



## 2012 Annual Letter to Shareholders

Fellow Shareholders:

For Harris & Harris Group, Inc., 2012 was a year to position for the future. Following 2011, when we had five meaningful liquidity events, including the sales of BioVex, Crystal-IS and Innovalight, and the initial public offerings (IPOs) of NeoPhotonics and Solazyme, in 2012, we focused our efforts in three areas we believe will be important to the future of this company. In this Annual Letter to Shareholders, we discuss these three areas, and we discuss the change in the valuations of our current portfolio during the fourth quarter of 2012.

Harris & Harris Group is well positioned for the future. We have identified the investment sectors that we believe have the opportunity to provide outsized investment returns over the coming decade, and we continue to make investments in these areas. We believe there are opportunities to partner with third-party capital within these areas to provide greater opportunities for growth for Harris & Harris Group. Our existing portfolio is generating a tremendous amount of excitement. Finally, we see in the dismal state of support for American scientific innovation an opportunity to establish Harris & Harris Group as a leader in bringing early-stage scientific discoveries to market.

### *Priorities of Harris & Harris Group*

First, we began organizing the Company to manage third-party capital. We believe investing alongside third-party capital will be an effective means for leveraging our existing capital to increase the return potential of our investments. We believe managing third-party capital can also provide income in the form of management fees and increased returns in the form of carried interest. This income benefits shareholders, allows us to retain and recruit investment professionals and creates more meaningful increases in our value if we are successful. We expect this process of organizing to manage third-party capital to continue through 2013.

Second, we have identified the investment sectors that we believe have the opportunity to provide outsized investment returns over the coming decade, and we are making investments in these areas. In 2012, we made two new investments. In both cases, we invested more dollars and took greater ownership positions than our historic norm. This is a strategy we implemented over the past two years.

During 2012, we invested \$3.26 million in OpGen, Inc. OpGen is an innovator in providing rapid, accurate, DNA analysis products and services. The company's

proprietary Whole Genome Mapping technology provides high-resolution, whole genome maps for sequence assembly and validation, strain typing and comparative genomics. The company is dedicated to positively influencing individual healthcare outcomes, advancing scientific research and enhancing public health by delivering precise, actionable information and results to customers in the life science and healthcare communities. OpGen's customers include genomic research centers, public health agencies, bio-defense organizations, academic institutions, clinical research organizations and biotechnology companies.

In December 2012, we made a \$2 million investment in AgBiome. We are a founding investor in AgBiome. AgBiome is a provider of early-stage research and discovery for agriculture and is utilizing the crop microbiome to identify products that reduce risk and improve yield.

Statistically, venture capital demonstrates a distribution pattern where the tail distributions create the most meaningful outcomes. There is a floor to the investment losses, but the investment return from a single investment can potentially be disproportionately larger than our original invested capital.

We believe our strategy of investing more dollars and taking larger ownership positions provides the potential to increase our returns when we have successful liquidity events. While it raises the risk associated with each single investment, we believe that the larger investments will permit us to make more meaningful gains when an investment ultimately is successful. The greater ownership will permit us more control over the direction of our portfolio companies.

Third, our existing portfolio is generating a tremendous amount of excitement. We currently have 24 companies in our equity-focused venture capital portfolio that generate revenue. In aggregate, our portfolio companies had approximately \$532 million in revenue in 2012, a 25.5 percent increase from aggregate 2011 revenue of approximately \$424 million, a 39.9 percent increase from aggregate 2010 revenue of approximately \$380 million and a 99.1 percent increase from aggregate 2009 revenue of approximately \$267 million.

Currently, D-Wave is the company generating some of the greatest excitement. The progress made by D-Wave since our initial investment, as evidenced by scaling its chips from two to over 500 q-bits, is remarkable. The company raised additional capital in an oversubscribed round of financing from current and new investors, including a personal investment by Jeff Bezos of Amazon. It secured orders for its computers, and it recently expanded its management team with high-quality individuals experienced with public market companies.

In a recent article in *New Scientist Magazine*, on March 6, 2013, D-Wave reported at the Adiabatic Quantum Computing workshop at the Institute of Physics in London that it had found evidence of quantum entanglement in experiments with systems of two and eight qubits within its computer. Entanglement is a key component when determining whether

quantum effects are occurring. D-Wave's results are not the only evidence that its system is entangled. At the same workshop, Federico Spedalieri of the Information Sciences Institute in Marina Del Rey, California, presented additional evidence of entanglement, using data provided by D-Wave but employing a different methodology.

This recent news provides further validation from the scientific community that D-Wave's capabilities are transformational and are solving some of the most challenging computational problems that exist. We recommend that interested shareholders read the article from the *New Scientist Magazine*. It discusses quantum computing and some of the problems D-Wave's computer has already solved. The full article may be accessed at <http://www.newscientist.com/article/dn23251-controversial-quantum-computer-aces-entanglement-tests.html?page=1>.

Additionally, Lockheed Martin recently created a video that explains the power of D-Wave's computer and discusses how Lockheed is using it to approach problems that are too difficult for existing computational systems. The video can be accessed at [http://www.youtube.com/watch?feature=player\\_embedded&v=Fls523cBD7E](http://www.youtube.com/watch?feature=player_embedded&v=Fls523cBD7E)

Three other portfolio companies have also been in the news recently. In all three, we are part of the founding investor syndicate, and we are actively involved. Produced Water Absorbents (PWA), our environmental oilfield service company, uses a swellable, organically modified silica material that absorbs small, organic compounds into its matrix while repelling water. Recently, PWA has been qualified with multiple major global oil companies to begin testing of its produced water management systems on offshore oil rigs located in southeast Asia. These tests will run through the third quarter of 2013.

During the fourth quarter of 2012, Adesto transformed overnight into a late-stage company generating tens of millions of dollars in revenue through the acquisition of Atmel's serial flash memory business. We believe this business lays the foundation for the potential rapid introduction in 2013 and 2014 of next-generation memory products, called CBRAM, enabled by the company's proprietary materials and technology.

SiOnyx continues to focus on improving the performance of light sensing devices commonly used in consumer, commercial and defense related applications. SiOnyx's image sensors are able to detect light that other similar sensors are unable to detect, particularly infrared light. This capability is demonstrated in a video posted by SiOnyx on YouTube (<https://www.youtube.com/watch?v=9gsQanrZbIw>). SiOnyx has secured opportunities and interest from market-leading companies in mobile computing, perceptual computing, mobile biometrics and gesture user interface control.

We are working closely with our best portfolio companies to maintain or increase our ownership. This will provide the opportunity for more meaningful returns upon exit. We continue to believe we will experience multiple liquidity events over the next 24 months, and we currently believe at least one of these liquidity events will occur in 2013. There is no guarantee, however, that these liquidity events will occur within the timeframes we expect, if at all.

*Portfolio Company Valuation:*

Harris & Harris Group has historically had the discipline to write down valuations when we believe there is a dislocation between what we witness in the public markets in the type of companies we invest in and what we see in the venture capital markets. We practiced this discipline during the fourth quarter of 2012. The value of our portfolio, net of new investments made and cash returned from monetizing investments, decreased by \$19.2 million resulting in a decrease in our net asset value per share (“NAV”). Our NAV decreased from \$4.78 at September 30, 2012, to \$4.13 as of December 31, 2012.

Our two public companies, NeoPhotonics and Solazyme were responsible for \$7.4 million of the \$19.2 million decrease. This decrease of \$7.4 million as of December 31, 2012, was a result of decreases in the public market prices of the shares we owned of Solazyme and NeoPhotonics. We monetized \$3.1 million of our investments in Solazyme and NeoPhotonics during the fourth quarter of 2012. As of the date of this letter, we have monetized \$11.1 million from our investments in these companies including premiums from called or expired options, which represents a realized return multiple on invested capital of 5.1 and 0.3 on our investments in Solazyme and NeoPhotonics, respectively. As of the date of this letter, we own 1,594,590 shares of Solazyme, and we no longer own any shares of NeoPhotonics.

The other \$11.8 million of the decrease in value, was a result of decreases in the valuation of our privately held venture capital portfolio offset by an increase of \$4.3 million in the value of Xradia. Each company whose valuation changed had specific events and reasons for its valuation change, but there were two general reasons for such a large change in valuations during the fourth quarter of 2012.

First, we experienced write-downs in several of our early-stage companies. These write-downs are not unusual. As we have discussed historically, some of these early-stage companies will not be successful investments. To be successful, it is important that we “feed the fat hogs and starve the lean ones.”

However, we have previously taken intermediate writedowns in investments which later proved profitable. Sometimes we have the opportunity to re-set the valuations to better represent the risks we see going forward. Sometimes this re-set may benefit our ownership thereby permitting us to realize greater value later as the company executes on its business plan. This is part of what we have referred to historically as the venture capital “J-curve”. The J-curve is discussed on page 25 of our recently filed Annual Report on Form 10-K for the year ended December 31, 2012.

In the venture capital industry, even when a portfolio of early-stage, high-technology venture capital investments proves to be profitable over the portfolio’s lifetime, it is common for the portfolio’s value to undergo a so-called “J-curve” valuation pattern. This means that when reflected on a graph, the portfolio’s valuation would appear in the shape of the letter “J,” declining from the initial valuation prior to increasing in valuation. This J-

curve valuation pattern results from write-downs and write-offs of portfolio investments that appear unsuccessful, prior to write-ups for portfolio investments that prove to be successful.

The J-curve is a normal part of our business. We believe that some of these decreases will be offset later by increases as the companies begin to execute on their plans. Historic examples of this would be NeuroMetrix and BioVex which both decreased in value before providing very good returns for Harris & Harris Group.

The second general reason driving changes in our private portfolio is our recognition that the public markets are currently ascribing lower than historical valuations to the type of companies in which we invest. We believe the public markets are undervaluing innovation and growth, placing a much higher value on current profit and cash flow. Over time, we believe there will be some regression to the mean driven by a return in the demand for investing in innovation and growth companies.

A recent example from our portfolio is Solazyme. It went public during the second quarter of 2011. Solazyme continues to trade at times at deflated levels in the public markets as compared to its last round of private financing ahead of its IPO, even though it is, arguably, more mature and in a stronger position for future growth than when the last round of private capital was invested in the company. The volatility of Solazyme has created at least one opportunity though. We collected over \$1.6 million in net proceeds on option positions in 2012.

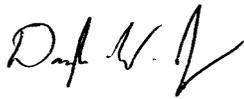
Writedowns in the values of more mature companies in our portfolio such as Adesto, Bridgelux and Cambrios are, in part, representative of this recognition of the mismatch between venture capital pricing and values ascribed to companies at similar stages of development in the public markets. Adesto, Bridgelux and Cambrios had record years of revenue in 2012. In spite of the decreases in value of our holdings of each company as of the end of 2012, we remain excited about the prospects for all three companies and for the potential future returns from these investments to Harris & Harris Group above where we value these investments as of December 31, 2012. In all three cases, present value may not be indicative of future value.

Additionally, we are observing that the current lack of value ascribed to transformative growth companies in the public markets is impacting liquidity discussions and decisions of some of our most mature companies in the portfolio. Some of these companies are changing plans away from seeking an IPO as the thought of being a public company in the current market environment is viewed as anathema to strategic company building. Others are rejecting acquisition offers perceived as unattractive, particularly if private capital is available to continue growing these companies.

We are required by applicable accounting regulations to fairly reflect the current environment in our valuations. We believe there may be positive surprises as our companies continue to mature, and we believe that many of our companies are well capitalized to wait until the best opportunities present themselves. But the current

environment is not conducive to transformative companies with future growth potential and our valuations at December 31, 2012, reflect that fact for each company on an individual basis.

We invest and will continue to invest in early-stage, science-based, disruptive technology from which we can build transformative companies. Often these businesses are capital intensive owing to the need for large equipment, laboratory space and manufacturing facilities. The current market is one in which to be investing, not harvesting. We believe our actions in 2012 position us to realize greater value when the time to harvest is upon us. Thank you for your continued support and interest in Harris & Harris Group.



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March 15, 2013

This letter may contain statements of a forward-looking nature relating to future events. These forward-looking statements are subject to the inherent uncertainties in predicting future results and conditions. These statements reflect the Company's current beliefs, and a number of important factors could cause actual results to differ materially from those expressed in this letter. Please see the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2012, as well as subsequent filings, filed with the Securities and Exchange Commission for a more detailed discussion of the risks and uncertainties associated with the Company's business, including but not limited to, the risks and uncertainties associated with venture capital investing and other significant factors that could affect the Company's actual results. Except as otherwise required by Federal securities laws, the Company undertakes no obligation to update or revise these forward-looking statements to reflect new events or uncertainties. The references to the websites [www.HHVC.com](http://www.HHVC.com), [www.newscientist.com](http://www.newscientist.com) and [www.youtube.com](http://www.youtube.com) have been provided as a convenience, and the information contained on such websites is not incorporated by reference into this letter. Harris & Harris Group is not responsible for the contents of third party websites.