Texas man accused of raising virtual currency from new investors to pay interest to existing ones.

The digital currency Bitcoin may have its own Bernie Madoff. An investment scheme promising a 7% weekly return was in fact a fraudulent "Ponzi" scheme, in which a Texas man used new investors' money to pay interest to existing ones, according to charges filed by the US Securities and Exchange Commission.

Trendon T Shavers, from KcKinney in Texas, was the founder and operator of "Bitcoin Savings and Trust" (BTCST), allegedly raised a total of 700,000 Bitcoins in 2011 and 2012 – then worth about \$4.5m – for his scheme, claiming that he made his profits on market arbitrage.

Using online handles such as "Pirate" and "pirateat40", Shavers sold "investments" to people around the US. He claimed that "I have yet to come close to taking a loss on any deal" and that the "risk is almost 0" when challenged. He also said that he couldn't reveal his investment strategy: "If I told you, then I couldn't do what I do," he once wrote.

The SEC alleges that Shavers transferred at least 150,649 Bitcoins into his personal account – which he used to pay for rent, food, utility bills, shopping and gambling. "In reality BTCST was a sham and a Ponzi [pyramid] scheme in which Shavers used Bitcoin from new investors to make purported interest payments and cover investor withdrawals on existing BTCST investments," the SEC said on Tuesday.

In November 2011 he said he was closing the fund, saying that "As the fund grew there were larger and larger coin movements which put strain on my reserve accounts and ultimately caused delays on withdraws and the inability to fund orders within my system."

That attracted suspicion among users of Bitcoin, though some were still prepared to take the risk, given the low cost of the virtual currency at the time, that it might pay off.

Bitcoin is a virtual currency which is created by computers solving complex mathematical problems – known as "mining" – to create a peer-to-peer system with no central authority. The total supply of Bitcoins is known at any time, and the cryptographic structure means that there is a set limit on how many can ever be in circulation. Transactions are effectively anonymous.

Because there is no central bank, the value of Bitcoins is effectively determined by demand within the system. Growing interest has meant that the exchange rate to currencies such as the dollar and pound has moved dramatically from less than a penny per Bitcoin to about \$93 now.

Ironically, the rapid rise in value of Bitcoins means that Shavers's fund of 700,000 Bitcoins would now be worth about \$60m.

Patrick Murck of the Bitcoin Foundation said in a comment: "Compliant with SEC rules or not, Mr Shavers's offering, as alleged, was wrong and harmful to the Bitcoin community. We all want to have a safe and fair economy and the Bitcoin community has made great strides towards this goal since Mr Shavers's operation went out of business last year."

If Shavers's operation was a Ponzi scheme, it could paradoxically demonstrate that Bitcoin has reached a sort of maturity. A number of venture capital companies have begun investing in Bitcoin-related businesses, and gambling site which uses Bitcoin was recently sold for a reported \$11.5m.

Bernie Madoff was a New York-based investor who ran a Ponzi scheme – in which new investors' money paid off existing investors – which crashed after the credit crunch in 2008, revealing that between \$18bn and \$65bn had been lost through his fake "investments".

The SEC also issued a warning about the broader risk of virtual currencies, noting that "Potential investors are often less sceptical of an investment opportunity when assessing something novel, new or 'cutting-edge'."