HSBC

News Release

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HSBC DEMONSTRATES WORLD'S FIRST-KNOWN QUANTUM-ENABLED ALGORITHMIC TRADING WITH IBM

- **Promising trial with IBM explored the ability of quantum computers to optimise bond trading**
- **Experiment delivered up to 34% improvement in predicting the probability of winning customer inquiries in the European corporate bond market**

25 September 2025 -- HSBC today announced the world's first-known empirical evidence of the potential value of current quantum computers for solving real-world problems in algorithmic bond trading.

Working with a team from IBM, HSBC leveraged an approach that utilised quantum and classical computing resources to deliver up to a 34 percent improvement in predicting how likely a trade would be filled at a quoted price, compared to common classical techniques used in the industry.

Algorithmic trading in the corporate bond market uses computer models to quickly and automatically price customer inquiries in a competitive bidding process. Algorithmic strategies incorporate real-time market conditions and risk estimates to automate this process, which allows traders to focus their attention on larger and more difficult trades. However, the highly complex nature of these factors is where the trial results showed an improvement using quantum computing techniques when compared to classical computers working alone using standard approaches.

HSBC and IBM's trial explored how today's quantum computers could optimise requests for quote in over-the-counter markets, where financial assets such as bonds are traded between two parties without a centralised exchange or broker. In this process, algorithmic strategies and statistical models estimate how likely a trade is to be filled at a quoted price. The teams validated real and production-scale trading data on multiple IBM quantum computers to predict the probability of winning customer inquiries in the European corporate bond market.

The results show the value quantum computers could offer when integrated into the dynamic problems facing the financial services industry, and how they could potentially offer superior solutions over standard methods which use classical computers alone.

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Philip Intallura, HSBC Group Head of Quantum Technologies, said: "This is a ground-breaking world-first in bond trading. It means we now have a tangible example of how today's quantum computers could solve a real-world business problem at scale and offer a competitive edge, which will only continue to grow as quantum computers advance.

"We have been relentlessly focused on the near-term application of quantum technology, and given the trial delivered positive results on current quantum computing hardware, we have great confidence we are on the cusp of a new frontier of computing in financial services, rather than something that is far away in the future."

Jay Gambetta, Vice President IBM Quantum, said: "This exciting exploration shows what becomes possible when deep domain expertise is integrated with cutting-edge algorithm research, and the strengths of classical approaches are combined with the rich computational space offered by quantum computers.

"Such work is essential to unlock new algorithms and applications that are poised to transform industries as quantum computers scale, and the future of computing takes shape."

Quantum computing is a new branch of computation that uses the laws of quantum mechanics to represent and process information in a space that is exponentially more expansive and dynamic than what classical systems can access. This positions quantum computers to be able to solve certain problems that are out of reach for even the most powerful classical supercomputers operating independently.

In this case, IBM Heron was able to augment classical computing workflows to better unravel hidden pricing signals in noisy market data than standard, classical-only approaches in use by HSBC, resulting in strong improvements in the bond trading process.

IBM's quantum computers are available today through the cloud, and Qiskit, an open quantum software stack. Heron is IBM's latest and highest-performing quantum processor.

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Notes to editors:

A full multimedia pack including high-definition filmed interviews with project leads from both HSBC and IBM are available for use free of charge via **https://f.io/S-4v9Wk3**. This pack also includes imagery of the IBM quantum computer used in this trial.

- If there are any issues with downloading this content please contact the HSBC press contacts.

HSBC Holdings plc

HSBC Holdings plc, the parent company of HSBC, is headquartered in London. HSBC serves customers worldwide from offices in 57 countries and territories. With assets of US$3,214bn at 30 June 2025, HSBC is one of the world's largest banking and financial services organisations.

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