

# Has Illumina found the Holy Grail?

**Illumina, Inc. (ILMN: NASDAQ) – market cap 01/10/2020: \$45.5bn**

**Grail – privately held**

## Introduction

On September 21<sup>st</sup>, 2020, the biotech pioneer Illumina agreed to buy the cancer screening start-up Grail in a \$8bn deal. Illumina will pay \$3.5bn in cash and \$4.5bn in common stock to finance the acquisition. It will use cash directly from its balance sheet along with nearly \$1bn in debt or equity financing. As part of the deal, Grail shareholders are expected to receive payments equal to 2.5% on the first \$1bn of Grail-related revenues. Thanks to the acquisition, Illumina will have direct access to Grail's revolutionary blood test, Galleri, which is expected to be released in 2021. The liquid biopsy technology behind the Galleri test allows to identify cancer cells in the blood in a less intrusive way with respect to traditional biopsies, which involve taking a tissue sample. The transaction comes weeks after Grail filed to go public and denotes Illumina's eagerness to enter into a market expected to reach \$60bn by 2035.

## About Illumina

Illumina is an American multinational biotech company with headquarters in San Diego, California. Illumina is specialized in the development of DNA sequencing products and array-based technologies. The company sells its products targeting customers in the clinical and applied research markets. More specifically, Illumina manufactures products for cancer research, reproductive health, genetic health, and microbial genomics. Illumina is best known for its high-throughput DNA sequencing systems that can sequence the whole genome in humans or other large organisms. From a technology standpoint, the company can be considered as a superior player when compared to its current competition by nearly every measure, and analysts expect the company to maintain this dominant position in the future.

Throughout the past decade, Illumina has largely led the technological improvements in its industry. In 2014, Illumina launched a new product, the HiSeq X Ten, claiming that 40 such machines could be so efficient as to sequence what had been sequenced to date. Moreover, the company stated that the release of the HiSeq X Ten would allow for large-scale genome sequencing for less than \$1,000, compared to the estimated \$1m in 2007. In the meantime, Illumina continues to develop new sequencing methods, such as the recently launched NovaSeq, that can help researchers and clinicians in identifying genetic variations. According to the company, the NovaSeq represents a step forward in decreasing the costs of sequencing even further.

The company was founded in 1998 by Larry Bock, Mark Chee, Anthony Czarnik, John Stuelpnagel, and David Walt. In the last financial year, Illumina generated more than \$3.5bn of revenues, a 6% increase from the \$3.3bn of FY 2018. Gross profits reached \$2.5bn resulting in an impressive 69.6% margin. Net income (GAAP) topped \$1bn, or \$6.74 per share, compared to \$826m, or \$5.72 per share, in FY 2018. Illumina is very strong on intangible assets, having more than 1,400 issued or pending patents. Patents are fundamental in the biotech industry as their 20-year lifespan keeps competitors from directly copying Illumina's technology. R&D expenses for FY 2019 amounted to \$647m compared to \$623m in the year before.

## About Grail

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Grail is an American biotechnology company founded in Menlo Park, California, in late 2015 by Illumina, which still holds a near 15% stake in the company. The mission of Grail is to develop technologies that can detect cancer cells in their early stages in a less intrusive way than traditional biopsies. However, the improvement in liquid biopsy technologies may also help plan treatments or find out how well the therapies are working. The company is specialized in the emerging field of liquid biopsy, a test carried out on a sample of blood to detect cancer cells or fragments of tumorous cells' DNA in the blood streams. According to the company, the Galleri test, Grail's flagship technology, can identify more than 50 types of cancer that often cannot be detected through current screening methodologies. Moreover, Grail stated that the test can localize with high accuracy where the tumor cells are in the body, as the "false positive" rate is estimated at less than 1%. However, even though it received breakthrough approvals from the US Food and Drug Administration (FDA), the test is not yet commercially available and is still in very large trials.

In 2017, Grail was under the spotlight when the business tycoons Jeff Bezos and Bill Gates invested nearly \$100m in the company, in addition to raising over \$1bn in the company's second round of financing. Being a private company, financial information on Grail is not readily available. However, Grail filed paperwork with the SEC in early September as it intended to go public. The purpose of the listing was to raise new funds to boost the commercialization of the Galleri test. Revenues for the FY 2019 were estimated at approximately \$60m, but expected to grow rapidly in the following years.

## Industry Overview

The increasing spread of conditions such as cancer, diseases, and other horticultural, water-deficiency, or insects related problems arising in 2020, or even Covid-19 itself, is driving now more than ever before the necessity for higher spending on health-related R&D, with a specific focus on the biotech industry. In 2019 the Biotechnology industry size was estimated to be \$449.06bn, expecting it to grow with an average CAGR of 6.84% until 2026. If this was true, as 2020 reports haven't been released yet, we should expect the global industry size in 2020 to reach \$479.76bn. The United States and Canada are together the leading players in the market, accounting for more than 40% in 2019.

More precisely, Grail researches biotechnology for early-cancer-detection, an even more specific sector of the industry. The probability of surviving cancer in the next 5 years is as high as 90% if it is detected early on. However, it drops dramatically to 20% if the diagnosis occurs in a later stage of development. It is therefore evident that early detection is the primary weapon in the fight against cancer and the market demand for early-cancer-detection technology is becoming stronger and stronger. Just to provide some reference numbers, according to Illumina's chief executive Francis DeSouza, "early-detection testing could account for \$46bn of the \$75bn worldwide market for cancer genetic sequencing, which is growing at a CAGR of 27%".

This more specific market would target, in a first instance, individuals who independently pay for their tests or employers who are willing to offer the test as part of employees' benefits. However, as it is cheaper for insurers to pay for tests and early treatment rather than late-stage treatment, insurance companies are expected to include early-cancer-detection testing expenses as part of their packages, which would provide a huge market right from the start.

The major players in the market, and Illumina rivals, are about a dozen and they include companies such as Agilent Technologies and BioGen Medical Instruments. These participants mainly compete through mergers and acquisitions, such as the one examined in this article. They also look for vertical integration within the industry, for example developing the technologies for curing diseases in their own facilities with their technologies. Due to strong regulation barriers, it is harder for companies to achieve horizontal integration in the market.

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The industry faces many challenges as it has to be very sceptical about its products and applications. For example, in the case of Grail's early-cancer-detection testing, it is vital for the product to be applicable to many different types of cancers while giving as little false positives as possible. Of course, these products also have to earn the US approval, or the respective departments for different regions, which makes the process longer.

## Deal Structure

Illumina is set to acquire the remaining 85.5% of Grail, as it already owns 14.5%. The acquisition will see Grail shareholders, including Illumina, receiving \$8bn split in \$4.5bn of Illumina's common stock and \$3.5bn of cash. The net effect for Illumina is thus less burdensome. Indeed, the deal size is reduced to \$7.1bn with the other Grail shareholders receiving \$4bn and \$3.1bn accordingly. The cash will be taken from the very liquid Illumina's balance sheet with an additional \$1bn debt or equity issuance, for which Goldman Sachs granted anticipation in the form of a bridge loan.

The value of the payment in shares is guaranteed through an option collar on Illumina's share price. Within a price range between \$295 and \$399 the value of the payment is guaranteed to be approximately \$4bn by adjusting the number of shares, increasing it if the value drops and decreasing it if the price goes up. If the price is above \$399, shareholders will receive a minimum of 9.9m shares and if the price still increases at that point they have upside gains. In case the price is below \$295, they will receive a maximum of 13.4m shares and if it keeps falling they will be exposed to downside risk. However, considering that the undisturbed Illumina price was fairly stable for the previous month around \$350 it seems unlikely that big fluctuations cause the price to go outside the range by a significant amount.

Depending on the result of the collar, the Illumina combined company is expected to be approx. 93% owned by the already existing Illumina shareholders, and the remaining 7% will be held by Grail current shareholders at the mid point of the collar structure.

In addition, Grail shareholders will be given 12-years contingent value rights, with which every year they will earn 2.5% out of the first \$1bn of Illumina's Grail-related revenue. If the revenue grows above \$1bn, they will earn an additional 9% of the surplus revenue. Illumina said it is planning on offering these shareholders the possibility to convert their contingent value rights immediately for supplementary cash or equity.

Illumina said Grail will operate as an individual entity. The transaction is expected to be completed in the second half of 2021.

## Deal Rationale

The transaction will increase Illumina's addressable market while also offering at the same time a variety of future growth opportunities. After the acquisition, Illumina's portfolio will be further extended, including cancer diagnosis and monitoring practices, effectively resulting in a best-in-class portfolio of proprietary tests in all major oncology testing application areas. This is especially relevant since the next-generation sequencing (NGS) oncology market is expected to grow to \$75bn by 2035, achieving a 27% CAGR.

The acquisition is also expected to accelerate the adoption of NGS based cancer detection systems, which will therefore reach a wider customer base even sooner. Illumina will leverage its global scale and manufacturing to support the commercialisation of Grail's products, while also driving growth in the clinical value chain.

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To conclude, the acquisition will benefit Illumina's positioning in global genomics. NGS is expected to revolutionise oncology care, and through this acquisition Illumina will be able to extract more value from the clinical solutions that are enabled by its NGS technology, continuing to be the leading sequencing innovator while at the same time becoming a proprietary test provider.

## Market reaction

As the deal was confirmed, Illumina stock decreased by 5.8% in pre-market trading on Monday reaching -10.9% YTD. Shares were further down during trading hours reaching a price of \$263.08 (-11%). This was mainly as investors are afraid that entering a new market could lead to a loss of focus on the firm's core operations, essential for a much-needed recovery; statements by the board saying this is a great opportunity to expand in the area of diagnostics were enough to convince investors. In particular, many remained wary as Grail technology is still at its very early stage of development. Investors also feared Illumina doesn't have the necessary commercial reach and infrastructure to fully exploit Grail potential.

## Financial Advisors

Illumina and Grail have been financially advised exclusively by Goldman Sachs and Morgan Stanley, respectively.

TAGS: Illumina, Grail, Biotech, Finance, Merger, Galleri, Goldman Sachs, Morgan Stanley

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