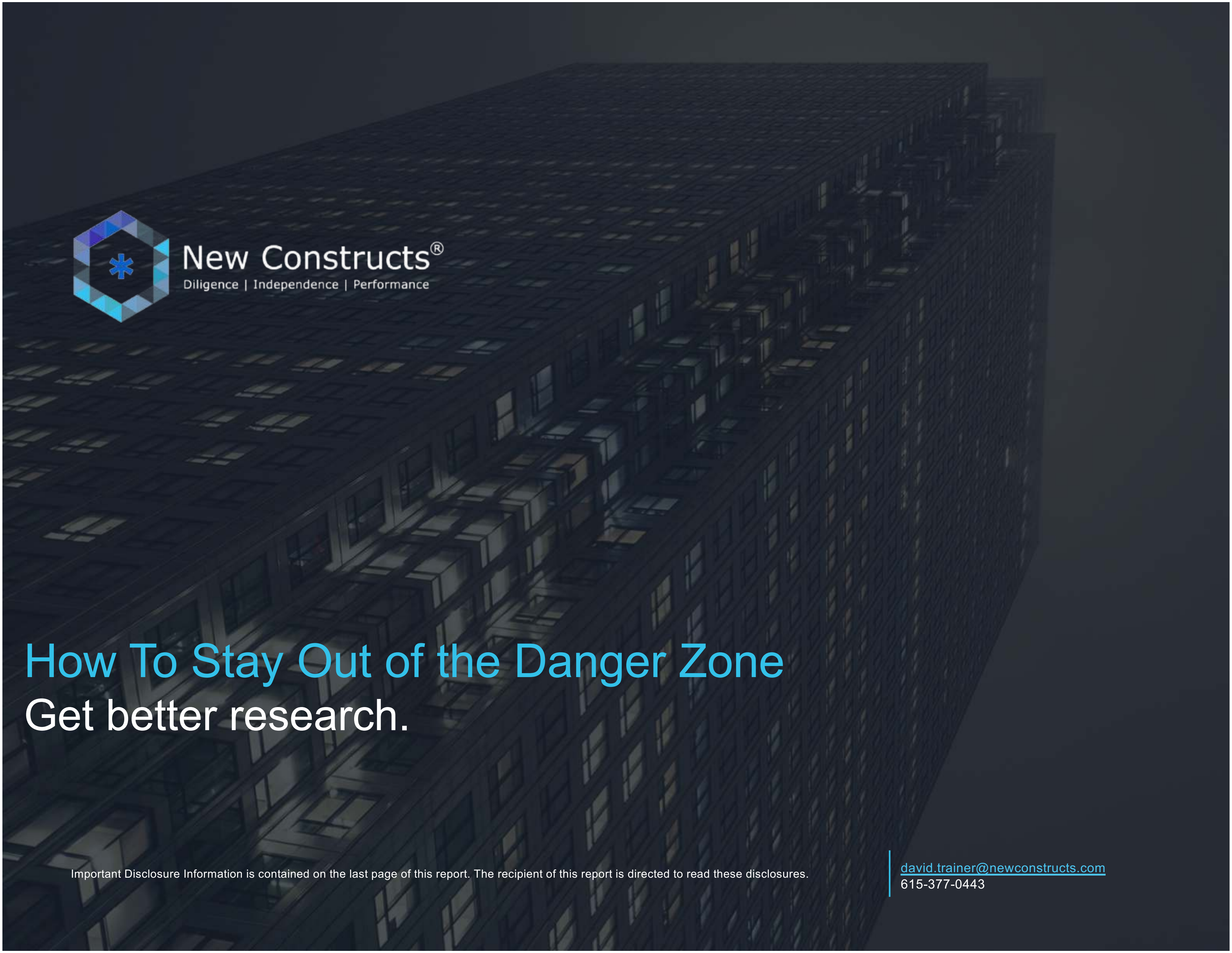

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How To Stay Out of the Danger Zone

Get better research.

Important Disclosure Information is contained on the last page of this report. The recipient of this report is directed to read these disclosures.

david.trainer@newconstructs.com
615-377-0443

AGENDA

1. What puts a Stock in the Danger Zone?
2. Successful Danger Zone picks
3. Who's in the Danger Zone now?
4. How do you protect yourself?
5. Get better research – for free

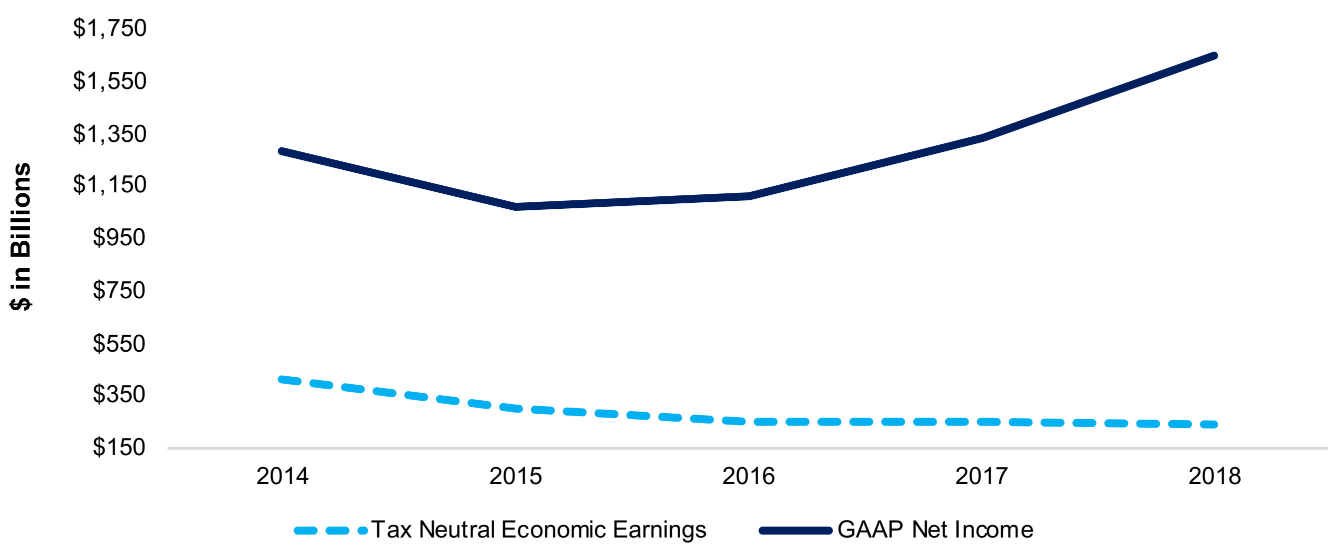
Part I
What Puts a Stock in the Danger Zone?

Misleading Accounting Earnings

(Unscrubbed) Earnings Trends Are Misleading

- "CFOs believe that in any given year a remarkable **one in five firms intentionally misrepresent** their earnings using discretion within generally accepted accounting principles (GAAP). The magnitude of the typical **misrepresentation is quite material: about 10 cents on every dollar**." (Source)
- Economic earnings, which adjust for earnings manipulation and the cost of capital, tell a different story

GAAP Earnings Rising, Economic Earnings Falling



*This graph was created based on information collected and analyzed by New Constructs, LLC. New Constructs regularly gathers information from over 3,000 companies' 10Ks, including the Notes to the Financial Statements and MD&A.

Lack of Competitive Advantage
Low ROIC Reveals Issues

- Return on Invested Capital (ROIC) is the most important measure of profitability.

NOPAT/Average Invested Capital

Or

NOPAT/Revenue * Revenue/Average Invested Capital

- Low and declining ROIC is a good sign that a company lacks a sustainable competitive advantage.
- ROIC drives valuation. Rapid growth with an ROIC below the weighted average cost of capital (WACC) destroys value for shareholders.

Getting to the Truth Behind Valuation

We use three metrics to quantify the growth expectations embedded in a company's stock price:

1. **Free Cash Flow Yield**
   - Free cash flow divided by enterprise value
2. **Price to Economic Book Value (PEBV)**
   - Ratio of market cap to the zero-growth value of the company
3. **Growth Appreciation Period (GAP)**
   - Measures the years of growth required to justify the valuation
   - Uses historical margins and consensus analyst forecasts for revenue growth in our reverse DCF model

How Our Ratings Work

Example of a Very Unattractive Stock

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Rogers Corporation (ROG)

Closing Price: $165.36 (Apr 29, 2019)
Market Value: $3,049 Million
Sector: Technology

Analyst Notes : Most Dangerous Stocks Model Portfolio Apr 2019

Risk/Reward Rating	Quality of Earnings: Econ vs Reported EPS	Quality of Earnings: ROIC	Valuation: FCF Yield	Valuation: Price to EBV	Valuation: GAP
Very Unattractive	**Misleading Trend**	Bottom Quintile	< -5%	> 3.5 or -1 < 0	**> 50**
Unattractive	False Positive	4th Quintile	**-5% < -1%**	**2.4 < 3.5 or < -1**	20 < 50
Neutral	Neutral EE	**3rd Quintile**	-1% < 3%	1.6 < 2.4	10 < 20
Attractive	Positive EE	2nd Quintile	3% < 10%	1.1 < 1.6	3 < 10
Very Attractive	Rising EE	Top Quintile	> 10%	0 < 1.1	0 < 3
Actual Values					
ROG	-$0.44 vs. $4.70	8%	-3%	3.5	> 100 yrs
Benchmarks					
Sector ETF (QQQ)	Positive EE	31%	2%	3.5	54 yrs
S&P 500 ETF (SPY)	Positive EE	19%	2%	2.8	42 yrs
Small Cap ETF (IWM)	Positive EE	6%	-1%	3.3	42 yrs

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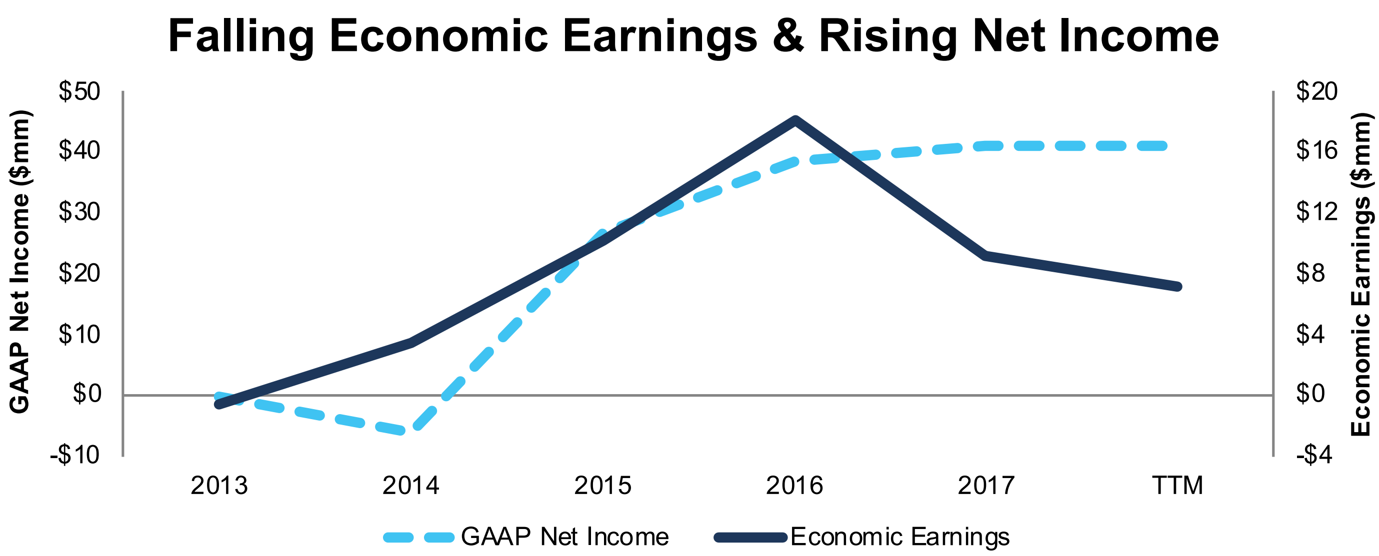
Part II
Successful Danger Zone Picks

Accounting Earnings Mislead Investors

Integrated Building Products (IBP): Warned on 5/21/18

Integrated Building Products (IBP)

- In 2017, GAAP EPS increased by 6%, but economic earnings per share declined by 51%.
- Classic example of a "roll-up", company that grows through overpriced acquisitions that destroy value for shareholders.
- Valuation of $58/share at the time implied that IBP would grow NOPAT by 14% compounded annually for 11 years



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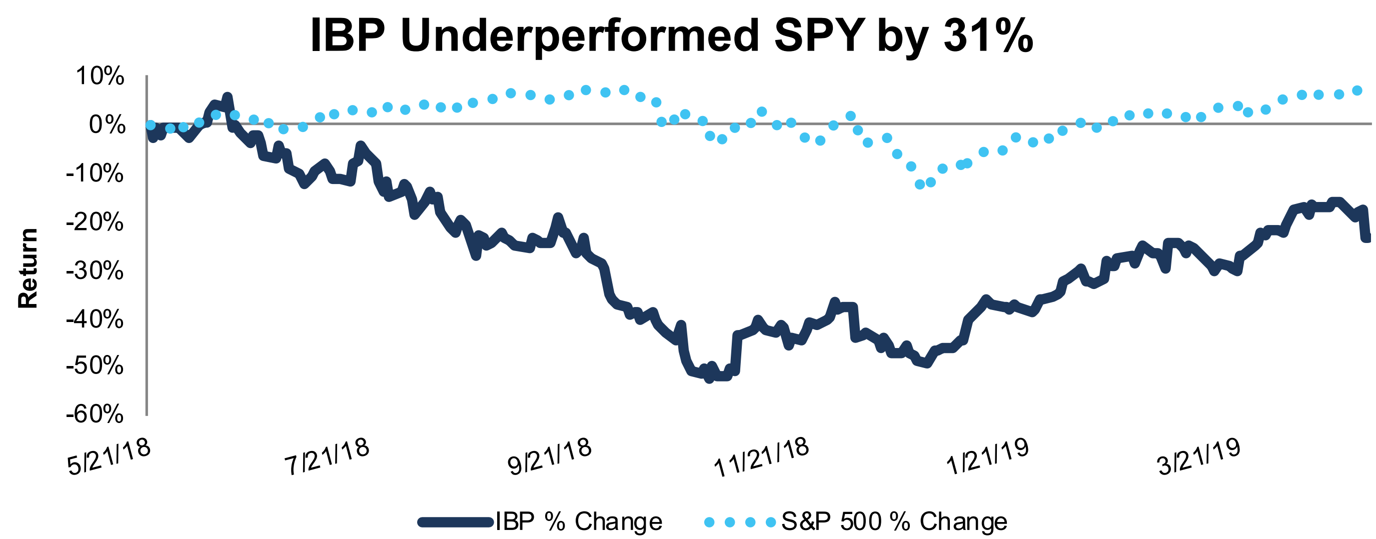
Continue to Stay Away
Integrated Building Products (IBP): Warned on 5/21/18

Integrated Building Products (IBP)

1. Company continues to grow through acquisitions
2. Debt has increased from $190 million in 2016 to over $500 million (36% of market cap) currently
3. Down 23% vs. S&P 500 up 8% since we warned investors on 5/21/18, still rated Unattractive



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Diebold Nixdorf (DBD)

- DBD tried to achieve economies of scale in the ATM space by acquiring a competitor in 2016.
- Declining ROIC and margins showed that in fact the company was falling further behind its peer group as a whole and chief competitor NCR, in particular
- Valuation of $18/share at the time implied that DBD would grow NOPAT by 25% compounded annually for 10 years

Net Operating Profit After Tax (NOPAT) Margin						
Company / Peer Group	**2012**	**2013**	**2014**	**2015**	**2016**	**TTM**
DBD Peer Group Average	11%	11%	10%	10%	9%	9%
NCR Inc.	8%	7%	8%	4%	9%	8%
Diebold Nixdorf Inc.	5%	4%	5%	4%	1%	1%
Margin Disadvantage: DBD vs. Peers	-6%	-7%	-5%	-6%	-8%	-8%
Margin Disadvantage: DBD vs. NCR	-3%	-3%	-4%	0%	-8%	-7%

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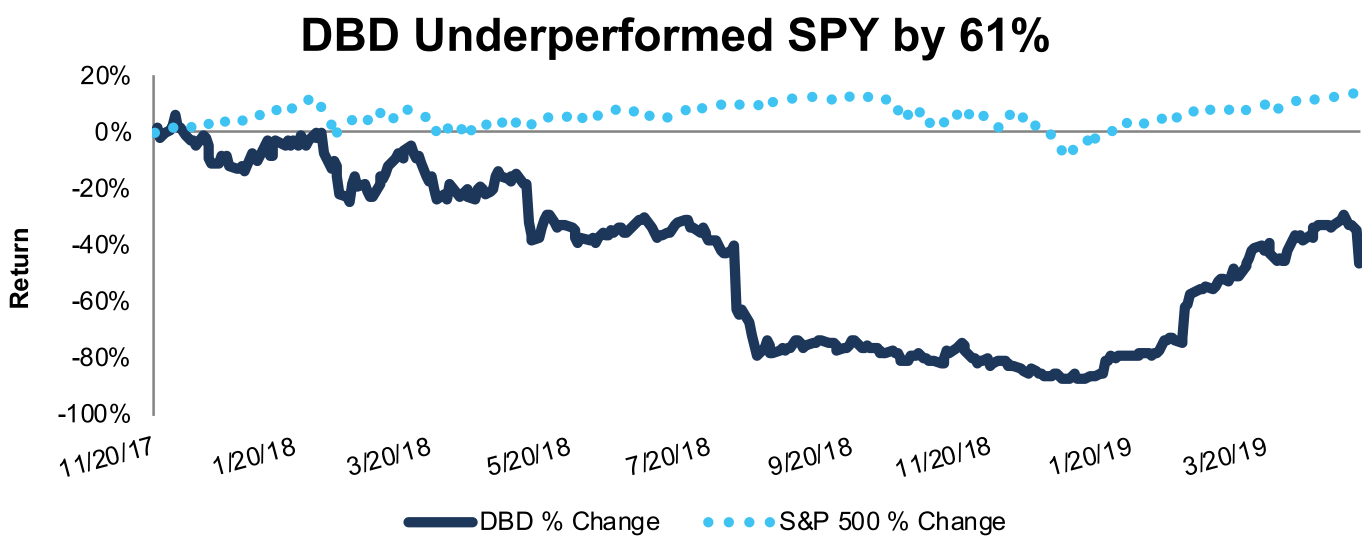
Low ROIC Reveals Competitive Disadvantage

Diebold Nixdorf (DBD): Warned on 11/20/17

Diebold Nixdorf (DBD)

1. Company has missed expectations in its past five earnings reports.
2. ROIC fell below 0 in 2018
3. Down 47% vs. S&P 500 up 14% since we warned investors on 11/20/17, still rated Unattractive



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Unrealistic Valuation
Tuesday Morning (TUES): Warned on 3/17/14

Tuesday Morning (TUES)

- Hopes of a turnaround had driven the stock up 93% in the 12-months before our article.
- Massive growth priced in to the stock: 22% compound annual NOPAT growth for 18 years.
- Unrealistic for a brick and mortar retailer with no online presence
- Down 86% vs. S&P 500 up 58% since we warned investors on 3/17/14, still rated Unattractive

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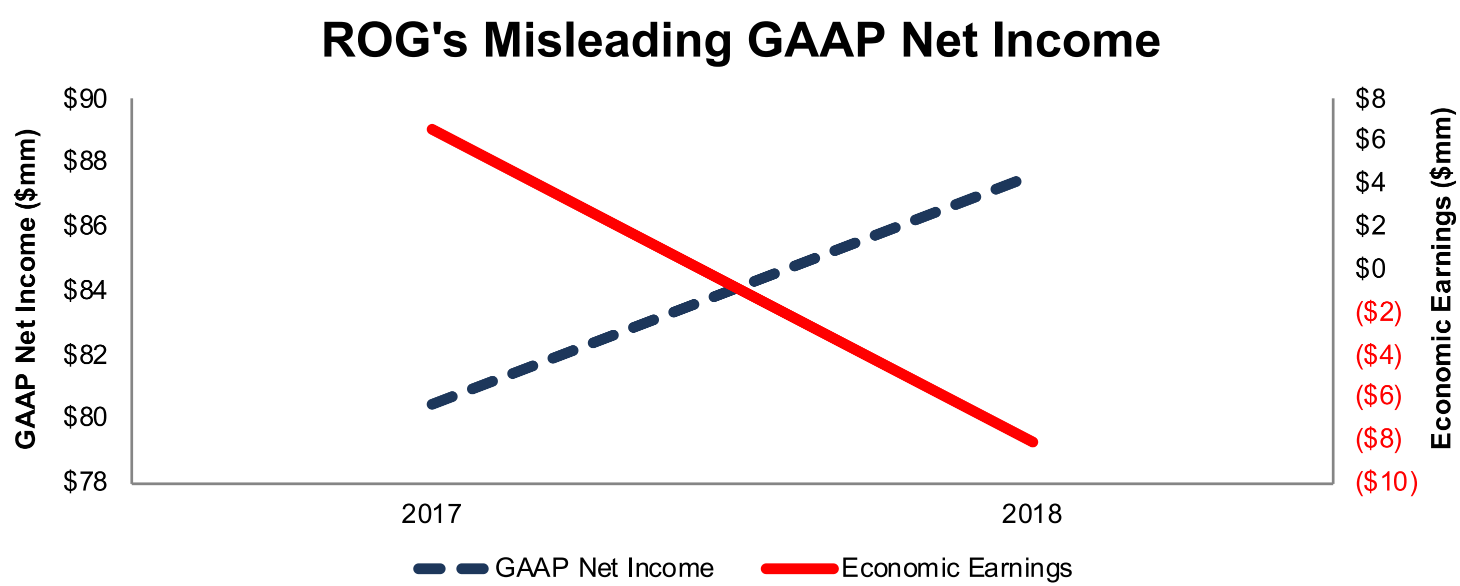
Part III
Who's In the Danger Zone Now?

Current Danger Zone Pick

Warned on 4/29/2019: Rogers Corporation (ROG)

Rogers Corporation (ROG)

1. Electronic components provider, rating breakdown shown on Slide 7
2. GAAP EPS increased by 8% in 2018, but that was entirely due to $14 million in unusual tax charges in 2017
3. Economic earnings fell from $7 million to -$8 million



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Current Danger Zone Pick

Warned on 4/29/2019: Rogers Corporation (ROG)

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Rogers Corporation (ROG)

DCF shows that valuation implies 15% NOPAT CAGR for 10 years

Shareholder Value	$2,001.91	$2,157.30	$2,314.05	$2,472.20	$2,631.74	$2,792.69	$2,955.07	$3,118.88
Shares Outstanding	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4
Shareholder Value per Share	$108.57	$117.00	$125.50	$134.08	$142.73	$151.46	$160.27	$169.15
GAP (Growth Appreciation Period)	3	4	5	6	7	8	9	10
Maximum Loss Exposure from Special Purpose Entities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Decision Page pulls Performance Hurdles values from below for the relevant GAPs								
Total Operating Revenue CAGR	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Average Economic Earnings Margin	5.1%	5.8%	6.6%	7.4%	8.3%	9.2%	10.2%	11.2%
Average ROIC	13.8%	14.5%	15.3%	16.1%	17.0%	17.9%	18.9%	20.0%
ROIC (Return On Invested Capital)	15.2%	16.7%	18.4%	20.2%	22.2%	24.4%	26.9%	29.6%
WACC (Weighted Average Cost of Capital)	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Incremental Return on Invested Capital	-%	-%	-%	-%	-%	-%	-%	-%
Average NOPAT Margin	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%
Average Avg Invested Capital Turns	0.90	0.94	0.99	1.05	1.10	1.16	1.23	1.30
NOPAT CAGR	26.9%	22.4%	19.8%	18.1%	16.9%	16.1%	15.4%	14.8%
Invested Capital CAGR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FCF CAGR	-	-	-	-	-	-	-	-
Economic Earnings CAGR	-	-	-	-	-	-	-	-

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Current Danger Zone Pick

Warned on 3/12/2019: Lyft (LYFT)

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LYFT Inc. (LYFT)
Closing Price: $60.59 (Apr 29, 2019)
Market Value: $17,216 Million
Sector: Technology

Analyst Notes : Added to Coverage Mar 2019

Risk/Reward Rating ⑦	Quality of Earnings: Econ vs Reported EPS ⑦	Quality of Earnings: ROIC ⑦	Valuation: FCF Yield ⑦	Valuation: Price to EBV ⑦	Valuation: GAP ⑦
Very Unattractive	Misleading Trend	Bottom Quintile	< -5%	> 3.5 or -1 < 0	> 50
Unattractive	False Positive	4th Quintile	-5% < -1%	2.4 < 3.5 or < -1	20 < 50
Neutral	Neutral EE	3rd Quintile	-1% < 3%	1.6 < 2.4	10 < 20
Attractive	Positive EE	2nd Quintile	3% < 10%	1.1 < 1.6	3 < 10
Very Attractive	Rising EE	Top Quintile	> 10%	0 < 1.1	0 < 3
Actual Values					
LYFT	**-$4.73 vs. -$3.83**	**-41%**	**-3%**	**-1.2**	**> 100 yrs**
Benchmarks ⑦					
Sector ETF (QQQ)	Positive EE	31%	2%	3.5	54 yrs
S&P 500 ETF (SPY)	Positive EE	19%	2%	2.8	42 yrs
Small Cap ETF (IWM)	Positive EE	6%	-1%	3.3	42 yrs

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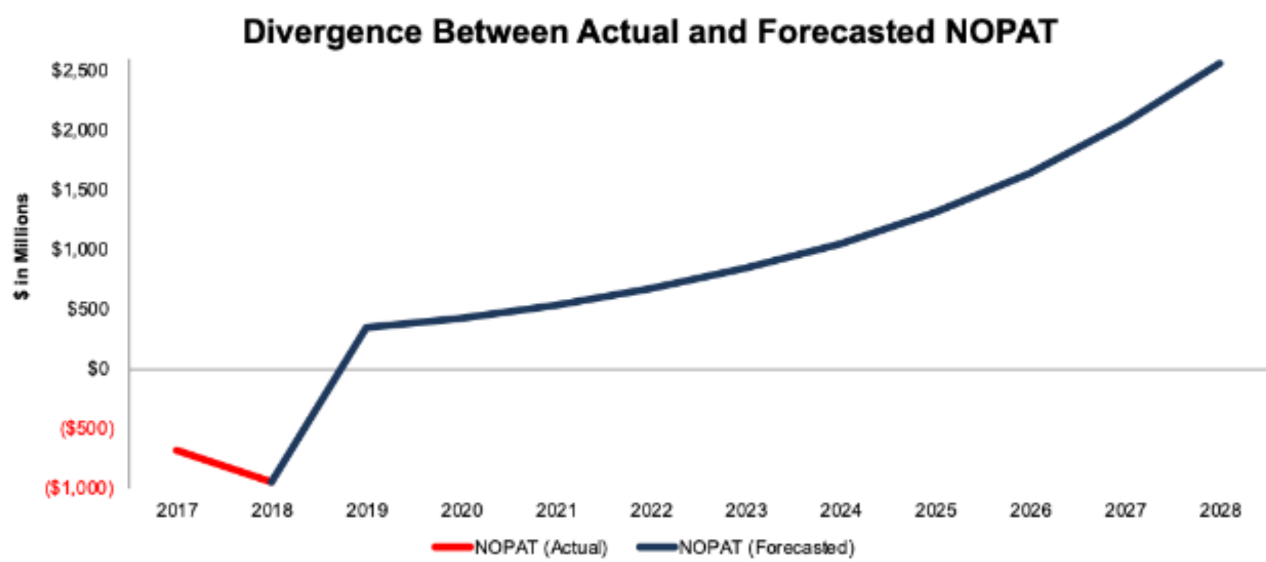
Current Danger Zone Pick

Warned on 3/12/2019: Lyft (LYFT)

Lyft (LYFT)

1. No profits or realistic path to profitability
2. Reported market share of 39% vastly overstated, real market share closer to 29%
3. Initial IPO valuation implied 16% margins (vs. -44% actual) and 25% revenue growth for a decade.
4. Down 17% since IPO on 3/29/19



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Part IV
How Do You Protect Yourself?

WHY DILIGENCE IS NEEDED

Core Problem: GAAP is exploitable.

Only Solution: Read the Footnotes and MD&A.

Traditional P&L	**Economic P&L**
Revenues	Revenues
- operating expenses	- operating expenses
	- **Hidden Incomes/Charges**
= pretax earnings	= pretax earnings
- taxes	- taxes
= Reported Profit	= Profit
	- capital charge/hidden liabilities and assets
	= Economic Profit

WHY DILIGENCE IS NEEDED

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Core Problem: Filings can be 200+ pages long

Only Solution: The Robo-Analyst

1. Robo-Analyst uses machine learning and natural language processing to read 200+ page filings instantly
2. Automatically collects and models thousands of data points, flags unusual items for human analysts to review
3. Technology makes a level of diligence previously reserved for institutional investors available to everyone

WHAT IS DILIGENCE?

Scouring the Footnotes and MD&A of 10-Ks

- Hidden Expenses/Income
- Unrecorded Goodwill
- Impairments
- Unconsolidated Subsidiaries
- Minority Interests
- Unrealized Gains/Losses
- Changes in Accounting Rules
- Derivatives Exposure
- Customer Concentration
- FASB 159
- Employee Stock Options
- Option Valuation Assumptions
- Operating Leases
- Loan Loss/LIFO Reserves
- Pension Assumptions
- Excess Cash
- Pension Over/Under Funding
- Auditor’s Opinions
- Carrying Value vs Fair Value
- Mid-year acquisitions

GETTING TO THE ECONOMICS
Measuring Key Results

- **NOPAT** ⇨ core operating earnings after-tax
- **Invested Capital** ⇨ all cash invested in the business
- **WACC** ⇨ rent management must pay for use of capital

Return on Invested Capital = NOPAT/Avg Invested Capital

<u>Economic Earnings</u> = (ROIC – WACC) * Invested Capital

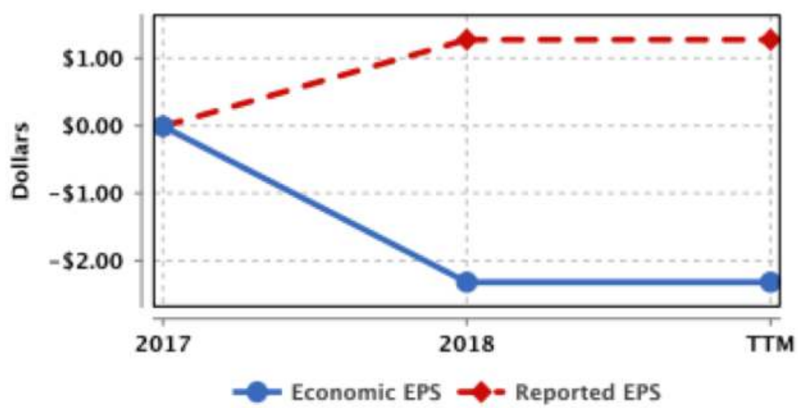
- Aka: “EVA”, economic profit, residual income

Part V
Get Better Research – for free!

GET RESEARCH ON ECONOMIC EARNINGS

Compare reported vs economic results

Accounting vs Economic Earnings



Earnings & Valuation Diligence Summary

- UBER's accounting earnings overstate its economic earnings, which equal (ROIC - WACC) * Average Invested Capital.
- For UBER, we made a total of $15,910 million in income statement and balance sheet adjustments to convert accounting earnings to economic earnings in FY18.
- We made $9,369 million in adjustments in our DCF valuation of the stock.
- See Appendix 1 for details on our calculations of key metrics and Appendices 2 and 3 for details on our adjustments.

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SEE HOW ECONOMIC EARNINGS AFFECT VALUATION

Get more details on drivers of value

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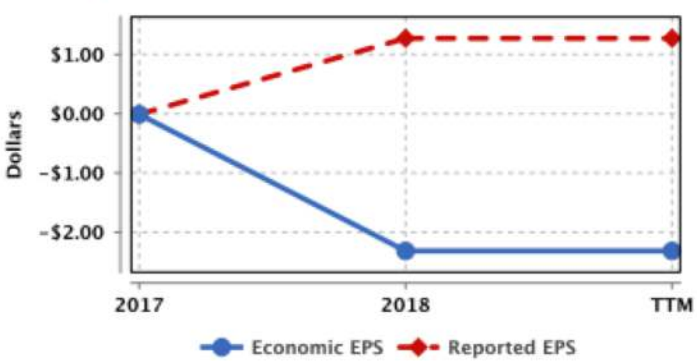
Investment Rating Details

Risk/Reward Rating	Quality of Earnings		Valuation		
	Economic vs Reported EPS	Return on Invested Capital (ROIC)	FCF Yield	Price-to-EBV Ratio	Growth Appreciation Period (yrs)
Very Unattractive	Misleading Trend	Bottom Quintile	<-5%	> 3.5 or -1 < 0	> 50
Unattractive	False Positive	4th Quintile	-5%<-1%	2.4 < 3.5 or < -1	20 < 50
Neutral	Neutral EE	3rd Quintile	-1%<3%	1.6 < 2.4	10 < 20
Attractive	Positive EE	2nd Quintile	3%<10%	1.1 < 1.6	3 < 10
Very Attractive	Rising EE	Top Quintile	>10%	0 < 1.1	0 < 3
Actual Values	($2.32) vs. $1.27	-12%	-11%	-2.1	> 100
Sector ETF (QQQ)	Positive EE	30%	2%	3.5	54
S&P 500 ETF (SPY)	Positive EE	18%	2%	2.8	43

Accounting vs Economic Earnings



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Analyst Notes New 10-Q & Forecast 4/30/19
Focus List (Short) Model Portfolio Feb 2019

ROBO-ANALYST RESEARCH

Closing Price as of 05/06/2019: $255.34
Dividend Yield: -
Period End Date: 03/31/2019

Tesla Inc (TSLA)

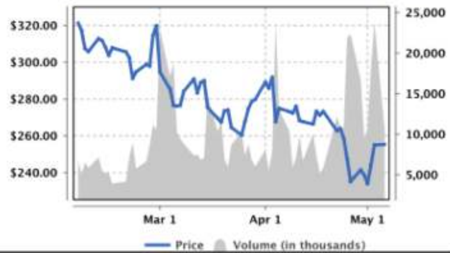
Unattractive

NASDAQ - Consumer Cyclicals

Investment Recommendation

- We recommend investors sell TSLA.
- TSLA earns our Unattractive rating. See Investment Rating Details below.
- An Unattractive rating means this stock has more downside risk than upside potential.
- TSLA ranks in the 29th percentile of the 2800+ stocks we cover.
- Ranks 366th out of 438 Consumer Cyclicals Sector stocks.

Price 05/06/2019:	$255.34
Economic Book Value per share	($78.64)
52-Week Range	$231.13 - $387.46



Investment Rating Details

Risk/Reward Rating	Quality of Earnings		Valuation		
	Economic vs Reported EPS	Return on Invested Capital (ROIC)	FCF Yield	Price-to-EBV Ratio	Growth Appreciation Period (yrs)
Very Unattractive	Misleading Trend	Bottom Quintile	<-5%	> 3.5 or -1 < 0	> 50
Unattractive	False Positive	4th Quintile	-5%<-1%	2.4 < 3.5 or < -1	20 < 50
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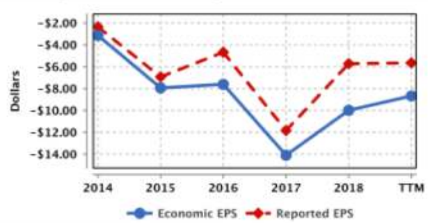
Attractive	Positive EE	2nd Quintile	3%<10%	1.1 < 1.6	3 < 10
Very Attractive	Rising EE	Top Quintile	>10%	0 < 1.1	0 < 3
Actual Values	($8.67) vs. ($5.65)	1%	-1%	-3.2	> 100
Sector ETF (XLY)	Rising EE	17%	3%	4.8	44
S&P 500 ETF (SPY)	Positive EE	18%	2%	2.8	43

Accounting vs Economic Earnings



Earnings & Valuation Diligence Summary

- TSLA's accounting earnings overstate its economic earnings, which equal (ROIC - WACC) * Average Invested Capital.
- For TSLA, we made a total of $9,201 million in income statement and balance sheet adjustments to convert accounting earnings to economic earnings in FY18.
- We made $23,138 million in adjustments in our DCF valuation of the stock.
- See Appendix 1 for details on our calculations of key metrics and Appendices 2 and 3 for details on our adjustments.

Stock Performance

Year to Date	(23.3%)
Last 30 Days	(7.1%)
Last 60 Days	(7.7%)
Last 90 Days	(20.5%)
Last Year	(13.2%)

Key Market Statistics

Enterprise Value (MM)	$59,814
Market Value (MM)	$44,358
EV/EBITDA	29.71
EBV per Share	($78.64)
Shares Outstanding (Thousands)	173,721
P/E (TTM)	-45.20

About New Constructs

New Constructs is an independent equity research firm powered by machine learning. Ernst & Young demonstrated the superiority of our ROIC methodology, data & models. See our website for details.

www.newconstructs.com

Page 1

Tesla Inc (TSLA)

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ROBO-ANALYST RESEARCH

05/07/2019

Economic vs Reported Earnings

Economic Earnings are Neutral

Economic Earnings are almost always meaningfully different than reported earnings. We believe Economic Earnings provide a truer measure of profitability and shareholder value creation than reported earnings because they have been adjusted to remove over twenty accounting distortions.

The majority of data required to reverse accounting distortions is available only in the Footnotes and MD&A, which we analyze rigorously. Our core competency is gathering and analyzing all relevant financial data from filings so that we can deliver earnings analysis that best represents the true profitability of businesses.

Economic Earnings per share (EEPS) for TSLA for the trailing twelve months are ($8.67) compared to reported earnings per share of ($5.65) and earn a Neutral rating. See Appendix 1 for a detailed reconciliation.

Return on Invested Capital (ROIC)

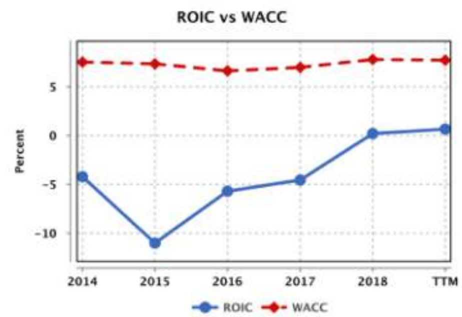
ROIC is Very Unattractive

ROIC measures a company's return on all cash invested in the business. It is the truest measure of profitability. Stock valuations are more highly correlated to ROIC than any other metric.

Weighted-Average Cost of Capital (WACC) is the average of debt and equity capital costs that all publicly traded companies with debt and equity stakeholders incur as a cost of operating.

Companies must earn an ROIC greater than WACC to generate positive economic earnings and create value for shareholders.

TSLA's ROIC of 0.7% for the trailing twelve months earns a Very Unattractive rating. ROIC is calculated as NOPAT of $139 million divided by Average Invested Capital of $20,797 million. See Appendix 1 for a detailed reconciliation.



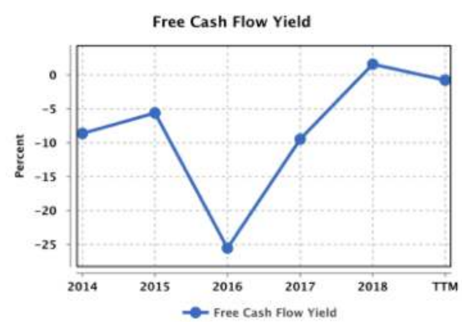
Free Cash Flow Yield (FCF Yield)

Free Cash Flow Yield is Neutral

Free Cash Flow reflects the amount of cash free for distribution to all stakeholders (including debt & equity). FCF Yield divides free cash flow by enterprise value.

Using Free Cash Flow Yield to pick stocks is not a new strategy. However, our strategy yields superior results because we use a better measure of Free Cash Flow. In the same way our Economic EPS are better measures of profitability than reported EPS, our measure of Free Cash Flow is better than traditional accounting-based Free Cash Flow.

TSLA's FCF is ($456) million for the trailing twelve months and its current Enterprise Value is $59,814 million. FCF Yield is (0.8%) and earns a Neutral rating. See Appendix 1 for a detailed reconciliation.



Page 2

Tesla Inc (TSLA)

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05/07/2019

Price-to-EBV Ratio

Price-to-EBV Ratio is Unattractive

Price-to-Economic Book Value (EBV) measures the difference between the market's expectations for future profits and the no-growth value of the stock.

EBV measures the no-growth value of the company based on the company's current Net Operating Profit After Tax (NOPAT).

When prices are higher than EBV, the market predicts the NOPAT of the company will increase and expectations for profit growth are reflected in the stock. If the stock price equals EBV, the market predicts NOPAT will remain the same and there are no expectations for profit growth reflected in the stock. When stock prices are lower than EBV, the market predicts NOPAT will decrease and expectations for permanent profit decline are reflected in the stock.

In general, we like to buy stocks with low expectations for profit growth and sell/short stocks with high expectations for profit growth.

TSLA's current Price-to-EBV per share is (3.2) and earns an Unattractive rating. TSLA's stock price is $255.34 and its EBV per share for the trailing twelve months is ($78.64). See Appendix 1 for a detailed reconciliation.

Growth Appreciation Period

The Growth Appreciation Period is Very Unattractive

The market-implied duration of profit growth or GAP measures the number of years the company must maintain an edge over its competitors by earning ROIC greater than the weighted-average cost of capital on new investments.

We believe TSLA embeds a Very Unattractive level of market expectations because there is a very large difference between the expected financial performance implied by its market price and the company's historical performance.

At TSLA's current stock price of $255.34, the market is expecting revenue to grow at 5.2% for more than 100 years. Over this period, TSLA is also expected to generate an average Economic Earnings Margin of 3.3%.

These results are derived using our dynamic discounted cash flow model.

Performance Hurdles	Historical Performance			Market Expectations
	5 Yr	3Yr	Last FY	Default based on current price
Stock Price	$222.41	$213.69	$332.80	$255.34
Revenue CAGR	60.9%	75.1%	81.2%	5.2%
ROIC - WACC	(10.0%)	(10.0%)	(7.2%)	3.3%
Growth Appreciation Period	-	-	-	> 100 years

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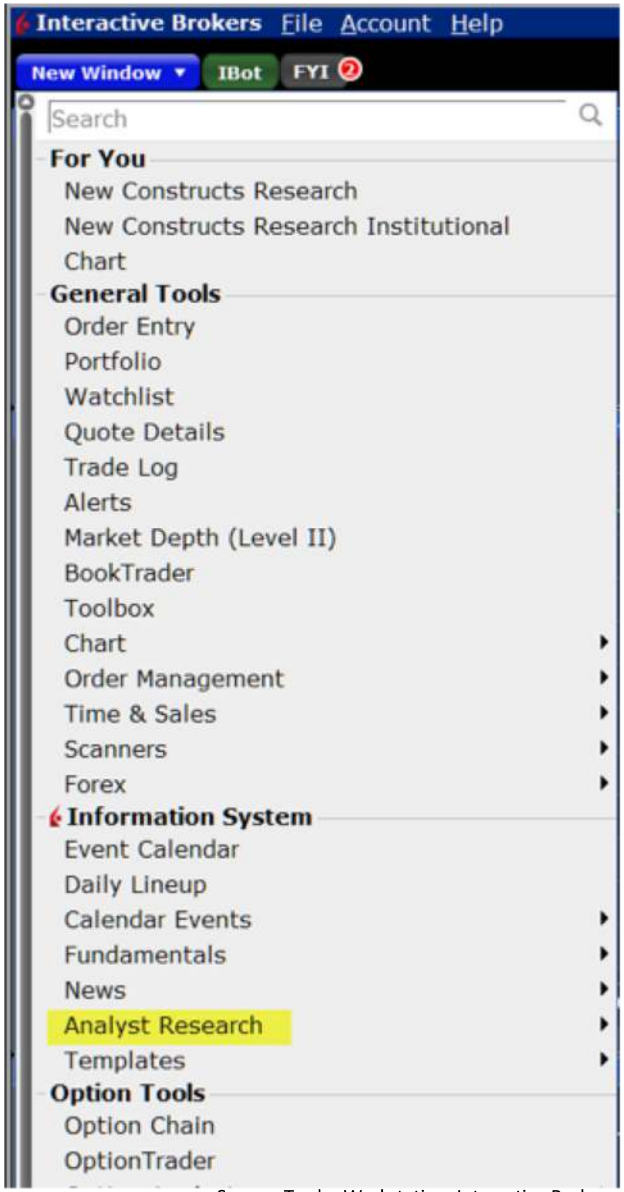
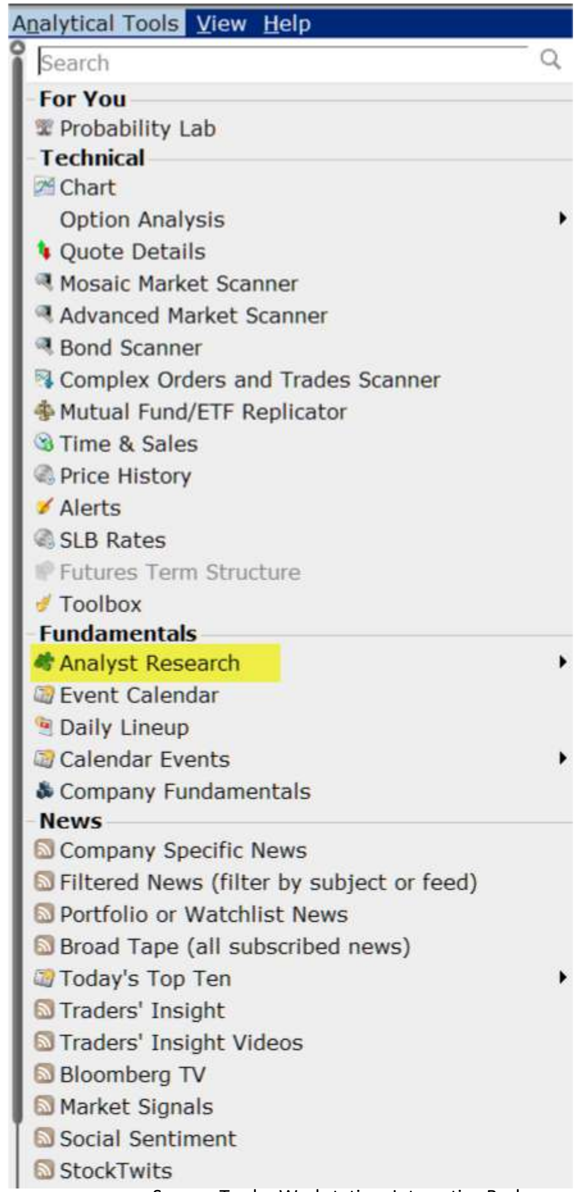
Mosaic



Source: Trader Workstation, Interactive Brokers

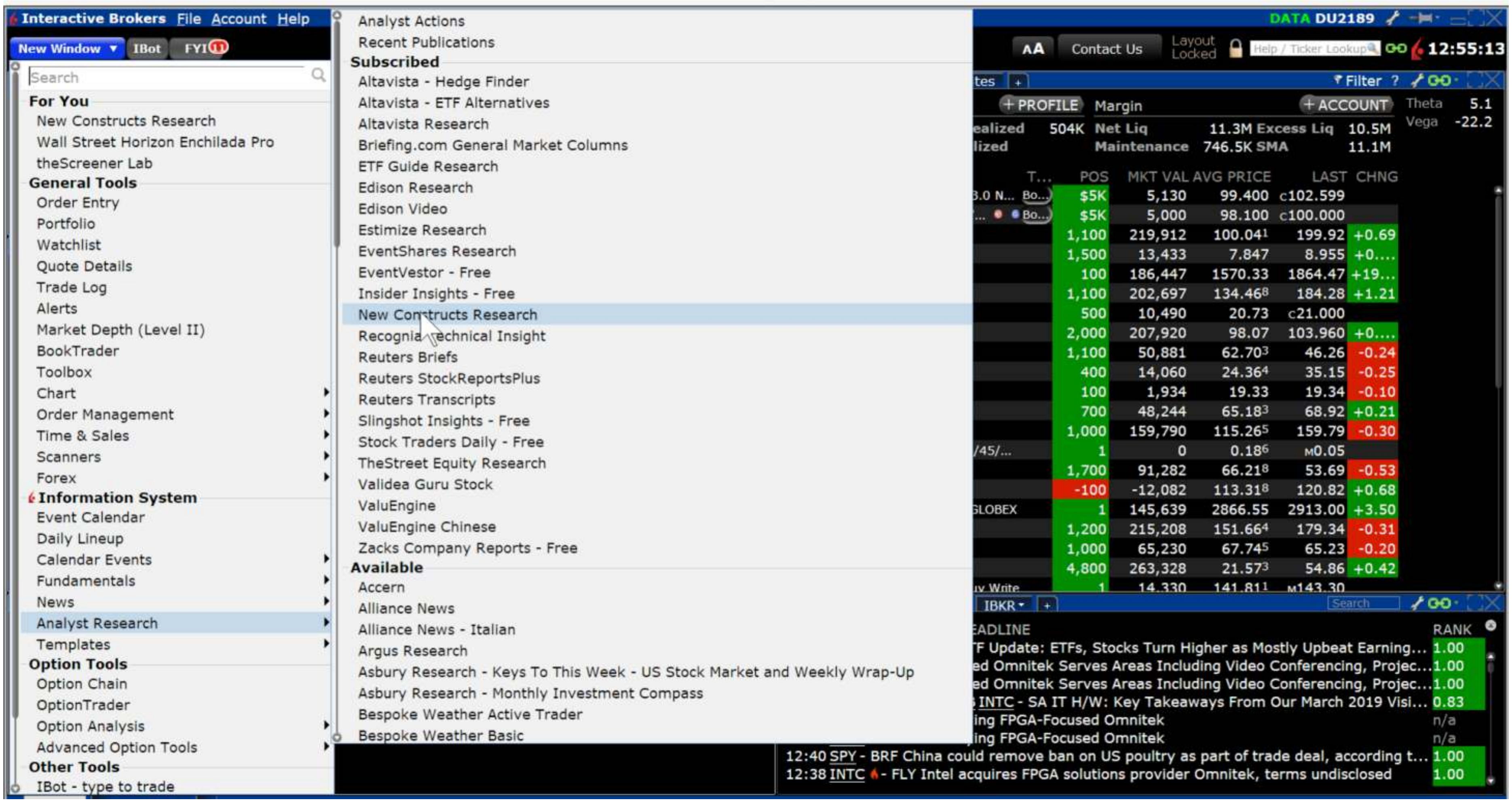
Classic Analyst



Source: Trader Workstation, Interactive Brokers

GET OUR RESEARCH ON IBKR

Pick New Constructs from menu



Source: Trader Workstation, Interactive Brokers

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New Constructs
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MITGX: Upgrade: Fundamental Value Research & Predictive Rating	01/10/19
MRLSX: Downgrade: Fundamental Value Research & Predictive Rating	01/10/19
MVCAX: Downgrade: Fundamental Value Research & Predictive Rating	01/10/19
NSCCX: Upgrade: Fundamental Value Research & Predictive Rating	01/10/19
PEIJX: Upgrade: Fundamental Value Research & Predictive Rating	01/10/19
PMVAX: Fundamental Value Research & Predictive Rating	01/10/19
PWDIX: Downgrade: Fundamental Value Research & Predictive Rating	01/10/19
RICAX: Upgrade: Fundamental Value Research & Predictive Rating	01/10/19
RTDAX: Fundamental Value Research & Predictive Rating	01/10/19
RYAWX: Fundamental Value Research & Predictive Rating	01/10/19
SCURX: Upgrade: Fundamental Value Research & Predictive Rating	01/10/19
SLCGX: Downgrade: Fundamental Value Research & Predictive Rating	01/10/19
SSUAX: Downgrade: Fundamental Value Research & Predictive Rating	01/10/19
TILGX: Downgrade: Fundamental Value Research & Predictive Rating	01/10/19
TWHIX: Fundamental Value Research & Predictive Rating	01/10/19
WEQCX: Downgrade: Fundamental Value Research & Predictive Rating	01/10/19
VFAIX: Upgrade: Fundamental Value Research & Predictive Rating	01/10/19
WPVLX: Downgrade: Fundamental Value Research & Predictive Rating	01/10/19
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Source: Trader Workstation, Interactive Brokers

ERNST & YOUNG SHOWS OUR RIGOR MATTERS

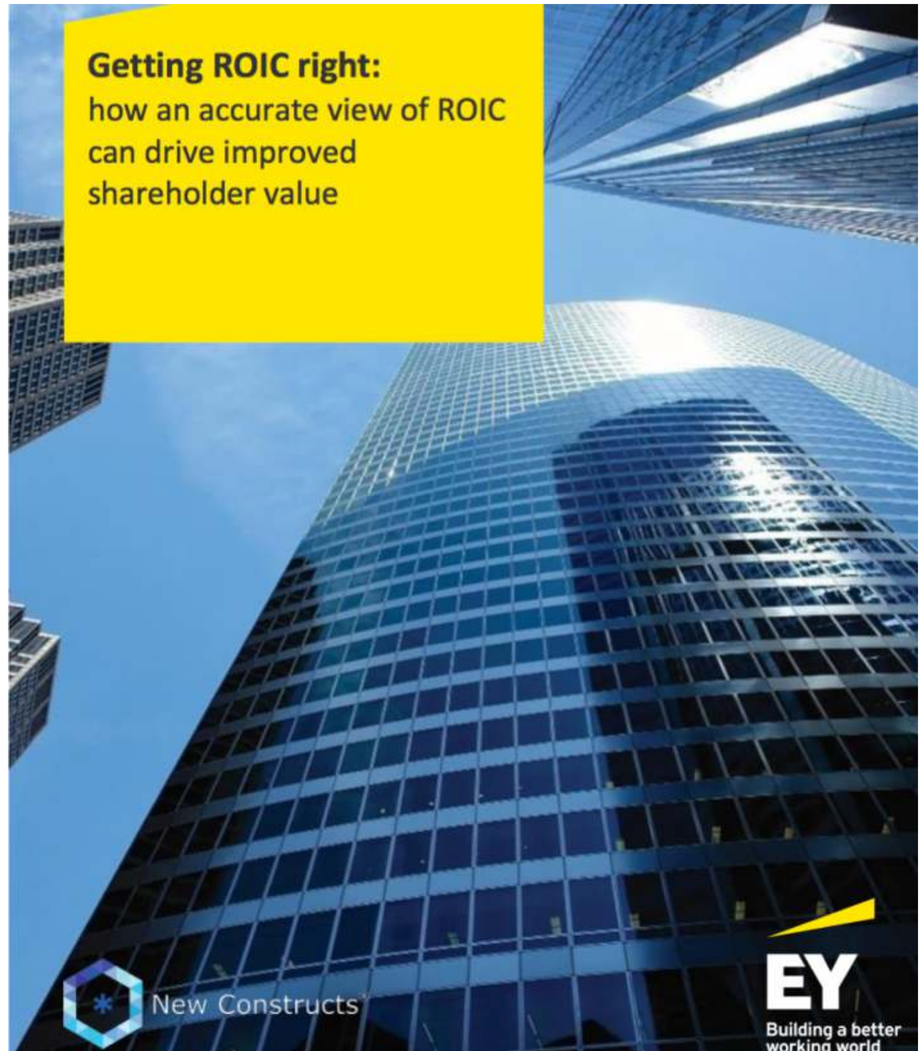
White Paper: Investors Deserve Better Data

- It's not often that a big 4 accounting firm like E&Y features the material superiority of a research firm's analytics.

- The white paper provides specific examples for specific companies.

- Google "Revenue 48,778", "long-term debt 16,215" to see which company is "Peer 1".

Click here for a copy.



POWERFUL RESEARCH AUTOMATION HAS ARRIVED

Technology Provides Only Solution Big Data

New Constructs®
Diligence | Independence | Performance

Harvard Business School Case Study features our Research Automation technology.

“Disrupting Fundamental Analysis with Robo-Analysts”

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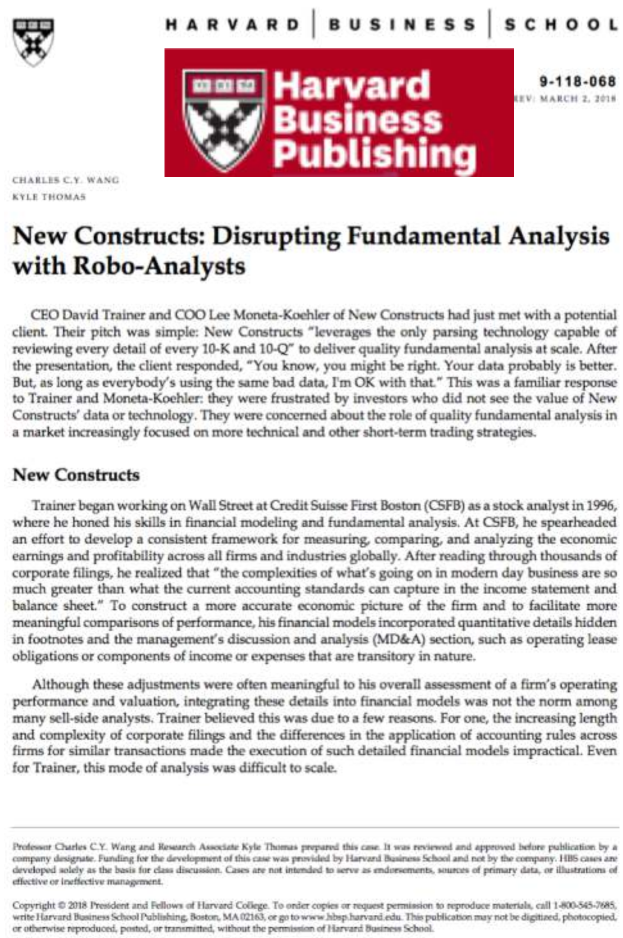

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9-118-068
REV: MARCH 2, 2018

CHARLES C.Y. WANG
KYLE THOMAS

New Constructs: Disrupting Fundamental Analysis with Robo-Analysts

CEO David Trainer and COO Lee Moneta-Koehler of New Constructs had just met with a potential client. Their pitch was simple: New Constructs “leverages the only parsing technology capable of reviewing every detail of every 10-K and 10-Q” to deliver quality fundamental analysis at scale. After the presentation, the client responded, “You know, you might be right. Your data probably is better. But, as long as everybody’s using the same bad data, I'm OK with that.” This was a familiar response to Trainer and Moneta-Koehler: they were frustrated by investors who did not see the value of New Constructs’ data or technology. They were concerned about the role of quality fundamental analysis in a market increasingly focused on more technical and other short-term trading strategies.

New Constructs

Trainer began working on Wall Street at Credit Suisse First Boston (CSFB) as a stock analyst in 1996, where he honed his skills in financial modeling and fundamental analysis. At CSFB, he spearheaded an effort to develop a consistent framework for measuring, comparing, and analyzing the economic earnings and profitability across all firms and industries globally. After reading through thousands of corporate filings, he realized that “the complexities of what’s going on in modern day business are so much greater than what the current accounting standards can capture in the income statement and balance sheet.” To construct a more accurate economic picture of the firm and to facilitate more meaningful comparisons of performance, his financial models incorporated quantitative details hidden in footnotes and the management’s discussion and analysis (MD&A) section, such as operating lease obligations or components of income or expenses that are transitory in nature.

Although these adjustments were often meaningful to his overall assessment of a firm’s operating performance and valuation, integrating these details into financial models was not the norm among many sell-side analysts. Trainer believed this was due to a few reasons. For one, the increasing length and complexity of corporate filings and the differences in the application of accounting rules across firms for similar transactions made the execution of such detailed financial models impractical. Even for Trainer, this mode of analysis was difficult to scale.

Professor Charles C.Y. Wang and Research Associate Kyle Thomas prepared this case. It was reviewed and approved before publication by a company designate. Funding for the development of this case was provided by Harvard Business School and not by the company. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

THE TECHNOLOGY WORKS = DILIGENCE WITH SCALE

3rd-Party Validation By Harvard Business School & MIT Sloan

The Relation between Earnings and Future Cash Flows: A New Perspective*

Ethan Rouen
Harvard Business School

Eric So
Massachusetts Institute of Technology
Sloan School of Management

Charles C.Y. Wang
Harvard Business School

July 2018

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Abstract

We provide new evidence on the usefulness of financial accounting in valuation analysis. A fundamental assumption in the use of GAAP financial statements for valuation is that accrual-based measures of firms' performance convey information about future cash flows incremental to current cash flows. However, recent evidence casts doubt on this assumption. We revisit this issue using a novel dataset that details *all* quantitative disclosures in firms' annual reports and identifies non-core revenues and expenses from net income, including those reported on the income statement and those hidden in the footnotes or the MD&A. Using these data to adjust GAAP net income, we show the resulting measure of core earnings offers forecasting power for future cash flows and earnings that are incremental to traditional measures of performance. These adjustments also better explain contemporaneous market prices and returns. Together, our results suggest that accounting information remains relevant for valuation and highlight the importance of careful accounting analysis for distilling information relevant for forecasting future performance.

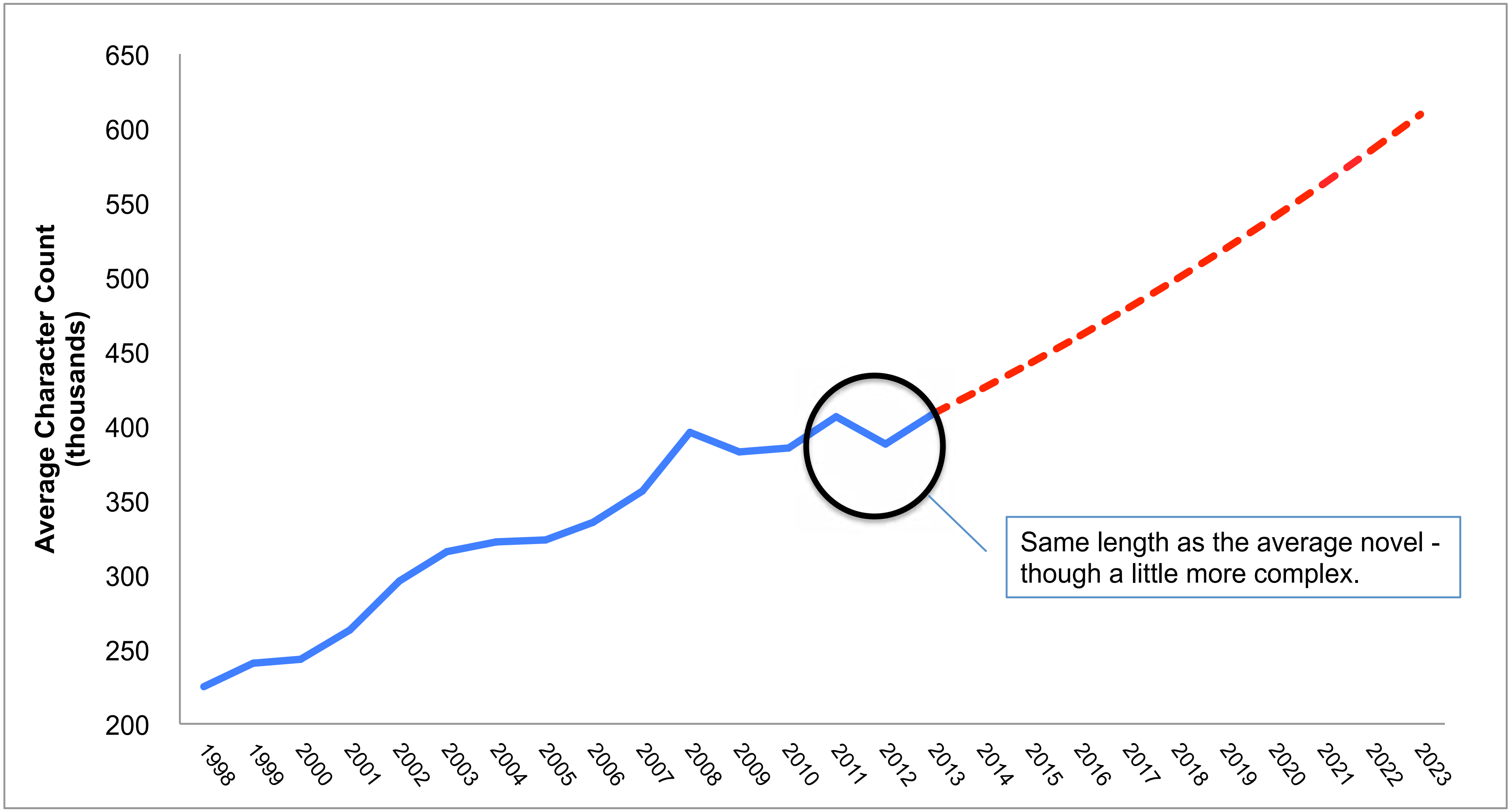
COMPUSTAT & STREET EARNINGS ARE MISLEADING

Quotes from the initial draft of the paper:

- “this paper serves as a warning for researchers seeking to examine the value relevance of earnings.”
- “Data aggregators like Compustat do not appear to collect and provide data on many non-operating or less persistent income-related items, even when managers make these adjustments in non-GAAP disclosures.”
- “We find that, in many instances, Compustat does not report these disclosures— which can appear on the income statement as a separate line item or in the footnotes or the MD&A—in any of its fields.”
- “These shortcomings make it difficult for users to construct a complete picture of a firm’s earnings, but taking additional steps to adjust to GAAP net income can provide valuable insights.”

Part V
Why you need protection now more than ever.

FILINGS GETTING LONGER & LONGER
Keeping Up With Disclosures Is Nearly Impossible



*This graph was created based on information collected and analyzed by New Constructs, LLC. New Constructs regularly gathers information from over 3,000 companies' 10Ks, including the Notes to the Financial Statements and MD&A.

DISCLOSURE TRENDS ARE NOT YOUR FRIEND
More Data, More Noise, More Complexity

- Filings have grown to **200+ pages**

  (That's longer than the average novel.)
- Increasingly complex and time-consuming work
- Accounting rules are constantly changing

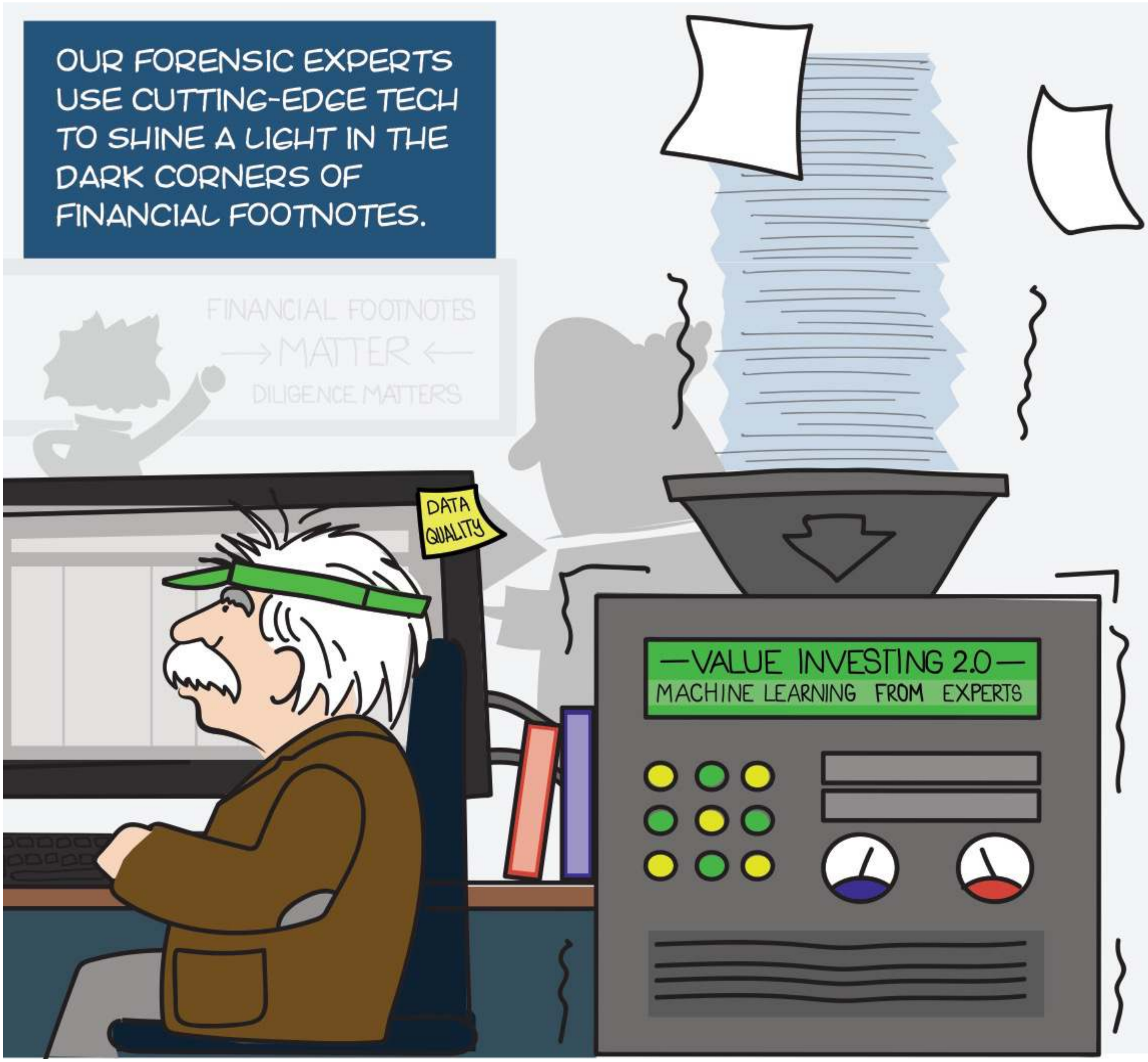
RISE ABOVE RECORD LEVELS OF NOISE
Superior Research Gives You an Edge

TECHNLOGY TO CLOSE THE RESEARCH GAP

Machine are better than humans at some things

MACHINE LEARNING FROM EXPERTS

Human-Validated Parsing Instructions from 140,000+ Filings



GET THE DILIGENCE YOU DESERVE

LEVERAGE THE LATEST TECHNOLOGY AND GET AN EDGE WITH OUR RESEARCH ON STOCKS, ETFS AND MUTUAL FUNDS

Appendix

SUCCESS WITH ELITE INSTITUTIONAL CLIENTS

Self-Directed Clients Are Natural Fit for Simpler Products

New Constructs
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- Top hedge fund and institutional money managers
- Top wealth management firms
- Top advisors
- Top accounting, insurance & consulting firms

Harvard Business School
&
MIT Sloan

EY
REFINITIV
Berkshire Hathaway Specialty Insurance
MarketWatch
AON Empower Results
Fast Money
Wells Fargo Advisors
EAGLE Asset Management
RAYMOND JAMES
Interactive Brokers
Merrill Lynch
Morgan Stanley
E*TRADE
TD Ameritrade
USA TODAY
Forbes
IHS Markit
Fidelity
BARRON'S
SKODA MINOTTI CPAs, BUSINESS & FINANCIAL ADVISORS
RIVEL THE VALUE OF GLOBAL INSIGHT
TechCXO experience › acceleration

HOW THE WEALTH INDUSTRY WORKS WITH US

Multiple models, Great Flexibility

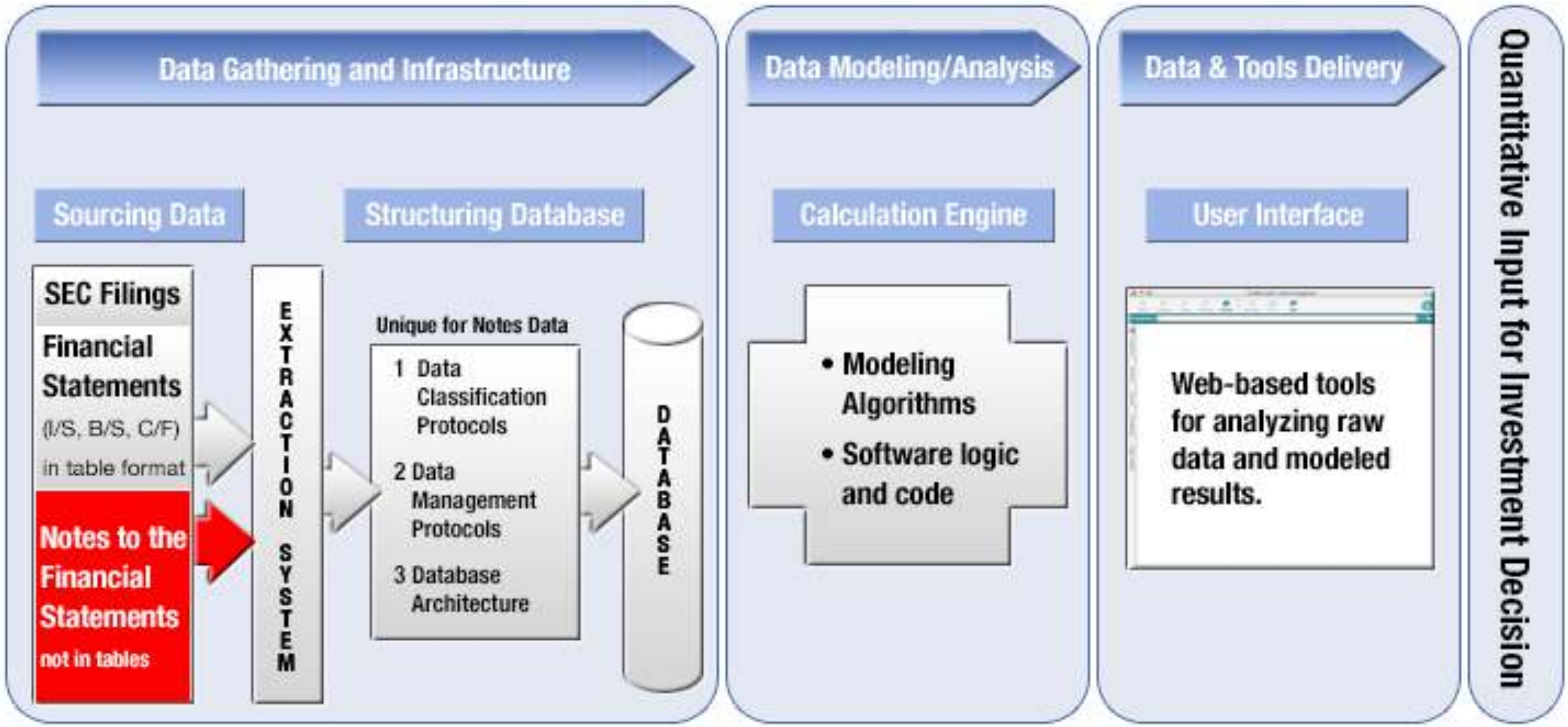
- **Institutions:** full access to models and tool, including database feeds. Directly access thru our website

- **Advisors/RIAs**: firm or group-wide access to unlimited research. Direct access via our website or thru partners.

- **Retail**: individual sign up for Gold, Platinum or Pro subscriptions. Direct access via our website or thru partners.

- **Consultants/Corporates**: custom engagements focused on enterprise value optimization and investor relations strategy. Direct access via our website along with custom work and consultation via partners.

RESEARCH TECHNOLOGY PLATFORM
Data Collection & Modeling Under One Roof



We created our own data collection technology to provide high integrity models to clients. Traditional data feeds are not trustworthy for sophisticated financial modeling.

New Constructs
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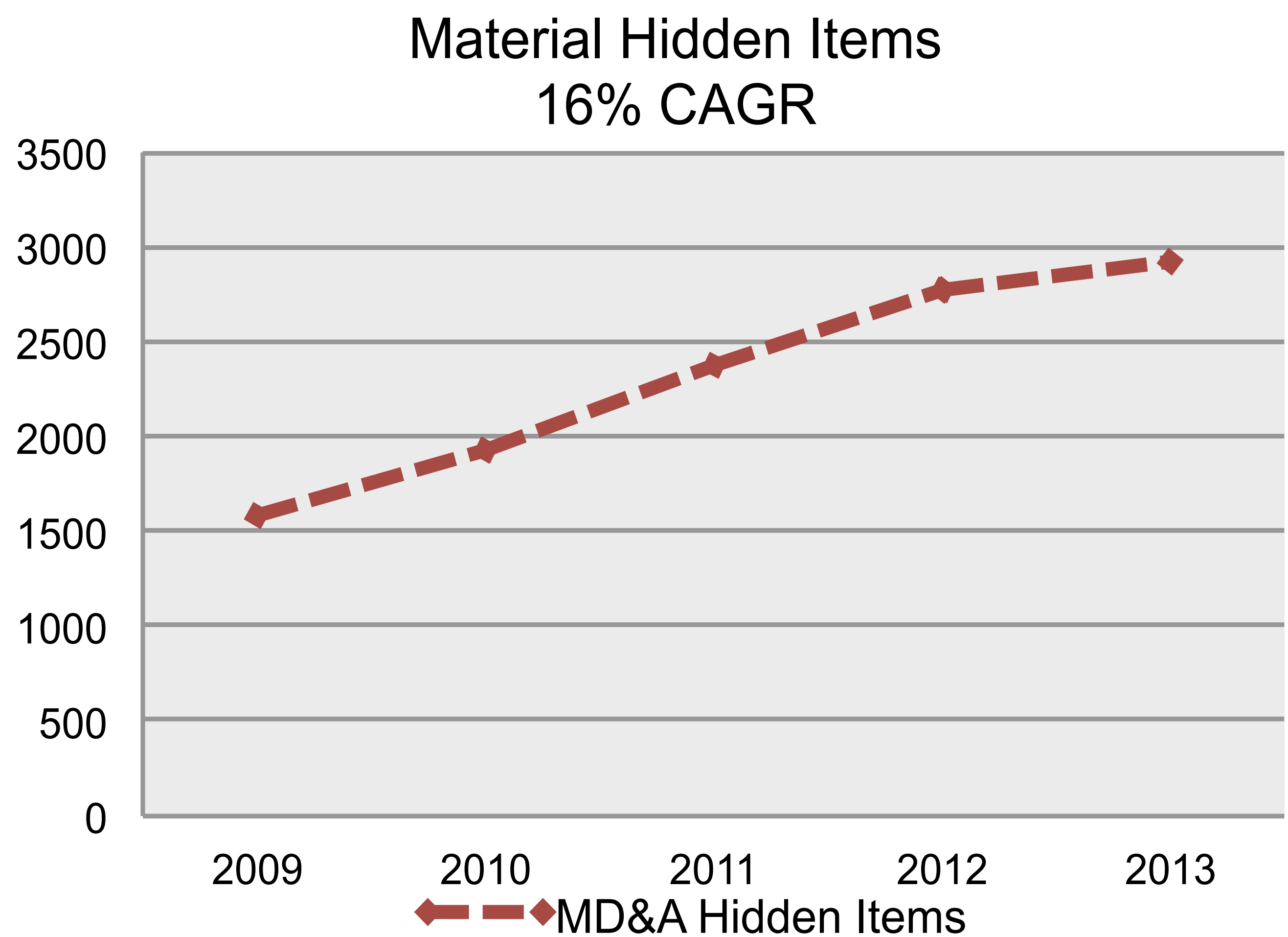
Free Cash Flow: NOPAT minus Change in Invested Capital

How We Compare to traditional approaches to FCF

Traditional Approach → **New Constructs Approach**

Traditional Approach	Quick and Dirty	More Comprehensive	New Constructs Approach
Cash Flow from Ops	EBIT - taxes	EBIT - taxes	NOPAT
		- Change in Net Working Capital	- Change in Net Working Capital (excludes excess cash)
- Capex	- Capex less depreciation	- Capex less depreciation - Acquisitions + Divestitures	- Change in Fixed Assets
= Free Cash Flow	= Free Cash Flow	= Free Cash Flow	= Free Cash Flow

BIGGER HAYSTACKS, MORE NEEDLES



Items found only in the MD&A (e.g. gains, charges, deferred items, etc) that distort income statement results are rising rapidly.

*This graph was created based on information collected and analyzed by New Constructs, LLC. New Constructs regularly gathers information from over 3,000 companies' 10Ks, including the Notes to the Financial Statements and MD&A.

ASSET WRITE-DOWNS ARE A RED FLAG

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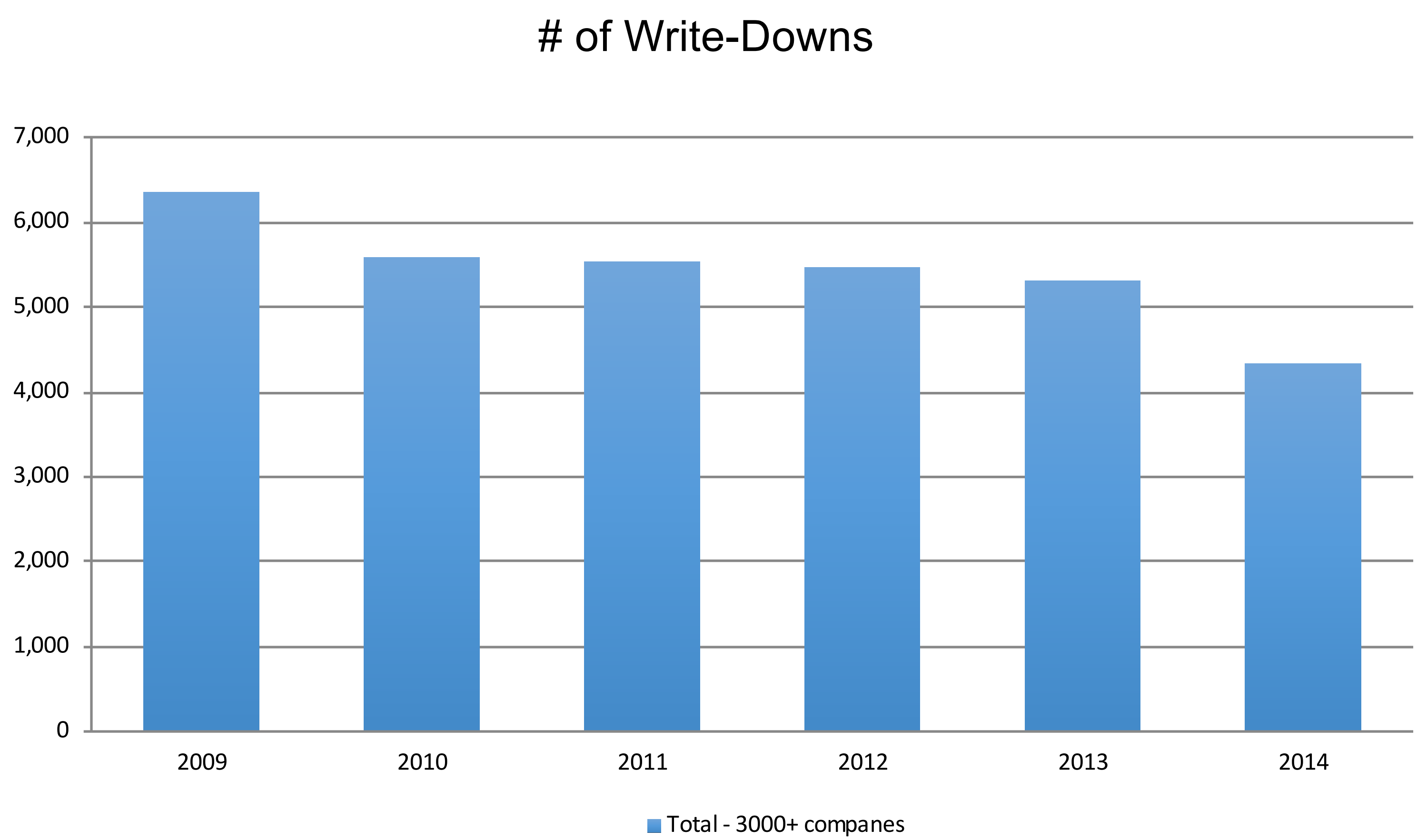
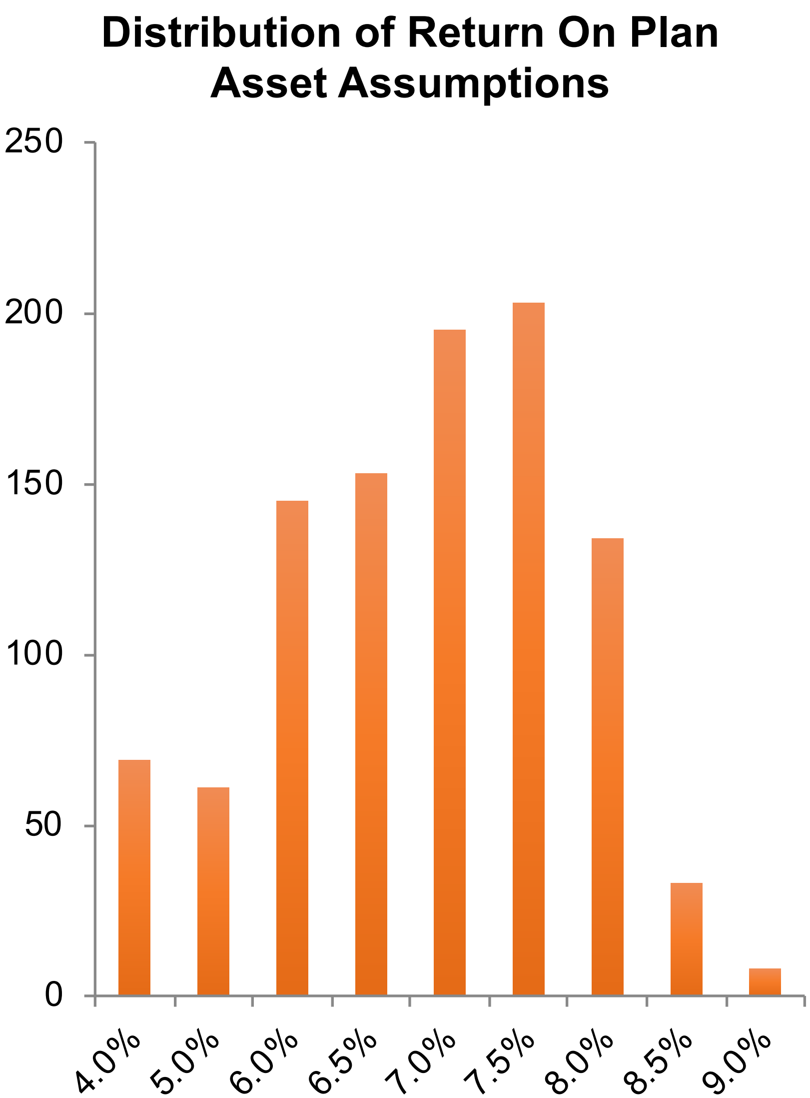
32,583

Over the last 5+ Years, we found 32,583 write-downs.



*This graph was created based on information collected and analyzed by New Constructs, LLC. New Constructs regularly gathers information from over 3,000 companies' 10Ks, including the Notes to the Financial Statements and MD&A.

MANAGEMENT'S INFLUENCE ON PROFITS



Auditors & investors need to know this data.

- Raising the expected Return on Plan Assets (EROPA) reduces reported pension expense.
- The mean EROPA for 2014 was 6.5%. Roughly 55% of companies expect a long-term return on plan assets between 6.5% and 7.5%.
- Virtusa Corp (VRTU) has the most aggressive assumptions, with EROPA of 10.38%, followed by Exlservice Holdings (EXLS) at 9%.

*This graph was created based on information collected and analyzed by New Constructs, LLC. New Constructs regularly gathers information from over 3,000 companies' 10Ks, including the Notes to the Financial Statements and MD&A.

100% UNCONFLICTED

New Constructs has no trading, corporate or banking ties – no conflicts.

- *Morningstar gets paid by fund companies. Fund companies must license ratings from Morningstar to use them in marketing materials.*

New Constructs = unadulterated expertise in accounting, finance and SEC filings.

HOW HAS INVESTING CHANGED OVER THE YEARS?

Shorter Holding Periods for Stocks

- Until mid-1960's average holding period was seven years
- Today, average holding period is less than one year and annual portfolio turnover is more than 100%[1]

Major Reactions to Quarterly Earnings

- Stock prices make large moves in response to earnings surprises
- Suggests that long-term cash flows are less important

Amateur Individual Investors - Growth Market

- Schwab, TD Waterhouse, Scottrade
- Day trading

Media - Growth Market

- TV: Mad Money, CNBC Squawk Box, and Squawk on the Street
- Print: Wall Street Journal, Investors Business Daily, local newspapers
- Web: Motley Fool, TheStreet.Com, CBS MarketWatch

[1]Rappaport, Alfred. "The Economics of Short-Term Performance Obsession." *Financial Analysts Journal*, vol. 61, no. 3 (May/June): 65-79.

WHICH ARE YOU: INVESTOR OR SPECULATOR?

Speculator

"If you are a speculator, your decision to buy or sell is based on what you believe about the near-term direction of price."
- Ben Graham

"…speculation is the activity of forecasting the psychology of the market."
- John Maynard Keynes

Vs.

Investor

"If you are an investor, your decision to buy and sell is based on the underlying economics of the stock you own."
- Ben Graham

"Investing is an activity of forecasting the yield on assets over the life of the asset…"
- John Maynard Keynes

ONLY 3 WAYS TO BEAT THE MARKET

Better Data - difficult and expensive to obtain

- Gathering and analyzing data from the Notes to the Financial Statements provides a competitive advantage.

Better Analysis - not just your neighbor, one must out-think the entire market

- Better data means better models.
- Better models provide better analysis.

Better Discipline - stick to your guns, don't follow the herd.

- Long and short strategy is built on specific, quantifiable thresholds derived from a model we can trust.
- Our models do all the number crunching to supply our human capital with superior information and decision-making capabilities.

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