

Question 1:**(240 points)**

You are the team leader of the Wealth Management department of DreamFinance Bank, a Swiss bank specializing in wealth management and asset management.

- a) For internal bank reasons, you have been requested to analyse and answer questions on the following structured product:

ISIN / Symbol	ISIN CH0474986392 / 0387BC
Issuer	Banque Cantonale Vaudoise, Lausanne Switzerland (S&P AA/stable)
Nominal amount	CHF 1,000
Minimum investment	CHF 1,000
Issue price	100%
Underlyings (Initial Price)	– SMI® Index (9,694.06) – Euro Stoxx 50® Index (3,491.92) – S&P 500® Index (2,926.17)
Coupon (frequency)	3.50% p.a. (Half yearly: 1.75% per period)
Autocall	100%
Strike (K)	100%
Barrier	59%
Type of barrier	American (the price of each underlying asset on the reference stock exchange is observed continuously)
Base currency	CHF
Initial fixing date	25 April 2019 (closing price of the underlying share(s) on the reference stock exchange)
Payment date	02 May 2019
Final fixing date	25 April 2022 (closing price of the underlying share(s) on the reference stock exchange)
Payout date	02 May 2022
Definition	The Autocallable Barrier Reverse Convertible is a structured product. It pays a guaranteed coupon throughout the product's lifetime (up to maturity or early redemption). This particular product will be redeemed before maturity under certain conditions. For early redemption to occur, each of the product's underlying assets must be above its Autocall Level.
Early redemption	If the worst-performing underlying asset is above 100% of the initial fixing on the observation date, the product expires immediately and the nominal amount is redeemed at 100%
Early redemption observation dates	24 Apr 2020 - 26 Apr 2021 - 25 Apr 2022

<p>Final Redemption: on 02 May 2022</p>	<ol style="list-style-type: none"> 1. If none of the underlying assets touches or crosses its barrier (B) between the initial and final fixing dates, the amount redeemed per Barrier Reverse Convertible Autocallable will be 100% of the nominal value. 2. If the price of one of the underlying assets touches or crosses its barrier (B) between the initial and final fixing dates, one of the following situations shall apply: <ol style="list-style-type: none"> 1. If the final fixing of all underlying assets is above their strike level ($K \times S_{i,0}$), the amount redeemed per Barrier Reverse Convertible Autocallable will be 100% of the nominal value. 2. If the final fixing of one of the underlying assets is below or equal to the strike level ($K \times S_{i,0}$), The investor will receive per Barrier Reverse Convertible Autocallable an amount in CHF calculated on the basis of the worst performing underlying asset as follows: $\text{Nominal} * \left[\text{Min}_i \left(\frac{S_{i,T}}{S_{i,0}} \right) \right]$ <p>$S_{i,T}$ = Price of the underlying (i) on the Final Fixing Date (t = T) $S_{i,0}$ = Price of the underlying (i) on the Initial Fixing Date (t = 0)</p>
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How would this structured product be classified according to the EUSIPA/SSPA derivative map?

a1) In which category? (1 point)

a2) In which sub-category? (1 point)

Explain briefly:

a3) The construction of a barrier reverse convertible. (3 points)

a4) The expectations of an investor in barrier reverse convertible product. (3 points)

a5) The main difference of the product (barrier reverse convertible) when compared to a Reverse Convertible. (3 points)

After one year, i.e. 25th April, 2020, we have the one year high low and current values of the underlying indexes along with the product related index levels data:

Table 1: Data on 25th April, 2020

Underlying	52w High	52w Low	Close	Barrier	Autocall level
SMI® Index	11,270.00	7,650.23	9,625.65	5,719.50	9,694.06
Euro Stoxx 50® Index	3,867.28	2,302.84	2,809.07	2,060.23	3,491.92
S&P 500® Index	3,393.52	2,191.86	2,836.74	1,726.44	2,926.17

The market during the last 3 months was hit by large volatility, first reaching the highs and then hitting the lows due to the Covid-19 coronavirus pandemic causing a huge fall in the market values of the indexes and followed again by a sudden recovery. Even though the barriers have not been breached yet, there is growing uncertainty about a long recession due to the lockdowns across the world causing economic losses. The product after hitting a low of 70.6%, now trades at 90.6%.

a6) Comment the opportunities and risks of the product in the particular context of these recent years. Mention 5 of them. (10 points)

Tabulate and plot the payoff at maturity/redemption for the product for various levels of the worst performing underlying asset:

a7) If the barrier is breached. (5 points)

Performance of worst underlying	Pay-off at Maturity
60%	
50%	
40%	
30%	
20%	
10%	
0%	
-10%	
-20%	
-30%	
-40%	
-50%	
-60%	

Pay-off at Maturity

a8) If the barrier is not breached.

(5 points)

Performance of worst underlying	Pay-off at Maturity
60%	
50%	
40%	
30%	
20%	
10%	
0%	
-10%	
-20%	
-30%	
-40%	
-50%	
-60%	

