

## SEF Entropics Cat Bond Fund – Class I

### Performance<sup>1</sup>

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2017				0.05%	-0.06%	0.20%	0.43%	0.56%	-5.53%	1.35%	-0.44%	0.04%	-3.52%

### Manager's Notes

During December, claims reports concerning the extreme hurricane season have made exposed bonds recover partly. The wildfires in California continued to develop and to pressure the mark to market value of some positions. This is also a unique situation as cat bonds generally do not cover wildfires as a single peril. However, bonds with aggregate loss triggers may be affected after the 2017 hurricane season. The Fund has two positions, of which one is expected to encounter a full loss of the face value and the other an 8% loss, which is affecting the fund's Net Asset Value (NAV). In December we published news about these events on [www.entropics.se](http://www.entropics.se).

Since the last monthly report, one new cat bond and eight private transactions have been issued on the primary market. This takes the issuances for 2017 to a new record of USD 12.6 billion and the outstanding volume to a record of USD 31 billion according to Artemis.

The issued cat bond, in three tranches, is sponsored by the reinsurance firm Validus Holdings Ltd. The transaction covers named storms and earthquakes in multiple perils of US, Canada, Puerto Rico and United States Virgin Islands. The tranches pay 7.25%, 9% and 11%, respectively, above the risk-free rate per year. The issuance was up-sized from 325 million USD to 400 million USD. The Fund supported the transaction and took a position in the tranche paying 11% per year and with an annualized expected loss of 5.64%.

The secondary market has been slightly less active than the previous two months. According to FINRA's Trade Reporting and Compliance Engine (TRACE), about 30 different positions, covering most perils available on the market, have been traded.

### Portfolio Summary<sup>2</sup>

Yield to Maturity	7.88%
NAV	96.48
YTD	-3.52%
Last 3 months	0.94%
Last 12 months	-
Since Inception 2/16/15	-3.52%
Volatility	—
Active Share	56.6%
AUM (SEK M)	234
Cash Allocation	9.8%
Number of Cat Bond positions	61
Solvency Capital Requirement (SCR)	12.27%

### Maturity Profile

1) 0Mo - 6Mo Maturity	19.3%
2) 6Mo - 1.0Yr Maturity	9.8%
3) 1.0Yr - 2.0Yr Maturity	10.6%
4) 2.0Yr - 3.0Yr Maturity	43.1%
5) > 3.0Yr Maturity	17.3%

### Annualized Risk Characteristics

Portfolio Expected Loss	2.04%
VaR (90%)	4.71%
VaR (95%)	11.51%
VaR (99%)	32.31%
TVaR (99%)	36.72%
Probability of 0% PL	57.18%

### Historical Event Loss Analysis—

Most severe impact on the portfolio <sup>4</sup>	
1906 San Francisco CA	28.8%
1926 Great Miami	18.4%
1700 Cascadia Subduction	14%
Zone Offshore of BC	
1838 San Andreas Fault CA	10.5%
1994 Northridge-Los Angeles CA	10.5%

### Asset Class Financial Indicators<sup>5</sup>

	Annualized Volatility	Sharpe Ratio
Swiss Re Cat Bond Total Return Index	6.74%	1.03
Barclays BA US High Yield TR index value unhedged	8.46%	0.96
S&P 500	18.20%	0.54

### Portfolio Risk Profile<sup>3</sup>

Wind Exposure		Earthquake Exposure	
Australia	1.37%	Australia	0.37%
Canada	0.00%	Canada	0.78%
Europe	3.05%	Europe	0.78%
Japan	1.54%	Japan	0.98%
US Midwest	0.27%	US Midwest	0.43%
US Northeast	14.15%	US Northeast	0.31%
Florida	24.43%	US Southeast	0.71%
Other US Southeast	12.19%	US Southwest	0.01%
US Southwest	8.19%	California	20.29%
US West	2.87%	Other US West	1.71%
Mexico	4.12%	Mexico	0.00%
<b>Total</b>	<b>72.18%</b>	<b>Total</b>	<b>26.38%</b>
Other perils	1.44%		

### Wind Distribution Overview



### Earthquake Distribution Overview



### Responsible investment key indicators<sup>6</sup>

Purpose	% of positions	Problematic Entities	% of positions
Disaster relief	2.0	Sponsor	0.0
General property	65.5	SPV domicile	0.0
Insurer of last resort	20.6	Collateral currency	0.0
Public services	3.9	Collateral instrument	0.0
Mutual Insurance	3.0		
Problematic purposes	0.0		

### SEF Entropics Cat Bond Fund

SEF Entropics Cat Bond Fund is an actively managed fund that invests in global reinsurance risks covering natural catastrophes (Cat Bonds). The Fund aims for a good risk adjusted return with very low correlation to other asset classes and good diversification among the underlying insurance risks.

The web site [en.entropics.se](http://en.entropics.se) provides additional information on the SEF Entropics Cat Bond Fund, including the Key Investor Information Document (KIID) and the Fund's prospectus.

Historical return is not a guarantee for future returns. The money you invest in the Fund can increase as well as decrease and you cannot be certain to have the full investment returned.

Share Class	I
Currency Class	SEK
Base Currency	SEK
Inception	4/10/17
Performance Target	4-6%
Fund Domicile	Luxembourg
Fund Structure	SICAV
Fund Regulation	UCITS
Liquidity	Fortnightly
Minimum Initial Investment	SEK 20 000 000
Minimum Subsequent Investment	SEK 5 000 000
Current Entry Charge	0%
Performance fee	10%
Hurdle Rate	SSVX90, High Watermark
Management Fee	0.70%
ISIN Number	LU1138351504

### Entropics Asset Management

Entropics Asset Management AB is the first Scandinavian asset manager specialised in Cat Bond investments.

The team has broad experience from asset management, underwriting, meteorology, underwriting, cat claims settlements and financial mathematics.

Entropics is licensed by and under the supervision of *Finansinspektionen*, the Swedish Financial Supervisory Authority.

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### Information on Risk Metrics

The risk measure for Cat Bonds and thus for Cat Bond portfolios is closely linked to reinsurance terminology. The following terms describe, briefly, the central portfolio risk metrics used by Entropics.

**PRINCIPAL ( $\Pi_0$ ):** The Principal of a Cat Bond is the amount deposited as collateral for the bond's reinsurance commitment. A portfolio's total principal ( $\Pi_0$ ) is the total amount exposed to damage events and, thus, generating returns.

**LOSS (L) AND LOSS RATIO ( $x=L/\Pi_0$ ):** The total loss (L) is a monetary value, and to the Loss Ratio  $x= L/\Pi_0$  is a relative measure of the loss size, with a range of 0–100%.

**PROBABILITY OF ATTACHMENT ( $P_{att}$ ):**  $P_{att}$  describes the probability that a portfolio will sustain any damage at all. This probability generally increases with the number of (uncorrelated) bonds in the portfolio.

**PROBABILITY OF 0% LOSS ( $P_0$ ):**  $P_0$  is simply the probability of no loss at all and its relation to  $P_{att}$  is thus  $P_0=1-P_{att}$ .

**PROBABILITY OF EXHAUSTION ( $P_{exh}$ ):** Indicates the probability that the portfolio sustains a damage equal to the entire principal  $\Pi_0$ .  $P_{exh}$  is only notable for portfolios with few bonds. For portfolios with many (uncorrelated) bonds, it is all but infinitesimal.

**EXPECTED LOSS (EL):** The mean loss of a Cat Bond or a portfolio of Cat Bonds. Actual losses will often be 0% (as described by  $P_{att}$ ), but losses, when occur-

ring, will often be considerably larger than EL. The loss thus in general shows considerable variation around the mean loss EL.

**STANDARD DEVIATION ( $\sigma$ ):** To express the volatility of loss around the mean EL, the standard deviation of the loss,  $\sigma$ , is used.

**VARIATION COEFFICIENT ( $\mu=\sigma/EL$ ):** The variation coefficient describes the volatility in relation to the mean loss, EL. The coefficient increases with the volatility of the portfolio.

**EXCEEDANCE PROBABILITY (EP):** Though the EL generally is low and the probability of no loss is high, actual losses have a wide spread.  $EP(x)$  is the probability that a loss is equal to or bigger than the loss ratio  $x$ . EP is usually on a yearly basis and is presented as a function of the loss ratio  $x$ .

**LOSS DISTRIBUTION ( $Q(x)$ ):**  $Q(x)$  is the probability distribution of the loss and is calculated as  $Q(x)=-EP'(x)$ .

**VALUE AT RISK (VaR):**  $VaR(Y)$  is the loss that with the probability  $Y$  is not exceeded on a yearly basis.

**TAIL VALUE AT RISK (TVaR):**  $TVaR(Y)$  is the mean of all losses exceeding  $VaR(Y)$ .

Mathematically, this means that  $TVaR(Y) = \frac{\int_{VaR(Y)}^{\infty} x \cdot Q(x) dx}{\int_{VaR(Y)}^{\infty} Q(x) dx}$

### Footnotes

1. Performance is reported by Swedbank AB and reflects the Fund's Net Asset Value after fees
2. Yield to Maturity is calculated before applicable fees. In accordance with the Solvency 2 directive, a cat bond investment is considered as an insurance risk on the asset side. The Solvency Capital Requirement, SCR (as a monetary amount) for this specific risk is calculated as a percentage of the Assets Under Management (AUM).
3. Risk distribution and profile are calculated by portfolio modelling in AIR CATRADER, being the industry standard tool used by asset managers and re-insurers worldwide to model and analyse catastrophe bonds and other insurance

linked securities. "Other perils" includes perils other than wind and earthquake, e.g. wildfires and flooding. The portfolio can also include unmodelled risks, such as volcano eruptions and meteorite impacts, with extremely low and uncalculable frequency..

4. The historical event loss analysis describes the loss as a percentage of the portfolio if these events were to occur today.

5. Financial key figures are based on ten years weekly data from Bloomberg.

6. A description of the RI indicators can be found at Entropics' blog:

<http://en.entropics.se/blog/how-to-interpret-entropics-indicators-for-responsible-investments/>