



Investment Process

We seek to invest in companies that possess franchise characteristics, are benefiting from an accelerating profit cycle and are trading at a discount to our estimate of private market value. Our investment process focuses on two distinct elements—security selection and capital allocation. We overlay our investment process with broad knowledge of the global economy.

Security Selection

We seek to identify companies that have franchise characteristics (e.g., low-cost production capability, possession of a proprietary asset, dominant market share or a defensible brand name), are benefiting from an accelerating profit cycle and are trading at a discount to our estimate of private market value. We also assess key environmental, social and governance (ESG) issues that could impact future stock returns. We look for companies that are well positioned for long-term growth, which is driven by demand for their products and services, at an early enough stage in their profit cycle to benefit from the increased cash flows produced by the emerging profit cycle.

Capital Allocation

Based on our fundamental analysis of a company's profit cycle, we divide the portfolio into three parts. GardenSM investments are small positions in the early part of their profit cycle that may warrant more sizeable allocations as their profit cycle accelerates. CropSM investments are positions that are being increased to a full weight because they are moving through the strongest part of their profit cycles. HarvestSM investments are positions that are being reduced as they near our estimates of full valuation or their profit cycles begin to decelerate.

Broad Knowledge

We overlay the security selection and capital allocation elements of our investment process with a desire to invest opportunistically across the entire global economy. We seek broad knowledge of the global economy in order to find growth wherever it occurs.

Team Overview

We believe deep industry expertise, broad investment knowledge, a highly collaborative decision-making process and individual accountability are a powerful combination. Since the inception of the team, we have been committed to building a team of growth investors that retains these attributes and is solely dedicated to our process and approach.

Portfolio Management



Jason L. White, CFA
Portfolio Manager (Lead)



James D. Hamel, CFA
Portfolio Manager



Matthew H. Kamm, CFA
Portfolio Manager



Craig A. Cepukenas, CFA
Portfolio Manager

Investment Results (% USD)

As of 31 December 2019	Average Annual Total Returns						
	QTD	YTD	1 Yr	3 Yr	5 Yr	10 Yr	Inception ¹
Composite — Gross	10.64	44.29	44.29	—	—	—	18.97
Composite — Net	10.38	42.93	42.93	—	—	—	17.83
MSCI All Country World Index	8.95	26.60	26.60	—	—	—	9.50

Annual Returns (% USD) 12 months ended 31 December

	2015	2016	2017	2018	2019
Composite — Gross	—	—	—	-1.93	44.29

Source: Artisan Partners/MSCI. Returns for periods less than one year are not annualized. ¹Composite inception: 1 September 2017.

Past performance does not guarantee and is not a reliable indicator of future results. Current performance may be lower or higher than the performance shown. Composite performance has been presented in both gross and net of investment management fees.

Investment Risks: Investments will rise and fall with market fluctuations and investor capital is at risk. Investors investing in strategies denominated in non-local currency should be aware of the risk of currency exchange fluctuations that may cause a loss of principal. These risks, among others, are further described near the back of this document, which should be read in conjunction with this material.



Investing Environment

Positive developments in trade, better-than-expected earnings results and a resilient US consumer cleared some clouds of uncertainty over the market during Q4, pushing global equity markets to record highs. For the calendar year, the MSCI AC World Index erased all its 2018 losses, delivering the best total return in a decade. In Q4, emerging markets led, followed by US markets and non-US developed markets.

Global trade tensions escalated through most of 2019, though some positive developments during Q4 helped alleviate a bit of uncertainty. The USMCA agreement neared approval in the US Senate, and the US and China announced a phase 1 trade deal. While the jury is still out on a longer-term US-China trade resolution, the phase 1 deal signaled a ceasefire.

On the monetary policy front, central banks remained dovish, and benchmark interest rates remained low or negative globally. In October, the Federal Reserve cut its benchmark rate by 25bps for the third time in 2019, while announcing in December a pause on any further rate cuts until there is a meaningful change in the economic outlook—helping soothe investor nerves about an imminent recession.

Equity market strength was broad-based during Q4, with all MSCI AC World Index sectors posting positive returns. Information technology, health care and financials led, while utilities, real estate and consumer staples lagged. Growth stocks outperformed their value counterparts in 2019, helped by tailwinds of subdued GDP growth and low interest rates.

Performance Discussion

Our portfolio led the MSCI All Country World Index in Q4. For 2019 overall, both absolute and relative performance were solid, thanks primarily to security selection. In addition to our financials holdings, three of our four power alleys—industrials, information technology and health care—were areas of particular strength and are where we expect to see further innovation and growth in 2020. Our residual cash position, though modest, was the only relative detractor in 2019 at the sector level.

Vestas Wind Systems was a top contributor in Q4. Vestas' recent order volume has been impressive as operators in the US rush to submit orders ahead of a step-down in the US production tax credit in 2020, adding to an already meaningful backlog. Though the tax credit likely pulled forward some demand, we believe the secular trend toward a less carbon-intensive world has a multi-year runway as technology improvements and capital-cost declines have made wind economically competitive with nuclear, coal and natural gas. Given Vestas' position as the low-cost producer of onshore wind turbines globally, we remain confident in the profit cycle ahead.

Among our bottom contributors in Q4 were Pagseguro Digital and Arista Networks. Pagseguro's shares had an excellent run in 2019 though gave back some gains as recent results did not live up to the

Street's high expectations. The company indicated it is accelerating investments in PagBank—its recently launched mobile banking service—which will put pressure on near-term profitability. We believe this capital outlay is justified and expect the investments to yield an improved growth profile for the company longer term. We believe the secular tailwind toward digital payments in Brazil is in the early innings. Pagseguro's dominant market position and expanded banking-product offerings position it well to take share and stave off competition in a still-underpenetrated market for small and micro-sized merchants.

Arista Networks is the market leader for cloud networking equipment used in data centers for public, private and hybrid cloud deployments. An order slowdown from top customers Microsoft and Facebook has pressured the company's share price in recent quarters. While the Microsoft slowdown has since abated, the Facebook order pause is expected to be a headwind over the near term as Facebook expects to run its data centers at a higher utilization rate to cut costs. Given Arista's customer concentration, it is not surprising to see sales lumpiness from quarter to quarter, and we believe Facebook orders will pick back up later in 2020. Further, recent share gains in the corporate campus networking market should contribute meaningfully to revenue growth longer term.

Portfolio Activity

During Q4, we exited our position in BWX Technologies and initiated a new position in Meggitt—a company we believe stands to benefit from internal profit-cycle catalysts. BWX Technologies is the dominant provider of nuclear reactors to the US Navy and a leading supplier of components and services to the commercial nuclear power industry. The company has reported several meaningful headwinds, including production challenges with missile tubes for the US Navy—proving costlier than originally anticipated—and setbacks for its entry into the medical isotope business. Given these challenges, a late-stage aerospace and defense cycle and our belief the company has hit a more mature phase in its profit cycle, we decided to exit our position.

Meggitt is an international engineering company specializing in components and sub-systems primarily for the aerospace and defense markets. The company is amid a turnaround, led by a relatively new CEO who is spearheading a number of new initiatives aimed at optimizing the company's product portfolio (pruning the underperforming business lines), overlaying a new culture focused on operations, re-aligning compensation incentives to drive working capital and capital expenditure discipline, and deploying initiatives across many of its facilities to improve operations. The turnaround is in the early stages, and we believe in management's ability to improve margins and cash flow over time.

We concluded our campaigns in Treasury Wine Estates and Progressive in Q4. Treasury Wine Estates, a global wine company, has executed well over the duration of our investment campaign, driving the majority of its business toward higher-margin luxury and masstige

wines—premium brands at the \$20-plus price point. Its Chinese market-share gains are accelerating given solid demand there for masstige wines, and we believe this market still has room to grow in the medium term. However, signs of mounting headwinds in the US—including stiffer competition, declining volumes and delays in its efforts to improve margins—combined with the CEO’s recently announced retirement prompted us to exit our position.

While Progressive continues delivering excellent results, taking share in the sizeable personal auto and homeowners insurance markets, the industry’s margin cycle is moderating, which should lead to slower profit growth than the company has experienced in recent years.

We added to our position in Zoom Video. Zoom Video’s core fundamental drivers—new client momentum, upselling existing customers and margin expansion—remain firmly in motion, and we capitalized on recent volatility to add to our position. We believe the company’s technological lead and attractively priced, easy-to-use products and broadening platform—which now includes video conference, meeting rooms, Zoom Phone and chat—position it well to capture additional share of the sizable corporate communications market.

Portfolio Statistics

As of December 31, the portfolio had a median market cap of \$12.0 billion and a 3-5 year forecasted weighted average earnings growth rate of 22%. Our holdings were selling at a weighted harmonic average P/E (excluding negative earnings) of 33X FY1 earnings and 28X FY2 earnings. As of quarter end, we held 55 positions. Our top 20 holdings accounted for roughly 55% of portfolio assets as of quarter end. Our top 30 holdings represented about 69% of portfolio assets.

Our ESG Journey

We view the increasing importance placed on environmental, social and governance (ESG) factors as one of the most notable investment management trends in recent years. Conversations with our clients, management teams of portfolio holdings and team members have suggested that “how business is conducted” is increasingly important. The business news media certainly took note of this trend in 2019, prompting widespread public discussion of the role of business in society.

While the consideration of ESG factors has always been an implicit part of our investment process—which is focused on identifying high-quality franchises with sustainable profit-growth drivers—we embarked on a journey at the beginning of 2019 to establish a more structured framework. We spent the first half of the year defining and understanding how we could more formally integrate ESG assessments in a way that complements our existing process without disrupting what’s made our approach successful for nearly 25 years.

This journey has led us to a two-stage framework that pairs with our existing research and capital allocation process. For new investment ideas, as we work to vet a company’s franchise strength and profit-

cycle catalysts, we are now explicitly identifying key “ESG issues that matter” facing the business. In this stage, we’re seeking to understand key ESG risks and opportunities that could impact future stock returns.

If and when a stock is added to the GardenSM, a new phase of our research begins. As always, we will continue to deepen our understanding of the franchise and profit-cycle dynamics, seeking to build conviction in (or disprove) our investment thesis before adding the stock to the CropSM by committing significant capital. In parallel, we are now adding layers to our ESG research, with the goal of developing a good sense of whether we’re willing to partner with this company by the time a stock is ready to enter the CropSM (we’re calling this stage our “partnership check”).

In addition to this more formal ESG research (which we view as quite complementary to our existing process), we are beginning to selectively engage with portfolio holdings on ESG issues. While we plan to learn and evolve in this area, we suspect our perspectives on topics such as executive compensation, corporate governance, social responsibility and environmental impact will help companies improve their performance in these areas over time, which we expect can contribute positively to share-price performance.

ESG is broad and complex, and we are taking an open-minded, humble approach to our efforts. In addition to this being the right thing to do (in our opinion), we believe there is potential to enhance our assessment of investment risk and reward. For example, our work this year on climate change has already made us better appreciate the profit-cycle opportunities for companies that may stand to benefit from global efforts to reduce emissions or manage the impact of those emissions—including Vestas Wind Systems (the leading producer and servicer of onshore wind turbines globally), DSM (an innovative global manufacturer of ingredients used in the animal feed, food and personal care industries, as well as specialty plastics and resin solutions for the automotive, solar, electrical, food and consumer goods industries) and First Solar (a leading global producer of solar panels). We also see increasing evidence that stock valuations are being influenced by investors’ perceptions of whether a business is on the good or bad side of ESG issues. And as we reflect on our team’s first 25 years of stock-picking, we look back on some of our least successful investments and suspect that more rigorous considerations of ESG factors could have helped us (and our clients) avoid some painful mistakes.

We will be open about our ESG journey as we go and look forward to providing updates and specific examples of our research and engagement in future letters.

Perspective

While very few years will prove as fruitful for equity returns as 2019, and while global macro headwinds certainly remain present, we continue to find opportunities in a number of sectors—including industrials, health care and information technology. Industrials overall

were volatile through most of 2019 as recession fears ebbed and flowed; however, holdings such as Teledyne, Fortive and Clarivate Analytics are executing strategies to steadily move toward higher levels of recurring revenue and software content. The steady shift away from cyclical hardware sales gave us the confidence to remain patient during the volatility and take advantage of more attractive prices to increase exposure to these franchises.

Health care stocks were also subject to volatility during 2019, largely the result of uncertainty around the insurance industry and pharmaceuticals pricing as we near the 2020 US elections. We maintained our discipline, focused on the underlying profit-cycle drivers and built conviction where appropriate—again, taking advantage of volatility to add to a number of our positions. These efforts paid off in Q4 as investor nerves about the election and a single payor system settled.

Our information technology holdings were also among our best absolute- and relative-performing sectors in 2019. While software stocks underperformed in Q4, we continue to believe there is a generational shift in how software is deployed and consumed, creating opportunities for sustained strong growth within well-positioned cloud franchises. The centralization of computing capacity into big cloud providers has dramatically lowered the cost of software systems and increased developer flexibility. Further, the proliferation of mobile devices has significantly lowered software consumption barriers—driving more business and consumer use cases. While lofty software valuations have garnered a lot of attention, we believe the leading franchises in our portfolio are attractive given their durable cash flow generation and proven abilities to extend their growth runways via new product introductions.

While industrial tech, health care innovation and cloud software have been long-standing trends in the portfolio, we began seeing opportunities in a newer trend in 2019: clean energy. We believe we are in the very early innings of a transition to a less carbon-intensive world, which should ramp quickly in the coming years. Technology improvement and capital-cost declines have improved wind and solar economics, making them very attractive energy sources relative to nuclear, coal and natural gas. We believe renewable energy is likely to lead to a transformation in power generation in the coming decades and we expect this trend to feature more prominently within the portfolio over time.

While many macro concerns subsided during Q4, trade tensions, political instability and slowing GDP growth still pose risks to the current bull market. We have no unique ability to project whether these risks or others will come to fruition in 2020, and we remain less interested in businesses for whom global GDP growth is the primary catalyst. We continue to focus on finding high-quality franchises with secular and internal drivers of multi-year profit cycles and think these investments should continue to be preferred within a slow-growth global economy. Even within a very strong year for equity returns, 2019 featured a number of volatile swings for the market and for

specific sectors. We have cited examples of our team's ability to use that volatility to our advantage and will look to do the same in 2020.

For more information: Visit www.artisanpartners.com

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Our capital allocation process is designed to build position size according to our conviction. Portfolio holdings develop through three stages: GardenSM, CropSM and HarvestSM. GardenSM investments are situations where we believe we are right, but there is not clear evidence that the profit cycle has taken hold, so positions are small. CropSM investments are holdings where we have gained conviction in the company's profit cycle, so positions are larger. HarvestSM investments are holdings that have exceeded our estimate of intrinsic value or holdings where there is a deceleration in the company's profit cycle. HarvestSM investments are generally being reduced or sold from the portfolios.

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Artisan Global Discovery Strategy

Quarterly Contribution to Return (% USD)

As of 31 December 2019

Top Contributors	Average Weight	Contribution to Return	Ending Weight
Varta AG	2.97	1.01	2.81
Advanced Micro Devices Inc	1.80	0.88	2.14
Global Payments Inc	5.70	0.85	5.73
Notre Dame Intermedica Participacoes SA	2.40	0.68	2.64
Vestas Wind Systems A/S	2.33	0.65	2.50
Techtronic Industries Co Ltd	3.57	0.60	3.64
Skyworks Solutions Inc	1.19	0.55	1.49
Ascendis Pharma A/S	1.36	0.54	1.62
Gardner Denver Holdings Inc	1.87	0.52	1.99
Ceridian HCM Holding Inc	1.24	0.46	1.55
IHS Markit Ltd	3.22	0.41	3.22
London Stock Exchange Group PLC	1.99	0.36	2.98
DexCom Inc	0.90	0.35	0.99
Teledyne Technologies Inc	4.20	0.35	3.81
Boston Scientific Corp	3.14	0.34	3.21
Eurofins Scientific SE	1.31	0.25	1.33
First Republic Bank	1.42	0.25	1.39
IMCD NV	1.37	0.25	1.38
Genmab A/S	2.46	0.24	2.38
Hoya Corp	1.29	0.23	1.42
Burberry Group PLC	1.83	0.21	2.20
Fortive Corp	1.78	0.21	1.97
The New York Times Co	1.49	0.20	1.46
Amadeus IT Group SA	1.36	0.19	1.24
Varun Beverages Ltd	0.37	0.19	0.00
Guidewire Software Inc	3.71	0.18	3.43
Alexion Pharmaceuticals Inc	1.52	0.17	1.31
Burlington Stores Inc	1.16	0.17	1.24
Cognex Corp	1.06	0.17	1.22
Adyen NV	0.71	0.17	0.75
Lonza Group AG	1.78	0.15	1.90

Bottom Contributors	Average Weight	Contribution to Return	Ending Weight
Pagesguro Digital Ltd	0.86	-0.29	0.85
Arista Networks Inc	1.46	-0.27	1.32
Veeva Systems Inc	2.45	-0.21	2.21
Canada Goose Holdings Inc	0.88	-0.19	0.65
RealPage Inc	0.96	-0.17	0.85
ServiceMaster Global Holdings Inc	0.17	-0.16	0.00
The Progressive Corp	0.74	-0.12	0.00
Cree Inc	1.26	-0.09	1.14
Fevertree Drinks PLC	0.72	-0.07	0.70
Zoom Video Communications Inc	1.02	-0.06	1.30
First Solar Inc	1.20	-0.06	1.16
Treasury Wine Estates Ltd	0.96	-0.05	0.00
Tencent Music Entertainment Group	0.49	-0.03	0.42
Aluflexpack AG	0.71	-0.03	0.75
Puma SE	1.55	-0.01	1.69
Take-Two Interactive Software Inc	1.04	-0.01	1.17
Atlassian Corp PLC	1.04	-0.01	2.00
Blackline Inc	0.04	-0.01	0.49
B&M European Value Retail SA	0.41	-0.00	0.00
Clarivate Analytics PLC	1.40	-0.00	1.50
Cintas Corp	0.98	0.01	0.95
Cash Holdings	7.69	0.03	6.72
Meggitt PLC	0.26	0.04	0.77
CAE Inc	0.87	0.04	0.85
Orpea	1.29	0.06	1.28
Ollie's Bargain Outlet Holdings Inc	0.81	0.09	1.06
Koninklijke DSM NV	1.12	0.09	1.28
BWX Technologies Inc	1.13	0.10	0.00
Novanta Inc	1.21	0.11	1.20
Zynga Inc	2.17	0.13	2.03
WellCare Health Plans Inc	0.62	0.14	0.74

Source: Artisan Partners/FactSet. Performance is historical and is not a reliable indicator of future results. As of 31 Dec 2019. These investments made the greatest contribution to, or detracted most from, performance during the period based on a representative account within the strategy Composite. Upon request, Artisan will provide: (i) the calculation methodology and/or (ii) a list showing the contribution of each holding to overall performance during the measurement period. Securities of the same issuer are aggregated to determine the weight in the portfolio. % Contribution to Return is calculated by FactSet by multiplying a security's weight in the portfolio by its in portfolio return for the period referenced and does not take into account expenses of the portfolio. Purchases/sales are accounted for by using end of the day prices, which may or may not reflect the actual purchase/sale price realized by the portfolio.