.7	31%

CSI revenue consists primarily of software license fees, maintenance and other recurring fees, professional service fees and hardware sales. Customers pay license fees for using CSI software products. Around 7 percent of CSI revenue comes from license fees. Maintenance and other recurring revenue primarily consists of fees charged for ongoing support of software products post delivery. It also contains recurring fees derived from software as a service, subscriptions, and other transaction related revenues.

Most of the maintenance revenue is annuity based. There are several benefits to an annuity stream **(1)** It provides a solid base of business in good and bad times **(2)** It reflects deep customer relationships **(3)** Allows CSI to operate with negative working capital as a result of the collection of maintenance payments and other revenues in advance of the performance of the related services [deferred revenues constitutes 26 percent of source of funds]. Around 64 percent of CSI revenue comes from maintenance and other recurring fees.

Professional service revenue consists of fees charged for implementation and integration services, customized programming, product training and consulting. Around 21 percent of CSI revenue comes from professional services. Hardware sales include the resale of third party hardware and in some cases customized hardware assembled internally by CSI. Hardware segment has high gross margins of around 40 percent. And 8 percent of revenue comes from hardware segment.

(in millions)	2015		2014		2013		2012	
Total revenue	$1,838	100%	$1,669	100%	$1,211	100%	$891	100%
License	$131	7%	$119	7%	$102	8%	$72	8%
Professional services	$385	21%	$396	24%	$257	21%	$197	22%
Hardware and other	$153	8%	$139	8%	$128	11%	$111	12%
Maintenance and other recurring	$1,170	64%	$1,015	61%	$724	60%	$510	57%

A company can recognize revenue when the services or products have been provided or delivered irrespective of cash changing hands. Some of CSI software implementations and customizations can take few years to complete. How does CSI recognize revenue in such cases? Under those circumstances, CSI uses **percentage-of-completion** method to recognize revenue. To compute the percentage completed it either uses defined milestones or labour hours.

Let's look at an example to understand the percentage-of-completion method. Assume that CSI signed up for a project that is worth $300 million. It estimates that it would take 3 years to complete the project. It defined three major milestones each taking an year to complete. Under percentage-of-completion method, CSI would recognize revenue of $100 million each year. Even though CSI booked an accounting profit of $50 million each year, it had a cash outflow of $50 million every year. Only at the end of the third year, the sum of cash inflows and outflows matches the total accounting profit of $150 million.

	Percentage-of-completion		
(in millions)	Year 1	Year 2	Year 3
Revenue	$100	$100	$100
Expenses	$50	$50	$50
Accounting profit	$50	$50	$50
Cash outflow	($50)	($50)	($50)
Cash inflow	$0	$0	$300

There are two key takeaways from the above table. First, we should understand how a company recognizes revenue. Without it you will be a one legged man in an ass kicking contest. Second, to gauge the quality of accounting profits we should compare it with operating cash flows. From the table shown below, we can conclude that CSI quality of earnings is very high. A curious reader should ask why is there a big difference between operating cash flows and net income?

(in millions)	2015	2014	2013	2012	2011
Net Income [A]	$1,772	$1,031	$931	$926	$1,572
Operating cashflows [B]	$3,959	$3,415	$2,203	$1,448	$1,375
Quality of earnings [B/A]	2.23	3.31	2.37	1.56	0.88

There are a couple of reasons for that. Under IFRS accounting, which CSI follows, interest paid on debt is classified under financing activities. This amount is very small, less than 5 percent in CSI's case, and it gave a little boost to its operating cash flows. The major reason for such a big deviation is due to the amortization of intangible assets. Before digging into the details, let's look at the cost structure of CSI. The table shown below breaks down the cost structure of CSI.

	2015	2014	2013	2012	2011	2010
Expenses	86%	90%	91%	90%	89%	93%
Staff	50%	53%	53%	53%	52%	56%
Hardware	5%	5%	6%	7%	8%	7%
Third party license and others	9%	9%	8%	7%	7%	6%
Amortization of intangible assets	10%	10%	10%	10%	10%	11%
Others	12%	12%	13%	14%	13%	13%
EBIT Margin — Should we take EBIT or EBITA?	14%	10%	9%	10%	11%	7%
EBITA Margin	24%	21%	19%	20%	21%	17%

Every company depends on three kinds of capital — Human, Physical, and Finance. In case of software companies, human capital is much more important than the other two. This can be clearly seen in CSI's case as staff expenses on average contribute to around 53 percent of revenues. Around 30 percent of staff expenses goes toward research and development. CSI doesn't capitalize its research and development expenses, which is the right way to handle it.

Take a look at the contents inside the rectangle. EBITA margin is almost two times of EBIT margin. EBITA margin is higher as CSI is adding back amortization of intangible assets. CSI management focuses on EBITA instead of EBIT margin. Is this correct? How should we think about amortization of intangible assets? Anytime I am stuck with an accounting question, I go to Buffett's letter to shareholders.

> I won't explain all of the adjustments – some are small and arcane – but serious investors should understand the disparate nature of intangible assets: Some truly deplete over time

> while others never lose value. With software, for example, amortization charges are very real expenses. Charges against other intangibles such as the amortization of customer relationships, however, arise through purchase-accounting rules and are clearly not real expenses. GAAP accounting draws no distinction between the two types of charges. Both, that is, are recorded as expenses when calculating earnings – even though from an investor's viewpoint they could not be more different.
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> "Non-real" amortization expense also looms large at some of our major investees. IBM has made many small acquisitions in recent years and now regularly reports "adjusted operating earnings," a non-GAAP figure that excludes certain purchase-accounting adjustments. Analysts focus on this number, as they should. A "non-real" amortization charge at Wells Fargo, however, is not highlighted by the company and never, to my knowledge, has been noted in analyst reports. The earnings that Wells Fargo reports are heavily burdened by an "amortization of core deposits" charge, the implication being that these deposits are disappearing at a fairly rapid clip. Yet core deposits regularly increase. The charge last year was about $1.5 billion. In no sense, except GAAP accounting, is this whopping charge an expense. - Warren Buffett

From what Buffett wrote, we can see that certain amortization charges, like amortization of customer relationships or core deposits in Wells Fargo, are not real charges and they should be added back. But Buffett also wrote that in case of software companies, amortization charges are real expenses. How much of CSI's amortization should we add back?

	Cashflows	
Date	**A**	**B**
31-Dec-2015	($100)	($100)
31-Dec-2016	$20	$15
31-Dec-2017	$24	$17
31-Dec-2018	$29	$18
31-Dec-2019	$35	$20
31-Dec-2020	$41	$18
31-Dec-2021	$50	$16
31-Dec-2022	$52	$15
31-Dec-2023	$55	$13
31-Dec-2024	$58	$12
31-Dec-2025	$60	$11
IRR	**30%**	**9%**

In order to answer this question, I constructed a simple table shown above. Imagine that we acquired companies A and B by paying $100 each. Let's assume that A and B had identifiable assets worth $50 each. This means that the remaining $50 should be accounted for as goodwill. Let's assume that while acquiring A and B we expected an IRR of 15 percent.

Clearly the acquisition of A worked out very well. Why is that? The IRR of A is 30 percent which is much higher than our expectation of 15 percent. Not only that, A was able to grows its cash flows at a decent rate without any additional capital expenditure. The economic goodwill of A is much higher than that of the accounting goodwill of $50. Had A amortized its goodwill then it should be added back.

The acquisition of B didn't work out very well. Why is that? The IRR of B is 9 percent which is much lesser than our expectation of 15 percent. Not only that, the cashflows of B is shrinking, like a melting icecube, over the years. The economic goodwill of B is much lesser than that of the accounting goodwill of $50. Had B amortized its goodwill then it should be left as it is.

The key idea that we can infer from this example is that amortization of intangibles is not a real expense if the following criterias are met **(1)** IRR from acquisitions is above your hurdle rate **(2)** If the acquired businesses can grow its revenue and profits without any major reinvestment. Mark Leonard spent a lot of time explaining his shareholders on why he is focusing on EBITA and EBIT. Read, reread, and reflect on what he wrote by mapping it back to companies A and B.

> The tool that we used to identify these impaired assets was the internal rate of return ("IRR") that we are forecasting/experiencing for these acquisitions. Another tool for identifying impairment is Organic maintenance revenue contraction. When maintenance revenue contraction has occurred, then there has almost certainly been impairment in the underlying intangible asset. Neither acceptable forecast IRR's nor Organic maintenance revenue growth alone are proof of unimpaired intangible assets: **A business must have both an acceptable forecast IRR and Organic maintenance revenue growth to clearly have unimpaired intangible assets.** It is worth wading through a couple of examples and how they would each measure economic earnings.
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> IRR can be high while maintenance contraction is also high if a business with a poor strategic position and/or a deteriorating market is being "milked out" (i.e. run to generate very rapid payback of the original investment). This would likely be the right strategy to pursue with such an asset. However, the right economic accounting to pursue, would be to amortise the goodwill against the income of the business over the relatively short economic life of that asset. You should not use "Adjusted Net Income" (i.e. Net Income plus Amortisation) when judging the economic earnings of a business such as this.
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> Similarly, IRR can be low while Organic maintenance is growing rapidly if a company is either investing irrationally in organic growth, or paying too much for acquisitions with high organic

growth. At the margin, we would argue that the majority of multi-product software businesses over-invest in their Organic growth initiatives. This doesn't give rise to misleading Net Income figures unless the companies are also capitalising R&D – which we do not do. If too high a price is paid for a growing acquisition, then there is going to be intangible asset impairment. GAAP often allows this impairment to be averaged out against a broader intangibles pool, or quickly amortised before the impairment is apparent (at which point GAAP ceases to care, since it has already been written off).

If it becomes evident that any of our Operating Groups are milking out a business, or have overpaid for acquisitions, we will provide Constellation's shareholders with the historical cost of the intangibles that we purchased with that business, and we will reduce the Average Invested Capital that we report. For competitive reasons, we will not advertise the names of the businesses where impairment has occurred. - Mark Leonard

Take a look at the table given below. Since 2004, CSI average ROIC is 28 percent. And it has been steadily going up from 15 to 38 percent. Also, its organic growth is positive and it averages around 4 percent. CSI has been able to achieve this organic growth without any major capital expenditures. The organic growth in 2015 is negative due to strengthening of US$ which dragged down the organic growth by 600 basis points. From all this we can conclude that CSI adding back amortization charges is the right thing to do.

Year	Adjusted Net Income (in millions)	Average Invested Capital	ROIC	Organic Net Revenue Growth	ROIC + Organic Net Revenue Growth
2004	$13	$84	15%	9%	24%
2005	$17	$101	17%	18%	35%
2006	$26	$123	21%	8%	29%
2007	$33	$154	22%	1%	23%
2008	$54	$195	28%	5%	33%
2009	$62	$256	24%	-3%	21%
2010	$84	$325	26%	-2%	24%
2011	$140	$394	36%	7%	43%
2012	$172	$491	35%	2%	37%
2013	$207	$585	35%	4%	39%
2014	$274	$739	37%	3%	40%
2015	$371	$965	38%	-3%	35%
	36%	**25%**	**28%**	**4%**	**32%**

Is there a moat in what CSI is doing? Some of the business units of CSI have terrific moats. It develops software for several verticals including paratransit, mid-tier utilities, equipment rental software, homebuilding software, agricultural software, and public housing software. By narrowly specializing, CSI got terribly good at occupying a lot of little niches.

Software business in general is very sticky and if something is working very well then customers don't switch [status-quo]. This makes life much harder for small competitors to take away market share from CSI. Bigger companies don't bother to enter as the market size is too small for them. The best way to prove the stickiness of CSI software is to look at **(1)** organic growth of its maintenance revenue **(2)** churn of its customers. Take a look at the table given below. What do you see?

Maintenance Revenue (millions)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Growth from	$116	$142	$193	$252	$337	$417	$510	$725	$1,015	$1,170
Acquisitions	17%	11%	25%	27%	25%	15%	15%	34%	32%	15%
Organic sources										
a) New maintenance	15%	9%	9%	8%	8%	8%	8%	10%	10%	8%
b) Price increases and other	5%	9%	9%	4%	6%	5%	5%	6%	7%	5%
c) Attrition - Lost Modules	-2%	-2%	-3%	-3%	-3%	-2%	-2%	-2%	-4%	-2%
d) Attrition - Lost Customers	-4%	-4%	-4%	-4%	-4%	-3%	-4%	-5%	-5%	-5%
Total Organic Growth	14%	12%	10%	4%	7%	7%	8%	8%	8%	7%
Estimated effects of FX	0%	0%	0%	-1%	1%	2%	-1%	-1%	-1%	-6%
Total Maintenance Growth	31%	23%	35%	31%	34%	24%	22%	42%	40%	15%

Without the currency effects, the average organic growth comes to 9 percent. The customer churn averages 4 percent, suggesting that on average customers stay with CSI for 25 years. You don't need any other data to prove that the switching costs for CSI customers are very high.

Management

Even though there are terrific moats around some of the individual business units of CSI, the barrier to entry of starting a vertical software market conglomerate is pretty much a checkbook and a telephone. But it's damn hard to replicate and maintain the success of CSI. This is because of the strong culture created by Mark Leonard.

In order to understand the culture setup by Mark, I have extracted some key points from his letters and organized under different themes. This method of hanging excerpts on themes is called as commonplacing. This is a powerful way to understand and learn things deeply.

How he treats minority shareholders

I recently flew to the UK for business using an economy ticket. For those of you who have seen me (I'm 6'5", and tip the non-metric scale at 280 lbs.) you know that this is a bit of a hardship. I can personally afford to fly business class, and I could probably justify having Constellation buy me a business class ticket, but I nearly always fly economy. I do this because there are several hundred Constellation employees flying every week, and we expect them to fly economy when they are spending Constellation's money. The implication that I hope you are drawing, is that the standard we use when we spend our shareholders' money is even more stringent than that which we use when we are spending our own.

Last year I asked the board to reduce my salary to zero and to lower my bonus factor. CSI had a great year, so despite those modifications, my total compensation actually increased. This year I'll take no salary, no incentive compensation, and I am no longer charging any expenses to the company. I've been the President of CSI for its first 20 years. I have waived all compensation because I don't want to work as hard in the future as I did during the last 20 years. Cutting my compensation will allow me to lead a more balanced life, with a less oppressive sense of personal obligation. I'm paying my own expenses for a different reason. I've traditionally travelled on economy tickets and stayed at modest hotels because I wasn't happy freeloading on the CSI shareholders and I wanted to set a good example for the thousands of CSI employees who travel every month. I'm getting older and wealthier and find that I'm willing to trade more of my own cash for comfort, convenience, and speed ... so I'm afraid you'll mostly see me in the front of the plane from here on out.

In addition to our long term sophisticated investors, we also have a second constituency of less financially oriented long-term investors, including some of our employee shareholders. Our employee bonus plan requires that all employees who make more than a threshold level of compensation invest in CSI shares and hold those shares for an average of at least 4 years. In practice, their average hold period has been much longer.

On leverage and avoids asset-liability mismatch risk

I am not comfortable using short term debt or long-term debt with highly restrictive covenants to finance the parent company. Personally, I'd use significant amounts of debt to finance our growth if it were long term, non-callable and the interest payments could be deferred for short periods. We have demonstrated the ability to generate good returns on incremental capital over the long haul, as demonstrated by the track record. Unfortunately, investment bankers tell me that this sort of debt doesn't exist.

Decentralized management and seamless web of deserved trust

Only one other HPC has followed a strategy of buying hundreds of small businesses and managing them autonomously. They eventually caved in to increased centralisation. My hunch is that it takes an unusually trusting culture and a long investment horizon to support a multitude of small businesses and their entrepreneurial leaders. If trust falters the BU's can be choked by bureaucracy. If short term results are paramount, the siren song of consolidation synergies is powerful. We continue to believe that autonomy and responsibility attract and motivate the best managers and employees.

From all of the above we can conclude that Mark Leonard is a owner operator who is genuinely passionate about the business. And he is running it for the benefits of all the key stakeholders.

Valuation

Benjamin Graham is the father of value investing. I love his quote about the stock market — In the short term, the stock market is a voting machine; in the long term, it's a weighing machine. From his quote one can conclude that over the long term the stock market is right in coming up with a fair multiple for CSI shares. The table given below contains the judgement of the stock market. What do you see?

Year	Share price	Revenue per share	Cash flow per share	price-to-sales	price-to-cashflow
2006	$19.35	$10.01	$0.59	1.93	32.80
2007	$25.74	$11.47	$1.21	2.24	21.28
2008	$21.12	$15.60	$1.36	1.35	15.53
2009	$34.91	$20.67	$1.62	1.69	21.55
2010	$49.49	$29.92	$2.96	1.65	16.72
2011	$75.21	$36.49	$3.85	2.06	19.53
2012	$120.71	$42.05	$5.06	2.87	23.86
2013	$211.04	$57.13	$6.49	3.69	32.52
2014	$297.08	$78.77	$6.83	3.77	43.50
2015	$415.35	$86.75	$10.40	4.79	39.94
2016	$384.46	$104.10	$12.48	3.69	30.81
	Estimated that sales and cash flows grow at 20 percent by the end of 2016.		Average	2.61	26.72

Based on the current stock price, revenue and cash flow multiples are above the long term averages. But if we compare the current multiples with the last four year average [price-to-sales of 3.8 and price-to-cash-flow of 35], then the current stock price appears reasonably valued.

Why did the average price multiple jumped to higher bands in the last four years? This happened because **(1)** market discovered that Mark Leonard is doing god's work **(2)** at one point Mark tried to sell his company. So the market started paying up for CSI's stock. Let's look at the valuation from the vantage point of zen-of-corporate-finance.

	No growth	15% growth	20% growth
Cost of capital	10%	10%	10%
Shares outstanding	21191530	21191530	21191530
Exit multiple	10	15	20
Terminal value (in millions)	4450	$11,190	$18,463
Intrinsic value per share	$130	$328	$541
Current share price	$384	$384	$384
Price to intrinsic value	2.95	1.17	0.71

The calculations in the above table assume that CSI will reinvest 100 percent of net income back into the business. Mark hinted that if there are attractive acquisitions, then he would consider not paying any dividends. At the current share price of $384, the market expects CSI to grow its adjusted net income at 15 percent for the next 5 years and 3 percent after that. If that happens then an investor will earn an IRR of 10 percent over the next five years. If CSI can compound at 20 percent then the stock appears undervalued.

References

1. Shareholder's letters of Constellation Software.
2. Annual reports of Constellation Software.
3. Article on Constellation Software's elusive CEO.

Disclaimer: As of this writing, I do not own shares of Constellation Software. This is not a recommendation to buy, sell, or hold. I am not a registered analyst. I wrote this document to organize my thoughts and to deepen my understanding about the company. I am sharing it so that you can learn something from this.

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