Erasmus MC (Universitair Medisch Centrum Rotterdam)

Full Rating Report

Ratings

Foreign Currency	
Long-Term IDR	AAA
Short-Term IDR	F1+
Local Currency	
Long-Term IDR	AAA
Short-Term IDR	F1+

Outlooks

Long-Term Foreign-Currency IDR	Stable
Long-Term Local-Currency IDR	Stable

Financial Data

Erasmus MC (Universitair Medisch Centrum Rotterdam)

(EURm)	31 Dec 16	31 Dec 15
Operating revenues	1,505.7	1,394.1
Oper. bal. after transfers. from pub. sector	73.8	73.2
Total debt	753.2	695.2
Total assets	1,870.9	1,786.3
Equity and reserves	477.4	421.0
EBITDA/oper. rev. inc. rev. from pub. sector (%)	15.35	31.76
ROA (%)	3.02	2.70
ROE (%)	11.83	11.45
Total debt/EBITDA (%)	3.26	1.57

Related Research

What Investors Want to Know: Dutch Mental Healthcare Sector (September 2017)

What Investors Want to Know: Dutch Hospital Sector (September 2016)

Stichting GGZ Noord-Holland-Noord (September 2017)

Stichting Elisabeth-TweeSteden Ziekenhuis (September 2017)

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Key Rating Drivers

Strong Government Support: Erasmus MC (Universitair Medisch Centrum Rotterdam) is classified as a credit-linked entity and its Long-Term IDRs are equalised with those of the Netherland, under Fitch Ratings' *Government-Related Entities Rating Criteria*. Under the application of the four key rating factors covering the strength of linkage and the incentive to support, Fitch believes that extraordinary support from the Netherlands would be forthcoming if needed.

Reference Institution: Erasmus MC is a leading university hospital and one of the most authoritative scientific University Medical Centres (UMCs) in Europe. It has turnover of over EUR1.5 billion and profit after tax of about EUR50 million. With over 9,500 full-time employees (FTEs), it is one the largest healthcare institutes in the Netherlands. In 2016, Erasmus MC had 3,700 students, two-thirds of whom were trainee physicians. It is ranked as outstanding and recognised as one of the best medical universities in the Netherlands.

Status, Ownership and Control: This rating factor is assessed as Strong. Erasmus MC is a public body, and part of the Dutch state. Collaboration is formalised between Erasmus University Rotterdam and the Academic Hospital Rotterdam, which share a board of directors. The Minister of Education, Culture and Science appoints the members of the supervisory board after consultation with the Minister of Health, Welfare and Sport. The supervisory board appoints members of the board of directors.

Support Track Record and Expectations: This is assessed as Very Strong. Erasmus MC has received support from the government to maintain a sufficiently strong financial profile. In the future, we expect this support to be available in case of need given the tangible historical evidence of the government providing funds to compensate for potential losses incurred due to a change in funding processes during the course of its recent long-term building programme.

Socio-Political Implications of Default: This is assessed as Strong. There is a lack of potential substitutes. As a top clinical institute, almost all of Erasmus MC's healthcare production can be classified as academic; the Netherlands' regional hospitals are unable to carry out these activities. As such, UMCs are considered as having an essential, irreplaceable role in the Dutch healthcare system. Financial default would temporarily endanger continued provision of essential public services, and disruption would have significant political repercussions at the government level.

Financial Implications of Default: This has been assessed as Strong. If Erasmus MC were to default, this would have a significant impact on the availability and cost of borrowing for other academic institutions (as well as top clinical institutes and general hospitals). The shock waves from such an event would result in a fundamental rethink of banks' exposure to Dutch hospitals and would inevitably lead to a restriction on future lending.

Rating Sensitivities

Sovereign Rating and Support: A downgrade of Erasmus MC's ratings could result from a sovereign downgrade or from a significantly lower assessment of the strength-of-linkage or incentive-to-support key rating factors. A weaker assessment of the Revenue-Supported Debt Criteria factors leading to a downgrade of the standalone rating to more than three notches away from the sovereign rating would also lead to a downgrade of Erasmus MC's IDR.

Key Figures

	2016	2015	2014
No. of patients in care	143,390	145,714	157,385
Students	3,700	3,432	3,203
Average FTEs employed of which:	9,858	9,716	9,749
Healthcare	7,854	7,684	7,623
Education & Research	2,004	2,032	2,126
Total operating income	1,506	1,394	1,213

Source: Erasmus MC

Related Criteria

Government-Related Entities Rating Criteria (February 2018)

International Local and Regional Government Rating Criteria – Outside the United States (April 2016)

Rating Criteria for Public Sector Revenue-Supported Debt (June 2017)

Profile and Overview

Erasmus MC was established in June 2002 as a result of the intention to work collectively on behalf of the dean of the medical faculty and the boards of governors of Erasmus University Rotterdam and the Academic Hospital Rotterdam. The medical faculty was founded in 1966 at the request of the Ministry of Education, Culture and Science.

Erasmus MC specialises in, amongst other fields, neurosurgery, cardiothoracic surgery, neonatal and paediatric surgery and intensive care, paediatric oncology and Level I trauma. Operations are spread over three locations: the main MC site; the MC-Sophia paediatric hospital; and specialist oncological care centre MC-Daniel den Hoed.

For 2016, the Erasmus MC consolidated accounts include Erasmus MC Holding BV, Stichting Innovative Molecular Research Fund (IMRF) and Havenziekenhuis en Instituut voor Tropische Ziekten B.V. (Harbour Hospital). Erasmus MC Holding BV has 31 participating interests, 12 of which are minority holdings. The operating companies are active in contract research, knowledge management and care. For 2017, Admiraal De Ruyterziekenhuis B.V. will be consolidated (taken on on 1 May 2017).

Strength of Linkage

Status, Ownership and Control – Strong

Erasmus MC is a public body governed by law based on the Higher Education and Scientific Research Act, on which the Erasmus MC Joint Implementing Body is set. This formalises collaboration between Erasmus University Rotterdam and the Academic Hospital Rotterdam, which have formed a shared board of directors. The supervisory board supervises the executive board and approves matters including the budget, annual financial statements, annual reports, major investments and board regulations. The executive board consists of four members, including the chairman and the vice-chairman. The current chairman was appointed in March 2013. The Minister of Education, Culture and Science appoints the members of the supervisory board after consultation with the Minister of Health, Welfare and Sport. The supervisory board appoints members of the board of directors, with the exception of the dean who is appointed by the executive board in consultation with the supervisory board. Erasmus MC has 50 departments, which since 2010 have been divided into nine divisions, each the responsibility of a board director.

Support Track Record and Expectations – Very Strong

Service Area/Utilisation – Dominant Position in Catchment Area

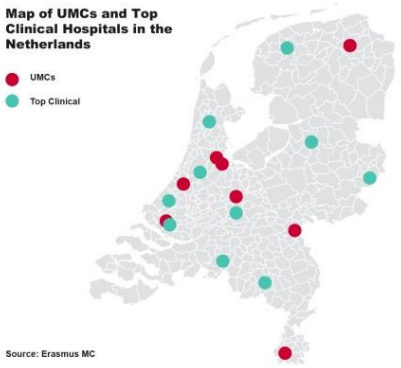
Erasmus MC's primary region is Rotterdam and the Rijnmond region where it has a stable market position. It also provides top clinical and top referral care in Southwest Netherlands. The service area of Rotterdam and the provinces of South Holland, Zeeland and the western part of North Brabant is the largest of all the UMCs. The area's population is around 4.5 million (ie 25% of the Netherlands total). Rotterdam, with a population of 635,000 (1.2 million in the wider metropolitan region), is the second-largest city in the Netherlands, and its population is steadily increasing.

The UN World Urbanisation Prospects estimate Rotterdam's population to grow by 1.5% by the end of the 2020s and 7.7% by the end of the 2030s. The growth is due to more births, low mortality rates, and inward migration. The number of over-65s in the Netherlands is rising rapidly and will continue to do so. The expectation is that there will be 30% more over-65s in 2035 than in 2015 and a rise in chronically ill and co-morbid patients, for whom treatments are often more complex and tailored.

Per-capita GDP within Erasmus MC's service area is around the median for the Netherlands, which has the third-highest per-capita GDP level in the EU (after Luxembourg and Denmark). In 2014, the Netherlands Federation of UMCs asked BIGGAR Economics to determine the economic contribution of the country's eight UMCs, individually and as a group. According to

this, Erasmus MC contributed EUR3.8 billion gross value added (GVA) to the Dutch economy and was responsible for 40,556 jobs (ie for every EUR1 of GVA generated directly by Erasmus MC, an extra EUR4.58 was generated for the Dutch economy). Rotterdam and the province of South Holland have a strong position within the Netherlands, in terms of both business and average income, which is EUR33,700 in South Holland, above the national average.

Erasmus MC is the largest and most versatile hospital in the Netherlands. It currently covers all medical specialities and provides general specialist care, top clinical care (specialist care provided only in UMCs and a limited number of general hospitals) and top referral care (exceptional specialist care performed exclusively at the eight UMCs). Specialist functions include cardiac surgery, neurosurgery, neonatology and IVF. Erasmus MC also has a large transplantation centre and one of four centres for multi-organ transplantation. The majority of its treatments fall within the "regulated segment", meaning that they require specific licences and that there is only limited competition for them. Erasmus MC holds leading positions not only in patient care, but also in education, research and knowledge. The synergy of healthcare, education and research leads to new knowledge and innovative methods of diagnosis and treatment.



Incentive to Support

Socio-Political Implications of Default – Strong

There is a lack of potential substitutes for Erasmus MC in the Netherlands. Almost all of its healthcare production can be classified as academic, and the regional hospitals are unable to perform these activities. There is very limited competition between the UMCs, which are spread across the Netherlands. As such, UMCs are considered as having an essential and irreplaceable role in the Dutch healthcare system. With regards to their core educational remit, the available number of student places for courses is limited by the Ministry of Health, Welfare and Sport. Financial default would temporarily endanger continued provision of essential public services and as a result, disruption would lead to significant political or economic repercussions at the government level.

Financial Implications of Default – Strong

If Erasmus MC were to default, this would have a significant impact on the availability and cost of borrowing for other academic institutions (as well as top clinical institutes and general hospitals). Hypothetically speaking, very significant reputational damage to the entire healthcare sector would be a logical outcome of any default by Erasmus MC. The shock waves from such an event would result in a fundamental rethink of banks' exposure to Dutch hospitals and would inevitably lead to a restriction on future lending.

Standalone Assessment under Revenue-Supported Debt Criteria

Summary of Rating Factors

Revenue defensibility	Operating risk	Financial profile
Strong	Midrange	Strong

Source: Fitch

Revenue Defensibility

The revenue defensibility assessment covers two factors: demand and pricing. Demand has been assessed as Strong and pricing as Midrange. Overall, revenue defensibility has been assessed as Strong.

Demand Characteristics: Revenue

Demand for the services provided by Erasmus MC is assessed as Strong and is expected to remain so. The number of patients has been fairly stable over the last decade. The patient base is fairly diverse, with about 143,000 patients of all ages in Erasmus MC's service area and as such, Erasmus MC has demonstrated low volatility in user-based demand.

The interrelationship of functions at UMCs is reflected in a fairly complex funding structure with different types of funding from a variety of financiers. Nevertheless, resources for patient care and R&D are ring-fenced. Erasmus MC receives about 40% of its revenues from sources other than insurers. These include research and educational subsidies received on an annual basis directly from the Dutch government/EU bodies, and other commercial income. Erasmus MC receives relatively fixed budgets from the Ministry of Health, Welfare and Sport and the Ministry of Education, Culture and Science to fund its core tasks. This also applies to Erasmus University Rotterdam, much of whose research and education duties are funded via a lump sum. The share of Erasmus MC's revenue for which it has to compete with other institutions is limited.

The academic component, including funding and grants, a separate form of funding, applies to additional costs for top referral care and for Development & Innovation. Top referral care is highly specialised patient care for which no referral is possible as it is a last resort, often involving a tertiary referral (general hospital or UMC) and often a complicated or rare issue that presents itself in the form of multiple concurrent problems and unpredictable treatment. In 2017, Erasmus MC received EUR114 million for academic funding, EUR90 million for top referral care and EUR24 million for Development & Innovation. The budget for academic funding is fixed and indexed annually to price and demographic growth, which stands at 2% for the coming years.

Erasmus MC offers a wide range of medical, nursing and research programmes. Academic and scientific education and innovations in care and education play a central role in these programmes. Erasmus MC and the seven other UMCs are responsible for the education of physicians. Erasmus MC has 3,700 students and every year it receives 410 new students. Erasmus MC is ranked 22nd in the world according to Thomson Reuters World Ranking for Clinical Medicine 2015. These scores are based on the total number of citations and highly cited papers. Much of the research is currently funded by the EU, national scientific foundations, charity funds and business. Competition for this research funding is becoming fiercer and more international, but Erasmus MC is in a good starting position. Funding via Erasmus University Rotterdam is largely based on government contributions from the Ministry of Education, Culture and Science, which is determined by a set rate plus the number of first-year students, diplomas and PhD graduations. This source of funding has also been stable for many years.

Erasmus MC receives a government contribution from the Ministry of Education, Culture and Science to cover the costs it incurs for the training of GPs and for basic scientific research. This contribution is distributed among UMCs based on student numbers and diplomas. These numbers indicate how firmly established the UMC is. The Ministry also provides a 25% compensation for housing expenses. The nature of this grant means it is relatively fixed with limited fluctuations. In 2017, it amounted to EUR66.4 million. Training grants cover specialist medical training and nurse training. The Ministry of Health, Welfare and Sport provides both these grants. The training grant for a specialist doctor is provided at a standard rate of EUR128,000. Erasmus MC has 437 specialist doctors and as such received EUR55.8 million. Erasmus MC received an additional grant for nurse training of EUR11.8 million.

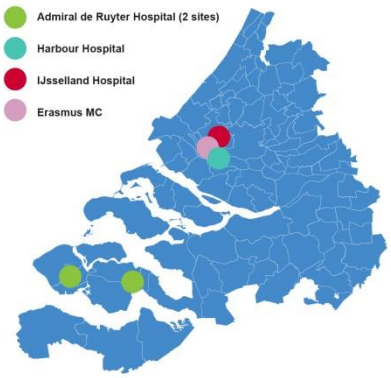
Non-budgeted healthcare activities include Public Service Obligations income, which comprises fees Erasmus MC charges for other healthcare services such as laboratories that provide diagnostics to surrounding healthcare institutions. This income also includes revenues for the secondment of staff to other institutions and income from restaurants, parking and rent.

Key Data (Without Mental Healthcare Institutions)

	2014	2015	2016
Diagnosis Treatment Combinations (DBCs) revenue (EURm)	712.9	735.6	829.8
Number of hospital admissions (total days)	269,734	210,845	209,642
Number of hospital admissions (one admission per continuous period)	37,994	36,562	37,398
Number of day treatments	31,896	27,963	30,518
Number of first hospital visits	153,394	151,426	165,052
Number of follow-up hospital visits	364,283	340,962	348,665
Number of transplants	518	534	520

Source: Erasmus MC

Erasmus MC Site Locations



Source: Erasmus MC

Strategy Affecting Revenue Defensibility

A request has been made on behalf of Erasmus MC to the Dutch Health Authority (NZa) and the Authority for Consumers and Markets to take over the IJsselland Hospital in Capelle aan den IJssel. The Authority for Consumers and Markets' evaluation of this request is expected in mid-2018. The IJsselland Hospital has long collaborated in regional healthcare networks, and has done so on the basis of a preferred partnership since 2016. The intention is to convert the IJsselland Hospital Foundation to a BV (an entity in order to permit greater flexibility of business activity). After conversion, Erasmus MC will acquire 51% of the shares, with the remainder held by the Beschermvrouwe IJsselland Foundation. This operation has not been incorporated into the business plan as this is based on the Erasmus MC numbers. In 2016, IJsselland had 1,161 FTEs and reported operating income of EUR150 million, profit of EUR1.5 million, total assets of EUR129 million and long-term debt of EUR50 million.

During 2017, part of Harbour Hospital's clinical functions were acquired and transferred to Erasmus MC. A strategic repositioning took place in 2016 due to limited scale and structural losses, and as of 1 October 2017, it changed from a general hospital to an outpatient centre. In Erasmus MC's 2016 annual accounts, an impairment was made on the material assets of Harbour Hospital because the hospital was no longer viable as an independent general hospital. As a result, it was converted into a polyclinic and the clinical functions were transferred to other Rotterdam hospitals (including Erasmus MC), and all medical personnel were transferred together with the clinical functions. Personnel overheads will be shared pro rata among the participating hospitals.

Leiden University MC (LUMC) is becoming increasingly involved in the provision of high-quality care, research and education and the bundling of expertise. The Erasmus MC and LUMC boards of directors have been conducting regular consultations for a number of years with the aim of supporting and intensifying cooperation around all the core tasks of the two UMCs. The collaboration consists of jointly appointing professors and department heads and reaching agreements about what expertise is available so that patients can consistently be referred to the right specialist without delay. In 2016, Erasmus MC opened a General Practitioner Centre to improve patient care, increase the availability of tertiary emergency care for complex emergency patients, and reduce costs for individual patients. A significant group of patients entering emergency can be treated by a General Practitioner.

Erasmus MC expects the number of beds it provides to decrease to 1,058 in 2018 from 1,320 in 2016. A trend is visible in which a reduction in the length of stay for clinically admitted patients is partly offset by a higher number of day admissions. Erasmus MC's care turnover has increased by 5%-10% per year over the last 10 years. However, since 2011, the Ministry of Health, Welfare and Sport has concluded key agreements with hospitals, specialists and insurers to control healthcare costs, resulting in slower growth for Erasmus MC. Nevertheless, it has agreed with insurers to shift second-line care to general hospitals in exchange for high-quality care. It has been assumed that the number of patients will remain the same but that turnover will increase by 1% a year as a result of the increase in complexity, providing EUR8 million extra, with a net return of EUR4 million. Erasmus MC's revenues have grown in

excess of the 1% spending growth cap imposed by the Ministry of Health, Welfare and Sport nationally, meaning that it is increasing its market share.

Pricing Characteristics

Pricing is assessed as Midrange. Hospitals generally receive enough funding to cover their costs and to break even; however, this is dependent on the contracts they negotiate annually with insurers, as well as the funding they receive from the central government. Any change in tariffs would be unlikely to affect demand for Erasmus MC's services, as it provides essential treatments and as the regulator controls the tariffs. Erasmus MC is the main specialist hospital in its area, and its market dominance is a strength in negotiating contracts with insurers. The fees collected by insurers rise in line with inflation every year, as do tariffs, although the combination of the pressure from central government and competition may moderate price increases on the premiums. Revenues generally cover operating expenses, as long as expenditures are kept at a manageable level. Erasmus MC does not make periodic drawdowns from endowment funds.

Insurance Companies – Stable Income

About 60% of Erasmus MC's total revenue is from insurers. Erasmus MC works with the following insurance companies: Achmea, VGZ, CZ, DSW, Menzis and Multizorg. It also has agreements with international insurers for EUR15 million. All insurers operate nationally, but some local variations remain. For example, DSW has traditionally been strong in the Rotterdam, Schiedam, Vlaardingen region and therefore represents a larger proportion of Erasmus MC's revenues than its national market share would suggest. Conversely, Menzis has traditionally operated in the east and north of the Netherlands and is therefore less important for Erasmus MC.

Insurers' Market Share (%)

Insurer	Erasmus MC	National
Zilveren Kruis (Achmea)	26	31
VGZ	26	24
CZ	24	22
Menzis	7	13
DSW	9	3.5
Multizorg VRG	6	6.5
Others	2	0
Total	**100**	**100**

Source: Erasmus MC

The turnover from insurers is determined on the basis of Diagnosis Treatment Combinations (DBCs). Please refer to Fitch's Special Report *What Investors Want to Know – Dutch Hospital Sector* for further information on DBCs. Any costs above the ceiling agreed with insurers may be reimbursed fully, at reduced rates or not at all. Whenever Erasmus MC expects costs above the contracted ceiling, it will look for a solution with the insurer, based on common interests (ie providing healthcare to patents). An agreement is usually reached to raise the ceiling, although conditions may vary. Nevertheless, Erasmus MC aims to over-produce in the controlled segment to reinforce its negotiating position with the health insurers. In the past, this strategy has resulted in growth of over 3% per annum.

Erasmus MC consults with insurers several times a year, and production agreements are monitored periodically. Most agreements (EUR622 million) relate to ceiling agreements, meaning that Erasmus MC is not compensated for any overruns without prior consultation. Separate agreements are made with health insurers for psychiatry. Erasmus MC has an agreement with the Association of Dutch Municipalities for child and adolescent psychiatry.

The process of invoicing insurance companies is largely standardised. Invoices are either accepted or rejected within days, and payment usually takes no more than three weeks. Erasmus MC also receives advance payments for work-in-progress treatments that have not yet ended and can therefore not yet be invoiced. Insurers are legally obliged to pay within four weeks. In early January 2018, Erasmus MC finalised a two-year contract with CZ for 2018 and 2019, and in December 2017, it concluded a three-year contract with Zilveren Kruis (Achmea). It also reached agreement on the indexation of tariffs to compensate for a rise in personnel expenses in 2017 and 2018, as a result of the new CAO (collective labour agreement) and renegotiated budget ceilings with some insurers for 2017.

Operating Risks

The operating risk assessment covers two factors: operating cost flexibility and resource management. Operating costs have been assessed as strong, and resource management as midrange. Overall operating risks have been assessed as midrange.

Operating Cost Flexibility

Operating costs are assessed as Strong. Erasmus MC has identified cost drivers and low potential volatility in major items. It has flexibility in timing for major life-cycle costs, and limited near-term capex is expected, considering that the major investment in the new building is expected to be completed by May 2018. In order to maintain its leading position, Erasmus MC has invested in its employees, organisation and infrastructure. Over EUR1 billion was invested in the largest hospital building project ever undertaken in the Netherlands, which has given Erasmus MC state-of-the-art medical facilities. This long-term building project made it possible to combine Erasmus MC's services in a single location rather than being scattered across leased premises. Erasmus MC expects to achieve more than EUR30 million in total savings through: the more efficient usage possible in the new premises; lower overheads (including reduced lease costs from vacating buildings currently used); green roofs; the chance to implement a new way of working; and better utilisation of Information and Communications Technology.

Erasmus MC is also planning major facilities projects in the coming years, including the renovation and construction of the Erasmus MC-Sophia children's hospital and renovation of its faculty buildings. If Erasmus MC is able to actively control revenue and cost reductions, it also plans to invest in big data, information and communications technology infrastructure for research tasks. In 2017, it replaced its electronic patient files.

Resource Management Risk

Resource management is assessed as midrange. Personnel expenses for Erasmus MC's 13,000 employees (9,524 FTEs) account for about 53% of total expenses, and include pension plans and social expenses (17% of wage costs). Of FTEs, 80% are in healthcare, with the remainder covering education and research. Erasmus MC has an adequate supply of resources and labour with limited volatility in terms of amount, cost and timing. One of the challenges in the Dutch healthcare sector is ensuring that healthcare providers have sufficient medical staffing. Erasmus MC is recruiting and trying to retain specialised nursing personnel, surgeons and medical scientists in its organisation by being an innovative and progressive employer. Erasmus MC has a strong reputation internally and externally as an employer and is therefore able to attract and retain top-quality talent. Erasmus MC's staff consists mainly of permanent employees (over 80%); temporary employees account for about 10%, with the remainder primarily employees on flexible contracts. To a certain degree, Erasmus MC has the flexibility to adjust its employment levels in accordance with demand. Specialist medical staff at UMCs are civil servants, unlike at most Dutch hospitals where these staff are self-employed.

Total FTEs at year end by Function

	2016	2015	2014
Nursing staff	1,742	1,700	1,664
Administration	1,705	1,684	1,699
Scientific, research & education	1,296	1,273	1,350
Doctors	1,191	1,151	1,131
Clinical support	930	861	783
Analytical staff	776	749	756
Facilities staff	733	763	773
Clinical treatment	686	658	663
Management	262	272	280
Students	203	181	143
Total	**9,524**	**9,291**	**9,242**

Source: Erasmus MC

In May 2017, a decision was taken on the proposed reorganisation of the new Erasmus MC. The reorganisation is a direct consequence of the construction of the new building and affects approximately 3,500 employees. The reorganisation involves new ways of working and accompanying organisational change. There will be no forced redundancies due to this.

Although employee turnover may appear fairly high, this is common across the sector. Fitch understands that employee satisfaction is high, as evidenced by the below-average 4.7% absenteeism rate (5.1% in the healthcare sector generally). Erasmus MC aims to reduce this to 4%. A general shortage of drugs for patients is unlikely, as most drugs utilised are widely available and the hospital maintains reasonable stock levels. Moreover, the 50% participation in the Production Pharmacy A15 mitigates this risk even further. Erasmus MC's scale also gives it advantages in its procurement activities.

Capital Planning and Management

Capital planning and management is assessed as Neutral. Erasmus MC has adequate mechanisms for capital planning and funding, and has demonstrated generally effective management. Capex benefits from documented assessment and aligns to plan in a reasonable way. Debt maturity is significantly within the expected economic life, and Erasmus MC has established but up-to-date technology.

Multi-Year Property Investment

	(EURm)	(%)
Newbuilding tranche 1	978	66
Newbuilding tranche 2	75	5
Erasmus MC-Sophia	99	7
Psychiatry	4	0
Conservation	66	4
Total hospital	**1,223**	**82**
Renovation of high-rise tower	194	13
Education centre	20	1
Eread	49	3
Total faculty	**262**	**18**
Total	**1,485**	**100**

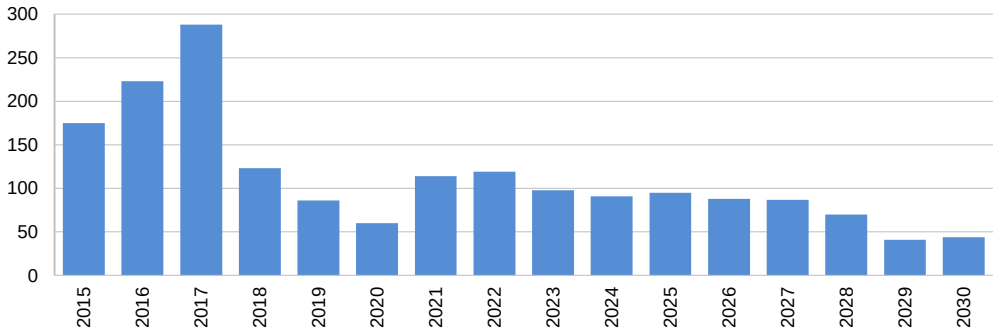
Source: Erasmus MC

New Building Projects

	(EURm)	Year of completion
New hospital	1,053	2018
Animal research centre	49	2023
Erasmus MC-Sophia children's hospital	100	2025
Educational centre	20	2025
Research tower	194	2028
Other	70	
Total	**1,485**	

Source: Erasmus MC

Erasmus MC Investment (EURm) in 2015-2030 Period



Source: Erasmus MC

2015-2030 Business Plan – Major Investment Already Completed

Erasmus MC expects to invest about EUR750 million in 2018-2025. Its ongoing investment programme ensures that it will maintain its leading position among Dutch hospitals. A small part of this will be financed from existing European Investment Bank (EIB), Bank Nederlandse Gemeenten (BNG) and ING Bank financing, but mainly from high operating cash flow. However, until 2025 there is a need for a EUR100 million revolving credit facility (RCF) to accommodate fluctuations in funding requirements. Erasmus MC aims to achieve an annual minimum return of 2% of revenue.

Erasmus MC's property has a gross floor area of over 454,000 square metres with concentration in the centre of Rotterdam. The complex is divided into five parts: the central location; Erasmus MC-Sophia; Erasmus MC-Daniel den Hoed; the faculty building; and offsite locations. The Erasmus MC-Daniel den Hoed location ceased to exist in December 2017 upon completion of the new building, and was relocated to the new building in the centre of Rotterdam with the last patient due to move in on 18 May 2018. It is expected that the renovation and construction of the MC-Sophia children's hospital will be completed in 2025. Tranche 1 (now complete) was the first of three major building programmes for the coming years, the other two being the Erasmus MC Research & Education Accommodation Development (Eread) programme and the Tranche 2 programme. Tranche 2 is designed to refurbish the main building, create connecting bridges and remove some of the "old" real estate stock.

The Eread programme consists of several components, including the renovation of the faculty tower, phase 2 of the education centre and research facilities. Total investment is expected to be EUR262 million. This programme has a horizon of approximately 12 years and comprises about 60,000 square metres.

Erasmus MC-Sophia is the oldest children's hospital in the Netherlands and, at 33,000 square metres, the largest. The ambition is for it to be one of Europe's top centres in the selected areas of the "Golden Triangle" – namely, Paediatrics, Paediatric Surgery, and Child and Youth Psychiatry.

The major ongoing IT project is the introduction of HiX, which is a hospital-wide information system for electronic patient files and which has a total budget of EUR70 million.

Financial Profile Assessment – Stable and Robust

Financial results have improved significantly since 2012. Over 2012-2016, revenue increased by 22%, while expenditure increased by only 16%, primarily due to controlling staff costs, which rose by just 8%. Assets increased to EUR1.8 billion from EUR1.5 billion, or by almost 19%, partly due to the new construction. At end-2016, Erasmus MC held EUR175 million as a prepaid amount from the Ministry of Health, Welfare and Sport for its new construction. Another EUR85 million was received in 2017 and will be released over the next 10 years. For 2016, Erasmus MC reported a positive post-tax result of EUR57 million, compared to EUR48 million

for 2015. This surplus is added to equity and reserves, which for 2016 rose to EUR477 million. Total revenues increased by 9% to EUR1,517 million in 2016 compared to a 6% increase in 2015. Operating expenses increased by 8% for the year to EUR1,412 million, primarily due to a non-structural increase in other operating expenses as well as the booking of a EUR43 million impairment. Due to the expected loss on Harbour Hospital, a 2016 provision was made by Erasmus MC of EUR24 million. The impairment reduced the value of material assets of the Harbour Hospital from EUR37 million to EUR9 million. The building was in need of major renovation and there was asbestos present that required controlled removal. An impairment of EUR16 million was made for the Education and Research segment of the Biosafety Laboratory 3 (whose value has been re-defined).

2017 Budget – Focus on Reducing Overheads

A financial forecast model has been developed in collaboration with EY Montesquieu. Three separate models are used: for education and research, patient care and a consolidated model. Unless corrections are made, all revenues and costs are increased by 2% inflation. Short-term rates are assumed at 4.7%, and rates for new long-term notes are estimated at 3.5%. The budget for 2017 expects a surplus of EUR50 million, and Erasmus MC is currently on track to achieve this.

Business Plan/Forecast 2017-2022 – Improving Debt Ratios Post 2017

Erasmus MC has adopted conservative assumptions for its business plan. Inflation and other indices have been set at 0%-2%. Total turnover is expected to fluctuate between EUR1,480 million in 2017 and EUR1,607 million in 2021. Operating expenses are expected to be at a low of EUR1,322 million in 2017 and reach a high of EUR1,453 million in 2021. Profit is not expected to exceed EUR53 million in any one year. The 2018 result is expected to be of EUR10 million because of incidental costs connected with the building project including a EUR40 million cost for the demolition of the old buildings. Total debt is estimated to increase to between EUR778 million and EUR890 million in the years to 2021, from EUR753 million in 2017. Fitch does not expect net debt/funds available for debt service to exceed 8x for any given year over the next five years.

Sensitivities

Erasmus MC has tested the following as its main sensitivities: higher interest rates for new loans; higher investment; higher annual costs; and unrealised volume growth. Interest rates have been included to rise to 6% from 3.5%. In this scenario, the impact will be a slightly lower result, which will not affect the financing needs and have a limited impact on solvency and the debt service coverage ratio (DSCR). Investments have been considered to increase by EUR15 million annually from 2019 for 10 years. For this scenario, sharply falling results and significantly increased financing costs will be seen in 2024-2029. Higher costs of EUR10 million in 2018-2027 have been tested, resulting in a lower surplus, leading to an increase in financing needs, a slightly lower increase in solvency and a limited impact on the DSCR. The effect of no volume growth at all is sharply falling results and increased financing costs as of 2024. Solvency would develop less positively than expected and the DSCR would come under pressure. However, in all four scenarios, Erasmus MC continues to fulfil the ratios set by banks.

Budget/Business Plan

(EURm)	2017	2018	2019
Operating income	1,388.9	1,418.6	1,442.8
Operating expenses	1,322.5	1,375.7	1,385.5
Financial income and expenses	26,9	30.7	28.7
Profit for the year	35.8	10.1	28.0
LT debt	849.4	854.6	816.3
DSCR	2.02	1.81	2.21
Solvency I	26.2	27.4	29.4
Liquidity	31	119	108

Source: Fitch

Debt and Liquidity – Debt to Decrease

Erasmus MC has financed its investments by attracting long-term loans and financial leases for equipment (annuity loans with ABN AMRO Lease). The term of the loans is equal to the depreciation period of the assets, and all interest rates have been fixed until the end of the term of each loan (the only exception being EUR20 million relating to Harbour Hospital).

At end-2016, Erasmus MC had EUR753 million of debt, an increase of EUR58 million from end-2015; 95% of this is long-term debt. Erasmus MC had EUR300 million in loans with BNG and over EUR280 million in loans with the EIB. All debt is secured by collateral, mainly

mortgages on properties. Erasmus MC has no plans to issue bonds in the near future.

In 2008, Erasmus MC completed an EUR866 million financing arrangement with BNG Bank and the EIB for the new building construction. According to this arrangement, EUR173 million was to be drawn in 2017, with the rates yet to be fixed. The final booking date is 31 March 2018. In 2015, it was decided to accelerate construction of the new thorax centre that originally formed part of Tranche 2 for which no funding was available. As such, EUR120 million of additional loans were raised, of which EUR60 million was provided by AG Insurance and the remainder by ING Bank. Erasmus MC expects to reduce bank debt from 2019. Erasmus MC has working capital unsecured overdraft credit facilities for EUR70 million with ABN AMRO and for EUR50 million with Rabobank.

All salaried employees are members of the ABP pension fund. This is the Dutch pension fund for government personnel and the largest pension fund in the Netherlands. Monthly deductions from Erasmus MC to ABP ensure that all personnel are paid for on time. Erasmus MC pays part of this pension contribution (monthly cost), and the other part is deducted from the wages paid to personnel. Erasmus MC has no unfunded contributions to cover. Workers at retirement age are entitled to a pension based on the average salary calculated over the years that the employee pension built up at Erasmus MC. There are no unfunded pension obligations as all employees are civil servants with contributions paid by the state.

Liquidity Profile Assessment

Cash and cash equivalents were EUR112 million at end-2016 and are forecast to have been EUR31 million at end-2017. The liquidity profile is assessed as Neutral, as Erasmus MC has a liquidity cushion above 0.33. This is assessed as excess annual cash flow after debt service plus the sum of readily available cash and committed liquidity lines/sum of annual operating expenses ((EUR73.9 million + EU111.7 million + EUR120 million + EUR201 million)/EUR1,505.7 million = 0.34). In addition, Erasmus MC's solvency is regarded as high for the sector.

Summary of LT Debt

	2016	(%)
ABN AMRO	56.6	7.5
AG Insurance NV	60	8.0
ASN Bank NV	1	0.1
BV NEA	10	1.3
EIB	281	37.3
ING	21.8	2.9
NV BNG	300	39.8
Rabobank	1	0.1
UMC Groningen	4.8	0.6
Zorgvastgoed Zeeland BV	16.9	2.2
Total	**753.2**	100

Source: Erasmus MC

However, as with the healthcare sector, billing for production at the beginning of the year can face significant delays, meaning Erasmus MC's liquidity position can be tricky to predict. As a result, the funding requirement could rise to a maximum of EUR100 million. Erasmus MC aims to achieve an eight-year RCF by 1 April 2018.

Erasmus MC has not needed to raise funds using the Guarantee Fund for the Health Care Sector (WfZ) because it can attract finance independently at comparable or lower pricing. For investments after 2018, Erasmus MC would like to be more flexible and use part of its free cash flow and use less working capital. The idea is either to attract a new credit line in the form of a EUR100 million RCF or to use the Fitch rating to attract money-market loans.

Leverage Assessment

Regarding the financial profile assessment and leverage (net debt/cash flow available for debt service), this has been assessed as Strong. Leverage was 2.8x in 2016, and between 1.5x and 4.4x for the previous four years. Going forward, leverage is expected to be below 8x, which would be assessed as Strong and still lead to a final rating assessment in the 'AA' category.

As such with an outcome of 35 points, considering the standalone rating has been assessed in the 'AA' category, and considering this is up to three notches away from the government, the ratings of Erasmus MC have been equalised with those of the Dutch sovereign.

Appendix A

Erasmus MC (Universitair Medisch Centrum Rotterdam)

Year-end 31 December (EURm)	2012	2013	2014	2015	2016
Income statement summary and profitability					
Total operating revenue (exc. transfers and grants from public sector)	1,015.3	1,072.9	1,080.7	1,150.8	1,254.2
Operating revenue growth (%)		5.67	0.73	6.49	8.99
Transfers and grants from public sector	221.4	225.2	231.8	243.3	251.5
Transfers and grants from public sector/total revenues[a] (%)	17.90	17.35	17.66	17.45	16.70
Operating balance	33.4	26.3	48.4	73.2	73.8
Interest expense	23.1	24.7	24.0	26.6	28.2
Profit (loss) after tax	10.7	13.2	33.7	48.2	56.5
Personnel costs/total revenues[a] (%)	57.73	55.55	55.39	52.86	51.01
Fitch-calculated EBITDA margin (%)	11.44	12.74	11.59	31.76	15.35
FFO margin (%)	9.61	11.87	10.56	30.02	13.67
FCF margin (%)	-8.88	-6.02	-1.45	.34	3.73
Return on equity and reserves (%)	3.10	3.68	8.59	11.45	11.83
Return on assets (%)	.67	.87	2.34	2.70	3.02
Balance sheet summary					
Total assets	1,590.6	1,521.7	1,440.3	1,786.3	1,870.9
Stock	7.6	10.8	11.6	12.7	14.6
Cash and liquid investments	24.3	34.2	31.3	37.7	111.7
Reserves					
Equity	345.2	358.4	392.1	421.0	477.4
Cash flow summary					
EBITDA (Fitch calculated)	141.5	165.4	152.1	442.8	231.2
Cash interest paid	-23.1	-23.2	-22.6	-25.8	-27.1
Other items before FFO	.4	11.9	9.1	1.5	1.7
FFO: funds from operations	118.8	154.1	138.6	418.5	205.8
Changes in working capital	-8.8	-54.5	7.4	-228.1	39.6
CFO: cash flow from operations	110.0	99.6	146.0	190.4	245.4
Net capital expenditure	-219.8	-177.8	-165.0	-185.6	-189.2
Dividends paid	0	0	0	0	0
FCF: free cash flow	-109.8	-78.2	-19.0	4.8	56.2
Equity injection					
Other cash financing	-22.7	-9.3	-10.7	-23.6	-23.0
Cash flow before debt movement	-132.5	-87.5	-29.7	-18.8	33.2
New borrowing	153.2	124.8	80.0	65.0	75.0
Debt repayment	-25.4	-27.3	-53.4	-39.7	-34.3
Cash flow after net debt movement	-4.7	10.0	-3.1	6.5	73.9

[a] Includes revenue from the public sector
Source: Issuer and Fitch calculations

Appendix B

Erasmus MC (Universitair Medisch Centrum Rotterdam)

Year-end 31 December (EURm)	2012	2013	2014	2015	2016
Debt summary					
Short-term debt	26.9	41.2	39.7	33.9	34.3
Long-term debt	613.9	602.0	630.2	661.3	718.9
Total debt	640.8	643.2	669.9	695.2	753.2
Subordinated debt					
Finance leases					
Other Fitch-classified debt					
Total risk	640.8	643.2	669.9	695.2	753.2
Unfunded pension liabilities					
Contingent liabilities					
Overall risk	640.8	643.2	669.9	695.2	753.2
Cash, liquid deposits and sinking fund	24.3	34.2	31.3	37.7	111.7
Net overall risk	616.5	609.0	638.6	657.5	641.5
% Debt in foreign currency	0	0	0	0	0
% Debt at fixed interest rate	100	100	100	100	100
% Issued debt	0	0	0	0	0
Coverage and leverage					
Fitch-calculated EBITDA gross interest coverage (x)	6.13	7.13	6.73	17.16	8.53
FFO gross interest coverage (x)	5.14	6.64	6.13	16.22	7.59
FFO debt service coverage (x)	2.45	3.05	1.82	6.39	3.35
FFO/net capital expenditure (%)	54.05	86.67	84.00	225.48	108.77
FFO gross leverage (x)	5.39	4.17	4.83	1.66	3.66
Net debt/(CFO-capex) (x)	(5.56)	(7.79)	(33.61)	142.93	13.98
Total debt/Fitch-calculated EBITDA (x)	4.53	3.89	4.40	1.57	3.26
Net debt/Fitch-calculated EBITDA (x)	4.36	3.68	4.20	1.48	2.77
Total risk/Fitch-calculated EBITDA (x)	4.53	3.89	4.40	1.57	3.26
Overall risk/Fitch-calculated EBITDA (x)	4.53	3.89	4.40	1.57	3.26
Total debt/equity and reserves (%)	185.63	179.46	170.85	165.13	157.77
Total debt/total assets (%)	40.29	42.27	46.51	38.92	40.26
Sector specific data					
Patient revenues	823.7	891.0	920.1	956.0	1,033.2
Revenues from insurance cover	700.1	757.1	780.6	830.2	903.9
Number of beds [b]	1,320	1,320	1,320	1,320	1,320
Average length of stay (days)	6.9	6.7	5.6	5.8	5.6
Number of employed physicians	1,344	1,386	1,131	1,151	1,191
Number of employed nurses	1,733	1,742	1,664	1,700	1,742
Revenues from insurance cover/total revenues [a] (%)	56.61	58.32	59.47	59.55	60.03
Cash/total debt (%)	3.79	5.32	4.67	5.42	14.83
Total debt/capitalisation (%)	64.99	64.22	63.08	62.28	61.21
Capital expenditure/depreciation (%)	310.25	201.36	179.74	189.21	199.90

[a] Includes revenue from the public sector
Source: Issuer and Fitch calculations

Appendix C

Additional Asymmetric Risk Factors

Summary of Rating Factors

Debt characteristics	Governance management	Legal and regulatory	Information quality	Country Ceiling and legal regime
Neutral	Neutral	Neutral	Neutral	Neutral

Source: Fitch

Asymmetric Risks – Assessed as Neutral

Debt has been assessed as having a Neutral impact. Debt is fully amortising with fixed interest rates. Hospitals in the Netherlands do not issue on the capital markets, so most of their debt is bank debt. Erasmus MC has no FX exposure.

Erasmus MC's internal reporting has identified seven litigation disputes and has calculated the group's maximum theoretical exposure at EUR4.9 million. This related to all commercial litigation and not medical claims for which Erasmus MC has full insurance cover. Nevertheless, experience has shown that the actual liability is usually significantly less than the exposure.

Governance and Management is assessed as Neutral. Erasmus MC's supervisory and executive board have extensive experience in the sector, which has generally been stable with modest turnover. The governing body is objective and engaged, and transparency and communication is good between management and the governing body. There are well-developed and documented policies and procedures. Erasmus MC has a supervisory board of five and a board of directors of four. The term for the supervisory board members is four years, with a maximum of two terms.

Key management has a good track record of meeting budgets and over-performing, which is why Erasmus MC as a whole has good financial performance. Divisions are managed by key management and have a monthly reporting structure in which key figures (P&L, productivity, percentage of employees taking sick leave) are discussed with middle management. These reports are prepared by the control department. Every week, key management meets with the supervisory board to discuss matters concerning progress of strategic policies and issues. The board reviews the risk matrix at least every three months. The matrix contains risks concerning: quality and safety, continuity (strategy, organisation, policy), finance and operations, customer relations, external factors and image.

Financial progress is also reported and discussed by the board and management. The report is prepared and presented by the manager of Planning and Control. The Legal and Regulatory risk factor has been assessed as Neutral. There is a strong precedent for contractual frameworks and a regulatory or statutory framework and its operation and effect. All the customer key documents and legal opinions are accessible for review where relevant.

Please refer to Fitch's Special Report *What Investors Want to Know – Dutch Hospital Sector* for further information on the background of the sector and regulation, common for all hospitals in the country.

The IGZ or Health Care Inspectorate monitors the quality of care. If the level of care does not reach the appropriate standard, the IGZ can place a hospital under increased supervision. This happens several times a year across the Netherlands but has never happened to Erasmus MC. The IGZ produces three-year statistics that can be used to compare the quality and safety standards with those at other UMCs and the national average. For example, more than 80% of patients aged 70 and older have received a health risk score that is recorded in their medical file, compared to the UMC average of 77.5%. Prompt diagnosis of sepsis in Erasmus MC was 100% compared to 64% amongst UMCs and 90% nationally.

The NVAO, the Dutch-Flemish Accreditation Organisation, is the quality of education supervisor. It is an independent accreditation body created in 2002 to ensure accreditation of higher education institutions.

The Royal Dutch Academy of Sciences (KNAW) monitors the quality of scientific practice in the Netherlands. The goal of its quality assurance is to enable the science system to be fit to meet appropriate scientific and social objectives.

The NZa supervises hospitals, ensuring that they adhere to the appropriate laws and regulations, including the Market Organisation Health Care Act (WMG), the Health Insurance Act (ZvW) and the Long-Term Care Act (WLZ).

The NIAZ (Netherlands Institute for Accreditation in Healthcare) inspects Erasmus MC regularly to ensure continuing high-quality standards. Erasmus MC has had organisation-wide NIAZ accreditation since 2008. This is valid until March 2021. According to NIAZ, Erasmus MC fills the stated conditions of having a sufficiently developed improvement-oriented culture and quality system. In 2016, Erasmus MC decided internally to implement its next accreditation process using the NIAZ-Qmentum International Accreditation Program. In addition to organisation accreditation, Erasmus MC has certificates, labels or accreditation for its departments, sub-departments and services.

Erasmus MC has also taken part in research using the Consumer Quality Index (CQ Index). It compared itself to the other seven UMCs, obtaining scores of 8.0 for hospital visits and 8.2 for outpatient clinic visits. The index also provides reference points to further improve patient care in areas such as accessibility, aftercare and information about medication.

In terms of waiting times, the Erasmus MC-Sophia children's hospital has the longest waiting times of all the Erasmus MC units, largely due to the fact that there are very few hospitals in the Netherlands that can provide the same treatments so patients come from across the country. The target is for eighty per cent of waiting times in the outpatient clinic to be below 21 days, but for Erasmus MC only 55% are less than 21 days, showing how far demand exceeds supply. Nevertheless, Erasmus MC has always been able to meet its contracted levels of work agreed with the health insurers. The percentage of admissions where the time spent in hospital was more than 50% longer than expected was 19.86% for Erasmus MC in 2016, in line with the UMC average.

Information quality is assessed as Neutral to the rating. Data is regularly updated; data is independently validated; forecasts are supported by significance or error range statistics; there is no history of material data errors; there are detailed cash flows showing receipts and disbursements; and there is audited financial data and a significant amount of public information available.

In terms of the Country Ceiling and legal regime, this factor is also assessed as Neutral. The Country Ceiling of the Netherlands is 'AAA', and above Erasmus MC's indicative standalone rating. The legal system is creditor-friendly and reliable, and there is a history of impartiality and respects for contracts. The Netherlands has a long-term stable economy and supportive regulatory regime, and the sector is of national importance and essential for public services.

The ratings above were solicited and assigned or maintained at the request of the rated entity/issuer or a related third party. Any exceptions follow below.