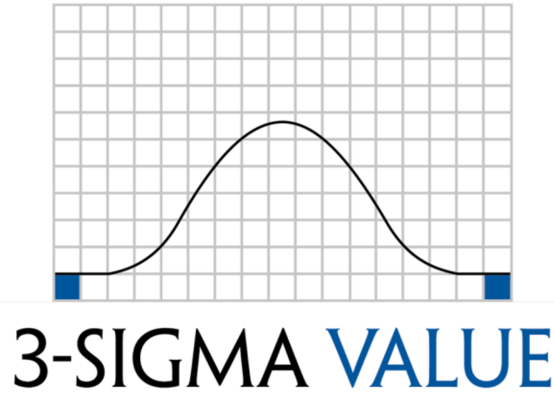

Searching for Autonomy

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Searching for Autonomy

When we heard that Hewlett-Packard (HPQ) was writing down the value of its $11 billion acquisition of the software company Autonomy Corp Plc. by $8.8 billion (or 80%) I immediately thought back to the first time I heard the short thesis on Autonomy. It was March 2010 and I was interviewing a technology analyst for a position at 3-Sigma Value. His short idea, which he was very passionate about, was Autonomy.

He raised a number of red flags that suggested aggressive and maybe even improper accounting. Specifically, he pointed out the following:

1. A large gap between earnings and free cash flow;
2. No organic growth in deferred revenue despite strong reported "organic" revenue growth of 20% per annum over the same period;
3. An unexplained sequential decline in PP&E despite an increasing amount of capital expenditures;
4. Volatile working capital trends, especially around the time of acquisitions;
5. Changes in reporting that eliminated detailed segment data.

Ultimately, we passed on shorting Autonomy because of the acute risk of a take-out. The CEO, Mike Lynch, was rich and famous and itching to sell. The balance sheet was solid with no net debt, and after more than 100 acquisitions[1] there had to be some valuable IP in there. In sum, the risk versus reward was not attractive.

When H-P announced in August 2011 it was paying 10x revenue for Autonomy we were stunned. When the 80% write-down was announced a year later we were not. Autonomy was a roll-up of software companies with a complex structure that made it difficult to measure "organic" revenue growth. In terms of valuation, the discrimination of organic and acquired growth makes all the difference. Because if there is no organic growth than there is no sustainable growth. A consolidator of mature software companies does not warrant a high multiple of free cash flow. It is akin to a run-off business, not a dot com. In other words, Autonomy was never worth more than 2x revenue (vs. 10x) – a relativity that matches the 80% write-down.

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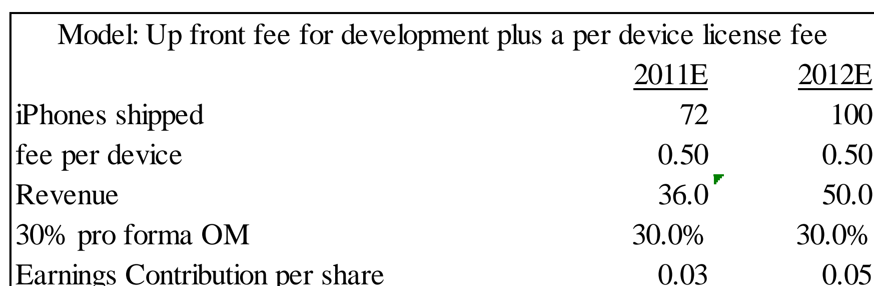
[1] Including Verity for $500 million (2005), Zantaz for $375 million (2007), Interwoven for $775 million (2009), and Iron Mountain Digital for $380 million (2011).

Autonomy's management team used and abused the complex accounting for acquisitions to obfuscate weak performance in its core "organic" business of licensing software that manages unstructured data[2] in an enterprise. The Bayesian-based technique that Autonomy employs for searching data is ubiquitous in large enterprises, and commoditized, leading to Autonomy's constant need to buy companies to further growth.

Autonomy pretended to be a growth company despite being mature. Autonomy pretended to earn 40% operating margins despite making those numbers only by adding back amortization of acquired intangibles, restructuring costs, and stock compensation. Ultimately what fooled Meg Whitman and the rest of H-Ps board of directors was the Company's flagrant use of *pro forma* financials that are non-GAAP and non-reality. While the fine print of an SEC filing may detail the differences between GAAP and non-GAAP numbers, Autonomy's management team never acknowledged the difference in a quarterly conference call. They waxed poetic on non-GAAP profits when there were GAAP losses.

Around the time of H-P's 2011 acquisition of Autonomy, Apple introduced Siri, a voice recognition application to answer questions, make recommendations, and perform actions by delegating requests to a set of Web services. Investors drove up the price of the company that licenses the underlying technology, a company called **Nuance Communications (NUAN)**, from $16 in August 2011 to $30 by January 2012. During this time 3-Sigma Value learned that Apple pays Nuance a fee that is immaterial relative to the size of Nuance's revenue base[3].



Model: Up front fee for development plus a per device license fee		
	2011E	2012E
iPhones shipped	72	100
fee per device	0.50	0.50
Revenue	36.0	50.0
30% pro forma OM	30.0%	30.0%
Earnings Contribution per share	0.03	0.05

$36 to $50 million of (temporary) revenue, just because that revenue is from Apple, caused the market capitalization of Nuance to increase by $4.5 billion. That is $100 of valuation for every $1 of incremental revenue, an absurd reaction to headline news.

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[2] Unstructured data is data that is not organized in a database. Autonomy's core software uses pattern recognition based on Bayesian inference, a method of updating the probability estimate for a hypothesis as additional data is gathered.

[3] While Nuance doesn't disclose the amount of the Siri license fee, the revenue is included in a segment called Mobile & Consumer which reported $93 million of revenue in both Q2 and Q3 2011. That number jumped to $119 million in Q3, and has averaged $119 million per quarter since. We estimate a quarterly license fee for Siri around $10 million.

Nuance is a roll-up, just like Autonomy, which in of itself is fine but which nonetheless raises a red flag. The balance sheet is weak with $870.4 million of net debt and a *negative* $1,037.3 net worth. Acquisitions boost short-term revenue growth but generate negative return on invested capital (ROIC), contributing to negative book value. Furthermore, there is a large and growing discrepancy between GAAP and non-GAAP results, just like at Autonomy. The more we researched Nuance the more irregularities we found. And then the event happened, an event that shed enough light on the corrupt mindset of this management team to warrant a short position. It was the tipping point.

On October 19, 2011, Nuance priced $600 million (+$90 million over-allotment) of 2.75% senior convertible debentures due 2031 (first put date is 11/1/17) with a conversion price of $32.30. Net proceeds of $587.7 million (ex. over-allotment) were used to repurchase $200 million of shares, to make acquisitions, and for general corporate purposes.

Why did they sell this debt?

1. Nuance doesn't generate organic revenue growth, and needs to buy companies with deferred revenue (just like Autonomy) to satisfy expectations of a market valuing a $1.5 billion revenue company at $8.5 billion;

2. Nuance uses the proceeds to support its stock price by buying back stock – a short term benefit only to traders and other shareholders who know to sell before the house collapses.

Sell Nuance Communications (NUAN)

NUAN Capitalization as of 6/30/12	
Price as of 8/24/12	$23.89
x Shares Out.	320.6
= Market Capitalization	**7,658.2**
- Cash & Marketable Securities	1,239.6
+ Total Debt	2,109.9
= Enterprise Value (EV)	**8,528.5**
Consensus Estimates (Fiscal Year Ends 9/30)	
EV / Revenue	
FYE 2012	**4.9x**
FYE 2013	**4.2x**
EV / EBITDA	
FYE 2012	**12.2x**
FYE 2013	**10.3x**
P/E - GAAP	
FYE 2012	**66.4x**
FYE 2013	**50.8x**

Incorporated in 1992 as Visioneer, the Company changed its name to ScanSoft in 1999, before settling on Nuance Communications in 2005. Nuance sells products grouped into four segments:

1. Healthcare (~40% of 2012 revenue) – automates manual processes such as the dictation and transcription of patient records; sold under a traditional software perpetual model and/or an on-demand model charged as a subscription and priced by volume of usage (e.g. number of lines transcribed).

2. Mobile and Consumer (~30% of 2012 revenue) – Dragon suite of applications embedded in auto and device OEMs generally sold under a royalty model priced per device sold, and sometimes under a license model. Desktop and portable computer dictation solutions are generally sold under a traditional perpetual software license model.

3. Enterprise (~20% of 2012 revenue) – customer service – automating call centers, directory assistance – charged as a subscription and priced by volume of usage (e.g. number of minutes callers use the system or number of calls completed in the system).

4. Imaging (~10% of 2012 revenue) – PDF applications designed specifically for business users licensed to OEMs such as Brother, Canon, Dell, HP, Xerox on a royalty model, priced per unit sold. Compete against Adobe, ABBYY, I.R.I.S. and NewSoft.

Three of Nuance's four segments are loosely related – software that transcribes patient records (the healthcare segment) is akin to software that transcribes customer service requests (the enterprise segment) is akin to software that transcribes requests for autos or phones or other electronic devices. The imaging segment on the other hand represents an effort to diversify away from the business of speech. A series of small acquisitions has increased imaging revenue from $80 million in 2008 to over $200 million in 2012. However, with a dominant competitor in Adobe virtually giving a comparable product away for free, Nuance's imaging business is niche at best.

As described in 3-Sigma Value's 2012 report titled Software Economics – Volume II, we evaluate software companies in terms of the quality of the underlying technology and the sustainability of cash flow, if any. What is striking about Nuance is the fact that there is *no unifying code*, no unifying core speech recognition or even text-to-speech software code. Nuance is cobbled-together and complicated. Management's embrace of non-GAAP accounting artificially boosts margins when acquiring deferred revenue by ignoring acquisition-related costs.

Just like at Autonomy, the Nuance team mixes together non-GAAP and GAAP accounting, acknowledges the complexity, and ultimately communicates to investors in terms of non-GAAP numbers. It's a sly move. They make the financial reporting so complex that they have to simplify it. When simplifying, they eliminate certain expenses. The result is *pro forma* numbers that – as described in 3-Sigma Value's report titled The Artifice of Contribution Margin – are misleading and apt to create another Autonomous debacle.

It doesn't matter whether a technology company builds or buys its intellectual property as long as both forms of expenditure are accounted for properly and consistently when comparing earnings quality and growth. Unfortunately, management's effort to focus investors on non-GAAP numbers obfuscates Nuance's true relative earnings power.

Non-GAAP costs exclude stock compensation, acquisition-related costs, amortization of acquired intangible assets, costs associated with IP collaboration agreements, and other non-cash and cash expenses. These are recurring costs for an acquisitive firm like Nuance.

Nuance Communications (NUAN) Financial Summary - Base Case Operating Scenario					
Revenue by Segment:	**FYE 9/30/2010**	**9/30/2011**	**9/30/2012**	**9/30/2013**	**9/30/2014**
1. Healthcare (non-GAAP)	**449.3**	**526.8**	**629.8**	**661.3**	**694.4**
% Growth - sequential (YoY is not significant b'c of acqui.	*14.6%*	*17.2%*	*19.6%*	*5.0%*	*5.0%*
% of Total	*37.6%*	*37.8%*	*37.8%*	*36.3%*	*34.7%*
2. Mobile & Consumer (non-GAAP)	**309.5**	**393.3**	**491.8**	**590.2**	**708.2**
% Growth - sequential (YoY is not significant b'c of acqui.	*32.2%*	*27.1%*	*25.0%*	*20.0%*	*20.0%*
% of Total	*25.9%*	*28.2%*	*29.5%*	*32.4%*	*35.4%*
3. Enterprise (non-GAAP)	**296.1**	**296.4**	**317.0**	**332.8**	**349.5**
% Growth - sequential (YoY is not significant b'c of acqui.	*-4.6%*	*0.1%*	*6.9%*	*5.0%*	*5.0%*
% of Total	*24.8%*	*21.3%*	*19.0%*	*18.3%*	*17.4%*
4. Imaging (non-GAAP)	**140.8**	**177.4**	**227.9**	**239.3**	**251.3**
% Growth - sequential (YoY is not significant b'c of acqui.	*91.6%*	*26.0%*	*28.5%*	*5.0%*	*5.0%*
% of Total	*11.8%*	*12.7%*	*13.7%*	*13.1%*	*12.5%*
Total Revenue (non-GAAP)	**1,195.7**	**1,393.9**	**1,666.5**	**1,823.6**	**2,003.3**
% Growth - sequential (YoY is not significant b'c of acqui.	*18.4%*	*16.6%*	*19.6%*	*9.4%*	*9.9%*
Adjustments (Acquisition related revenue)	76.7	75.2	90.3	99.5	109.3
% of non-GAAP Revenue	*6.4%*	*5.4%*	*5.4%*	*5.5%*	*5.5%*
Total Revenue (GAAP)	**1,119.0**	**1,318.8**	**1,576.2**	**1,724.1**	**1,894.0**
Total Cost of Revenue	409.4	499.8	578.3	627.1	683.0
Gross Profit	709.6	818.9	997.9	1,097.1	1,211.1
% Margin	*63.4%*	*62.1%*	*63.3%*	*63.6%*	*63.9%*
Operating Expenses:					
R&D	152.1	179.4	216.0	236.2	259.5
% of Revenue	*13.6%*	*13.6%*	*13.7%*	*13.7%*	*13.7%*
S&M	266.2	306.4	356.7	390.1	428.6
% of Revenue	*23.8%*	*23.2%*	*22.6%*	*22.6%*	*22.6%*
G&A	122.1	147.6	155.8	170.4	187.2
% of Revenue	*10.9%*	*11.2%*	*9.9%*	*9.9%*	*9.9%*
Amortization of Acquired Intangibles	87.8	88.2	96.9	103.7	103.7
% of Revenue	*7.8%*	*6.7%*	*6.2%*	*6.0%*	*5.5%*
Other (Restructuring, Acquistion-related, Legal Settlements, etc.)	48.5	49.8	74.1	74.1	74.1
Total Operating Expenses	676.7	771.4	899.5	974.6	1,053.1
Operating Income (Loss)	**33.0**	**47.6**	**98.4**	**122.5**	**158.0**
% Margin	***2.9%***	***3.6%***	***6.2%***	***7.1%***	***8.3%***
Interest Income	3.6	3.2	2.3	2.1	2.1
Interest Expense	-47.3	-36.7	-77.6	-78.1	-78.1
Other Income (Expense), net	-34.0	11.0	30.2	30.2	30.2
Pretax Income	-44.7	25.1	53.3	76.7	112.2
Income Tax Benefit (Expense)	-18.0	8.2	50.0	0.0	0.0
% Rate	*-40.3%*	*-32.8%*	*-93.7%*	*0.0%*	*0.0%*
Net Income (Loss)	-62.8	33.3	103.3	76.7	112.2
FD Shares Outstanding	928.9	324.7	320.6	320.6	320.6
EPS	**-0.07**	**0.10**	**0.32**	**0.24**	**0.35**
P/E	**-353.5x**	**233.0x**	**74.2x**	**99.8x**	**68.3x**

Exactly like at Autonomy, revenue recognition has become more complex due to the increasing sale of bundled technology, combining licenses, services, on-demand, and yes hardware. While

management acknowledges gross margin pressure due to a higher proportion of services and hardware, they deny it is a trend.

When recognizing revenue from the sale of bundled products, margins become fungible. Low margin services revenue (or hardware) is packaged with high margin license or subscription revenue and a decision has to be made. Accounting is supposed to be rules-based, consistent, but, with so many moving parts, so many acquisition-related accounts with so many reserves and so much restructuring it becomes standard to over-earn today and write-off tomorrow.

The notion of "organic" growth at Nuance is specious, misleading, and ultimately culpable. Exactly like at Autonomy, Nuance management concocts an organic revenue number that is bunk. Acquisitions by Nuance share a common tendency to underperform expectations. The reason is because Nuance often bundles its acquired technology with its core technology and calls the whole thing organic. While top line revenue looks solid, deferred revenue stalls, gross margin contracts, acquisition-related expenses persist, and the net worth of Nuance continues its decent into deeper negative territory.

Nuance is a mature technology vendor making serial acquisitions to fuel its revenue growth and maintain its elevated valuation. The automated call center business is not a high growth business. The medical transcription business is not a high growth business. The mobile business is mortally-competitive and revenue from Siri temporary. The imaging business is small and mismatched.

The result is a low-margin model with limited operating leverage. 5-10% GAAP operating margin (OM) is under constant pressure from restructurings, charge-offs, and other acquisition-related costs. With nearly $3 billion of questionable goodwill on the balance sheet, Nuance will be writing this stuff off, eradicating earnings, for years to come.

Nuance is a serial restructurer. Acquiring and restructuring companies is Nuance's core business. Therefore, to eliminate acquisition-related expenses from earnings is to eliminate research and development (R&D). Acquisition-related expenses amount to approximately $160 million in 2012, or ~10% of revenue. Similarly, Nuance spends ~10% per year on stock-based compensation. These two recurring expense should not be eliminated when calculating Nuance's earnings. These are not one-time items. To calculate earnings without including these items leads to over-valuation which leads to Autonomy.

Nuance is overvalued by any measure. The core of 3-Sigma Value's valuation is a scenario-based, probability-weighted discounted cash flow (DCF) analysis. This is sanity-checked by a P/E analysis. The average of the two methodologies renders a target price of $7.50.

Nuance Communications (NUAN) Discounted Cash Flow (DCF) Valuation (2012 - 2014)								
		PV of Terminal Value as a						
Discount	Discounted	Multiple of FY 2014 EBITDA				Equity Value per share		
Rate (WACC)	Cash Flows	5.0x	8.3x	11.7x	Net Debt	5.0x	8.3x	11.7x
13.7%	$870	$1,206	$2,009	$2,812	$870.4	$1,205	$2,009	$2,812
14.2%	$863	$1,190	$1,983	$2,775	$870.4	$1,182	$1,975	$2,767
14.7%	$856	$1,175	$1,957	$2,739	$870.4	$1,160	$1,942	$2,724
15.2%	$848	$1,159	$1,931	$2,703	$870.4	$1,137	$1,909	$2,682
15.7%	$841	$1,144	$1,906	$2,669	$870.4	$1,115	$1,878	$2,640
Probability-weighted DCF-based Target Price Calculation						Equity Value Per Share		
Base (8.3x midpoint, WACC)			$6.06	60.0%	$3.63	$3.76	$6.27	$8.77
Upside (11.7x MODL take-out valuation)			$10.76	30.0%	$3.23	$3.69	$6.16	$8.63
Downside (5x)			$3.12	10.0%	$0.31	$3.62	$6.06	$8.50
Probability-weighted Target Price					**$7.17**	$3.55	$5.96	$8.37
% Upside (Downside)					-70.0%	$3.48	$5.86	$8.23
P/E Sanity Check						% Upside (Downside)		
Base	$0.35	16.7x	$5.83	60.0%	$3.50	-84.3%	-73.8%	-63.3%
Upside	$0.58	23.3x	$13.54	30.0%	$4.06	-84.6%	-74.2%	-63.9%
Downside	$0.26	10.0x	$2.62	10.0%	$0.26	-84.9%	-74.6%	-64.4%
Probability-weighted Target Price					**$7.82**	-85.1%	-75.1%	-65.0%
Average of DCF and P/E-based Valuation Methodologies					**$7.50**	-85.4%	-75.5%	-65.5%
% Upside (Downside)					**-68.6%**			

In July 2012, M*Modal (MODL), a company that develops voice recognition software for doctors was acquired by JP Morgan's One Equity Partners private equity arm for $820 million plus the assumption of $300 million of debt. Revenues at MODL have been flat for the past three quarters at ~$116 million, which translates into a $664 million revenue run-rate, equal to 1.6x revenues. Operating Income is depressed, ranging between $2 million and $12 million in recent quarters. With $12 million of quarterly D&A, run-rate EBITDA is somewhere between $56 million and $96 million. At the high end, the multiple paid equals 11.66x. We use this multiple as the terminal value multiple in an Upside Case operating scenario in which Nuance is acquired at the end of 2014.

In the aftermath of the M*Modal acquisition, on July 30, 2012, celebrated New York Times reporter Andrew Ross Sorkin wrote a column titled *Suggestions for an Apple Shopping List*. Guess his first pick?

Sorkin writes, "*A year before Mr. Jobs died, he strongly hinted that Apple would consider a big deal. "We strongly believe that one or more very strategic opportunities may come along, that we are in a unique position to take advantage of because of our strong cash position," Mr. Jobs said in a call with analysts in 2010. Having all that money can be daunting, so to help Mr. Cook, here is a potential shopping list — some must-buys and some pie-in-the-sky targets — that he may want to consider:*

NUANCE *This is the one no-brainer on the list. Nuance, based in Burlington, Mass., provides much of the speech recognition technology behind Apple's Siri and dictation functions. Right now, Apple has merely licensed it and integrated it into both its mobile devices like iPhones and iPads as well as its new Macintosh operating system. Most users think it is Apple technology, but those services wouldn't work without Nuance.*

It should go without saying, but the importance of speech recognition is only going to increase in the future. Nuance has more patents for it and has developed the technology further than just about any firm in the world. At some point, Nuance will be able to hold Apple for ransom. Google and Microsoft are steadily building their own speech recognition technologies and they are catching up quickly. Nuance's market value is $6.3 billion. Even if Apple paid twice as much, it would be a worthwhile investment."

Because of conventional wisdom broadcasted by reporters[4] there is a real possibility Nuance will be acquired. This time however, unlike when Frank Quattrone justified the price of Autonomy to H-P, the Board of Directors of any potential acquirer will have no defense for the acceptance of *pro forma* financial statements as reflections of reality.

As far as the potential for Apple to acquire Nuance, we find the prospect highly unlikely. In fact, it is only a matter of time until Apple replaces Nuance with its own in-house automatic speech recognition (ASR) technology. Patents are filed. The Siri halo effect is evaporating and what Nuance shareholders are left with is a pile of old software that is more a deferred revenue run-off story than a growth story.

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[4] A business reporter is not an analyst. There are two types of business reporters: (1) media reporters like Andrew Ross Sorkin, Maria Bartiromo, and Paul Krugman, and (2) Wall Street sell side analysts, who are reporters cloaked as analysts.