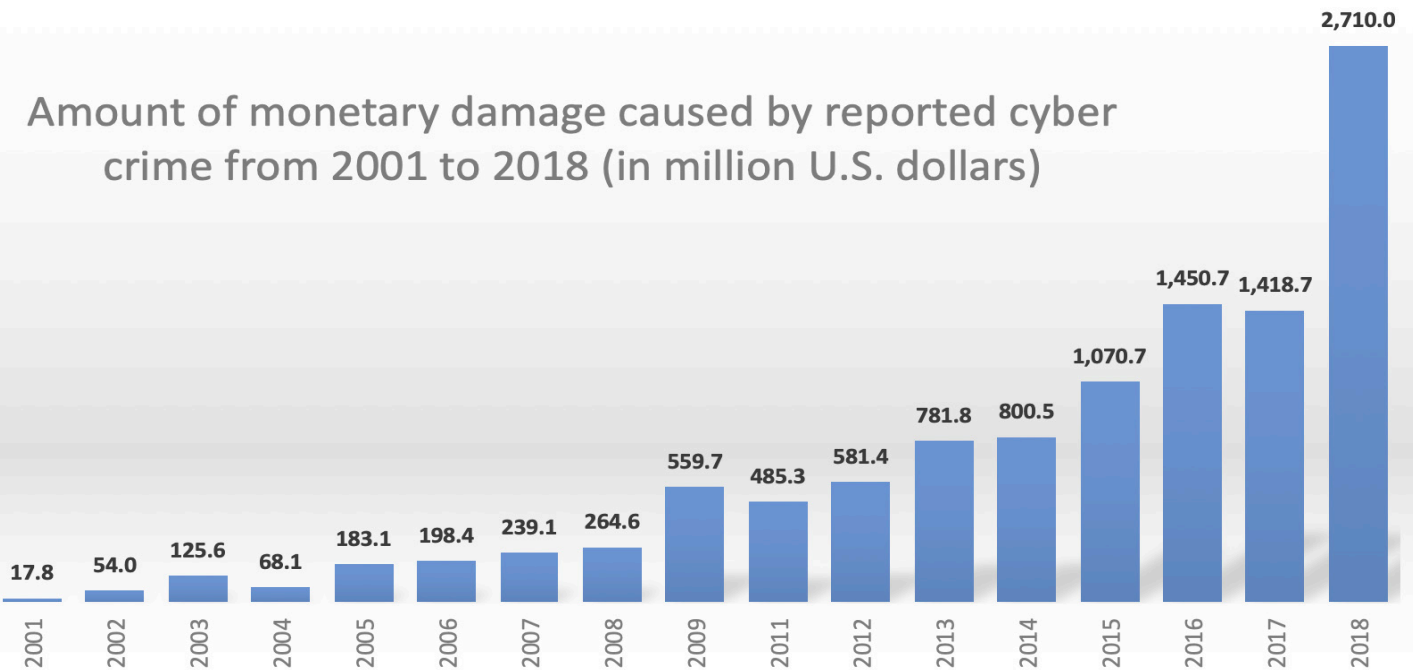


# HACK

## QUARTERLY COMMENTARY 2019 Q2



Amount of monetary damage caused by reported cyber crime from 2001 to 2018 (in million U.S. dollars)



SOURCE: FBI; US DEPARTMENT OF JUSTICE

## Executive Summary

On May 7th, the city of Baltimore realized it was the target of a ransomware attack in which critical files were encrypted remotely and held hostage for ransom. The city notified the FBI and took many systems offline to keep the attack from spreading. The attack took down voice mail, email, a parking fines database, and systems to pay water bills, property taxes and vehicle citations. The Baltimore city budget office estimated the cost of responding to the attack at \$18 million.

We continue to see a significant increase in the need for cybersecurity, as evidenced in the chart from the US Department of Justice. The increase in monetary damage from cybercrime, now approaching \$3 Trillion annually, increased more than 90% in 2018 from the prior year.

## Fund Performance

HACK returned -0.32% for the quarter ended June 30, 2019, which was in line with its benchmark and ahead of the overall Information Technology Industry.

At the sector level, Industrials (despite its 3% weight in the index) was the largest contributor to performance, returning 5.2% for the quarter. Information Technology had a -0.04% impact on HACK's return.

SECTOR CONTRIBUTORS	AVG. WEIGHT (%)	TOTAL RETURN (%)	SECTOR CONTRIBUTION (%)
Information Technology	96.43	0.02	-0.04
Industrials	3.05	5.20	0.15
Not Classified	0.52	0.27	0.00

At the security level, HACK's performance was helped by UK-based virus protection company Sophos Group (SOPH LN, +28.2%), as well as US technology consultant Science Applications International (SAIC, +13.1%). HACK's holdings that had negative returns included Sailpoint Technologies (SAIL, -30.2%), Commvault Systems (CVLT, -23.4%), and Palo Alto Networks (PANW, -16.1%).

TOP 10 POSITIVE CONTRIBUTORS	AVG. WEIGHT (%)	TOTAL RETURN (%)	CONTRIBUTION TO RETURN (%)
SOPHOS GROUP PLC	3.81	28.16	0.84
SCIENCE APPLICATIONS INT	3.64	13.05	0.48
OKTA INC	1.15	49.29	0.45
CACI INTERNATIONAL INC -C	3.69	12.40	0.41
AKAMAI TECHNOLOGIES INC	3.73	11.76	0.40
FFRI INC	0.58	57.87	0.28
CYBERARK SOFTWARE LTD/I	3.99	7.38	0.26
LEIDOS HOLDINGS INC	0.91	25.10	0.20
KEYW HOLDING CORP/THE	0.54	30.28	0.17
QUALYS INC	3.50	5.25	0.17

## FUND PERFORMANCE (CONTINUED)

TOP 10 NEGATIVE CONTRIBUTORS	AVG. WEIGHT (%)	TOTAL RETURN (%)	CONTRIBUTION TO RETURN (%)
SAILPOINT TECHNOLOGIES	2.85	-30.22	-1.07
COMMVault SYSTEMS INC	2.85	-23.35	-0.75
PALO ALTO NETWORKS INC	3.46	-16.11	-0.61
FIREEYE INC	3.25	-11.79	-0.42
TENABLE HOLDINGS INC	3.35	-9.85	-0.35
CHECK POINT SOFTWARE	3.41	-8.60	-0.32
FORTINET INC	3.54	-8.50	-0.31
TREND MICRO INC	3.31	-8.39	-0.29
SOLARWINDS CORP	3.44	-6.05	-0.21
SECUREWORKS CORP - A	0.69	-27.77	-0.20

Looking at fundamental factor performance, the portfolio's allocation to global software was the largest positive contributor to return, followed by exposure to the global markets and US equities. Detractors were led by style factors Trade Activity, Profitability, and Size.

TOP 6 FACTOR CONTRIBUTORS	ACTIVE EXPOSURE	FACTOR RETURN	FACTOR CONTRIBUTION
Industry:GL Software	0.86	2.16	1.81
Country:GL Market	0.99	1.76	1.66
NorthAm:GL United Sta	0.76	2.19	1.63
Style:GL Growth	0.51	0.72	0.38
Style:GL Momentum	0.28	1.41	0.37
Style:GL Leverage	-0.5	-0.41	0.21

BOTTOM 6 FACTOR CONTRIBUTORS	ACTIVE EXPOSURE	FACTOR RETURN	FACTOR CONTRIBUTION
Style:GL TradeAct	0.84	0.98	-0.86
Style:GL Profit	-0.9	0.89	-0.80
Style:GL Size	-1.6	0.42	-0.46
Style:GL EarnVariab	0.41	-0.65	-0.28
Style:GL DivYld	-0.6	0.45	-0.27
Currency: GBP	0.1	-2.49	-0.26

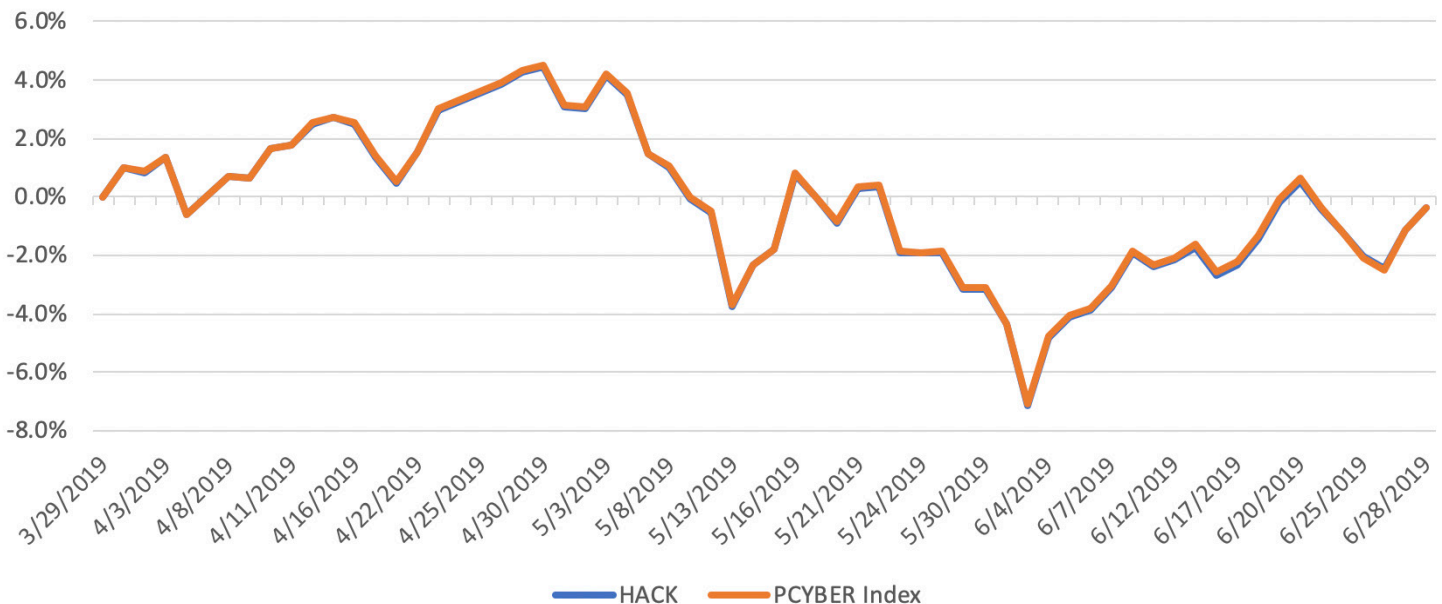
## FUND PERFORMANCE (CONTINUED)

Taking a closer look at the components of the Style factor, we see the magnitude of the contribution made by each individual factor. The largest positive contributor in Q2 was Growth, followed by Momentum, then Leverage. Trade Activity was the largest detractor of the style factors, followed by Profitability and Size (consistent with what we see above).



STYLE RETURN	CONTRIBUTION
Earnings Variability	-0.28
Momentum	0.37
Size	-0.64
Leverage	0.21
Dividend Yield	-0.27
Trade Activity	-0.86
Profitability	-0.80
Growth	0.38
Volatility	0.06
Value	0.06

## Total Return: Q2 2019



## Performance

as of 6/30/19

Fund performance before 8/1/17 was based upon the ISE Cyber Security Index.

	CUMULATIVE				ANNUALIZED				
	1 MONTH	3 MONTH	YTD	SINCE INCEP.	1 YEAR	3 YEARS	5 YEARS	10 YEARS	SINCE INCEP.
MARKET PRICE	4.13%	-0.55%	18.07%	61.29%	7.64%	18.95%			10.87%
NAV	4.24%	-0.32%	17.70%	61.53%	7.67%	19.03%			10.90%
PCYBER INDEX	4.15%	-0.37%	17.89%	64.68%	7.99%	19.33%			11.37%

Fund Inception: 11/12/14

Expense Ratio: 0.60%

**Performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Funds may be lower or higher than the performance quoted. All performance is historical and includes reinvestment of dividends and capital gains. Performance data current to the most recent month end may be obtained by calling 1-844-ETF-MGRS (1-844-383-6477), or by visiting [www.etfmg.com/HACK](http://www.etfmg.com/HACK). Performance is annualized for periods greater than 1 year.**

**Carefully consider the Fund's investment objectives, risk factors, charges, and expenses before investing. This and additional information can be found in the Fund's prospectus, which may be obtained by calling 1-844-ETF-MGRS (1-844-383-6477), or by visiting [www.etfmg.com/HACK](http://www.etfmg.com/HACK). Read the prospectus carefully before investing.**

Investing involves risk, including the possible loss of principal. Shares of any ETF are bought and sold at market price (not NAV), may trade at a discount or premium to NAV and are not individually redeemed from the Fund. Brokerage commissions will reduce returns. Narrowly focused investments typically exhibit higher volatility. The fund is concentrated in technology-related companies that face intense competition, both domestically and internationally, which may have an adverse effect on profit margins. Such companies may have limited product lines, markets, financial resources or personnel. The products of such companies may face obsolescence due to rapid technological developments, frequent new product introduction, unpredictable changes in growth rates, competition for the services of qualified personnel, and competition from foreign competitors with lower production costs. Technology companies are heavily dependent on patent and intellectual property rights. The loss or impairment of these rights may adversely affect the profitability of these companies. Investments in foreign securities involve political, economic and currency risks, greater volatility and differences in accounting methods. The Funds are non-diversified, meaning they may concentrate its assets in fewer individual holdings than a diversified fund. Investments in smaller companies tend to have limited liquidity and greater price volatility than large-capitalization companies. Diversification does not assure a profit or protect against a loss in a declining market. The Fund's return may not match or achieve a high degree of correlation with the return of the Prime Cyber Defense Index. To the extent the Fund utilizes a sampling approach, it may experience tracking error to a greater extent than if the Fund had sought to replicate the Prime Cyber Defense Index.

**The Prime Cyber Defense Index (PCYBER)** provides a benchmark for investors interested in tracking companies actively involved in providing cyber security technology and services. The Index uses a market capitalization weighted allocation across the infrastructure provider and service provider categorizations as well as an equal weighted allocation methodology for all components within each sector allocation. Index components are reviewed semi-annually for eligibility, and the weights are reset accordingly. An investment cannot be made directly in an index. Fund holdings and sector allocations are subject to change at any time and should not be considered recommendations to buy or sell any security.

ETF Managers Group LLC is the investment adviser to the Fund.

The Fund is distributed by ETFMG Financial LLC. ETF Managers Group LLC and ETFMG Financial LLC are wholly owned subsidiaries of Exchange Traded Managers Group LLC (collectively, "ETFMG"). ETFMG Financial LLC is not affiliated with Prime Indexes.

## Definitions

STYLE FACTOR	DESCRIPTION	DATA USED
<b>Momentum</b>	Separates stocks that have outperformed over the past year and those that have underperformed.	Cumulative return over one year (averaged), skipping the most recent two weeks
<b>Value</b>	A composite metric that differentiates “rich” and “cheap” stocks. Bloomberg combines fundamental and analyst consensus data to calculate this factor.	Book to Price, Earnings to Price, Cash Flow to Price, Sales/EV, EBITDA/EV, Forecast Earnings to Price,
<b>Dividend Yield</b>	Most recently announced net dividend (annualized) divided by the current market price	Most recently announced net dividend (annualized) divided by the current market price
<b>Size</b>	A composite metric distinguishing between large and small stocks.	Market Capitalization, Sales, Total Assets
<b>Trading Activity</b>	A turnover based measure. Bloomberg focuses on turnover which is trading volume normalized by shares outstanding. This indirectly controls for the Size effect.	The exponential weighted average (EWMA) of the ratio of shares traded to shares outstanding
<b>Earnings Variability</b>	Gauges how consistent earnings, cash flows, and sales have been in recent years.	Earnings Volatility to Total Assets, Cash Flow Volatility to Total Assets, Sales Volatility to Total Assets
<b>Profitability</b>	Studies firms’ profit margins to differentiate between money makers and money losers.	Return on Equity, Return on Assets, Return on Capital Employed, EBITDA Margin
<b>Volatility</b>	Differentiates more volatile stocks and less volatile ones by quantifying “volatile” from several different angles.	Rolling Volatility, Rolling CAPM Beta, Historical Sigma, Cumulative Range
<b>Growth</b>	Aims to capture the difference between high and low growers by using historical fundamental and forward-looking analyst data.	Total Asset Growth, Sales Growth, Earnings Growth, Forecast of Earnings Growth, Forecast of Sales Growth
<b>Leverage</b>	A composite metric to gauge a firm’s level of leverage.	Book Leverage, Market Leverage, Debt to Total Assets