

Boku

FY19 results

Outlook maintained for FY20; upside possible

Boku reported FY19 results that were largely in line with its January trading update. The Payments division doubled adjusted EBITDA in FY19 highlighting the scale benefits of this business, while the Identity division saw a reduced EBITDA loss on revenue growth of 26%. As COVID-19 is currently having limited net impact on the business, we make only minor changes to forecasts. We note that increased volumes in the Payments business, as people seek digital entertainment while self-isolating, could drive upside to our FY20 forecasts.

Year end	Revenue (\$m)	EBITDA* (\$m)	Diluted EPS* (\$)	DPS (\$)	P/E (x)	EV/EBITDA (x)
12/18	35.3	6.3	0.02	0.0	48.7	25.3
12/19	50.1	7.4**	0.01	0.0	62.8	21.6
12/20e	52.0	10.5	0.02	0.0	37.2	15.2
12/21e	60.8	14.3	0.03	0.0	24.0	11.2
12/22e	69.4	17.0	0.04	0.0	18.9	9.4

Note: *EBITDA and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments. **Excludes one-off revenue recognition.

FY19: In line with previous trading update

Adjusting for the one-off revenue of \$3.255m recognised in the Payments business in FY19, the group grew revenue 33% y-o-y, with Payments growth of 14% and Identity growth of 26% (pro forma). Payments grew adjusted EBITDA by 101% y-o-y to \$12.7m and Identity reduced the EBITDA loss to \$5.3m from \$6.3m in FY18 (pro forma). Normalised operating profit declined 6.6% y-o-y, reflecting the inclusion of the loss-making Identity business for the first time.

Outlook: COVID-19 could provide upside

As Boku's Payments business supports digital content consumption, it is benefiting from people seeking entertainment while confined to the home. Boku has seen some evidence of higher than normal volume growth although it is too soon to tell how sustainable this will be. Boku is delivering both Payment and Identity services as normal. Travel restrictions may delay signing of new business, particularly in the Identity business, prompting us to reduce Identity revenue and cost forecasts. We maintain our FY20/FY21 profit forecasts and introduce FY22 forecasts.

Valuation: Sum-of-parts suggests upside

Boku is trading at a discount to the average of payment processor peers and identity management peers on an EV/sales and EV/EBITDA basis. However, we believe that the investment Boku is currently making in the Identity business is masking the performance of the Payments business. As the two business have different growth and profitability dynamics, we take a sum-of-the-parts approach to assign value to each separately, generating a group equity value of \$352m or 117p per share. Excluding the Identity business entirely, the group would be worth \$327m or 108p per share, still well ahead of the current share price. Key catalysts for the share price include evidence of growth in the Boku Identity business, new major merchants being signed up in either business or a growing contribution from the wallets service.

Software & comp services

26 March 2020

Price 64p

Market cap £163m

\$1.18/£

Net cash (\$m) at end FY19 32.6

Shares in issue 255.2m

Free float 89%

Code BOKU

Primary exchange AIM

Secondary exchange N/A

Share price performance



% 1m 3m 12m

Abs (7.3) (26.0) (22.0)

Rel (local) 17.2 1.1 (1.4)

52-week high/low 148p 49p

Business description

Boku operates a billing and identity verification platform that connects merchants with mobile network operators in more than 50 countries. It has c 215 employees, with its main offices in the US, UK, Germany and India.

Next events

AGM May 2020

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Investment summary

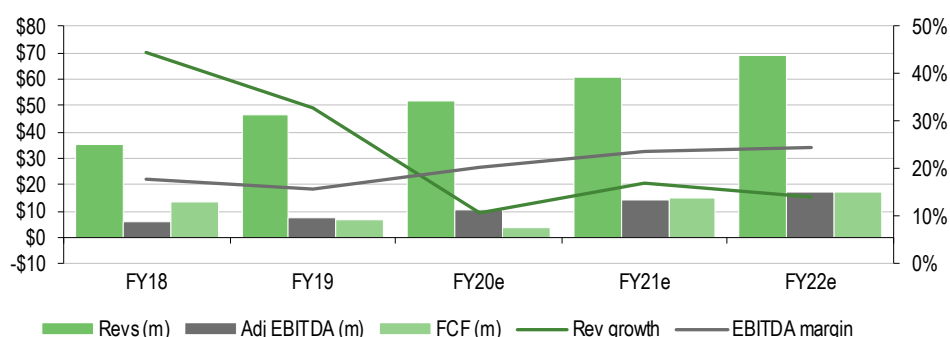
Helping merchants to grow and protect their businesses

Boku has developed and operates a platform that connects mobile carriers with merchants. This supports digital carrier billing (DCB), which serves as an alternative payment method for companies selling digital content, digital wallets and identity verification services, which enable merchants to sign up and transact with users while meeting regulatory requirements and avoiding fraud. Key investment considerations are as follows:

- The business is well established with 190 carrier connections in 59 countries. While DCB is often used in markets where credit/debit card ownership is low, Boku is more focused on developed markets. In developed markets, the ease of setting up and making DCB payments is a powerful tool for expanding the customer base for digital content.
- Boku has signed up major merchants in key digital content categories, eg Apple and Microsoft for app stores, Spotify for music, Netflix for video streaming, Facebook and Sony for games. By focusing on the largest merchants in each category, it is able to more efficiently scale as transaction volumes grow.
- The company should see growth from its existing merchant base over the next three years, as they complete their geographic roll-out plans and as consumers continue to adopt digital content via app stores and merchant websites, as well as through subscription services such as music or video streaming. It should also start to see an increasing proportion of revenues generated from processing wallet payments.
- Boku's platform is built to scale; additional transactions can be processed at minimal marginal cost giving Boku the flexibility to offer attractive pricing and providing strong operating leverage.
- Recent entry into the identity verification market has expanded the group's addressable market. Digital content currently makes up c 5% of the global e-commerce market; by offering identity services Boku can support other areas such as banking, remittances, mobile payments, on-demand services and government services.

Payments the profit driver; Identity the source of longer-term growth

Exhibit 1: Summarised financials, 2018–22e



Source: Boku, Edison Investment Research. Note: FY19 revenue and EBITDA excludes \$3.26m one-off revenue.

Boku had already reported headline figures for FY19 in January. Excluding the one-off revenue of \$3.255m, the group saw revenue growth of 33% (Payments +14%, Identity +26%), adjusted

EBITDA growth of 17% (with Payments +101%) and a normalised operating profit decline of 6.6% (reflecting the inclusion of the loss-making Identity business for the first time). While coronavirus could have some impact on the ability to sign new business over the next couple of quarters, it could also have a positive effect on total payment volumes (TPV) in the Payments business. With management's view on FY20 unchanged overall, we make only minor changes to our forecasts. Although we lower our revenue expectations for the Identity business in FY20 and FY21, we maintain our EBITDA loss forecasts as we expect lower costs to be incurred. We forecast normalised group EBIT margins to grow from 9% in FY19 to 21% in FY22 and we forecast continued growth in cash over the next three years. The company has no current plans to pay a dividend.

Sum-of-the-parts valuation suggests upside

On an EV/sales and EV/EBITDA basis, Boku is trading at a discount to the average of payment processor peers and identity management peers. On a P/E basis, it is trading at a premium in FY20e and effectively in line in FY21e and FY22e. However, we believe that the investment Boku is currently making in the Identity business is masking the performance of the Payments business. As the two businesses have different growth and profitability dynamics, we take a sum-of-the-parts approach to assign value to each separately. For the Payments business, we use an FY20e EBITDA multiple of 19.7x, the average of its payment processor peers. For the Identity business, we use the value of the acquisition of \$25.1m – this is conservative compared to peer valuations but reflects the fact that the business is currently loss-making. This generates an equity value for the group of \$352m or 117p per share, compared to the current share price of 64p. Excluding the Identity business entirely, the group would be worth \$327m or 108p per share, still well ahead of the current share price. Key catalysts for the share price would be evidence of growth in the Boku Identity business, new major merchants being signed up in either business or a growing contribution from the wallets service.

Factors influencing growth and profitability

As well as the usual risk factors relating to competition, regulation and the company's technology platform, we see potential for merchant-related factors to influence our forecasts and the share price, both on the upside and downside. For existing merchants, this includes the pace of roll-out to new carriers and countries, the adoption of wallets as a payment mechanism, the rate of growth in the underlying adoption of digital content, the competitive positioning of major merchants, customer concentration, and the fact that some contracts contain short notice periods. We note that while our forecasts include a certain level of growth from new merchant wins, we have not factored in any major new merchant wins; these could add materially to our earnings forecasts. The growth of the Identity business may progress at a different pace than forecast.

Company description: Payment and identity solutions

Boku developed and operates a platform to support DCB. The platform has connections to more than 190 mobile network operators (MNOs) and c 175 merchants, enabling those merchants to offer their customers DCB as a payment option. Boku manages the payment transactions on behalf of the MNOs and merchants, but, more importantly, provides a route to market to a section of consumers who may be more difficult to reach via traditional customer acquisition methods. Boku has seen rapid growth in transactions processed via its platform and we believe this growth should continue as more carriers and merchants join the network. The company has taken steps to leverage the network of connections it has developed between MNOs and merchants, initially developing an identity verification (IDV) product in house before acquiring a US-based provider of IDV services at the end of 2018.

Boku: A short history

Boku was founded in 2008 by Mark Britto, Erich Ringewald and Ron Hirson. In 2009 Boku acquired DCB companies Mobilcash and Paymo, and shortly after launched its DCB service. The first product was Boku Checkout, which enabled a consumer to enter their mobile phone number as a payment credential – this would then add the cost of the items acquired to the consumer's mobile phone bill or reduce their pre-paid credit. This was popular with gamers, as it enabled them to pay for games on their PCs, social gaming on Facebook and multi-player online games. In 2012, Boku acquired Qubecell, an Indian DCB company, which gave the company access to Indian MNOs and, more importantly, development resource. With the signing of Sony as a merchant in 2013, Boku enabled purchases to be made from games consoles. In 2014, Boku acquired Mopay, its main competitor, for \$24m. In 2015 Boku launched its second product, Boku Account, which provides the phone equivalent to 'card on file', supporting upgrade and repeat purchases. In 2016, the company launched Boku Acquire, which supports the bundling of additional products and services within a subscriber's carrier plan. Boku listed on AIM in November 2017, raising £15m at 59p per share and placing an additional £30m of shares. On 1 January 2019, Boku acquired Danal, a US-based provider of identity verification services, for \$25.1m. The company has c 215 employees, with its main offices in the UK, US, Germany and India (the development hub is in Mumbai).

Growth strategy: Exploit the network

In the short to medium term, the company should benefit from the network effect in its payments business, and in the longer term from the development of its IDV solutions. With a wide network of carriers connected to the platform and more coming online all the time, this offers an attractive way for merchants to access new customers. In turn, as more merchants sign up, it makes the Boku platform more attractive to carriers. While Boku has c 175 merchants using its platform, we expect that the majority of revenue will come from a small number of large merchants. We see growth from the following factors:

- connecting more carriers with an existing merchant;
- adding more merchants;
- adding more payment services (eg wallets);
- growth from existing DCB connections; and
- expansion of the Identity Solutions business to new geographies and merchants.

Management: Strong background in payments

The members of Boku's board and senior management team have many years of experience in the payments industry. Non-executive Chairman Mark Britto is EVP and general manager for credit at PayPal (having joined in mid-2017). CEO Jon Prideaux joined Boku in 2012 and was appointed to the CEO role in 2014. His previous experience includes roles as the deputy CEO at Secure Trading (a privately owned payment processor) and as EVP marketing at Visa Europe. Keith Butcher moved from his role as non-executive director to CFO in October 2019. Keith previously held the role of CFO at Optimal Payments, which became Paysafe, and DataCash Group, which was acquired by Mastercard. Stuart Neal moved from the CFO role, which he had held since 2017, to head up the Identity business. Jon and Keith are supported by Chief Operating Officer Mike Cahill and Chief Revenue Officer Adam Lee.

Non-executive Directors Dr Richard Hargreaves and Stewart Roberts bring experience in venture capital investing and the payments industry.

Payment solutions: DCB and wallets

Boku's original focus was on the direct carrier billing market. This is still the main revenue and profit generator for the group, but the company has added wallets as a new payment mechanism that its existing merchants can offer to their customers.

DCB market drivers: Smartphones, digital content, ease of use

The DCB market came into existence as an alternative payment method; it uses a consumer's mobile bill (pre-paid credit or post-paid monthly bill) as the means to pay for digital content or services. The market started before the widespread adoption of smartphones with the provision of premium SMS. That market ended up hitting regulatory roadblocks; too many people did not realise they had signed up for them and there were unscrupulous operators. DCB then evolved as a way to pay for products on PCs, mainly computer games. It offers a good way to make smaller payments as these typically do not hit carrier monthly credit limits and it provides a simpler way to pay for things than repeatedly having to enter card details. With the advent of the smartphone came a new market: digital content consumed and paid for on the mobile. Having a simple, frictionless way to pay is even more important on a phone. Typical content that is paid for with DCB includes games for computers, consoles and phones, music, video and apps. To a lesser extent, DCB can be used for physical goods.

Based on data from Worldpay, the DCB market makes up c 1% of the total e-commerce payments market by value of transactions processed. Card payments are still the single largest method of payment, at c 40% of payment volume, followed by eWallets at c 30% (eg PayPal, Alipay) and bank transfers at c 10%. According to estimates from Ovum in 2019 (source: Boku annual report), the DCB market processed transactions worth \$26bn in 2018 and this is forecast to grow to \$49bn by 2023 (CAGR 13.5%). Juniper Research estimates that digital content transactions paid for via carrier billing totalled \$28bn in 2018 and forecasts this to rise to \$90bn by 2024, which equates to a higher CAGR of 21%. The GSMA estimates that 65% of mobile connections were via a smartphone in 2019 and this is likely to grow to 80% of connections by the end of 2025. More subscribers upgrading to smartphones is likely to increase demand for digital content that can be consumed on the mobile. We summarise below the key benefits of DCB for consumers, merchants and MNOs.

Consumer: Frictionless payment method

DCB provides a payment method to consumers who do not have a debit or credit card but do have a mobile phone, who are concerned about the security risks of using their card online or do not want the inconvenience of entering card details every time. According to the GSMA, there are 5.1 billion unique mobile subscribers globally. With roughly 5.8 billion of the global population aged 15 or over, c 1.7 billion adults still do not have a bank account.¹ As Boku is focused on developed markets, the lack of a bank account is less of an issue. Instead, the ease of use tends to be the most appealing factor, particularly when using Boku Account.

Merchant: One connection to access customer acquisition network

Through one connection to Boku's platform, a merchant can access a large number of carriers and their subscribers; there is no need for the merchant to connect individually to each carrier. This gives merchants access to a market that might not otherwise buy their products. This also explains why they are willing to offer DCB despite its high cost compared to card payments, as they view the fees as a combination of a payment processing fee and customer acquisition cost. Billing success rates tend to be higher than with cards, as there is the ability to retry a consumer when they have

¹ Global Findex database 2017, World Bank

topped up their credit, and phones do not suffer from expiry dates. Active monthly users have grown 32% over the last year, from 13.5 million at the end of 2018 to more 17.8 million at the end of 2019, highlighting Boku's success in bringing on board paying end-customers. On average, a merchant moving onto Boku's platform can expect to see a 20% uplift in volumes.

Carrier: One connection to access incremental revenue opportunities

Through one connection to Boku, a carrier can support a variety of merchants and drive incremental revenue streams. The carrier can typically earn 5–15% of the transaction value for delivering customers to merchants. It can also access anonymised and aggregated data on subscriber demographics and behaviour, to aid in customer acquisition and retention. Offering subscription services as part of a bundled contract can also increase subscriber retention.

For content acquired from an app store using DCB, a typical revenue split could see the app developer earn 70%, the app store 15%, the carrier 12% and Boku 3%. Both the merchant and the carrier benefit from a material proportion of the value of the content sold. Boku's margin will vary in size depending on the work undertaken to enable the payment (see page 14 for further detail on the business model).

Competitive landscape

Boku competes with several third-party DCB operators as well as with carriers connecting directly to merchants to provide DCB. Over time, we would expect more carriers to migrate to the third-party model to more easily access merchant connections. The table below summarises the main third-party operators. The company also competes with other alternative payment methods such as PayPal and Klarna.

Exhibit 2: Competitive environment – third-party DCB operators

Competitor	Ownership	Background
Bango	AIM listed; market cap £70m	Key merchants include Amazon, Google, Microsoft and Samsung. CY19 end-user spend £1.1bn/\$1.4bn.
Dimoco	Private	Was a mobile messaging company; acquired Italian DCB OneBip in 2016. Focused on Europe and Latin America.
Fortumo	Private, investors include Intel Capital and Greycroft	Founded in Estonia in 2007, profitable since 2009. Present in 80 countries, with 280 carrier connections; used particularly by merchants in Europe and Asia.
Docomo Digital	NTT Docomo	IT subsidiary of NTT. Also provides marketing and consulting services. Connected to >200 carriers. Any merchant wanting to connect to NTT Docomo has to connect into the Docomo Digital platform. Note that Boku supports NTT Docomo's carrier billing for Apple, Sony and Spotify. Docomo Digital processed transaction volumes of \$3bn in 2018.

Source: Edison Investment Research

Regulatory considerations

As Boku operates globally, it comes under the remit of a number of different regulatory regimes. It must also comply with anti-money laundering regulations in the countries in which it operates.

- **Europe:** payment services in Europe are covered by the Payment Services Directive (PSD) and its successor PSD2 (which became effective in January 2018). This provides an exemption for carrier billing when used for digital content as long as certain transaction limits are respected. These are €50 per transaction and €300 per billing month. We note that Boku's average transaction value is c \$10/€8. Instead, carrier billing falls under the remit of national telecoms regulators such as ComReg in Ireland, the Ethics Commission in Belgium and the Phone-paid Services Authority in the UK. Boku is authorised as an electronic money (e-money) institution by the FCA in the UK and this has been passported throughout the EEA. Where transactions fall outside the PSD2 exemption (for example, transaction sizes exceed the limits or are for physical goods), Boku can use this to facilitate purchases for physical and digital goods and services. It is unclear how UK passporting will work after Brexit, although we note

this makes up less than 5% of revenues for Boku. We understand the company is applying for a payment institution licence in another EU country to maintain passporting rights.

- **US:** Boku has worked with state regulators to ensure that its contractual and operating model with carriers and merchants falls within recognised exceptions to money transmission regulations or is completely outside the regulatory framework. It also ensures it is compliant with the Children's Online Privacy Protection regulations by restricting services to adults 18 or over, or children 13 and older with parental permission.
- **Asia/Australia:** in Japan, Boku has arranged its contractual and operating model to fall within exceptions to money transmission regulations. It has created an entity in Australia as well as branch offices in Japan, Singapore, China and Taiwan to minimise the level of withholding taxes and complex regulation to which it is subject. It is registered with the Australian Communications and Media Authority, which regulates the selling of media (including software) to Australian customers.

Boku's DCB payment solutions

The tables below show the products available to merchants and the features available with each product. Boku signs up merchants through a direct sales approach and through relationships with payment service providers such as Worldpay, Adyen, SafeCharge and Ingenico.

Exhibit 3: Product range

Product	Functionality
Boku Checkout	The first product launched by Boku; integrated into the MNO's billing system. When a consumer reaches the payment page for an online merchant using Boku Checkout, they are presented with the 'pay by mobile' option, which allows them to charge the cost of the item to their mobile phone bill (pre- or post-paid). Once the consumer has entered their mobile phone number, they are sent a text message asking them to confirm the transaction.
Boku Account	Deeper integration with the MNO, connecting to the operator's identity verification systems. This product provides 'phone number on file' capability, like the 'card on file' functionality offered by many online retailers. The consumer follows the same process as for Boku Checkout, but in this case the phone number will be used for all subsequent purchases without confirmation required from the consumer. It is particularly useful for merchants who want to improve their activation rates. For example, merchants offering freemium subscription services can use Boku Account to capture a consumer's payment details at the start of the relationship, making the step to upgrading to a paid subscription easier.
Boku Acquire	Supports operator-led customer acquisition; enables carriers to bundle third-party products and services into their plans. For example, several operators provide free trial periods of Apple Music or Spotify as part of a monthly plan that will hopefully result in a subscriber signing up for the paid service after the trial period.

Source: Boku

Exhibit 4: Services available for each product

	Boku Checkout	Boku Account	Boku Acquire
Authenticate	x	x	x
Compliance & regulatory	x	x	x
Standing authorisation		x	x
Service provisioning			x
Risk profiling service	x	x	
Reporting	x	x	x
Mobile account status updates		x	x
Service activation			x
Pricing management	x		
Merchant settlement	x	x	
Refunds		x	
Service status updates			x
Charge	x	x	x
Eligibility check		x	x
Account reconciliation		x	x
Breakage reporting			x

Source: Boku

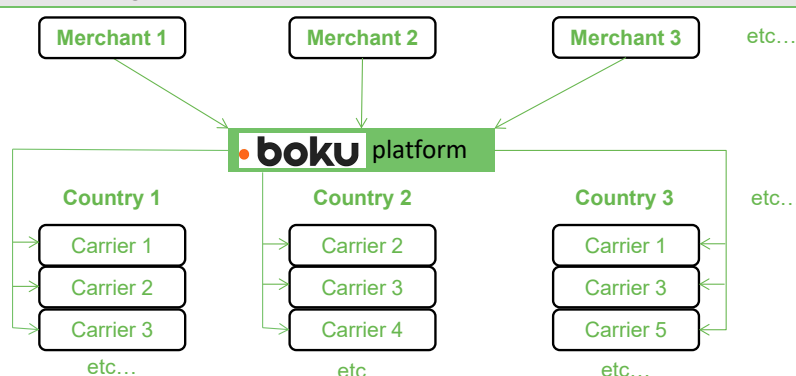
Building the network

Exhibit 5 shows how the platform works. The merchant makes its connection to the platform. Carriers separately connect in via APIs and integrate with their own billing systems; this process can take three to six months. This tends to be done on a country-by-country basis within a carrier group. Boku has connections to 190 carriers in 59 countries.

Typically, a merchant specifies which carriers it wants in which geographies and will develop a rollout plan with Boku. In some cases, Boku suggests to merchants that certain carriers should be considered. Boku will also suggest particular merchants to carriers. To help the MNOs with their integration into the platform, Boku offers a tool called **Boku Connect**, with the aim of reducing the time it takes to deploy the service. Once the service is up and running, Boku also offers its **Boku Optimise** tool, which provides data analytics, transaction scoring and a programme of carrier recommendations to help the carrier maximise the value of each connection. This helps the carrier improve the number of approved good transactions while reducing the number of failed transactions and identifying users with the best potential to have their spending limits increased.

Boku's service supports 41 currencies, with user interfaces in 31 languages and first-line support in 15 languages. The platform uses two data centres, with failover available in each data centre as well as to the other data centre. The platform has been built to support up to 800 transactions per second, providing significant headroom for growth compared to the peak of 400 per second reached in FY19.

Exhibit 5: Connecting to the Boku platform



Source: Edison Investment Research

DCB by end market

Boku has been successful in signing up the largest merchants in several key digital content categories. In some cases, Boku is the sole DCB provider. In others, the merchants split the carriers across two or more DCB providers.

Games: Well established demand for DCB

The games market was one of the first to make use of DCB. The games market can be divided into those games downloaded to play on consoles (PlayStation, Xbox, Wii), those played on a PC and those played on a mobile device (smartphone, tablet). Market analyst NewZoo estimates that the games market was worth \$148bn in 2019, with 46% of revenues generated on mobile devices. Revenues from mobile games grew 9.7% in 2019 compared to 2.8% for PC-based games and 7.3% for console-based games. From 2018–24 the total games market is forecast to grow at a CAGR of 8.1%.

Boku supports Sony and Microsoft, which together made up at least 50% of current generation games consoles sold in 2018 (source: Statista). Boku has worked with Sony since 2013, providing

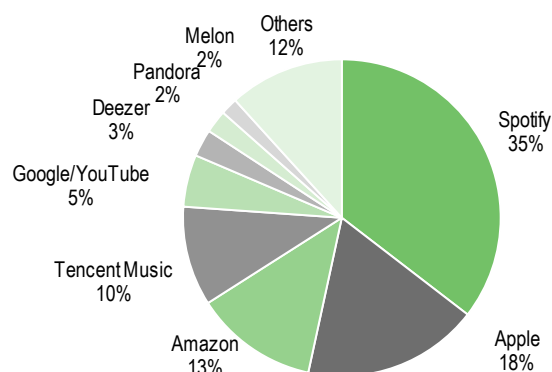
its service in Belgium, France, Germany, Japan, Spain, Switzerland and the UK. Boku has also signed up a large number of games companies that often sell their games via their own websites. This includes companies such as Activision Blizzard and Tencent Riot. In many cases, gamers subscribe to services that entitle them to upgrades and access to other online players, making Boku's subscription payment services ideal for this application. Boku also works with Xsolla, a games payment services provider. During 2019, the company went live with Tencent Games, adding 16 carrier connections. In March 2020, the company signed up Pearl Abyss, the South Korean developer of the *Black Desert* game, for both DCB and digital wallet services.

A longstanding customer for social gaming is Facebook, which has historically also used Zong (acquired by PayPal in 2011) for carrier billing. While the size of this market is in a slow decline, we understand that Boku has now taken over all of Zong's connections. This should enable Boku to generate relatively stable revenues from this market in the medium term.

Music: Rapid growth in paid streaming services

The streaming market has turned the tide of declining revenues for the music industry. The majority of music streaming services offer a free, ad-supported service, which can then be upgraded to a premium paying account that is ad-free. Although Apple had a head start in the music market with its iTunes download service, Spotify has become the leader in terms of paid subscribers. The table below shows market shares as at June 2019. Since then, Spotify has grown its paid subscriber base from 108 million to 124 million.

Exhibit 6: Music streaming market share by paid subscribers, June 2019



Source: Statista

According to the IFPI,² by the end of 2018 there were 255 million subscribers paying for streaming services (+45% y-o-y) driving 33% growth in music streaming revenues³ to \$8.9bn. Streaming revenues made up 79% of digital revenues, which in turn made up 59% of total recorded music revenues in 2018 (54% in 2017). According to Statista, music streaming companies generated revenues of \$11.5bn in 2019 and this is forecast to increase to \$15.5bn by 2024 (CAGR 6.2%).

DCB offers a convenient way for mobile subscribers to upgrade their accounts from basic to premium and the subscription nature of the payment fits well with the monthly payments subscribers are used to making for their mobile phone service. Several operators bundle music services with their monthly plans, with free trial periods for services such as Spotify or Apple Music.

Boku has a strong position in this market. It has worked with Spotify for a number of years, initially demonstrating the power of DCB as a customer acquisition tool. Spotify saw a 20% uplift in activation rates by defaulting to Boku as the payment mechanism. The relationship started in the

² International Federation of the Phonographic Industry.

³ Revenues earned by the music industry, as opposed to those generated by the streaming companies.

UK and has since rolled out into other European countries (France, Germany, Italy, Switzerland, Turkey), Asia-Pacific (Australia, Japan, Malaysia, the Philippines and Taiwan) and the US.

Boku also works with Deezer in Germany, Ireland and the UK. Through the Apple relationship, Boku also supports the Apple Music streaming service as well as music downloads from iTunes. In February 2020, the company announced that it had signed up AWA, a Japanese music streaming service. We understand that Boku also works with a number of smaller streaming services.

App stores: Apple later to the DCB party

The two main app stores, Apple's App Store and Google Play, generated gross consumer spending of \$54.2bn and \$29.3bn respectively in 2019 (source: Sensor Tower). According to App Annie, total spend in mobile app stores exceeded \$120bn in 2019 (+20% y-o-y). For now, Google Play is unable to operate in China, whereas Apple's App Store is present there. Many Android-based app stores operate in China, for example Tencent's myapp and Xiaomi's app store.

Other large app stores include the Microsoft Store, the BlackBerry World store and Amazon Appstore. There are a number of country-specific app stores, eg Yandex in Russia, and a number of MNOs and handset manufacturers have their own app stores.

Boku's most significant customer in this market is Apple. Until 2015, Apple did not offer DCB as a payment method for its App Store. Towards the end of 2015, Apple launched DCB for subscribers of O2 in Germany and Beeline in Russia. It has since expanded the service to cover 45 countries, with a total of 104 operators offering the service (an increase of 25 over the course of 2019). While not exclusive, so far, we believe Boku is the sole provider of DCB to Apple. We expect that Apple will continue its geographic roll-out.

Boku also supports the Microsoft Store (previously known as Windows Store), where consumers can buy software, apps and games. Boku supports Google Play in six countries. Google Play leaves the choice of whether to offer carrier billing to the carriers. It has a variety of carrier billing providers serving it as well as a number of direct connections to the carriers.

Boku estimates that it currently processes close to half of total app store DCB volume.

Avoiding the app store fees

Some of the largest merchants have decided to bypass app stores in favour of connecting with customers directly, in order to save the 30% commission retained by the app stores. On the back of the critical mass of direct customers it gained through making Fortnite on Android only available through its website, Epic has launched its own games store. It allows game developers to retain a higher proportion of game revenues than offered by the app stores and games specialist Steam. Spotify no longer allows customers to upgrade to its premium service via the app stores; instead it directs users to its own website. It has also started litigation in Europe, making an application to the EU that Apple's app store is anti-competitive. Netflix now directs both iOS and Android users to its own website. This makes it critical that Boku maintains direct relationships with merchants as well as supporting the app stores. For the majority of merchants, the app stores provide a vital route to customer acquisition, and it is only the very large merchants that have built a critical mass of customers and have high brand recognition that can consider bypassing the app stores.

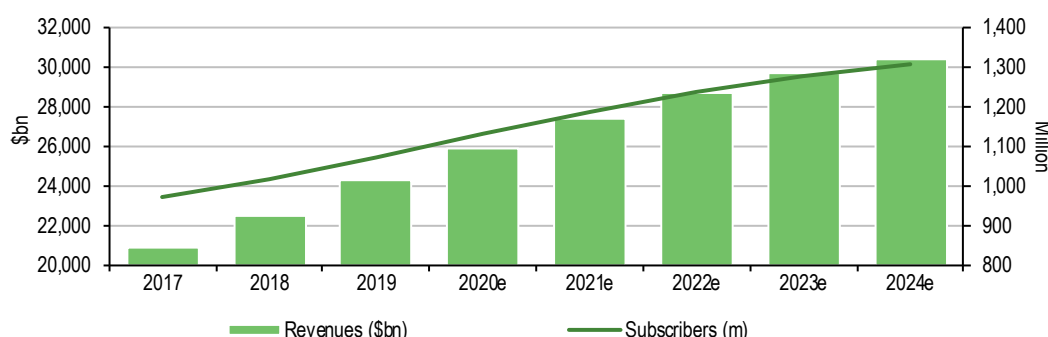
Video streaming: Less exposure to date, but now growing

Video streaming is another key digital content market. Exhibit 8 shows the expected growth in revenues and subscribers from 2017 to 2024. The largest video streaming company, Netflix, had 167.1 million paying subscribers by the end of 2019, up from 139.3 million at the end of 2018 (+20%).

The market is made up of content aggregators and content producers. The largest players, Netflix and Amazon Prime, both aggregate and produce content, whereas YouTube and iTunes are content aggregators and Hulu is owned by two major US TV studios (Walt Disney Company (which recently acquired 21st Century Fox) and NBC Universal (owned by Comcast)). Walt Disney Company also launched Disney+ in North America in November 2019 and in a selected number of European countries in March 2020. Smaller, local players tend to be content producers, eg HBO Now in the US, ALTBalaji in India.

Netflix uses Boku in a handful of countries. The pace of growth will depend on Netflix's rollout plans for DCB – in 2019, Boku added nine carrier connections to Netflix, making a total of 13. Amazon Prime uses Bango for DCB. Boku supports Apple iTunes and ALTBalaji. Boku also supports the TikTok app from ByteDance. In our view, the market is more fragmented than the music streaming market, and we would therefore expect Boku to build a portfolio of video streaming merchants, with no single merchant having as material an impact as some of Boku's existing merchants.

Exhibit 7: Video streaming on demand, revenues and subscribers



Source: Statista, January 2020

Other applications

Boku has signed merchants for other applications, although these have made a limited contribution to revenues to date. Applications include online publishing (IPC Media), e-books, regulated gambling (Neteller), ticketing, transport and, to a lesser extent, physical goods (Rakuten). For example, the company supports DCB for EE's mobile phone accessory store and also supports UCC Coffee in Japan, where consumers can top up their coffee cards using DCB.

Growth strategy for DCB solutions

The company believes it has a good medium-term growth opportunity from its **existing merchant base**, mainly through connecting them to more potential consumers. The decision on who to connect to tends to be merchant-led, particularly with merchants like Apple, which decide where they want to offer carrier billing, but Boku also suggests new connections to merchants, both in terms of new countries or adding carriers in existing countries.

The company notes that most merchants have only 20–30 live carrier connections, and estimates that saturation is likely to be in the region of 150 carriers per merchant, highlighting the scope to grow connections per merchant. During 2019, the company added 57 new carrier connections for major merchants.

Boku's main focus is on Europe, Asia and the Middle East, as this balances the addressable market with the ability to do business efficiently. Boku is currently connected to 190 carriers. It has connections to MNOs in North America, but the US in particular is not as keen on DCB as some other countries, so Boku only focuses on connections that are important to particular merchants. Boku also has some Latin American connections, but regulatory and political issues can make it

difficult to operate in those countries effectively. It has good relationships with operator groups such as Deutsche Telekom, EE, Telefonica and 3.

In Asia, it is seeing strong growth in Japan and Taiwan (Japan is Boku's largest market by TPV and revenue) and it has a good position in Malaysia and Singapore, with South Korea and Hong Kong areas where it would like to do more. South Korea is the world's largest DCB market, and with Boku's strong merchant connections, we would expect to start to see some progress, particularly now that Danal Korea is a shareholder. Boku has connections in India, Indonesia and the Philippines; these are not yet big markets for Boku and tend to have low transaction values but could contribute at some point. In addition, in India taxation of DCB makes the service commercially unattractive compared to using cards or mobile wallets. Boku is considering ways it could work with wallet providers.

The company could also benefit from **consolidation in the carrier billing market**; currently many carriers connect into more than one third-party DCB platform, usually at the behest of the larger merchants. It may be possible to persuade carriers to switch all their business to one DCB provider and, as Boku has some of the largest merchants on its roster, it could be the beneficiary of this switch.

Growth in the **adoption of digital content**, eg music streaming, should drive growth in transactions. In addition, it can take 20 months for a merchant to see optimal adoption from existing carriers; initially only new users will be using the service, but as existing users' cards expire, they are made aware of the DCB option. Better understanding of the risk profiles of subscribers can enable MNOs to lift monthly credit limits and therefore drive increased transaction volumes.

The company will also continue to sign up **new merchants**, with a particular focus on those that have a strong position in their given market.

Wallets: Using the platform to offer another form of payment

As DCB operates at a higher cost than other payment mechanisms such as debit cards, the company believes that there is a natural ceiling on the size of the DCB market, estimating that it is unlikely to exceed a 15–20% share of checkout. It estimates that the total value of global digital commerce is \$125bn so this would equate to a maximum total addressable market of c \$25bn. Consequently, it is keen to use the platform it has built to provide additional services to merchants and has identified the digital wallet market as attractive. It estimates that this market could be similar in size to the DCB market. In the same way that digital content merchants use Boku as a combined customer acquisition tool and payment processor, we expect offering wallets as an alternative payment mechanism will appeal to global merchants wanting to access consumers in South-East Asia. Conversely using Boku should be attractive to wallet operators wanting to attract new merchants.

In North America and Europe digital wallets such as Apple Pay, Google Pay and PayPal are growing in popularity. In Asia, where consumers are less likely to have debit or credit cards, digital wallets from domestic suppliers are used to make more than 50% of electronic payments. Popular wallets in Asia include Alipay, WeChat Pay, Paytm, GoPay and GrabPay. These wallets are not standardised and are settled locally in the wallet's local currency.

In May 2019, Boku announced an integration with GrabPay, the mobile wallet developed by Grab Holdings Inc (Grab). Grab is a 'super-app' that provides a variety of on-demand services in eight South-East Asian countries (Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam) including taxis, food delivery, car hire and electric scooter hire. Grab's integration with the Boku platform means that merchants can offer GrabPay as a payment mechanism. Boku will then act as the processor of payments, collecting from GrabPay and paying across to the merchant.

In October 2019, the company announced a partnership with GoPay, the digital payments platform of Gojek, the largest on-demand multi-service provider in South-East Asia. GoPay is the largest consumer digital payments platform in Indonesia. Boku's merchant customers in Indonesia will be able to offer GoPay as an additional payment method. We note that Gojek also uses Boku's Identity service.

In total Boku has contracted with 10 wallets across nine countries reaching 1.4 billion users. Three of these wallets are currently live (GrabPay in Singapore, Malaysia & the Philippines, GoPay in Indonesia and Rabbit LINE Pay in Thailand) and the company is aiming to activate more in FY20. Its intention is to integrate with all the major Asian wallets by the end of 2020, to reach up to 2.5 billion users. Boku expects to generate revenues from wallets in FY20, although these are not yet expected to be material.

Identity solutions

Boku started developing identity-based services in FY18. At the beginning of 2019, it acquired Danal,⁴ a US provider of mobile identity solutions. The Danal business has since been rebranded as Boku Identity.

Identity solutions based on mobile data

Online services such as e-commerce, banking, credit checking or payment processing need to be able to verify a user's identity for a number of different processes including account registration, account log-ins, profile changes, support calls and high-value transactions. Verifying a user's identity online requires access to a number of different types of data. This can include government-issued ID data such as passports, ID cards or driving licences, but is also likely to include other sources of data, including the data held by mobile carriers. Mobile carriers hold a range of information on subscribers that broadly falls into three categories: data on the identity of the subscriber; data relating to the account held by the subscriber; and data on the subscriber's device or SIM and activity on the network. The advantage of using data held by carriers is that it tends to be updated in real-time, and therefore provides dynamic data.

Exhibit 8: Subscriber data held by mobile carriers

Identity attributes	Account attributes	Network attributes
<ul style="list-style-type: none"> Full name Address Email address Mobile number Age 	<ul style="list-style-type: none"> Active/inactive Pre- or post-paid Lost/stolen Current tenure Last top-up date Line type: fixed/mobile/VOIP 	<ul style="list-style-type: none"> IMEI IMSI SIM change Device change Call forwarding Location

Source: Edison Investment Research

Danal was predominantly focused on US operators and developed products which make use of data from the carriers. Boku Identity customers include getaround, Gojek, MoneyGram, Nextdoor, PayPal, Square, the US internal revenue service, Uber and Western Union. The business sells directly and via channel partners including Experian, Fiserv, G&D, neustar and TransUnion. Since acquisition, Boku has refined the product offering to leverage carrier unique capabilities (Exhibit 9).

⁴ [Accelerating mobile identity offering](#), December 2018

Exhibit 9: Boku Identity products

Product	Detail
Authenticate	Verify mobile number possession without the use of one-time passcodes (OTPs) to remove the threat of account takeovers that result from OTP theft.
Match	Verify mobile number ownership by matching customer name, address and phone number with authoritative sources to protect against synthetic identities.
Detect	Verify mobile number integrity through real-time account checks that detect the risk of a fraudulent or compromised phone number.

Source: Boku

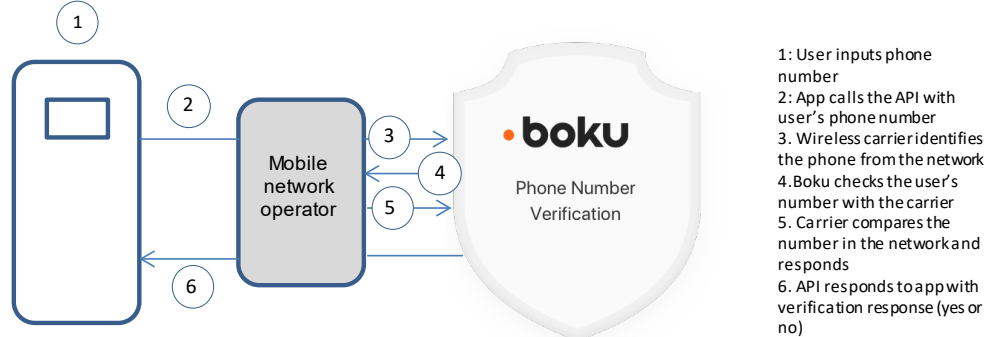
Benefits offered by Boku Identity solutions

Boku Identity offers a simpler customer enrolment process and ongoing fraud detection for merchants. Using a Boku Identity solution removes the need for a merchant to send SMS one-time passwords (OTPs) to verify that a user is who they say they are. Not only is this important in terms of friction (the Boku verification service can save c 30 seconds compared to the SMS OTP process), but it avoids the risk of SS7⁵ attacks, which can lead to account takeover. From a carrier's perspective, identity verification services offer an incremental revenue stream.

Regulatory position – Boku does not hold the data

US mobile carriers have come in for criticism for selling subscriber data to third parties. The Boku Identity products are designed such that no personally identifiable data leaves the carrier, and consent from a subscriber is required before their data can be verified in this way. The diagram below shows how information flows between the subscriber, customer, Boku and the mobile carrier. The carrier typically provides Boku with a yes/no response or a score.

Exhibit 10: Data flows for verification request



Source: Boku

Competition

In the US, Boku's largest competitor is Payfone. Payfone is privately held; the company raised \$24m in 2019 in a round led by TransUnion. In Europe, TeleSign, a subsidiary of wholesale telecoms provider BICS, has a range of mobile identity solutions.

The GSMA has created the Mobile Connect service. This aggregates member carriers' data to provide third-party access to a wide range of subscriber data. We would view this as a potential source of data for Boku rather than a competitor. Some identity verification companies have built out direct connections with carriers in key countries; they could represent an opportunity for Boku to provide a more comprehensive service.

⁵ SS7 attacks take advantage of the weakness in the design of the signalling system 7 network protocol used by network operators, in order to intercept communications.

Growth strategy for Boku Identity

McKinsey estimates that the identity-as-a-service market was worth \$10bn in 2017 and expects a CAGR of 9–15% to reach \$16–20bn by 2022. The highest growth region is Asia, where identity data can be harder to come by, and more customers are mobile-first, particularly in countries where a large proportion of the population does not use credit cards or is unbanked.

Boku was attracted to Danal because of its technology (products and patents) as well as its multinational customer base. Boku management believed that the Danal business had been constrained by a lack of sales resource as well as limited network coverage outside of the US. Since the acquisition, the company has boosted the Identity business's sales resource and account management function and moved Stuart Neal (previously CFO) over to head up the division.

In order to sign up multinational customers, the division's key focus is on expanding the carrier network. In 2019, supplementing its relationship with US and Canadian carriers, the division added several operator groups and now has connections in India, Indonesia, Switzerland and the UK and in 2020, will be focused on adding more operators outside the US. Currently, the business has 26 connections (one carrier connected to one product = one connection) across 12 carriers in four countries and is looking to add another four this month.

The division intends to focus on developing business with local merchants while cultivating multinational merchants for larger, multi-country deals.

Financials

Business model

Revenues

For **DCB**, Boku offers two models to merchants, either settlement or transaction.

- **Settlement:** Boku sits between the merchant and carrier, collects payment from the carrier and passes it on to the merchant. The amount paid to the merchant is net of both the carrier's and Boku's fees. As Boku manages the cash flows, it is able to earn a higher margin (take rate) on each transaction processed, although it has implications for working capital management.
- **Transaction:** The carrier pays the merchant directly, net of their fees. Separately, Boku invoices the merchant for its fees. The only cash flow for Boku in this case is the receipt of its fees. As there is less involvement from Boku, it earns lower margins on these transactions.

Historically, Boku signed up most merchants on a settlement basis; the settlement margin is a multiple of the transaction margin. Some of the more recent merchants have contracted on a transaction basis and are driving the bulk of the TPV growth. Therefore, revenue growth has lagged TPV growth due to the lower margins earned under the transaction model. The mix of settlement versus transaction volumes will depend on new merchants' choice of business model and the growth of volumes from existing merchants.

For **Identity Solutions**, Boku charges on a per transaction basis, or for monitoring services, by user.

Cost of sales

For **DCB**, cost of sales is only a small proportion of total costs and mainly consists of the cost of messaging subscribers. For **Identity Solutions**, cost of sales consists of the revenue share with MNOs. There are minimum revenue guarantees in place with some MNOs; as volumes increase above the minimum level, this should provide upside to gross margins.

Working capital

Under the DCB settlement business model, Boku receives cash from the carriers before it pays it across to the merchants, hence it operates a negative working capital model. Under the transaction model, the company records its fees in accounts receivable, and is paid according to the merchant's payment schedule. The Identity business invoices merchants for the transaction or monthly monitoring fees and pays over the revenue share to the carriers once merchants have settled their invoices.

Review of FY19 results

Boku had already reported that FY19 revenues would include the recognition of \$3.255m in revenue that related to FY14/15. As this is a one-off credit to the income statement that did not represent the performance of the business in FY19, in Exhibit 11 we have presented the results to show both reported and adjusted revenues and EBITDA for the Payments division and the group as a whole. Our normalised profitability numbers also exclude the \$3.255m revenue for FY19.

Exhibit 11: FY19 results highlights					
\$m	FY18	FY19e	FY19	Change	y-o-y
Payment revenues	35.3	43.3	43.5	0.4%	23.2%
Adjusted Payment revenues		40.1	40.2	0.3%	14.0%
Identity revenues	N/A	6.7	6.7	-0.4%	N/A
Total revenues	35.3	50.0	50.1	0.3%	42.2%
Total adjusted revenues	35.3	46.8	46.9	0.2%	32.9%
Gross profit	32.8	43.4	44.6	2.8%	36.1%
Gross margin	92.9%	86.7%	88.9%	2.2%	-4.0%
Payment EBITDA	6.3	15.0	15.9	6.4%	152.1%
Adjusted Payment EBITDA		12.0	12.7	5.7%	100.6%
Identity EBITDA	N/A	(5.0)	(5.3)	5.8%	N/A
Total EBITDA	6.3	10.0	10.7	6.6%	68.5%
EBITDA margin	17.9%	20.0%	21.3%	6.3%	3.3%
Total adjusted EBITDA	6.3	7.0	7.4	5.7%	17.1%
Adjusted EBITDA margin	17.9%	15.0%	15.8%	0.8%	-2.1%
Normalised operating profit	4.8	7.3	4.5	-38.0%	-6.6%
Normalised operating margin	13.7%	14.6%	9.0%	-5.6%	-4.7%
Reported operating profit	(2.4)	(3.1)	(0.9)	-71.7%	-63.4%
Reported operating margin	-6.8%	-6.2%	-1.8%	4.5%	5.1%
Normalised PBT	4.3	6.7	4.1	-38.4%	-3.6%
Reported PBT	(3.0)	(3.7)	(1.3)	-65.3%	-56.7%
Normalised net income	3.4	5.3	3.2	-38.4%	-3.6%
Reported net income	(4.3)	(3.7)	0.4	-109.5%	-108.2%
Normalised basic EPS	0.016	0.022	0.013	-40.4%	-15.2%
Normalised diluted EPS (\$)	0.016	0.020	0.012	-40.6%	-22.5%
Reported basic EPS (\$)	(0.020)	(0.016)	0.001	-109.2%	-107.2%
Net debt/(cash)	(28.9)	(25.0)	(32.6)	30.8%	13.1%
TPV (\$bn)	3.55	4.96	4.97	0.3%	40.1%
Take rate	1.00%	0.81%	0.81%	0.0%	-0.19%
Source: Boku, Edison Investment Research					

Excluding the one-off revenue, the **Payments** business grew revenue 14% y-o-y, through a combination of total payment volume (TPV) increasing 40% and the take rate declining by 19bp. The company noted that its focus in 2019 was on plugging in new carriers for some of its higher volume transaction model merchants, who generate TPV at a lower take rate. This increased the proportion of TPV from the transaction model and therefore reduced the overall take rate; the company confirmed it had not reduced prices for any merchants. Adjusted EBITDA for the Payments business grew 101% y-o-y, highlighting the scale benefits of this business. As Boku incorporated IFRS 16 for the first time in FY19, this resulted in FY19 EBITDA being inflated by \$1.9m (as the lease cost is excluded), which means that the real increase in adjusted EBITDA was more like 70%.

The **Identity** business grew revenue on a pro-forma basis by 26% y-o-y. Billable transactions increased 45% y-o-y to 253m. The EBITDA loss reduced from \$6.3m in FY18 (pro forma) to \$5.3m in FY19. During FY19, Boku restructured the management of this division, and in H2 the business saw some headwinds on the supply side in the US as one carrier has stopped providing data, although the company is managing to obtain it through other third-party providers.

Our previous normalised operating profit, PBT and EPS included the \$3.255m one-off revenue. Excluding this, normalised operating profit was 12% ahead of our estimate due to slightly lower costs than forecast. Reported basic EPS was higher than forecast, mainly due to lower than expected share-based payments (\$6.77m versus \$8.45m forecast) and a \$1.65m tax credit.

Balance sheet and cash flow

The company ended FY19 with a gross cash balance of \$34.7m (excluding restricted cash) and a net cash balance of \$32.6m (excluding lease liabilities). Until 26 December 2019, the company had a revolving credit facility (RCF) with SVB. On that date, it terminated the RCF and negotiated an overdraft facility for up to £5m. At the end of FY19, it had used £1.6m/\$2.1m of the overdraft, which it repaid on 9 January 2020.

As the cash balance very much depends on the timing of payments from carriers and to merchants, the company measures its average cash balance in a given month, as this is more representative of the true cash position. In December 2019, the average daily cash balance was \$22.4m, compared to \$24.4m in December 2018.

Outlook and changes to forecasts

Managing through the coronavirus restrictions

Management had previously updated the market to confirm that the coronavirus was not affecting the company's ability to service its customers. In the **Payment** business it also highlighted that DCB deployment plans have not been materially affected. At the same time, the lockdowns in many countries around the world mean that people are seeking ways to entertain themselves at home, including streaming music and video, playing games and downloading apps. So far, the company has seen evidence of increased volumes in those countries with lockdowns. TPV in January-February 2020 grew 30% y-o-y to \$966m, slightly higher than management expected. February 2020 daily volumes increased compared to January 2020, with average TPV per day 2.5% higher than in January 2020 and daily average users 4% higher month-on-month. These trends have continued into March 2020 with a significant increase in new users of the platform, particularly for streaming video services and gaming.

The company highlighted that it could potentially see some delays to new business, as it will not be possible to attend trade shows or meet face-to-face, but as the majority of growth is generated from the existing customer base this does not have an impact on near-term forecasts.

As the **Identity** business is more reliant on new business for revenue growth, the company gave a note of caution that this could affect revenue growth in FY20. Otherwise it is serving Identity customers as normal.

Plans for FY20 maintained

Management is focused on adding higher take-rate settlement model merchants to the connections built out in FY19 and has a strong pipeline for new deployments. In the Identity business, the company is focused on building out international MNO connections. Management remains confident in its ability to meet current market expectations.

Changes to forecasts are minimal

As we updated our forecasts in January, we have made only minor changes to our forecasts reflecting FY19 results. We have reduced our revenue forecasts for Identity in FY20 and FY21, reflecting the potential difficulties in signing up new business currently; as the division is likely to incur lower costs during the lockdown period we maintain our EBITDA forecasts. We have introduced forecasts for FY22.

We note that while we forecast Payment and group revenues to increase 3.5% and 7.6% respectively in FY20, using adjusted revenues for FY19, we forecast Payment revenue growth of 11.9% and group revenue growth of 10.9%. Similarly, growth in adjusted EBITDA is forecast at 17.6% for Payment and 42.2% for the group.

Exhibit 12: Changes to estimates

\$m	FY20e	FY20e			FY21e	FY21e			FY22e	
	Old	New	Change	y-o-y	Old	New	Change	y-o-y	New	y-o-y
Payment revenues	45.0	45.0	0.1%	3.5%	50.0	50.0	0.0%	11.2%	54.9	9.7%
Adjusted Payment revenues	45.0	45.0	0.1%	11.9%						
Identity revenues	9.0	7.0	-22.2%	4.9%	12.0	10.8	-10.0%	54.3%	14.5	34.3%
Total revenues	54.0	52.0	-3.6%	3.7%	62.0	60.8	-2.0%	17.0%	69.4	14.1%
Total adjusted revenues	54.0	52.0	-3.6%	10.9%						
Gross profit	46.3	45.6	-1.7%	2.2%	52.3	51.8	-1.0%	13.8%	58.0	11.8%
Gross margin	85.8%	87.6%	1.8%	-1.3%	84.4%	85.2%	0.9%	-2.4%	83.5%	-1.7%
Payment EBITDA	14.9	14.9	0.2%	-6.4%	17.5	17.5	0.0%	17.3%	19.2	9.9%
Adjusted Payment EBITDA	14.9	14.9	0.2%	17.6%						
Identity EBITDA	(4.4)	(4.4)	0.0%	-16.7%	(3.2)	(3.2)	-0.6%	-27.7%	(2.2)	-30.8%
Total EBITDA	10.5	10.5	0.2%	-1.2%	14.3	14.3	0.1%	36.2%	17.0	18.9%
Payment EBITDA margin	33.1%	33.2%	0.0%		35.0%	35.0%	0.0%	1.8%	35.1%	0.0%
Identity EBITDA margin	-48.9%	-62.9%	-14.0%	16.3%	-26.7%	-29.4%	-2.8%	33.4%	-15.2%	14.3%
EBITDA margin	19.5%	20.2%	4.0%	-1.0%	23.1%	23.6%	2.1%	3.3%	24.6%	1.0%
Total adjusted EBITDA	10.5	10.5	0.2%	42.2%						
Adjusted EBITDA margin	19.5%	20.2%	4.0%	4.5%						
Normalised operating profit	7.8	7.8	0.0%	72.3%	11.6	11.6	-0.1%	49.5%	14.5	24.9%
Normalised operating margin	14.4%	15.0%	0.5%	6.0%	18.8%	19.1%	0.4%	4.2%	21.0%	1.8%
Reported operating profit	(2.5)	1.1	-144.7%	-226.8%	1.3	5.0	276.2%	343.7%	8.7	74.8%
Reported operating margin	-4.6%	2.2%	6.8%	3.9%	2.1%	8.2%	6.0%	6.0%	12.5%	4.4%
Normalised PBT	7.1	7.1	0.0%	72.0%	11.0	11.0	-0.5%	55.1%	13.9	26.9%
Reported PBT	(3.2)	0.4	-112.3%	N/A	0.7	4.3	528.8%	980.0%	8.1	87.8%
Normalised net income	5.6	5.6	0.0%	72.0%	8.7	8.7	-0.5%	55.1%	11.0	26.9%
Reported net income	(2.9)	0.4	-112.3%	N/A	0.6	3.6	528.8%	920.0%	6.8	87.8%
Normalised basic EPS (\$)	0.022	0.022	0.5%	67.7%	0.034	0.034	0.1%	54.6%	0.043	26.9%
Normalised diluted EPS (\$)	0.020	0.020	0.0%	69.0%	0.032	0.031	-0.5%	54.7%	0.040	26.9%
Reported basic EPS (\$)	(0.011)	0.001	-112.4%	N/A	0.002	0.014	532.1%	916.9%	0.027	87.8%
Net debt/(cash)	(33.8)	(34.2)	1.2%	4.8%	(48.4)	(47.5)	-2.0%	38.7%	(64.5)	36.0%
TPV (\$bn)	6.29	6.30	0.1%	26.8%	7.54	7.53	-0.1%	19.6%	8.57	13.8%
Take rate	0.71%	0.71%	0.0%	-0.09%	0.66%	0.66%	0.0%	-0.05%	0.64%	-0.02%

Source: Edison Investment Research

Sensitivities

Our forecasts and the share price will be sensitive to the following factors:

- **Pace of growth from existing merchants:** this will depend on the rate at which merchants complete their roll-out plans, the pace of growth of paid-for digital content, the competitive positioning of major merchants and the adoption of wallets as a payment mechanism.
- **Customer concentration:** we estimate that customers contributing over 10% of revenues will make up more than half of revenues in FY20–22. The loss of any one major merchant could have a material impact on revenues and profitability. In addition, some of the contracts between Boku and merchants or carriers have short notice periods.

- **Data protection and robustness of the platform:** any loss of customer data or significant downtime for the platform could negatively affect the company's reputation and lead to additional costs in terms of fines and litigation.
- **Competitive environment:** Boku's platform needs to remain competitive with respect to other third-party DCB providers and identity verification service providers as well as carriers that connect directly with merchants. The company will also need to stay abreast of changes in the payment market, where it will need to compete with other alternative payment methods.
- **Regulation:** changes to money transmission, privacy or anti-money laundering regulations in the countries in which Boku operates could have an impact on revenue generation or increase the cost base.
- **Acquisition:** integration and growth of the recently acquired Identity business could vary from our expectations.

Valuation

Exhibit 13: Peer financial metrics

	Revenue growth				EBITDA margin				EBIT margin			
	LY	CY	NY	NY+1	LY	CY	NY	NY+1	LY	CY	NY	NY+1
Boku*	32.9%	10.9%	17.0%	14.1%	15.8%	20.2%	23.6%	24.6%	9.0%	15.0%	19.1%	21.0%
Bango	40.6%	55.2%	N/A	N/A	4.8%	21.8%	N/A	N/A	(18.8%)	6.9%	N/A	N/A
Ingenico	27.5%	3.2%	6.1%	7.5%	18.0%	18.7%	19.1%	18.9%	13.8%	14.8%	15.3%	14.4%
Worldline	38.4%	6.0%	7.3%	6.3%	23.6%	26.0%	27.2%	28.5%	18.3%	19.1%	20.5%	21.8%
Wirecard**	35.8%	25.9%	26.9%	N/A	28.8%	30.2%	30.8%	N/A	24.0%	25.8%	26.6%	N/A
FIS	22.7%	31.5%	7.5%	8.0%	40.7%	44.1%	46.4%	48.3%	32.9%	37.7%	40.2%	40.0%
Fiserv	148.1%	4.9%	6.8%	7.0%	34.9%	38.8%	40.1%	41.3%	29.7%	32.2%	33.7%	34.7%
Global Payments	15.6%	67.2%	9.6%	11.3%	N/A	45.0%	46.6%	47.1%	39.7%	39.4%	41.5%	43.5%
PayPal	15.0%	17.0%	17.4%	17.1%	27.2%	27.1%	27.5%	27.7%	23.2%	22.8%	23.5%	24.1%
Square	43.3%	13.9%	32.0%	27.4%	18.3%	16.3%	19.1%	22.2%	N/A	13.9%	16.9%	19.5%
Average Payment Processors	43.0%	25.0%	14.2%	12.1%	24.5%	29.8%	32.1%	33.4%	20.4%	23.6%	27.3%	28.3%
Equifax	2.8%	5.7%	6.0%	6.7%	33.6%	34.1%	35.2%	36.4%	28.0%	24.2%	25.9%	27.9%
Experian	4.3%	6.6%	7.0%	6.9%	35.9%	34.8%	35.4%	35.9%	26.9%	26.5%	26.7%	27.2%
GB Group	19.9%	36.8%	10.9%	10.5%	23.7%	24.1%	24.1%	24.2%	22.3%	21.4%	21.8%	22.2%
TransUnion	14.6%	7.6%	8.0%	8.1%	39.9%	40.0%	40.5%	40.8%	34.2%	31.3%	31.7%	29.9%
Average ID management	10.4%	14.2%	8.0%	8.1%	33.3%	33.2%	33.8%	34.3%	27.8%	25.8%	26.6%	26.8%

Source: Edison Investment Research, Refinitiv (as at 26 March). Note: *Uses adjusted revenue and EBITDA for LY and CY. **Assume LY is FY19 although not yet reported.

Exhibit 14: Peer group valuation metrics

	Share price	Market cap	EV	EV/sales (x)			EV/EBITDA (x)			P/E (x)			FCF yield		
		List ccy	Rep ccy	CY	NY	NY+1	CY	NY	NY+1	CY	NY	NY+1	CY	NY	NY+1
Boku	64	163	160	3.1	2.6	2.3	15.2	11.2	9.4	37.2	24.0	18.9	2.1%	8.0%	9.2%
Bango	105	73	73	5.0	N/A	N/A	23.0	N/A	N/A	95.5	N/A	N/A	0.1%	N/A	N/A
Ingenico	93.12	5,882	7,639	2.2	2.1	1.9	11.7	10.8	10.2	17.3	15.7	14.8	5.1%	5.9%	N/A
Worldline	56.45	10,229	10,574	4.2	3.9	3.7	16.1	14.3	12.9	28.7	25.0	21.7	3.5%	4.1%	N/A
Wirecard*	104.5	12,802	10,817	3.1	2.5	N/A	10.4	8.0	N/A	18.4	14.0	N/A	5.1%	6.9%	N/A
FIS	120.37	74,187	90,361	6.7	6.2	5.7	15.1	13.3	11.9	19.1	16.3	14.3	4.8%	5.8%	7.6%
Fiserv	91.2	61,934	84,818	5.6	5.2	4.9	14.4	13.1	11.9	18.6	15.7	13.7	5.5%	6.4%	N/A
Global Payments	146.7	44,029	52,139	6.8	6.2	5.6	15.1	13.3	11.8	19.6	16.3	14.1	6.1%	7.1%	N/A
PayPal	95.71	112,264	106,525	5.1	4.4	3.7	18.9	15.9	13.5	27.9	23.1	19.0	4.1%	5.1%	N/A
Square	52.39	22,802	22,201	8.6	6.5	5.1	52.4	33.9	23.0	70.7	46.5	31.8	2.1%	2.4%	N/A
Average payment processors				5.3	4.6	4.4	19.7	15.3	13.6	35.1	21.6	18.5	4.0%	5.5%	7.6%
Equifax	115.72	14,029	17,055	4.6	4.3	4.1	13.5	12.3	11.2	20.3	18.1	16.0	N/A	N/A	N/A
Experian	2295	20,621	28,665	5.5	5.2	4.8	15.9	14.6	13.5	26.2	23.9	21.8	4.2%	4.9%	5.3%
GB Group	593.00	1,139	1,209	6.2	5.6	5.0	25.6	23.1	20.8	34.3	30.9	27.5	2.7%	2.8%	3.0%
TransUnion	65.77	12,417	15,861	5.5	5.1	4.8	13.9	12.7	11.6	20.9	18.5	16.3	N/A	N/A	N/A
Average ID management				5.5	5.1	4.7	17.2	15.7	14.3	25.4	22.9	20.4	3.5%	3.8%	4.2%

Source: Edison Investment Research, Refinitiv (as at 26 March). Note: *Assume CY is FY20 although FY19 not yet reported.

On an EV/sales and EV/EBITDA basis, Boku is trading at a discount to the average of payment processor peers and identity management peers. On a P/E basis, it is trading effectively in line in FY21 and FY22. However, we believe that the investment Boku is currently making in the Identity business is masking the performance of the Payments business.

As the two business have different growth and profitability dynamics, we take a sum-of-the-parts approach to assign value to each separately. For the Payments business, we use an FY20e EBITDA multiple of 19.7x, the average of its payment processor peers. For the Identity business, we use the value of the acquisition of \$25.1m; this is conservative compared to peer valuations but reflects the fact that the business is currently loss-making. Boku paid 3.7x FY19 sales for the Identity business, while established identity management businesses are trading on EV/sales multiples of 4.6–6.2x for FY20e, reflecting average revenue growth of 14.2% and an average EBIT margin of 25.8%.

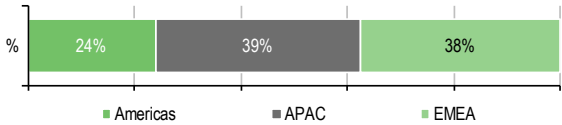
This generates an equity value for the group of \$352m or 117p per share, compared to the current share price of 64p. Excluding the Identity business entirely, the group would be worth \$327m or 108p per share, still well ahead of the current share price.

The company is working hard to build out a critical mass of international carriers to provide data to support multinational customers. With several material contracts in the pipeline, this business has the scope to see a step change in revenues as they are implemented. With a different margin profile to the Payments business (Identity gross margin c 40% versus 95%+ for Payments), drop down to the EBITDA level will be slower but nonetheless should provide a source of profitable growth in the longer term. We believe that evidence that the Identity business is making progress towards profitability would be a key driver of share price upside.

Exhibit 15: Financial summary

	\$m	2014	2015	2016	2017	2018	2019	2020e	2021e	2022e
Year end 31 December		IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
INCOME STATEMENT										
Revenue		18.3	19.2	17.2	24.4	35.3	50.1	52.0	60.8	69.4
Cost of Sales		(4.1)	(4.0)	(3.2)	(2.3)	(2.5)	(5.6)	(6.5)	(9.0)	(11.4)
Gross Profit		14.2	15.2	14.0	22.1	32.8	44.6	45.6	51.8	58.0
EBITDA		(9.6)	(11.4)	(12.3)	(2.3)	6.3	10.7	10.5	14.3	17.0
Normalised operating profit		(9.8)	(12.4)	(13.8)	(4.0)	4.8	4.5	7.8	11.6	14.5
Amortisation of acquired intangibles		(0.8)	(1.9)	(1.7)	(1.3)	(1.3)	(1.6)	(1.6)	(1.6)	(0.8)
Exceptionals		(2.1)	(0.1)	(2.4)	(2.2)	(1.4)	(0.3)	0.0	0.0	0.0
Share-based payments		(1.7)	(1.8)	(2.1)	(1.5)	(4.6)	(6.8)	(5.1)	(5.1)	(5.1)
Reported operating profit		(14.4)	(16.2)	(19.9)	(9.0)	(2.4)	(4.1)	1.1	5.0	8.7
Net Interest		(0.6)	(0.4)	(1.2)	(2.4)	(0.6)	(0.4)	(0.7)	(0.7)	(0.6)
Joint ventures & associates (post tax)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exceptionals		0.0	0.0	0.0	(17.1)	0.0	0.0	0.0	0.0	0.0
Profit Before Tax (norm)		(10.4)	(12.8)	(15.0)	(6.4)	4.3	4.1	7.1	11.0	13.9
Profit Before Tax (reported)		(15.0)	(16.6)	(21.1)	(28.5)	(3.0)	(1.3)	0.4	4.3	8.1
Reported tax		(0.4)	(0.4)	0.5	(0.1)	(1.3)	1.7	(0.0)	(0.6)	(1.2)
Profit After Tax (norm)		(7.8)	(9.6)	(11.2)	(4.8)	3.4	3.2	5.6	8.7	11.0
Profit After Tax (reported)		(15.4)	(17.0)	(20.6)	(28.7)	(4.3)	0.4	0.4	3.6	6.8
Minority interests		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Discontinued operations		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net income (normalised)		(7.8)	(9.6)	(11.2)	(4.8)	3.4	3.2	5.6	8.7	11.0
Net income (reported)		(15.4)	(17.0)	(20.6)	(28.7)	(4.3)	0.4	0.4	3.6	6.8
Basic average number of shares (m)		21.3	27.4	140.1	150.3	217.1	246.8	253.1	253.9	253.9
EPS - basic normalised (\$)		(0.36)	(0.35)	(0.08)	(0.03)	0.02	0.01	0.02	0.03	0.04
EPS - diluted normalised (\$)		(0.36)	(0.35)	(0.08)	(0.03)	0.02	0.01	0.02	0.03	0.04
EPS - basic reported (\$)		(0.72)	(0.62)	(0.15)	(0.19)	(0.02)	0.00	0.00	0.01	0.03
Dividend (\$)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Revenue growth (%)		N/A	4.7	(10.4)	42.0	44.5	42.2	3.7	17.0	14.1
Gross Margin (%)		77.6	79.1	81.4	90.7	92.9	88.9	87.6	85.2	83.5
EBITDA Margin (%)		(52.5)	(59.2)	(71.4)	(9.5)	17.9	21.3	20.2	23.6	24.6
Normalised Operating Margin		(53.2)	(64.4)	(80.0)	(16.5)	13.7	9.0	15.0	19.1	21.0
BALANCE SHEET										
Fixed Assets		32.7	30.8	26.8	26.9	23.0	52.2	50.0	47.7	45.9
Intangible Assets		32.5	30.1	25.7	25.8	22.5	46.8	45.3	43.5	42.8
Tangible Assets		0.2	0.7	0.5	0.4	0.3	3.5	2.2	1.3	0.4
Investments & other		0.0	0.0	0.6	0.7	0.3	1.8	2.5	2.8	2.6
Current Assets		72.5	53.0	48.9	79.3	84.0	89.2	92.1	118.5	145.7
Stocks		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Debtors		59.7	43.3	37.1	59.1	51.7	53.6	54.9	68.1	78.2
Cash & cash equivalents		12.0	9.0	11.3	18.7	31.1	34.7	36.3	49.5	66.6
Other		0.7	0.6	0.5	1.4	1.3	0.9	0.9	0.9	0.9
Current Liabilities		(69.6)	(65.5)	(61.0)	(78.0)	(79.6)	(81.8)	(78.8)	(94.3)	(107.6)
Creditors		(64.6)	(60.4)	(54.9)	(75.5)	(77.4)	(78.0)	(75.4)	(92.1)	(105.5)
Tax and social security		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Short term borrowings		(5.0)	(5.1)	(6.1)	(2.5)	(2.2)	(2.1)	(2.1)	(2.1)	(2.1)
Other		0.0	0.0	0.0	(0.0)	0.0	(1.7)	(1.3)	(0.0)	(0.0)
Long Term Liabilities		0.0	(0.3)	(15.2)	(0.2)	(0.8)	(2.6)	(1.2)	(1.2)	(1.2)
Long term borrowings		0.0	(0.2)	(15.1)	(0.0)	0.0	0.0	0.0	0.0	0.0
Other long term liabilities		0.0	(0.1)	(0.1)	(0.1)	(0.8)	(2.6)	(1.2)	(1.2)	(1.2)
Net Assets		35.5	18.0	(0.4)	28.0	26.6	57.0	62.1	70.7	82.7
Minority interests		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shareholders' equity		35.5	18.0	(0.4)	28.0	26.6	57.0	62.1	70.7	82.7
CASH FLOW										
Op Cash Flow before WC and tax		(9.6)	(11.4)	(12.3)	(2.3)	6.3	7.4	10.5	14.3	17.0
Working capital		9.3	11.6	(3.4)	1.0	7.2	3.0	(3.9)	3.6	3.2
Exceptional & other		(1.6)	1.1	4.2	(5.5)	0.2	(1.3)	(0.4)	0.0	0.0
Tax		(0.0)	(0.0)	(0.0)	0.0	(0.2)	(0.1)	(0.7)	(1.0)	(1.0)
Net operating cash flow		(1.9)	1.3	(11.5)	(6.8)	13.5	9.0	5.6	16.9	19.3
Capex		(1.1)	(3.6)	(1.5)	(0.3)	(0.3)	(2.1)	(1.5)	(1.6)	(1.6)
Acquisitions/disposals		5.9	0.3	0.0	0.0	(0.2)	(0.7)	0.0	0.0	0.0
Net interest		(0.3)	(0.3)	(0.3)	(0.9)	(0.6)	(0.4)	(0.6)	(0.6)	(0.6)
Equity financing		0.2	0.1	0.1	19.8	0.5	0.6	0.0	0.0	0.0
Dividends		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other		0.6	(0.0)	0.1	(1.1)	0.2	(1.5)	(1.9)	(1.5)	0.0
Net Cash Flow		3.3	(2.2)	(13.1)	10.6	13.1	4.9	1.6	13.2	17.1
Opening net debt/(cash)		(4.9)	(7.0)	(3.6)	9.9	(16.2)	(28.9)	(32.7)	(34.2)	(47.5)
FX		(1.2)	(0.8)	(0.4)	0.4	(0.5)	(1.1)	0.0	0.0	0.0
Other non-cash movements		0.0	(0.4)	(0.0)	15.1	0.0	(0.0)	0.0	0.0	0.0
Closing net debt/(cash)		(7.0)	(3.6)	9.9	(16.2)	(28.9)	(32.6)	(34.2)	(47.5)	(64.5)

Source: Boku accounts, Edison Investment Research

Contact details	Revenue by geography (FY19)								
2-6 Boundary Row London SE1 8HP United Kingdom https://investors.boku.com	 <table border="1"> <thead> <tr> <th>Geography</th> <th>Revenue (%)</th> </tr> </thead> <tbody> <tr> <td>Americas</td> <td>24%</td> </tr> <tr> <td>APAC</td> <td>39%</td> </tr> <tr> <td>EMEA</td> <td>38%</td> </tr> </tbody> </table>	Geography	Revenue (%)	Americas	24%	APAC	39%	EMEA	38%
Geography	Revenue (%)								
Americas	24%								
APAC	39%								
EMEA	38%								
Management team									
CEO: Jon Prideaux Jon joined Boku in 2012 and was appointed CEO in 2014. Jon has more than 25 years of payments experience: he was an early Visa Europe employee, where he started Visa Europe's e-commerce division. He served on the board of EMVCo, was the chairman of the Compliance Committee and a member of Visa's Global Product and Brand Councils. After leaving Visa in 2006, Jon served as deputy CEO for SecureTrading, where he doubled transaction numbers and quadrupled profitability. He then led a management buy-in at Shopcreator, an e-commerce software platform.	CFO: Keith Butcher Until his appointment as CFO in October 2019, Keith was an independent non-executive director and chairman of Boku's Audit Committee from Boku's admission to AIM in 2017. Keith has had considerable experience as a listed company CFO and of online payments businesses, including six years as CFO of AIM-quoted online payments company DataCash Group plc during its period of rapid growth and ultimate sale to MasterCard. More recently, he was CFO of LSE-listed payments company Paysafe Group plc (formerly Optimal Payments plc). Keith was awarded Finance Director of the Year at the Quoted Company Alliance Awards (QCA) 2014.								
Non-executive chairman: Mark Britto									
Mark founded Boku after six years as the CEO of Ingenio, which he led to a 2007 acquisition by AT&T. Prior to Ingenio, Mark spent four years as SVP of worldwide services and sales at Amazon.com. Mark's first start-up, Accept.com, was bought by Amazon.com in 1999 and served as the primary backbone of Amazon's global payments platform. Mark is currently the SVP and general manager for global credit at PayPal.									
Principal shareholders	(%)								
Danal Co Ltd	6.3								
Vitruvian Partners LLP	6.2								
Newview Capital Management, LLC	5.4								
Danske Capital	5.2								
River and Mercantile Asset Management LLP	4.4								
Merian Global Investors (UK) Limited	4.4								
Canaccord Genuity Wealth Management	4.2								

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