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Dear Executive:

I hope you're all hanging in there during these unusual times. I've been pretty much under "house arrest" for the past fifteen weeks – you've got to be careful when you're in the 'high risk' category – but that just means I've saved the money I would have spent on commuting to and from my office and buying lunch at The Rusty Bucket. There's been no reduction in the workload. This technical Neanderthal has been introduced to both Zoom and Microsoft Teams and they've enabled my taskmasters to keep the work coming.

Before I get to the crux of this letter, I thought I'd bring you up-to-date on my adventures with the IMA's *Profitability Analytics Center of Excellence*. As many of you know, I've been spending a lot of my time during the past three years working with the Institute of Management Accountant's "Managerial Costing Task Force." As I mentioned in last summer's letter, we've evolved the group's focus from "managerial costing" – which sounds pretty boring to most folks – to "profitability analytics" – which is both a sexier description of our subject matter and the reason effective managerial costing is needed. To help facilitate our efforts, we've established a Profitability Analytics Center of Excellence (PACE). One of PACE's objectives is to garner input, feedback and perspectives from a broad spectrum of the management accounting community. Two of the recent steps we've taken to address that objective are: 1) establish a Profitability Analytics Center of Excellence on LinkedIn and 2) set up a Forum on the PACE website.

### **LinkedIn Site**

PACE's LinkedIn site can be found at <https://www.linkedin.com/company/profitability-analytics-center-of-excellence/>. If you're on LinkedIn, you can simply opt to "follow" and you'll be kept up-to-date on the Center's activities and be able to comment on the items posted there. It will also alert you to new postings made by PACE advisory board members on the website's forum.

### **PACE Website Forum**

If you'd like to participate more actively, the PACE website's forum provides a place for members to voice their opinions, relate their experiences and state their complaints. You can both enter your own items or comment on others. Becoming a "member" involves no more than registering some basic information and, if you'd like, a picture. You can check out the Forum by going to the website at <https://www.profitability-analytics.org/> and clicking on the "Forum" tab.

In my most recent posts, I've talked about role management accountants play as "gatekeepers" in protecting their organization's portfolio of business, vented about the misuse of the phrase "standard costing" in arguments about costing practices and passed along my observation that financial analysis is used much more often to justify decisions that have already been made than it is to support the decision making process itself. We'd love to hear what you have to say as well.

### **Profitable Expectations: An Accountant Rising to the Challenge**

Somehow, my fellow PACE members also talked me into writing a novel that we could use to highlight the value-adding role a management accountants can play in their organizations. With new technologies, especially Artificial Intelligence, rapidly making the traditional role of accountant obsolete, we believe it important for accountants in industry to move their focus from value measurement to value creation if they are to avoid becoming corporate dinosaurs. The book won't be released until mid-October, but here is a brief synopsis:

*Profitable Expectations: An Accountant Rising to the Challenge* is a the story of a thirty-something Controller with a traditional, financial accounting background who successfully makes the transition from an efficient "bean counter" to an effective "bean grower" and meets the challenge and expectations of her CEO.

After a stint in public accounting, Marcella DeCou had been the Controller of PlumbCo, a \$20 million manufacturer and distributor of plumbing products, for three years when retired Admiral Alex Johnson took over as CEO. His view of a financial executive's role was quite different than that of her previous boss. Alex expected his Controller to not only be an effective administrator, but a value-adding member of the company's management team.

The story follows Marcella as she works with other members of the company's management team, as well as with an elderly 'muse' she met through the Institute of Management Accountants, to better understand her company's business processes, build trusting relationships with her peers, develop valuable leadership skills, use causal modeling to gain a deeper understanding of the economics that underlie PlumbCo's business and become a decision leader who plays a major role in guiding her organization into a more profitable and sustainable future.

A unique feature of the book is that it provides a website from with the reader can download the Excel-based cost model used by PlumbCo and "play along" if they're so inclined. I'll let you know when the book is available.

### **A Study in Percentages**

And now to the crux of the letter. Having just completed a 71,000 word novel, I needed to wind down slowly from my fiction writing mode so I decided to write a short story that talks about the problems inherent in using accounting's traditional percentage measures when determining the value of a sub-set of a business (e.g. a product, customer, program, market, etc.). The story turned out to be not all that short – it's about 6,900 words.

Although the story is fiction, it is based the facts of a "real life" organization that was a client of mine several years ago. To make sure I all the facts right, I ran the story past the Cost Engineer I worked with

at the client and he gave it his blessing. Hopefully, you'll find it informative and not too boring. I am, after all, still an amateur at writing fiction.

Please stay safe, healthy and sane during our time dealing with COVID-19. As always, I look forward to hearing from any of you who have questions or comments regarding this letter and you should feel free to forward a copy to anyone you believe might be interested (or at least mildly amused).

Very truly yours,

*Doug*

Douglas T. Hicks, CPA  
President

# **A Study in Percentages**

by Dr. James H. Watson

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## A Study in Percentages

Dr. James H. Watson

It had been a couple of months since I had last seen my old friend and colleague, Sherwood Holmes. He was not one to call, text or e-mail someone for social reasons and he avoided social media altogether. If there was something important he wanted to discuss with you he'd reach out. If not, he'd stay secreted in the house that he and I had shared until I married nearly thirty years ago and become fully absorbed in his work.

Holmes and I had met when we were youngish men at the University where we were both majoring in accounting and finance. Upon graduation, we were both hired by the same accounting firm and worked together at quite a few clients over the next several years. Neither of us, however, thought of public accounting as a career. My goal was to earn a doctorate and pursue a life in academia. Holmes, on the other hand, became disillusioned with accounting. He would often say that accounting was a major obstacle to the attainment of financial success. He established a one-man consulting practice and began educating himself in a wide variety of fields ranging from engineering to marketing and from psychology to neurology.

We had rented a house together while we worked in public accounting and continued to 'share digs' while I pursued my doctorate and he his consulting work. I moved out, however, when I met and married my wife, Mary. Holmes, on the other hand, had remained a bachelor and stayed on in our rented house, eventually buying the place. Over the years I occasionally accompanied my old friend on one of his consulting assignments and was always impressed with the actionable insights he was able to give his clients.

My wife had decided to go spend a few weeks with her 90-year-old mother which left me as a bachelor during a slow time in my teaching schedule. Having a bit of time on my hands, I thought it might be a good opportunity to check in with my old friend and see if he'd be interesting in having dinner and catching up. Instead of calling, I decided that I'd just stop at our old home and surprise him. As I pulled up in front of the place, I saw his old Buick in the driveway so I rang the bell. No one answered. I rang several more times to no effect. Just as I was about to give up the door opened and there stood my friend in his favorite, ratty old blue sweater that was two sizes too big.

"Watson!" Holmes exclaimed, "I'm delighted to see you."

"I hope I'm not interrupting something," I replied. "I probably should have called first."

"No, you're not interrupting anything. I was just finishing up a call with one of your old students, William Perry from Dewar Automotive. Do you remember him?"

"Will Perry? Of course I remember him. He was a student of mine a good fifteen years ago. Excellent one as I recall. What's he doing at Dewar?"

"He's their Chief Financial Officer. You must have taught him well."

"Glad to hear he's doing so well."

“Come on in,” said Holmes. “Can I get you something to drink? I think I’ve got some coffee left in the pot. Or maybe something stronger?”

“Coffee would be fine,” I replied.

“Black, no sugar as I recall.”

“You remember correctly.”

Holmes brought the coffee and we both settled down. Holmes in the same stuffed recliner he’d been using for years and me into the old chair I’d sat in hundreds of time before. Holmes lit his pipe and offered me a cigar.

“Smoking? Indoors?” I didn’t really have to ask. The smell of Holmes’ noxious shag filled the room. It was one of the benefits of living alone. I lit the Ashton he offered and sunk into my old chair.

“Just like old times, eh?” said Holmes.

“Just like old times,” I answered. “With the same furniture,” I added. “You haven’t changed the furniture since I left.”

“There’s nothing wrong with it, is there? I did have this recliner recovered five or six years ago.”

“It’s a bit dated.”

“Who’s going to notice?” Holmes laughed. “I don’t get all that many visitors.”

We sat and talked about ‘the old days’ and the recent activities of my family for a good twenty minutes.

“Your man Perry called me with an interesting problem,” he said. “It involves something you failed to teach him.”

“Something I failed to teach him, eh? What could that be?”

“It’s a bit involved. I’m going to meet him tomorrow to go over the details. You’re welcome to tag along if you have the time.”

“At the moment I’ve got plenty of time.”

“That’s settled then,” he replied. “I’m scheduled to be at his office at ten o’clock tomorrow. Be here at nine-thirty and we’ll go there together.”

“I’ll be here.”

“It’ll be like the old days. I don’t think you’ve come along on one of my adventures in three or four years.” He smiled. “Well, Watson. The game’s afoot!”

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The next morning I showed up at my former home at nine-thirty sharp. Holmes was wearing an old wool, herringbone sport coat.

“You look like a British professor straight out of central casting,” I said.

Holmes laughed.

“You’re not the first person to make that observation,” he said. “I guess most folks don’t know how casual you academic types dress nowadays.”

It was only a twenty minute drive to Dewar. By the time we parked and made our way to the lobby it was ten o’clock.

“No receptionist,” said Homes as we entered. “Businesses these days have gotten a little too impersonal for my taste. I always liked meeting a real person when I arrived at a client.” He picked up the phone. “Look up Perry’s number for me, will you?”

I gave him Perry’s extension number and he announced our arrival. Five minutes later an attractive young woman entered the lobby.

“Good morning Mr. Holmes and...” she looked at me.

“This is Dr. Watson,” Homes said. “He’s an associate of mine and old acquaintance of Mr. Perry. He’ll be working with me on this project.”

“Then good morning, Dr. Watson,” she said. “Come this way.”

She led us down the hallway to a large office in the corner.

“Dr. Watson!” cried Perry as he looked up and saw the two of us standing there. “What a surprise. And you must be Mr. Holmes.”

“I didn’t think you’d mind my bringing Dr. Watson along,” said Holmes.

“Not at all,” replied Perry. “It’s great to see you again Professor. I didn’t know the two of you knew each other.”

“We’re old friends,” I said. “As a matter of fact, we used to be roommates.”

“Roommates, eh? Must have been quite a while ago. As I recall, you were a married man when I was one of your students fifteen years ago. I seem to remember meeting Mrs. Watson at some school event.”

“That might very well be true. Mary still likes to meet my students when she has a chance.”

Holmes interrupted. “Before this turns into a reunion party, we should probably get to the reason we’re together.” Turning his attention to Perry, he said, “You indicated that one of your customers had come to you with an unusual request that has you concerned.”

“Yes, Mr. Holmes. Admiral Motors, a customer that accounts for about one-third of our sales, asked us to do something out of the ordinary that, it appears at least, would hurt our financial performance. Our CEO’s immediate reaction was to turn down their request. But a request made by Admiral to a company our size is more like a demand, so I talked him into putting our decision off for a week or so while I take a more in-depth look at it. I remembered that a friend of mine, Bill Cosgrove, who I know through the local IMA chapter, mentioned working with you on a costing and profitability issue his company had several years ago, so I thought I’d look you up to see if you could be of help.”

“Why don’t you start at the beginning,” suggested Holmes. “How does your sales and profitability by customer look right now?”

“I thought you might want to know that so I put together this summary.

Description	Total	Program		
		Packard	Hudson	Admiral
Sales	\$120,000,000	\$50,000,000	\$30,000,000	\$40,000,000
Cost of Goods Sold:				
Direct Material	\$60,000,000	\$25,000,000	\$15,000,000	\$20,000,000
Direct Labor	\$9,500,000	\$4,000,000	\$2,500,000	\$3,000,000
Manufacturing O'head @250%	<u>\$23,750,000</u>	<u>\$10,000,000</u>	<u>\$6,250,000</u>	<u>\$7,500,000</u>
Total Manufactured Cost	\$93,250,000	\$39,000,000	\$23,750,000	\$30,500,000
Gross Margin	\$26,750,000	\$11,000,000	\$6,250,000	\$9,500,000
Gross Margin Pct to Sales	22.3%	22.0%	20.8%	<b>23.8%</b>
SG&A @ 16.1%	<u>\$15,000,000</u>	<u>\$6,273,458</u>	<u>\$3,820,375</u>	<u>\$4,906,166</u>
Program Profit	<u>\$11,750,000</u>	<u>\$4,726,542</u>	<u>\$2,429,625</u>	<u>\$4,593,834</u>
Program Profit Pct to Sales	<u>9.8%</u>	<u>9.5%</u>	<u>8.1%</u>	<u>11.5%</u>

“At present, our business consists of three programs; one each from Packard, Hudson and Admiral. As you can see, Packard is our highest volume program, but Admiral is our most profitable. Its gross margin is 1.8 percentage points greater than Packard’s and its program profit a full 2 points higher. Our CEO takes pride in keeping our gross margin above 22% and our operating profit at or near 10%. As a matter of fact, he’s a bit obsessive about the gross margin metric. He regularly points it out to our investors and bankers and emphasizes its importance in our management meetings. He firmly believes that as long as we keep our gross profit above 22% we’ll be successful.”

“I wonder where he picked up that idea?” said Holmes.

“I’m not sure,” replied Perry. “Probably the same place he picked up the other metric he constantly emphasizes.”

“And what’s that metric?” asked Holmes.

“He believes that the key to keeping our gross margin above 22% is to make sure our sales prices are double material costs.”

“Double material costs?”

“Yes, double material costs. We go through the usual cost estimating and quoting procedures when bidding on a new program, but he usually steps in and ends up negotiating a price that is double

the cost of the materials involved. You can see that in my analysis. Sales for each program are two times the material cost. He says he studied the financial statements of other companies in our industry and saw that the successful ones had sales that were twice material costs. His conclusion was that the two times material cost formula was the secret to successful pricing.”

“Interesting,” said Holmes. “That’s not the first time I’ve run into such a pricing philosophy. It’s a matter of confusing correlation with causation. Just because two factors correlate in outcomes doesn’t mean that the one causes the other. The active mind will see a correlation and then seek a causal link between the two. Quite often, if not most often, it’s not there so the correlation is discarded. The less critical thinker, on the other hand, accepts the correlation as true, especially if it agrees with conclusions it has already made or opinions it already holds. Unexamined correlations can be one of the most dangerous obstacles in quality decision making.”

“I don’t know if I’d say our CEO isn’t a ‘critical thinker,’ but he does firmly believe in certain metrics.”

“Tell me,” asked Holmes, “what is the proposal that Admiral has made that prompted you to contact me?”

“When Admiral receives our product,” answered Perry, “they assemble it with a sub-assembly they purchase from another vendor. The amount they pay for that sub-assembly is only about three-quarters the amount they pay for our product. Apparently, that assembly work isn’t very complex. It can be done by relatively unskilled workers and doesn’t require any special tooling or equipment. As a consequence, they determined that there is no need for it to be performed in-house and believe it would simplify their supply chain if they had it assembled elsewhere and only the final, assembled product shipped to their plant. That resulted in a request that we take on the purchase of the sub-assembly, assemble it with our product at our facility and ship the finished product to them.”

“You would, of course, be paid for this extra work,” said Holmes.

“Yes, that’s true. But it wouldn’t be enough for us to maintain our gross margin at 22% or our overall profit around 10%.”

“What kind of terms have they proposed?” asked Holmes.

“They indicated that they would still manage the manufacturer of the sub-assembly. It wouldn’t increase the work we have to do in that area. They also indicated that the inventory of sub-assemblies would be vendor managed. In other words, the vendor would insure that we had sufficient stores of the sub-assembly on hand to meet our production schedules and that we wouldn’t have to actually purchase the sub-assembly until we use it. We’d also be given 45 days to pay the vendor’s invoice.”

“How quickly does Admiral pay your invoices?” interrupted Holmes.

“They pay in 30 days,” answered Perry. “They are good about that.”

“Then you wouldn’t be tying up any additional investment, would you? You’d get paid for the finished product about the same time you’d have to pay for the sub-assembly.”

“That’s true. The inflow and outflow of cash will take place at about the same time.”

“That’s a very significant fact,” said Holmes. He looked at me as if the see if I also considered it an important point. “Continue with your explanation of their proposal.”

“They proposed paying us for our additional direct labor, our normal overhead rate – which is 250% of direct labor – the cost of the sub-assembly and a 5% profit markup.”

“Your overhead is measured as 250% of direct labor?’ asked Holmes. “Is that a departmental or a plant-wide rate?”

“It’s a plant-wide rate. We assign all our manufacturing overhead as 250% of direct labor.”

“That’s probably a problem as well,” stated Holmes, “but not what you called me in for so we’ll let it go for the moment.”

Perry looked at Holmes for a few moment apparently not understanding what that problem could be.

“You’ve run some numbers to see what this would do to your financial results I assume?”

“Oh yes. Here they are”

Description	Admiral		Overall	
	Before	After	Before	After
Sales	\$40,000,000	\$55,933,750	\$120,000,000	\$135,933,750
Cost of Goods Sold:				
Direct Material	\$20,000,000	\$35,000,000	\$60,000,000	\$75,000,000
Direct Labor	\$3,000,000	\$3,050,000	\$9,500,000	\$9,550,000
Manufacturing O'head @250%	<u>\$7,500,000</u>	<u>\$7,625,000</u>	<u>\$23,750,000</u>	<u>\$23,875,000</u>
Total Manufactured Cost	\$30,500,000	\$45,675,000	\$93,250,000	\$108,425,000
Gross Margin	\$9,500,000	\$10,258,750	\$26,750,000	\$27,508,750
Gross Margin Pct to Sales	23.8%	18.3%	22.3%	20.2%
SG&A	<u>\$4,906,166</u>	<u>\$4,906,166</u>	<u>\$15,000,000</u>	<u>\$15,000,000</u>
Program Profit	<u>\$4,593,834</u>	<u>\$5,352,584</u>	<u>\$11,750,000</u>	<u>\$12,508,750</u>
Program Profit Pct to Sales	<u>11.5%</u>	<u>9.6%</u>	<u>9.8%</u>	<u>9.2%</u>

We all looked at the numbers for a few moments.

“So,” said Holmes, “your CEO doesn’t like the proposal because it would drop your gross margin well below his 22% target and drop your profit from nearly 10% to just a little over 9%.”

“That’s right. And the revenue would be a lot less than half the material cost,” added Perry.

“You wouldn’t meet any of his metrics for success, would you?”

“Nope. And that’s why his immediate reaction was to turn Admiral down.”

“Tell me Perry,” Holmes look my former student straight in the eye, “what is the purpose of Dewar Automotive?”

“Our purpose?” Perry looked a little confused. “I guess it’s to make parts for the auto industry. At a profit, of course.”

“Did the investors put their money into this company because they had a burning desire to make auto parts? Was that the reason?”

“No, I don’t think so,” Perry replied. “I pretty sure they invested because they wanted to turn a profit.”

“Turn a profit? What does that mean?” asked Holmes. “Did they want to earn a 22% gross margin? A 10% profit percent to sales? Generate revenue that was double material cost?”

“No. I expect they wanted to earn a superior return on their investment.” Perry seemed a bit annoyed by the rather sarcastic way in which Holmes phrased the questions.

“Excellent! Now we’re getting somewhere. A superior return on their investment.”

Holmes paused and glanced at me. I think he wanted to see if I understood where he was going with his questions, but I’m afraid I disappointed him. I hadn’t a clue where he was headed. But I was confident there was a solid reason behind them. I’d known him long enough to realize there was always a method to his madness.

“You do know how to calculate a return on investment, don’t you?”

“Of course.” Perry looked at me with a smile. “Dr. Watson taught us that in Accounting 101.”

“Then remind me, how does one calculate return on investment?”

“It’s the percentage resulting from dividing the profit earned by the investment required to earn that profit.”

“Okay,” said Holmes. “I’ll accept that the definition for our purposes. It’s close enough. So would you say that the main purpose of Dewar Automotive is to provide its investors with the best return on investment possible?”

“I believe that would be an accurate statement,” replied Perry.

“Given that a superior return on investment is the overall financial objective of the company, wouldn’t you think that the appropriate measure in evaluating sub-sets of your business, like each of your customers, products or programs, and each individual business decision should also be based on return on investment?” Holmes continued, “Do you know the return on investment for each of your three customers?”

“I’m afraid not,” replied Perry. “That’s not something we calculate.”

“What is the total investment in Dewar?” Holmes asked.

“Do you mean our net book value?”

“No,” answered Holmes, “the ‘value’ of the investment. How much money are the investors living without because they’ve got it tied up in the company?”

“That I don’t know off hand,” answered Perry.

“Do you have a recent appraisal of your assets?”

“I believe so. We have one done every few years for insurance purposes and to give our lenders comfort that their collateral is solid.”

We all sat in silence for a minute or so. Holmes’ eyes were closed, but you could tell his brain was actively processing the information he had gathered.

“Tell me,” he said suddenly as he opened his eyes, “are you willing to do a bit of digging for me?”

“Of course. What would you like me to do?”

“Take the value of your capital assets along with your net working capital and divide it among your three customers.”

“How accurate does it need to be?” asked Perry. “It might take some time to break it down accurately.”

“We have less than a week to get this done,” said Holmes. “Do the best you can in the next couple of days and send me an e-mail with your results. It doesn’t need to be perfect. Just a reasonable representation of the division of your asset’s values among the three customers.”

“Will do,” said Perry. “Anything else?”

“Just one thing to think about. Suppose you have two products that sell for \$13. The cost of both products is \$10. That would give you the same gross margin on each product and it would be in excess of your 22% target for both. Product A’s cost consists of \$4 of material and \$6 of manufacturing cost. Product B’s cost is \$6 of material and \$4 of manufacturing cost. Then figure out which product is more valuable to the company?”

Perry looked a bit perplexed at Holmes’ question, but said, “Okay, I’ll give that some thought.”

Then Holmes suggested, “Let’s plan to get together again in three days to pick up our discussion.”

We all agreed and the meeting was adjourned. Holmes and I headed back to our old homestead.

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“Well Watson,” said Holmes after we returned to the old house. “What do you think of your old student’s dilemma?”

“It looks to me,” I replied, “that they’ll eventually have to bite the bullet and accept Admiral’s proposal so they won’t risk losing the business they have. After all, it’s one-third of their total volume of sales and losing it would put a tremendous strain on their finances.”

“Do you believe accepting the business would hurt their financial performance?”

“It sure looks like it from Perry’s projections. Accepting the proposal would drop their margin and profit percentages by a considerable amount.”

“And you consider that to be an indication that their financial performance would be worse?”

“Of course. How could you view lower margin percentages as a positive sign?”

“We’ll see,” answered Holmes. “Let’s wait for the information Perry promised to provide.”

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Perry kept promise and his investment information arrived two days later. Soon afterwards, Holmes phoned and asked if I was available to accompany him when he met with Perry again the next day. I told him I’d make the time. I really didn’t have anything else important to do and I didn’t want to miss his session with Perry. So the next morning he and I set out for Dewar.

We arrived in the empty lobby, called Perry’s number from the lobby and a few minutes later the young lady who’d greeted us before came to greet us again.

“Dr. Watson and Mr. Holmes,” she said, “it’s good to see you again. Mr. Perry is waiting for you.”

“Gentlemen,” said Perry as we entered his office, “please, have a seat. I’ve been anxious to hear what Mr. Holmes has to say about my problem after looking at the data and giving it some thought.”

Holmes looked at him and asked, “Did you give some thought to the theoretical problem I gave you before I left last time?”

Perry thought for a moment. “Oh,” he answered, “you mean the question about the two products that both have the same sales values and gross margin percentages. Yes, I did give it some thought. But I really couldn’t see how one would be more valuable than the other. They both seem to be equally valuable to me.”

“You do recall our earlier discussion about the purpose of Dewar Corporation, don’t you?” Holmes appeared somewhat irritated that Perry hadn’t come up with a more insightful answer.

“Of course,” replied Perry.

“And that purpose was..?”

“To provide a superior return on investment for our investors.”

“Is there nothing about these two products that would suggest which one will provide a higher return on the company’s investment?”

“Not that I can see offhand,” answered Perry. “There is nothing to indicate the ‘investment’ portion of the ROI formula. Only the formula’s numerator; the \$3 gross margin.”

“Let me ask you this then, would you think more of the company’s total investment was made so it could buy and store materials or so it can turn what it buys into what it sells?”

“I’m not sure I understand.”

“Let me ask it this way,” replied Holmes. “Would you expect more space and capital equipment to be tied up in areas where it receives, handles and stores materials and components or in areas where it manufactures its products?”

“Oh, I’d think the vast majority of its investment is most likely tied up in its manufacturing capabilities. I don’t know, probably somewhere in the neighborhood of 80%-90% of it.”

“So,” continued Holmes, “if the bulk of its investment is tied up in manufacturing, would you agree that a major factor in getting a solid overall return on investment is the effective use of its manufacturing investment?”

Perry thought for a moment and replied, “Yes, that makes sense. The company invests in capital so it can turn what it buys into what it sells. So as a general rule, the better return it gets on the use of that capital the better will be its overall return on investment.”

“Now we’re getting somewhere,” sighed Holmes. “Is there anything about the two products in the example, Product A and Product B, which would suggest how much investment they each tie up?”

Perry thought for a few moments.

“Why yes!” he said. “It costs \$6 to manufacture Product A but only \$4 to manufacture Product B. That would suggest that the company ties up its investment 50% longer to produce Product A than it does to produce Product B. If it only made these two products and their volumes were the same, 60% of the time it would be making Product A and 40% of the time Product B.”

“Astute observation,” replied Holmes. “Unfortunately, if it has a rather arcane and outdated cost system like yours, it makes it difficult to place a high level of confidence in that statement. It is, however, certainly better than acting as if the investment is the same when assessing the two products’ values to the organization.”

“Arcane and outdated,” snapped Perry. “What do you mean by that?”

“You indicated earlier that you assign your indirect manufacturing costs as a plant-wide percentage of direct labor. Correct?”

“Yes, that’s correct.”

“Is there a fixed crew size for each piece of your equipment?” asked Holmes. “In other words, is there any equipment where the crew required for its operation can vary depending on the product being produced?”

“As a matter of fact there are situations where the crew size varies,” replied Perry. “What of it?”

“Well, if two workers attend the equipment when it runs I don’t think it really costs twice as much as when one worker is needed. That is, however, what your costing system will indicate if all costs are applied as a percentage of direct labor. But that’s not our immediate problem. Our problem is that the doubling of the cost will also imply that the investment in the equipment is double when, obviously, it is not. The hours the equipment is tied up are not always the same as the labor hours.”

“I see what you mean. Does that mean we can’t use manufacturing costs to judge how much of our investment is tied up in producing a product?”

“For our current purposes, I don’t think it’s a big problem. I would imagine that, on the grand scale of things, it will even out over the span of the production processes you use to produce products under each of your three customer programs. And at the moment, we don’t have any choice. Your system is what it is and we only have a few days to complete our task. Let’s assume manufacturing cost is representative and get back to the example.

“Using manufacturing costs as a surrogate for investment, it appears that we tie up 50% more investment to produce Product A than we do to produce Product B. Yet they both generate a \$3 gross margin. What does that suggest?”

“That Product B has a return on investment 50% greater than Product A,” responded Perry without hesitation. “We earn the same profit with only two-thirds the investment.”

“Excellent,” replied Holmes. “Would that suggest a different type of percentage for measuring the value of a product or program? Something other than a percentage of sales?”

“A percentage of manufacturing cost might be more representative,” answered Perry after thinking for a few moments. “It isn’t perfect, but I think it would reflect the value of the product a lot better than percentage of sales.”

“Let’s apply that to our example,” I said. I didn’t want to be left out of the conversation completely and felt I had to say something.

“Excellent idea Watson,” smiled Holmes.

“The \$3 profit generated by Product A’s \$6 manufacturing costs gives us a 50% profit,” said Perry, “while the same profit generated by Product B’s \$4 manufacturing cost give us a 75% profit. Product B is 50% more valuable than Product A. Same profit, smaller investment.”

“It would appear so,” replied Holmes. “There’s also another way to do the measurement. You’re familiar with the concept of value added?”

“Sure,” replied Perry, “it’s the difference between the cost of the resources we purchase from outsiders and the price at which we sell what we make from those resources. The value we add to those things we buy.”

“How about measuring the profit as a percentage of value added,” suggested Holmes.

“Okay,” said Perry. After a few quick calculations he continued. “Product A’s profit as a percentage of value added is \$3 divided by \$9 – it’s \$13 price less the \$4 material cost – or 33%. Product B’s is \$3 divided by its \$7 of value added or 43%. Again, Product B comes out ahead. We keep a higher percentage of the value we add.”

“Now let’s get back to Dewar’s situation,” said Holmes as opened up his laptop and swung it around so both Perry and I could see. “As you can see, I started with your analysis of profitability by customer and added some information at the bottom.”

Description	Total	Program		
		Packard	Hudson	Admiral
Sales	\$120,000,000	\$50,000,000	\$30,000,000	\$40,000,000
Cost of Goods Sold:				
Direct Material	\$60,000,000	\$25,000,000	\$15,000,000	\$20,000,000
Direct Labor	\$9,500,000	\$4,000,000	\$2,500,000	\$3,000,000
Manufacturing O'head @250%	<u>\$23,750,000</u>	<u>\$10,000,000</u>	<u>\$6,250,000</u>	<u>\$7,500,000</u>
Total Manufactured Cost	\$93,250,000	\$39,000,000	\$23,750,000	\$30,500,000
Gross Margin	\$26,750,000	\$11,000,000	\$6,250,000	\$9,500,000
Gross Margin Pct to Sales	22.3%	22.0%	20.8%	<b>23.8%</b>
SG&A @ 16.1%	<u>\$15,000,000</u>	<u>\$6,273,458</u>	<u>\$3,820,375</u>	<u>\$4,906,166</u>
Program Profit	<u>\$11,750,000</u>	<u>\$4,726,542</u>	<u>\$2,429,625</u>	<u>\$4,593,834</u>
Program Profit Pct to Sales	<u>9.8%</u>	<u>9.5%</u>	<u>8.1%</u>	<u>11.5%</u>

Attributed Investment	\$80,000,000	\$34,000,000	\$21,000,000	\$25,000,000
Program Return on Investment	<u>14.7%</u>	<u>13.9%</u>	<u>11.6%</u>	<u>18.4%</u>
Value-Added	\$60,000,000	\$25,000,000	\$15,000,000	\$20,000,000
Profit Pct to Value-Added	<u>19.6%</u>	<u>18.9%</u>	<u>16.2%</u>	<u>23.0%</u>
Profit Pct of Internal Costs	<u>24.4%</u>	<u>23.3%</u>	<u>19.3%</u>	<u>29.8%</u>

Holmes paused so we could take a look at his additions.

“You estimated Dewar’s total investment to be \$80 million and gave me your best estimate of how much of that investment is tied up in supporting each of your three customer programs. You’ll see that breakdown on the first line below your analysis. Using those estimates, I calculated each program’s return on investment as well as the company’s total ROI.”

“Interesting,” said Perry. “The ROI percentages do seem to track along with the profit percentage to sales. Admiral had the best numbers in both cases. Hudson’s are the worst and Packard is somewhere in the middle.”

“That’s right,” replied Holmes, “but how they relate to each other isn’t the same. For example, Admiral’s profit to sales percent of 11.5% is 21% greater than Packard’s 9.5%, while is ROI of 18.4% is 32% greater than Packard’s 13.9%. But it’s always dangerous to look at percentages of percentages. It’s not really important at this point, however. I’m just trying to set some baselines on this schedule. Let’s move on.”

“You’ve got the controls,” said Perry. “Carry on.”

“On the next line I entered each program’s value-added determined by subtracting each program’s sales from its direct material cost. Using that as a base, I then calculated each customer’s profit as a percentage of value added. I then finished by entering each program’s ‘internal cost’ – the cost of all activities required to add value – and calculating each customer’s profit as a percentage of those internal costs. Are you with me so far?”

“I’m with you,” replied Perry.

“The next step then,” continued Holmes, “was to measure the incremental impact on your income statement of accepting Admiral’s proposition. I went ahead and used your estimate of the impact as you can see here.

Description	Total	Admiral Change		
		Before	Change	After
Sales		\$40,000,000	\$15,933,750	\$55,933,750
Cost of Goods Sold:				
Direct Material		\$20,000,000	\$15,000,000	\$35,000,000
Direct Labor		\$3,000,000	\$50,000	\$3,050,000
Manufacturing O'head @250%		<u>\$7,500,000</u>	<u>\$125,000</u>	<u>\$7,625,000</u>
Total Manufactured Cost		\$30,500,000	\$15,175,000	\$45,675,000
Gross Margin		\$9,500,000	\$758,750	\$10,258,750
Gross Margin Pct to Sales		<b>23.8%</b>	4.8%	<b>18.3%</b>

- \* Customer requires they purchase sub-assembly and assemble into finished product
- \* Vendor managed inventory - invoiced when used - collection about time of payment
- \* \$50,000 direct labor to assemble
- \* Allow then a 5% markup on purchased sub-assembly + conversion cost

“You’ll be purchasing an additional \$15 million of direct material. You should note that because you won’t have to pay for that material until after you’ve received payment from Admiral, the amount of your investment won’t increase. You’ll then be incurring an additional \$50 thousand of direct labor cost. It is highly unlikely that you will actually incur 250% of that labor as additional overhead – after all

that rate includes your fixed costs – but to be conservative I didn’t change your number and assumed that manufacturing overhead will actually increase by that amount. That way it will also cover any additional cost you might incur in handling and storing the supplier’s inventory. Finally, I added the 5% profit they’ll pay on the additional \$15,175,000 in costs to arrive at a sales increase of \$15,933,750. Are you still fine with those numbers?”

“They look reasonable to me,” answered Perry. “But our CEO still won’t be happy with that gross margin percentage dropping to below 22% and profit percentage to sales down near 9%.”

“I’m sure he won’t,” said Holmes as he moved on to the next schedule, “You had already added these incremental amounts to your analyses so I used your summary and added the alternative metrics I had added to the bottom of your base numbers.

Description	Admiral		Overall	
	Before	After	Before	After
Sales	\$40,000,000	\$55,933,750	\$120,000,000	\$135,933,750
Cost of Goods Sold:				
Direct Material	\$20,000,000	\$35,000,000	\$60,000,000	\$75,000,000
Direct Labor	\$3,000,000	\$3,050,000	\$9,500,000	\$9,550,000
Manufacturing O'head @250%	<u>\$7,500,000</u>	<u>\$7,625,000</u>	<u>\$23,750,000</u>	<u>\$23,875,000</u>
Total Manufactured Cost	\$30,500,000	\$45,675,000	\$93,250,000	\$108,425,000
Gross Margin	\$9,500,000	\$10,258,750	\$26,750,000	\$27,508,750
Gross Margin Pct to Sales	23.8%	18.3%	22.3%	20.2%
SG&A	<u>\$4,906,166</u>	<u>\$4,906,166</u>	<u>\$15,000,000</u>	<u>\$15,000,000</u>
Program Profit	<u>\$4,593,834</u>	<u>\$5,352,584</u>	<u>\$11,750,000</u>	<u>\$12,508,750</u>
Program Profit Pct to Sales	<u>11.5%</u>	<u>9.6%</u>	<u>9.8%</u>	<u>9.2%</u>

Attributed Investment	\$25,000,000	\$25,000,000	\$80,000,000	\$80,000,000
Program Return on Investment	<u>18.4%</u>	<u>21.4%</u>	<u>14.7%</u>	<u>15.6%</u>
Value-Added	\$20,000,000	\$20,933,750	\$60,000,000	\$60,933,750
Profit Pct to Value-Added	<u>23.0%</u>	<u>25.6%</u>	<u>19.6%</u>	<u>20.5%</u>
Internal Costs	\$15,406,166	\$15,581,166	\$48,250,000	\$48,425,000
Profit Pct of Internal Costs	<u>29.8%</u>	<u>34.4%</u>	<u>24.4%</u>	<u>25.8%</u>

“As you determined earlier, not only will Admiral’s gross margin percentage drop from 23.8% to 18.3%, your overall gross margin percentage will fall below 22% and your profit percentages of sales will also decline to just above 9% as well.”

You could see Perry cringe at this possibility.

“On the other hand,” continued Holmes, “look at the impact on your return on investment. It rises three percentage points on Admiral and almost one percentage point overall. It sure looks to me like accepting Admiral’s proposition would be a good move for the company. It increases your return on investment and, as I believe we determined during my previous visit, providing a superior return on investment is the reason the company exists. It’s its primary objective.”

We sat in silence for a few minutes while Perry studied the numbers.

“Damn!” said Perry suddenly breaking his silence. “You’re right. If we consider that our overall objective is optimizing our return on investment, accepting Admiral’s proposition is obviously the right move. But how am I ever going to explain this to my boss? He’s got this long-held belief in the 22% gross margin, 10% profit and sales being double material measurements and believes they are the gospel truth. How can I ever convince him that accepting Admiral’s proposal is the right move?”

“Well,” answered Holmes, “this is a critical decision for Dewar. It could have a significant impact on your financial success for years to come. I’d suggest that you emphasize its importance to him and ask that he invest one or two hours of his time to hear you out. You can walk him through the reasoning we’ve just gone through. This is one of those situation where, as a financial executive, you have no direct authority. The decision is not your to make. But it is an opportunity to show one of the most important skills any financial executive can have; the ability to influence people over whom they have no authority.” Holmes then looked at me with a smile and said, “That is, no doubt, one of the areas that Dr. Watson failed to include in your university education.”

“I guess you’re right,” said Perry. “I’ll give it a try although I’m not too sure how successful I’ll be.”

“While you’re at it,” added Holmes, “I’d suggest that you do two other things. First, stop using percentages of sales as metrics. They’re some of the most illogical metrics an organization can use, especially a manufacturing firm. You can see how both measurements as a percentage of value added and internal costs more closely track return on investment. They’re not perfect, but they do serve as a simple and understandable surrogate for ROI. Second, consider bringing your costing model into the 21<sup>st</sup> Century. That plant-wide overhead as a percentage of sales that you use could be even bigger factor in undermining the decisions your company makes.”

Perry looked somewhat unsure but said, “If I can get over the first hump, I’ll look into those as well.”

With that the meeting ended and Holmes and I head back to our old digs.

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Later than day we relaxed in our old chairs, Holmes with his pipe and a scotch and me with a whiskey and another Ashton from Holmes’ humidor.

“Well Watson,” said Holmes, “what do you think of your former student, Mr. Perry?”

“I think he’s done pretty well for himself. CFO of a multi-million auto supplier just fifteen years after graduation. That’s pretty impressive.”

“He’s reached a high-level position in a short period of time, that’s true, but what I’m really asking is what do you think of his effectiveness as a financial executive after our two sessions with him?”

“It’s difficult to assess after just two short meetings,” I said and added somewhat sarcastically, “I suppose you saw enough to form an opinion?”

“Oh, I wouldn’t even attempt to give a comprehensive opinion of his abilities. No one could come up with a fair assessment with such a limited amount of interaction. But I think it was pretty clear that his role has been limited to measuring and preserving value. He has not been a value-adding resource for the company. That’s not intended as a criticism, just an observation,” he added. “After all, the vast majority of financial executives fit the same profile.”

“I’m not sure I understand,” I replied. “What do you mean he’s not a value-adding resource?”

“No doubt you were able to teach him all the ins and outs of financial accounting; from basic bookkeeping to all the obscure rules and regulations companies must follow if their financial statements are to comply with those generally accepted accounting principles. He’s had fifteen years to apply those lessons so I’m sure he’s pretty much mastered his role as a historian and can measure value, at least the way accountants define it, effectively.

“I’m also pretty certain you and your colleagues taught him about the internal controls necessary to preserve value by protecting the company’s assets as well as the ways in which he can manipulate tax rules and regulations to retain as much of the value created by his company as possible. And he has, no doubt, accumulated the necessary knowledge about things like insurance, information technology and financing that are also required of a good financial executive.

“All of those things are involved in measuring and preserving value,” continued Holmes, “but he obviously does not understand the fundamental economics that underlie his company’s business and has little or no influence over the decisions that are made. Those are, in my view, the two most important factors in a financial executive’s ability to actually create value.”

“How can you come to such a conclusion?” I objected. “We only spent a few hours with him discussing one specific problem he was facing.”

“First,” answered Holmes, “he seemed perfectly satisfied with a costing system that assigned indirect manufacturing costs to products using a single, plant-wide overhead rate based on direct labor. He actually seemed somewhat offended when I criticized Dewar for having such a system. Understanding the economics that underlie the business is a prerequisite for the having the ability to enhance the organization’s value. If you don’t understand those fundamentals, you can’t monetize them in a way that provides accurate and relevant economic input for decision makers. Providing his decision makers with economic information generated by a cost system that does not reflect the true economics of the business makes him more of a value destroyer than a value creator.

“Second,” he continued, “he seemed to have no influence over his company’s decision makers, at least not over his boss, the company’s most important decision maker. I can appreciate his inability to understand the fallacy of those 22% gross margin and 10% profit metrics. After all, everyone seems to accept those damn percentage of sales metrics as insightful. I would image he learned those from you or one of your colleagues. But his inability to convince his CEO that such an outrageous idea that doubling material costs will generate a price that guarantees profitability is quite telling. He certainly does not influence those over whom he has no authority.”

“Aren’t you being a little hard on him?” I asked. “He’s still young and learning.”

“He’s also in a well-paid, very responsible position. He’s in the big leagues. Peoples’ jobs depend on the success of his company and his company’s success is due in great part to his effectiveness as a Chief Financial Officer. He’s in a key position that can make major contributions to his company’s success. It’s not enough to just record the successes and failures of others. A CFO shouldn’t just sit in the back seat, be part of the organization’s ‘overhead’ and go along for the ride.”

“I still think your being a bit hard on him,” I replied. “Maybe our visit and your comments will make a difference.”

“Perhaps,” Holmes said without much conviction. “We’ll see.”

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I stopped by for a visit with my former student six months later. He had been successful in convincing his CEO to accept Admiral’s proposal and the results had been pretty much as he had projected. As a matter of fact, they had been better. As Holmes had suggested, the 250% overhead he had added to the \$50 thousand in labor cost turned out to be a great deal more than the incremental overhead they actually incurred as a result of the extra work and their bottom line reflected it.

Perry had also taken some additional actions. His financial reports now included measurements as a percentage of internal costs. The old percentages of sales were still there, but when he discussed operating results with the management team, he emphasized the internal cost percentages and downplayed the sales based measures. He said that he had chosen the internal cost percentages over the value added numbers because he found them easier to explain to his peers.

He also brought in a consultant to help him develop what he called “a predictive, causality-based cost model” that he planned to use as a basis for modifying their current costing practices. He believed a monetized version of this model would prove to be a powerful tool for measuring incremental costs when evaluating decisions and help him develop more realistic plans, budgets and forecasts. He also said he believed he was making some progress in moving his CEO away from the “double material cost” formula for pricing, but that it was difficult teaching an old dog new tricks.

As I prepared to leave, I also noted that he had a book on his desk titled “Influence Without Authority.” Apparently, he had taken much of what Holmes had said to heart.

I mentioned all this to Holmes the next time I saw him.

“That is promising,” he said. “Perry has another thirty or so working years ahead of him and has an opportunity to create a lot of value and enhanced peoples’ lives wherever he goes. Let’s hope he succeeds in doing so.”