TELLING A STORY WITH NUMBERS:

guidelines to writing investment research on a company

In understanding a company, be it a manufacturer, a bank, a hi tech start-up or business that is internet-related, we mostly look at financial ratios, numbers, balance sheets and income statements to see how it is performing. Yet, even though these are important, it is equally important to have a clear idea of what the company is doing, and how it is doing it. For this we need to create a narrative, a story, to explain clearly to investors what management is doing, what is the companyôs background and how we see its future prospects, above all the value drivers which create sustainable profitability. We obtain this story from talking with management, listening carefully to what they say, and critically evaluating their intentions and their results, and of course, going over the companyôs reports. The following points outline how to create a narrative for a company through investment analysis. Many of them are taken from the book ñNarrative and Numbersò, written by Aswath Damodaran, and complemented by members of the CFA Society of Mexico.

I. The Essence of a Good Narrative

In particular, a business narrative needs the following ingredients to work:

1. It has to be simple: A simple story that makes sense will leave a more lasting impression than complex story in which it is tough to make connections.
2. It has to be credible: Business stories need to be credible for investors to act on them. If you are a skillful enough storyteller you may be able to get away with leaving unexplained loose ends, but those loose ends will eventually imperil you story and perhaps your business.
3. It has to inspire: Ultimately, you donôt tell a business story to win creativity awards but to inspire you audience (employees, customer, and potential investors) to buy into the story.
4. It should lead to action: once your audience buys into your story, you want them to act, employees by choosing to come to work for company, customers by buying your products and services, and investors by putting their money in your business

The bottom line for a business narrative is that it is less about specifics and details and more about big picture and vision.

The second step is looking at the looking at the larger market in which the company is operating or plans to operate. Table 1 contains a checklist of some of the questions for which you are trying to find answers.

Table 1
Market Analysis

Category	Questions	Comments
Growth	How quickly is the overall market growing? Are some parts of the market growing faster than others?	*In addition to looking at the average growth rate over time, you also want to detect shifts in the market across product lines and geographies.*
Profitability	How profitable is this business, in the aggregate? Are there any trends over time in the profitability?	*Look at profit margins (gross, operating, and net) and accounting return trends over time.*
Investing for growth	What assets do companies in this business have to invest in, to grow? How much investment are companies making collectively in this business to generate their growth? How easy is it to scale up?	*With manufacturing companies, investment is generally in plant, equipment and assembly lines, but with technology and pharmaceutical companies, the investment may take the form of R&D.*
Risk	How much do revenues and earnings very across time? What are the forces that cause these operating numbers to change? How much debt (or fixed commitments) do companies in this business tend to carry? What are the risk that companies in this business may fail? What is the trigger (debt payments due, or running out of cash) that causes failure?	*Volatility in your revenues/earnings can be caused by macroeconomic variables, which can include interest rate, inflation, commodity price, and political risk, or from company-specific variables.*

II. The Competition

The final piece of this pre-work is to assess your competition, current and potential. Building on the dimensions of growth, profitability, investment, and risk that you estimated for the entire sector or business, you now look at variations on those dimensions across companies within the market.

Table 2
Competitive Analysis

Category	Questions	Comments
Growth	Are there big differences in growth across companies within the business? If there are big differences, what are the determinants of these differences?	*If companies in the business are growing at different rates, you are trying to assess whether it is related to size, geography, or market segment.*
Profitability	Are there big differences in profitability across companies within the business? If there are big differences, what are the determinants of these differences?	*If there are big differences in profit margins across, companies, you are looking to see what types of companies earn the most and which ones the least*
Investing for growth	Is there a standardized investment model that is used by all companies in the market? If not, are there differences in profitability and growth across companies with different models?	*As companies in this business, you are checking to see whether their investing needs decrease (economies of scale and networking benefits) or increase (with more competition).*
Risk	Are there big differences in risk (earnings variability and survival) across companies within the business? If there are big differences, what are the determinants of these differences?	*You are interested in whether there are variations in risk (operating and survival) across companies, and if so, what causes those variations.*

III. Strategy and Management

This is the most important decision in a company:

- How should we compete in this industry?
- What actions/decisions should we make to implement our competitive goals?
- Try to identify the strategy:

    a) High Growth/lower margin
    b) Low growth/high margin
    c) Invest in certain brands, discard others
    d) Geographic/sector focus or global.
    e) Organic/acquisition
    f) Other.

- Identify the main ñValue Driversò of the company: how do they contribute to the bottom line?
- Management: how good are they at: a) formulating a plausible strategy, b) executing strategy-their history; c) communicating strategy, d) maintaining consistency over time, e) obtaining results.

IV. Financial Numbers and Statistics
(we include the main ones, not all)

	Investment Valuation 3rd Edition	
	Page	**Website** (add xls:)
A. Basic Numbers:		
▪ Growth in revenue last 10 years/ last 5 years.		
▪ Growth in operating margin.		
▪ Change in the margin.		
B. Financial Ratios:		
▪ Total Capital: Debt to Equity (long-term burdensome debt)	218-220	waccalc.
▪ Reinvestment rate: Recent (last 5-10 years)	258-269	capex./wcdata.
▪ Return on Invested Capital (ROIC): (Sales/Capital x Operating profit/Sales)	45-47	mgnroc.
▪ Cost of Capital.	154-180+ 183-222	ctryprem. betas.
▪ Profitability of acquisitions	702-728	synergy.
C. Projections:		
▪ 5 years + 1 year for perpetuity	285-303	Fundgr.
▪ Revenue/Margin/Reinvestment / After-tax cash.	285-303	margins.

- Change in level of debt -
- Reinvestment: financing. -
- Long-term growth rate; maximum 3.0%

(Preferably in pesos, and use country risk premium for discount rate). 304-321 divfund.

V. Format

Write clearly *Short sentences (one or two lines); short paragraphs (10-12 lines).*

Be Selective: *Only use graphs and tables which are really useful for indicating changes.*

Highlight: *The row or column which is key.*

Bullets: *Use as much as possible.*

Visually attractive: *Do not clutter pages with lots of numbers, statistics, graphs, etc. Use only two/three per page.*

Explain: *Explain a table or graph: e.g.* **ñ***Figure 2.0 shows the evolution of sales + margins over the past 3 years. Here we can see***é ò**

Consistency: *Check graphs/tables versus the text: avoid abstract or theoretical diagrams (e.g. the porter diagram). Theory is for the classroom..*

Mathematics: *Be sure they are necessary. Scenario analysis may be better than Monte Carlo simulations.*

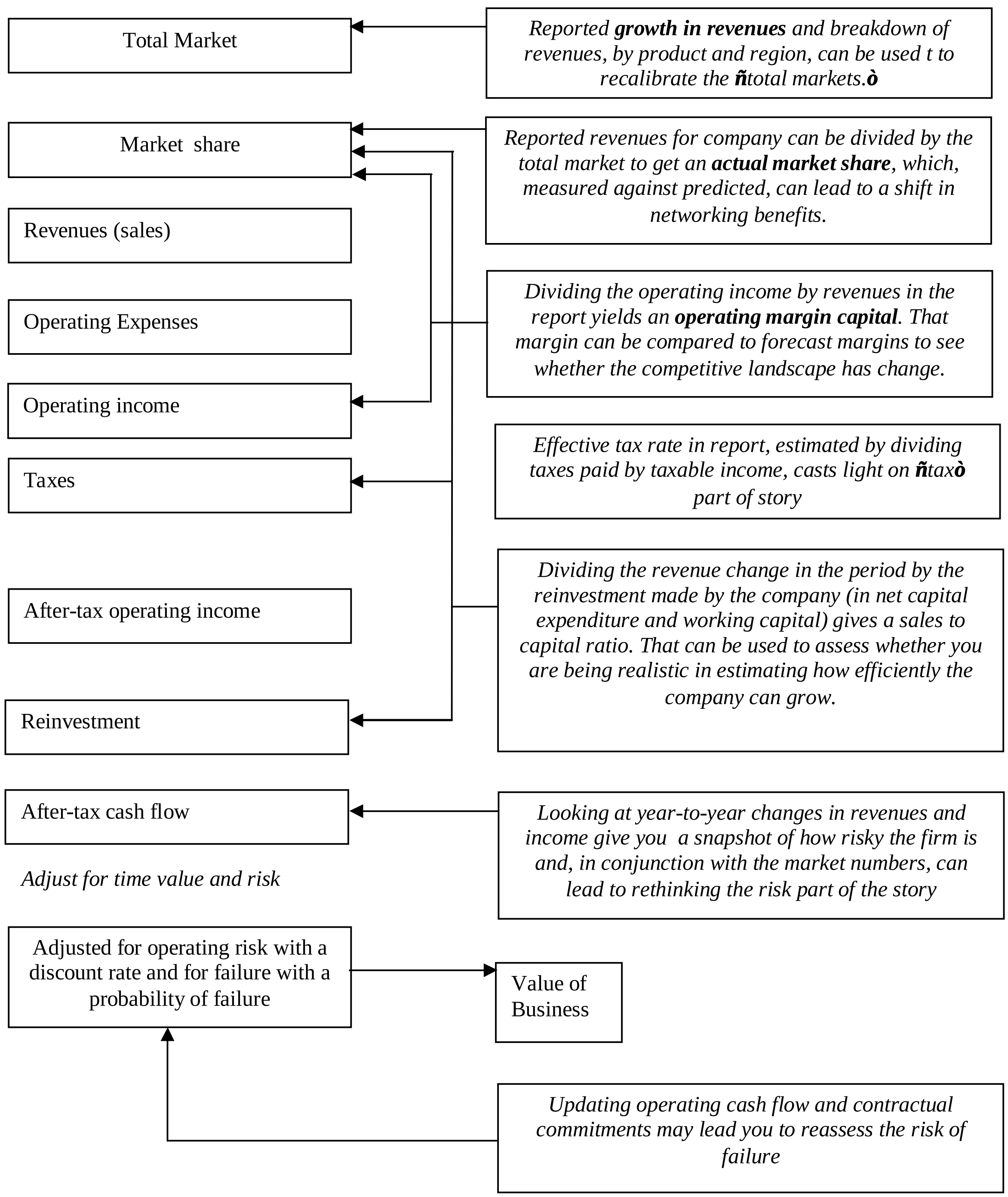
VI. Example

The following are examples of two research pieces done by distinguished and very competent analysts.
BLACKBERRY is written by David Gardner, founder of The Motley Fool, an independent research company . It is about <u>a turnaround</u>.
Notice how Gardner makes it interesting, and captures the attention from the beginning. He uses very little numbers in the text - only enough to make his point.
The second is about FERRARI. Damodaran uses numbers and estimates to pose two scenarios: i) High growth and lower margin, ii) lower growth, exclusivity and high margin.

It is instructive to see the statistics, calculations and projections of Damodaran. In three pages he builds an investment decision.

Finally, we include the steps to analyze an Income Statement, which may be helpful.

Análisis of The Income Statement



CASE STUDY 9.2: FERRARI—VALUING THE EXCLUSIVE AUTO CLUB

Lead-in case studies:

Case Study 6.1: The Auto Business, October 2015
Case Study 6.4: The Ferrari Narrative, October 2015
Case Study 7.2: Ferrari, the Exclusive Auto Club
Case Study 8.2: Ferrari—From Story to Numbers

My story for Ferrari in chapter 6 is that it will remain an exclusive auto company, settling for low growth with high margins and low risk. I also looked at an alternative higher-growth story for Ferrari in chapter 7, albeit with lower margins and higher risk. In chapter 8 I connected both stories to valuation inputs, and table 9.3 summarizes those numbers.

Using these inputs, I first valued Ferrari as an exclusive club in table 9.4 and then did a valuation based on the faster-growth narrative in table 9.5. I estimate the value of Ferrari's equity to be €6.3 billion in the former and €6.0 billion in the latter. If you are surprised that the higher-growth story does not deliver a higher value, it is because it is weighed down by the lower operating margins and higher cost of capital.

Table 9.3
Ferrari Valuation Inputs

	My exclusive club	Rev it up
Currency choice	Euros	Euros
Revenue growth	4.00% for next 5 years, dropping to 0.70% in stable growth.	12.00% for next 5 years, dropping to 0.70% in stable growth.
Pre-tax operating margin (and taxes)	Operating margin stays at 18.20% (current level), tax rate of 33.54%.	Operating margin drops to 14.32% over the next 10 years, as a result of lower-price cars and increased marketing costs.
Reinvestment	Sales-to-capital ratio is 1.42, but reinvestment is low, because revenue growth is low.	Sales-to-capital ratio 1.42, but much more reinvestment is needed, since sales increase more.
Cost of capital	Cost of capital is 6.96%, reflecting superrich customers.	Cost of capital is 8.00%, since very (but not super) rich are more affected by economy.

Table 9.4

Ferrari, the Exclusive Club

The story

Ferrari will remain an exclusive club, selling relatively few cars at very high prices and with no advertising, to the superrich, who are unaffected by economic ups and downs.

The assumptions

	Base year	Years 1–5	Years 6–10	After year 10	Story link
Revenues (a)	€2,763	CAGR* = 4.00%	4,00% → 0.70%	CAGR* = 0.70%	Low growth to stay exclusive
Operating margin (b)	18.20%	18.20%		18.20%	High prices + No advertising costs = Current
Tax rate	33.54%	33.54%		33.54%	Stays unchanged
Reinvestment (c)		Sales-to-capital ratio of 1.42		Reinvestment rate = 4.81%	With little growth, little reinvestment
Cost of capital (d)		8.00%	8.00% → 7.50%	7.50%	Lightly affected by macroeconomic forces

The cash flows (in € millions)

	Revenues	Operating margin	EBIT (1 – t)†	Reinvestment	FCFF††
1	€2,876	18.20%	€348	€78	€270
2	€2,988	18.20%	€361	€81	€281
3	€3,108	18.20%	€376	€84	€292
4	€3,232	18.20%	€391	€87	€303
5	€3,362	18.20%	€407	€91	€316
6	€3,474	18.20%	€420	€79	€341
7	€3,567	18.20%	€431	€66	€366
8	€3,639	18.20%	€440	€51	€389
9	€3,689	18.20%	€446	€35	€411
10	€3,715	18.20%	€449	€18	€431
Terminal year	€3,740	18.20%	€452	€22	€431

The value

Terminal value	€6,835
PV (terminal value)	€3,485
PV (CF over the next 10 years)	€2,321
Value of operating assets =	€5,806
–Debt	€623
–Minority interests	€13
+ Cash	€1,141
Value of equity	€6,311

* CAGR = compound annual growth rate

† EBIT (1 – t) = (Revenues* Operating Margin) (1 – tax rate)

†† FCFF = Free cash flow to firm

Table 9.5
Ferrari, Rev It Up

The story

Ferrari will go for higher growth with a lower-cost car model, backing up this strategy with more marketing, but becoming more exposed to macroeconomic forces.

The assumptions

	Base year	Years 1–5	Years 6–10	After year 10
Revenues (a)	€2,763	CAGR* = 12.00%	12.00% → 0.70%	CAGR* = 0.70%
Operating margin (b)	18.20%	18.2% → 14.32%		14.32%
Tax rate	33.54%	33.54%		33.54%
Reinvestment (c)	1.42	Sales-to-capital ratio of 1.42		Reinvestment rate = 4.81%
Cost of capital (d)		8.00%	8.00% → 7.50%	7.50%

The cash flows (in € millions)

	Revenues	Operating margin	EBIT (1—t)†	Reinvestment	FCFF††
1	€3,095	17.81%	€366	€233	€133
2	€3,466	17.42%	€401	€261	€140
3	€3,881	17.04%	€439	€293	€147
4	€4,348	16.65%	€481	€323	€153
5	€4,869	16.26%	€526	€367	€159
6	€5,344	15.87%	€564	€334	€230
7	€5,743	15.48%	€591	€281	€310
8	€6,043	15.10%	€606	€211	€395
9	€6,222	14.71%	€608	€126	€482
10	€6,266	14.32%	€596	€31	€566
Terminal year	€6,309	14.32%	€600	€35	€565

The value

Terminal value	€8,315
PV (terminal value)	€3,906
PV (CF over the next 10 years)	€1,631
Value of operating assets =	€5,537
–Debt	€623
–Minority interests	€13
+ Cash	€1,141
Value of equity	€6,041

* CAGR = Compound annual growth rate
† EBIT (1 – t) = (Revenues* Operating Margin) (1 – tax rate)
†† FCFF = Free cash flow to firm

Buy BlackBerry

David Gardner | July 19, 2018 | Buy Recommendation

Hey Ya! Remember the early 2000s? It was all about lace-up jeans, giant cargo shorts, *Gilmore Girls*, *Lord of the Rings*, the Atkins Diet ... and the BlackBerry.

Long before the iPhone, the BlackBerry was the most beloved mobile gadget in the universe, known especially for its reliability, its security, and its full keyboard. But Research In Motion, the company that made it, didn't change quickly enough with the times, and the sweet fruit of its labors went sour. The company renamed itself **BlackBerry** (NYSE: BB) in early 2013 and set on a course of reinvention — first around smartphones, and then around software. Many people wrote it off.

And that's where we see a major opportunity.

BlackBerry has been quietly accelerating in its new mission securing all the connected devices that the modern world increasingly relies on. You've heard of the Internet of Things, chips embedded in all the stuff around us transmitting a wealth of data? Call the business angle "the Enterprise of Things." BlackBerry's new focus still draws on its expertise in endpoint security, which shows us the fruit hasn't fallen so far from the tree. But this time

BLACKBERRY IN 1 MINUTE

WHAT IT DOES

This former mobile phone maker is now a leader in enterprise mobility management suites — the software "glue" that connects mobile devices and other endpoints securely into enterprise network infrastructure.

WHY YOU SHOULD BUY

- BlackBerry's seemingly weak financial performance is masking the strong emergence of its Software and Services business.
- The company's QNX platform for making autonomous vehicles secure is getting multiple wins.
- Strong, experienced leadership has already put the company in a leadership position from

around, it's securing things like self-driving vehicles, emergency health networks, financial reporting, and much more.

If your image of BlackBerry is stuck in the past, read on. This is a company with a future.

Second Bloom

It's no surprise that most investors would pass BlackBerry by after a quick glance. Revenue has declined every year since 2011 — and even then, the company's share price was far below the peak of nearly $150 that it reached in mid-2008.

But this is, quite simply, an entirely different company than the BlackBerry most people remember, and its turnaround is just starting to take hold. Moreover, the company's progress is masked by the continuing decline of old legacy businesses that aren't part of management's vision or our investment thesis going forward.

BlackBerry continued to sell its own handheld devices until mid-2016, and there are still BlackBerry-branded devices available, so current results continue to suffer from the decline of this business. Service access fees (SAF), related to legacy users of BlackBerry operating systems, are also dwindling. Given that these two businesses still represented roughly 50% of revenue in fiscal 2017, their continued decline has been keenly felt.

But the meat of the current business, Software and Services, has grown at an average annual pace of 15% over the past three years, reaching $782 million in fiscal 2018 (the company's fiscal year

which it can grow, or possibly find an acquirer.

BUYER'S GUIDE

- **Industry:** Software
- **Size:** Mid Cap
- **Region:** Global
- **Recent Price:** $10.12
- **Allocation:** Many Fools start new positions with a small amount — 2% of their portfolio's overall value, for instance. You can always buy more later!

KEY DATA

- **Headquarters:** Waterloo, Ontario, Canada
- **Website:** BlackBerry investor relations
- **Market Cap:** $5.4 billion
- **Cash/Debt:** $2.2 billion / $810 million
- **Revenue (TTM):** $910 million
- **Earnings (TTM):** ($326 million)
- **Revenue (2016/'17/'18):** $2,160 million / $1,309 million / $932 million

ends in February). This is now by far the largest part of BlackBerry, and we expect revenue for the company as a whole to stabilize this year and start rising thereafter.

The company's QNX operating system, in particular, has been driving growth. Traditionally used in vehicle infotainment systems, it has grown into the software backbone that can run all the chips in a vehicle, including safety and communications. BlackBerry has struck key deals with **Qualcomm** (NASDAQ: QCOM), **Nvidia** (NASDAQ: NVDA), **Baidu** (NASDAQ: BIDU), and others around this technology. Baidu, in turn, has made QNX the core of its Apollo platform, and has partnered with automakers like **Ford** (NYSE: F) and Hyundai to make this the core of future autonomous vehicles.

- **Earnings (2016/'17/'18):** ($208 million) / ($1,206 million) / $405 million
- **Recent Price:** $10.12

Save BB for Later

Financial data from S&P Global Market Intelligence.

Data as of July 17, 2018

This certainly isn't the only area where BlackBerry's business is growing, but it's emblematic of the niche the company is carving out: securing endpoints in the Internet of Things, with a particular focus on enterprises. It has been a leader in **Gartner**'s (NYSE: IT) Magic Quadrant for enterprise mobility management for the past two years, making it one of the Top Dogs in a sector that's expected to grow revenue at a 25% annual pace through 2021.

Still Green

That hasn't yet put BlackBerry in the black, but it's building the core of a very profitable business.

Since being recapitalized by Fairfax Financial in 2013, BlackBerry has boasted a strong balance sheet, with $2.2 billion in cash and $810 million in convertible debt (which will likely convert to shares rather than being repaid). Gross margin improved from 49% in fiscal 2017 to an amazing 73% in fiscal 2018, indicating not only the company's shift from hardware to software, but

GET MORE INFO

Talk About BB

Talk about how BB fits into *SA* here

- See why BlackBerry scores a 12 on our unique 25-point Risk Rating. *(Coming Friday)* also some considerable pricing power. Management also expects the company to deliver positive free cash flow this year (it did last year, too, albeit thanks to a large one-time adjustment).

- See how you can tell if this investment is going right — or wrong. *(Coming Friday)*

Add it up and this is a $5.4 billion company currently generating around $800 million in very high-margin software revenue (leaving aside the remaining hardware and SAF businesses), with over 80% of that revenue recurring. With a gross margin that improved to 76% in the most recent quarter, we expect this business to ultimately produce profit margins in the 20% to 25% range, even as the top line continues to grow. That looks like an attractive price point.

Risks and When We'd Sell

There are a lot of reasons to look more deeply at BlackBerry's financials, but the surface picture remains unflattering. For the time being, this remains a company with shrinking revenue and marginal profitability. Changing that relies not just on continued growth of the software business, but scaling the business so that BlackBerry's relatively high sales, marketing, and R&D costs come down as a percentage of revenue.

The company is a leader in a growing sector, but its competitors — companies like **IBM** (NYSE: IBM), **VMware** (NYSE: VMW), **Cisco Systems** (NASDAQ: CSCO), and others — have a lot of resources. That's why it's important that BlackBerry establish an especially strong presence in areas like vehicles, but we would like to see it keep getting wins in other areas, too.

The Foolish Bottom Line

Not every turnaround works, but BlackBerry has already become a leader in enterprise mobility management by leveraging its security DNA. This company has spent the last five years under CEO John Chen honing its new focus, and at this point he says the company is "largely done reinventing itself" and ready to focus on furthering its leadership. Chen should know — he's a turnaround expert who was previously brought into database company Sybase, returning it to profitability before it was sold to **SAP** (NYSE: SAP) in 2010.

Whether or not BlackBerry remains on its own or is ultimately acquired, we expect it to continue expanding its capability and reach in keeping connected "things" safe and secure. The best part is that many investors can't see the green shoots growing from the rotten fruit of a decade past. That's a sweet opportunity.

Karl Thiel contributed to this report.