



## FinTech and Digital Innovation: Regulation at the European Level and Beyond

Afore Consulting 2<sup>nd</sup> Annual FinTech Conference, 27 February 2018, Brussels



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- » Strengthened regulatory oversight of Bitcoin spot exchanges would be credit positive for Bitcoin futures providers
- » European banks' limited appetite for virtual currencies is credit positive
- » BitPesa's blockchain technology supports Africa's cross-border banking
- » Nigerian banks' investment in digital platforms is costly, but credit positive as customers embrace e-payments
- » Vipps and Swish: Nordic banks cooperate and drive innovation during period of rapid digitalisation

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Five articles examine how new technologies affect financial institution credit quality.

- » Strengthened regulatory oversight of Bitcoin spot exchanges would be credit positive for Bitcoin futures providers
- » European banks' limited appetite for virtual currencies is credit positive
- » BitPesa's blockchain technology supports Africa's cross-border banking
- » Nigerian banks' investment in digital platforms is costly, but credit positive as customers embrace e-payments
- » Hong Kong welcomes virtual banks, increasing competition for incumbent small and midsize banks

## Strengthened regulatory oversight of Bitcoin spot exchanges would be credit positive for Bitcoin futures providers

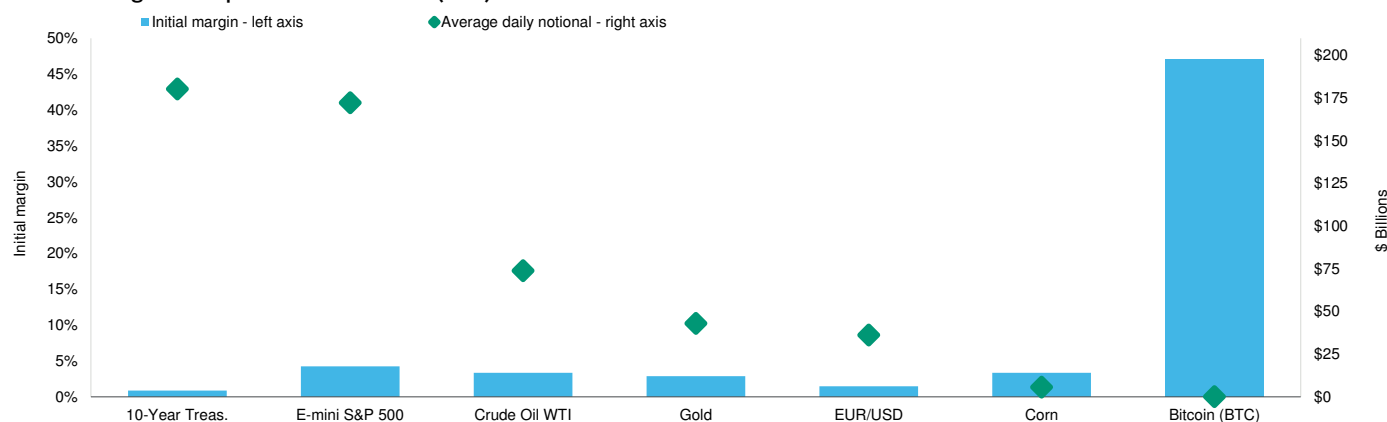
Last Tuesday, the US Senate Committee on Banking, Housing and Urban Affairs held a hearing on virtual currencies and the role that the US Securities and Exchange Commission (SEC) and the US Commodity Futures Trading Commission (CFTC) would play in overseeing those markets. The committee raised a number of concerns including fraud in virtual currency markets and initial coin offerings (ICOs) and price manipulation on cryptocurrency spot exchanges. Improved oversight of spot cryptocurrency exchanges would be credit positive for [CME Group Inc.](#) (Aa3 stable) and [Cboe Global Markets, Inc.](#) (Baa1 positive), which offer futures products associated with these exchanges, because they would be exposed to reputational risks from being indirectly associated with significant fraud or other abnormalities that may occur in the spot exchanges.

Since December 2017, CME and Cboe have offered Bitcoin futures contracts that allow traders to speculate on the price of the cryptocurrency and holders to hedge their Bitcoin positions. Despite significant media coverage associated with these new futures contracts, the Bitcoin futures market is extremely small compared with many of CME's and Cboe's other products.

However, Bitcoin's price volatility and the limited regulatory oversight of the related spot exchanges pose risk-management challenges for central counterparty clearing houses (CCPs) that clear Bitcoin futures transactions because the futures contracts being cleared are based off spot market prices. The CCPs that clear Bitcoin futures are operated by CME and, for Cboe contracts, The Options Clearing Corporation. Risk management challenges could make it more difficult for a CCP to close out a defaulting clearing member's exposures. Both CME and Cboe thus set relatively high margins for Bitcoin futures trades to mitigate counterparty risk, and have since upped margins from those they first presented to regulators. For now, low volumes also limit potential losses to a CCP. Exhibits 1 and 2 compare Bitcoin futures margins at CME and Cboe with those of other popular products in different industries.

Exhibit 1

### CME's leading futures products and Bitcoin (BTC)



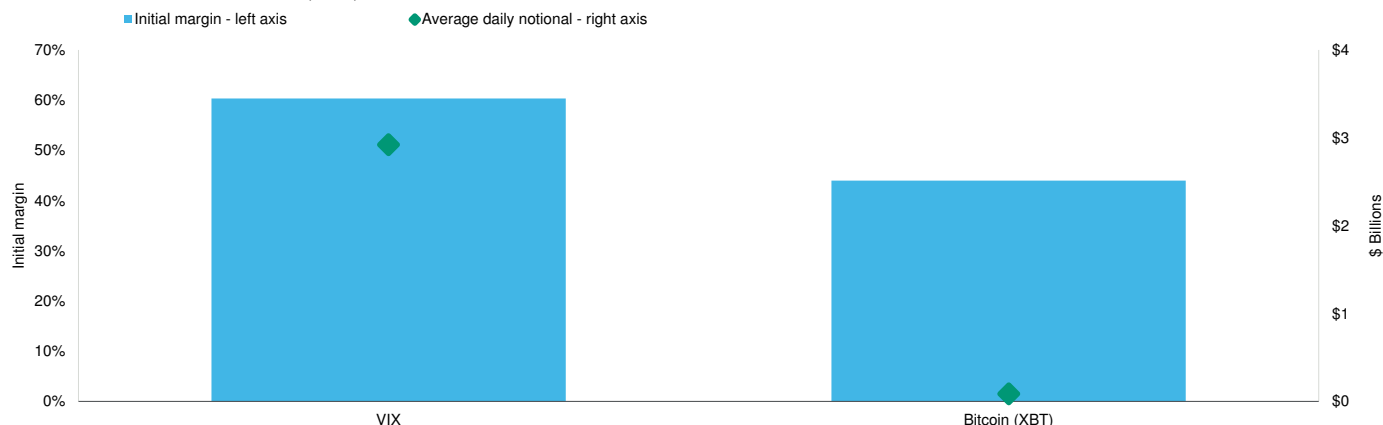
Data are based on fourth-quarter 2017 volumes, except for Bitcoin data, which are for the period from 18 December 2017 (contract inception date) to 5 February 2018.

Sources: CME Group Inc. and Moody's Investors Service

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Exhibit 2

## Cboe's VIX futures and Bitcoin (XBT)



Data are based on fourth-quarter 2017 volumes, except for Bitcoin data, which are for the period from 11 December 2017 (contract inception date) to 5 February 2018.

Sources: Cboe Global Markets and Moody's Investors Service

Currently, US law does not provide for direct, comprehensive federal oversight of virtual currency spot markets. Oversight has evolved through state banking regulation, the US Internal Revenue Service and the US Treasury's Financial Crimes Enforcement Network. The CFTC's and SEC's oversight of cryptocurrency exchanges so far has been through civil enforcement actions against fraud and manipulation, and has included tackling misconduct involving ICOs, the spread of false information, scams and Ponzi schemes involving cryptocurrencies. Last year, the CFTC proposed guidance on the definitions of derivatives and spot markets in the context of virtual currencies. Regulators also have issued warnings about valuations and volatility in spot virtual currency markets and launched a consumer education effort.

In testimony to the Senate committee, CFTC Chairman Christopher Giancarlo proposed that members consider the shortcomings of the current approach of state-by-state money transmitter licensure, which has gaps in protection for virtual currency traders and investors. He also suggested that appropriate federal oversight may include data reporting, capital requirements, cybersecurity standards, measures to prevent fraud and price manipulation, and anti-money laundering and know-your-customer protections. Improved oversight would help curtail Bitcoin spot price manipulation, improve the integrity of Bitcoin's price discovery at US spot exchanges and reduce operational and reputational risks.

Some retail investors have expressed a desire to trade Bitcoin futures, and both [TD Ameritrade Holding Corporation](#) (A2 stable) and [E\\*TRADE Financial Corp.](#) (Baa3 review for upgrade) provide Bitcoin futures trading capabilities for their clients. The required margins are significantly higher than the CCPs' margins, an appropriately conservative approach that will help limit retail customers' trading volumes and related default risk. Clearing margins will remain in flux, and may rise rapidly and significantly in response to increased spot Bitcoin price volatility, and brokers will have to adhere to these changes.

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## European banks' limited appetite for virtual currencies is credit positive

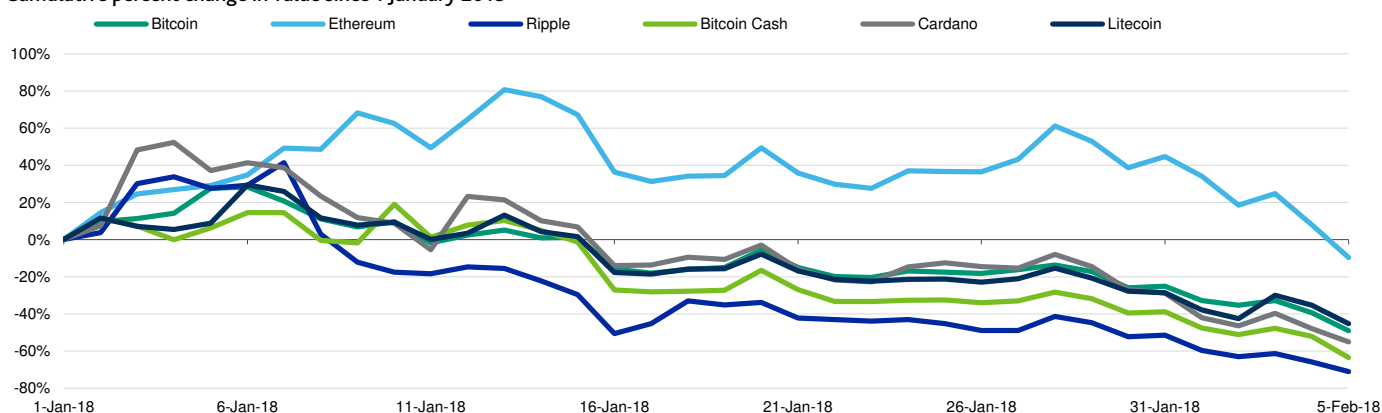
Last Monday, European Central Bank (ECB) President Mario Draghi [told](#) the European parliament that ECB-supervised banks show limited involvement and exposure to virtual currencies such as Bitcoin. He added that although these virtual currencies currently are not subject to a specific supervisory approach, the Single Supervisory Mechanism is identifying the potential prudential risks these digital assets pose.

Banks' conservative risk appetite with regard to virtual currencies is credit positive because of the significant risks these currencies pose. Despite the rising popularity of virtual currencies, with the largest, Bitcoin, reaching a market capitalisation of more than \$300 billion in December before tumbling to around \$140 billion in early February, conventional assets and currencies still dwarf the size of virtual currencies. The FTSE 100 index capitalisation is around £2 trillion, while the euro area M3 monetary aggregate was €11.9 trillion as of the end of December.

We consider virtual currencies extremely risky assets whose threats include high price volatility, vulnerability to hacking, fraud and technical infrastructure failures. Since 2013, Bitcoin's value has jumped more than 40% and plummeted more than 20% in a single day and all major virtual currency schemes continue to experience significant price volatility (see exhibit).

### The values of the six-largest virtual currencies by market capitalisation are volatile

Cumulative percent change in value since 1 January 2018



Sources: Coinmarketcap.com and Moody's Investors Service

Virtual currency schemes are gaining popularity as a medium for speculation rather than as an alternative payment means. Bitcoin is used for only around 300,000 transactions per day globally, according to Blockchain.com, compared with 334 million non-cash payments daily within the European Union alone during 2016, according to the ECB Statistical Data Warehouse. No government has declared virtual currencies an official currency or given them legal tender status. And, although some virtual currencies are backed by precious metals or other assets, many have prices that are purely driven by demand and a limited supply.

It is impossible to estimate banks' indirect credit exposure to virtual currencies through loans used to buy virtual currencies or indebted customers who also have invested in these currencies and may face losses with falling values. The European Banking Authority (EBA) and a number of European national regulators have issued [consumer warnings](#) against speculating on virtual currencies and [recommend](#) that national supervisory authorities discourage credit institutions from buying, holding or selling these currencies. UK-based [Lloyds Banking Group plc](#) (A3 stable) last Monday moved to ban customers from buying virtual currencies with credit cards following similar bans by large US banks.

Virtual currencies currently are not regulated by the European Union (EU) and are not part of the current payment services directive, although some member states have national legislation, including Germany, which considers virtual currencies as units of account and has the most elaborate rules. However, regulating the interface where virtual currencies and conventional fiat money are exchanged, such as virtual currency exchanges, [is emerging](#) to ensure that EU requirements on anti-money laundering and countering the financing of terrorism are met.



A more robust regulatory framework will be required as the use of virtual currencies expands and develops greater links to the real economy. The recent listing of Bitcoin futures contracts by US exchanges may lead European banks to more actively trade in such instruments. The ECB in 2015 had [opined](#) that risks to monetary policy, price stability, financial stability, the smooth operation of payments systems and prudential supervision from the use of virtual currencies were low, obviating the need, at that time, to amend or expand the EU's legal framework.

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## BitPesa's blockchain technology supports Africa's cross-border banking

Last Wednesday, BitPesa, an online payment and remittance platform focusing on Africa, announced that it had acquired TransferZero, an international money transfer financial technology company licensed by the Bank of Spain. BitPesa's expansion and strong growth highlights how the use of financial technology is starting to make cross-border transactional banking in Africa more efficient and less costly.

Although BitPesa is small, it has recorded 24% monthly growth over the past two years, increasing trade volumes to around \$12 million a month from \$1 million a month in 2016. BitPesa's recent acquisition is in line with its rapid expansion plans in Africa, which are complemented by a growing infrastructure in Europe to leverage the two continents' trade links. BitPesa recently launched in Ghana and intends to launch in [South Africa](#) in the second quarter of 2018. It has existing operations in Kenya, Uganda, Tanzania, the Democratic Republic of the Congo, Nigeria, Senegal, the UK, Luxembourg and Mozambique.

BitPesa enables companies to make payments to and from Africa in the markets where it is present, as well as between two African currencies where other payment providers or banks have a limited presence. It caters primarily to small and midsize customers, but international remittance companies also use BitPesa for payments to bank networks and mobile money operators across BitPesa's African operations.

BitPesa leverages blockchain settlement to significantly lower the cost and increase the speed of money transfers to and from African countries. Although Bitcoin's blockchain settlement system has its drawbacks, including network congestion that may delay transaction and high transaction fees, both the time and cost of transactions outperform traditional money transfer and remittance services both to and from Africa and within Africa. The World Bank estimates that fees on remittances average around 7.1% of the transaction volume; BitPesa charges 3% or less, and can complete a transaction in hours rather than days.

Traditional money transfers and remittances require African currencies be converted into US dollars (primarily) and be routed through the US before converted back into another African currency. These transfers require a large network of intermediaries, including banks that require lengthy approvals and strict correspondent banking guidelines. BitPesa substitutes the use of dollars with a cryptocurrency, currently Bitcoin, eliminating a number of intermediaries and leading to a faster and cheaper alternative, particularly in countries where there is a shortage of dollars or restrictions on accessing dollars.

Although customers may receive or pay in Bitcoins, BitPesa's technology is in the background, so customers transferring fiat currencies may not even be aware that BitPesa is relying on Bitcoin's network to conduct and record the transaction. BitPesa relies on blockchain technology as a treasury solution, and is not a proprietary trader, typically relying on a third-party broker for liquidity and thereby mitigating the effect of potential cryptocurrency price volatility.

In addition to its continued expansion in Europe and Africa, BitPesa also plans a pilot in trade finance, another area with high inefficiencies and costs, particularly for lower-rated countries in Africa. However, given the current limited cryptocurrency regulation globally, any potential adverse regulation risks negatively affecting BitPesa's operations. For example, although BitPesa was founded in Kenya, tough regulation there prohibit Bitcoin-related startups from opening or maintaining business bank accounts with local banks. This hinders BitPesa's operations in Kenya, where the company has halted growth and is only available to existing businesses and high-net-worth clients.

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## Nigerian banks' investment in digital platforms is costly, but credit positive as customers embrace e-payments

Last Monday, Nigeria's National Bureau of Statistics (NBS) released select banking sector data that indicates Nigerians' rising use of electronic payment platforms (e-platforms) at the expense of cheques and ATM transactions. Nigerian banks are investing in their IT infrastructure, strengthening e-platform security to reduce risks such as cloning and identity theft as well as enhance the customer experience. IT enhancements will weigh on already-high cost-to-income ratios for most Nigerian banks, but, as more clients migrate to e-platforms, bank revenue from e-business will grow, a credit positive. As banks' e-platforms replace more traditional transactions, banks will be able to save on branch expansion costs, reduce the square footage of their branches and engage cheaper branch models such as agency banking.

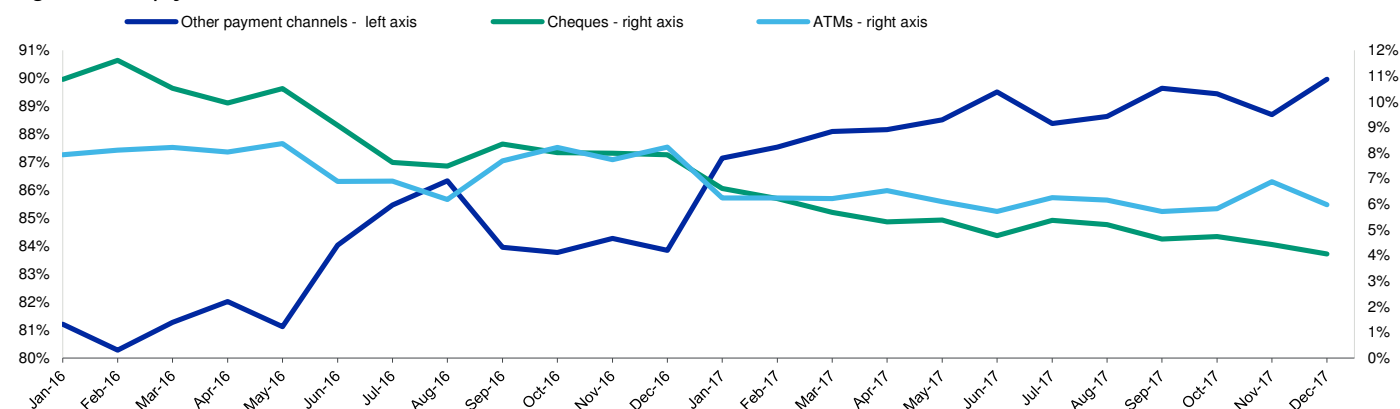
In the first half of 2017, IT-related costs<sup>1</sup> for [Access Bank Plc](#) (B2 stable, b2<sup>2</sup>), [United Bank for Africa Plc](#) (B2/B2 stable, b2) and [Zenith Bank Plc](#) (B2/B2 stable, b2) increased by an average of 39.8% from a year earlier. IT-related expenses as a proportion of total expenses excluding staff costs increased to an average of 8.1% from 7.6% over the same time period.

The NBS report indicated that the volume of cheques declined 16.2% in 2017, while e-payment channels such as point of sales rose 89.6%, internet payments rose 82.2% and NIBSS Instant Payment, an online real-time bank account number based interbank credit transfer system, rose 102%. The value of cheque payments declined by 22.5%, while the value of mobile payments increased by 42.9%. Cheques' transacted values show a downward trend, contributing 4.1% of total transacted value in December 2017, versus 7.9% in December 2016 and 10.9% at the beginning of 2016 (see Exhibit 1).

Exhibit 1

### Nigerians are migrating to e-platforms at the expense of cheques and ATM transactions

#### Nigerian banks' payment channels contribution to total transaction values

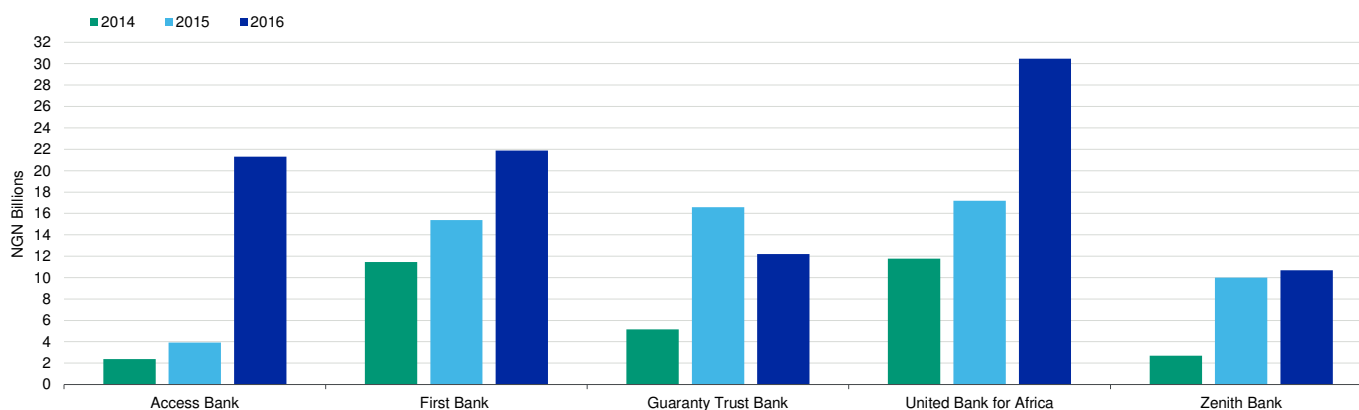


Source: Nigeria's National Bureau of Statistics

Although Nigerian banks will charge lower fees on their e-platforms than they charge on cheques, client migration to these platforms will positively affect fee and commission income as volumes grow, supporting banks' revenue. Nigeria's five largest banks' revenue from e-business grew strongly between 2014 and 2016 (see Exhibit 2) and the e-business contribution to total fee and commission income increased to 30.9% in 2016 from 23.1% in 2015.

Exhibit 2

## Nigeria's five-largest banks' e-business income increased during 2014-16



Sources: The banks

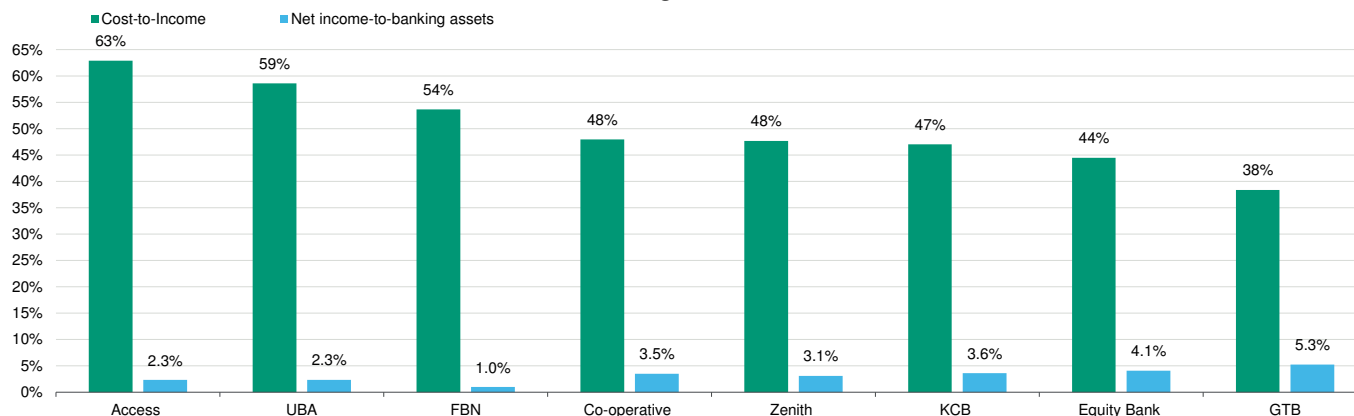
Widespread use of e-channels will allow Nigerian banks to expand their products beyond the current transactional products and increase client transaction volume. This will counteract low e-platforms fees and the risk that charges on e-platforms likely will fall because of competition and regulation. Although disclosure for e-business income for the six months that ended June 2017 varied across banks, e-business income was strained, partly because of reduced use of naira debit cards outside Nigeria.

Likely revenue improvements and lower branch-network-related costs ultimately will improve Nigerian banks' cost-to-income ratios over the next 18 months. Kenyan banks' lower cost-to-income ratio is partly explained by their reliance on agency banking, which relies on mobile banking. Kenyan banks such as [KCB Bank Kenya Limited](#) (B1 review for downgrade, b1 review for downgrade), [Equity Bank Kenya Limited](#) (B1 review for downgrade, b1 review for downgrade) and [Co-operative Bank of Kenya Limited](#) (B1 review for downgrade, b1 review for downgrade) have managed to develop mobile loan products, boosting their revenue and improving efficiency. We expect Nigerian banks also to develop underwriting capabilities on their e-platforms, and offer loan products, particularly to households and small and midsize enterprises, widening their revenue sources.

Within Nigeria, [Guaranty Trust Bank Plc's](#) (B2 stable, b2) superior cost-to-income ratio versus local peers partly reflects its early adoption of and investment in e-channels. Banks with higher efficiency tend to be more profitable as reflected in higher net income-to-tangible banking assets ratios (see Exhibit 3).

Exhibit 3

## Select rated banks' cost-to-income ratio and net income-to-banking assets ratio for the six months to June 2017



Key: UBA = United Bank for Africa Plc; FBN = First Bank of Nigeria Limited; KCB = KCB Bank Kenya Limited; GTB = Guaranty Trust Bank Limited

Source: Moody's Banking Financial Metrics

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## Endnotes

- [1](#) Other rated Nigerian banks did not disclose data as of June 2017.
- [2](#) The bank ratings shown in this report are the bank's domestic deposit rating, senior unsecured debt rating (where available) and Baseline Credit Assessment.



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## Vipps and Swish

Nordic banks cooperate and drive innovation during period of rapid digitalisation

Vipps, developed by [DNB Bank ASA](#) (Aa2/Aa2 negative, a3)<sup>1</sup> and launched in [Norway](#) (Aaa stable) in 2015, and Swish launched in [Sweden](#) (Aaa stable) in 2012 by six local banks<sup>2</sup> are successful mobile payment platforms created to meet demand for non-cash peer-to-peer transfers from a technologically savvy customer base. Vipps and Swish offer evidence that Nordic banks' strategy for resisting competition from new fintech entrants by collaborating and innovating themselves is working. In both cases, banks joined forces to create a shared digital ecosystem and promote adoption, sidelining potential disruptors. While Vipps and Swish may indirectly erode banks' traditional revenues, such as card fees, they keep customers within the "walled garden" of a single digital ecosystem, creating opportunities to sell other products. They also put the banks in a stronger position to respond to industry transformation driven by the European Union's (EU) updated Payment Services Directive (PSD2), which will lower barriers to entry for non bank players.

- » **Banks innovate and join forces to maintain their central roles.** Vipps and Swish are shared digital ecosystems underpinned by bank-driven innovation and collaboration that has helped to keep fintech entrants and overseas competitors at bay. DNB spun off Vipps in early 2017, with 106 Norwegian banks taking an aggregate 48% stake in the entity. This move will promote further adoption of the service. Similarly, Swish is the result of a collaboration amongst Nordic banks.
- » **Wide adoption is key to monetisation.** Vipps and Swish are used by about half the population in Norway and Sweden respectively. This gives merchants a strong incentive to sign up to the platforms, creating opportunities for the two entities to sell them targeted services. This should partially compensate the banks for lost card processing revenues. Banks rolling out new platforms generally aim to maintain contact with the end consumer. As digitalisation drives rapid change this presents the potential to cross-sell other products. Adopting alternative channels early has also helped Nordic banks contain costs, which in addition to a benign operating environment, has led to an increase in their operating efficiency relative to European peers.
- » **Payments market set for further transformation.** PSD2 will force European banks to provide secure third-party information and payment access to customers' accounts and will lead to the creation of new types of service providers. Some technology firms, especially established players with large user bases such as Apple, Google and Facebook, may be able to monetise this development. However, we expect Nordic banks will retain a competitive advantage as long as customers perceive them to be more secure and better able to safeguard their privacy, while offering high quality services.

## Banks innovate and join forces to maintain their central role

Vipps and Swish are the result of Nordic banks' innovation in the mobile payment space. In both cases banks have collaborated to create shared digital ecosystem that, for now, has helped them maintain their central role in their respective markets against changing customer behaviour and new fintech entrants. Although offering new digital services such as Vipps and Swish may lead to some cannibalization of traditional payment revenues, it has allowed banks preserve core customer relationships during a period of rapid industry change driven by digitalisation.

In May 2015, Norway's DNB Bank (DNB) acted as a first-mover in the country and launched the Vipps mobile payment app in order to protect its payment business from potential competition from rival Nordic platforms. This was part of a broader digital push by DNB that helped the bank halve its branch network by 2016. The success of such platforms depends on rapid, large-scale adoption, since both senders and recipients need to install the application. To accelerate this process, and although the platform had been open to the customers of any Norwegian bank since inception, DNB spun-off Vipps in early 2017. More than 100 Norwegian banks took a stake in the entity, with DNB retaining a 52% share. The sale convinced some participating banks to shelve their own mobile payment offerings in favour of Vipps. As further evidence of the importance to achieve scale quickly and the increasing cooperation within mobile payments, [Danske Bank A/S](#) (Aa3 stable/A1 positive, a3) announced on 11 October 2017 that it would terminate its competing mobile payments solution MobilePay in Norway, and enter into a distribution settlement with Vipps as soon as possible.

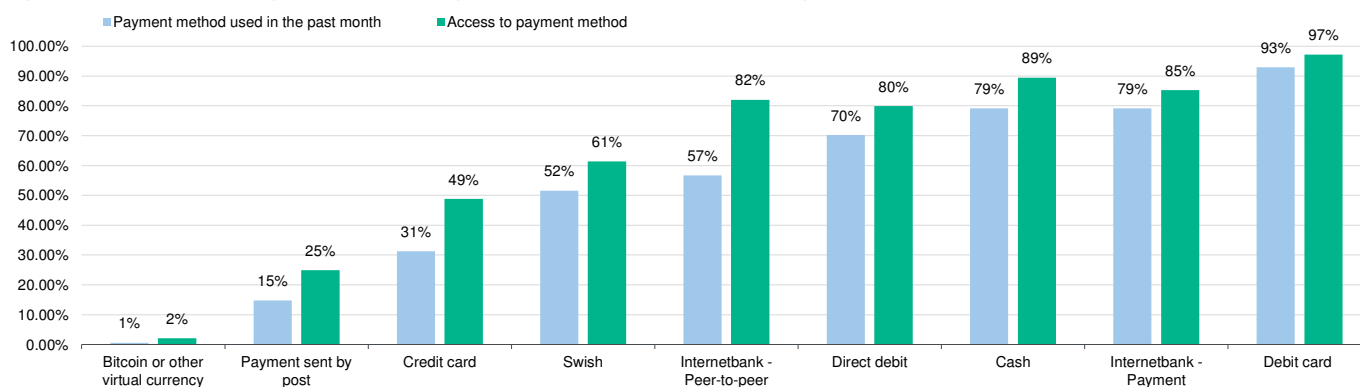
Vipps, which allows users to make digital peer-to-peer transfers and payments for e-commerce purchases using credit or debit cards held on account, now has almost 2.6 million individual users in Norway, about half the country's population, and more than 30,000 corporate customers. Additional features include the ability to split bills, chat, and upload photos, while identity checks for are carried out using biometric authentication for convenience. For payments exceeding NOK2,000 (€215) the application uses BankID identification (see below) for authentication.

Swish, launched in 2012, was developed jointly by six banks: [Danske Bank A/S](#) (Aa3 stable/A1 positive, a3), [Svenska Handelsbanken AB](#) (Aa2/Aa2 stable, a2), [Länsförsäkringar Bank](#) (A1/A1 stable, a3), [Nordea Bank AB](#) (Aa3/Aa3 stable, a3), [SEB](#) (Aa3/Aa3 stable, a3) and [Swedbank AB](#) (Aa3/Aa3 stable, a3). Swish also collaborates with 4 additional banks<sup>3</sup> as well as the savings banks associated through Swedbank. The service, which is free to individuals, allows users to send small sums to each other using only mobile phone numbers. In May 2017, Swish had 5.5 million users, just over half the Swedish population, and handled monthly transfers of SEK11.6 billion (€1.22 billion). In 2014, Swish was extended to companies and organisations, and has since attracted about 110,000 businesses. A survey by the Riksbank in 2016 (see Exhibit 1) showed that half of respondents had used Swish during the previous month, up from 10% in 2014.

Exhibit 1

### Swish has become a popular payment method in Sweden

Responses to a survey on what payment method responders have access to and used in the past month



The survey was conducted in 2016 and included 2000 people aged 16 to 85.

Source: Swedish Riksbank

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Of pivotal importance for the development and adoption of digital products in Norway and Sweden, including Vipps and Swish, is BankID, which is a means of secure digital identification, and is also used to sign contracts electronically. BankID in each of these two countries was developed, separately by groups of the region's leading banks and is another example of innovation and interbank cooperation in the Nordic region. BankID was introduced in Sweden in 2003 and in Norway the following year, although we note that the Swedish and Norwegian BankID entities are not directly affiliated.

BankID in both countries has since become the standard form of proof of identity for digital and mobile transactions, used by 7.5 million people in Sweden (around 76% of the population) and 3.7 million in Norway (around 71% of the population).

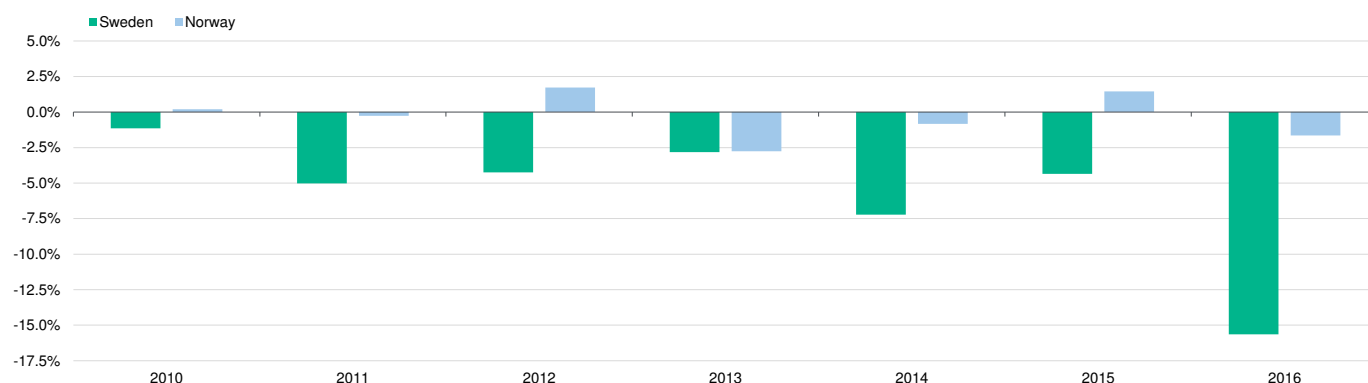
Bank-driven innovation and collaboration of this kind could allow Nordic banks to maintain their core roles in digital banking over the next 3-5 years, while also catering to changing customer expectations. Nordic banks have a track record of technological innovation, reflecting their customers' strong affinity for technology. Internet penetration across the region runs at over 95% of households, and about 8 out of ten people use smartphones.

Nordic banks were some of the first globally to offer digital banking services. In 1996, Finland's [OP Financial Group](#) (Aa2(cr) stable, a3) became the first bank in Europe, and the second globally, to launch internet banking, followed by Svenska Handelsbanken in 1997.

Wide adoption of digital banking, including mobile payments, has cut the Nordic countries' usage of cash to among the lowest levels in the world. According to the European Commission the Nordic countries are in the top 5 positions together with the Netherlands, regarding use of online banking services, with between 81% and 92% of individuals using online banking compared with an average of 49% for the EU. Physical cash in circulation in Sweden accounts for just 1.4% of GDP and 1.6% in Norway, far below the euro area average of 10.1%. Notes and coins in circulation have been declining in both Sweden and Norway since 2010 (see Exhibit 2), while, according to Sweden's Riskbank, the average Swede made 270 card payments in 2014, versus an average of only 93 across the EU.

Exhibit 2

#### Use of physical cash has fallen in Sweden and Norway % year-on-year change in the value of notes and coins in circulation



Sources: Swedish Riksbank, Statistics Norway

### Wide adoption is key to monetisation

In general terms, banks may initially struggle to monetise their investments in digital technology, and may also - intentionally or otherwise - create digital products that cannibalise their traditional revenues. For example, mobile payments systems can erode revenues from card payment fees. However, since the market for digital banking services is currently in a build-up phase, banks' priority is to maintain market share while preserving contact with the end consumer.

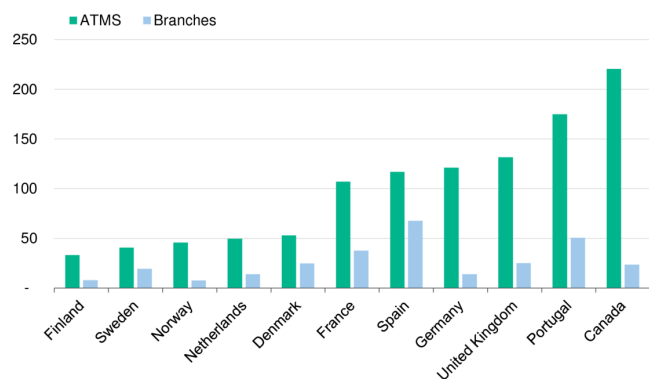
This process of "managed destruction", although potentially harmful for earnings in the short-term, strengthens banks' ability to withstand competition from fintech disruptors in the medium- to long-term. While margins on certain digital products may be minimal, keeping consumers within the "walled garden" of a single technological ecosystem may in time create opportunities to cross-sell other products profitably.

The strong customer take-up of Vipps and Swish creates potential opportunities for the banks behind the platforms. They may for example be able to offset lost card-related revenue by selling services to merchants through Vipps and Swish, such as payment processing and invoicing. Merchants have a strong incentive to sign up to the platforms because they cater to a large number of potential customers. Wide adoption is therefore critical to generating returns from new digital banking products.

The Nordic banks' early large-scale adoption of digital banking channels has also yielded benefits in the form of improved cost efficiency. Helped by tight operating cost control, as well as a more supportive macroeconomic environment that has driven solid revenue growth, the sector had an average cost-to-income ratio of 45% in 2016, compared to a European average of 67%, and lower cost-to-asset ratios (excluding litigation, conduct and insurance expenses) than European peers.

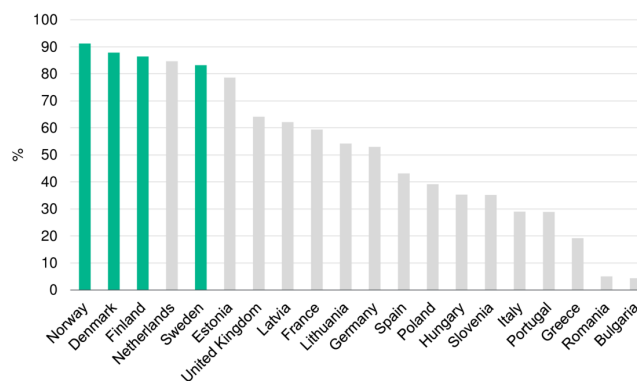
This is partly because online banking and other digital channels have displaced costly bank branches and automated teller machines (ATMs) in the Nordic countries to a greater extent than elsewhere in Europe, and compared with most countries globally (see Exhibits 3 and 4). Nordic banks' low cost to income ratio also makes them better able than some European peers to cover the high initial investment costs associated with digitalisation, including marketing the new services.

Exhibit 3  
**The Nordics have the lowest number of branches and ATMs per 100,000 adults amongst western countries**  
As of 2015



Source: The World Bank

Exhibit 4  
**The Nordics have the highest usage of online banking amongst 16-74 year olds in Europe**



Source: European Commission's Digital Scoreboard

## Payments market set for further transformation

We expect a further shake-up of the Nordic and European payments market as a result of the EU's updated Payment Services Directive (PSD2 - see highlight box), along with the growing popularity of cashless transactions because of their convenience. PSD2 will lower barriers to entry for non-bank players, intensifying competition in the payments space from established technology firms such as [Apple Inc](#) (Aa1 stable) and [Alphabet Inc](#) (Aa2 stable), Google's parent company, as well as smaller fintech disruptors.

PSD2 must be transposed into local legislation in EU countries by January 2018. Norway and Iceland, as members of the European Free Trade Association (EFTA), must also ratify much of the directive, albeit at a later date. The main purpose of PSD2 is to increase competition and foster innovation in the payments market by forcing banks to open up their infrastructure to payment initiation, and to requests for account information.

PSD2 will lead to the creation of new payment service providers that will be able to make secure payments on behalf of customers directly from their bank accounts. This will lead to further erosion of bank's traditional income from payment cards, such as the interchange fees that card-issuing banks charge for processing transactions. Opening up access to customer account data will also enable the creation of third party portals which will make individual bank brands less visible, undermining banks' core relationship with their customers.

Established technology firms with large user bases, such as Apple, Google, [Samsung Electronics Co Ltd](#) (A1 positive) and Facebook will likely seek to exploit new opportunities in the payments market once PSD2 takes effect. However, banks will likely retain a competitive advantage, for now, as long as customers perceive them as more secure and better able to safeguard their privacy, while simultaneously



offering high quality services. We also expect these established technology firms to avoid competing with banks in areas other than payment services, as this could expose them to increased regulatory scrutiny.

Nordic banks' strong presence in the digital payments market via platforms such as Vipps and Swish, also reinforces their competitive position against PSD2-inspired entrants. PSD2 will also give banks the opportunity to build on their past experience and take advantage of newly available data and capabilities.

Swish will likely respond to PSD2 by accelerating its expansion into the e-commerce and in-store payments market. This will require agreeing on common systems with payment providers in other countries, as many merchants operate internationally and prefer to use as few means of payment as possible. Challenges to Swish's continued expansion include potential strategic disagreements between its six owners.

One of Swish's advantages is that it does not rely on payment cards. This allows banks to retain a larger share of merchant fees for Swish transactions, as there are no card issuer fees to pay. This feature also improves Swish's chances of success in the e-commerce market, as users will not need to worry about their card details being compromised.

Vipps, which drives its own development after being spun off, is likely to offer users the option of directly transferring funds from their bank accounts, rather than using a debit or credit card on account. Although this would erode the banks' traditional card income, it is a critical step in the light of potential competition from new providers. Vipps is also likely to expand its offering to in-store payments for merchants. Vipps' strong take-up in Norway makes it an attractive payment service provider, however, and this could allow the service to offset lost card-related revenue with fee income from merchants that sign up to the platform.

## PSD2 Explained

PSD2 is designed to promote competition in the European payments space by making it easier for non-banks and fintech companies to enter the market and foster innovation by enabling the provision of new types of services. The directive aims to achieve this by forcing banks to facilitate secure access to customer accounts through an application programming interface (API) to third party providers following customer consent.

This access to customer accounts through APIs will allow new payment initiation (provided by Payment Initiation Service Providers or PISPs) and cross bank account aggregation (provided by Account Information Service Providers or AISPs) services to develop. The directive will require banks to comply with heightened security standards to mitigate risks of data breaches, as they share customer data with third parties.

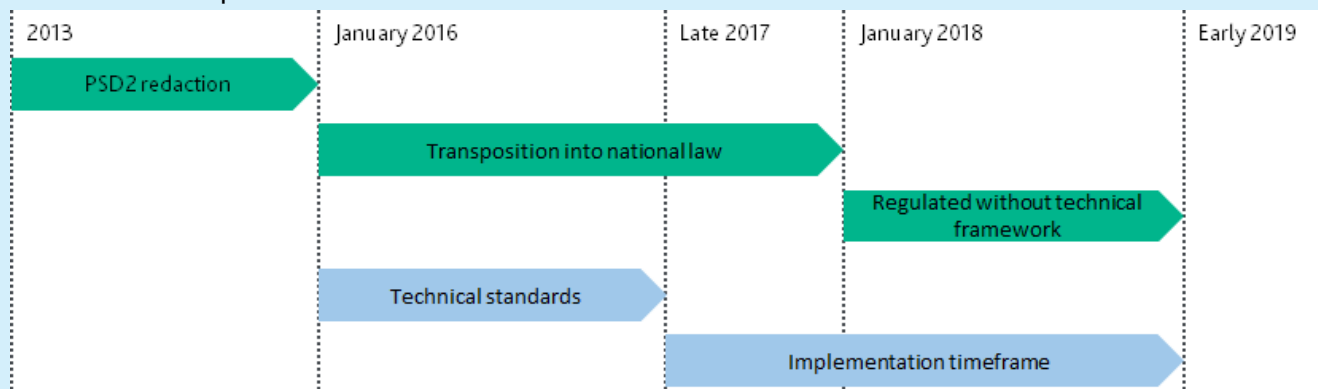
## Timeline for Implementation

PSD2 was approved in January 2016 and expands the scope of the original 2007 Payment Services Directive to include new payment services. EU member states have until January 2018 to transpose the directive into national law. The directive also relies on the regulatory technical standards (RTS) on customer authentication and secure communication proposed by the European Banking Authority (EBA) in February 2017. The EBA has indicated that November 2018 is the earliest date by which the RTS, and thus the full PSD2, will be applicable. Exhibit 4 shows the timeline for implementation.

Norway, as part of the EEA, is not bound by the 2018 implementation date, but Moody's expects that the country will implement PSD2-compliant regulations in the future.

Exhibit 5

### Timeline for PSD2 Implementation



PSD2 will apply without RTS for most of 2018

Sources: European Commission, European Banking Authority

## Moody's Related Research

### Credit Opinion:

- » [Danske Bank A/S: Update following the upgrade of the bank's long-term senior debt ratings and long-term deposit ratings](#), 24 August 2017
- » [DNB Bank ASA: Update Following Recent Affirmation at Aa2 Negative](#), 2 August 2017
- » [Länsförsäkringar Bank AB \(publ\): Update Following Recent Change in Macro Profile; Affirmation at A1 Stable](#), 5 September 2017
- » [Nordea Bank AB: Update Following Affirmation of Ratings](#), 7 September 2017
- » [SEB: Update Following Macro Profile Change](#), 6 September 2017
- » [Svenska Handelsbanken AB: Update Following Macro Profile Change](#), 4 September 2017
- » [Swedbank AB: Update Following Macro Profile Change](#), 7 September 2017

### Sector In-Depth:

- » [Financial Technology: An Overview of the Fintech Regulatory Environment](#), 28 February 2017
- » [Financial Institutions - Global: Fintech Transforms Competitive Landscape, but Unlikely to Displace Banks Central Role](#), 18 May 2016

### Methodology:

- » [Banks](#), 26 September 2017

## Endnotes

- <sup>1</sup> The bank ratings shown in this report are the banks' deposit rating, senior unsecured debt rating (where available) and baseline credit assessment.
- <sup>2</sup> The six banks are [Danske Bank A/S](#) (Aa3 stable/A1 positive, a3), [Svenska Handelsbanken AB](#) (Aa2/Aa2 stable, a2), [Länsförsäkringar Bank](#) (A1/A1 stable, a3), [Nordea Bank AB](#) (Aa3/Aa3 stable, a3), [SEB](#) (Aa3/Aa3 stable, a3) and [Swedbank AB](#) (Aa3/Aa3 stable, a3),
- <sup>3</sup> The five banks collaborating with Swish are [Skandiabanken](#) (A2 stable, baa2), [Sparbanken Syd](#) (Baa1 stable, baa2), ICA Banken, and Ålandsbanken

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