

## explainity explains: Cryptocurrency

Sarah would like to upgrade her retirement plan. While searching for investment opportunities, she keeps coming across the concept of “cryptocurrency”. She has already heard of this – but what is it exactly?

Well, after the financial crisis of 2008, many users had lost confidence in the operation of the banks, but did not want to just hide their cash under the mattress. And this is where cryptocurrencies come in: their existence is exclusively virtual, and they are not regulated by any bank. By now, there are over three thousand of them. The best-known ones are BITCOIN, ETHEREUM and RIPPLE. The “crypto” in “cryptocurrencies” comes from the Greek word “kryptos”, meaning “secret” or “hidden”, and refers to the cryptographic encoding of all the constituents of the currencies.

And what’s the difference between cryptocurrencies and conventional currencies? That’s what Sarah wants to know. Well, “conventional” currencies, such as the euro, are issued by the central banks. They control the amount of the money supply, and consequently its value. But in the case of cryptocurrencies, it is private individuals alone who generate and manage them. Of course, this does not happen with no control at all. And another difference from “ordinary” money: payment transactions also take place directly between participants in the currency system – with no banks or any other intermediaries at all. Advantages: transactions are free of charge and considerably faster than “conventional” money transfers.

There is only one similarity with most modern non-virtual currencies: their value is determined solely by their value in use! This implies agreement between all users of the currency that a given quantity of Bitcoins, for example, can purchase a given quantity of goods. The paper on which a 20-euro note is printed is not worth 20 euros either.

However, let’s look again at how cryptocurrencies are issued. As we mentioned earlier, cryptocurrencies exist only in virtual form, that is to say, only in the computer network of participants. Some participants are active and others passive. Passive participants only possess the virtual money. At some point, they have exchanged some “ordinary” money for virtual money. In contrast, active participants spend virtual money! To do this, they use specially networked computers to solve complex arithmetical problems. When the problem is solved, it “generates” a certain amount of virtual money. This amount is defined in advance by agreement among the active participants, and between one spending transaction and the next must always be the same! This ensures that no one can simply copy cryptocurrency and in this way grow rich illegally.

But how safe is cryptocurrency really, Sarah wonders. Obviously, 100% security does not exist anywhere, but the technology underpinning cryptocurrency systems is far more secure than conventional methods of encryption. Indeed, all information, from money stock through participants’ assets to transactions, is saved in a community block chain – that is, a continuously cryptographically encoded “protocol”. The special feature here is this: it is no longer just ONE site that checks the correctness of data, but ALL the active participants! It is not until the “OK” has been given on a transaction, for example, that this will be saved in the block chain. This makes manipulation next to impossible.

All this really sounds wonderful, thinks Sarah. But should she actually invest in cryptocurrency? Unfortunately, opinions are divided on this point. On the one hand, these currencies have great potential because of their security and their decentralized management. On the other hand, experts give warnings

against investing in cryptocurrencies, because they believe that the value of these currencies is being artificially inflated. Sooner or later this will give rise to a bubble, which at some stage is going to burst.

At least, Sarah now knows what cryptocurrencies are, and she will keep an eye on developments – perhaps one of them may turn out to be suitable for upgrading her retirement plan.