

## CREDIT OPINION

22 December 2022

Update



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### RATINGS

#### Nanyang Technological University

Domicile	Singapore
Long Term Rating	Aaa
Type	LT Issuer Rating - Fgn Curr
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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# Nanyang Technological University

Regular update

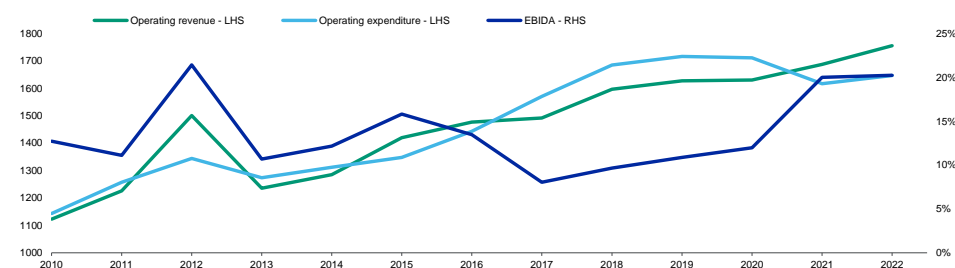
## Summary

The credit profile of [Nanyang Technological University](#) (NTU, Aaa stable) reflects the university's prudent financial management, underpinned by its healthy operating margin, ample internal liquidity and low debt levels. It also benefits from the strong institutional framework for higher education in [Singapore](#) (Aaa stable), whose government provides substantial funding for the university's operations and capital spending.

Exhibit 1

### NTU has a track record of stable financial performance

SGD million (LHS); % of operating revenue (RHS)



Years ending 31 March shown

Sources: NTU and Moody's Investors Service

## Credit strengths

- » Robust institutional framework encompassing predictable government funding
- » Ongoing strengthening in academic reputation amid expansion of degree offerings
- » Significant liquidity and low indebtedness

## Credit challenges

- » Cost pressures related to efforts to enhance its international profile
- » Adverse demographic trends that potentially impact medium-term enrollment

## Rating outlook

The stable rating outlook reflects our expectation that NTU will continue to maintain a healthy operating margin, ample liquidity and a strong balance sheet over the foreseeable future. Along with the continued demonstration of ongoing support from the government—as well as indications of the likelihood of extraordinary support—we expect NTU's credit profile to remain consistent with an Aaa rating.

## Factors that could lead to an upgrade

The final rating of Aaa and Baseline Credit Assessment (BCA) of aaa cannot be upgraded.

## Factors that could lead to a downgrade

While unlikely, a reduction in the government's financial support to NTU or a change in the debt subsidy program for approved capital projects would indicate a lowering of the potential for extraordinary support and may lead to a downgrade of NTU's ratings.

NTU's ratings and/or BCA could also be downgraded if the university registered a sustained deterioration in its financial performance, a substantial rise in borrowing, or a significant reduction in cash and investments that leads to a material decline in the coverage of expenditure and/or debt outstanding.

## Key indicators

### Nanyang Technological University

As of 31 March

(Fiscal Year Ending 3/31) [1]	2018	2019	2020	2021	2022
Operating Revenue (USD '000) [1]	1,177,327	1,198,928	1,188,451	1,235,415	1,299,250
EBIDA Margin (%)	9.9%	11.0%	12.2%	20.1%	20.9%
Total Cash and Investments (USD '000)	2,840,196	2,722,506	2,669,713	3,421,676	4,209,131
Total Cash and Investments to Operating Expenses (x)	2.2	2.2	2.2	2.9	3.4
Total Cash and Investments to Total Adjusted Debt (x)	13.1	21.4	28.6	36.7	8.7
Annual Debt Service Coverage (x)	44.7	76.4	33.7	47.3	39.1

[1] All ratios are based on 'Adjusted' financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

Source: NTU and Moody's Investors Service

## Profile

NTU was inaugurated in 1991 with the merger of the Nanyang Technological Institute and the National Institute of Education that same year. NTU has grown beyond the Nanyang Technological Institute's original mandate to train the bulk of Singapore's engineers to become a comprehensive, research-intensive university comprising five colleges and six autonomous institutes.

Currently one of Singapore's two largest autonomous universities, NTU has over 33,000 undergraduate and postgraduate students in the Engineering, Business, Science, Medicine, Humanities, Arts, & Social Sciences, and Graduate colleges. NTU is also home to world-renowned autonomous institutes – the National Institute of Education, S Rajaratnam School of International Studies, Earth Observatory of Singapore, and Singapore Centre for Environmental Life Sciences Engineering – and various leading research centres such as the Nanyang Environment & Water Research Institute (NEWRI) and Energy Research Institute @ NTU (ERI@N).

As of 31 July 2022, the Board of Trustees comprised 18 members, largely occupying senior positions from academia, the public sector and government-linked entities, reflecting in part the university's linkages with the government. The Minister of Education has the power to appoint and remove members of the Board of Trustees under the Nanyang Technological University (Corporatization) Act of 2005.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moodys.com> for the most updated credit rating action information and rating history.

## Detailed credit considerations

NTU's BCA of aaa is in line with its Aaa issuer rating.

### Baseline credit assessment

#### Close relationship with government, encompasses both financial support and oversight

NTU is characterized by its very strong operational, research and funding relationships with the Government of Singapore given the framework governing autonomous public universities in Singapore. Providing high-quality higher education is a premier policy goal of the Singapore government, reflecting its view that education is of key importance to the country's economic prospects.

The university's relationship with the government has evolved, with greater autonomy awarded to NTU since 2006. At that time, the government corporatised two of the country's public institutions, including NTU, to provide them with greater operating flexibility than they had previously as statutory corporations to help them better compete in the international arena.

Despite NTU's increased autonomy, the government's role in the university's activities remains prominent. Over the medium term, as the government faces competing pressures for spending on social services, the university sector could be required to increase its own funding of operations. Still, even under such a scenario, we do not believe support from the government would be significantly reduced.

As with most traditional government-directed university systems, NTU's enrollment is largely determined by the government, which sets the number of student spaces through subsidies provided for enrolled students, particularly for domestic undergraduates. Tuition fees for undergraduate students must ultimately be approved by the government.

The university's Board of Trustees comprises of members who are leading representatives of Singapore's business community, professionals from the public and private sector, and academics, as well as one representative from the Ministry of Education (MOE).

The government is the primary source of the university's operating and capital funding. Funds are provided through three main grant programs: (1) an annual operating grant provided on a per student basis, (2) research grants, and (3) development grants. The government subsidizes capital projects through a mix of grants and debt-service subsidies.

#### Market profile: Strong student demand, reflecting evolving offerings and strengthening academic reputation

For much of Singapore's history as a country (founded in 1965), NTU (and its predecessor institution, Nanyang Technological Institute) was one of only two universities, although that number has expanded to six autonomous universities over the past 20 years. NTU has expanded beyond the original mandate of its predecessor institution to produce the bulk of the country's engineers to become a comprehensive university that spans more traditional academic offerings. This has helped it to further distinguish itself from the newer autonomous universities, as well as achieve more diverse sources of revenue such as research grants.

The development of NTU as a more comprehensive institution has coincided with its rapid rise in global rankings. It has climbed to 36th place in 2022 from 174th in 2011 in the Times Higher Education World University Rankings, which has also ranked NTU as one of the world's best young universities below 50 years old. Similarly, NTU has placed 19th in the 2022 QS World University Rankings, up from 47th in 2012, and first among universities under 50 years old. The university has similarly high rankings from other providers such as US News and World Report, while several of its departments and schools are also highly regarded, including the fourth best engineering and technology program in the world according to the QS World University Rankings.

NTU has also proven to be responsive to market demands, especially in the context of Singapore's wider economic restructuring efforts. For example, in 2019, NTU announced a 50% increase in its intake for computing-related undergraduate programs versus 2015 levels, to meet the prospective demand for data scientists and cyber security specialists. This particular response to overarching government policy priorities has continued to support enrolment growth through 2022.

Apart from an increase in enrolment, the university also introduced new degree programs such as degrees in data science and artificial intelligence. It also unveiled new engineering specializations to match Singapore's aspirations in biotechnology and R&D, including concentrations in pharmaceutical manufacturing, intellectual property for bioengineering, and smart manufacturing and digital factory. In 2021, NTU also unveiled its Sustainability Framework, which includes plans to launch new undergraduate, postgraduate and continuing education programme options on different aspects of sustainability.

Beyond degree-granting programs, NTU has also responded to the government's emphasis on "upskilling" to help working adults adapt to structural changes in the economy through an expansion of its continuing education programs; as part of this initiative, NTU has also introduced a "FlexiMasters" program to encourage participation, which has in turn bolstered revenue growth in recent years.

### **Operating performance: Operating margin remains robust driven by strong revenue growth**

NTU has a favorable track record of financial performance with our estimate of earnings before interest, depreciation, amortization and other large noncash expenses (EBIDA) margin averaging 13.4% of operating revenue — adjusted to smooth out investment income — over the ten-year period between 2012 and 2021, consistent with an "A" score for operating performance.

For the fiscal year ended 31 March 2022 (fiscal 2022), we estimate that EBIDA margin was sustained above 20% for the second consecutive year, largely driven by an improvement in revenue growth amid sustained cost savings during the pandemic. In particular, our estimate for adjusted operating revenue rose 4%, sustained by growth in tuition and other fees. The 11.9% increase in gross tuition and other fees represented a multi-year high, and was driven by a 6.7% rise in graduate full-time equivalent (FTE) enrolment that more than offset the impact of a 2.9% decline in undergraduate FTE.

Similar to the expectations of other rated Singapore universities, NTU expects total enrollment to gradually decline over the medium-term, corresponding to the shrinking size of domestic undergraduate-age cohorts. As in fiscal 2022, this will be offset somewhat by continued growth in its postgraduate programs and higher international student enrollment. We take into account these trends in enrollment in our assessment of demographic and societal trends.

In addition to its degree-granting programs, NTU also expects greater revenue from its professional development and continuing education programs, which are reported separately from tuition and other fees. This is in line with the government's broader goals towards economic restructuring, in particular, "upskilling" and "lifelong learning" to prepare the labor force to avert structural/frictional job dislocation as the economy moves towards higher value-added manufacturing and services.

Meanwhile, our estimate for adjusted operating expenditure rose 1.9%, driven by a 10.6% increase in "teaching/research/administration" costs and representing the first annual increase in overall expenditure since fiscal 2019. This was in part due to a university-wide compensation adjustment in 2021, in line with the strong wage growth in Singapore over the same period, while the pace of hiring new faculty picked up.

Nevertheless, pandemic-related considerations continue to preempt more rapid expenditure growth, for example, as cross-border travel restrictions remained through much of fiscal 2022. NTU has also benefited from its efforts towards administrative transformation in recent years, including the greater integration of IT platforms for its management processes. Broader investments in IT, in particular, proved to be critical in minimizing disruptions to the university's operations amid the pandemic when much coursework had transitioned online, while also providing scalability for many of its graduate degree and other self-financed programs. The associated investments in technology and other infrastructure (including facilities for the recently established medical school, which opened in 2017; a SGD45 million teaching facility called "The Hive" which opened in 2015; another learning hub dubbed "The Arc" which cost SGD41.5 million and opened in 2018; and ongoing construction on a new business school building announced in 2018 that will be Asia's largest wooden building when completed) culminated in a peak in reported expenditure in 2019.

We expect the government to continue its strong support of the university's financial operations. In fiscal 2022, government grants (including amounts for operations, development and research, but excluding the amortization of deferred capital grants) amounted to SGD927 million (around 53% of adjusted operating revenue). We project government funding to continue to comprise over 50% of adjusted operating revenue and to remain a structural feature of NTU's credit profile, both in terms of its financial performance and potential implications for extraordinary support.

Over the next two to three years, our estimate of NTU's EBIDA margin will slowly erode from its currently very healthy levels, which reflect in part constraints to expenditure related to the pandemic. Among other considerations, broader inflationary pressures will push up overall expenditure, including higher spending on utilities on the back of hikes in electricity tariffs, while the government may seek to cap increases to undergraduate tuition fees. At the same time, there have been no major projects announced that would significantly increase the pipeline for capital expenditure.

### **Financial resources and liquidity: Substantial buffers provide strong financial flexibility**

The university's holdings of cash and investments provide an ample buffer for its operations and substantial debt coverage, even after its maiden issuance under its multicurrency medium term note programme, allowing NTU an exceptional degree of financial flexibility. In fiscal 2022, total cash and investments grew by 23.9% in Singapore dollar terms to SGD5.7 billion (\$4.2 billion) from SGD4.6 billion (\$3.4 billion).

Driven by the buoyant recovery in asset prices, NTU notched an exceptionally strong investment gain of SGD666.3 million in fiscal 2021, up from the SGD64.4 and SGD63.5 million in fiscal 2019 and 2020 respectively. Similarly, the sustained growth in asset prices led NTU to see another strong gain of SGD267.4 million in fiscal 2022, pushing up total cash and investments to SGD5.7 billion. While market volatility will likely weigh on valuations of its investment assets and, ultimately, investment income, we do not expect exchange rate volatility to have a significant impact on NTU's balance sheet, partly reflecting the use of relevant hedging instruments.

The university's fundraising efforts have not been material to its financial performance, with donations making up 3.6% of adjusted operating revenue in fiscal 2022, up slightly from 2.7% in fiscal 2021. However, the university's fundraising has benefited from generous support from the government, which provides a matching grant of 1.5x to endowed donations for undergraduate programs and 1x for other donations.

NTU's liquidity remains solid, our calculations show total cash and investments covering expenditures by around 3.5x in fiscal 2022. Coverage of expenditure has been consistent with a score of "Aaa" (>1.25x) since at least 2010, when the ratio was 1.5x. The improving trend of this coverage ratio over this period reflects the university's lengthy track record of stable investment performance, disrupted only by the global financial crisis.

### **Leverage and coverage: Low debt burden mostly supported by government subsidies**

Prior to its maiden bond issuance of SGD650 million in October 2021, NTU's borrowings had been comprised of short-term bank borrowings, which have fallen in recent years to SGD120.8 million in fiscal 2021 from as much as SGD350.2 million in fiscal 2017. Given the size of NTU's inaugural issuance under its multicurrency medium term note programme, total cash and investments to total adjusted debt fell to 8.7x in fiscal 2022 from 36.7x the previous year, which also incorporated the repayment of outstanding bank borrowings. Looking ahead, we expect the ratio of cash and investments to total adjusted debt to remain around the same level through at least 2025, which remains consistent with a "Aaa" sub-factor score for this metric.

Annual debt service coverage, as defined by our estimate of EBIDA to the sum of interest expenses and scheduled principal payments (excluding the refinancing of short-term borrowings) declined to 39.1x in fiscal 2022 from 47.3x in the previous year, largely reflecting rising interest rates on short-term bank borrowings. We estimate that the commencement of coupon payments for NTU's maiden bond issuance will lower the coverage ratio to close to 20x from fiscal 2023, which remains well above the 4x threshold for a "Aaa" score for this subfactor. As we do not expect a rapid rise in issuance volumes or other forms of indebtedness in the near-term, debt service coverage should remain strong over the next few years.

Although the university's strong financial performance provides ample coverage of debt servicing, the government actually absorbs much of the debt servicing burden through subsidies under the Debt-Grant Framework. For approved development projects, the government will fund 40% of the development costs upfront through a grant with the remainder of the costs borne by the university through debt. Debt support for principal and interest repayments are computed based on an assumed loan tenure according to the project category. The government will provide a sinking fund for 40% of associated servicing costs, i.e., maintenance and upkeep, while debt servicing will be split between tuition fees and additional subsidies specifically for borrowing costs. We expect that future bond issuance will be covered under the Debt-Grant Framework.

### **Financial policy and strategy: Long track record of quality of management**

The "Aaa" score for financial policy and strategy reflects the track record of the quality of the university's management, in part reflecting consistently strong margins, ample liquidity and low leverage, as well as the adherence to the government's broader economic restructuring strategies that have underpinned its ability to sustain growth in enrolment and revenue.

Data transparency is very high, with regular audits by a number of different bodies for various purposes, including a private auditor, the Ministry of Education and the Auditor-General's Office. In addition, NTU has adopted best practices as per the Code of Governance for Charities and Institutions of Public Character, including the disclosure of the extent of its compliance with the Code.

Enterprise risk management includes a framework of financial policies whose aim is to achieve and maintain a sustainable capital structure, reflecting extremely limited risk appetite. Associated rules include targets for conservative leverage (total debt/total assets < 15%), ample liquidity coverage (minimum cash balance > 3 months of operating expenditure) and capital adequacy (designated reserves > 20% of total expenditure).

The utilization of reserves requires the approval of the Finance Committee or the wider Board of Trustees, depending on the limits. Policies are reviewed by the Finance Committee semiannually, as is reporting to the Audit & Risk Committee.

### Extraordinary support considerations

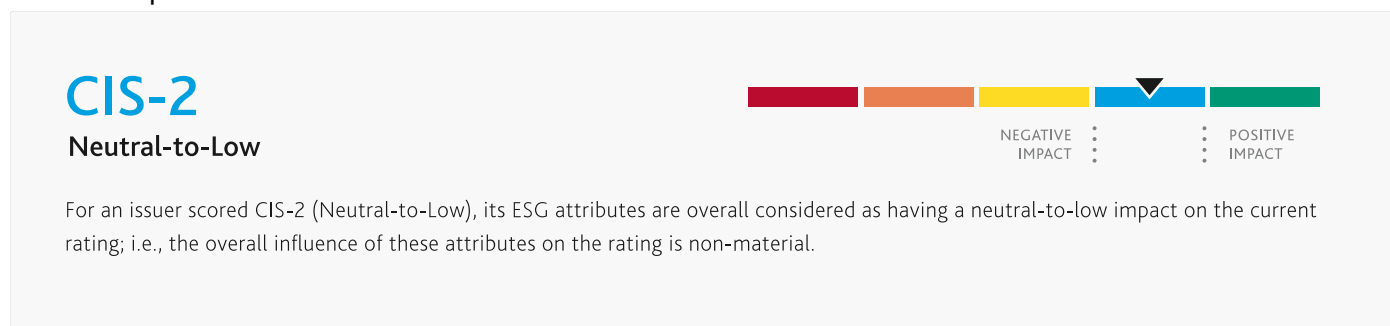
We assign a very high likelihood of NTU receiving extraordinary support from the Singapore government, reflecting our assessment of the risk posed to the government's financial reputation if the university were to experience acute liquidity stress. Our assessment of support is also based on NTU's prominent position in Singapore's university system and the importance of universities to the country's key policy goal of increasing participation in higher education, as well as economic restructuring more broadly. We also assess that there is a very high default dependence between the university and the government, reflecting the shared exposure to prolonged economic shock.

## ESG considerations

### Nanyang Technological University's ESG Credit Impact Score is Neutral-to-Low CIS-2

Exhibit 3

#### ESG Credit Impact Score



Source: Moody's Investors Service

NTU's Neutral-to-Low (**CIS-2**) ESG Credit Impact Score reflects the mix of neutral-to-low risks from both environmental and governance concerns and moderately negative social risks largely stemming from demographic factors, although these have been mitigated by strong enrollment trends for its postgraduate programs and among international students.

Exhibit 4

#### ESG Issuer Profile Scores



Source: Moody's Investors Service

### Environmental

The **E-2** issuer profile score reflects neutral-to-low scores across environmental risk categories. Risks stemming from carbon transition, water management, natural capital and waste and pollution are low given the university's aim to achieve carbon neutrality by 2035, involving a significant reduction of net energy utilization, water usage and waste generation. Although Singapore is exposed to moderate physical climate risk stemming from the country's exposure to sea level rise over the long run as a low-lying island nation, the expected impact on the university is not expected to be as severe.

### Social

The **S-3** issuer profile score (**S-3**) balances the highly negative risks stemming from demographic and societal trends against Neutral-to-Low risks for all other social factors. In particular, the domestic undergraduate-age population is expected to decline given Singapore's persistently low birthrates. However, these risks are mitigated by continued growth of international student enrollment, as well as its postgraduate programs, both of which are supported by the university's burgeoning academic reputation, especially in engineering and computing. As with other autonomous universities in Singapore, NTU continues to play a key role in the government's economic restructuring efforts, particularly through its provision of continuing education offerings; in addition, new academic offerings and degree programs reflect market demand for careers in emerging technologies and interdisciplinary areas such as sustainability. Extensive oversight of government includes extensive grant and loan assistance to students to ensure affordability, while Singaporean employees' mandatory participation in the government's compulsory provident fund scheme eliminates any potential risks with regards to pension liabilities.

### Governance

The **G-2** issuer profile score captures NTU's positive risks from its excellent strategy and risk management, as well as for management credibility and track record, while other governance factors represent neutral-to-low risks. Strong governance has been demonstrated by the university's evolution from its initial focus on engineering and the sciences to a more comprehensive institution; alignment with government's broader strategic objectives is reflected in multi-year plans that help address and mitigate potential issues before they arise. Other governance factors represent neutral-to-low risks: NTU's organizational structure is typical for Singapore's autonomous universities, while its Board structure is robust with adequate oversight responsibilities.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

## Rating methodology and scorecard factors

The principal methodologies used in this rating were the [Higher Education Methodology](#), published August 2021, and the [Government Related Issuers Methodology](#), published February 2020. Please see the Ratings Methodologies page on [www.moody.com](http://www.moody.com) for a copy of this methodology.

The assigned BCA of Aaa is in line with the scorecard-indicated outcome.

### Nanyang Technological University

Scorecard Factors and Sub-factors	Value	Score
<b>Factor 1: Scale (15%)</b>		
Adjusted Operating Revenue (USD Million)	1,299	Aa
<b>Factor 2: Market Profile (20%)</b>		
Brand and Strategic Positioning	Aa	Aa
Operating Environment	Aaa	Aaa
<b>Factor 3: Operating Performance (10%)</b>		
EBIDA Margin	21%	Aa
<b>Factor 4: Financial Resources and Liquidity (25%)</b>		
Total Cash and Investments (USD Million)	4,209	Aaa
Total Cash and Investments to Operating Expenses	3.5	Aaa
<b>Factor 5: Leverage and coverage (20%)</b>		
Total Cash and Investments to Total Adjusted Debt	8.7	Aaa
Annual Debt Service Coverage	39.1	Aaa
<b>Factor 6: Financial Policy and Strategy (10%)</b>		
Financial Policy and Strategy	Aaa	Aaa
Scorecard-Indicated Outcome		aaa
Assigned BCA		Aaa

[1] Data is based on the most recent fiscal year available. Debt may include pro forma data for new debt issued or proposed to be issued after the close of the fiscal year.

[2] For non-US issuers, nominal figures are in US dollars, consistent with the Higher Education rating methodology.

Source: Moody's Investors Service

## Ratings

Exhibit 6

Category	Moody's Rating
<b>NANYANG TECHNOLOGICAL UNIVERSITY</b>	
Outlook	Stable
Issuer Rating	Aaa
Senior Unsecured -Dom Curr	Aaa

Source: Moody's Investors Service



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