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# ZKB Basket

## «Virtual & Augmented Reality»

December 2023

### Virtual Reality: Dive into new Worlds

Apple's Vision Pro headset is set to shake up the reality technology market. The initial buzz has died down, so now seems a good time to take a closer look at the potential beneficiaries of this new product category.

The move into virtual reality is hardly new: companies have been working on headsets that allow users to immerse themselves in another world for more than 25 years. However, a mass market breakthrough has yet to materialise. This is set to change with Apple's entry into the market: The US tech giant plans to launch its Vision Pro headset in spring 2024. This opens up opportunities for companies that supply components for the hardware of reality technologies or provide content.

Apple CEO Tim Cook unveiled a prototype of the Vision Pro in June 2023. But the initial euphoria has since cooled. In addition to reports of production problems, the planned launch price of USD 3,499 seems high. In addition, the device will initially only be available in the US, while European customers will probably have to wait until 2025. However, the temporary calm surrounding the new product category could be a good entry point for investors. Part of Apple's success story is to launch sophisticated, easy-to-use devices that turn seemingly niche products into mainstream items, as the tech giant did most recently with the Apple Watch in 2014. This success story could continue with the Vision Pro.

Apple is entering a fast-growing industry with its headset: according to the data provider Statista, the global market for virtual and augmented reality (VR, AR) will more than triple by 2026, rising from just under 30 billion US dollars in 2022 to over 100 billion US dollars.

The basket «Virtual & Augmented Reality» contains companies that are considered to be potential suppliers for Apple's headset. These include semiconductor manufacturers and producers of lens and camera modules. Although Apple is trying to diversify its supply chain, these companies are mainly based in Taiwan, South Korea and China. The basket also includes companies that could develop content for the headset. One example is Walt Disney: the US company plans to offer movies and shows from its Disney+ streaming platform on the Vision Pro.

### The Basket in Detail

The selected stocks are included in the basket with equal weighting on the initial fixing date. The companies are mainly headquartered in Taiwan, South Korea, China and the US and belong mostly to the technology sector.

### Static Tracker Certificate on the ZKB Basket «Virtual & Augmented Reality»

- Focus on the technology sector with emphasis on electronic component manufacturers and software developers
- 3 years tenor

## Key Data

### ZKB Tracker Certificate Static

Underlying	Equity Basket «Virtual & Augmented Reality»
Currency	CHF
Trading unit	1 Structured Product
Issue Price	CHF 100.00
Subscription period	8. December 2023, 4 p.m.
Initial Fixing Date	11. December 2023
Issue Date	18 December 2023
Final Fixing Date	11. December 2026
Redemption Date	18. December 2026
Management Fee	0.75% p.a.
ISIN	CH1218245517
Symbol	VARBAZ

## ZKB Equity Basket

### «Virtual and Augmented Reality»

Stock Selection	Bloomberg Ticker
Apple	AAPL UW
Cowell E Holdings	1415 HK
Genius Electronic Optical	3406 TT
Largan Precision	3008 TT
LG Display	034220 KP
Pegatron Corporation	4938 TT
Samsung Display	006400 KP
SK Hynix	000660 KP
Sony Group	6758 JT
Sunny Optical	2382 HK
TSMC	2330 TT
Unimicron Technology	3037 TT
Unity Technologies	U UN
Walt Disney Company	DIS UN
Zhen Ding Technology	4958 TT
Zoom Video Communications	ZM UW

## Overview of the selected stocks

### Apple

Throughout its nearly 50-year history, the tech giant based in Cupertino, California has continued to set new standards with its products. From humble beginnings in a garage in 1976, Apple's development of the Macintosh computer in the 1980s was instrumental in bringing PCs to the mainstream market. With the iPod (2001), the iPhone (2007), the iPad (2010) and the Apple Watch (2014), the company has played a pioneering role in each of these product segments. With a market capitalisation of 2.9 trillion US dollars (as of November 2023), Apple is the most valuable company worldwide.

### Cowell e Holdings

The Chinese holding company specialises in electronic and optical components. Its products include camera modules and optical lenses used in smartphones, tablets and other mobile devices. Apple, LG Electronics, Samsung Electronics and Hitachi are among the Dongguan-based company's main customers.

### Genius Electronic Optical

Based in Taiwan, Genius manufactures glass and plastic lenses used in mobile phone cameras, zoom cameras and medical systems. Genius is one of the world's largest manufacturers of lenses for AR/VR technologies, supplying heavyweights such as Apple, Meta Platforms and Sony. For example, the lenses for Meta's Oculus Quest virtual reality goggles are made by Genius.

### Largan Precision

Largan Precision is the leading supplier of camera lenses for smartphones, with a global market share of around 30%. For example, the Taiwanese company is the main supplier of periscope lenses for Apple's iPhone 15 Pro Max.

### LG Display

LG Display is one of the world's largest manufacturers of liquid crystal displays (LCDs), organic light-emitting diodes (OLEDs) and flexible displays. The Seoul-based company's products are used in Sony's OLED TVs and Apple's iPhone 14, among others. The group will supply the OLED panels for the Vision Pro display.

### **Pegatron Corporation**

Based in Taiwan, Pegatron specialises in the manufacture of computer, communications and consumer electronics products. Pegatron is one of the main contract manufacturers for the Apple iPhone. It is unclear whether Pegatron will also be involved in assembling the Vision Pro. The fact that the company is already a central part of Apple's supply chain suggests that it may be.

### **Samsung Display**

Samsung Display specialises in the development of lithium-ion batteries and also produces components for chips, LCD screens, OLEDs and solar cells. Samsung Display acquired micro-OLED manufacturer eMagin in May and plans to further expand its micro-OLED production capacity.

### **SK Hynix**

SK Hynix is one of the leading manufacturers of memory chips and already supplies components for Apple products. The Vision Pro is expected to use innovative DRAM modules manufactured by the South Korean company.

### **Sony Group**

The Japanese electronics company Sony is expected to supply one of the most expensive components for the Apple Vision Pro, the micro-OLED displays. Sony is considered a pioneer in the use of this technology. However, there is said to be a disagreement between the Japanese company and Apple over the production volume of the panels. This could open up opportunities for rivals LG Display and Samsung Display.

### **Sunny Optical Technology**

The Chinese company designs and manufactures optical components, including lens and camera modules. Sunny Optical is already on Apple's supplier list, producing camera lenses for the iPhone.

### **TSMC**

Taiwan Semiconductor Manufacturing (TSMC) is the world's largest semiconductor manufacturer with a market share of around 30%. Based in Taiwan, the company handles production for semiconductor manufacturers that do not have their own production facilities. These include AMD, Apple, Qualcomm and Nvidia.

### **Unimicron Technology**

The Taiwanese company is also supposed to be involved in the production of the Vision Pro. Unimicron specialises in the manufacturing of printed circuit boards and works for Apple and Intel, among others.

### **Unity Technologies**

The San Francisco-based software company helps developers create applications, games and 3D environments for the Vision Pro headset and enables them to test their applications. The collaboration with Unity gives Apple quick access to a large community of developers already working with 3D content.

### **The Walt Disney Company**

Walt Disney is known around the world for its animated films for children. Today, the US company is one of the largest media companies in the world and a leader in the film business. The streaming platform Disney+ gives subscribers access to Disney's own productions, including the Star Wars and Marvel franchises. The media group has already announced that it will make this content available for the Vision Pro.

### **Zhen Ding Technology**

The Taiwanese company also specialises in the manufacturing of printed circuit boards. Its products are widely used in the computer information, consumer electronics and communications sectors. Zhen Ding is already a supplier to Apple.

### **Zoom Video Communications**

Based in San José, California, the American company offers software for video conferencing. With a market share of more than 50%, Zoom has positioned itself as the industry leader in this segment. According to Apple, the 3D avatars designed for Vision Pro will not only appear in its own video chat app Facetime, but will also run in services such as Zoom.

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