FINANCIALMODELING INSTITUTE

CHECKING AND REVIEWING A FINANCIAL MODEL

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FMInstitute.com
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WELCOME

Today's Presenter

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Recipient of "Professor of the Year" Award

FMI Learning Series

Topic 1: Financial Modeling Best Practices: Ten tips to build a world-class model.

Topic 2: Checking and Reviewing a Financial Model: What to do when something goes wrong.

Topic 3: Scenarios and Sensitivities: Managing uncertainty.

Topic 4: Model Circularity: Master the most feared topic in Financial. Modeling.

Topic 5: Model Bloat: Top reasons why models become large and slow.

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Financial Modeling Institute

4 public exams annually

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Virtual

•

Excel-based

•

No multiple choice

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4 hours

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Proctored in a controlled environment

Rigorous financial modeling curriculum & exams

Three levels of accreditation; each recognized as its own designation

FMI
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Foundations Program

Designed for individuals who are looking to begin their financial modeling career

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Multiple choice

•

1 hour Exam

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Proctored in a controlled environment

Enables candidates to develop a strong ***knowledge*** of financial modeling…

…allowing them to pick up modeling ***skills*** more quickly in the future with the AFM accreditation.

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Virtual Exam Format

- Security and exam integrity through virtual proctoring platform
- Supervision of candidates throughout exam
- Onscreen activity recorded
- Unusual behavior automatically flagged (AI)
- AFM & CFM - 4 hours, closed book, no multiple choice

Candidates provide their own:

- MS Excel
- Computer
- Internet connectivity
- Webcam
- Quiet, distraction free space

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Checking and Reviewing a Model

Checking a Model: Why do it?

If someone else built it:

- To understand and become comfortable with the model
- To make sure it can be relied upon as a decision-making tool

If YOU built it:

- To make sure the model is free of errors – very important for the credibility of both you and the financial model!
- To check for completeness – are all assumptions and inputs included?
- To check for reasonableness – more on this in a moment
- To check for presentation – is it easy to understand? is it print formatted?

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Checking a Model: Top Tips

1. Zoom down to 35% or 40%. This will provide a bird's eye view of the model and show where everything lives on the sheet
2. While the magnification is still set to 35% or 40%, check for hidden white cells by selecting the sheet and turning the background grey
3. Press **F5, Special, Constants** to check for dead inputs on the sheet
4. To check for hardcoded values,
    a. press **Ctrl + ~** to see all formulas (Formulas, Show Formulas)
    b. Another way to check for hardcoded values is to select an entire row and press **Ctrl + ** to highlight any differences within the row

Checking a Model: Top Tips (cont.)

5. When reviewing a link, press **Ctrl + [** to go to the precedent cell - then press **F5 Enter** to go back.
6. To jump to a cell reference that's part of a long formula, highlight the cell reference within the formula and then press **F5 Enter**
7. Add outputs on the Assums tab to easily see the impact of changes:
    a. Watch Window
    b. Camera Tool
8. Use **Alt V V** to allow for quick keyboard navigation in the file
9. Use Hyperlinks to allow for quick mouse navigation
10. Use the Formula Auditing tools

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Optimal Model Build Order

The following are steps for the optimal order to **BUILD** a model:

1. Plan and design a model
2. Build the Assumptions page
3. Build a Scenarios page
4. Enter the historical financial statements
5. Build a schedule to forecast a line item into the future
6. Link this line item into the Income Stmt and CFLO Stmt
7. Repeat for most line items on the financial statements
8. Forecast the Balance Sheet
9. Calculate all output calculations
10. Create a Summary Page up front

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Checking a Model: A Methodology

- There is not one definitive approach for reviewing/auditing a model
- However, it is often helpful to review a model in the **reverse order** from the steps used to build a model
- If the auditor follows a disciplined and systematic approach, it will increase the likelihood of finding errors
- Start with a review of the financial statements
- For each line that is correct, mark it “OK”
- If you find huge formulas, repeat and link to make them simpler

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Checking a Model: Methodology (cont.)

Part 1: Financial Statements as Error Detection System

1. Start on the financial statements – check to ensure that all calculations on the statements are correct
2. Check the links from the financial statements to the supporting schedules – make sure each link is correct
3. Review the calculations used in the supporting schedules
4. Audit the links to the assumptions that are used in the supporting schedules
5. Confirm the reasonableness of the assumptions

Checking a Model: Methodology (cont.)

Part 2: Cash Flow Completeness

- Make sure that every line on the cash flow statement is reflected on the balance sheet, and that every change on the balance sheet is included on the cash flow statement

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Checking a Model: Methodology (cont.)

Part 3: Reasonability Checks

- Ensure significant line items (i.e. revenues, costs) look reasonable
- Sales volume should never exceed capacity – may need to build in higher capex to support volume
- Look for margin trends that make sense (i.e. for a growing business, margins should expand as volume is spread out over the fixed cost base)
- Check for proper "signs" on the cash flow statement (i.e. capex and dividend payments should be negative values)
- Revolver and/or cash lines on the balance sheet should never be negative

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Checking a Model: Methodology (cont.)

Part 3: Reasonability Checks (cont.)

- If the revolver has a zero balance, cash should be positive, and visa versa (exception is if the business requires a minimum cash balance)
- Look for “plugs” on the balance sheet and include a balance sheet check
- If the revolver is capped, a flag in the model should indicate if the cap has been exceeded
- The model should not have circular references other than those needed for debt/interest calculations
- Use Excel tools to check for consistency in formulas and ensure there are no hardcoded values in the forecast period

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FMI OVERVIEW

FMI Mission, Vision, and Values

MISSION

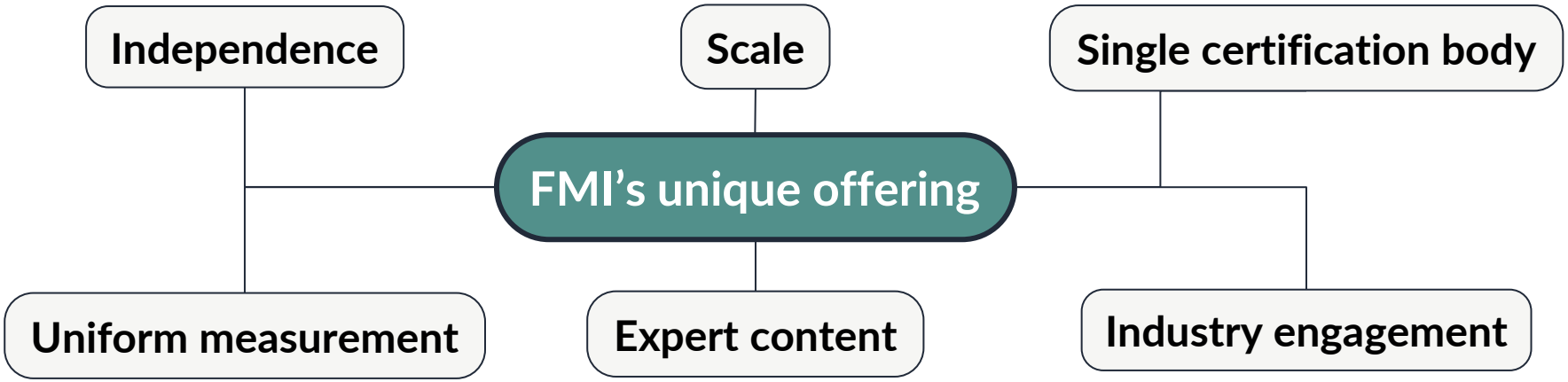
To promote the awareness and discipline of financial modeling globally through world-class exams and accreditation programs.

VISION

Increased awareness and acumen of financial modeling professionals around the world.

VALUES

To seek to represent the interest of the global financial modeling community. We deliver with integrity, excellence and encourage leadership, collaboration and innovation among all candidates and members.



How Accreditation Works

1. **Each level is recognized as its own qualification**
2. **Difficulty increases at each new certification level**
3. **Candidates may complete as many subsequent levels as they wish**

LEVEL 1

- Foundational level of certification program
- Proficiency in building beginner-to-intermediate financial models
- Skills in design and comprehension of finance, business, accounting and Excel

LEVEL 2

- Attainable following successful completion of Level 1
- Thorough understanding of real-world applications of financial modeling
- Demonstrated ability in advanced Excel, financial analysis, and financial modeling

LEVEL 3

- Highest level of accreditation achievable
- Expert in the end-to-end financial modeling value chain
- Respected thought leader, mentor, and contributor to financial modeling education

Accreditation Structure

Advanced toolkit to build a dynamic 3-statement financial forecast model of a company

- 4-hour exam
- Candidates provided with a case study
- Required to build an interactive financial model of a company

Expert knowledge of various topics (accounting, finance, investments) in financial forecast models

- 4-hour exam
- Candidates required to complete a selection of advanced modeling topics

Focused on application of sophisticated financial concepts and technical understanding of complex business decision-making skills

- 4-hour exam
- Candidates required to complete a selection of master level modeling topics

Why Choose the FMI

Candidates

Accelerate your career in finance by earning a globally recognized certification in financial modeling

SKILL VALIDATION
Demonstrate advanced financial modeling proficiency to employers and clients with independent skills validation

PERSONAL DEVELOPMENT
Invest in yourself by earning certifications that are challenging and revered by the industry

CAREER FLEXIBILITY
Obtain a globally-relevant skillset that is respected across multiple business lines

Employers

Use a globally recognized benchmark for a reliable assessment of financial modeling ability

RISK MITIGATION
Hire professionals who have demonstrated financial modeling abilities at the highest standard

TALENT DEVELOPMENT
Use the FMI curriculum as a validated roadmap to guide training and development

LEADERSHIP
Be a diversity and thought leader by joining the global network of FMI professionals

Who is it for? Candidates

"Since studying for the AFM, I have become a superior modeler. The accreditation directly helped me land my next role."

Jiaming Li, AFM | Essen, Germany | PWC, BDO Global

"The AFM accreditation challenges your financial modeling while expanding all of your prior business, finance and Excel knowledge."

Gabriele Di Rossi, AFM |Tehran, SA | Saudi Aramco

"These certifications are a game changing event in the field of financial modeling. They are highly practical."

Roy Abbas, AFM | Toronto, Canada |RBC

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Who is it for? Employers

Employers

Use a globally recognized benchmark to truly assess financial modeling capabilities

RISK MITIGATION
Hire professionals who have demonstrated financial modeling abilities at the highest standard

TALENT DEVELOPMENT
Use the FMI curriculum as a validated roadmap to guide training and development

LEADERSHIP
Be a diversity and thought leader by joining the global network of FMI professionals

> *Achievement of an FMI accreditation is a strong differentiator among our students.*
>
> *Recruiters can trust that students who have passed the FMI exam have a high competency in financial modeling.*

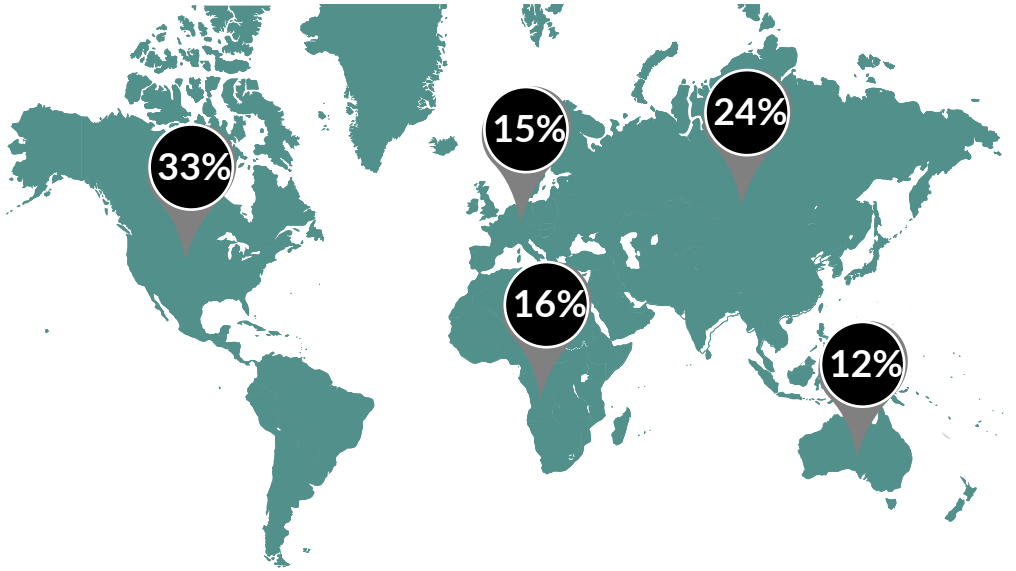
Marie-José Beaudin
Executive Director
Soutar Career Centre Desautels Faculty of Management, McGill University, Canada

How is the FMI Different?

	FMI	Others
OVERALL	**Established to validate financial modeling ability through rigorous, hands-on testing.**	**Provided by training companies whose primary business is to sell financial modeling training programs.**
TRAINING	Candidates are not required to purchase training. Available training is delivered through non-remunerated third parties.	Candidates must purchase the associated training program before they can achieve the certification.
EXAMS	Always closed-book and proctored. Candidates are expected to build financial models; no multiple-choice.	Usually online, rarely proctored. Often includes multiple choice questions.
CERTIFICATIONS	Exams are anonymized and graded manually by two graders and later reviewed by an independent committee. Certifications are publicly verifiable (candidate directory, Basno Badge).	Pass rates are not disclosed but are usually near 100%. Grading is usually automated. Certifications are not publicly verifiable.

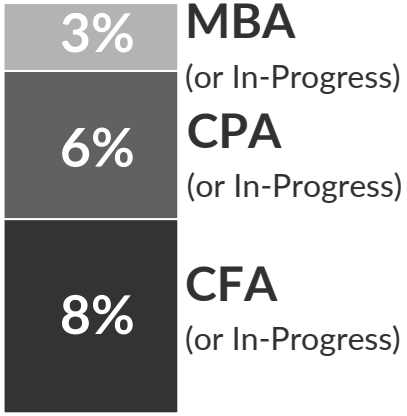
Candidate Demographics

% Candidate Representation by Continent



% Candidates with Designations

45% of Candidates hold other certifications



Avg. Candidate Age
32 years

Students
21%

Full-time Professionals
70%

FMI Candidate data as of October 15, 2020

Testing Centers in 32 Global Cities

October 2020 Virtual Exams - candidates can write from anywhere

Exam Materials

Exam Case

Small section about a company

- Simple company

All the information to build your model

- Revenues
- Cost, etc.

Includes exam instructions

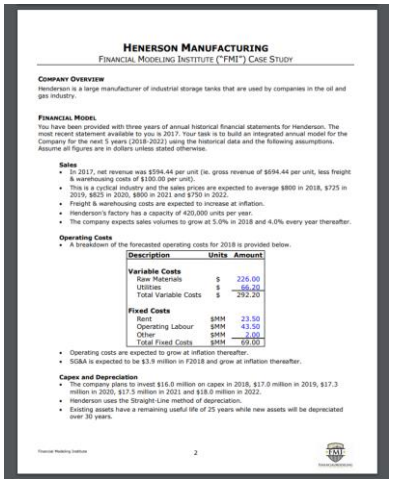
Build a model to forecast 5 years

Exam Worksheet

Grading tab to input name and student number

3 years of historical financials

- Balance Sheet
- Income Statement
- Cash Flow



HENERSON MANUFACTURING
FINANCIAL MODELING INSTITUTE ("FMI") CASE STUDY

COMPANY OVERVIEW
Henderson is a large manufacturer of industrial storage tanks that are used by companies in the oil and gas industry.

FINANCIAL MODEL
You have been provided with three years of annual historical financial statements for Henderson. The most recent statement available to you is 2017. Your task is to build an integrated annual model for the Company for the next 5 years (2018-2022) using the historical data and the following assumptions. Assume all figures are in dollars unless stated otherwise.

Sales
- In 2017, net revenue was $594.44 per unit (ie. gross revenue of $694.44 per unit, less freight & warehousing costs of $100.00 per unit).
- This is a cyclical industry and the sales prices are expected to average $800 in 2018, $725 in 2019, $625 in 2020, $800 in 2021 and $750 in 2022.
- Freight & warehousing costs are expected to increase at inflation.
- Henderson's factory has a capacity of 420,000 units per year.
- The company expects sales volumes to grow at 5.0% in 2018 and 4.0% every year thereafter.

Operating Costs
- A breakdown of the forecasted operating costs for 2018 is provided below.

Description	Units	Amount
Variable Costs		
Raw Materials	$	226.00
Utilities	$	66.20
Total Variable Costs	$	292.20
Fixed Costs		
Rent	$MM	23.50
Operating Labour	$MM	43.50
Other	$MM	2.00
Total Fixed Costs	$MM	69.00

- Operating costs are expected to grow at inflation thereafter.
- SG&A is expected to be $1.9 million in F2018 and grow at inflation thereafter.

Capex and Depreciation
- The company plans to invest $16.0 million on capex in 2018, $17.0 million in 2019, $17.3 million in 2020, $17.5 million in 2021 and $18.0 million in 2022.
- Henderson uses the Straight-Line method of depreciation.
- Existing assets have a remaining useful life of 25 years while new assets will be depreciated over 30 years.

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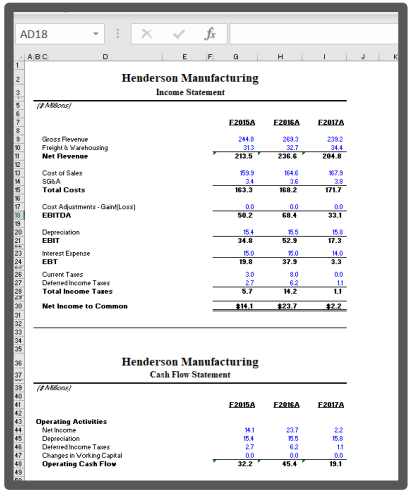
In Browser



AD18

Henderson Manufacturing
Income Statement
($ Millions)

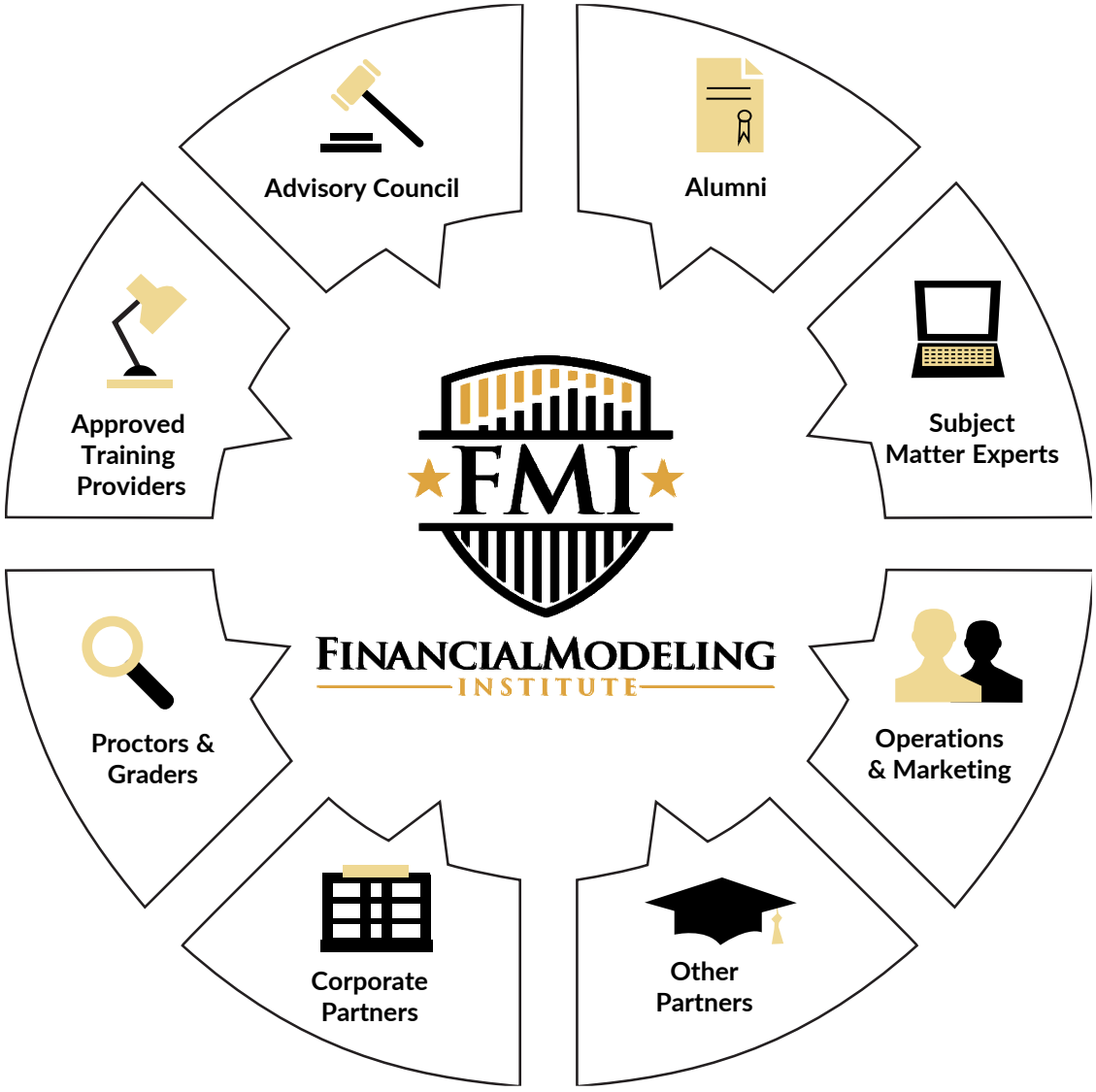
	F2015A	F2016A	F2017A
Gross Revenue	244.8	269.3	239.2
Freight & Warehousing	31.3	32.7	34.4
Net Revenue	213.5	236.6	204.8
Cost of Sales	159.9	164.6	167.9
SG&A	3.4	3.6	3.8
Total Costs	163.3	168.2	171.7
Cost Adjustments - Gain/(Loss)	0.0	0.0	0.0
EBITDA	50.2	68.4	33.1
Depreciation	15.4	15.5	15.8
EBIT	34.8	52.9	17.3
Interest Expense	15.0	15.0	14.0
EBT	19.8	37.9	3.3
Current Taxes	3.0	8.0	0.0
Deferred Income Taxes	2.7	6.2	1.1
Total Income Taxes	5.7	14.2	1.1
Net Income to Common	$14.1	$23.7	$2.2

Henderson Manufacturing
Cash Flow Statement
($ Millions)

	F2015A	F2016A	F2017A
Operating Activities			
Net Income	14.1	23.7	2.2
Depreciation	15.4	15.5	15.8
Deferred Income Taxes	2.7	6.2	1.1
Changes in Working Capital	0.0	0.0	0.0
Operating Cash Flow	32.2	45.4	19.1

Downloadable Excel file

Global Collaboration



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Approved Training Providers

FMI Approved Training Providers updated to Jan 1, 2022.

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THANK YOU