How to Use the **Valuation Models** at Old School Value

Introduction

When I first started valuing stocks, all I used was a DCF.

Worked out well, but later on, I realized a lot had to do with luck.

I started investing in 2008 just before the great recession. What I thought was due to great valuation skills, was a function of buying at the best possible time.

As markets rose, I struggled because the same old DCF method wasn't working.

I broke through my plateau as I started to learn and apply multiple valuation methods to purposely value stocks through different lenses.

Rather than using a DCF all the time, multiple different valuation models will help you see the same stock using different angles.

This guide is to help you understand and get you started with how the valuation models at old school value are used. This guide will cover every aspect in detail as it would require several textbooks to do it justice.

However, the key point to remember is that it is more important to understand the big picture of how things work.

Nearly all adults drive, and understand how to maneuver a car. But only a tiny fraction of drivers can pull apart an engine and put it back together again.

That's the approach you should take with this guide.

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Trusting the Piotroski Score

Before we start with the valuations, a quick word on the Piotroski F Score.

The Piotroski Score is a foundational aspect to old school value.

We use it prominently and over-weigh it to eliminate ineffective companies.

Rather than reinvent the wheel, we use the Piotroski score because:

- Professor Piotroski has published plenty of papers on the subject
- Results have been backtested and proven
- It's accounting and fundamentals based - not on trends or charts.
- It's a downside protection system

This last point is very important.

The goal of the Piotroski score is to help you protect the downside.

Yes, the emphasis and studies talk about outperformance, but the hidden gem is that it

will protect your downside.

With the Action score, each of the Ratings (Quality, Value and Growth) requires stocks with high Piotroski Scores to achieve high marks.
If it is outside the optimal range, marks are deducted in the OSV Ratings algorithm.

- A Piotroski score between 7-9 is excellent.
- 4-6 is average. Most companies fall in this range.
- Stay away from scores < 4.

PIOTROSKI SCORE	6	5	7	5	8	7	5	4	6	7
Piotroski 1: Net Income	1	0	1	1	1	1	1	0	1	1
Piotroski 2: Operating Cash Flow	1	1	1	1	1	1	1	1	1	1
Piotroski 3: Return on Assets	1	0	1	0	1	1	0	0	1	1
Piotroski 4: Quality of Earnings	1	1	1	1	1	1	1	1	1	1
Piotroski 5: LT Debt and Assets	1	1	1	1	1	0	1	0	0	0
Piotroski 6: Current Ratio	1	0	0	0	0	1	0	1	0	1
Piotroski 7: Shares Outstanding	0	1	0	1	1	1	1	1	0	1

1 point for cash flow from operations are greater than ROA

Next time as you look through a stock, check out the Piotroski score details to see where

the company is improve/declining.

Within OSV Online, click on *Quality Checks* > *Piotroski.*

It's a great fundamental check and easy to understand. You'll learn and discover a lot about the company in a very short time.

Additional resources:

- *Piotroski paper – history, explanations, backtests (PDF)*

How to Value Stocks using the Graham Valuation and Our Growth Calculation Method

One of the biggest mistakes and misunderstandings of value investing is that value investors don't care about growth.

Wrong.

Growth is pivotal. The key is to not overpay, or get swept up in the madness that comes with high growth stories.

That's why Graham created this formula to model a growth stock using value investing principles.

I've modified the formula to better suit today's day and age.

Graham Value = [EPS x (7 + GrowthRate) x 4.4] / CorpBondRate

The Graham valuation method uses EPS and growth rates to calculate an approximate intrinsic value.

You want to create a range of values. A low and high range of expected values.

In fact, use every valuation method to determine a high and low value. There is no such thing as a stock worth $83.22. It's best to say a stock is worth between $75-$85. This puts it into perspective.

When to use:

- Cyclical companies
- volatile cash flows
- growth stocks
- and young companies investing in growth

This formula comes up on the high end of the valuation methods as we are simply using

EPS and growth - an optimistic valuation.

How is Growth Calculated?

I use multiple data points to simulate the forward looking growth.

I've had issues with using purely backward looking growth rates. Using 5 year historical growth rates doesn't work for most companies.

After close to a decade of collecting data and testing, I've found that using a median of many different values is a great way to get a starting point for the forward looking growth.

We use the **median** of:

- EPS Performance Median
- Next Year Growth from Zacks
- Long Term (5yr) Growth Rate from Zacks
- Industry Long (5yr) Term Rate from Zacks
- Next Year Growth from Reuters

- Next 5 Year Growth Rate from Reuters
- Next 5 Year Industry Growth Rate from Reuters
- Next Year Sector Growth from Reuters

That's a lot of different numbers, but it works well because it's not heavily leaning in one direction.

By including industry and sector numbers, it normalizes growth to a realistic number.

Hope that shines some light on how the growth and Graham valuation works.

Additional Resources:

- *How to value a stock using the Ben Graham Formula*

How to Use DCF in Old School Value

Let's look at Hawaiian Holdings (HA).

Looks overvalued at first glance, but it has a good Action score.

I want to dig in.

In the valuation section, I'm greeted with this.

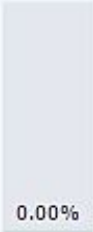
CURRENT PRICE	MEDIAN FAIR VALUE	BUY UNDER PRICE	MARGIN OF SAFETY	52 WK HI	52 WK LO
$51.35	$45.32	$33.99	0%	$60.90	$33.23

$51.35	$39.98	$62.51	$45.32
Current Price	DCF	Graham	EBIT

$45.32
Median Fair Value

0%
Margin of Safety

DCF & REVERSE DCF



$39.98
DCF Fair Value

0.00%
Margin of Safety

See detailed model

SHOW INPUTS

GRAHAM'S FORMULA

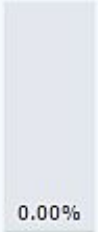
$62.51
Graham Fair Value

17.85%
Margin of Safety

See detailed model

SHOW INPUTS

EBIT MULTIPLES



$45.32
EBIT Fair Value

0%
Margin of Safety

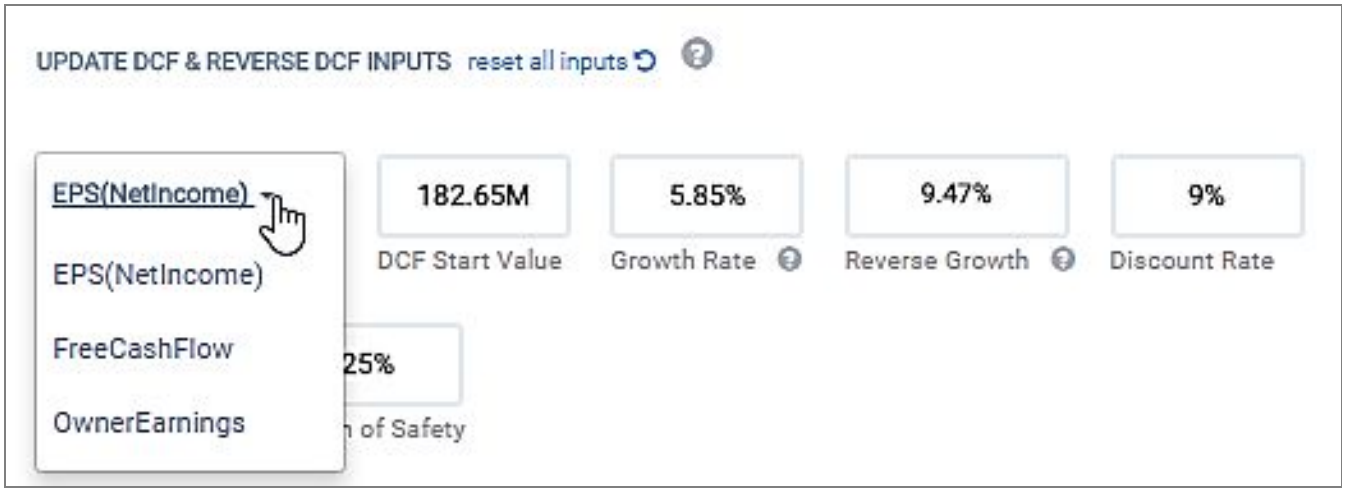
See detailed model

SHOW INPUTS

The three types of valuation methods you see are:

- **DCF** = cash flow based (using different types of "cash" and starting points)
- **Graham's formula** = optimistic earnings based
- **EBIT** = finding equity value based on operating income

On the **DCF section**, I'll flip through EPS to FCF to Owner Earnings to see how much the fair value changes.



If the fair value changes are drastic as you toggle between the three inputs, there's a potential hole in the cash flow statement somewhere.

My intuitive guess is that:

1. it may be that the business has recently become profitable
2. the income statement has weakened.

I also make a mental note to check out the capex and working capital. I'm not a big fan of erratic FCF or one time positive FCF companies.

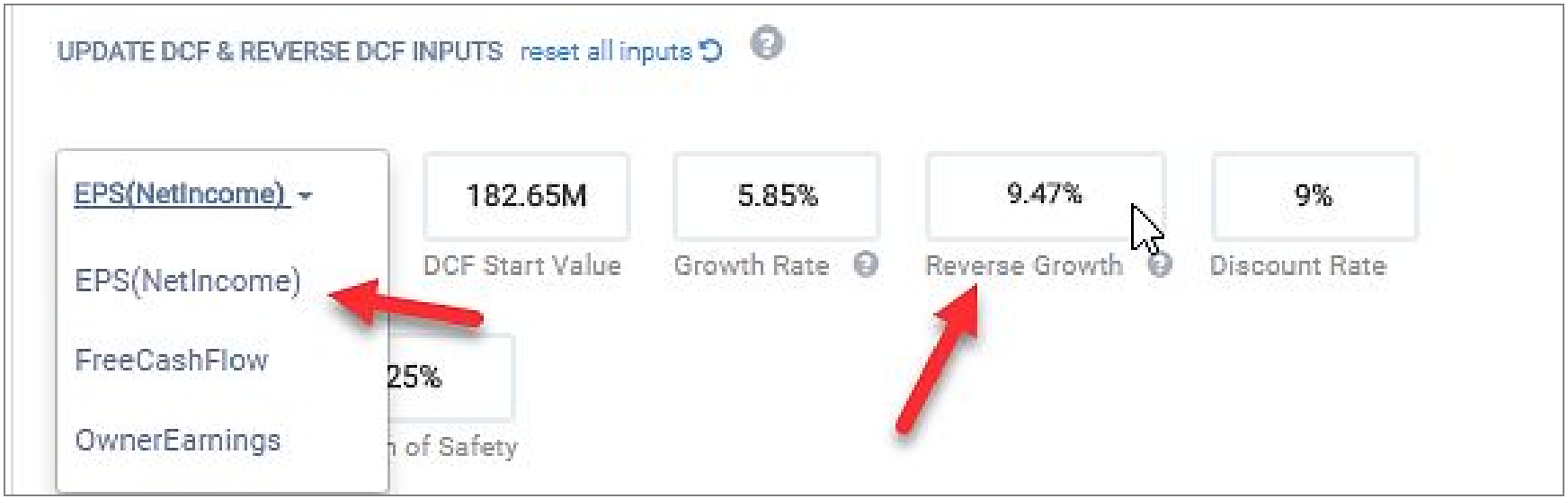
Free Cash Flow	12/31/10 2010	12/31/11 2011	12/31/12 2012	12/31/13 2013	12/31/14 2014	12/31/15 2015	TTM
Cash from Operations	150.3	178.8	311.0	243.3	300.4	476.0	503.9
Cap Ex	140.5	281.9	290.7	410.2	442.2	118.8	117.7
Free Cash Flow	9.8	(103.1)	20.3	(166.9)	(141.8)	357.2	386.1
Owner Earnings	28.5	(158.1)	26.7	(168.3)	(186.9)	319.8	(117.7)
Total Revenue	1,310.1	1,650.5	1,962.4	2,155.9	2,314.9	2,317.5	2,391.8

In this case, I see that HA has been firing on all cylinders. Their operating cash is increasing, capex is decreasing and therefore, FCF has surged the last couple of years.

Checking the Reverse DCF

The reverse DCF is powerful because it helps you understand what the market is expecting, or pricing in to the company.

Set the starting value as EPS(NetIncome) then verify the box that says "Reverse Growth".



Based on their last earnings, the market is pricing in a growth rate of 9.47% to the stock price.

The question you need to answer is whether HA will increase earnings above or below

the expected 9.47% growth rate.

If you believe that HA will do much better, you've found a potential investment.

If you believe the number will be lower, the current price is too high to buy.

Discount Rates

The discount rate we use is a fixed rate.

We don't use WACC or get fancy with discount rates because depending on what calculation method or number you use, it will come out differently. I have failed to come across two exact calculations of WACC by two different people.

Our rule of thumb to calculating discount rates:

Discount rate = 10 year treasury yield + investment risk premium

We think of the investment risk premium like a bank.

People receive different interest rates on their loans based on their risk profile and the

banks desired rate of return.

If I am investing in the stock market, I demand a rate of return. Otherwise, what's the point of investing in stocks.

A good proxy is a simple 5% as the risk premium.

Another simple method is to use the 10 year S&P500 annualized return. You should be aiming to beat the market otherwise; it's easier to invest in the index.

Index Name	Price Return	10 Yr Ann. Returns
S&P 500 LAUNCH DATE: MAR 04, 1957	2,316.10	4.88 % ▲

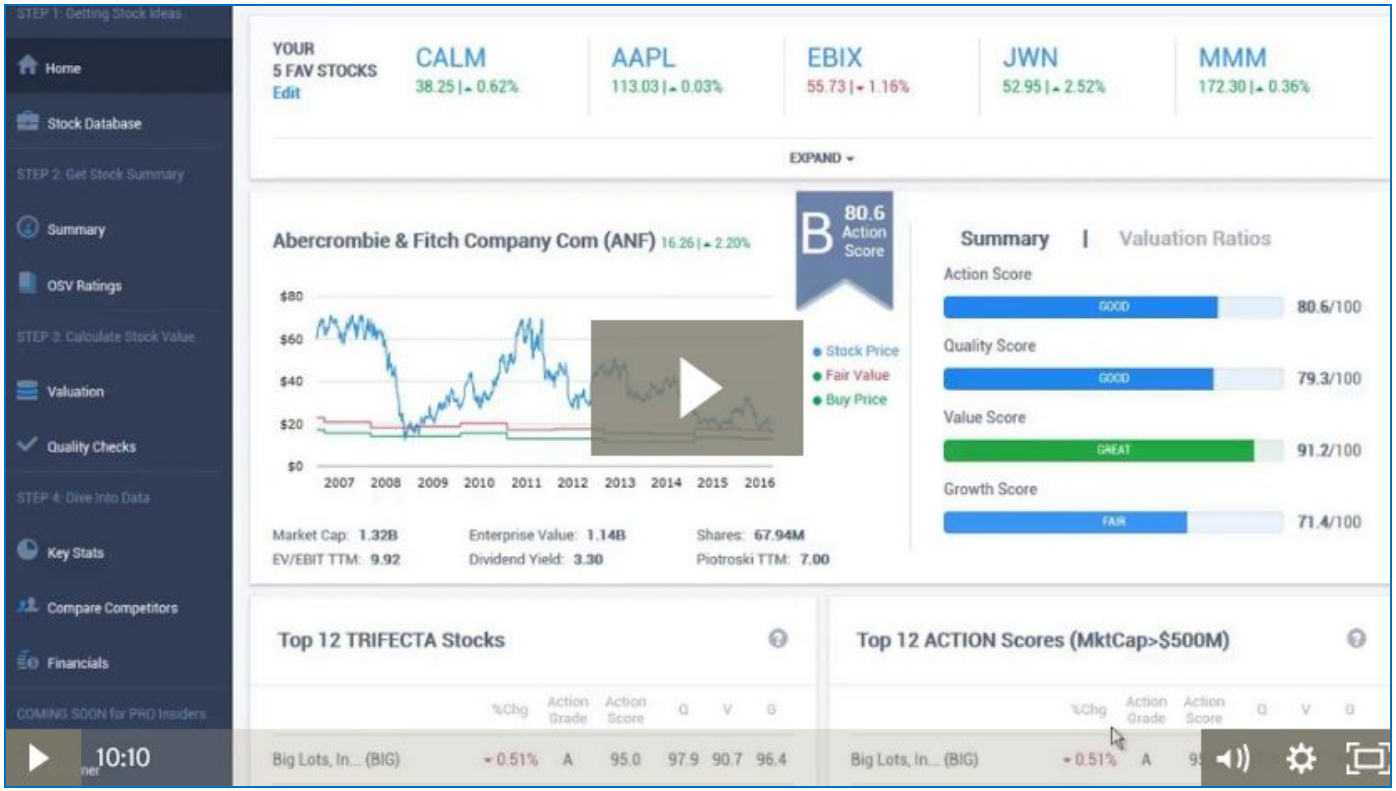
Coincidentally, the 10 year annualized return of the S&P500 is 4.88% *(don't believe people who keep saying it's 9-10%).*

At the time of this writing, the 10 year treasury yield is 2.4%.

Therefore, the discount rate will be 7.3-7.4%

Why do I use 9%? To aim for stocks with higher return potential.

Here's a [10min video]() where I go through CALM and adjust the valuation inputs for DCF and EBIT.



Additional Resources:

- How to value stocks using a DCF
- How to value stocks using a reverse DCF
- Using EPS in a DCF
- Changes in Working Capital and Owner Earnings – Complete Guide

The Contrasting Lives of EBIT and DCF

Miss DCF.

She was affectionate, accommodating, and just a pleasure to be with when you shower her with great numbers.

But...

Throw her some ugly or unexpected situations, and she'll be in a writhing fit. Pounding her head on table.

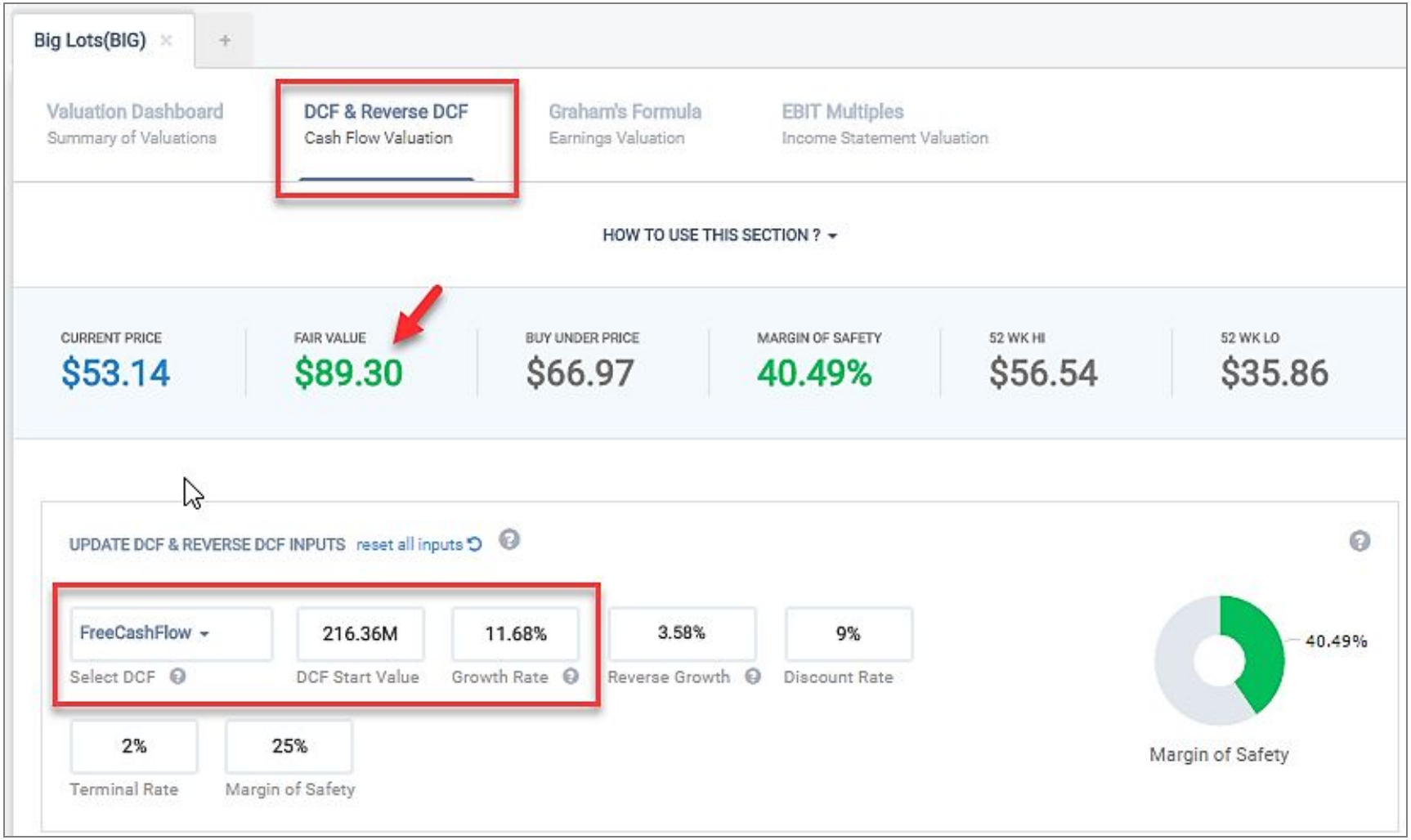
That's when cool and collected Lady EBIT came into my life.

Lady EBIT isn't jumpy or demanding about what she wants. She's looks at things holistically. Not from a single angle.

She handles many scenarios with grace and waltzes through difficult situations.

When I asked about Big Lots (BIG), here's how Miss DCF and Lady EBIT responded.

Miss DCF first:



- FCF selected as the DCF method
- growth rate of 11.7%
- fair value around $89.30 compared to current stock price of $53.14

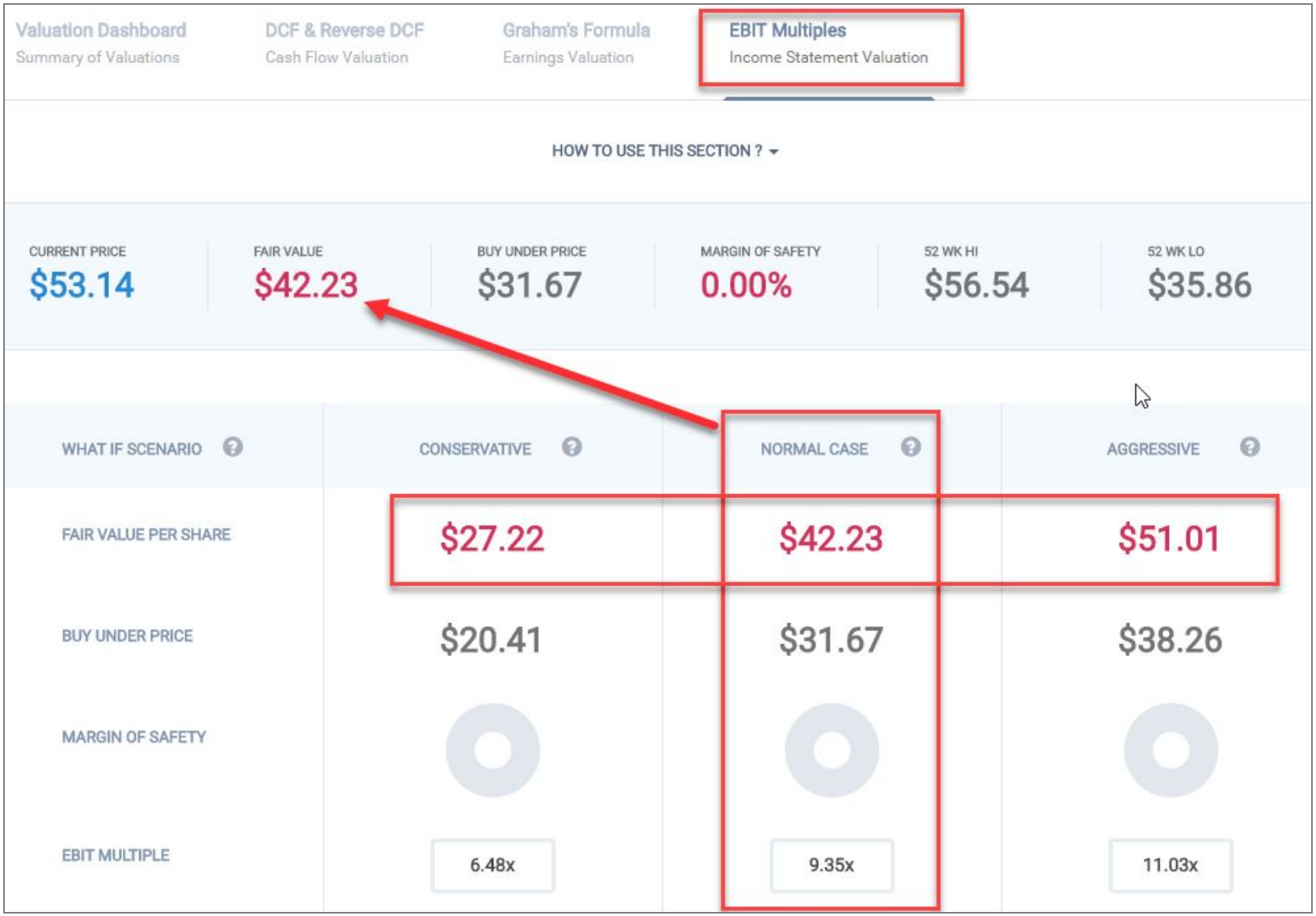
Just eyeballing the results, looks like Miss DCF is too optimistic.

If this was a serious relationship I'd ask things like:

- what's the FCF growth the past 5 years and how will drive forward?
- how has sales translated into FCF (FCF/S ratio)?
- any debt?
- is capex slowing down? is Big Lots reducing growth capex?

Lady EBIT coughs politely as she waits her turn.

Lady EBIT:


Valuation Dashboard
Summary of Valuations
DCF & Reverse DCF
Cash Flow Valuation
Graham's Formula
Earnings Valuation
EBIT Multiples
Income Statement Valuation
HOW TO USE THIS SECTION ?
CURRENT PRICE
$53.14
FAIR VALUE
$42.23
BUY UNDER PRICE
$31.67
MARGIN OF SAFETY
0.00%
52 WK HI
$56.54
52 WK LO
$35.86
WHAT IF SCENARIO
CONSERVATIVE
NORMAL CASE
AGGRESSIVE
FAIR VALUE PER SHARE
$27.22
$42.23
$51.01
BUY UNDER PRICE
$20.41
$31.67
$38.26
MARGIN OF SAFETY
EBIT MULTIPLE
6.48x
9.35x
11.03x

The "normal" case valuation is $42.23 vs the current stock price of $53.14 showing that Lady EBIT considers it to be overvalued considering the EV/EBIT range over the past 3 years.

With the conservative and aggressive scenario Lady EBIT provides, you are given a fuller picture of what life could be like.

By adjusting the EBIT multiple you can come up with several "what if" scenarios to come up with a valuation range.

How do you know what EBIT multiple to use?

From **Key Stats > Key Ratios** you can see the historical EV/EBIT numbers.

To validate whether BIG deserves better multiples, go to Compare Competitors and enter the competitors to the list.

Select “valuation” from the drop down list and you will see this.

	BIG	TJX	ROST	WMT
Valuation ▾ Edit				
P/E	TTM 16.71	TTM 22.60	TTM 25.29	TTM 14.75
EV/EBITDA	TTM 7.33	TTM 11.33	TTM 13.05	TTM 7.71
EV/EBIT	TTM 10.42	TTM 13.29	TTM 15.28	TTM 10.96
P/S	TTM 0.46	TTM 1.56	TTM 2.15	TTM 0.44

Based on competitor multiples, you can estimate that Big Lots is in fair to slightly undervalued territory.

Lady EBIT is saying the value likely resides between $40 - $50.

Now it's time to use your intuition to narrow that range.

EBIT CALCULATION reset all inputs	CONSERVATIVE	NORMAL CASE
Revenue Estimate	5.21B	5.21B
Normalized Operating Margin	4.52%	4.52%
Operating Income Estimate	235.33M	235.33M
EV/EBIT Multiple	6.48x	9.35x
Value of Operations	**1.53B**	**2.2B**

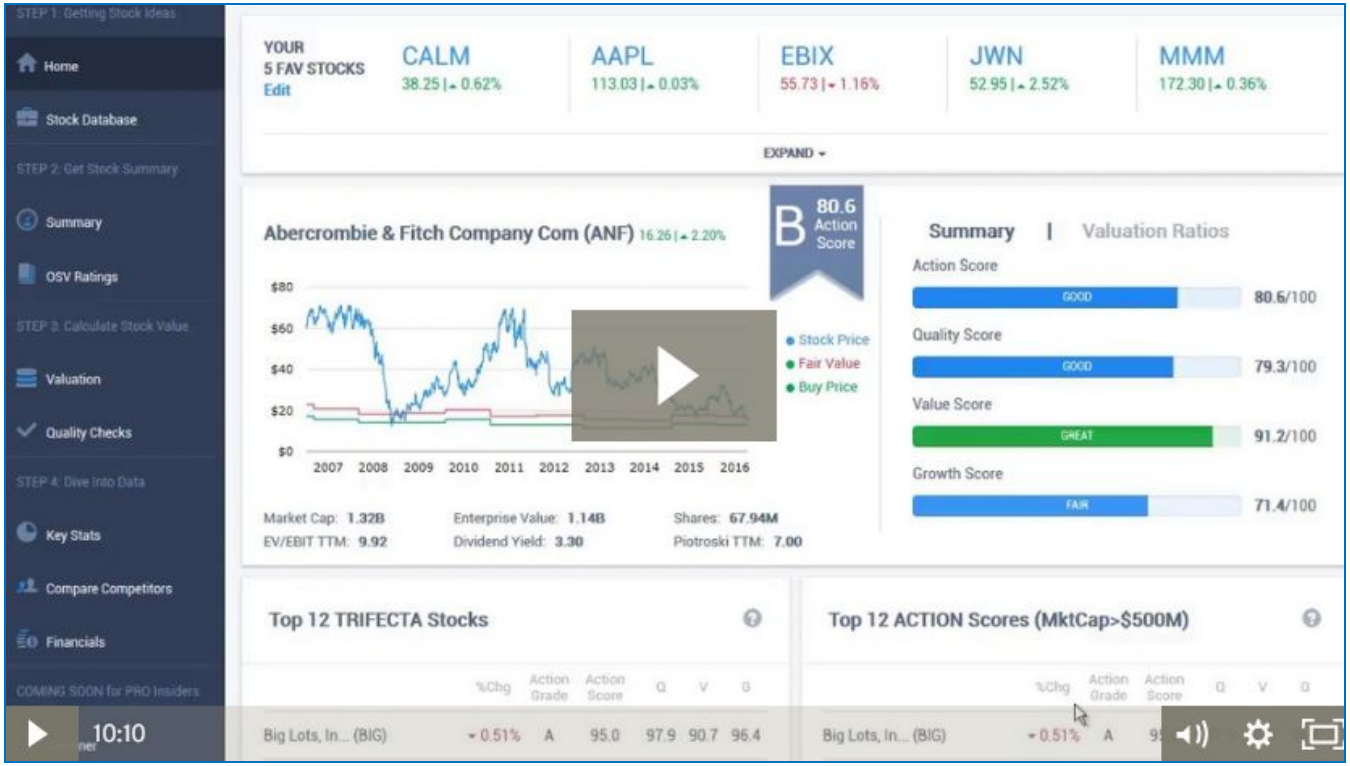
To narrow the range, Lady EBIT wants you to ask:

- is the revenue estimate realistic?
- The 4.52% operating margin is a normalized number. What is the likely number going forward? What margins are competitors operating at?
- What's a conservative or optimistic EV/EBIT multiple?

Miss DCF is mostly everyone's favorite. Cute, fun and always ready to have a good time.

But try meeting Lady EBIT more often. You'll be surprised how much you enjoy her company.

Here's a [10min video]() where I go through CALM and adjust the valuation inputs for DCF and EBIT.



Additional Resources:

- Using EV/EBIT valuation to value Dell

Quantitative + Qualitative Research

As we round out this guide, active investors must know that quantitative analysis must be combined with qualitative research.

If growth and value are joined at the hip, so is quantitative and qualitative.

When you were young, ever go hunting for treasure?

If you have clues or a map, it made things enjoyable and exciting because you knew where you were going.

Without either, it was frustrating and infuriating.

Let's say you found a stock that looks good fundamentally. The numbers are great.

What next?

You can use a checklist to dig into the company, industry, management etc, but I know it's hard to spend time to create one that you'll use effectively.

What I've found works for me is to have a list of inverted questions.

Not the typical surface layer questions that you can "cheat" on like

- Is this stock cheap?
- Does the company have good management?
- Is the company debt free?

Instead, here's a sampling of the questions I ask and then seek the answer.

- What is the market expecting from this stock?
- Why is the market underpricing or overpricing the stock?
- How can I see this stock is undervalued/overvalued but others can't?
- If another company came along to buy out the company, what will be the upside based on other similar acquisitions? Do the same thing for the downside. Is the upside to downside ratio attractive?
- Are there any detailed interviews about the CEO that dig into his/her character?
- Good or bad history with decisions and people?

Combine your qualitative research with good fundamental analysis and valuation that Old School Value provides you and you'll boost your returns in no time.

To your success.

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