2021 MEMBERSHIP QUALIFICATION EXAMINATION

DATE: September 29, 2021

TIME: 4.0 Hours

CBV INSTITUTE
2021 MEMBERSHIP QUALIFICATION EXAMINATION (MQE)

Administered by: York University School of Continuing Studies

NOTES TO CANDIDATES:

1. **Candidates must use the case facts as presented and should not incorporate the effects of COVID-19 into their responses.**

2. The MQE must be written using Word and Excel (or programs capable of opening, exporting, and saving Word and Excel files) to write their exam. The Word and Excel templates to be used are to be retrieved from the MQE page in Moodle. Excel Macros are to remain disabled.

3. The only equipment allowed is:
   - a calculator that is silent, with single-line or two-line display, incapable of alpha storage
   - laptop computer
   - power cord
   - one keyboard
   - one mouse

4. Absolutely **NO** reference materials (websites, texts, notes, etc.) are permitted.

5. As markers may be marking paper copies of Candidates' responses, details of assumptions and calculations should be provided in the responses.

6. **Candidates must name/save their Word and Excel response files as the Candidate Number that was assigned by CBV Institute. No names, Student IDs, or any other identifying information should be included in the response files. The Word and Excel files must be uploaded to Moodle immediately after the exam writing is completed.**

7. The number of marks allocated to each question and the pro-rata time element are noted on the next page.

8. Details of assumptions and calculations should be provided in the responses.

9. Applicable tax rates are provided in each question.

10. Tables of present values and capital cost allowance rates are attached at the end of the examination paper.

11. Answer all questions.

© 2021 CBV Institute. CBV Institute is the trade name of The Canadian Institute of Chartered Business Valuators

2021 MEMBERSHIP QUALIFICATION EXAMINATION

Allocation of Marks

Question No.	Marks	Suggested Time (in Minutes)
1	55	132
2	45	108
	100	**240**

QUESTION 1

Question 1

ACE Technology Corporation (55 Marks)

You, CBV, are currently the only valuation expert in the Finance department of ACE Technology Corporation ("ACE" or the "Company"), a Canadian software development company founded in 2014 by brothers Alex, Cameron, and Eric (the "Shareholders"). Over the last seven years ACE grew from a small operation into a successful company by being first to market with a unique internally developed voice recognition software.

Today is September 29, 2021, and you and your colleagues are busy assisting ACE's external accounting firm with the audit for ACE's fiscal year ended August 31, 2021.

ACE incorporated its voice recognition software into a digital assistant product, "Home Ace-istant" which turned out to be a huge success as customers enjoyed the unique ability to automate their daily routines. One of the important elements of ACE's success has been a focus on innovation, holding regular brainstorming sessions which resulted in ACE applying for and receiving several patents, the costs of which are recorded on ACE's balance sheet. ACE's historical balance sheets and income statements along with accompanying notes are included in Appendix 1, and Appendix 2, respectively. One of the Analysts in the Finance Department compiled a list of potential guideline public technology companies, set out in Appendix 3.

The Shareholders never saw a need for a shareholder agreement but understand from speaking to their accountant that it is important, especially since Cameron plans to retire in five (5) years, and Alex recently married.

The shareholders are currently considering a takeover bid (the "Takeover Bid") from Technology To Go ("TTG") which they received last week. TTG is another player in the smart tech industry and TTG management would like to acquire ACE in order to eliminate a major competitor and to increase TTG's market share. Details of the Takeover Bid are provided in Appendix 4.

However, after presenting the Home Ace-istant technology at various auto shows, ACE's executives were approached by two automakers about adapting their voice recognition software for use in their vehicle infotainment systems to allow for hands-free driver voice control. Those discussions have now resulted in offers (the "Offers") from the following two automakers:

- Lucente Manufacturing Network ("LMN") - a description of LMN and the company's historic balance sheets and income statements are included in Appendices 5 through 7; and

- Divine Auto Group ("DAG") - a description of DAG and their offer is included in Appendix 8.

LMN's Offer

LMN offered ACE a strategic partnership whereby LMN will issue 30,000 new common shares to ACE upon acceptance of their offer. If LMN can sell more than 1,000,000 cars in total over the next five (5) years, ACE can then acquire an additional 15,000 common shares at LMN's current pro-rata fair market value (i.e., LMN's stand-alone value without ACE's technology or any discount for minority interest). LMN believes a strategic partnership with ACE will increase its brand awareness and market presence. Without ACE's technology, LMN expects its cash flows will increase at the industry's long-term growth rate of 2.0% per annum.

With ACE's technology, independent market research indicates LMN's vehicles sales growth can triple (i.e., 3 times) analysts' consensus growth over the next 5 years (provided in Appendix 9). If the strategic partnership is pursued, LMN plans to run a major advertising campaign to announce this partnership highlighting ACE's technology in LMN's vehicles. A total of $2.5 million per annum over the next 2 years will be spent on advertising to achieve the forecasted growth plan, with an expected initial increase in average vehicle prices of 15%. If the strategic partnership with ACE is pursued, LMN's management also plans to acquire production equipment to reduce production costs by 5% of vehicle revenues. The equipment will be installed at the beginning of fiscal 2024, at a cost of $3 million.

LMN has offered to pay all costs associated with modifying ACE's software to integrate with their vehicles infotainment systems. ACE's software developers estimate the necessary modifications can be done in under 1 month at 15% of the technology's replacement cost.

DAG's Offer

DAG has offered to license ACE's voice recognition software in exchange for a royalty fee of US $1,000 per vehicle sold for an initial term of six (6) years (expiring August 31, 2027). After DAG sells more than 150,000 vehicles, the licensing fee doubles (to US $2,000 per vehicle) for the remaining term of the contract.

Upon expiration of the license on August 31, 2027, DAG will continue to use the software as adapted by their developers and will pay ACE US $20 million for the software's source code.

Both Offers (LMN and DAG) require exclusive use of ACE's technology in the automotive sector and both automakers expect to exceed industry growth projections by being first to market with this technology in their vehicles. The consensus analyst growth rates for the North American automotive industry provided on Appendix 9 have been assessed as reasonable by ACE's Finance department.

This morning you attended a meeting with ACE's Advisory Board (the "Advisory Board") to assist the Shareholders in assessing which of the three opportunities to accept (i.e., either the Takeover Bid or one of the Offers), if any. The Shareholders believe this is an important decision for the future strategic direction of the Company and the Shareholders require your analysis to make a decision by October 7, 2021.

Required:

Analyze the three opportunities currently available to ACE and prepare a memorandum for consideration by the Shareholders which addresses the following:

1) Consider whether the recent Takeover Bid from TTG is reasonable. Given that the Offers are at the early stages of negotiation and non-binding as of today they should not be considered in your analysis of the Takeover Bid.

2) Discuss the considerations for the Shareholders of accepting the initial payment in cash vs. shares if the Takeover Bid is accepted.

3) Calculate the fair market value ("FMV") of the Offers and make a recommendation as to which of the Offers to pursue, if any. Include your supporting calculations and briefly discuss any strategic factors that should be considered in each of the Offers.

4) Discuss any relevant terms that should be considered by the Shareholders of ACE when establishing a Shareholder Agreement.

Since the Shareholders are knowledgeable about the industry, economic environment, and background of the Takeover Bid and the Offers, your memo does not need to include these areas, but should include calculations and analysis to support your recommendation including relevant qualitative considerations.

Appendices:

1. ACE Balance Sheet
2. ACE Income Statement
3. Overview of Comparable Public Technology Companies
4. TTG Takeover Bid
5. LMN Company Background
6. LMN Balance Sheet
7. LMN Income Statement
8. DAG Company Background and Licensing Offer
9. Industry and Economic Data

Appendix 1: ACE Balance Sheets as of August 31st

In CAD $ 000's	Notes	31-Aug-19	31-Aug-20	31-Aug-21
	1	(Audited)	(Audited)	(Unaudited)
Assets				
Cash		$ 550	$ 350	$ 400
Accounts receivable		315	284	305
Inventory		625	725	800
Internally developed software	2	5,805	5,805	5,805
Patents	3	400	550	625
Current Assets		**7,695**	**7,714**	**7,935**
Furniture & fixtures, net of amortization		200	189	178
Computer equipment, net of amortization		824	805	786
Total Assets		**$ 8,719**	**$ 8,708**	**$ 8,899**
Liabilities				
Accounts payable		$ 215	$ 156	$ 149
Line of credit		50	35	32
Current portion of long term debt		15	14	13
Current Liabilities		**280**	**205**	**194**
Bond payable	4	400	400	400
Other long term debt		325	311	298
Dividend payable	5	160	170	180
Total Liabilities		$ 1,165	$ 1,086	$ 1,072
Shareholders' Equity				
Common shares	6	1,500	1,500	1,500
Preferred shares	7	4,000	4,000	4,000
Retained earnings		2,054	2,122	2,327
Shareholders' Equity		**7,554**	**7,622**	**7,827**
Liabilities & Shareholder Equity		**$ 8,719**	**$ 8,708**	**$ 8,899**

Notes:

1. The audit of the financial statements for fiscal 2021 is currently underway

2. Internally developed voice recognition software, recorded based on costs incurred

Details of costs incurred		
Software development	3,600,000	6 developers * 5 years * salary $120,000/each
Voice recognition module	1,800,000	3 developers * 4 years* salary $150,000/each
Testing	255,000	2 junior staff * 18 months * salary $85,000/each
One time integration cost	150,000	
Total	**5,805,000**	

Since these costs were incurred a few years ago when the technology was new, additional research and testing was required at the time. ACE estimates that approximately 1 year of each stage could be avoided if this technology had to be replicated, however salaries for the same position have increased by 20% up to date.

3. Represent cost of patents held by ACE for other types of technology, but not currently generating revenue or used in the "Home ACE-istant" product.

4. A 4 year accrual bond was issued in 2018, with a $400,000 face value, coupon rate 8%, YTM 6%, and annual compounding.

5. ACE typically pays out dividends 2 months after the fiscal year end.

6. Alex and Cameron each subscribed to 750,000 shares.

7. Eric holds 200,000 preferred shares with a 7% annual dividend, retractable at his option, and non-voting.
   Retraction value of shares is equal to their book value.
   Comparable preferred shares offer a 8.4% return, with a 2% dividend growth.

Appendix 2: ACE Income Statements as of August 31st

in $CAD (000's)	Notes	31-Aug-16	31-Aug-17	31-Aug-18	31-Aug-19	31-Aug-20	31-Aug-21
	[1]	(Audited)	(Audited)	(Audited)	(Audited)	(Audited)	(Unaudited)
Total Revenue		**$ 16,944**	**$ 25,700**	**$ 38,187**	**$ 46,585**	**$ 51,708**	**$ 62,050**
Cost of goods sold		2,542	3,855	5,728	6,988	7,756	9,308
Gross Profit		$ 14,402	$ 21,845	$ 32,459	$ 39,597	$ 43,952	$ 52,743
Operating Expenses							
Advertising		1,750	1,815	2,000	2,100	2,200	2,350
Donations	[2]	325	425	500	621	700	710
Amortization		30	30	30	30	30	30
R&D		1,695	2,570	3,820	4,600	5,200	6,200
Interest		21	22	24	26	25	24
Real estate rental		95	99	105	110	115	120
Salaries & wages		5,900	9,000	13,400	16,300	18,100	21,700
Total Operating Expenses		$ 9,816	$ 13,961	$ 19,879	$ 23,787	$ 26,370	$ 31,134
Net Income subject to tax		**$ 4,586**	**$ 7,884**	**$ 12,580**	**$ 15,810**	**$ 17,582**	**$ 21,609**

Notes:

1. The audit of the financial statements for fiscal 2021 is currently underway.

2. The company aims to associate its brand name with positive social causes.

Appendix 3: Overview of Comparable Public Technology Companies

Technology based companies are priced based on various multiples, including Enterprise Value/Earnings Before Interest and Tax (EBIT) (EV/EBIT) and Enterprise Value/Revenue (EV/Revenue). Your colleague in the Finance department summarized the following information related to public Canadian based technology companies' information, as of today, for your review:

Company Name	**Enterprise Value**	**LTM Revenue**	**LTM EBIT**	**Prior year revenue growth**	**LTM EBIT as % of LTM Revenue**
In CAD $000's, unless otherwise stated	($)	($)	($)	(%)	(%)
Smart Lens	$ 80,700	$ 40,740	$ 13,037	19%	32%
Smart Balls	$ 81,000	$ 65,740	$ 22,352	25%	28%
Tailored Suites	$ 64,945	$ 53,900	$ 19,800	9%	37%
Get Appy	$ 34,800	$ 28,536	$ 10,200	25%	36%
Webby Up	$ 603,000	$ 176,800	$ 74,000	38%	42%
Inteli-Scale	$ 125,000	$ 115,000	$ 34,000	28%	30%
Intelli-Pen	$ 61,800	$ 77,200	$ 18,400	3%	24%
Smart Sense	$ 155,000	$ 95,000	$ 41,000	3%	43%
We-Motional	$ 655,000	$ 222,000	$ 71,000	8%	32%

Description of companies

Smart Lens	Smart Lens was first to market with smart lenses that incorporate wifi capability allowing users to identify objects around them and look up more information online. Started operating 8 years ago.
Smart Balls	5 year old company that incorporated internally developed software into various balls (soccer, baseball, basketball) to help athletes track relevant stats.
Tailored Suites	IT company offering customized analytics software, serving customers across North America.
Get Appy	4 year old company specializing in developing mobile applications. Generates revenues from licenses and downloads, with worldwide customers.
Webby Up	An e-commerce website that has been operating over 15 years but recently experienced significant growth in 2020 due to consumer shift to online shopping, serving customers across North America.
Inteli-Scale	6 year old smart tech company that incorporated an internally developed chip into a weight scale along with an accompanying mobile app that develops meal plans to assist users to achieve target weight/fitness goals. Brand name has a positive reputation, and is highly recommended by fitness professionals.
Intelli Pen	Developed a "smart pen" which converts hand written notes into electronic documents, currently sold in bookstores through North America. Operations have been negatively impacted by store closures due to COVID-19.
Smart Sense	10 year old software company that developed sensors for use in garage doors as a safety feature. Operations are based in Canada, with sales across North America.
We-Motional	Developed a motion detection chip that's been incorporated into various household/residential items (including motion sensor lights, motion sensor faucets, and garbage cans). Has been in operation for over 20 years with worldwide sales.

Appendix 4: TTG Takeover Bid

TTG is an electronics manufacturer that has grown through acquisition to achieve a worldwide presence and eliminate competitors. TTG underwent a successful IPO last month, issuing 65 million common shares at $48/share. As of today, TTG's share price is $45.

In 2019, TTG put forward a bid to acquire 100% of ACE's common shares. The Shareholders rejected TTG's offer, since they did not want to permanently give up involvement in ACE at that time.

Last week, TTG presented the following revised Takeover Bid (binding if signed by ACE):

$90 million initial payment plus an earnout (the "Earnout") of any, or all of the following:

- $10 million if cumulative revenue growth, from fiscal 2021, is at-least 25% by 2023;
- an additional $15 million if cumulative revenue growth, from fiscal 2021, is at-least 50% by 2024; and
- an additional $25 million if cumulative revenues growth, from fiscal 2021, is over 75% by 2026.

The Earnout will be paid at the end of the calendar year in which a milestone is achieved.

To allow ACE shareholders an opportunity to continue their involvement in the combined company, the current Takeover Bid includes an option for the Shareholders to choose if they want to receive the initial $90 million payment in cash, or in common shares of TTG. The common shares will have immediate voting rights but cannot be sold or transferred for a period of one (1) year after receipt.

For the purposes of valuing the earnout, you understand that TTG expects ACE's revenues to increase 15% during fiscal 2022, with subsequent annual growth rates decreasing by 1% per year over the next five (5) fiscal years (i.e., 15% revenue growth during fiscal 2022, 14% revenue growth during fiscal 2023, 13% revenue growth during fiscal 2024, etc.). Based on your cursory review of this Takeover Bid, you believe a discount rate at a premium of 4%-8% on the current risk-free rate is appropriate.

Appendix 5: LMN Company Background

LMN, a privately owned company, is a domestic auto manufacturer in Canada known for producing quality, affordable vehicles. At the start of fiscal 2019, LMN was the subject of negative media attention due to the discovery of defective components in their vehicles' electrical system. An internal investigation revealed that LMN's purchasing manager changed suppliers in favor of a lower cost provider. LMN's 2019 vehicle sales numbers significantly decreased, and customer complaints increased which negatively impacted LMN's reputation. A vehicle recall was issued, and the electric systems were fully covered under warranty. Accordingly, significant warranty expenses were recorded during fiscal 2019 and 2020.

Any defective components remaining in inventory at the end of fiscal 2019 were disposed of at cost. LMN launched a lawsuit against the supplier for reimbursement of the inventory disposal costs. LMN's legal counsel estimates a 90% chance of recovering 75% of the inventory disposal costs incurred. These estimates already incorporate the time value of money. Litigation fees are estimated at 30% of the recovered amount.

To restore LMN's reputation, several changes were implemented during 2020, including a pre-approved list of authorized part suppliers, quality assurance checks, and cash incentives for employees to report and correct any quality issues identified on the production line. LMN's efforts have been well received both in the marketplace and by their employees. This newly implemented quality assurance program increased annual costs by $1.5 million/year.

This summer (2021) LMN's production employees discovered that their unionized counter parts were earning a "living wage" approximately 20% higher for similar work at another auto manufacturer. LMN's management believes unionization is likely if production employee wages are not adjusted accordingly.

Historically, sustaining capital expenditures have approximated $1.1 million per year for machinery (20% Capital Cost Allowance (CCA) Rate).

LMN's current undepreciated capital cost ("UCC") balance for machinery is 80% of its net book value, while the UCC balance of the warehouse approximates its net book value. Required non-cash working capital approximates 4.0% of revenue.

LMN's historical audited balance sheets and income statements, along with accompanying notes are included in Appendix 6, and Appendix 7, respectively.

Appendix 6: LMN Balance Sheet as of August 31st

In CAD $ 000's	Notes	31-Aug-19	31-Aug-20	31-Aug-21
	1	(Audited)	(Audited)	(Unaudited)
Assets				
Cash		$ 180,200	$ 139,000	$ 159,000
Accounts receivable		195,000	190,500	200,100
Inventory - work in process		221,400	242,700	235,700
Marketable Securities	2	-	25,000	25,000
Current Assets		**596,600**	**597,200**	**619,800**
Land		45,000	45,000	40,000
Machinery, net of amortization		257,500	227,500	197,500
Warehouse, net of amortization		812,800	792,800	772,800
Total Assets		**$ 1,711,900**	**$ 1,662,500**	**$ 1,630,100**
Liabilities				
Accounts payable		$ 53,500	$ 59,500	$ 56,500
Current portion of bank loan		18,600	16,000	14,700
Current Liabilities		**72,100**	**75,500**	**71,200**
Mortgage payable-warehouse		565,000	530,000	495,000
Bank - long term debt		107,000	91,000	76,300
Dividends payable		-	-	5,000
Total Liabilities		$ 744,100	$ 696,500	$ 647,500
Shareholders' Equity				
Common shares	3	1,000	1,000	1,000
Retained earnings		966,800	965,000	981,600
Shareholders' Equity		**967,800**	**966,000**	**982,600**
Liabilities & Shareholders' Equity		**$ 1,711,900**	**$ 1,662,500**	**$ 1,630,100**

Notes:

1. The audit of the financial statements for fiscal 2021 is expected to be complete by November 30, 2021.

2. Marketable securities were purchased in January 2020 for $25,000,000, but due to impact of COVID-19 on the markets, current FMV of marketable securities estimated at $21,000,000.

3. There are 500,000 common shares outstanding.

Appendix 7: LMN Income Statement as of August 31st

In CAD $ 000's	Notes	31-Aug-17	31-Aug-18	31-Aug-19	31-Aug-20	31-Aug-21
	1	**(Audited)**	**(Audited)**	**(Audited)**	**(Audited)**	**(Unaudited)**
Sales revenues	2	6,966,000	7,431,750	4,830,638	6,048,675	6,714,900
Dividend income	3	-	-	-	600	600
Gain/(loss) on disposal of asset	4	-	-	-	-	2,500
Total Revenue		$ 6,966,000	$ 7,431,750	$ 4,830,638	$ 6,049,275	$ 6,718,000
Cost of goods sold	5	5,600,000	5,950,000	3,870,000	4,860,000	5,340,000
Gross profit		**$ 1,366,000**	**$ 1,481,750**	**$ 960,638**	**$ 1,189,275**	**$ 1,378,000**
Operating Expenses						
Amortization		300	500	500	500	500
Meals and entertainment	6	410	420	525	580	620
Warranty expense	7	-	-	582,500	358,000	-
Interest		784	745	731	728	713
Professional fees		150	150	150	150	500
Other-reconfiguration expense	8	-	-	-	-	8,200
Repair & maintainence- equipment	9	10,000	10,000	50,000	10,000	10,000
Selling, general, and admin		517,000	515,900	525,000	515,000	510,000
Other-defective inventory disposal	10	-	-	35,000	-	-
Bad debt expense	11	-	-	-	4,500	-
Quality assurance program costs		-	-	-	1,500	1,500
Total Operating Expenses		$ 528,644	$ 527,715	$ 1,194,406	$ 890,958	$ 532,033
Pre Tax Income		**$ 837,356**	**$ 954,035**	**-$ 233,769**	**$ 298,317**	**$ 845,967**

Notes:

1. The audit of the financial statements for fiscal 2021 is expected to be complete November 30, 2021.

2. The average price per car is $40,500 CAD

	2017	2018	2019	2020	2021
Total number of cars sold by LMN, historically	172,000	183,500	119,275	149,350	165,800

3. Dividend income from marketable securities.

4. Gain on severing land.

5. Historically, COGS represent 80% of vehicle sales, and include production employee wages

	2017	2018	2019	2020	2021
Production employee wages included in COGS	2,676,000	2,975,000	2,325,000	2,636,800	2,595,000

6. Includes $25,000/month of catered lunches for employees.

7. Costs to repair defective components for customers.

8. Non-recurring expense related to a reconfiguration of a product line.

9. Defective components damaged equipment causing an increase in repairs and maintenance.

10. Cost to dispose of defective batch of inventory.

11. Two of LMN's customers (car dealerships) went out of business due to COVID-19 closures, and filed for bankruptcy in summer of 2020.

Appendix 8: DAG Company Background and Licensing Offer

DAG is a new luxury automaker in the U.S.A that prides itself on being the only North American automaker with its own research and development ("R&D") team. DAG manufactures vehicles with unique functionalities not typically offered by other auto manufacturers. DAG is always searching for new features to incorporate into their vehicles.

DAG's R&D team believes that the functionality of the "Home Ace-istant" technology could give the company a unique advantage if the software can be incorporated into their vehicle. They have requested access to ACE's voice recognition software source code. DAG's management anticipates quadrupling (I.e., 4 times) the number of vehicles sold compared to the analysts' consensus growth rates (provided in Appendix 9) if their R&D team is granted access to the source code and plans to have the software incorporated into their vehicles by the beginning of fiscal 2023.

During fiscal 2021 DAG sold 43,750 cars.

Appendix 9: Industry and Economic Data

Vehicle sales growth for North America: consensus analyst projections

	2022	2023	2024	2025	2026	2027
Vehicle sales growth (units)	3%	3%	2%	2%	2%	2%

Other industry and economic data

- Optimal Debt to Equity ratio for automobile manufacturers 1.08: 1.00
- Canada long-term inflation rate: 2.0%
- 5-year equity risk premium: 3.0%
- 15-year equity risk premium 6.0%
- 35-year equity risk premium: 9.0%
- 1-year government bond yield: 1.5%
- 10-year government bond yield: 2.2%
- 20-year government bond yield: 3.2%
- Interest on unsecured corporate loans 8.0%
- Interest on secured corporate loans 5.0%
- Industry risk premium - automobile manufacturers 4.0%
- United States Dollar: Canadian Dollar exchange rate: $ 1 USD = $ 1.45 CDN

- Size risk premium, based on Company Market Cap, in $ millions
  - ≥ 0 - ≤ 100 11.20%
  - > 100 - ≤ 500 8.53%
  - > 500 - ≤ 1,000 7.74%
  - > 1,000 - ≤ 2,000 5.20%
  - > 2,000 3.47%

Combined federal and provincial corporate income tax rates:

- Manufacturing and processing: 26.5%
- General: 30.0%

Combined federal and provincial individual income tax rates:

- Interest and other income 51.0%
- Capital gains 28.0%
- 2021 Lifetime Capital Gain Exemption $ 892,218

QUESTION 2

Question 2

Barry Family Farm (45 marks)

Introduction

Today's date is December 1, 2021.

You are a Senior Associate at a Valuations Firm located in Fruitville, British Columbia ("BC") and have recently received your CBV designation. You and your colleagues have been putting in a lot of hours over the past month, but things seem to be settling down.

Dave, a Partner at your firm, has come to you for assistance with a new engagement in the farming industry. Over the past two years you have worked with Dave and completed many farm valuations for various purposes, including family law and tax planning.

He also pointed out that the potential impact of increasing real estate values in British Columbia will need to be considered in your valuation approach and analysis.

The firm was approached by two lawyers, Logan and Kate. They have asked your firm to work as a jointly retained independent expert on a family law matter. Joint retainers in family law scenarios are not unusual and considered appropriate, but client acceptance procedures still need to be documented in the file.

Logan and Kate are members of the local collaborative family law group and they are both Partners at their respective law firms. Dave has never worked with either lawyer but has heard positive feedback from his contacts in the community.

Collaborative lawyers work together without going to court. Avoiding litigation typically minimizes costs, keeps personal matters out of the public record, and is a faster process. The objective is to work through complex and stressful times in people's lives with a positive mindset focussed on achieving solutions.

Logan is representing Mr. Pete Barry, and Kate is representing Mr. Garth Wayne. Pete and Garth were married in 2004 and are now finalizing their divorce. The divorce is amicable, but both spouses want to ensure that they receive an equal portion of the marital assets that they accumulated together during their marriage.

Based on your initial discussion with Dave, the Parties require your expertise in determining the fair market value of their respective ownership interests in Barry Family Farms ("BFF" or the "Company"), as well as determining the fair market value of specialized equipment and software developed by Garth ("SORTech").

Dave attended a Zoom call with Logan and Kate and has provided you his notes from the meeting (See Appendix A), as well as financial information and other information provided by the clients (See Appendices B through G).

The Separation Date is October 31, 2021 and this date will be used as the Valuation Date. October 31, 2021 is also the fiscal year-end of BFF. The lawyers have advised you that they do

not require a valuation at the beginning of the relationship to establish the value of any assets brought into the relationship. Pete and Garth have accumulated their wealth while married.

Dave has advised you to assume a blended corporate tax rate of 18% and to use a personal tax rate of 25%.

Pete and Garth have asked whether the valuation fee can be based on a percentage of the values determined.

Required:

Prepare a memo to the Partner and address the following items:

1. Identify report considerations and recommendations with respect to the type of report that should be issued, engagement risks and engagement acceptance considerations.
2. The fair market value of each spouse's interest in BFF; and,
3. The fair market value of SORTech.

Your memo should identify and explain all valuation methodologies considered and include supporting calculations and key assumptions. You should address any goodwill inherent in the fair market value of BFF.

Your colleagues have been assigned the task of preparing the industry, economic, or company background sections of the report therefore you are not required to prepare these sections.

Appendices:

Appendix A: Notes from Zoom Call
Appendix B: Corporate Ownership Structure
Appendix C: Unaudited Financial Statements
Appendix D: Capital Asset Information
Appendix E: Impact of COVID-19
Appendix F: Farming Industry Information
Appendix G: SORTech Technology

APPENDIX A: Notes from Zoom Call

BFF has been a family farm that owns and operates a 75-acre farm since 1982. It was originally run as a Partnership between Shaun and Kelly Barry (Pete's parents), and Pete's Aunt, Jen Jenkins. BFF incorporated in 1990. The farm grows and sells organic cherries to various grocery-store chains in western Canada, and they have a fruit stand at the local farmers' market.

As at the Valuation Date, Shaun, Kelly, Jen, and Pete are all Shareholders (see Appendix B for detailed ownership structure) and Garth holds employee stock options. Pete became a shareholder in 2012 and Garth was awarded stock options in 2019.

Shaun and Kelly are still active in the business but have started to reduce their involvement as Pete and Garth have taken on larger roles. Shaun is the Office Manager and Kelly is the Farm Manager. Neither position would be considered full time, and typically, a farm would hire one person responsible for both roles and pay that person an annual salary of $125,000.

Pete has worked for BFF since he was old enough to climb a ladder. After high school he moved to Calgary to attend university and remained there to obtain his Chartered Professional Accountant designation. He moved back home in 2007 to assume the role of Chief Financial Officer of BFF. The market value salary for his role over the past five years is $150,000 per year.

Pete and Garth met playing high school football and have been together since the summer after graduation. They married in 2004. Garth is very entrepreneurial with a broad skillset. He has settled in nicely to the "gig" economy and works remotely as a software developer earning $150/hour. Garth is also BFF's Sales Manager; a position that is responsible for identifying new customers and managing existing ongoing relationships.

BFF has had other Sales Managers in the past who were paid a fair market commission of 1% of sales. When Garth took over the role six years ago, BFF agreed to pay him twice the market rate because he was family.

BFF, like most farms, is a seasonal business. Pete completes the bookkeeping and prepares BFF's year-end package in November to send to the external accountants, Oakley LLP ("Oakley"). Pete's articling experience working for a public accounting firm in Calgary taught him how to prepare a high-quality year-end package.

Pete is confident that the internal financial statements for the fiscal year ended October 31, 2021 are complete and accurate. Oakley has not historically made many year-end adjusting entries. Pete has insisted that you can conclude on the valuation of BFF immediately using the Management prepared year-end financial statements and supporting documentation.

BFF has grown gradually over the past five years as a result of increasing cherry prices, efficiency improvements and automation, and the quality of cherries grown. BFF's orchards are fully planted and producing fruit, and therefore there is no opportunity to expand without acquiring or leasing more land. Kelly regularly looks for new land lease opportunities but does not anticipate acquiring more property in the foreseeable future.

In 2012, BFF began paying for annual crop insurance that protects farmers financially from the impacts of natural disasters including drought, hail, insects, and poor weather conditions. On average, BFF makes an insurance claim every three to four years and claims take approximately two years to review and pay out, if approved. Insurance proceeds are recorded as revenue in the year they are received.

In June 2021, BFF received a $500,000 payout from a fiscal 2019 claim. There have been no claims submitted since fiscal 2019.

Grandpa Ray's Farm

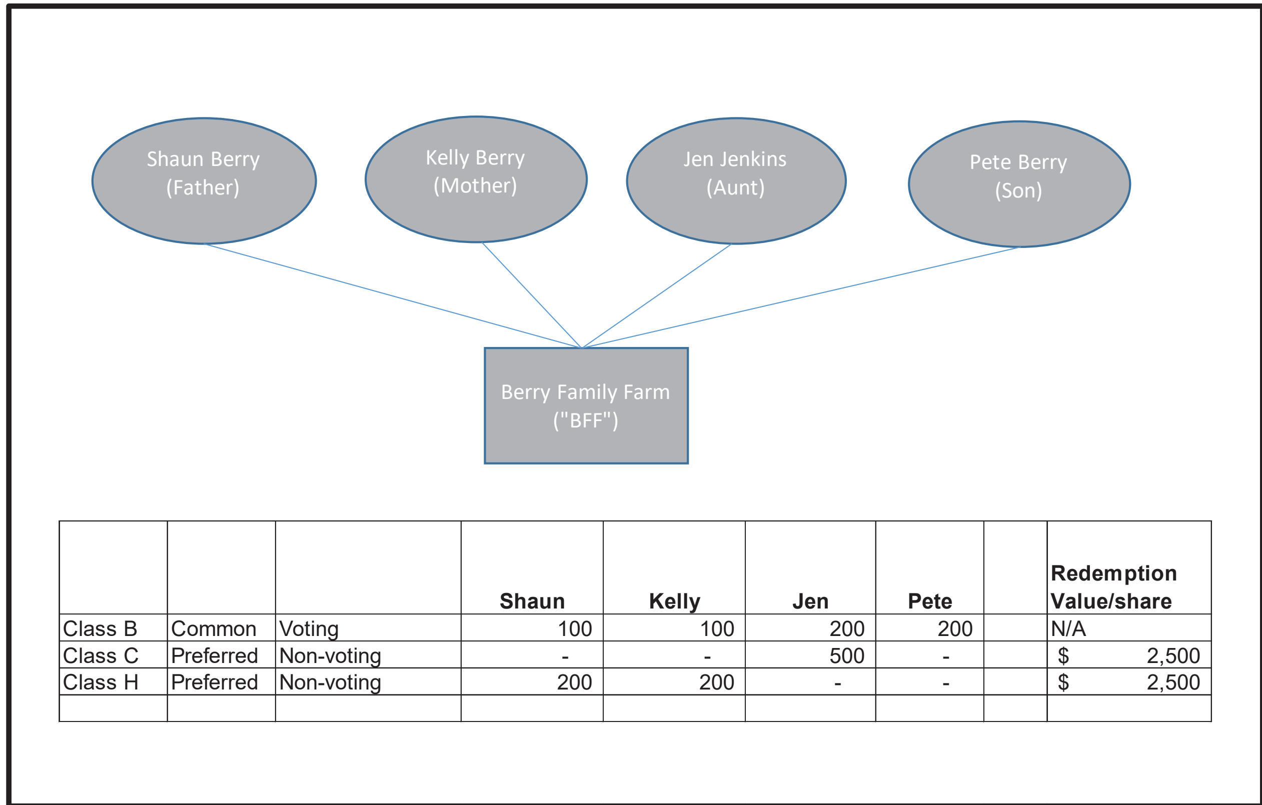
Garth's Grandpa Ray used to run a small cherry farm on his personal property down the road from BFF.

In 2017 Ray moved into a carriage home that Shaun and Kelly own personally, in exchange for use of his cherry farm property for BFF operations. Grandpa Ray still owns this property as at the Valuation Date. They all agreed that it was a fair exchange and therefore no payments have ever been exchanged.

Grandpa Ray's cherry farm property is 2.0 acres; he has never leased his land, but thinks it was worth $600 per month (per acre) when BFF took over operations. At that time, the orchard needed some work and was not fully producing at levels that a full-time cherry farmer would expect.

In 2017, after taking over operations of Grandpa Ray's property, BFF had to replant approximately 50% of the fruit trees knowing that they would be fully producing by 2020.

APPENDIX B: Corporate Ownership Structure



			Shaun	Kelly	Jen	Pete		Redemption Value/share
Class B	Common	Voting	100	100	200	200		N/A
Class C	Preferred	Non-voting	-	-	500	-		$ 2,500
Class H	Preferred	Non-voting	200	200	-	-		$ 2,500

In 2012, BFF went through a corporate reorganization to bring Pete in as a common shareholder.

As a result of the reorganization, Shaun and Kelly received Class H preferred shares, and Jen received Class C preferred shares with fixed redemption values set equal to the fair market value of their Class A common shares that they exchanged for at the time of the freeze. Two separate classes of preferred shares were issued to enable dividends to be paid at the discretion of the shareholders.

New Class B Common shares were issued from treasury and purchased by the shareholders for fair market value of $1 per share.

The Class C Preferred shares and Class H Preferred Shares are both non-voting, can participate in discretionary dividends, and have retraction/redemption values of $2,500 per share. They are not entitled to any further distribution of assets in the event of windup, liquidation or dissolution of the Company.

In June of 2019, Garth was granted 40 employee stock options for Class B shares which will vest in June of 2022. Each option gives Garth the right to buy one common share from treasury at a strike price of $3,000.

Jen works part-time overseeing human resource projects for BFF. These projects vary in scope from year to year depending on BFFs needs and Jen is paid a fair market amount each year

based on the actual hours that she worked. For personal tax planning purposes, Jen is paid a dividend for her services. As a result of issues caused by the COVID-19 pandemic, the dividend paid to her in fiscal 2021 increased over prior years.

Jen's dividends have been as follows for 2018 through 2021:

2018 - $25,000

2019 - $30,000

2020 - $25,000

2021 - $40,000.

A summary of Shaun/Kelly/Pete's wages, by fiscal year, for the past four years is as follows.

Wage Summary	**2018**	**2019**	**2020**	**2021**
Shaun	150,000	100,000	100,000	100,000
Kelly	100,000	100,000	100,000	100,000
Pete	125,000	125,000	125,000	125,000
Total Wages	375,000	325,000	325,000	325,000

APPENDIX C: Unaudited Financial Statements

Summary of Statements of Income and Retained Earnings

For the years ended October 31	Notes	[Review] Unaudited 2018	[Review] Unaudited 2019	[Review] Unaudited 2020	[Internal Management Prepared] Unaudited 2021
	1	[Review]	[Review]	[Review]	[Internal Management Prepared]
	2	**Unaudited**	**Unaudited**	**Unaudited**	**Unaudited**
Cherry sales		$ 3,360,000	$ 3,100,000	$ 3,700,000	$ 4,000,000
Farm expenses					
Spray and fertilizer		218,000	228,000	235,000	240,000
Packing, storage and freight		835,000	868,000	896,000	940,000
Land lease and property taxes		55,000	70,000	80,000	85,000
Crop insurance	3	75,000	155,000	80,000	82,000
Wages and benefits		1,008,000	1,050,000	1,080,000	1,175,000
		2,191,000	2,371,000	2,371,000	2,522,000
Operating and admin expenses					
Amortization		160,000	145,000	135,000	131,000
Sales and marketing	4	77,000	72,000	84,000	90,000
Interest on long-term debt	5	55,000	40,000	25,000	-
Professional fees	6	10,000	10,000	10,000	21,000
Repairs and maintenance		134,000	140,000	145,000	160,000
Office and insurance	7	42,000	70,000	41,000	43,500
Management wages	8	375,000	325,000	325,000	325,000
		853,000	802,000	765,000	770,500
Net income from operations		316,000	(73,000)	564,000	707,500
Net income as a % of sales		*9.4%*	*-2.4%*	*15.2%*	*17.7%*
Other income					
Gain (loss) on disposal of assets		40,000	(8,000)	-	-
Crop insurance proceeds	9	100,000	-	-	500,000
		140,000	(8,000)	-	500,000
Earnings before income taxes		$ 456,000	$ (81,000)	$ 564,000	$ 1,207,500
less: Income tax		$ (60,000)	$ 2,000	$ (95,000)	$ -
Net Income after tax		$ 396,000	$ (79,000)	$ 469,000	$ 1,207,500
Retained earnings, opening		$ 1,750,000	$ 1,996,000	$ 1,737,000	$ 2,056,000
Add: Net income after tax		$ 396,000	$ (79,000)	$ 469,000	$ 1,207,500
Less: Dividends		$ (150,000)	$ (180,000)	$ (150,000)	$ (240,000)
Retained earnings, closing		$ 1,996,000	$ 1,737,000	$ 2,056,000	$ 3,023,500

Notes

1 BFFs bank required Review Engagement Financial statements as a loan condition. Loan fully repaid in October 2020 therefore BFF plans to downgrade to a Notice To Reader for 2021 year-end.
2 2021 draft financial statements are based on internal management statements and have not been reviewed by Oakley.
3 Fiscal 2019 includes $75,000 deductible paid on crop insurance submission.
4 Includes, but is not limited to, commissions paid to Garth for position of Sales Manager.
5 Bank loan repaid in October 2020.
6 In fiscal 2021 BFF has paid for $15,000 of personal legal bills relating to the divorce.
7 Included in Office and sundry in fiscal 2019 was $25,000 of bad debt expense that occurred as result of Garth pursuing new international customer but didn't check their background.
8 Wages paid to Owner-Managers and family members
9 Crop insurance compensates for lost revenue. It is recorded in the year received. Timelines to submit a claim, process it, and be paid out is approximately two years.

APPENDIX C – Continued

Summary Historic Balance Sheets

	Notes	[Unaudited - Review] 2020	[Unaudited - Internal Management Prepared] DRAFT 2021
Assets			
Current assets			
Cash		$ 850,000	$ 950,000
Marketable securities	1	867,500	1,350,000
Receivables		100,000	110,000
Inventories		110,000	100,000
Prepaid expenses		10,000	10,000
		1,937,500	2,520,000
Fixed assets	2	815,000	755,000
		$ 2,752,500	$ 3,275,000
Liabilities			
Current liabilities			
Payables and accruals	3	$ 300,000	$ 250,000
Income taxes payable (Instalments)	4	75,000	(150,000)
		375,000	100,000
Debt & debt equivalents			
Bank loan	5	120,000	-
Due to shareholders	6	200,000	150,000
		320,000	150,000
Shareholder's equity			
Common shares		600	600
Preferred shares		900	900
Retained earnings		2,056,000	3,023,500
		2,057,500	3,025,000
		$ 2,752,500	$ 3,275,000

Notes

1. As at the Valuation Date, the Market Value of investments is $1.5 million.
2. Detailed capital asset information can be found in Appendix D.
3. Accruals at Year-End include a $6,000 amount for Oakley to prepare the financial statements and corporate tax return.
4. In fiscal 2021, BFF has made $150,000 of corporate income tax instalments. No accrual or expense has been recorded in the interim financial statements
5. Bank loan repaid in October 2020.
6. Payable to Shaun and Kelly Barry
7. All other assets and liablities, unless otherwise stated, have Fair Market Values equal to net book value.
8. Per discussion with Pete, the Company requires a net working capital balance of $425,000 as at the end of every fiscal year to ensure operations will continue into the next season. This amount is not expected to change from year-to-year given the relatively consistent levels of revenue each year.

APPENDIX D: CAPITAL ASSET INFORMATION

Capital assets	Original cost	Useful lives	Net Book Value 2020	Net Book Value 2021*	Amortization Rates**
Land	100,000		100,000	100,000	
Building	250,000	25	150,000	145,000	4%
Equipment	450,000	15	80,000	70,000	20%
Tractors and trucks	300,000	10	125,000	115,000	30%
Computer	65,000	5	-	-	50%
Processing equipment	450,000	10	360,000	325,000	20%
	1,615,000		815,000	755,000	

* Based on draft unaudited internal financial statements prepared by Pete
** The client uses amortization rates that are equal to Capital Cost Allowance ("CCA") rates. The client's Undepreciated Capital Cost ("UCC") balances are equal to net book value.

Per discussion with Shaun, he estimates historical capital spending is $50,000 per year, though he admits that he does not fully understand the concept of sustaining capital reinvestment.

Supplementary information related to Capital assets as follows:

	2018	2019	2020	2021
Historical Capital Additions	170,000	72,000	75,000	85,000
Historical Amortization	160,000	145,000	135,000	131,000

Notes

1 Below is a summary of recent appraisal information completed as at September 30, 2021 for insurance purposes.

Equipment	$	100,000
Tractors and trucks	$	225,000
Processing Equipment	$	325,000
Building	$	300,000
Land	$	2,700,000
Subtotal	$	3,650,000

2 Computers were not included in the appraisal as Management indicated they had a nominal value of $ 2,500

APPENDIX E: IMPACT OF COVID-19

BFF did not escape COVID-19 without some financial and operational implications in fiscal 2020.

In fiscal 2020 BFF had to purchase approximately $25,000 of personal protective equipment (“PPE”) and plastic stalls in the processing area in order to comply with provincial health regulations.

BFF relies heavily on Temporary Foreign Workers (“TFW”) to hand pick the cherries. Historically they have hired local employees as much as possible, but it is physical / seasonal work, and the industry has always struggled to find domestic workers. TFW generally work seven (7) days per week during harvest. Their pay is based on quantity of fruit picked, but on average workers earn $400/day.

In August 2020, just before harvest, there was a COVID-19 outbreak in BFF's staff accommodations, and 10 employees needed to quarantine for two weeks in a local hotel. BFF was required to pay hotel costs of $100 per night per worker, and out of the goodness of their hearts, agreed to pay the workers 50% of their anticipated wages.

BFF hired 10 domestic workers to replace the workers in quarantine on short notice and agreed to pay a 30% premium over what the TFW are normally paid.

There were no COVID-19 outbreaks in fiscal 2021, but BFF rented additional infrastructure in the form of porta-potties and temporary housing at a cost of $15,000 to allow distancing between workers.

APPENDIX F: FARMING INDUSTRY INFORMATION

Land Lease Rates

The rate for land lease is broken into 3 different levels based on maturity and production.

	Land
Tier 1	Bare Land
Tier 2	Planted but not fully producing
Tier 3	Fully producing

Your valuation firm has experience with this industry, and had recently performed some market research and found the following market information for monthly land lease rates.

Comparables		Location	Product	Production	Number of Acres	Monthly lease cost
	Farm A	British Columbia	Potatoes	Tier 3	250	$ 400
	Farm B	California	Cherries	Tier 3	75	$ 900
	Farm C	Ontario	Cherries	Tier 3	200	$ 2,500
	Farm D	British Columbia	Cherries	Tier 3	65	$ 1,100
	Farm E	British Columbia	Treefruits	Tier 3	83	$ 950
	Farm F	British Columbia	Cherries	Tier 2	100	$ 500
	Farm G	Ontario	Cherries	Tier 3	3000	$ 700

Precedant Transactions

Date	Target	EV / EBITDA	Description
2012	Jackery Farms	3.00	100% Acquisition. Mix of Cherry and Oranges. Located in Florida.
2020	Principals Orchards	4.77	80% acquisition. Location in British Columbia. Purchased by industry consolidator. Cherry Orchard.
2019	Bandana Estates	3.85	35% interest acquired. Located in British Columbia. Arms length transaction. Cherries.
2018	SOS Ltd.	4.16	80% acquisition. Cherry farm Located in British Columbia. Purchased by stand-alone.
2019	BAS Inc.	6.14	35% interest acquired by existing shareholders. Now own 100%. Cherry farm in Western Canada.

APPENDIX G: SORTech

Garth is also a hobby inventor and he has always been good with technology.

At the beginning of fiscal 2018, BFF implemented a new piece of sorting equipment with customized software that Garth invented. Garth called the technology "SORTech".

SORTech allows users farmers to scan their fruit for imperfections and quality, and then immediately sort the product into categories. Low quality and damaged fruit can be sold to alternate customers for juice and processed products. BFF focusses on the higher quality product that fetches higher prices from grocery store customers.

SORTech's software tracks historical data which has given BFF the ability to better understand the quality of their cherries. Over the past four years they have been able to increase their prices because they are now able to deliver higher quality cherries to their customers more consistently. The grocery stores value consistency and have been happy to pay the premium.

SORTech has automated a previously manual sorting process, which enabled BFF to reduce five seasonal workers at $10,000 each, saving them approximately $50,000/year. The system was implemented at the start of fiscal 2018 but BFF kept the five seasonal workers to operate in parallel to the system, to ensure that everything ran smoothly in season one. These positions were eliminated in fiscal 2019.

Garth spent approximately 200 hours developing the software and installing the physical machinery. In addition to his own time, Garth purchased $50,000 of materials, a $2,500 laptop, and subcontracted approximately 50 hours of an engineer's time at a rate of $125/hour.

Garth paid for everything personally and did not charge BFF for his time or costs. Garth knew there could be a larger opportunity for widespread use of this technology by other farmers. BFF represented an opportunity to test the product, and to help the family business. He also agreed to allow BFF to use his invention at no cost. In an arm's length transaction, Garth would charge a market rate of 1% of sales.

In November 2020 the local fruit farm co-op (the "Co-op") approached Garth to implement his technology into their fruit-packing facility.

After some deliberation and negotiation, the Co-op issued a binding offer with key details as follows:

1. Non-exclusive use. Garth is free to license his technology to other users at his discretion.
2. 6-year contract.
3. Annual royalty paid to Garth at a rate of 1% of gross sales of the Co-op.
    a. Per discussion with the Co-op, they currently have revenues of approximately $20 million per year, and do not expect that will change significantly over the term of the contract.
4. The Co-op will pay for the cost of the equipment.

5. Included in the royalty rate, is the expectation that Garth will spend approximately 100 hours assisting with implementation in year 1, and then will spend approximately 5 hours per month for quality control and maintenance until the end of the contract.
6. Royalty payments will be in cash and paid annually.

Per your discussions with Dave, he has instructed you to use a 10% discount rate in your relief-from-royalty analysis, as he believes this is reasonable for draft purposes.

After the divorce is final, Pete and Garth have agreed that Garth will continue to retain sole ownership of SORTech and that BFF will pay a market royalty rate of 1% of sales for use of the SORTech going forward.

Table I
Present Value of $1 Received at the End of the Year

Years Hence	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%	14.0%	15.0%	16.0%	17.0%	18.0%	19.0%	20.0%
1	0.98	0.97	0.96	0.95	0.94	0.93	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.86	0.85	0.85	0.84	0.83
2	0.96	0.94	0.92	0.91	0.89	0.87	0.86	0.84	0.83	0.81	0.80	0.78	0.77	0.76	0.74	0.73	0.72	0.71	0.69
3	0.94	0.92	0.89	0.86	0.84	0.82	0.79	0.77	0.75	0.73	0.71	0.69	0.67	0.66	0.64	0.62	0.61	0.59	0.58
4	0.92	0.89	0.85	0.82	0.79	0.76	0.74	0.71	0.68	0.66	0.64	0.61	0.59	0.57	0.55	0.53	0.52	0.50	0.48
5	0.91	0.86	0.82	0.78	0.75	0.71	0.68	0.65	0.62	0.59	0.57	0.54	0.52	0.50	0.48	0.46	0.44	0.42	0.40
6	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.60	0.56	0.53	0.51	0.48	0.46	0.43	0.41	0.39	0.37	0.35	0.33
7	0.87	0.81	0.76	0.71	0.67	0.62	0.58	0.55	0.51	0.48	0.45	0.43	0.40	0.38	0.35	0.33	0.31	0.30	0.28
8	0.85	0.79	0.73	0.68	0.63	0.58	0.54	0.50	0.47	0.43	0.40	0.38	0.35	0.33	0.31	0.28	0.27	0.25	0.23
9	0.84	0.77	0.70	0.64	0.59	0.54	0.50	0.46	0.42	0.39	0.36	0.33	0.31	0.28	0.26	0.24	0.23	0.21	0.19
10	0.82	0.74	0.68	0.61	0.56	0.51	0.46	0.42	0.39	0.35	0.32	0.29	0.27	0.25	0.23	0.21	0.19	0.18	0.16
11	0.80	0.72	0.65	0.58	0.53	0.48	0.43	0.39	0.35	0.32	0.29	0.26	0.24	0.21	0.20	0.18	0.16	0.15	0.13
12	0.79	0.70	0.62	0.56	0.50	0.44	0.40	0.36	0.32	0.29	0.26	0.23	0.21	0.19	0.17	0.15	0.14	0.12	0.11
13	0.77	0.68	0.60	0.53	0.47	0.41	0.37	0.33	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.12	0.10	0.09
14	0.76	0.66	0.58	0.51	0.44	0.39	0.34	0.30	0.26	0.23	0.20	0.18	0.16	0.14	0.13	0.11	0.10	0.09	0.08
15	0.74	0.64	0.56	0.48	0.42	0.36	0.32	0.27	0.24	0.21	0.18	0.16	0.14	0.12	0.11	0.09	0.08	0.07	0.06
16	0.73	0.62	0.53	0.46	0.39	0.34	0.29	0.25	0.22	0.19	0.16	0.14	0.12	0.11	0.09	0.08	0.07	0.06	0.05
17	0.71	0.61	0.51	0.44	0.37	0.32	0.27	0.23	0.20	0.17	0.15	0.13	0.11	0.09	0.08	0.07	0.06	0.05	0.05
18	0.70	0.59	0.49	0.42	0.35	0.30	0.25	0.21	0.18	0.15	0.13	0.11	0.09	0.08	0.07	0.06	0.05	0.04	0.04
19	0.69	0.57	0.47	0.40	0.33	0.28	0.23	0.19	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.04	0.04	0.03
20	0.67	0.55	0.46	0.38	0.31	0.26	0.21	0.18	0.15	0.12	0.10	0.09	0.07	0.06	0.05	0.04	0.04	0.03	0.03

Table II
Present Value of an Annuity of $1 Received at the End of Each Year

No. of Years Received	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%	14.0%	15.0%	16.0%	17.0%	18.0%	19.0%	20.0%
1	0.98	0.97	0.96	0.95	0.94	0.93	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.86	0.85	0.85	0.84	0.83
2	1.94	1.91	1.89	1.86	1.83	1.81	1.78	1.76	1.74	1.71	1.69	1.67	1.65	1.63	1.61	1.59	1.57	1.55	1.53
3	2.88	2.83	2.78	2.72	2.67	2.62	2.58	2.53	2.49	2.44	2.40	2.36	2.32	2.28	2.25	2.21	2.17	2.14	2.11
4	3.81	3.72	3.63	3.55	3.47	3.39	3.31	3.24	3.17	3.10	3.04	2.97	2.91	2.85	2.80	2.74	2.69	2.64	2.59
5	4.71	4.58	4.45	4.33	4.21	4.10	3.99	3.89	3.79	3.70	3.60	3.52	3.43	3.35	3.27	3.20	3.13	3.06	2.99
6	5.60	5.42	5.24	5.08	4.92	4.77	4.62	4.49	4.36	4.23	4.11	4.00	3.89	3.78	3.68	3.59	3.50	3.41	3.33
7	6.47	6.23	6.00	5.79	5.58	5.39	5.21	5.03	4.87	4.71	4.56	4.42	4.29	4.16	4.04	3.92	3.81	3.71	3.60
8	7.33	7.02	6.73	6.46	6.21	5.97	5.75	5.53	5.33	5.15	4.97	4.80	4.64	4.49	4.34	4.21	4.08	3.95	3.84
9	8.16	7.79	7.44	7.11	6.80	6.52	6.25	6.00	5.76	5.54	5.33	5.13	4.95	4.77	4.61	4.45	4.30	4.16	4.03
10	8.98	8.53	8.11	7.72	7.36	7.02	6.71	6.42	6.14	5.89	5.65	5.43	5.22	5.02	4.83	4.66	4.49	4.34	4.19
11	9.79	9.25	8.76	8.31	7.89	7.50	7.14	6.81	6.50	6.21	5.94	5.69	5.45	5.23	5.03	4.84	4.66	4.49	4.33
12	10.58	9.95	9.39	8.86	8.38	7.94	7.54	7.16	6.81	6.49	6.19	5.92	5.66	5.42	5.20	4.99	4.79	4.61	4.44
13	11.35	10.63	9.99	9.39	8.85	8.36	7.90	7.49	7.10	6.75	6.42	6.12	5.84	5.58	5.34	5.12	4.91	4.71	4.53
14	12.11	11.30	10.56	9.90	9.29	8.75	8.24	7.79	7.37	6.98	6.63	6.30	6.00	5.72	5.47	5.23	5.01	4.80	4.61
15	12.85	11.94	11.12	10.38	9.71	9.11	8.56	8.06	7.61	7.19	6.81	6.46	6.14	5.85	5.58	5.32	5.09	4.88	4.68
16	13.58	12.56	11.65	10.84	10.11	9.45	8.85	8.31	7.82	7.38	6.97	6.60	6.27	5.95	5.67	5.41	5.16	4.94	4.73
17	14.29	13.17	12.17	11.27	10.48	9.76	9.12	8.54	8.02	7.55	7.12	6.73	6.37	6.05	5.75	5.47	5.22	4.99	4.77
18	14.99	13.75	12.66	11.69	10.83	10.06	9.37	8.76	8.20	7.70	7.25	6.84	6.47	6.13	5.82	5.53	5.27	5.03	4.81
19	15.68	14.32	13.13	12.09	11.16	10.34	9.60	8.95	8.36	7.84	7.37	6.94	6.55	6.20	5.88	5.58	5.32	5.07	4.84
20	16.35	14.88	13.59	12.46	11.47	10.59	9.82	9.13	8.51	7.96	7.47	7.02	6.62	6.26	5.93	5.63	5.35	5.10	4.87

Table III

Capital Cost Allowance Tax Shield

• Declining balance basis, assuming full capital cost allowance in first year as well as thereafter:

$$\frac{\text{Investment Cost (UCC) X Tax Rate X CCA Rate}}{\text{Rate of return + CCA rate}}$$

• Formula reflecting the allowance of one-half of the CCA in the year the assets are acquired:

$$\frac{\text{Investment Cost (UCC) X Tax Rate X CCA Rate}}{\text{Rate of return + CCA rate}} \quad \text{X} \quad \frac{((1 + (0.5 \text{ X Rate of return}))}{(1 + \text{Rate of return})}$$

• Formula reflecting the allowance of 1.5 times the CCA in the year the assets are acquired (Accelerated Investment Incentive):

$$\frac{\text{Investment Cost (UCC) X Tax Rate X CCA Rate}}{\text{Rate of return + CCA rate}} \quad \text{X} \quad \frac{((1 + (1.5 \text{ X Rate of return}))}{(1 + \text{Rate of return})}$$

Maximum Capital Cost Allowance Rates for Selected Classes

		Rate
Class 1	....	4%
Class 3	....	5%
Class 6	....	10%
Class 8	....	20%
Class 10	....	30%
Class 10.1	....	30%
Class 12	....	100%
Class 14	*Lesser of capital cost spread over useful life or the UCC at the end of the tax year*	
Class 14.1	*Property acquired after December 31, 2016*	5%
Class 16	....	40%
Class 17	....	8%
Class 29	*Straight line (25% in 1st year, 50% in 2nd year, 25% in 3rd year)*	50%
Class 38	....	30%
Class 43	....	30%
Class 45	....	45%
Class 46	....	30%
Class 50	....	55%
Class 53	....	50%

SUGGESTED SOLUTIONS

QUESTION 1

To: Shareholders, ACE Technology Corporation

From: CBV, ACE Technology Corporation

Re: Takeover Bid, Fair Market Value of Automaker Offers, and Shareholder Agreement Terms

Date: September 29, 2021

- This is an internal memo and therefore not required to be in accordance with CBV Institute Practice Standards.
- Should a formal report be required in the future, it will be an Advisory Report prepared in accordance with Standard 210, as I am employed by the company and not independent.
- I was requested to review the takeover bid from TTG and calculate the fair market value ("FMV") of the offers from LMN and DAG as at the valuation date of September 29, 2021 (or October 7, 2021, the date by which the shareholders need to make a decision).
- The purpose of this memo is to assist ACE's shareholders in determining the company's next strategic steps. Since a decision is required in a few days, and I am the only in-house CBV currently assisting our external auditors with ACE's year-end audit, I recommend requesting additional time to perform the analysis. The recommendation in this memo is based on a preliminary analysis of available information.
- FMV is the highest price obtainable on an open and unrestricted market, between knowledgeable and prudent parties, acting at arm's length, neither under compulsion to act, expressed in cash and cash equivalents. FMV may differ from price, as FMV is a value concept.
- Price vs. value: Value is determined in a notional market, without exposing the business for sale, while price represents the actual price paid once the business is exposed for sale. These may differ due to information asymmetry, differing negotiating abilities between parties, presence of special interest purchasers ("SIP"), non-cash consideration (such as the earnout offered by TTG and the share offer by TTG and LMN), or one party being compelled to sell.
- SIP are entities who anticipate benefiting from post-acquisition synergies and therefore may be willing to pay more than others. Since TTG, LMN, and DAG all anticipate benefiting from increased market presence after the transaction, they are considered SIP.

Marker Comments

- Star Candidates clearly understood their role and the needs of ACE's shareholders, recognizing how special interest purchasers impact value for each of the different offers.
- Weaker candidates did not recognize that the memo did not need to comply with CBV Reporting Standards (as it was being prepared internally)
- Most candidates provided a definition of FMV, special interest purchasers and a discussion of price vs value but many did not tie to specific case facts
- Many candidates did not specifically identify TTG, LMN and DAG as special purchasers
- Many candidates did not recognize the TTG earnout as a reason that price may differ from FMV

Requirement 1: Review the takeover bid from TTG to acquire 100% of the common shares of ACE.

[Note: Candidates are expected to determine ACE's en bloc equity value using a market approach, based on selected comparable companies, then compare it to the TTG offer to determine if it's reasonable.]

Valuation of ACE Technology Corporation — Market Approach (Exhibit 2)

- The market approach is appropriate as the primary valuation approach. As per Appendix 3, technology based companies are priced based on EV/EBIT and EV/Revenue multiples, and relevant market data was provided for comparable technology companies.
- Based on review of comparable companies in Exhibit 2, the following smart tech companies were identified as comparable to ACE: Smart Lens, Smart Balls, Inteli-Scale, Intelli-Pen, and Smart Sense. Accordingly, the average Enterprise Value/Revenue (EV/Revenue) multiple is 1.35x, while the average Enterprise Value/Earnings Before Interest and Taxes (EV/EBIT) multiple is 4.13x.
- The comparable companies are public corporations with a ready market to dispose of shares, unlike ACE Technology, which is a private corporation and warrants an illiquidity discount. The comparable public companies include an inherent minority discount, while the transaction proposed by TTG is for a controlling (100%) interest. I have assumed these adjustments cancel out; therefore, no adjustment has been made to the EV/EBIT or EV/Revenue multiple.
- Based on comparable EV/Revenue multiples, ACE's business enterprise value is $83.7 million.
- Since the EBIT for comparable companies excludes donations, ACE's fiscal year ("FY") 21 EBIT was adjusted to add back donations. An EV/EBIT multiple of 4.13x was applied to ACE's normalized EBIT of $22.3 million (FY21 reported EBIT $21.6 million + $710,000 donations) to calculate business enterprise value of $92.3 million.
- The book value of the patents not used within the ACE-istant product are deemed redundant and added with redundant cash to calculate total enterprise value.
- The fair value of the accrual bond payable was calculated based on the principal and interest payments payable upon maturity, later this year. Market value of the accrual bond payable amounts to $544,000. (Alternative approach: Assume the bond matured in FY21, and reduce cash by $544,000 and eliminate the bond payable liability on the FY21 balance sheet.)
- As the preferred shares are redeemable at the holder's option, the market value of the preferred shares must consider the greater of their redemption value and FMV of holding. Based on my analysis, the FMV of holding the preferred shares amounts to $2.7 million, which is lower than the redemption amount of $4.0 million. Accordingly, the FMV is $4.0 million.
- Other long-term debt of $298,000 is assumed to be interest bearing and is deducted from total enterprise value, along with dividends payable of $180,000.
- As a result, ACE's en bloc equity value is $79.8 million using an EV/Revenue multiple, and $88.3 million using an EV/EBIT multiple.
- This is lower than the $90.0 million initial payment from TTG; therefore, the price offered by TTG is greater than the en bloc value of ACE at the valuation date.

Marker Comments

- Candidates performed well analyzing comparable companies, with explanation.
- Candidates did not appear comfortable using the market approach as a primary valuation approach despite case facts specifically directing them to use that approach
- Star Candidates applied the correct valuation approach for ACE (market approach as opposed to capitalized cash flow (“CCF”), recognizing case facts that market approach is the most common for tech companies).
- Many candidates struggled with the adjustments to Enterprise Value required to calculate equity value including:
    - calculating the FMV of the bond payable
    - calculating the FMV of the retractable preferred shares (based on the greater of the redemption value and the value of holding the shares indefinitely to collect dividends
    - deduction of dividend payable

Valuation of the Takeover Proposed by Technology To Go (“TTG”) (Exhibit 1)

- The TTG takeover offer consists of a $90.0 million initial payment with the potential for an additional $50.0 million earnout if cumulative sales targets are achieved. Since the FMV of the offer is greater than ACE’s equity value under the market approach, TTG expects to benefit from increased market share or synergies after acquisition, and therefore is willing to pay a premium.

- The risk associated with achieving the forecasted revenue growth must be considered in analyzing the earnout.

- Analysis of cumulative sales growth noted in Exhibit 1 indicates sales targets will be achieved during FY23 and FY26, but not in FY24, resulting in an expected $35.0 million in total earnout payments. These earnout payments were discounted using a 6.0% discount rate (2.0% risk-free rate + 4.0% premium) with an end of year discounting convention to arrive at a present value of $27.6 million.

- Accordingly, the net present value of the takeover offer from TTG is $117.6 million ($90.0 million initial payment + $27.6 million earnout).

- TTG’s desire to eliminate a competitor presents an opportunity to discontinue ACE’s product lines, which could be used to avoid paying the earnout, thereby destroying value to the ACE shareholders. Should the shareholders want to consider this offer further, I recommend requesting something in writing from TTG to ensure they will not take any action to discontinue or negatively impact ACE’s products to avoid paying the earnout.

- Based on my analysis, the takeover offer is not in the best interest of ACE’s shareholders considering the potential for more lucrative offers available from the two automakers, discussed further below. Accordingly, I recommend rejecting the TTG takeover offer.

Marker Comments

- Many candidates prepared a sales forecast using ACE’s 2021 base year and adjusting based on TTG’s sales estimates
- Some candidates were able to identify the years that the cumulative sales growth milestones would be achieved
- Most candidates calculated the present value of the earn-out although many used mid year discounting (rather than end of year discounting as required based on case fact that earnout would be paid at the end of the year)

- Most candidates recognized that the value of the offer was the sum of the upfront payment and the PV of the earnout

Requirement 2: Discuss considerations for the shareholders of accepting the initial $90.0 million payment in cash vs. shares, if the takeover bid from TTG is accepted.

Cash Consideration

- Capital gains will exceed the lifetime capital gains exemption (“LCGE”) threshold, triggering tax payable on the portion of the capital gain not sheltered by the LCGE.
- Total net proceeds after tax amounts to $77.8 million, or $38.9 million per common shareholder.
- There is no uncertainty pertaining to the amount of proceeds received, and it provides an immediate return to the shareholders.

Share Consideration

- Shareholders will receive 2.0 million common shares (based on a $90.0 million initial payment at the current market value of $45 per share), representing a 3.0% minority equity interest in TTG.
-
- With share consideration, ACE’s existing common shareholders will have no control or influence over TTG or its use of ACE’s technology.
- Since TTG is a public corporation, its share price will fluctuate by the time ACE’s shareholders are able to sell (1-year restriction), presenting a risk that the ultimate proceeds upon disposal may be lower than the initial $90.0 million cash payment offered.
- Future disposal of TTG shares will trigger capital gains to ACE’s shareholders since shares of publicly listed corporations are not eligible for the LCGE.
- Depending on the average daily trading volume of TTG shares, a blockage discount should be considered.
- TTG common shares are subject to a 1-year restriction period; therefore, a discount must be considered based on the duration of the restriction period and nature of the restriction.
- A restricted share discount of 25.0% was applied to reflect the 1-year restriction period.
- Since a discount is applicable on restricted shares, the FMV of TTG common shares with a 1-year restriction approximates $67.5 million, which is significantly less than cash consideration of $90.0 million.
- Accepting shares in a public corporation provides a mechanism for ACE’s shareholders to participate in the combined company, while also providing an exit opportunity for Cameron should he decide to retire earlier than planned.
- Should ACE’s shareholders want to consider this offer further, I recommend accepting the initial $90.0 million in cash instead of shares, as the total cash net after-tax proceeds of $77.8 million exceeds the $67.5 million FMV of share consideration.

Marker Comments

- Candidates appeared much more comfortable with the quantitative rather than the qualitative considerations of the offer (true for all 3 offers)
- Few candidates addressed the strategic considerations associated with the TTG offer although many recognized that ACE shareholders would be minority shareholders in ACE
- Most candidates recognized that the shares would be subject to fluctuations in the open market
- Most candidates recognized that a blockage discount might be appropriate
- Few candidates calculated the after-tax proceeds to the shareholders if cash consideration was accepted
- Few candidates recognized that by accepting shares, the shareholders of ACE would be unable to shelter any future capital gain as TTG is a public company
- Most Candidates did not recognize the need to consider tax consequences in accepting consideration in shares as opposed to cash.

Requirement 3: Calculate FMV of the LMN and DAG offers and discuss relevant strategic factors/considerations.

[Note: To determine the price at which ACE can acquire an additional 15,000 common shares in LMN, Candidates are expected to determine LMN's stand-alone value without ACE.]

Valuation of Lucente Manufacturing Network (LMN) Stand-Alone (Exhibit 3) — Calculate the pro-rata value per common share to determine price at which ACE can acquire additional 15,000 shares.

- If LMN achieves its sales targets, ACE can acquire an additional 15,000 common shares at LMN's current pro-rata value per common share.
- To determine the current pro-rata value per common share, a capitalized cash flow approach is appropriate because the company is a going concern, sustaining capital reinvestment differs from depreciation, and the company's cash flows are expected to increase at the industry's long-term growth rate of 2.0%.
- LMN's income statement and EBITDA for FY17 to FY21 were adjusted for non-recurring items to arrive at maintainable EBITDA.
- A range of maintainable EBITDA between $218.5 million and $333.9 million was selected. FY19 and FY20 EBITDA results are considered outliers due to issues with defective components and the introduction of quality-control measures. As a result, FY21 EBITDA was used as the high range of maintainable EBITDA.
- Income taxes (26.5% manufacturing rate) and required capital expenditures, net of tax shield (using the half-year rule) were deducted to arrive at maintainable after-tax cash flow.
- A capitalization multiple of 7.6x to 8.9x (as calculated in Exhibit 4) was applied to arrive at a capitalized cash flow range of $1.4 billion to $1.9 billion, with a midpoint of $1.6 billion.
- Cash recovery of $23.6 million ($35.0 million inventory disposed of at cost at 90% probability of recovering 75% of the inventory disposal cost) was added, and the associated litigation costs in the amount of $7.0 million (30% of recovery amount), net of $1.9 million in taxes, were deducted.

- · The tax shield available on LMN's existing UCC balance of $930.8 million [$772.8 million warehouse + (80% × $197.5 million machinery)] was calculated in the amount of $69.5 million and added to arrive at a business enterprise value range of $1.5 billion to $1.9 billion, with a midpoint of $1.7 billion.
- The net realizable value ("NRV") of marketable securities were added as redundant assets, net of 1% disposal costs (any reasonable assumption regarding percentage disposal/selling fees acceptable), in the amount of $20.8 million. As the FMV of marketable securities is less than the original cost, there are no trapped-in capital gains or latent taxes to consider.
- Excess non-cash working capital of $110.7 million, along with cash of $159.0 million, were assumed to be redundant and added to arrive at a total enterprise value of $1.8 billion to $2.2 billion, with a midpoint of $2.0 billion.
- Dividends payable of $5.0 million, along with total interest-bearing debt outstanding in the amount of $586.0 million, were deducted to arrive at LMN's en bloc value range of $1.2 billion to $1.6 billion, with a midpoint of $1.4 billion. This represents the value available for LMN's common shareholders.
- Given that there will be 530,000 LMN common shares outstanding (500,000 shares initially outstanding + additional 30,000 issued to ACE), the pro-rata value of an LMN common share on accepting the deal terms is $2,689 per share. If LMN achieves the milestone of selling 1,000,000 units over the first 5 years of its partnership with ACE, ACE will be eligible to purchase an additional 15,000 common shares in LMN at the current pro-rata value of $2,689 per share.

Marker Comments

- Most Candidates did not understand that to determine ACE's option price in LMN they had to perform a stand-alone valuation of LMN, before the strategic partnership proposed (LMN with ACE).
- Many candidates only performed one valuation of LMN (either with or without ACE technology)
- The normalizing adjustments were generally performed well.
- Star Candidates prepared a stand-alone LMN valuation using a CCF approach to value the options and then a combined LMN with ACE valuation using a DCF to assess the offers.

Valuation of Lucente Manufacturing Network (LMN) with ACE's Software (Exhibit 5)

[Note: Candidates are expected to use the discounted cash flow ("DCF") valuation approach and forecast discretionary cash flows to determine the FMV of LMN with ACE's software.]

- A DCF approach is appropriate because LMN's revenues are forecasted to grow significantly with ACE's software, and vehicle unit forecasts were provided in Appendix 9 (consensus analyst projections).
- A 5-year cash flow and terminal period forecast in Year 5 was built in accordance with expected revenues, cost of sales, and operating expenses.
- Price per vehicle increased by 15% in FY22, and subsequent price increases are assumed at 2.0% inflation.
- Cost savings based on 5% of revenue were captured effective FY24, and growth capital expenditure (new equipment) net of tax shield was deducted in FY24. (Alternatively,

Candidates could deduct growth capital expenditure in FY23 with the stated assumption that equipment was purchased at the end of FY23, for installation at the beginning of FY24.)

- A one-time cost to adapt the software for LMN vehicles was deducted in FY22, along with advertising costs in FY22 and FY23.
- Income taxes (26.5% manufacturing rate), along with required capital expenditures (net of tax shield using the half-year rule) and required working capital adjustments, were deducted in each year to arrive at annual after-tax free cash flows.
- A capitalization multiple of 6.3x based on LMN's adjusted weighted average cost of capital ("WACC") (calculated in Exhibit 4) was applied to the terminal period after-tax free cash flows to arrive at a terminal value.
- The annual after-tax free cash flows and the terminal value were discounted to present value using a discount rate of 18.2%, based on LMN's stand-alone WACC of 14.2% with upward adjustment of 4.0% for uncertainty of achieving the forecasted results.
- The total net present value of forecasted after-tax cash flows amounts to $7.0 billion.
- Cash recovery anticipated from litigation was added (net of legal fees and taxes), along with the present value of the existing tax shield, NRV of marketable securities, redundant cash of $159.0 million, and excess non-cash working capital of $110.7 million, to arrive at total enterprise value of $7.3 billion.
- LMN is forecasted to achieve the milestone, granting ACE the opportunity to obtain an additional 15,000 common shares at $2,689 per share (as determined from LMN's stand-alone value calculated under the CCF approach noted above).
- As the value of an LMN common share with ACE's software incorporated is greater than the price at which ACE can obtain an additional 15,000 common shares, it is assumed that ACE will purchase the additional 15,000 common shares. As a result, the additional equity injection in the amount of $40.3 million ($2,689 per common share × 15,000 common shares) was added to LMN's enterprise value.
- Dividends payable of $5.0 million, along with interest-bearing debt outstanding in the amount of $586.0 million, were deducted to arrive at LMN's en bloc equity value of $6.7 billion.
- Since 545,000 LMN common shares are expected to be outstanding (original 500,000 plus additional 30,000 issued to ACE upon signing the deal, plus 15,000 common shares purchased by ACE upon achieving the milestone), the pro-rata value of an LMN common share is $12,440 each.
- ACE would hold 45,000 LMN common shares, representing 8.3% equity interest (45,000 shares held out of 545,000 total shares outstanding), and a minority discount of 10.0% was applied to reflect a non-controlling equity interest in LMN. Accordingly, the FMV of ACE's 8.3% equity interest in LMN is $503.8 million.
- To determine the value of LMN's offer, ACE's cost of $40.3 million to purchase the additional 15,000 common shares at $2,689 per common share was deducted from LMN's 8.3% equity interest to arrive at $463.5 million.

Marker Comments

- Many Candidates incorrectly performed an incremental cash flow analysis and added this to the stand-alone valuation of LMN as opposed to building out full projections for a DCF.
- The normalizing adjustments were generally performed well.
- Star Candidates understood and assessed the impact of the ability to purchase the additional 15,000 shares of LMN (impact on total share amount, cash infusion, revised $/share).
- Few candidates added the proceeds from the exercise of the options by ACE to the FMV of LMN with ACE
- Many candidates recognized that a minority discount was appropriate

Valuation of Divine Auto Group (DAG) — Licensing Offer (Exhibit 7)

- The DAG offer will provide annual cash flows from licensing fees until FY27, along with proceeds from the sale of ACE's source code at the end of FY27. Therefore, no terminal value was considered, since the licensing offer expires in FY27.
- Since it would take DAG's developers 1 year to adapt the software for its vehicles, the forecasted number of units sold in FY22 will be based on the 3% industry growth rate anticipated by industry analysts, with subsequent revenue growth (FY23 to FY27) based on management's expectations of quadrupling the analyst forecast provided in Appendix 9.
- The expectation from DAG's management to quadruple the analyst growth forecast should be viewed with caution since there is a bias for DAG's management to present a favourable forecast to influence ACE's shareholders to accept its deal.
- Based on the forecasted unit sales, DAG expects to exceed the 150,000-unit threshold at the end of FY24. As a result, ACE will earn licensing revenues of USD $1,000 per vehicle between FY22 and FY24 and USD $2,000 per vehicle after FY25.
- Taxes, at ACE's corporate rate of 30.0%, were deducted to arrive at the annual after-tax income to ACE.
- After-tax income was discounted based on the discount rate used in LMN's DCF, as this already reflects an increased risk associated with achieving the forecast result and incorporates industry risk for an auto manufacturer.
- The net present value of the above cash flows amounts to USD $213.3 million. Converted into Canadian dollars using an exchange rate of 1 USD : 1.45 CAD, the net present value of the DAG offer equates to CAD $309.2 million.
- Since the DAG offer is in U.S. dollars, ACE will be exposed to foreign exchange risk, and if the U.S. dollar depreciates, it will have a negative impact on the FMV concluded for this offer.
- The offer presented by DAG appears profitable, especially if DAG can exceed the 150,000 vehicle unit sales milestone earlier than currently projected in FY24; however, there is significant risk for ACE retaining its competitive advantage by releasing the source code to its voice recognition software. There is a risk that DAG may choose to sell this data to one of ACE's competitors or use the software in an undesirable way once the contract expires.
- The FMV of DAG's offer is less than the FMV of LMN's offer.
- Should the shareholders decide to consider this offer further, I strongly recommend that a non-disclosure agreement and a non-compete agreement are enforced to mitigate the

potential risk exposure to ACE pertaining to the release of ACE's source code. I also recommend considering entering a hedge/forward contract to mitigate exposure to foreign exchange risk.

Marker Comments

- Candidates performed well when determining the FMV of royalty cash flows associated with the DAG offer.

Capitalization Multiple (Exhibit 4)

- Capitalization multiples based on LMN's WACC of 13.2% to 15.2%, less 2.0% growth at inflation, were applied to arrive at a capitalized cash flow.

Marker Comments

- Most candidates were able to calculate a reasonable WACC using a build-up method (some candidates recognized that the provided debt:equity ratio needed to be restated to a debt:total capital ratio)

Strategic Considerations — LMN

- LMN's share offer does not provide any immediate cash to the shareholders, and the value of the offer is dependent on the underlying value of LMN common shares and when they can be sold. Since LMN is a private company, this increases the uncertainty regarding the ultimate proceeds.
- Partnering with a large company like LMN can improve ACE's market presence in a different industry, providing growth opportunities for further integration into customer lives by expanding from home assistance to vehicle assistance. LMN's large market presence can improve ACE's access to resources (including financial resources) and allow ACE to take part in the success of LMN's business operations.
- Since LMN's financial statements for FY21 are currently under audit, in draft, there is a potential for misstatement, hidden contingent liabilities, and additional warranty costs, to name a few, which may negatively impact the value of the offer.
- LMN's recent negative publicity may risk consumer confidence in the partnership and negatively impact the partnership with ACE or the perception of ACE's product quality.
- LMN is involved in a traditional manufacturing industry, and it is uncertain if the partnership will contribute to ACE's key success factor of focusing on innovation.

Strategic Considerations — DAG

- Though licensing fees may provide a steady cash flow, the annual cash flows/licensing revenues to ACE are dependent on how well DAG performs in terms of the number of cars sold. This risk is increased by the fact that DAG is a relatively new company and does not have the same established history of operations or market presence as LMN.
- Selling to DAG for a fixed price provides ACE's shareholders certainty since software ages quickly and tends to have a finite life.
- ACE's shareholders must consider the risk associated with granting DAG access to ACE's source code. Even if DAG sells less than the forecasted number of vehicles, it still gains access to ACE's source code, which presents a significant advantage to DAG and risks eroding ACE's competitive advantage in the smart tech industry.

- ACE should execute an agreement that limits how the source code may be used by DAG. ACE should also consider if this will impact its ability to sell its software to other parties after the agreement expires in FY27.
- Involvement with a luxury automaker can be beneficial for ACE's brand image, and DAG's innovative approach appears to be in line with ACE's innovative attributes as DAG has its own R&D team.

Recommendation

I recommend that ACE pursue the strategic partnership with LMN, as it has a higher FMV than the DAG offer and is in line with the shareholders' desire to expand into other industries, without the risk associated with exposing/releasing its source code. However, ACE shareholders should consider establishing an agreement with LMN to address the ownership/title to the software once it is adapted for use in vehicles, as there may be a risk that LMN will claim ownership since it will fund the costs to adapt the software accordingly.

Marker Comments

- Most Candidates were not able to discuss the qualitative factors for each offer or incorporate the analyses into an overall recommendation for all the offers.

Requirement 4: Discuss Shareholder Agreement terms for ACE.

[Note: Candidates are expected to tie relevant terms to case facts, such as dealing with shareholder retirement and shareholder marriage.]

Shareholder Retirement

- The Shareholder Agreement should address if Cameron, the retiring shareholder, will be subject to a non-compete agreement or non-disclosure agreement, or if there will be any restriction on access to assets for the retiring shareholder.
- The Shareholder Agreement should specify what definition of value to use and how the FMV of shares held by the retiring shareholder will be determined.
- The Shareholder Agreement should indicate if there will be a right of first refusal or if the retiring shareholder sell to an external third party right away.
- The Shareholder Agreement should address how the retiring shareholder will be paid and if the source of funds should come from the company's treasury as this may impact the value of the company after the transaction.
- A non-competition and/or non-disclosure agreement is highly recommended once Cameron retires.

Recently Married Shareholder

- The Shareholder Agreement should address the potential triggering event of a marital breakdown, in order to mitigate the risk of ownership being transferred to a spouse who is not involved in the business. To avoid having shares form part of the marital pool, I recommend including a provision stating that shares in ACE do not form part of the marital pool and any court order in family law will not be satisfied with shares of the company.

Other Relevant Shareholder Terms

- A Shareholder Agreement is important to ensure fairness among shareholders, align shareholder interests with the corporation, and provide a mechanism for dispute resolution, as well as an exit strategy for shareholders.
- Given that ACE has received unsolicited third-party offers for an equity stake, a Shareholder Agreement can provide a mechanism for shareholder liquidity to address scenarios in which one shareholder wants to accept and the other does not. The Shareholder Agreement should consider how third-party offers will be addressed.
- ACE's voting rights are currently split among two common shareholders, presenting potential for a shareholder dispute. I recommend incorporating a shot gun clause that can be triggered in case of a significant disagreement that may lead to a corporate divorce. A shot gun clause will allow one shareholder to acquire another shareholder's interest at a reasonable amount. This provides a means of exit to the dissatisfied shareholder without having to liquidate the company. The Shareholder Agreement should outline/define the valuation process and determine if the valuation will be based on a formula or will be performed by a third party. I recommend establishing this clause while the shareholders are on amicable terms.

Marker Comments

- While many candidates provided some high lever boilerplate considerations for a shareholder agreement, many did not tie to specific case facts
- Many Candidates appear to have mismanaged their time, not completing substantial portions of the question.
- Star Candidates made smart decisions about where to focus their time.

Exhibit 1

Technology To Go (TTG) Offer

in CAD 000's, unless otherwise noted

	Units	Notes	Base Year 2021	2022	2023	2024	2025	2026
				For the fiscal year ending,				
FMV of Earn-out								
ACE's FY21 Revenue		Apdx. 2	$ 62,050					
Estimated annual revenue growth %		MQE page 8		15%	14%	13%	12%	11%
Estimated total sales after acquiring ACE Technology Corporation				**71,358**	**81,348**	**91,923**	**102,953**	**114,278**
Cumulative revenue growth (2021 base year)					31%	48%		84%
Target growth in sales required to achieve earnout		MQE page 8			25%	50%		75%
Was the earnout target achieved?					yes	no		yes
Earn out payment for achieving target		MQE page 8			10,000	15,000		25,000
Actual Earn-out				**-**	**10,000**	**-**	**-**	**25,000**
PV period, end of year		MQE page 8		1	2	3	4	5
PV factors - case fact (4%-8% premium on Rf of 2%)		MQE page 8	6.0%	0.9434	0.8900	0.8396	0.7921	0.7473
PV of earnout				-	8,900	-	-	18,681
Sum of earnout			27,581					
+ Initial payment upon acceptance		MQE page 8	90,000					
FMV of takeover offer with earnout from TTG			117,581					

Conclusion: PV of the takeover offer by TTG is $117.5 million and exceeds ACE's en bloc value determined under the market approach
This offer is higher than the current en bloc value of ACE; but doesn't take into account the potential growth from the new deal with LMN or the royalty/licensing under DAG deal. Recommend to not pursue at this time.

Review if initial payment accepted in cash	*Units*	Notes		**Comments**
Total Cash consideration offered to ACE shareholders		MQE page 8	90,000	
Total consideration per shareholder (2 common shareholders)			45,000	
Less: adjusted cost base of each common shareholder	*# of shares, 000s*	Apdx. 1, note 6	(750)	Alex and Cameron each subscribed to 750,000 common shares at $1/each
Capital gain per Shareholder			44,250	
less: LCGE limit available for 2021		Apdx. 9	(893)	Assume both shareholders have LCGE available
Capital Gain per shareholder, after LCGE			43,357	
Taxable Capital Gain (TCG) per shareholder, after LCGE			21,679	Proceeds will exceed LCGE
Tax rate on TCG		Apdx. 9	28%	
Total Tax payable by each shareholder on TCG not sheltered by LCGE			(6,070)	
Net proceeds per SH			**38,930**	

Conclusion: Of the $90 million cash received, the common shareholders will keep/receive net proceeds of approximately $39 million each (after taxes).

Review if initial payment accepted in shares of TTG				
# of TTG common shares received by Shareholders	*# of shares*	1.	2,000,000	
Total # TTG common shares outstanding (original 65M + 2M)	*# of shares*		67,000,000	
% Equity interest held in TTG			3%	
Current price per share	*$/share*	MQE page 8	$45	
Implied value of share consideration		MQE page 8	$90,000	
Apply discount for restricted shares (reasable discount permitted)			25%	To reflect duration of restriction period for 1 year
FMV of common share consideration			67,500	

Conclusion: The FMV of 2 million TTG shares is lower than $90 million cash consideration due to discount for restriction period.

Notes

1. Number of TTG shares required to be issued for $90m initial payment

Number of TTG common shares outstanding	*# of shares*	MQE page 8	65,000,000
Current price per share	*$/share*	MQE page 8	$45
Number of TTG shares required at $45/share	*# of shares*		2,000,000

Exhibit 2
FMV of ACE Technology - Market Approach
in CAD 000's, unless otherwise noted

Company Name	Enterprise Value ($)	LTM Revenue ($)	LTM EBIT ($)	Prior year Revenue growth (%)	LTM EBIT as % of Revenue (%)	EV/Revenue	EV/EBIT	Reason for comparability
Smart Lens Inc.	$80,700	$40,740	$13,037	19%	32%	**1.98x**	**6.19x**	Comparable - smart tech, similar EBIT % of revenue, and revenue growth.
Smart Balls	$81,000	$65,740	$22,352	25%	28%	**1.23x**	**3.62x**	Comparable - smart tech company with similar revenue levels and revenue growth
Tailored Suites	$64,945	$53,900	$19,800	9%	37%	1.20x	3.28x	Not comparable - similar industry but this is custom software.
Get Appy	$34,800	$28,536	$10,200	25%	36%	1.22x	3.41x	Not comparable - generates a different revenue stream, LTM revenue is lower than ACE.
Webby up	$603,000	$176,800	$74,000	38%	42%	3.41x	8.15x	Not comparable - larger revenues, EBIT, and higher revenue growth
Inteli-scale	$125,000	$115,000	$34,000	28%	30%	**1.09x**	**3.68x**	Comparable - somewhat: Has a well known brand name, larger revenues than ACE, similar EBIT % of revenue
Intelli-Pen	$61,800	$77,200	$18,400	3%	24%	**0.80x**	**3.36x**	Comparable - smart tech, revenue and EBIT is in range of ACE.
Smart Sense	$155,000	$95,000	$41,000	3%	43%	**1.63x**	**3.78x**	Compable - smart tech, Revenue and EBIT is larger than ACE. EBIT % of revenue is in range of ACE.
We-Motional	$655,000	$222,000	$71,000	8%	32%	2.95x	9.23x	Not Comparable - significantly bigger company, longer history of operations, and worldwide sales
AVERAGE: COMPARABLE COMPANIES						**1.35x**	**4.13x**	
Ace Technoloogies		$62,050	$21,633	20%	35%			

Notes

1. Comparable companies identified above represent public corporations with enhanced liquidity due to a ready market available to dispose of shares, unlike ACE Technology, which is a private corporation and has reduced liquidity as there is no ready market available.
2. Public corporations include an inherent minority discount, while the transaction proposed by TTG is for a controlling (100%) interest.
3. Upward adjustment required to reflect a control premium, while a downward adjustment required to reflect liquidity discount; assume these adjustments cancel out.

Calcluation of Enterprise and Equity Value

	Notes	EV/Revenue
FY21 revenue	Apdx. 2	62,050
EV/Revenue multiple		1.35x
Business enterprise value		83,768
Add: Redundant cash	Apdx. 1	400
Add: Redundant patent	Apdx. 1	625
Total enterprise value		84,793
Less: Other long term debt	Apdx. 1	(298)
Less: FV of bond payable liability	**4.**	(544)
Less: FV of retractable preferred shares	**5.**	(4,000)
Less: Dividend payable	Apdx. 1	(180)
Equity value		79,770

	Notes	EV/EBIT
FY21 EBIT	Apdx. 2	21,633
Add: Donation	Apdx. 2	710
Normalized EBIT		22,343
EV/EBIT multiple		4.13x
Business enterprise value		92,275
Add: Redundant cash	Apdx. 1	400
Add: Redundant patent	Apdx. 1	625
Total enterprise value		93,300
Less: Other long term debt	Apdx. 1	(298)
Less: FV of bond payable liability	**4.**	(544)
Less: FV of retractable preferred shares	**5.**	(4,000)
Less: Dividend payable	Apdx. 1	(180)
Equity value		88,277

Conclusion: En bloc equity value of ACE Technology Corporation based on market approach is between $79.8M-$88.3M

Notes

4. FMV of Accrual Bond
Accrual bond, 4 year, $400,000 par value, coupon rate 8%, YTM 6%,annual compound (Apdx. 1. Note 4)

	at Issuance	2018	2019	2020	2021
		For the fiscal years ending, August 31			
Bond payable	400				
Interest accrued at 8%		32	35	37	40
Principal due at maturity					400
Subtotal		32	35	37	440
Total due at maturity					544
FMV of accrual bond payable	**544**				

5. FV of Retractable Preferred Shares

Redemption value on B/S	*Apdx. 1, note 7*	$	4,000
Annual dividend	*Apdx. 1, note 7*		7.0%
Total annual dividend	*Apdx. 1, note 7*	$	280
Growth rate	*Apdx. 1, note 7*		2.0%
Required rate of return (r) on private preferred shares	*Apdx. 1, note 7*		8.4%

Retractable at holder's option
Greater of

i) redemption value		$	**4,000** = **FMV of preferred shares**
ii) value of holding and collecting dividends	Annual Dividend / (r + Growth Rate)	**$**	2,692

Exhibit 3

LMN Standalone FMV

in CAD 000s, unless otherwise noted

Purpose: Calculate the standalone FMV of LMN to determine the option price at which ACE can acquire an additional 15,000 shares, should they achieve the milestone.

	Units	Notes	For the 12 month period ending,				
			31-Aug-17	**31-Aug-18**	**31-Aug-19**	**31-Aug-20**	**31-Aug-21**
Pre-tax net income		*Apdx. 7*	837,356	954,035	(233,769)	298,317	845,967
Add: Interest expense		*Apdx. 7*	784	745	731	728	713
Add: Depreciation and amortization		*Apdx. 7*	300	500	500	500	500
Reported EBITDA			838,440	955,280	(232,538)	299,545	847,180
Normalizing adjustments							
Less: non recurring gain on disposal of asset		*Apdx. 7*					(2,500)
Less: dividend income		*Apdx. 7*				(600)	(600)
Addback: Bad debt expense		*Apdx. 7*				4,500	
Addback: reconfiguration expense; non recurring		*Apdx. 7*					8,200
Addback: warranty expense -one time		*Apdx. 7*			582,500	358,000	
Addback: Repair and Maintenance -equipment		*Apdx. 7*			50,000		
Less: Regular repair and maintenance- equipment		*Apdx. 7*			(10,000)		
Addback: FMV of Professional fees		*Apdx. 7*					500
Less: Regular professional fees		*Apdx. 7*					(150)
Addback: Non-recurring inventory disposal		*Apdx. 7*			35,000		
Addback: Current employee wages (production employees)		*Appx. 7*	2,676,000	2,975,000	2,325,000	2,636,800	2,595,000
Less: Market value of union wages (20% increase)		*MQE page 9*	(3,211,200)	(3,570,000)	(2,790,000)	(3,164,160)	(3,114,000)
Addback: Discretionary lunches for employees ($25k/month *12 month)		*Apdx. 7*	300	300	300	300	300
Maintainable EBITDA			**303,540**	**360,580**	**(39,738)**	**134,385**	**333,930**
Cash flow weighting			1	2	3	4	5
Time adjusted average			259,390				
Simple 5 year average			218,540 low				
Most recent year			333,930 high				
Most recent 2 year average			234,158				

	Units	Notes	**Low**	**High**	**Mid-point**
Maintainable EBITDA			218,540	333,930	
Less: Tax (26.5%)		*Apdx. 9*	(57,913)	(88,491)	
Less: Change in working capital (assumed nominal without ACE software)			-	-	
Less: Sustaining capital expenditures		1.	(1,100)	(1,100)	
Add: Tax shield		1.	160	160	
After-tax discretionary cash flows			**159,686**	**244,498**	
Cash flow multiple			8.9x	7.6x	
Capitalized Cash Flow			**1,419,452**	**1,856,066**	**1,637,759**
Add: PV of existing tax shield		2.	69,458	69,458	
Add: Inventory reimbursement expected from litigation		3.	23,625	23,625	
Less: Litigation fee		4.	(7,088)	(7,088)	
Add: Tax savings on litigation cost (26.5%)			1,878	1,878	
Business Enterprise Value			**1,507,326**	**1,943,940**	**1,725,633**
Add: NRV Marketable Securities		5.	20,790	20,790	
Add: Redundant cash		*Apdx. 6*	159,000	159,000	
Add: Excess WC on hand		6.	110,704	110,704	
Total Enterprise Value			**1,797,820**	**2,234,434**	**2,016,127**
Less: Interest bearing debt		7.	(586,000)	(586,000)	
Less: Dividend payable			(5,000)	(5,000)	
En bloc Equity Value			**1,206,820**	**1,643,434**	**1,425,127**
Common shares outstanding, as at the valuation date	*# of shares*	*Apdx. 6, Note 3*	500,000		
Add: Additional shares to be issued to ACE	*# of shares*	*MQE page 2*	30,000		
Common shares outstanding, if ACE accepts deal	*# of shares*		530,000		
FMV of LMN's shares, with 30,000 additional shares issued.	*$/share*		$2,689		
ACE ownership of LMN equity upon acceptance	*%*		5.7%		

Conclusion:

ACE will have opportunity to acquire an additional 15,000 common shares in LMN for $2,689/share should LMN hit target of 1,000,000 unit sales

Exhibit 3
LMN Standalone FMV
in CAD 000s, unless otherwise noted

Notes

1. **Tax shield: sustaining capex (Half year applicable)**

		Source		
sustaining capex		*MQE page 9*	$	1,100
tax %	%	*Apdx. 9*		26.5%
CCA rate	%	*MQE page 9*		20.0%
discount %	%			14.2%
Tax shield $			$	160

2. **Tax shield existing assets (No half year applicable)**

		Source		
Net book value - machinery		*Apdx. 6*	$	197,500
UCC balance is 80% of NBV		*MQE page 9*		80%
UCC balance - machinery			$	158,000
tax %	%	*Apdx. 9*		26.5%
CCA rate	%	*MQE page 9*		20.0%
discount %	%			14.2%
Tax shield-Machinary $			$	24,477
Warehouse UCC (UCC=NBV)				
UCC - Warehouse (Apdx 6)		*MQE page 9*	$	772,800
tax %	%	*Apdx. 9*		26.5%
CCA rate	%			4.0%
discount %	%			14.2%
Tax shield-Warehouse $			$	44,981
Total tax shield on existing assets			**$**	**69,458**

3. **Inventory reimbursement expected from litigation**

		Source		
90% chance of recovering 75% of inventory disposal cost		*MQE page 9*		
Inventory disposal cost (FY19)		*Apdx. 9*	*$*	*35,000*
Estimated Recovery per legal counsel	%			75.0%
Estimated recovery amount			$	26,250
Probability of recovery	%			90.0%
Inventory reimbursement			$	23,625

4. **Litigation fee**

		Source		
Litigation fees (30% of recovered amount)	%	*MQE page 9*		30.0%
Recovered amount (as calculated above)			$	23,625
Litigation fees			$	7,088

5. **NRV redundant assets, net of latent tax/disposal**

		Source		
FMV Redundant asset - Marketable Securities		*Apdx. 6*	$	21,000
less: selling cost (1%)				(210)
=NRV Marketable Securities			$	20,790
less: adjusted cost base		*Apdx. 6*		(25,000)
=Capital Gain/ (Loss)				(4,210)
No capital gain, no latent tax				

6. **Redundant Non-cash WC on hand**

		Source			
2021 Sales Revenue		*Apdx. 7*		6,714,900	
Working Capital required (4% of revenue)		*MQE page 9*		268,596	
Working Capital on hand		*Apdx. 6*		379,300	A/R + Inventory - A/P
Redundant/Excess WC on hand				110,704	

7. **Interest bearing debt**

		Source		
Current portion of bank loan		*Apdx. 6*	$	14,700
Bank-Long term debt		*Apdx. 6*	$	76,300
Mortgage payable-Warehouse		*Apdx. 6*	$	495,000
Total interest bearing debt			$	586,000

Exhibit 4

LMN WACC Buildup and Capitalization Multiple

	Low	High	Midpoint	Notes
Risk free rate	3.2%	3.2%		20 year government bond rate (Apdx. 9)
Equity risk premium	6.0%	6.0%		15 year rate used to capture balance of recent and long term trends (Apdx 9)
Size premium	5.2%	5.2%		Appx 9
Industry risk premium	4.0%	4.0%		Appx 9
Company specific premium	4.0%	8.0%		Medium-high risk per note below
Return on equity	22.4%	26.4%		
Pre-tax cost of debt	6.5%	6.5%		Average of 8% interest on unsecured loans & 5% interest on secured loans (Appx. 9)
Tax cost at 26.5%	26.5%	26.5%		Appx 9
After-tax cost of debt	4.8%	4.8%		
Debt to capital ratio	52%	52%		convert debt: equity ratio of 1.08
WACC	**13.2%**	**15.2%**	**14.2%**	WACC Midpoint
Long-term growth rate	2.0%	2.0%		Appx 9
Capitalization rate	11.2%	13.2%		
Capitalization multiple	**8.9x**	**7.6x**	**8.2x**	
WACC - LMN With ACE				
Standalone WACC	**13.2%**	**15.2%**		
risk premium	3.0%	5.0%		Relates to uncertainty and timing of achieiving forecasted results with ACE's technology
WACC - LMN With ACE	16.2%	20.2%	**18.2%**	
Long-term growth rate	2.0%	2.0%		
Capitalization rate	14.2%	18.2%		
Capitalization multiple	**7.0x**	**5.5x**	**6.3x**	

Conclusion

LMN Standalone: WACC ranges between 13.2% to 15.2% and the capitalization multiple ranges between 7.6x to 8.9x.

LMN with ACE: WACC ranges between 16.2% to 20.2% and the capitalization multiple ranges between 5.5x to 7.0x.

Company Specific Risk Factors

Factors increasing risk

- Recovering from a tarnished reputation
- Risk of cost over-run associated with adapting the software
- Lost a customer due to COVID-risk of losing more as it continues
- LMN's FY21 financial statements are in draft form

Factors decreasing risk

- Long history of operations & a top manufacturer
- Newly implement quality assurance program has been well received, paving road to recover from previous negative media attention

Conclusion: The company specific risk premium is between 4% to 8% (LMN Standalone)

Exhibit 5

FMV of LMN With ACE's software

in CAD 000s, unless otherwise noted

Purpose: Determine if LMN will achieve the milestones required for ACE to acquire an additional 15,000 common shares at LMN's current pro-rata price

					For the 12 month period ending,						
	Units	**Ref.**	**Notes**	**Base Year 31-Aug-21**	**31-Aug-22**	**31-Aug-23**	**31-Aug-24**	**31-Aug-25**	**31-Aug-26**	**31-Aug-27**	**Terminal Value**
Vehicles sold by LMN in FY21		*Appx. 7, note 2*		165,800							
Analyst Forecast		*Apdx. 9*			3%	3%	2%	2%	2%	2%	
Exceed analyst forecast by 3X with software		*MQE page 2*			3x	3x	3x	3x	3x	3x	
Growth rate forecasted by LMN management					9%	9%	6%	6%	6%	6%	
Current price per LMN car (without ACE software)		*Appx. 7, note 2*		$ 40,500							
Price increase per car with ACE software		*MQE page 2*		15.0%							
Estimated price per LMN car with ACE Software				$ 46,575							
Projected number of units sold					**180,722**	**196,987**	**208,806**	**221,335**	**234,615**	**248,692**	
Projected sale price per vehicle					**$46,575**	**$47,507**	**$48,457**	**$49,426**	**$50,414**	**$51,423**	
Projected revenues - in $ 000s					**8,417,127**	**9,358,162**	**10,118,045**	**10,939,630**	**11,827,928**	**12,788,356**	
Less: Expenses											
COGS (80%)		*Apdx. 7 note 5*			(6,733,702)	(7,486,530)	(8,094,436)	(8,751,704)	(9,462,342)	(10,230,685)	
Incremental Increased wages of production employees **NOT** in COGS		*Apdx. 7 note 5*		(519,000)	(529,380)	(539,968)	(550,767)	(561,782)	(573,018)	(584,478)	
Professional fees		*Apdx. 7*		(150)	(153)	(156)	(159)	(162)	(166)	(169)	
Meals & Entertainment		*Apdx. 7*		(320)	(326)	(333)	(340)	(346)	(353)	(360)	
Repair & Mainteance		*Apdx. 7*		(10,000)	(10,200)	(10,404)	(10,612)	(10,824)	(11,041)	(11,262)	
Selling, general & admin		*Apdx. 7*		(510,000)	(520,200)	(530,604)	(541,216)	(552,040)	(563,081)	(574,343)	
Quality assurance		*Apdx. 7*		(1,500)	(1,530)	(1,561)	(1,592)	(1,624)	(1,656)	(1,689)	
Cost savings from new equipment		*MQE page 2*					505,902	546,981	591,396	639,418	
One-time cost to adapt software		*MQE page 2*	1.		(799)						
One time expense for advertising campaign		*MQE page 2*			(2,500)	(2,500)					
Maintainable EBITDA					**618,337**	**786,107**	**1,424,825**	**1,608,128**	**1,807,667**	**2,024,788**	
Less: Tax	26.5%	*Apdx. 9*			(163,859)	(208,318)	(377,579)	(426,154)	(479,032)	(536,569)	
Less: Sustaining capital expenditures		*MQE page 9*	2.		(1,100)	(1,100)	(1,100)	(1,100)	(1,100)	(1,100)	
Add: Tax shield			2.		141	141	141	141	141	141	
Less: One time capital outlay for equipment		*MQE page 2*	3.				(3,000)				
Add: Tax shield on capital purchase			3.				384				
Less: Change in working capital			4.		(68,089)	(37,641)	(30,395)	(32,863)	(35,532)	(38,417)	
After-tax discretionary cash flows					**385,429**	**539,188**	**1,013,276**	**1,148,152**	**1,292,144**	**1,448,843**	**1,477,819**
Terminal multiple											6.3x
Terminal value											9,251,375
Present value (PV) period -mid year					0.5	1.5	2.5	3.5	4.5	5.5	
PV factor (WACC midpoint 14.2% + increased risk re: uncertaintity in projections				18.2%	0.9198	0.7781	0.6582	0.5568	0.4710	0.3984	0.3984
PV cash flows					**354,499**	**419,519**	**666,929**	**639,281**	**608,617**	**577,291**	**3,686,208**

	As at Valuation Date	
Summation of PV of cash flows	6,952,344	
Add: PV of existing tax shield	69,458	
Business Enterprise Value	7,021,802	
Add: NRV Marketable Securities	20,790	
Add: Inventory reimbursement expected from litigation	23,625	
Less: Litigation fee	(7,088)	
Add: Tax savings on litigation cost	1,878	
Add: Redundant cash	159,000	
Add: Excess WC on hand	110,704	
Total Enterprise Value	7,330,712	
Less: Interest bearing debt	(586,000)	
Less: Dividend payable	(5,000)	
En bloc Equity Value	6,739,712	
Add: Equity injection from ACE purchasing additional 15,000 common shares	40,334	Additional 15,000 common shares purchased by ACE for $2,689/common share
En bloc value attributed to common shareholders	6,780,045	

Exhibit 5

FMV of LMN With ACE's software

in CAD 000s, unless otherwise noted

Number of common shares outstanding			545,000	500,000 original LMN shares o/s + 30,000 shares issued to ACE upon signing + 15,000 shares purchased
Pro-rata value per LMN common share with ACE software		$	12,440	

Conclusion

LMN will achieve the required milestone of selling 1,000,000 units in 5 years, allowing ACE to receive an additional 15,000 common shares at $2,689/each.

ACE should pursue this as the cost to purchase an LMN common share at $2,689 is less than the current pro-rata value of a common share in LMN calculated above

Calculate ACE's equity interest in LMN

# of shares issued to ACE	*MQE page 2*		30,000	
Add: Additional shares for achieving milestone	*MQE page 2*		15,000	
Total # shares held by ACE Technology Corp.			45,000	
Total # LMN common shares outstanding			545,000	500,000 originally o/s + 30,000 issued upon acceptance + additional 15,000 ACE can obtain
% Equity interest held by ACE			8.3%	
Pro-rata value of ACE's 8.3% common shares in LMN		$	559,820	
Apply minority discount	5.		10.0%	
FMV of ACE's 8.3% equity interest in LMN		$	503,838	
Less: ACE's purchase of 15,000 LMN shares			(40,334)	
FMV of LMN offer			**463,504**	

Conclusion: FMV of LMN offer is $463.5 million

Notes

1. **Cost to adapt ACE software to be suitable for LMN**

Total replacement cost		$	5,328
15% of replacement cost	*MQE page 2*	$	799

2. **Tax shield: sustaining capex *Half year applicable**

sustaining capex	*MQE page 9*	$	1,100
Tax %	*Apdx. 9*		26.5%
CCA %- Machinery	*MQE page 9*		20.0%
Discount %			18.2%
Tax Shield $		$	141

3. **Growth capex-one time (Half year applicable)**

Growth capex-one time	*MQE page 2*	$	3,000
Tax %	*Apdx. 9*		26.5%
CCA %- Machinery	*MQE page 9*		20.0%
Discount %			18.2%
Tax Shield $		$	384

4. **Change in Working Capital required**

Working Capital Adjustment = 4% of revenue (MQE page 9)	**31-Aug-22**	**31-Aug-23**	**31-Aug-24**	**31-Aug-25**	**31-Aug-26**	**31-Aug-27**
Projected Revenue	$ 8,417,127	$ 9,358,162	$ 10,118,045	$ 10,939,630	$ 11,827,928	$ 12,788,356
Non- Cash Working Capital required (4% of revenue)	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Non- Cash Working Capital required	$ 336,685	$ 374,326	$ 404,722	$ 437,585	$ 473,117	$ 511,534
Working Capital on hand	$ 268,596	$ 336,685	$ 374,326	$ 404,722	$ 437,585	$ 473,117
Working Capital Adjustment	**$ 68,089**	**$ 37,641**	**$ 30,395**	**$ 32,863**	**$ 35,532**	**$ 38,417**

2022 Notional WC based on 2021 revenue, and any excess WC captured as redundant WC

5. **Note: Minority Discount**

Increasing factors	Decreasing factors
ACE will hold minority position-unable to control operations	Potential to incorporate a tag-along provision should there be a take-over
8% interest will not allow ACE to prevent a takeover	

Conclusion: Minority discount of 10% - 20% is appropriate in consideration of above factors

Exhibit 6

Replacement Cost of ACE Technology Corporation's Voice Recognition Software

in CAD 000s, unless otherwise noted

Details of costs incurred	Units	Notes	Costs Incurred	# of Employees	Years	Salary / Employee per annum
Software development		*Apdx. 1 note 2*	3,600	6	5.0	$120
Voice recognition module		*Apdx. 1 note 2*	1,800	3	4.0	$150
Testing		*Apdx. 1 note 2*	255	2	1.5	$85
One time integration cost		*Apdx. 1 note 2*	150			
Total			**$ 5,805**			

Per Apdx. 1, note 2 - 1 year of each stage avoidable is technology had to replicated now. Salaries for the same position have increased by 20%.

Replacement cost						
Software development		*Apdx. 1 note 2*	3,456	6	4.0	$144
Voice recognition module		*Apdx. 1 note 2*	1,620	3	3.0	$180
Testing		*Apdx. 1 note 2*	102	2	0.5	$102
One time integration cost		*Apdx. 1 note 2*	150			
Total			**$ 5,328**			

Conclusion: Replacement cost of software is $5.3 million

Exhibit 7

FMV of Licensing Offer by Divine Auto Group (DAG)

in CAD 000s, unless otherwise noted

					For the 12 month period ending,					
	Units	**Notes**		Base year **2021**	**31-Aug-22**	**31-Aug-23**	**31-Aug-24**	**31-Aug-25**	**31-Aug-26**	**31-Aug-27**
Forecasted vehicle sales (with ACE software)		*MQE page 12*		43,750	45,063	50,470	54,508	58,868	63,578	68,664
Analyst Forecast	%	*Apdx. 9*			3%	3%	2%	2%	2%	2%
Exceed analyst forecast by 4X with software		*MQE page 12*				4x	4x	4x	4x	4x
Growth rate forecasted by LMN management		1.			3%	12%	8%	8%	8%	8%
Cumulative vehicle sales with ACE (units)	*# of vehicles*	2.			45,063	95,533	150,040	208,908	272,486	341,150
License fee per vehicle	*MQE page 2*	3.	$	1,000						
License fee per vehicle	*MQE page 2*	4.	$	2,000						
Annual license fees payable to ACE Technology Corporation					45,063	50,470	54,508	117,736	127,155	137,328
Add: One-time $20M payment		*MQE page 2*								20,000
Less: Tax		*Apdx. 9*		30.0%	(13,519)	(15,141)	(16,352)	(35,321)	(38,147)	(47,198)
After tax income to ACE Technology Corporation					31,544	35,329	38,155	82,415	89,009	110,129
Discount period, mid year					0.5	1.5	2.5	3.5	4.5	5.5
PV Factor (Discount rate used for LMN's DCF/projections)				18.2%	0.9198	0.7781	0.6582	0.5568	0.4710	0.3984
Present Value licensing income					29,012	27,488	25,113	45,888	41,924	43,881
SUM After tax license income to ACE Technology Corp- USD$				**213,307**						
Convert USD to CAD per exchange rate		*Apdx. 9*		1.45						
FMV of DAG offer				**309,296**						
Conclusion: Value of the DAG license deal to ACE Technology Corporation is			**$**	**309,296**						

Factors of Considerations: Have to give up source coding- potential to erode competitive advantage if ends up in the wrong hands

Risk that the current FX rate of 1.45 will decrease by the time the lump sum payment is due, thereby reducing the overall value of the deal.

Notes

1. 2022 will still be per analyst expected growth (3%), and at 4X as of FY23, once software is incorporated
2. 150,000 total units exceeded in FY24
3. $1,000/vehicle license applies for 2023, and 2024
4. $2,000/vehicle license applies as of FY25

QUESTION 2

Date: December 1, 2021

Private and Confidential – DRAFT – Subject to change – For internal use only

Note: This is an internal memo and therefore not required to be in accordance with CICBV practice standards

To: Dave, CBV, Partner

From: CBV, Senior Associate

Regarding: Barry Family Farm ("BFF") & SORTech valuation. Engagement issues and client acceptance

Engagement acceptance, risks and report type

You have asked me to prepare a memo to file to identify report considerations with respect to

- Engagement acceptance considerations
- Report type
- Engagement risks

The context of the valuation is Matrimonial, and we have been asked to be engaged as an independent expert in a joint retainer basis.

The client has specifically asked if our fees can be contingency based. Our fees cannot be contingency based or cannot be a function of the overall value determined. This could be perceived as a concern for independence.

Client acceptance issues to consider:

We must be independent, objective, and free of any conflicts of interest. To the best of my knowledge, we can act in this capacity, but should confirm with Dave, Partner.

We must have sufficient knowledge of the business/industry. Our firm has worked within this industry on a regular basis.

Nature of the tasks: We are being asked to value the matrimonial assets as an independent expert. We have been asked to determine the FMV of Pete and Garth's ownership in BFF, as well as Garth's ownership of SORTech.

Merits of the case (fees versus potential loss or impact on reputation) - No indication that there is significant risk to financial losses or reputation from taking on the engagement.

Availability of time/competent staff - your schedule has opened up. You have sufficient skillset to work on this engagement.

Assessing potential risks:

- Reputation of lawyers is good based on comments from other professionals.
- Reputation of client – no case facts to suggest client holds bad reputation. We should confirm this, potentially by way of conflict check, discussion with colleagues/trusted advisors, online search etc. If any red flags are identified, a formal/professional background check could be performed.

Conclusion: Based on points considered above, as respective responses, but subject to outstanding items noted, it appears as though we are in a good position to accept this engagement. All client acceptance and on-boarding procedure should be documented in our files and reviewed by Dave.

Risk factors to consider

We will need to have discussions with all relevant individuals throughout the valuation analysis. As this is a joint retainer situation, we will need to speak with both Pete and Garth about key questions and consider their responses.

All correspondence should be shared with both lawyers to ensure transparency.

Reliance on internal financials, or potentially NTR statements in most recent year may not be appropriate given the nature of the report, and the intended users/use.

We should consider asking the client to have Review Engagement Financial Statements prepared, to ensure that we are using reliable and comparable data in our financial analysis.

This may however delay completion of the entire engagement, as it will take additional time to have external statements prepared. In the name of time, we could consider using the internal statements to work through our valuation, while the client is simultaneously having review engagement statements prepared. We could then consider any material changes before issuing our draft and final report.

Personal tax will need to be considered in the division of assets; however, personal tax implications are beyond the scope of our involvement. The client will each need to engage their own tax advisors to discuss the impact.

We need to exercise professional judgement in considering responses to our questions from both Pete and Garth. While there is no indication that either party is intending to mislead us, we need to recognize the potential for bias in conversations with Pete and Garth, that could have an impact on the valuation of BFF and SORTech.

Recommendation: While there have been some risks identified above, I believe that these are manageable, and not outside of the normal course of provision of valuation services in this context. Therefore, I recommend that we move forward and issue an engagement letter.

Engagement reporting

This memo is being prepared for internal discussions (Practice Bulletin 5)

Both parties should sign our engagement letter to ensure up front that everyone is comfortable with our involvement, fees, and acting independently for both parties.

When issuing a report to lawyers we would need to follow CBV Standards since we a expressing a value conclusion externally.

Final report being issued in the context of Practice Standard No. 310 is considered. Expert Report used in the context of litigation or a dispute, prepared by an Expert acting independently.

A valuation report forms part of the Expert report, and therefore the report must conform to Standards 110, 120 and 130.

The Partner will need to be involved regularly in the valuation, and further discussions with the client, as the Expert may be called upon to testify if the case goes to court.

While Fair Value is often the definition of value used in Expert Reports in commercial litigation scenarios or cases of shareholder oppression, it would not be appropriate in this scenario. Fair Market Value (“FMV”) should be the definition of value followed in our analysis.

Given the use of the report, and considering this is a divorce, we can assume that our report will be reviewed in detail and scrutinized heavily. We will have to ensure the depth and breadth of our work from the perspective of analysis, corroboration, and detail of our report, is sufficient to stand up to such scrutiny.

Therefore, I would suggest that a Calculation Valuation Report will not be sufficient, and therefore recommend an Estimate or Comprehensive level report.

The valuation date to be used is October 31, 2021, the date of separation (the “Valuation Date”).

Marker Comments:

- Many Candidates did not provide discussions around client acceptance and engagement risk considerations even though it was explicitly asked.
- Many Candidates included sections in the memo (e.g., scope of review, assumptions, restrictions, definitions) which were based on reporting standards but not necessary/appropriate in an internal memo to partner.
- Star Candidates “brought it all together” - prepared a higher quality Memo to File, demonstrating an understanding of the assignment as opposed to a memory dump. They showed better time management in the breadth and depth of their analysis.

Fair Market Value of Barry Family Farm

Selection of methodology

BFF is a going concern and has a history of positive earnings and cash flow, and there is no expectation that operations will cease. Our valuation is based on the market approach using EBITDA multiples from precedent comparable transactions.

Our valuation analysis will also consider an adjusted net asset approach, due to the high real estate land values in British Columbia. In addition, market values of all assets and liabilities are available.

Our valuation conclusion will be selected based on the approach that provides the highest en bloc FMV of Shareholders’ Equity.

Using the Market Approach

To apply an appropriate EBITDA multiple under the market approach we need to determine maintainable EBITDA of our subject company, BFF, as illustrated below:

Exhibit 1 - Maintainable EBITDA

In CAD, unless otherwise noted

	Notes	2018	2019	2020	2021
Revenue		$ 3,360,000	$ 3,100,000	$ 3,700,000	$ 4,000,000
Reported pre-tax earnings		$ 456,000	$ (81,000)	$ 564,000	$ 1,207,500
Add (deduct):					
Amortization	1	160,000	145,000	135,000	131,000
Interest on debt	1	55,000	40,000	25,000	-
Reported EBITDA		$ 671,000	$ 104,000	$ 724,000	$ 1,338,500
Reported EBITDA margin		*20%*	*3%*	*20%*	*33%*
Normalizing adjustments:					
Bad debts	2	-	25,000	-	-
Professional fees	3	-	-	-	15,000
Crop insurance - timing	4	(100,000)	500,000	-	(500,000)
Crop insurance deductible	4a.	-	75,000	-	-
Disposal of PPE	5	(40,000)	8,000	-	-
SORTech - Wages	6	50,000	-	-	-
SORTech - Unpaid Royalty	7	(33,600)	(31,000)	(37,000)	(40,000)
Owner-manager remuneration					
Add: Actual owner-manager remuneration	8	442,200	387,000	399,000	405,000
Deduct: FMV of owner remuneration	8	(333,600)	(336,000)	(337,000)	(355,000)
Grandpa Ray - Market rate for Tier 2 land lease	9	(13,200)	(13,200)	-	-
Grandpa Ray - Market rate for Tier 3 land lease	9	-	-	(24,000)	(24,000)
COVID adjustments		-	-	-	
Jen HR anomaly	10	-	-	-	10,000
PPE and other	11	-	-	25,000	15,000
Quarantine costs:		-	-	-	-
Hotel quarantine costs	12	-	-	14,000	-
Wages paid for work not performed	12	-	-	28,000	-
Local worker premium	13	-	-	16,800	-
Normalized EBITDA, rounded		**$ 643,000**	**$ 719,000**	**$ 809,000**	**$ 865,000**
Normalized EBITDA margin		*19%*	*23%*	*22%*	*22%*

Maintainable EBITDA		
LOW	14	**$ 750,000**
HIGH	14	**$ 850,000**

Notes

1. As per income statement
2. We have adjusted bad debts in fiscal 2019 for a one-time expense. Company has a history of no write-offs.
3. We have added back amounts in 2021 relating to personal legal costs in 2021. Normalizing these items brings the expense in line with the average of the unadjusted years of approximately $6,000 which is consistent with Management's expectations of a normal expense going forward.
4. We have adjusted crop insurance proceeds to reflect the results in the years that the proceeds relate to.

4a. Add back crop insurance deductible paid on second claim therefore $75,000.

5. We have adjusted gains/losses on disposition of capital assets, as they are not a normal part of active operations of BFF
6. We have added back redundant wages for sorting staff that will not be incurred beyond 2018.
7. We have deducted the market value annual subscription costs for software and equipment provision of 1% of revenues. Historically, the service had been provided free of charge by Garth, a related party.

8 We have added back the actual amounts paid to the shareholders and deducted the fair market value of the services performed based on management estimates. See detailed calculations on Wage Adjustment Tab.

Actual Wages		**2018**	**2019**	**2020**	**2021**
Shaun - Office Manager		150,000	100,000	100,000	100,000
Kelly - Farm Manager		100,000	100,000	100,000	100,000
Jen - HR Consultant		-	-	-	-
Pete - CEO/CFO		125,000	125,000	125,000	125,000
Garth - Sales Manager	a.	67,200	62,000	74,000	80,000
Total		**$ 442,200**	**$ 387,000**	**$ 399,000**	**$ 405,000**
FMV Wages					
Shaun & Kelly - Combined		125,000	125,000	125,000	125,000
Jen - HR Consultant	b.	25,000	30,000	25,000	40,000
Pete - CEO/CFO		150,000	150,000	150,000	150,000
Garth - Sales Manager	c.	33,600	31,000	37,000	40,000
Total		**$ 333,600**	**$ 336,000**	**$ 337,000**	**$ 355,000**

a. Garth's actual wages based on 2% of revenue

b. FMV of Jen's salary is equal to actual amount of dividends paid.

c. FMV of Garth's salary is based on 1% of revenue

9 **Determine the market value for the use of Grandpa Ray's Farm**

Grandpa Ray's property was planted, but not fully producing in 2018 and 2019 (Tier 2); then fully producing in 2020 and 2021 (Tier 3)
Tier 2 and Tier 3 are the relevant market segments that we will need to analyze to calculate a notional FMV rent.
We have adjusted land lease costs to reflect the fair market value of the lease of Grandpa Rays orchard based on an analysis of Tier 2 and Tier 3 market information provided in Appendix F.

Tier 2 Analysis	
Grandpa Ray comments	$ 600
Farm F Market Info	500
Selection of market rate (average)	**$ 550**

Tier 3 Analysis	**Assessment of Comparability**	**Comparability Conclusion**	**Monthly Lease Cost Per Acre**
Farm A	Same province. Different crop. lease rate appears to be an outlier.	No	N/A
Farm B	Different geography, similar acreage, same crop.	Yes.	$900
Farm C	Different geography and monthly lease cost appears to be outlier; similar size.	No	N/A
Farm D	Same geography, same crop, similar acreage	Yes.	$1,100
Farm E	Same geography, similar crop, similar acreage	Yes.	$950
Farm F	Tier 2 - therefore not applicable	N/A	N/A
Farm G	Different geography, same crop, larger acreage, lease rate appears to be outlier	No.	N/A
		Average	**$983**
		Selection of market rate to be applied in analysis	**$1,000**

Based on the identified comparable farm properties noted above, we have calculated average annual market rents.

	Monthly rent per acre	Acres Leased	Months per Year	**Annual FMV Rent**
Tier 2 (FY18 & 19)	$ 550	2	12	**$13,200**
Tier 3 (FY20 & 21)	$ 1,000	2	12	**$24,000**

Based on the above analysis, we have determined that an appropriate monthly rate for Tier 2 land is $550/month and Tier 3 is $1,000 per month. Accordingly, the FMV of annual lease costs are calculated to be $37,200.

10 Jen worked approx. 25% more in 2021 due to Covid related projects. We have normalized.

11 We have added back non-recurring expense items that relate to purchase of anti-covid PPE.

	2018	2019	2020	2021
Case facts (Appendix E)	$0	$0	$25,000	$15,000

12 We have added back the one-time expense related to quarantine costs for Foreign Temporary Workers ("FTW").

Sick Staff	**Daily $**	**Days**	**People**	**Extended cost**
Hotel costs	$100	14	10	**$14,000**
Work not performed	$200	14	10	**$28,000**

13 We have added back the one-time expense related to premiums paid for local replacement workers.

Local worker premium	**Daily $**	**Days**	**People**	**Extended cost**
Daily Cost of FTW	$400			
Premium 30%	$120	14	10	**$16,800**

14 We have selected a range of maintainable EBITDA of $750k - $850k based on a rounded 4-year average at the low point, and at the high end we considered a judgmental weighted average which aligned with the 2 year average as well. The midpoint is justified by a weighted average calculation.

Normalized EBITDA		**2018**	**2019**	**2020**	**2021**
Most recent year	$865,000				
2 year average	$837,000				
3 year average	$797,667				
4 year average	$759,000				
Weighting		1	2	3	4
Normalized EBITDA		$643,000	$1,438,000	$2,427,000	$3,460,000
Time Weighted Average	$796,800				

Given the potential bias that could be in place from Pete and his family we should consider corroborating information provided by the client. This could be done through confirming information through various online databases, or consulting with specialists. We should ask the client to provide an explanation of the process they followed in determining the amounts provided, and potentially ask for them to provide support for these numbers.

COVID Adjustments

As at the Valuation Date, the long-term impacts of covid are unknown. Per discussions with Management, they do not feel as though the ability of BFF to produce and sell fruit long-term will be affected by COVID. Fiscal 2021 is a good indicator of how the operation can run in the short term, and they expect to return to pre-COVID operations as soon as possible. As such, Management believes that any additional expenses related to COVID should be treated as normalizing items.

Selection of Maintainable EBITDA Analysis

Based on the above analysis, we have selected a maintainable EBITDA range of $750,000 to $850,000

Marker Comment

- BFF's EBITDA normalizing adjustments were well done.

Exhibit 2 – FMV of Barry Family Farm using the Market Approach

In CAD, unless otherwise noted

	Notes	LOW	HIGH	MIDPOINT
Maintainable EBITDA		$ 750,000	$ 850,000	
EV/EBITDA Multiple	*1*	4.50x	4.00x	
Business Enterprise Value, rounded		**$ 3,375,000**	**$ 3,400,000**	**$ 3,387,500**
Redundant Assets				
Cash (Working capital adj)	*2*	427,650	427,650	
Marketable securities (NRV)	*3*	1,461,998	1,461,998	
Debt and debt equivalents (SH loan assumed debt)	*4*	(150,000)	(150,000)	
En Bloc FMV of Shareholders' Equity		**$ 5,114,648**	**$ 5,139,648**	**$ 5,127,148**

Goodwill Calculation (Asset-based):	LOW	HIGH
Business Enterprise Value, rounded	3,375,000	3,400,000
Less: Tangible Asset Backing, before debt	4,077,500	4,077,500
Calculated Goodwill	(702,500)	(677,500)
Therefore Goodwill	$Nil	$Nil

Conclusion: Goodwill is negative (i.e. no commercial goodwill), therefore an asset based approach is appropriate at the Valuation Date.

Alternative Goodwill Calculation (Equity-based)	LOW	HIGH
FMV of shareholders' equity	5,114,648	5,139,648
Less: Redundant cash	(427,650)	(427,650)
Less: Redundant marketable securities (NRV)	(1,461,998)	(1,461,998)
FMV of shareholders' equity, excluding redundant assets	3,225,000	3,250,000
Tangible Asset Backing, before debt	4,077,500	4,077,500
Less: Debt instruments	(150,000)	(150,000)
Tangible Asset Backing, after debt	3,927,500	3,927,500
Calculated Goodwill	(702,500)	(677,500)

Marker Comment

- Many Candidates were incorrectly deducting taxes and sustaining capex to arrive at BFF's valuation using the market approach.

Notes

1 EBITDA multiple based on analysis of precedent transactions:

	Note	Unadjusted Multiple	Adjustment*	Adjusted EV / EBITDA Multiple
Jackery Farms	**a.**	N/A		N/A
Principals Orchards	**b.**	4.77		4.77x
Bandana Estates	**c.**	3.35	115%	3.85x
SOS Ltd.	**d.**	4.16		4.16x
BAS Inc.	**e.**	N/A		N/A
			Average	**4.26x**

* Acquisition of minority interest adjusted upwards to reflect premium for control (when arriving at En bloc value)

		Comparable	Reasoning
a.	Jackery Farms	No	Different Geography, includes oranges
b.	Principals Orchards	Yes	Located In British Columbia ("BC") and Cherry Farm
c.	Bandana Estates	Yes	Located in BC and Cherry Farm
d.	SOS Ltd.	Yes	Located in BC and Cherry Farm
e.	BAS Inc.	No	Multiple appears to be an outlier. Not clear if Western Canada is BC

2 See Exhibit 1, note 1, for detailed calculation

3 Taxes payable on marketable securities calculated on Exhibit 1, note 7

4 Cash that is not classified as redundant is required for working capital and should not be deducted to arrive at net debt.

Based on the above calculations, the business enterprise value of BFF is in the range of $3,3750,000 to $3,400,000. To arrive at the en bloc FMV of Shareholders' Equity, redundant assets are added which consist of $427,650 of excess cash (based on requirement of $425,000 at Valuation Date), and $1,462,000 of marketable securities. Finally, shareholder loans of $150,000 are deducted, as they are assumed to be debt. Accordingly, the en bloc FMV of Shareholders' Equity is between $5,115,000 to $5,140,000, resulting in no commercial goodwill.

Marker Comments:

- There was good analyses of precedent transactions, with explanations.
- Some candidates automatically included all cash as redundant, rather than calculating excess working capital in relation to case facts.
- Some candidates incorrectly added BFF's land and building as redundant assets or used the comparable lease rate information to calculate value of Grandpa Ray's farm as a redundant asset.
- Many Candidates did not calculate tangible asset backing and goodwill even though it was explicitly asked.
- Candidates' calculations of tangible asset backing were not always consistent with treatment of redundant assets in the market approach (particularly with respect to cash and working capital).
- Some candidates incorrectly included redundant assets in equity value/enterprise value when calculating goodwill.

Adjusted net book value ("ANBV")

The ANBV approach is used in a going concern, when there is insufficient return on assets employed, resulting in the FMV of assets being higher than the enterprise value arising from the income approach (i.e. annual maintainable cash flows are insufficient when compared to the FMV of assets, resulting in no commercial goodwill).

Since the FMV of all the assets and liabilities are available, we have all the information to calculate the ANBV of BFF.

We have adjusted all assets and liabilities to fair market value given the information provided by the client and have calculated adjusted shareholders' equity of approximately $5,855,000 which includes an accrual for income taxes payable on year-to-date income from operations

To arrive at the en bloc FMV of Shareholders' Equity, we must consider latent income taxes, (either from asset sale or alternatively considering the foregone tax shield from the sale of BFF's shares, or some combination of the two).

Under the assumption of an asset sale, we have calculated the latent income taxes, including capital gains and recapture on all assets, since there are significant unrealized tax liabilities. A 50% discount has been applied to reflect the unknown timing of the disposition of these assets. This results in a latent tax in the amount of $377,000.

Alternatively, we also calculated the foregone tax shield, to reflect that shares of BFF could be sold, rather than the assets.

A reasonable combination of the two approaches for calculating latent taxes is acceptable as well. This is justified by the fact that a reasonably informed seller would want to sell shares, and a reasonably informed buyer would want to purchase assets. The two parties would likely negotiate to a midpoint of the two options.

Accordingly, as at the Valuation Date, the En Bloc FMV of BFF's Shareholders' equity under the Adjusted Net Book Value approach is approximately $5,478,000, as illustrated below.

Marker Comments:

- Few Candidates performed an asset-based valuation approach, or the tax consequences associated with latent taxes.

Exhibit 3 - Adjusted Net Book Value Approach and Tangible Asset Backing – Barry Family Farm

In CAD, unless otherwise noted

	Notes	DRAFT F/S 2021	FMV Adjustments	FMV of Assets / Liabilities	Adjustment		Tangible Asset Backing
					Redundant	Debt & Equivalents	
Assets							
Current assets							
Cash	1	$ 950,000	$ -	$ 950,000	$ (427,650)	$ -	$ 522,350
Marketable securities	2, 6	1,350,000	$ 150,000	1,500,000	$ (1,500,000)		-
Receivables	*	110,000	-	110,000	-	-	110,000
Inventories	*	100,000	-	100,000	-	-	100,000
Prepaid expenses	*	10,000	-	10,000	-	-	10,000
		2,520,000	150,000	2,670,000	(1,927,650)	-	742,350
Fixed assets							
Land and Building - Farm	3	245,000	2,755,000	3,000,000	-	-	3,000,000
Equipment	3	70,000	30,000	100,000	-	-	100,000
Tractors and trucks	3	115,000	110,000	225,000	-	-	225,000
Computer		-	2,500	2,500	-	-	2,500
Processing equipment	3	325,000	-	325,000	-	-	325,000
		755,000	2,897,500	3,652,500	-	-	3,652,500
Total Assets		**$ 3,275,000**	**$ 3,047,500**	**$ 6,322,500**	**$ (1,927,650)**	**$ -**	**$ 4,394,850**
Liabilities							
Current liabilities							
Payables and accruals	*	$ 250,000	$ -	$ 250,000	$ -	$ -	$ 250,000
Income taxes payable (instalments)	4	(150,000)	217,350	67,350	-	-	67,350
		100,000	217,350	317,350	-	-	317,350
Debt and equivalents							
Due to shareholders	*	150,000	-	150,000	-	(150,000)	$ -
Total Liabilities		**250,000**	**217,350**	**467,350**	**-**	**(150,000)**	**317,350**
Shareholders' equity							
Common Shares		600					
Preferred Shares		900					
Retained earnings		3,023,500					
Shareholders' equity		**3,025,000**	**-**	**-**	**-**	**-**	**-**
Adjusted Shareholders' Equity		3,025,000	2,830,150	**5,855,150**	(1,927,650)	150,000	**4,077,500**
Shareholders' equity + Total Liabilities		**$ 3,275,000**	**$ 3,047,500**	**$ 6,322,500**			
Redundant assets					**$ 1,927,650**		
Debt and equivalents						**$ 150,000**	
Tangible asset backing (pre-debt)							**$ 4,077,500**
Tangible asset backing (after debt)							**$ 3,927,500**
Adjusted shareholders' equity				**$ 5,855,150**			
Less: Latent taxes	7			(377,000)			
FMV of En Bloc Shareholders' Equity - Adjusted Book Value Approach				**$ 5,478,150**			

Notes

* Case facts state Net Book Value = Fair Market Value

1 Working Capital requirements are seasonal. Per case facts, as at October 31, the Company requires $425,000 of net working capital in order to start the year. All cash in excess of this is considered redundant as at the Valuation Date.

Adjusted Net Working Capital	
Cash	$ 950,000
Receivables	110,000
Inventories	100,000
Prepaid expenses	10,000
Payables and accruals	(250,000)
Income taxes payable (instalments)	(67,350)
Adjusted Net Working Capital	$ 852,650
Working capital requirement (App. C - Note 8)	425,000
Therefore, excess is considered redundant	**$ 427,650**

2 We have adjusted the book value of investments to FMV of $1,500,000. [Appendix B]

3 We have adjusted the book value of the Company's fixed assets to FMV based on the market information analysed [Appendix D]

4 We have accrued income taxes payable on year-to-date income

Draft net income	$ 1,207,500	18%	217,350

6 We have deemed marketable securities as redundant, based on the nature of the asset, and as there is sufficient Working Capital to meet operating requirements.

7 **Latent income taxes:**

		Marketable securities	Land	Building	Equipment	Tractors/ Trailers	Computer	Processing Equip
Fair Market Value		1,500,000	2,700,000	300,000	100,000	225,000	2,500	325,000
Original Cost / Adjusted Cost Base		1,350,000	100,000	250,000	450,000	300,000	65,000	450,000
Recapture Calculation								
Lower of FMV and Original Cost		N/A	N/A	250,000	100,000	225,000	2,500	325,000
Undepreciated capital cost ("UCC")		N/A	N/A	145,000	70,000	115,000	0	325,000
Recapture		N/A	N/A	105,000	30,000	110,000	2,500	0
Taxed at 18%	18.0%			18,900	5,400	19,800	450	0
Taxes owing on recapture								**$ 44,550**
Capital Gain Calculation								
Fair Market Value		1,500,000	2,700,000	300,000	100,000	225,000	2,500	325,000
Less: Adjusted cost base		1,350,000	100,000	250,000	100,000	225,000	2,500	325,000
Capital Gain		150,000	2,600,000	50,000	0	0	0	0
Taxable capital gain inclusion rate	50.0%	75,000	1,300,000	25,000	0	0	0	0
Taxed at investment income rate	50.7%	38,003	658,710	12,668	0	0	0	0
Taxes owing on capital gains								**$ 709,380**
TOTAL TAXES OWING								**$ 753,930**
Discounted Taxes, considering uncertainty/unknown timing of disposition (triggering tax liability), rounded							**50%**	**377,000**

Conclusion: We have included latent income taxes owing as at the valuation date, less a reasonable discount for unknown timing of sale of the assets.

Alternative: Student may choose to calculate the foregone tax shield on the sale of assets vs shares.

Discount rate 25% Marker comment: reasonable range between 20-30%

Foregone Tax Shield Calculation

	Marketable securities	Land	Building	Equipment	Tractors/ Trailers	Computer	Processing Equip	Total
CCA Rate	N/A	N/A	4%	20%	30%	50%	20%	
UCC at valuation date	N/A	N/A	145,000	70,000	115,000	0	325,000	**655,000**
Fair Market Value	N/A	N/A	300,000	100,000	225,000	2,500	325,000	**952,500**
Tax Shield on Existing UCC	N/A	N/A	3,600	5,600	11,291	-	26,000	**46,491**
Tax Shield on Fair Market Value (1/2 year rule)	N/A	N/A	6,703	7,200	19,882	270	23,400	**57,455**
Foregone Tax Shield	N/A	N/A	3,103	1,600	8,591	270	(2,600)	**10,964**

Alternate Conclusion: In the event shares are sold, the value would be reduced by the foregone tax shield.	*$ 10,964*
Alternate Conclusion 2: Any reasonable combination of the above calculated items, as long as a rationale is provided.	*$ 193,982*

Valuation Conclusion

Our conclusion of value is based on the higher of the two primary approaches, which is the ANBV approach. Accordingly, the en bloc FMV of BFF's Shareholders' Equity as at the Valuation Date is $5,478,000, resulting in no commercial goodwill.

FMV of BFF's Shareholders' Equity as at October 31, 2021:	
En Bloc FMV of Shareholders' Equity - Adjusted Net Book Value approach	5,478,150
En Bloc FMV of Shareholders' Equity - Market Approach	5,127,148
Conclusion: FMV higher of the 2 approaches - Adjusted Net Book Value Approach (rounded)	**$5,478,000**

Determining the FMV Pete and Garth's common shares

To determine the FMV of Pete and Garth's common shares, we must first allocate en bloc Shareholders' Equity between preferred and common share classes. Class C and H preferred shares have stated redemption values of $1.25M and $1.0M, respectively, and needs to be deducted from en bloc Shareholders' Equity to arrive at the equity value attributed to common shareholders. Accordingly, a residual value of $3,228,000 has been allocated to Class B Common shares. Since there are 600 Class B common shares outstanding, we have calculated a pro-rata value of $5,380 per Class B share.

Allocation between common and preferred shares

	Ref.	No. of Shares	Redemption per share		
FMV of Shareholders' Equity					$5,478,000
Less: Class C - Preferred (Jen)	*Apndx. C*	500	$2,500		$1,250,000
Less: Class H - Preferred (Parents)	*Apndx. C*	400	$2,500		$1,000,000
Class B Common					**$3,228,000**
Total common shares outstanding	*# of shares*				600
Pro-rata FMV per common share, before ESOP dilution				$	5,380

Marker Comments:

- Candidates generally recognized that the redemption value of preferred shares should be deducted in determining the fair market value of common shares outstanding.

Garth's Options to Purchase Class B Shares

At the Valuation Date, Garth owns options to purchase 40 shares with a strike price of $3,000 per share, whereas the Class B common shares have a pro-rata FMV of $5,380 per share. Since the strike price is less than FMV, Garth will exercise his options to purchase 40 additional common shares. As a result, Garth's total purchase price for 40 Class B common shares exercised at $3,000/share would result in a $120,000 equity injection for BFF. Based on the cash inflow to BFF from Garth's purchase of 40 shares, and additional shares issued and outstanding (total of 640 shares), the adjusted value per common share, before any minority discount is $5,231 .

Garth's Employee Stock Option Plan

Since the FMV per common share of $5,380 is greater than the ESOP strike price of $3,000 per share, Garth will exercise. Therefore, we need to consider the dilutive impact of Garth's additional shares exercised.

Garth has the option to purchase 40 common shares				40
Strike Price of ESOP			$	3,000
Therefore, purchase price			$	120,000
Dilution Calculation:				
Initial Class B Common Share value				3,228,000
Cash inflow to BFF from Garth's purchase of common shares				120,000
Adjusted Class B Common Share value				3,348,000
Opening number of shares	*# of shares*	600		
New shares from treasury	*# of shares*	40		
Total shares after Garth exercises option		640		
Adjusted value per common share, before minority discount			$	5,231

Marker Comment

- Star Candidates recognized that Garth's options were "in the money" and how the exercise of these options would impact the equity value to each shareholder (cash injection to treasury, additional outstanding shares, and ultimately value per common shareholder).

Minority Discount

Pete owns 200 Class B common shares representing 31.3% ownership, while Garth holds 40 shares representing 6.3% ownership. As such, both Pete and Garth own a minority interest in BFF; therefore, we need to apply minority discounts when arriving at the FMV of their ownership interest in BFF.

Pro-rata value of Class B Common Shares

Class B shareholders	% Held	Shares Held		Pro-rata Value
Shaun (Dad)	15.6%	100	$	523,125
Kelly (Mom)	15.6%	100	$	523,125
Jen (Pete's Aunt)	31.3%	200	$	1,046,250
Pete (Son of Shaun and Kelly)	31.3%	200	$	1,046,250
Garth (Pete's spouse)	6.3%	40	$	209,250
	100.0%	640		3,348,000

	Note		Pete		Garth
Pro-rata FMV of common shares		$	1,046,250	$	209,250
Minority discount	1		15.0%		30.0%
FMV of common shares		**$**	**889,313**	**$**	**146,475**

Notes

1 Consideration of Minority Discount:
- No one shareholder has the ability to control individually.

Pete's Minority Discount

1. Pete owns approx. 1/3 of the common shares therefore has some decision making influence
2. If Pete tried to sell his 1/3 interest on the open market, it is unlikely that he would fetch a pro-rata value, even though he holds effective control with his parents.
3. Therefore should apply a minority discount of 10 to 20% for Pete (Midpoint of 15%)

Garth's Minority Discount

1. Garth owns approximately 6% of common shares, so most likely he has little or no decision making influence.
2. If Garth tried to sell his minority interest on the open market, it is unlikely that he would fetch a pro-rata value.
3. Any existing shareholder or other purchaser of Garth's share's would have difficulty influencing or controlling BFF.
4. Therefore apply a minority discount between 20 to 40% (midpoint 30%)

We applied a 15% Minority Discount to the pro-rata value of Pete's 200 Class B Common shares; to arrive at a FMV of approximately $889,000 . We applied a 30% Minority Discount to the pro-rata value of Garths 40 Class B Common shares to arrive at a fair market value of approximately $146,000 .

Marker Comments:

- Candidates generally recognized that Garth's and Pete's shares would be subject to minority discounts and that Garth's shares would attract a larger discount than Pete's shares.

FMV of SORTech

As part of the matrimonial assets, we need to value Garth's 100% ownership interest in SORTech. Based on the information available, we need to consider both the income and cost approaches for the valuation of SORTech. The higher of the two approaches equates to the FMV of SORTech, since the CO-OP offer is binding and would reflect the value of a license agreement as opposed to the technology itself.

Cost Approach

Garth created and developed SORTech technology, which is a combination of software and physical sorting equipment. The technology was built specifically to sort fruit for BFF, but has since attracted other users, which Garth is considering entering into agreements with. Sufficient information has been provided as it relates to the cost to develop SORTech, therefore we have considered the cost approach to value, as follows:

COST APPROACH		**Market**	
	Hours	**Rate**	**Cost**
Garth's involvement	200	$150	$30,000
Cost of materials			$50,000
3rd party engineering firm	50	$125	$6,250
Laptop required to run operations.			$2,500
Therefore the cost to create SORTech is			**$ 88,750**

Income Approach – Relief from Royalty

Garth recently received a binding offer from Co-op based on a market value royalty rate of 1% of revenues. The offer is non-exclusive, and expressed in terms of cash, paid annually over the life of the 6-year contract. In addition, we need to account for BFF's continued use of SORTech's technology, by applying a market royalty rate of 1%, to arrive at the FMV of SORTech using the income approach.

Revenue Forecasts								
Forecast year		**1**	**2**	**3**	**4**	**5**	**6**	**Terminal**
CO-OP		$20,000,000	$20,000,000	$20,000,000	$20,000,000	$20,000,000	$20,000,000	$0
BFF	*Note 1*	$4,000,000	$4,080,000	$4,161,600	$4,244,832	$4,329,729	$4,416,323	$56,308,121

FMV using Relief from Royalty								
Forecast year		**1**	**2**	**3**	**4**	**5**	**6**	
CO-OP Royalty	1%	200,000	200,000	200,000	200,000	200,000	200,000	-
BFF Royalty	1%	40,000	40,800	41,616	42,448	43,297	44,163	563,081
Garth's Cost	*Note 2*	(24,000)	(9,000)	(9,000)	(9,000)	(9,000)	(9,000)	(9,000)
Income before taxes		216,000	231,800	232,616	233,448	234,297	235,163	554,081
less taxes at	25%	(54,000)	(57,950)	(58,154)	(58,362)	(58,574)	(58,791)	(138,520)
Royalty cash flow, after tax		$162,000	$173,850	$174,462	$175,086	$175,723	$176,372	$415,561
Discount year factor		0.5	1.5	2.5	3.5	4.5	5.5	5.5
Discount rate	10%	0.953	0.867	0.788	0.716	0.651	0.592	0.592
Present Value		$154,461	$150,690	$137,474	$125,423	$114,436	$104,417	$246,023
Sum or present value		$ 1,032,923						
Tax amortization benefit	*Note 3*	$ 93,902						
FMV of SORTech		**$ 1,126,825**						

Note 1: Marker comments: Candidates can also use an assumed obsolence factor related to techology to adjust royalty revenue in the terminal period.

Note 2								
Garth's hourly rate	$150.00							
Garth's Time	*hours*	160	60	60	60	60	60	60
Garth's Cost		$24,000	$9,000	$9,000	$9,000	$9,000	$9,000	$9,000

Note 3 - Tax amortization benefit ("TAB")			
CCA rate	5%	TAB factor	8.3%
Tax rate	25%	**TAB**	**$93,902**
Discount rate	10%		
Inclusion rate	100%		

Conclusion: the FMV of SORTech is approximately $1,127,000 based on the income approach.

Marker Comments:

- Few Candidates knew to do both royalty and cost approach for valuing SORTech, and just focused on the royalty approach.
- Star Candidates recognized that BFFs continued use of SORTech's technology, required payment at market rates and should be incorporated in FMV of SORTech when applying the income approach.
- Calculations that were performed for both valuation approaches were generally well done.

FMV of Family Assets

Based on the scope of work performed the FMV of Pete and Garth's family assets are as follows:

Pete

Shares of BFF	$889,000

Garth

Shares of BFF	$146,000
SORTech	$1,127,000
Total	$1,273,000

An equalization payment is required, in consideration of other family assets owned, but not forming part of our scope of work.

Regards,

CBV, Senior Associate

Marker Comment

- Star Candidates recognized an equalization payment is required given that value of Garth and Pete's assets were not equal.