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Theranos: user-friendliness and/or technological progress

Christian Süttinger, CFA



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Theranos started out in the USA in 2003 with the business idea of providing more user-friendly, more low-threshold, and cheaper laboratory technology. The goal was to set up "miniLabs" across numerous convenient locations such as chemists', where, by giving a few drops of blood, one could quickly gain insights into one's physical parameters and general state of health. The benefits would have been comprehensive: the strengthening and simplification of healthcare that could have been comfortably integrated into the daily routine.

This venture had several aspects:

- User-friendliness: blood would be drawn in a way we nowadays know from measuring one's blood sugar at home, where the measuring device gently pricks the fingertip.
- The miniaturisation of lab technology in order to provide laboratories that are not much bigger than a computer and are capable of performing all necessary analyses in situ so as to provide the user with a print-out or online version of the results and also forward a copy to the GP, if so desired.
- Diagnostic progress: when Theranos started, it was not yet possible to run lots of tests on the basis of just a few drops of blood. We know the situation when we go in for a blood test at the lab: sometimes three to four tubes have to be drawn (while we have to look away). One reason is that not every test leaves the blood in its original state; i.e. some tests make the blood unusable for others.

Theranos did provide the promised user-friendliness and miniaturisation: the miniLab technology was ready, and Theranos offered it to consumers at the US chemists' chain Walgreens from 2013. However, according to a unanimous verdict, the diagnostic progress was unsuccessful: the attempt to use a few drops of blood for statements on a multitude of blood parameters, viruses, bacteria, all the way to gene diagnostics failed according to public opinion. Elizabeth Holmes, the founder of Theranos, has therefore been sued for fraud and is currently facing a trial. More precisely, the allegations are that she has made misleading statements to her investors with regard to the feasibility and the results thus far achieved. Holmes had been on the cover of many magazines as Silicon Valley star and had received large sums of capital from sometimes prominent investors – capital that now seems lost, given the winding-up of the company in 2018.

Few evaluation results, Due Diligence

Technical presentations by Elizabeth Holmes are available online. On the basis of today's know-how, one could argue that they consist of a lot of statements on user-friendliness and the "democratisation" of the laboratory technology. What we can hardly see (or what is being promised for a later date), however, is a statement on how the diagnostic progress has been achieved. There is a clear lack of empirical data and of any results of the analyses that may have been immensely relevant for the medical community. Interestingly, among the publicly accessible patents that Theranos has registered, tools for the storage and handling of blood samples account for the clear majority.

For financial investors, statements about the usability were apparently sufficient. People sometimes discuss whether Elizabeth Holmes idolised Steve Jobs, who basically revolutionised consumer electronics on his own. However, smartphones are no laboratory equipment. What was needed was progress in diagnostics that is hitherto not feasible; what we got was an ingenious insight into what consumers really wanted and technological progress that had a revolutionary effect. One teachable moment from the Theranos story is the fact that due diligence in the healthcare sector without scientific input is no due diligence at all.

Hope not extinguished

All of this notwithstanding, the hope for highly efficient blood tests is still alive. Venture capitalists such as Verily or General Catalyst have provided technology firms like Genalyte or Truven Sciences with hundreds of millions of dollars in the past twelve months. LabCorp, Cue Health, and Sight Diagnostics are other exemplary names in this field (source: Financial Times). So – exciting times.

Investors have benefited from diversified investments in the healthcare sector. The fact that the market index has doubled in the past five years shows the earnings power of this sector whose relevance is set to grow further in the future. The population is ageing in the long term and needs healthcare.



Sources: Bloomberg; 09/2016 to 09/2021; MSCI USA Healthcare Index

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Conclusion

The rise and subsequent trouble of the laboratory diagnostics company Therasys illustrates the fact that usability, i.e. user-friendliness, does not suffice for the success of product and business ideas if the technological progress cannot keep up.

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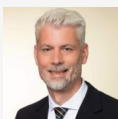
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Christian Süttinger, CFA

Senior Fund Manager, Erste Asset Management