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2016 Review / 2017 Outlook

3-SIGMA VALUE

2016 In Review

For the year ended December 31, 2016, 3-Sigma Value, LP (the "Partnership") had an estimated gain of 12.3% (net of management fees and expenses) with average gross exposure of 93.3% and net exposure of *negative* 17.9%.

3-Sigma Value, LP

PERFORMANCE AND EXPOSURE STATISTICS[1]

	Monthly Performance			Average Fund Exposure			
	Gross[2]	Long	Short	Long	Short	Gross	Net
2011	37.4%	1.9%	34.8%	78.6%	89.4%	168.1%	-10.8%
2012	32.3%	17.1%	13.1%	64.8%	79.0%	143.8%	-14.1%
2013	-12.8%	7.3%	-19.0%	46.7%	72.4%	119.1%	-25.7%
2014	18.1%	-0.3%	18.4%	7.4%	54.9%	62.3%	-47.4%
2015	12.8%	-7.0%	21.0%	22.9%	41.6%	64.5%	-18.7%
January	3.9%	-4.7%	8.5%	39.5%	54.2%	93.7%	-14.7%
February	-2.8%	-1.9%	-0.9%	36.2%	42.8%	79.0%	-6.6%
March	2.0%	4.3%	-2.3%	32.0%	40.8%	72.8%	-8.8%
April	-1.2%	1.3%	-2.5%	35.0%	54.2%	89.2%	-19.2%
May	0.1%	0.5%	-0.4%	38.2%	60.5%	98.7%	-22.3%
June	-1.4%	1.5%	-2.9%	37.7%	55.5%	93.2%	-17.8%
July	-1.4%	0.7%	-2.1%	40.4%	55.1%	95.5%	-14.7%
August	0.5%	2.3%	-1.8%	41.4%	55.9%	97.3%	-14.4%
September	0.5%	0.7%	-0.2%	40.0%	59.1%	99.1%	-19.2%
October	9.5%	-0.6%	10.2%	37.1%	62.8%	99.9%	-25.7%
November	2.2%	8.0%	-5.8%	35.7%	62.8%	98.5%	-27.1%
December	0.3%	0.7%	-0.4%	39.3%	63.8%	103.1%	-24.5%
2016	12.3%	13.0%	-1.8%	37.7%	55.6%	93.3%	-17.9%
Cumulative[3]	136.8%						
Annualized[3]	15.5%						

1 All performance statistics listed herein have been audited by an independent third party auditor with the exception of the statistics for any period after December 31, 2015, which are unaudited estimates confirmed by an independent third party administrator.

2 Net of management fee and expenses. Before incentive fee.

3 Since January 2011.

The Partnership's portfolio, both long and short, focuses its investment efforts in three industries – Technology, Media & Telecom ("TMT"), Natural Resources, and Financials – chosen based

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on the experience of our investment professionals. In total, 3-Sigma Value, LP is invested long in 14 companies, and short 26 companies.

Our investment approach is global in scope, yet, at this time, North American equities constitute the vast majority of our gross exposure. We are market-cap agnostic.

Portfolio Construction

As of December 31, 2016, the 3-Sigma Value portfolio had gross long exposure of 40.7% and gross short exposure of 63.9%, for net investment exposure of *negative* 23.1%. As value investors frequently targeting companies facing rapidly changing operating performance and/or market perceptions, we remain cognizant that portfolio correlation to the market can change on a dime and thus the continuity between the past and future is tenuous at best. Notwithstanding this caveat, we generally seek overall market agnosticism in the construction of the portfolio as reflected in a target range of net exposure between *negative* 25% and *positive* 25%.

Balance Sheet (% Of Equity) - 12/31/16				
	Long	Short	Gross	Net
By Industry				
Technology	10.1%	-34.8%	44.9%	-24.8%
Natural Resources	18.4%	-13.3%	31.7%	5.1%
Financials	12.3%	-15.8%	28.0%	-3.5%
Total	40.7%	-63.9%	104.6%	-23.1%
By Geography				
North America	28.3%	-57.8%	86.0%	-29.5%
South America	2.5%	0.0%	2.5%	2.5%
EMEA	4.9%	-2.2%	7.1%	2.7%
Asia	5.1%	-3.9%	9.0%	1.2%
Total	40.7%	-63.9%	104.6%	-23.1%
By Market Capitalization				
Greater than $2B	36.1%	-21.9%	58.0%	14.2%
$500M - $2B	0.8%	-23.2%	24.0%	-22.4%
Less than $500M	3.8%	-18.8%	22.7%	-15.0%
Total	40.7%	-63.9%	104.6%	-23.1%

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Because we don't take directional bets on the overall market, our success is not dependent on either a bull or bear market. In contrast, we are completely comfortable taking directional bets on specific industry segments (in our areas of expertise) dominated by a secular trend that is either creating or destroying value. In fact, this is the first step in our investment process.

Our use of scenario analyses is central to quantifying the impact of various positive and negative assumptions on valuation. The value of any company is driven by a set of underlying assumptions (factors) and, generally, we identify 7 to 10 factors when building a scenario analysis – see page 15 for the 10 factors underlying our analysis of Verifone (PAY). Each factor is varied to reflect optimistic (Upside) and pessimistic (Downside) outcomes, but our research effort is (and has always been) focused on the Downside. In other words, we focus on what can possibly go wrong. Or, when analyzing a potential short investment, what is the potential valuation if management delivers according to plan. By focusing our effort first on quantifying *the risk*, we approach sources of information – management, industry experts, analysts – with a skeptical eye aimed primarily at finding the flaws rather than merely buying the pitch.

Our skeptical approach to investing is one reason why we focus and find success on the short side of the portfolio notwithstanding market conditions. We accept nothing at face value – management projections, government data, sell side analyst math, all of it, as far as we're concerned, is tainted by the agendas of those making the calculations. We have no bullish or bearish agenda, or bias or proclivity. We separate the survivors from the doomed, the value from the junk, the good from the bad; and we remain mindful that it is precisely in environments such as the current one where the greatest opportunities for mispricing exist. We are a data-driven investment firm that does all of its own research and builds all of its own models from scratch and draws all of its own conclusions. We invest <u>only</u> when the requirements of our scenario analysis are met; that is (1) 50% total expected return based on a probability-weighted average of scenarios, heavily weighted to the valuation derived from the Base case operating scenarios; (2) asymmetrical reward versus risk as measured by the ratio of the valuation derived from the Upside case operating scenarios (the reward) to the valuation derived from the Downside case operating scenarios (the risk); and (3) a clear catalyst that will narrow the gap between market value and intrinsic value over our investment time horizon of 1 to 3 years.

We are not market timers. We do not attempt to predict, or think much about, where the S&P 500 will be at the end of the year. All we do and all we know is that if we stay disciplined to our market agnostic process and intellectually honest in its application then we wield an incredible edge over most market participants.

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Winners & Losers

Following is a list of the top winners and losers in 2016.

	Top 10 Winners in 2016	
1	Long: CF Industries (CF)	Profiled in 3-Sigma Value's *Penetrating the Macro through the Micro*
2	Long: MasTec (MTZ)	4 Value-Creating Secular Trends for the Price of One
3	Short: Atlassian (TEAM)	Profiled in 3-Sigma Value's *Polishing Turd - Part 2*
4	Short: Gogo (GOGO)	Profiled in 3-Sigma Value's *Premium Wi-Fi is a Fatally-Flawed Business Model*
5	Short: Hortonworks (HDP)	Profiled in 3-Sigma Value's *The Down Round*
6	Short: GoPro (GPRO)	Rapidly commoditized action camera; Karma drone was recalled; guidance is absurd
7	Short: Twilio (TWLO)	June 2016 IPO of "cloud communications platform" hyped to exuberant levels obfuscates the fact that this is mainly a text and voice messaging service that competes on the basis of price
8	Short: Tidewater (TDW)	Offshore supply vessel (OSV) company announced "possible reorganization under Chapter 11"
9	Short: Carbo Ceramics (CRR)	Cheap sand has displaced expensive ceramic proppant in hydraulic fracturing, driving down costs
10	Short: Verifone (PAY)	Creative destruction in payment technology will obviate checkout lines and the plastic card
	Top Losers in 2016	
1	Short: Credit Acceptance Corp (CACC)	Profiled in 3-Sigma Value's *The Subprime Auto Bubble - Parts 1 & 2*
2	Short: America's Car-Mart (CRMT)	Profiled in 3-Sigma Value's *The Subprime Auto Bubble - Parts 1 & 2*
3	Short: Boingo Wireless (WIFI)	Profiled in 3-Sigma Value's *Premium Wi-Fi is a Fatally-Flawed Business Model*
4	Short: HigherOne (ONE)	Profiled in 3-Sigma Value's *The Hiddem Fee Business Model* ; June 2016 - acquired by Blackboard
5	Short: Fairmont Santrol (FMSA)	Profiled in 3-Sigma Value's E*nergy Investing After the Price of Oil Drops - Part II: The Sand Bubble*
6	Short: California Resources Corporation (CRC)	Profiled in 3-Sigma Value's E*nergy Investing After the Price of Oil Drops - Part III: Oil Patch Blues*
7	Short: Hornbeck Offshore (HOS)	Similar to Tidewater (TDW), this offshore support vessel company is headed for Chapter 11
8	Short: Bristow Group (BRS)	Over-leveraged helicopter company with inflated asset values on its balance sheet is deferring deliveries of new-build helicopters into a flooded market where comparable assets are trading ~10% of book value

Although no individual bank investment made the Top 10 list, collectively the 7 banks constituting 3-Sigma Value's 2016's bank portfolio returned an average of 62.8%

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The 2016 Bank Portfolio

		Price as of			Gain/Loss %		
		2/19/16	11/8/16	12/30/16	2/19 - 11/8	11/8 - 12/30	2/19 - 12/30
1	**KeyCorp (KEY) - Cleveland, OH**	10.70	14.41	18.27	34.7%	26.8%	70.7%
2	**Huntington Bank (HBAN) - Columbus, OH**	8.67	10.25	13.22	18.2%	29.0%	52.5%
3	**TCF Financial (TCB) - Wayzata MN, d.b.a. TCF National Bank**	11.05	13.95	19.59	26.2%	40.4%	77.3%
4	**Customers Bank (CUBI) - Wyomissing, PA**	22.71	25.5	35.82	12.3%	40.5%	57.7%
5	**Fidelity Southern (LION) d.b.a. Fidelity Bank - Atlanta, GA**	14.88	19.8	23.67	33.1%	19.5%	59.1%
6	**Stonegate Bank (SGBK) - Pompano Beach, FL**	28.75	34.95	41.81	21.6%	19.6%	45.4%
7	**Park Sterling Corp (PSTB) - Charlotte, NC**	6.09	8.58	10.79	40.9%	25.8%	77.2%
	Average				26.7%	28.8%	62.8%

Before the U.S. presidential election on Tuesday November 8, 2016, 3-Sigma Value's bank portfolio returned 26.7%. After the election, it returned 28.8%, roughly a similar amount. In 2017, we expect a myriad of positive factors to continue driving earnings growth – higher interest rates and a steepening yield curve that could improve net interest margin (NIM)[1], tax reform that could boost after-tax earnings, and regulatory reform that could enable earning a higher return on equity (ROE).

3-Sigma Value's 2017 Bank Portfolio will be disclosed in our First Quarter 2017 Letter.

With the major stock market indices near all-time record highs, we are encouraged by 3-Sigma Value's 12.3% gross return in 2016. Throughout the year we remained net short, and while we continue to be net short at the start of 2017, this portfolio construction has nothing to do with a macro or market outlook; instead, it is a direct function of continuing to identify more and better ideas on the short side of the portfolio than on the long side. The 3-Sigma Value portfolio is built from the bottom up with the sizing of positions a direct function of our scenario-based estimation of reward versus risk and expected total return.

[1] NIM expansion depends on asset sensitivity. Offsetting factors in a rising interest rate environment inlcude the decline in market value of fixed-rate securities and loans, and the decline in mortgage origination.

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Key investment themes in 2017 build on what we learned in 2016.

1. The next phase(s) of the credit bubble

1) One of the few pillars of recent strength in the U.S. economy has been auto sales with 2016 another record year. Unfortunately, much like the debt-fueled growth of the housing bubble, the driver of auto sales is a massive increase in debt, especially subprime debt. Behind this new debt is loosening credit standards that include a rapid expansion of low and no FICO score loans, the extension of loan durations to 7+ years, and loan-to-values (LTV) at absurd levels in excess of 200%. Compounding the threat of increasing credit costs is declining used car values in advance of a wave of car supply rolling off lease and flooding the market beginning in 2017. Auto loan underwriting that is dependent on residual values will bear massive charge-offs and the evisceration of book value. For more information, please see 3-Sigma Value's *The Subprime Auto Bubble - Parts 1 & 2*[2].

2) Exuberance in the Canadian mortgage supply chain fueled by exuberance in the housing market is a replay of the crisis in the U.S. when subprime mortgages were financed without regard to their future performance. There is a well-documented housing bubble in Canada, centered in Vancouver and Toronto, that may be bursting as home sales in Canada turned in the second half of 2016. The new foreign buyer tax imposed in Vancouver is cooling its real estate market (driving foreign buyers to Toronto). Meanwhile, the recently announced federal rule changes with respect to mortgage insurance qualification is expected to make homes less attainable for some potential first time homebuyers resulting in a reduction in home sales and prices in the near term. These changes will impact the housing market across Canada, but is expected to have a more pronounced effect in Toronto and Vancouver. Within this context, many banks/mortgage originators are materially under-reserved, and with predictions ranging from a 10% correction in home prices to a 50% debacle, book value is at risk.

[2] Available at www.3sigmavalue.com.

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2. Bank consolidation in the U.S.

The outlook for banks is bright with higher interest rates, a steepening yield curve, tax reform, and regulatory reform on the horizon. Moreover, banks benefit from economies of scale and it follows that valuation multiples are positively correlated to size. In an over-banked market with thousands of chartered banks, it is easier to buy then build. As a result, we find in the U.S. an active and consolidating M&A market that has the power to elevate the valuation of any well-managed and profitable bank. Valuations are all over the place. Herein lies the opportunity. Herein lies the alpha.

As detailed in 3-Sigma Value's annual *Bank Investing*[3] series, we employ a proprietary framework for evaluating banks[4] that ponders five factors:

1) The high correlation between return on tangible common equity (ROTCE) and tangible book value (TBV). We generally require a return on assets (ROA) in excess of 0.90% – because a bank that earns 0.90% (the minimum level) is worth at least 1.8x tangible book value (TBV) based on historical M&A data (using data from SNL going back to 1990).

2) Franchises that are tightly managed, as reflected in a below-average efficiency ratio[5].

3) Management is always the predominant factor in any bank investment, or any investment in financial services for that matter. Financial services is a human capital business.

4) A catalyst to unlock value over 3-Sigma Value's investment time horizon of 1 to 3 years.

5) M&A – in light of continuing consolidation in the banking industry, we are drawn to the busiest geographies in terms of deal volume – Florida, Georgia and the Carolinas. The southeast is consolidating in the wake of a boom and bust banking cycle more extreme

[3] Published in connection with 3-Sigma Value's first quarter letter, available at www.3sigmavalue.com.

[4] Not just banks but all spread businesses.

[5] Efficiency ratio equals non-interest expense divided by (net interest income plus non-interest income). Ironically, a 100% efficiency ratio means a bank is not being efficient. The lower the ratio the better, with most banks striving for a sub-60% ratio.

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than what was experienced in other parts of the country. More banks were formed and more banks failed in Florida and Georgia than any other states during the bubble. Now that the dust has settled, the southeast remains a powerful demographic that continues to attract money from all over the world. And therefore, the southeast remains a growth market for banking.

3. Natural Resources – incredible dislocation breeds incredible opportunities on both sides of the portfolio

The primary economic principle that underlies our analysis of natural resources is the fact that, over the medium term, the price of any commodity, for example oil, will approach its marginal cost of production at equilibrium (marginal revenue = marginal cost). When the marginal cost of oil production was $90+ per bbl, high cost sources of production, such as offshore drilling in harsh environments, became economical. Now that the cost of production has been slashed due primarily to technological advancements (e.g. horizontal drilling, hydraulic fracturing, data mining) those high cost sources are under water (pun intended).

The most surprising aspect of the correction in the price of oil is the degree to which operators have been able to lower their cost of production. The global cost curve has shifted down with marginal production in the $40 to $60 range. This is crippling high cost basins and the offshore drilling industry while boosting the fortunes of those operators in low cost basins.

4. Technology – discriminating between winners and losers

One of the areas where 3-Sigma Value repeatedly finds success is in discriminating between valuable intellectual property (IP) and worthless hype. Creative destruction and Moore's Law define opportunity oblivious to the economic cycle, creating winners and losers in all markets and at all times. The powerful secular trends in technology such as cloud, mobility, and big data are mostly innovated at small private companies that are then acquired by large public companies. Valuations have risen to dot-com heights because of the high multiples paid by the major technology consolidators. Strategic considerations drive valuations above levels supported by underlying fundamentals. Without M&A potential, much of the technology industry, and especially software, is overvalued. That being said, 3-Sigma Value never shorts a stock simply based on valuation, and more broadly we never short the stock of a great company selling a great product.

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On the flip side, 3-Sigma Value never buys a stock based on the potential for a take-out. M&A is never a consideration in a Base Case operating scenario. The possibility is only reflected in the valuation derived from an Upside Case scenario.

The Paradox of Efficiency

In a cloud-enabled world in which companies can deliver software and services without having to buy servers and load software and build a physical infrastructure, it has become more difficult for the securities markets to discriminate between those companies that develop and own intellectual property (IP) and those that merely resell someone else's. A reseller of technology may be able to sustain a profitable business model and there is nothing wrong with that. The problem is when a reseller of technology is misunderstood as a unique technology provider and as such is over-valued by the market.

To understand this paradox of efficiency we must answer the question, *what constitutes a technology company?*

Answering qualitatively is an exercise we leave for marketing departments. The only way we as financial analysts can gain 3-sigmas of confidence in any investment thesis is by proving it quantitatively. Therefore, we identify four operating metrics that, taken together, measure the quality of technology sold:

1) Gross Margin (GM) – shows how much technology content is in each sale. A lower gross margin means the vendor is paying someone else, generally in the form of a license or royalty. The most efficient technology companies that develop all of their IP in-house report gross margins above 90%. On the other end of the spectrum, vendors that license or pay royalties on technology developed elsewhere report gross margins closer to 60%.

2) Cumulative R&D / R&D as a % of Revenue + Cumulative Capex / Capex as a % of Revenue – signals the value of the underlying intellectual property (IP). While plenty of companies waste money developing technologies that don't work or aren't wanted, if a company doesn't report research and development (R&D) on its income statement then how can it purport to be a technology company?

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3) Operating Margin (OM) – shows how efficiently a company is managed. Technology is scalable and the cost of technology deflationary due to innovation and Moore's Law. R&D expenses tend to be relatively consistent over time while operating leverage is earned in sales and marketing (S&M), and general and administrative (G&A) to a lesser extent.

4) Free Cash Flow – ultimately, cash is what matters, not earnings[6]. Normally, a software company with a ratable revenue recognition model will report cash flow well in excess of earnings. Because revenues are reported with a significant delay relative to cash collections under GAAP accounting, operating and net income will also generally lag cash flow from operations (CFFO, on the cash flow statement). Therefore, a decline in cash flow generally indicates a problem in a software company's strategy despite potential earnings growth that is more cosmetic (and backward-looking) than indicative.

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, the widespread acceptance of non-GAAP financial reporting obfuscates the true relative earnings power of companies across the technology spectrum. Some companies report non-GAAP earnings when there are GAAP losses. When a CFO or CEO talks of "margins" without qualifying it as "non-GAAP" he/she is being disingenuous because when non-GAAP earnings diverge from GAAP earnings, expenses are being excluded (or more accurately, hidden).

Non-GAAP numbers typically exclude stock compensation, acquisition related costs, amortization of acquired intangible assets, costs associated with IP collaboration agreements, and other non-cash and cash expenses. The argument that stock comp should be excluded from earnings is specious yet companies continue to allege there is no cost. Typically, stock compensation is offset by share buybacks and the acquisition of shares to settle employee tax withholding liabilities, items that can be found in the financing section of a cash flow statement. Thus, to ignore stock compensation is to ignore reality. Furthermore, M&A is a strategy. Acquisition related costs and the amortization of acquired intangible assets are recurring costs for an acquisitive firm. These are not one-timers. To eliminate acquisition-related expenses from earnings is to eliminate research and development (R&D).

[6] 3-Sigma Value employs discounted cash flow (DCF) methodology sanity-checked by an earnings analysis when valuing software companies.

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Given the ultimate requirement of cash flow profitability for any sustainable company, it is axiomatic that companies that continue to burn cash will continue to lose value. Therefore, 3-Sigma Value focuses a part of its research effort on finding companies likely to continue burning cash through our investment time horizon of three years, thereby calling into question the sustainability and quality of the underlying technology. Where the market sees a high-flying growth stock we see a clock ticking, a discounted cash flow valuation with a finite number of inflows. When there is no perpetuity growth rate, equity value will eventually approach cash value.

5. Creative Destruction in the Payments Industry

The global evolution from paper-based to electronic payments is accelerating with the adoption of mobile payment technologies. The benefits are many, including lower cost, reduced fraud risk, targeted real-time marketing, and big data. 3-Sigma Value identifies two powerful secular trends that are driving valuations and determining winners and losers in the payments industry.

Secular Trend Number 1: The magnetic swipe card will be extinct, replaced by mobile wallets with your financial information pre-loaded and protected. Consumers will no longer have to share their personal information with merchants, who are cut out of the payment process altogether. The benefit for merchants is lower cost. Merchants pay on average somewhere between 2.5% and 3.0% of sales (called the merchant discount rate) and are eager to shrink that vig.

Secular Trend Number 2: Checkout lines will be obviated by mobile payments technology. Merchants are eager to adopt technology that eliminates the lag between placing a product in a checkout cart (virtual or otherwise) and actually paying for the product. You pick out four shirts, decide to buy two, and ultimately buy one. Maybe you would have bought two if it didn't take so long and wasn't such a hassle to pay. Customer support in all stores will follow Apple's lead and carry mobile devices that access a payment processing app hosted in the Cloud. Consumer self-checkout is the end game and, as exemplified by Amazon's recently-launched "Amazon Go" retail concept, the end is coming fast.

Identifying the winners is less obvious than the losers, with technologies embedded in giant companies such as Amazon, Apple, Google, Intuit, and PayPal. Ultimately, no matter which

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virtual wallet gains enough market share to sustain in the new electronic world, there are companies in the traditional payments supply chain with revenue streams in secular decline.

One of 3-Sigma Value's top winners in 2016, short **Verifone Systems (PAY),** was a loser in the month of December, giving back some of the profit, but not all of the profit made during the year. PAY started the year at $28, fell to a low of $15 in October, and then rebounded to $18 on fourth quarter 2016[7] results that contradict the stock's reaction. When a company materially lowers expectations, in this case revenue and earnings expectations for 2017, normally, one would expect its stock price to react negatively.

Verifone Systems (PAY) - Earnings Change vs. Stock Market Reaction			
	2016A	2017 - Old	2017 - New
Non-GAAP EPS	1.66	1.61	1.36
% Change 2017 / 2016		-3.0%	-18.1%
% Change 2017 Old / 2017 New			-15.5%
Stock price prior to release (12/12/16)	16.44		
Stock price next day	17.85		
% Change	8.6%		

Verifone Systems (PAY) is one of two incumbent vendors of point-of-sale (POS) card swipe terminals. The other is **Ingenico SA (ING.France).** Even though Ingenico faces the same creative destruction as Verifone, Ingenico has taken market share and generates higher margins. Its business is more globally[8] diversified and its operational execution superior. In contrast, Verifone has destroyed value through serial acquisitions that have never been adequately integrated, and under-investment in research and development (R&D) leading to a circuitous need to make acquisitions.

In December 2016, Amazon announced its "Amazon Go" retail concept that eliminates checkout lines. Customers check in at the front of the store with the Amazon Go app, take whatever items are desired, and Amazon tracks the items automatically through mobile supply chain technology (e.g. RFID, NFC). When you're done shopping, you just walk out.

[7] Fiscal year ends October 31.

[8] Verifone and Ingenico are either #1 or #2 in all geographies except for Asia where Ingenico (18% market share) is #2 behind Fujian Newland (21%). Verifone is #7 in Asia with only 5% market share.

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The negative impact to PAY's hardware sales (called system sales) is life threatening unless management is able to quickly build new businesses that replace the lost revenue. PAY reports two segments on its income statement – systems and services. The decline in systems revenue is accelerating, from -5.6% in FY 2016 to -15% to -20% in FY 2017, while services are growing ~10% per annum. The net result is a negative revenue trajectory (-5% according to management).

On the morning of December 13, 2016, I woke up expecting PAY to be down at least in line with the cut in its earnings expectations (down 15.5% in 2017) and was stupefied yet again by a market response that is disconnected from the facts. I'm not surprised by the fact that I was surprised. As a stock investor I know to expect the unexpected. Yet I can't help but feel the shock every time. The feeling of profound disappointment, of being overwhelmed by a market that is like the ocean. Standing on the edge of Grace Bay (Turks & Caicos) on the day after Christmas, I found myself in awe of its vastness. There is nothing you can do about direction when the tide is rolling in or out. And there is nothing you can do about the direction of the market. The stock market roared in late 2016 after the presidential election. PAY jumped 8.6% on news that earnings estimates were being cut by 15.5%, totaling an 18.1% decline year over year. This is rotten news, unequivocally rotten, and yet the market perceived it otherwise.

Making matters crazier is the fact that PAY's earnings figures are all non-GAAP figures that bear no resemblance to reality. While non-GAAP earnings are positive, GAAP earnings were negative in 2016, and may or may not remain negative through 2017 at least. Management is guiding to positive GAAP EPS in 2017, but only $0.39 per share, which equates to a rich 45.8x P/E.

Verifone Systems (PAY) - GAAP vs. non-GAAP, per Guidance

	2016A	2017E
Non-GAAP EPS	1.66	1.36
P/E	10.8x	**13.1x**
GAAP EPS	-0.08	0.39
P/E		**45.8x**

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In this era of hyperbole, echoes of the internet bubble reverberate in the accounting of technology companies. We at 3-Sigma Value remain as skeptical of the merits of *pro forma* accounting as we were back in the 20th century. In fact, financial reporting has become even more obtuse since then.

The qualifier *pro forma* is a scourge on financial analysis, enabling management teams to manipulate financial reporting to serve their needs. In Latin it means "as a matter of form" or "for the sake of form" and is applied to practices or documents that are done as a pure formality. In accounting, pro forma is traditionally employed in advance of a planned M&A or other capital structure transaction to project the financials of the new company. When I was an investment banking analyst at Bear Stearns in the mid-1990s we were told that *pro forma* means *as if*. I was asked to produce *pro forma* financial statements for senior investment bankers covering client companies such as Cablevision (CVC) and Time Warner (TWX) *as if* potential mergers or acquisitions or recapitalizations were transacted. This seemed perfectly normal until I began to notice in the years after I left Bear Stearns that many of the Internet IPOs were pitched to investors using *pro forma* to turn losses into profits – *as if* certain types of expenses were excluded. Rather than use the words *pro forma*, some management teams chose a different, more benign qualifier to exclude expenses such as *adjusted*, as in *adjusted* EBITDA or *adjusted* net income.

The Verifone 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 are misleading. 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 Verifone's true relative earnings power. Non-GAAP costs exclude acquisition-related costs totaling $131.7 million in FY 2016, or 6.6% of revenue. Similarly, PAY spent $41.8 million on stock-based compensation (2.3% of revenue). In addition, PAY bought back $79.9 million its own shares in the public market in part to offset dilution from stock options – see financing section of cash flow statement – proving there are real cash costs when awarding stock options. It's misleading when stock compensation and acquisition-related expenses are eliminated in the calculation of earnings. These are not one-time items. To calculate earnings without including these items leads to over-valuation.

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The crux of 3-Sigma Value's financial analysis is scenario-based. We identify the significant factors/assumptions underlying financial performance, and then vary the factors to reflect optimistic (Upside) and pessimistic (Downside) outcomes. In the case of Verifone (PAY), we identify the following ten (10) factors:

1. System/Services revenue = with management guiding total revenue down 5%, systems revenue will be down 15%-20% as services revenue grinds higher at ~10% rate

2. Gross Margins = there is little margin leverage as both system and services gross margins converge ~60%

3. Research and development = flattish ~$210 million

4. S&M = 10-12% of revenue

5. G&A = flattish ~$190 million

6. Interest expense = tied to $936.8 million of debt, consisting of Term A loan ($525M), Term B Loan ($196M), Revolver ($205M), and Capital leases ($12M)

7. Stock Compensation = flattish ~$40 million

8. Capital Expenditures = flattish ~$100 million

9. WACC = 10.1%

10. Terminal Value Multiple = 6x-10x range

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Verifone Systems (PAY) - Financial Summary						
Share Price as of 1/9/17						$18.96
x FD Shares Out.						111.3
= Market Capitalization						2,110.2
- Cash & S-T Investments						148.4
+ Total Debt						925.9
+ Minority Interest						34.7
= Enterprise Value (EV)						2,922.4
FYE 10/31		2014A	2015A	2016A	2017E	2018E
Revenue		1,869	2,000	1,992	1,844	1,775
EV / Revenue		1.6x	1.5x	1.5x	1.6x	1.6x
EBITDA		220	275	212	209	202
EV / EBITDA		13.3x	10.6x	13.8x	14.0x	14.4x
EPS		-0.33	0.67	-0.09	-0.10	-0.20
P/E		-57.3x	28.2x	-219.7x	-189.1x	-97.1x
	Live	Upside	Base 1	Base 2	Base 3	Downside
WACC	10.3%					
% Growth in Systems Revenue	-15%	-5%	-10%	-15%	-20%	-25%
PV of UCFC (2017-2019)	344	703	397	344	296	-2
Revenue - 2019	1,737	2,286	1,863	1,737	1,625	1,312
EBITDA - 2019	200	417	236	200	168	11
Terminal Value Multiple (6x-10x)	8.0x	10.0x	8.0x	8.0x	8.0x	6.0x
PV of Terminal Valuation	1,194	3,122	1,408	1,194	1,001	47
Net Debt + Minority Interest	812	812	812	812	812	812
Equity Value	726	3,013	992	726	485	0
per share	6.52	27.07	8.92	6.52	4.35	0.00
Prob-weighted target price	**9.37**					
Upside (Downside)	**-50.6%**					
Implied Multiple of 2019 Revenue	**1.1x**					
Implied Multiple of 2019 EBITDA	**9.3x**					

Conclusion: Verifone (PAY) could be worth $27 (risk = 8 points) or it could be worth $0 (reward = $19 points). On a probability-weighted average, PAY is worth $9.37 (-51%), equal to a very reasonable 1.1x 2019 revenue and 9.3x 2019 revenue.

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Final Thoughts

Garbage in, garbage out. I learned the concept in college in a class called Decision Sciences (DeSci). We learned how to use Microsoft excel to build mini programs (macros) that included regression analysis in the prediction of outcomes. Garbage in, garbage out refers to the fact that faulty, incomplete, or imprecise data used in a model will produce faulty, incomplete, or imprecise results. Garbage in, garbage out is the reason why we at 3-Sigma Value focus on the assumptions or factors underlying a model rather than on the output or answers. If the assumptions are realistic then the answers will be realistic.

We never pinpoint anything or predict with exactitude. Instead, we work in ranges. Ranges that incorporate all plausible scenarios. The key to our investment process is estimating **risk versus reward** (defined by scenario analysis). Risk, which we define generally as the probability of permanent capital loss and, more specifically, as the valuation derived from the downside case operating scenarios, is what we spend the majority of our time studying because ultimately the predominant consideration when investing money is the preservation of capital. Building on a foundation of capital preservation enables us to identify asymmetrical risk/reward opportunities where potential upside is significantly greater than potential downside.

To illustrate the concept of garbage in, garbage out, we conclude with one of the better-known companies on 3-Sigma Value's Top 10 Winners list in 2016: GoPro (GPRO). After originally covering our GPRO short in November 2015 at $20, the stock price continued to plummet to a May 2016 low of $8.62 in the wake of disappointing Q1 2016 results. Then the stock price doubled to $17+ by September in anticipation of a refreshed action camera portfolio with the new HERO5 Black and HERO5 Session, and introducing its first-ever drone, Karma. Karma's short 18 minute life and lack of obstacle avoidance, however, made the product a loser even before it was recalled for losing power and falling out of the sky in alarming numbers. We re-initiated a short in September. Management's revenue guidance of $625 million +/- for the fourth quarter of 2016 is ludicrous. Revenue was only $437 million in the year ago quarter, meaning management expects 45% year-over-year growth despite the fact that the HERO5 carries a 12.5% price cut compared to the HERO4. As the holiday season approached and the ridiculousness of GPRO's guidance became apparent, the stock price fell to a December 2016 low of $8.65 and we covered our short yet again.

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When garbage assumptions are used to promote a stock, garbage outcomes can be expected. The essence of what we do – long/short market agnostic investing – is discriminating between garbage assumptions and realistic ones. The bigger the gap the bigger the opportunity.

Thank you for your confidence.

Benjamin Weinger
Portfolio Manager
3-Sigma Value, LP

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