

## Better than cash

### bKash and the Bangladesh payments industry

- **Keys to success in right partnerships:** With >70% market share in Mobile Financial Services (MFS) transactions, >20mn active customers, and >US\$30bn in annual transaction value, bKash is the pre-eminent MFS platform in Bangladesh. Although bKash is primarily an internal remittance platform at the moment, we think the business is well placed to move upstream into payments and investment solutions, where bulk of the monetizable opportunity lies. bKash started as a joint venture between BRAC Bank and Money in Motion (VC fund with telco background), but over the years, bKash has on boarded new partners such as the International Finance Corporation (IFC), Bill & Melinda Gates Foundation, and more recently Ant Financial; all of which were/will be instrumental in bKash's success.
- **Developing countries will leapfrog credit/debit cards:** We start with the assumption that regardless of the stage of development in an economy, there is a (unmet) demand for digital payments; this is because digital is simply more convenient than cash. Hence, as soon as an effective digital payments infrastructure is setup, we should see significant transition from cash to digital. Historically, the route has been cash>credit/debit cards>mobile payments, but we think developing countries will leapfrog credit/debit cards and jump directly into mobile payments. Firms like bKash are well placed to benefit from this.
- **Instant settlement is at the heart of payments:** Before goods can be handed out, both sides need confirmation that the money has been transferred. For cash this is easy, but for digital, essentially some bits of information has to be transferred from one database to another. Historically, central bank settlement networks were unable transfer this data instantly, hence instant settlement was not possible. This led to alternative solutions; e-wallets like bKash bring both the payer and payee into one network (the bKash network), and arrange instant settlement within the network, similar to an intra bank transfer. Credit/debit card companies also work in a similar fashion (the "Visa" network). These complicated networks can be thought of as "private highways" which had to be built because "public highways" (instant payment settlement from central bank) were not available.
- **A "public highway" can shake up the business:** Central banks around the world now have the technology to settle payments instantly. An example of this is the Unified Payments Interface (UPI) in India. We believe a similar platform will soon be launched in Bangladesh. If the payments business is simply about monetizing these "private highways", we must ask what happens to these highways when a "public highway" is made available? We think both margins and entry barriers will diminish in the future.

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## What is Mobile Financial Services (MFS) ?

MFS encompasses a broad range of retail financial solutions delivered through cell phones. Services can range from basic remittance transfers to retail payments and all the way up to complex investment products. Service providers can be banks (extension of conventional banking), or more pure-play operators who offer specialized solutions.

In some cases, MFS offers a more convenient way of doing something that is already possible, such as (i) electronic remittance transfers instead of physical delivery of cash, or (ii) mobile payments replacing credit/debit cards/cash etc. However, MFS also opens use cases that would otherwise not be possible, such as micro investment solutions (insurance, credit, money market instruments etc.).

In many cases (like Bangladesh), regulators view MFS as a limited purpose banking account (for the unbanked). However, we think MFS is essentially a play on gaps underserved by the formal financial sector. Given even high income (and well banked) individuals often feel there is more to be desired from their banks, it is safe to say that there are gaps in service across the income spectrum. Hence, we think MFS has the potential to do more than just basic banking for the unbanked. Services offered, service providers and regulatory landscapes vary quite considerably, but the key objective remains same—offering financial solutions through cell phones.

Given the cell phone appears to be the primary instrument of connectivity, we see an increasingly larger share of the financial services being delivered/accessed through cell phones. Hence, the key question we will seek to answer is not whether there is a bull case for MFS (answer appears obvious), but whether there are sufficient long term entry barriers in this industry to allow consistent economic profits.

## bKash—groundwork is ready, preparing for takeoff

### Keys to success in right partnerships

bKash was established in 2010 via a Joint Venture between BRAC Bank and Money in Motion LLC. Central bank regulations required a financial institution (bank/NBFI) to own 51% of any mobile money venture, hence bKash was set up as a BRAC Bank subsidiary. The tidbit here was that, despite BRAC Bank owning the majority of bKash, the business was solely managed by Money in Motion. Money in Motion was a Venture Capital fund formed in 2009 by a group with notable telco backgrounds—Nick Hughes (spearheaded launch of M-Pesa at Safaricom), Arun Gore (Managing Director of Grey Ghost Capital) and the Qadir brothers— Kamal (current CEO of bKash) and Iqbal (co-founder of Grameenphone). We think the “telco DNA” played a key role in bKash’s success versus competition, which we will go into more detail in a later section.

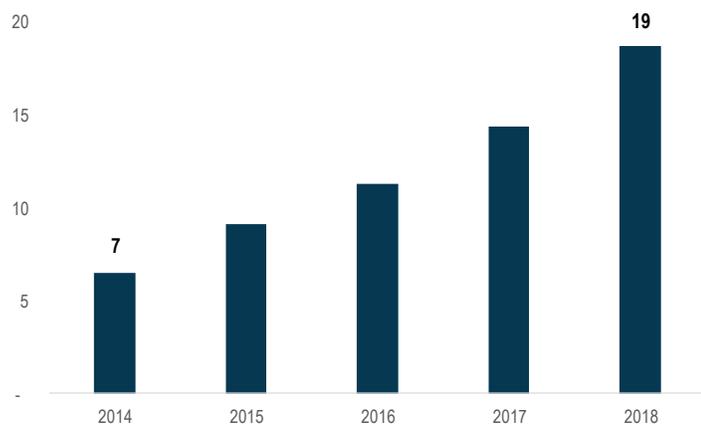
bKash’s initial objective was to boost financial inclusion in the country by utilizing cellphone penetration, which was/is significantly higher than banking penetration. The company initially set out aided by seed funding from Money in Motion (USD 5 million) and a USD 10 million grant from the Bill & Melinda Gates Foundation. After launching operations in July 2011, the company rapidly gained traction, attaining a user base of 10 million by 2013. Over time, bKash continued to snowball and financed growth through dilution, attracting increasingly better partners over time (Table 2).

Table 2: bKash’s funding history

Year	Investor	Mode	Investment (USD mn)	Post-money valuation (USD mn)	BRAC Bank's ownership (post investment)
2013	IFC	12.5% Equity	10	80	51%*
2014	Bill & Melinda Gates Foundation	10% Convertible preference shares	10	100	46%
2018	Ant Financial	10% equity + 10% Convertible preference shares**	89	892	42%

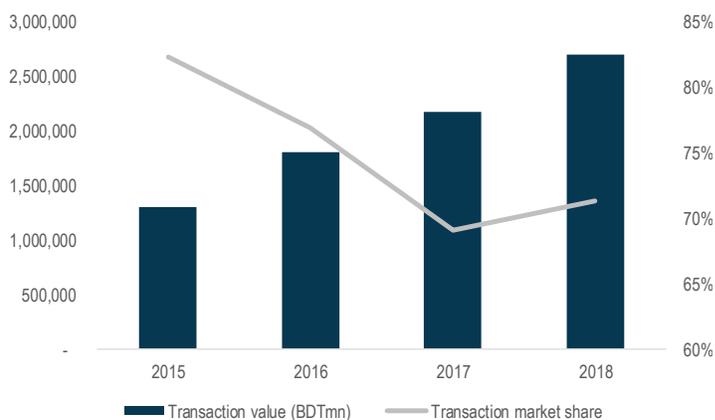
Source: EDGE Calculation and Company Reports \*When equity was issued to IFC, new shares were also issued to BRAC Bank which meant that the bank's ownership stake remained at 51%. \*\*The equity portion represents purchase of shares from IFC and Money in Motion. The convertible shares include both new issues and transfer of shares (from Bill & Melinda Gates Foundation).

Figure 1: Active users (mn)



Source: BRAC Bank Annual Reports

Figure 2: Transaction value market share



Source: Bangladesh Bank, BRAC Bank Annual reports

## Why was bKash successful while others never took off?

In short, it is a combination of bKash being good at what they do, banks never understanding the business well, and telcos never being allowed into the business. In the initial stage, bKash targeted the domestic remittance market, i.e. people working in city centers and sending money to their villages; better known as the “CICO” (cash in cash out) business. Banks in general are not very well connected in the rural areas, and banking penetration in the bottom of the pyramid is quite poor which made transferring and accessing cash difficult via banks. Hence, the key value proposition bKash wanted to pitch was “instant access to cash”, which relied on agent rollout (the primary cash in and cash out points).

The first batch of agents were recruited with the help of BRAC Microfinance (NGO); who gave bKash a list of ~5000 of their best microfinance clients who could be potential agents. This was significant, because not only did it help bKash jump start with a good batch of agents, it also helped legitimize bKash to the agents. On the other side, bKash was able to build (i) compelling incentive structures for agents which ensured a strong presence on the ground, and (ii) market the brand well which was successful to the point of “bKash” becoming synonymous with mobile money. We think both of these attributes are straight from the telco playbook; in fact, many of the initial recruits for bKash came from leading telcos.

On the other hand, banks struggled from the get go. In the initial stages, the incentive structures offered to agents were pretty weak; which led to a series of failed starts. At the same time, banks were not as smart with their branding drives, which led to their product flying under the radar. By the time banks realized what they were doing wrong, the network effect from bKash’s critical mass was too strong. bKash also saw significantly stronger long term monetization capacity for this business than the banks, due to which they were willing to outspend competition many folds; this part still remains true.

In the end, what it came down to was management quality in the two camps. Banks tried to tap into this market by establishing a small “department” within their bank which was no match for the well oiled machine that bKash was.

A threat that initially loomed over bKash was the potential entry of telcos the industry. Till date the central bank has not allowed direct entry of telcos but we continue to believe telcos (i) have structural advantages over bKash, and (ii) eventually telcos (and many others) will be allowed into the game. However, regardless of whether telcos enter the game or not, competition will intensify over time; the longer it takes competition to shape up, the better it is for bKash naturally. This is discussed in more details in a later section.

Currently bKash dominates the MFS segment with >70% market share, and is pretty much the only game in town when it comes to the payments segment (discussed later). In general, we think the existing competition (banks) is not a concern, the key issue is who else will eventually enter the market.

## Show me the money

### Looking beyond CICO

Figure 3 below shows a summary of all the typical payments slabs. In general, any slab which includes “Person” (or P; marked green) is of interest to bKash, as these are transactions to and from individuals and can be considered “retail banking”. Everything else is a payment between government or businesses; these are segments we would classify as “corporate banking”. While there are niche segments where bKash could play (such as SME segment within business— marked blue), the bulk of it is the bread and butter for conventional banking and not particularly interesting for bKash.

Figure 3: Payments grid

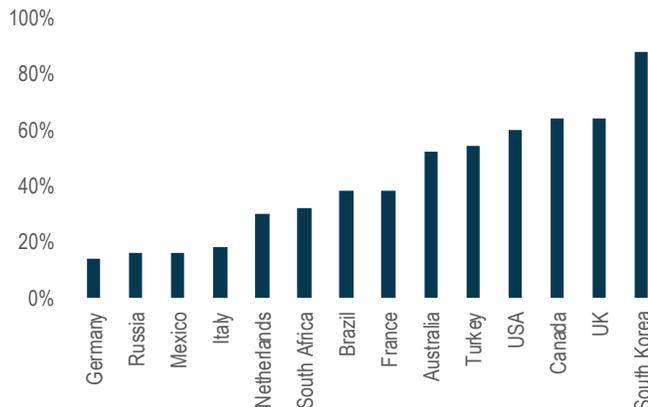
		Payee		
		Personal (individual)	Business	Government
Payer	Personal (individual)	<b>P2P</b> Remittance, Gifts	<b>P2B</b> Purchase	<b>P2G</b> Taxes, Utilities
	Business	<b>B2P</b> Salaries and benefits	<b>B2B</b> Payments for goods and services in value chains	<b>B2G</b> Taxes Fees for licenses and permits
	Government	<b>G2P</b> Welfare programs, salaries and pensions	<b>G2B</b> Grants, Payments for goods and services	<b>G2G</b> Budgetary allocations, funding of programs

Source: Edge Research

## Payments is where the party is at

As discussed earlier, bKash has so far concentrated on the internal remittances market, which is the P2P segment in Figure 3. However, the key area of interest for us is payments (P2B & P2G) where we think the bulk of the monetizable opportunity lies. Post the Ant Financial deal and subsequent launch of the bKash app, the firm has been squarely focused on payments.

Given this is pretty much the segment where credit/debit card firms have been concentrated at, one way of assessing the potential size of this segment is to look at credit/debit card transaction values from developed/emerging countries (Figure 4 next page). This number is less than 1% of GDP for Bangladesh currently (payments is yet to take off).

**Figure 4:** Payments as % of GDP (adjusted for mobile money)

Source: Morgan Stanley, EDGE Research

## What is the money on the table?

Currently, the transaction value as % of GDP for MFS in Bangladesh is ~18%, primarily built on the CICO business. If we simply add the median payments transaction value to GDP in Figure 4 (~38%) to the current ~18% transaction value to GDP, it indicates a potential size north of 50% of GDP for the Bangladesh market. If we assume this can be achieved in say 7 years, and nominal GDP (currently ~US\$300bn) grows at 12% (7% real growth and 5% inflation), we are talking ~US\$330bn of transactions per year.

On current margins, payments operators can generate roughly 25bps of transaction value as operating income (we will dig deeper in later sections); which indicates a rough operating income size of US\$830mn for the industry on US\$330bn of transaction value. There is clearly a lot of value to be generated in this industry, but how much of that (if any) will convert into bottom line profits depends on the industry structure at that point. Simply put, if the industry remains a monopoly like it is today, bKash can bag at least US\$250-300mn in profits after tax. However, if the industry turns out to be an oligopoly, it is possible the business will never be particularly profitable.

If we assume digital payments will be a success (on any level) and bKash will remain dominant, there is clearly quite a bit of upside regardless of how long it takes to achieve this.

Hence, the bKash thesis relies on two fundamental questions which we explore in the subsequent sections:

- 1.) Can MFS eat the credit/debit card pie?
- 2.) What will be the long term competitive conditions/pricing in this industry?

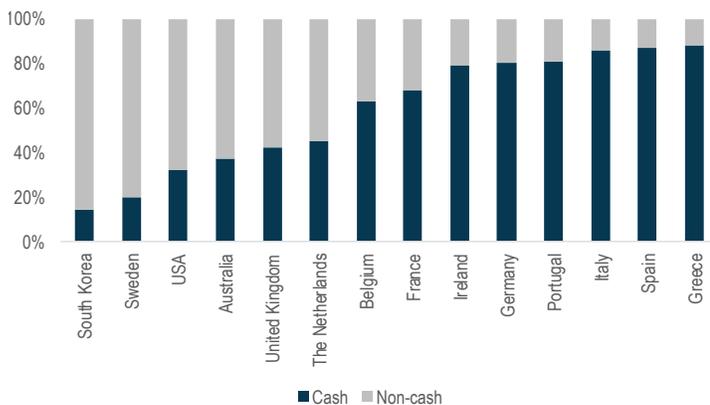
## Developing countries will leapfrog credit/debit cards

### Digital is better than cash

A common question we encounter is why would people in countries like Bangladesh shift to digital solutions when there appears to be strong preference for cash (cash inertia)? Our response is that individuals in countries like Bangladesh prefer cash because alternative options were never available to them.

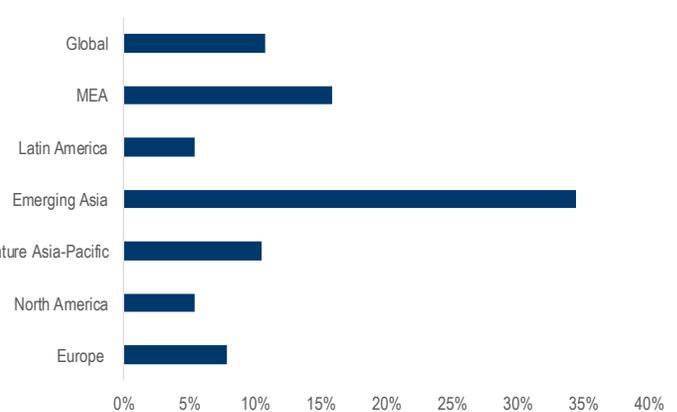
On the flipside, in countries where digital payments infrastructure has been around for a while, the norm appears to be a critical mass shifting to digital payments (Figure 5), which implies people clearly see value in this modus operandi. Bear in mind that the split in Figure 5 reflects transaction volume rather than value. A value-wise split will naturally be more heavily tilted towards non-cash as large transactions are generally executed via non-cash modes. Moreover, as shown in Figure 6, digital payments volumes are growing significantly faster than nominal GDP growth (in any region). Assuming ticket sizes are consistent, this implies digital payments continues to gain significant market share.

Figure 5: Cash v Non-cash split (2018)



Source: ECB Diary Study, BOK Study, Payments UK Diary Study, RBA Diary Study & FedResSys Diary Study

Figure 6: Non-cash transaction CAGR (2013-17)



Source: Capgemini World Payments Report 2018

What explains cases where digital has not taken off? Truth is it is not clear, but we think it could be a combination of (i) large informal economies (Spain/Portugal/Italy/Greece) which rely on cash transactions, and (ii) older population who are more conservative about new tech (we think younger population = faster adoption). Bangladesh suffers from (i), but the government suffers from revenue shortfall as well, which should incentivize a push towards “formalization” of the informal economy and digital is the easiest way to do it.

We also think the correlation between income levels and digital adoption is broken. In the past, this existed because setting up expensive POS networks only made sense after a certain income threshold was crossed. However, whether the users realized it or not, the need for digital was always there. Hence, this was more of a supply side bottleneck rather than a demand side bottleneck.

We strongly believe digital payment solutions are more convenient than cash, and we see the cash inertia as only a short-term issue. After the initial hurdle of digital payments is crossed (15-20 transactions), we think individuals will grow into the new modality. Hence, given the right access to digital solutions, we should see a bulk of payments shift to non-cash channels.

## A card based network is antiquated and unnecessary

Once we assume all countries will eventually take the digital route, the question then becomes what will be vehicle for this change? The traditional route is cash, followed by credit/debit cards and then finally into mobile payments.

We think developing countries will leapfrog credit/debit cards and go directly into mobile payments. This has already happened in countries like China, where MFS has essentially replaced cash. In other countries (including Bangladesh), even if cash is currently the go-to solution, MFS penetration already exceeds credit/debit card penetration which implies mobile payments is winning the digital race. We think this is supported by structural reasons, as detailed below:

- **MFS operators offer better interface experience:** While cards can be intuitive to use, payments platforms have the ability to morph into a “super app” which allows significantly higher use cases and convenience. Hence, instead of tagging the credit card to all apps, it is possible to bring all the apps to the payment app, turning the payment app itself into a marketplace.
- **Rolling out a credit/debit card network is expensive:** The first pre-requisite is banking penetration, and given banks have been slow at adopting newer technologies, in most cases opening a MFS account is easier than opening a bank account due to the faster adoption of E-KYC by MFS operators. The second issue is payments infrastructure, credit/debit card companies rely on point-of-sale (POS) devices which are expensive to roll-out, while MFS operators can rely on QR based networks which are very cheap to roll out.
- **Adding a “mobile app” is not an effective solution:** Credit/debit card companies have also launched mobile app solutions which rely on QR based networks. While they solve the POS device issue, they are still reliant on the banking channel which presents its own set of challenges. These solutions work through mobile banking apps of traditional banks, hence (i) interface experience is not as good, and (ii) the target market is still limited to the “banked” population.

## Why now?

Smartphone penetration in Bangladesh has risen rapidly in recent years to 31% in 2017 (GSMA Intelligence). This trend is expected to persist in the coming years, supported by economic development and income growth— GSMA estimates 75% penetration by 2025. This naturally favors bKash as smartphones are a necessary pre-requisite for e-wallets.

Incentives are needed for inducing behavioral change. Cash inertia works in the same way. Even if digital payments are more convenient, people will not shift to it without trying it out ~10-15 times.. For the first 10-15 transactions, payment operators might have to tag additional “incentives”

through cashbacks, discounts, etc which burn cash (but payback in the long term). Following Ant Financial's ~US\$100mn injection, bKash now has the cash reserves to support this. We believe this will allow the company to carry on its aggressive onboarding endeavors.

Before mobile payments can take-off, there needs to be a "stepping stone"; in developed economies credit/debit cards can play this role. However, for Bangladesh, the CICO business was essentially the stepping stone for payments. With bKash gaining popularity to the point of becoming a verb nowadays (similar to how people started saying "Google it"), we think the market is ready to accept more sophisticated products.

The government also stands to benefit from a transition to digital payments. Revenue collection/increasing the tax net has been a challenge for the government. The easiest way to solve this is move a big chunk of transactions to digital. We think it makes sense for the government to incentivize the digital mode (by say a 5% VAT rebate) purely because of better revenue collection.

## Bangladesh is ready for the IndiaStack equivalent

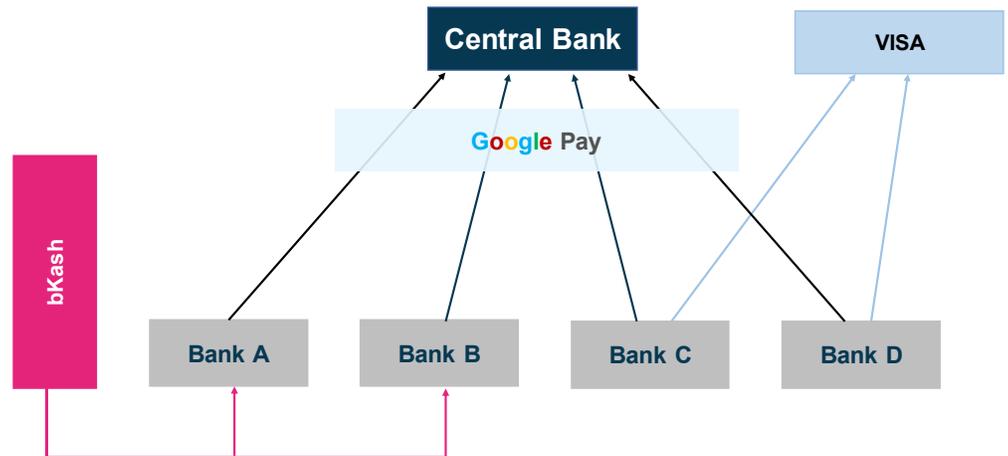
### What is actually needed for a digital payment?

For a transaction to be successful, both the payer and payee need confirmation that the money has been transferred before the goods can be exchanged. At point of sale, this transfer of money needs to happen instantly. Executing this with cash is easy (simply hand it over), but in the case of a digital payment, essentially some bits of information is being transferred from one database to another. In most cases, central bank networks are not advanced enough to transfer this data in real time, hence instant settlement is not available; this forces alternative solutions.

Firms like bKash solve the instant settlement problem by bringing both the sender and receiver within one network (their own network), creating a silo of sorts. This is equivalent to an intra bank transfer (which is usually instant). This allows bKash to not rely on the central bank payment system which is significantly slower. For illustration, when a user pays for grocery shopping using bKash, the money is transferred from the user's bKash wallet to the merchant's bKash wallet instantly. However, when the merchant wants to transfer the money to his bank account (from his merchant wallet), this process takes one day to settle because this relies on the central bank payment network.

Credit/debit card companies also follow a similar approach, which relies on bringing both the sender and receiver on their own network (the "Visa network" for example). Naturally, their network is more complex compared to bKash's, but the idea is essentially the same.

Figure 7: Basic illustration of the payments network



Source: EDGE Research

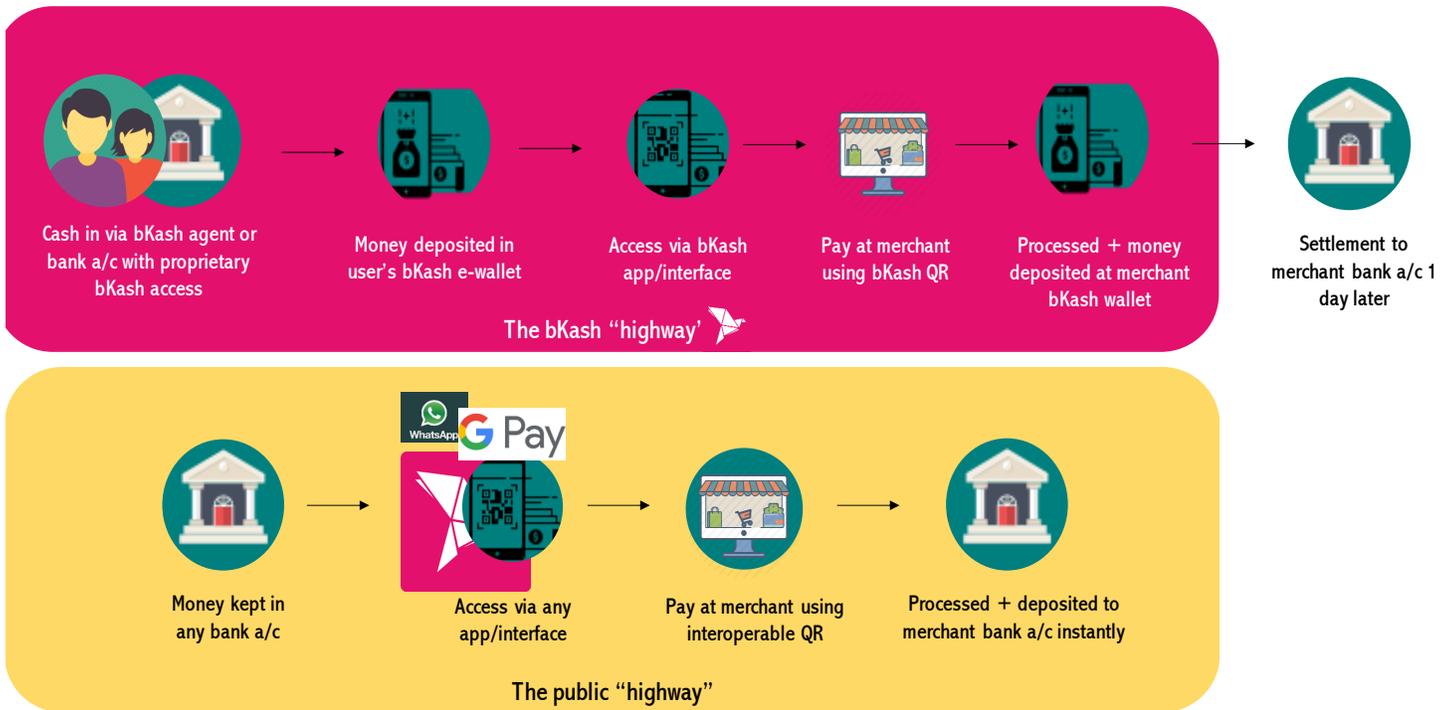
### A "public highway" can shake up the business

The solutions from firms like bKash/Visa/Mastercard etc can be viewed as "private highways" which were necessary because a "public highway" was not available. However, central banks around the world now have the technology to settle payments instantly, hence building the "public highway" is possible. If the digital payments business is simply about monetizing the "private highways", what

happens to pricing power in this industry if a big chunk of the highway becomes “state owned”? We think the payments eco-system will change considerably.

Figure 8 below shows the components of a payments operation. Currently e-wallets own the float, interface, QR codes and processing, but in the future, we think a big chunk of these will either be removed or become “collectively owned”.

Figure 8: Basic illustration of existing vs new model



Source: EDGE Research

In the new model, all an MFS operator needs is an interface and ability to burn cash; everything else is provided by the “system”. Two key components stand out in this:

- **Interoperable QR codes:** Given a payment is simply a fund transfer between two (bank) accounts, it should theoretically be possible to develop QR codes against the unique details of each bank account. One example of this is the Unified Payments Interface (UPI) QRs in India. Payments processors don't necessarily have to “own” these QR codes the same way bKash owns its QR codes, it can simply “use the public highway”. According to media reports, the central bank is already in the process of developing an interoperable QR code and related payment network for the banking channel, termed “Bangla QR”. If this goes through, bKash's merchant rollout end competitive advantage basically goes moot.
- **Instant settlement between bank accounts:** It should be understood that e-wallets (like bKash) hold the float in their system because this is necessary for instant settlement, while the interest earned on float is simply an added feature. Hence, theoretically, if instant settlement is available directly via central bank payment systems, it should be possible to skip the float part and process payments directly from bank accounts. The central bank in Bangladesh already has an instant settlement solution via National Payments Switch Board (NPSB) which could

theoretically be leveraged to develop India's UPI equivalent.

The key disadvantage in the latter model is that it is limited to the banked population. As mentioned previously, banking penetration is low in Bangladesh which poses some challenges. However, two issues need to be taken into account:

- **The relationship is complicated:** The target market for the “CICO” (internal remittance) and payments business is somewhat different. The first is usually unbanked, while the latter usually tends to be a more sophisticated segment which is already well banked, but prefer bKash because solutions from their banks are not up to scratch. Also, we think a key determinant of whether a person prefers to pay via digital or cash is how he/she is getting paid; if the person is getting paid in a bank account, it makes sense to use digital as otherwise he/she would have to take an additional step of converting this digital money into cash; and vice versa. Hence, even if MFS is pitched as a play on the “unbanked”, the irony is that the fortunes of the payments segment (the biggest component of MFS) indirectly depends on the banking penetration.
- **E-KYC can ease some challenges:** It is usually difficult to scale rapidly due to costly KYC requirements. In simple terms, KYC is a two step process, (i) getting the key data points on an individual, and (ii) ensuring the person is who he is claiming to be. With the launch of biometrically verified National Identification Cards (NID; already done in Bangladesh), it should be possible to do both electronically (E-KYC) as (i) NID has all the necessary information, and (ii) cellphone/portable devices offer biometric verification via fingerprint/retina scans to verify the individual. [Media reports](#) indicate the central bank will launch E-KYC for bank accounts in January 2020, hence this is already on the cards.

In the latter model, two new players can enter the game, the first being conventional banks via their mobile banking apps, and the second is pure play interface providers such as GooglePay/WhatsApp etc. We think the latter is more of a concern as conventional banks tend to be weak in developing the “digital experience”, and also lack the cash burning appetite the tech equivalents have.

## Pure play interface providers are the long term competition

### The “new” model paves way for “BigTech” to enter the race

The key difference between e-wallets and pure play interface providers is where the cash is stored. In the case of e-wallets, the float is held in the firm’s balance sheet and they also provide the interface through which the payments can be executed. On the other hand, pure play interface providers only provide the interface to “process” the payment using float that is kept elsewhere; the money can be drawn using cards or directly from a bank account (if central bank payment network offers instant settlement).

E-wallets get paid via both float interest and processing fees, while interface providers only earn revenue through processing fees. For e-wallets, the float portion of the business can be viewed as a separate money market fund.

Interface providers have some important advantages over e-wallets, as discussed below:

- **No “cash in” cost:** e-wallets incur costs when a cash-in takes place; for eg, bKash pays agents 75bps and banks 15bps on cash-ins. This cost is passed on to customers/merchant when a cash-out or merchant payment is executed. Given interface providers don’t require a “cash in”, they could theoretically pass on the savings and undercut e-wallets like bKash.
- **Opening an account is much simpler:** Payments processors work within the banking system, i.e. with money that is already vetted through banks, and they hold no deposits on their balance sheet. Hence, interface providers don’t have to rely on KYC requirements the same way e-wallets or banks do. The only thing required is to connect a bank account with the app. This also makes the banks vs telco MFS argument moot, as the entire debate on whether telcos should be allowed into the game is surrounding whether telcos should be allowed to hold deposits (float), something exclusively reserved for financial institutions in the central bank’s view. With the new model, everyone is invited to the party.
- **Ability to send money to non-account holders:** In principle, interface providers send money from one bank account to another. Hence, as long as the receiver has a bank account, the sender can send money using something like GooglePay (even if receiver has no GooglePay account). GooglePay can then send an sms/email to the receiver saying something along the lines of “Your friend X has sent money to you via GooglePay, click here to access it”, and in 2 minutes GooglePay can have a new user. This directly affects the “network effect” enjoyed by e-wallets. Even worse, interface providers might be able to send money to e-wallets (essentially a bank to e-wallet transfer), but the opposite might not be possible.
- **Easier to onboard banks:** For banks, when a transfer happens from a bank account to an e-wallet, e-wallets present a problem of taking away cheap deposits. In basic terms, e-wallets take cheap CASA from banks and re-deposit them at higher interest rates. Even worse, deposits taken from bank A might end up re-deposited in bank B, which means bank A loses the cheap deposits entirely. On the other hand, interface providers don’t threaten deposits in any way, and simply play a role similar to credit/debit cards. In fact, if a particular bank can be the “banker of choice” for merchants (for SME credit lines for example; BRAC Bank comes to mind), they would

end up being net deposit winners in this eco-system, because regardless of where the deposit originated, they would end up in the merchant wallet.

## Interface inertia is the only long term moat

The difficulty of sending bits of information from one database to another has come down dramatically in the last few decades (and improving still). While firms like Visa and Mastercard had to go to great lengths to develop their card based payment network in the 1990s, this complicated ecosystem is no longer necessary, which opened the doors for firms like bKash. Similarly, further advancements in payment systems can make e-wallets redundant in favor of pure play interface providers.

bKash could theoretically drop the e-wallet model in favor of the pure play interface provider model, or add an option for the latter; allowing it to compete on equal footing. Regardless of how we look at it, a big chunk of the moats bKash currently enjoys will become moot in the future. Below, we discuss both the entry barriers bKash enjoys now, and how these entry barriers might change going forward.

### Current entry barriers:

- **Network effect:** Users can transfer money within network only (i.e. no interoperability), hence if everyone I know is using bKash, it makes sense to get a bKash wallet.
- **Agent and merchant network:** bKash has significantly stronger on-the-ground presence, which allows a stronger existing agent network. The existing agent network can be leveraged for faster ramp up of merchant payment network.
- **Strong brand recognition:** Due to their dominant market positioning and smart marketing. Ultimately, for monetary transactions, trust still remains an important factor.
- **Cash rich:** bKash has >US\$100mn in cash which it intends to spend on promotional offers for its payments business. No other competition has similar levels of capital.
- **Interface inertia:** bKash's current interface is well ahead of anything else on offer in the market. Once users get used to bKash's interface, it can become difficult to convert users.

Unfortunately, if a UPI style platform is introduced in Bangladesh, all entry barriers apart from interface quality become somewhat moot, for example:

- **Network effect:** No longer relevant if interoperability is available.
- **Agent and merchant network:** Agent network is essential for the CICO business, but for payments, this is less relevant because this is essentially an end-to-end digital business; users can load money digitally directly via bank accounts. For merchant network, if an interoperable QR code is launched, it will very likely be as widely available as bKash's own QR codes.
- **Strong brand recognition/cash rich:** Relevant against bKash's existing competition, but if players like Google, Facebook etc. enter the race, this is no longer true.

Hence, what matters in the long run is the interface, as most other competitive advantages are not sustainable.

## Where does all of this put our bKash thesis?

### Not a monopoly case anymore; but right to win exists

Historically, we have maintained that bKash will maintain its near-monopoly position. However, this is no longer the case; we think an UPI style solution is a real possibility in Bangladesh given multiple important players (government, central bank, commercial banks, bigtech etc) have incentives to pursue this. As such, we think the base case should take this into account. In terms of our forecasts, this should mean faster adoption of digital payments, lower market share for bKash and lower overall margins for the industry.

Few things need to be taken into account:

- **Don't underestimate interface inertia:** We think Ant Financial backed bKash can go toe-to-toe against the big boys club (GooglePay/Whatsapp etc) on interface quality. Our bet is that if multiple players are offering a similar solution, we think most users will continue to use the platform they have been using for a while due to platform familiarity. For industries with commoditized offerings and low switching costs, there are examples on both side of the spectrum—(i) ride sharing industry is where it did not work (users simply use the platform that provides best discount at any point), (ii) while online travel booking is where it did work—despite similar offerings, users continue to stick to platforms they like. While on first glance payments seems closer to (i), it should be noted that loyalty programs have worked well for payments (Visa/Mastercard, Alipay/WeChat etc), hence, it is difficult to conclusively answer where this particular industry is headed.
- **Entry barriers still exist in micro-investment solutions:** Investment solutions from payments players typically fall into two categories—either (i) they are built using proprietary alternative risk scoring tools (credit lines/micro insurance etc), or (ii) they simply connect an existing service provider (mutual funds, money market funds etc). For (i), there is an inherent problem—risk management is being done by the payment operator, while the risk is borne by the lender/insurance provider. One solution is exclusive agreements with banks/insurance providers leading to “co-development” of the product. The other solution is the payments operator expanding vertically to take balance sheet risk. In either case, there is potential for novelty which should theoretically provide some pricing power.
- **Full fledged digital bank is the future:** If payments operator have a competitive edge in risk pricing, we think it makes sense to take the balance sheet risk as this basically translates into an “alpha” opportunity. In markets like Bangladesh, it might be difficult to convince existing operators to develop products with “experimental” risk management, which leads to slower or no) product roll out. If the theoretical “bKash Financial Solutions Inc.” can offer proprietary credit and insurance lines to merchants, this could potentially make bKash the end-to-end financial solution provider for merchants. This makes bKash the preferred “bank” for merchants, and regardless of where the customer float originated, it would end up in bKash merchant accounts. This is of course only possible with many regulatory “ifs” and “bKash willing”, of which we have no visibility at this stage. One natural solution is closer integration between BRAC Bank and bKash; bKash does the risk pricing and BRAC Bank takes the balance sheet risk.

However, given this has not happened so far, we remain doubtful.

- **Execution is what matters in the end:** What we have presented so far is a high level assessment using economic moats/entry barriers. However, what determines winners and losers ultimately comes down to execution, which is difficult to analyze at this stage. BigTech might be big, but Ant Financial is also pretty big, and has significantly more experience rolling out payments in developing countries.
- **Hindsight is an important tool:** Given technology wise, Bangladesh is not a front runner in any of this, this allows bKash to observe how things have panned out in other countries and position itself accordingly. What came as a surprise to Paytm might not be so surprising to bKash. We have no visibility on what “pre-emptive strikes” bKash might pull-off, but logic suggests they should have a game-plan allowing it to minimize the “damage”.

In terms of who could be potential competition, if there is one thing clear in this industry, it is that challenges challenge leaders by converting large existing user bases, examples include WeChat in China, Equity Bank in Kenya, Google/WhatsApp in India etc. In a similar vein, key competition could be the telcos (like GP, which has ~80mn users), Google, WhatsApp etc.

## Back to numbers and forecasts

### Take it with a grain of salt

The unfortunate truth is that no one has any great clarity on valuing such firms, and there is no reason to believe we are any different. There are plenty of reasons why this is so, for example, in the past, margins and fee structures of payments were anchored to what credit/debit card companies were charging. That world of “private highways” is no longer relevant, hence margin expectations must adjust accordingly, but we don’t know where they will settle. Moreover, we probably underestimate how quickly things can change in an industry such as this.

Despite the difficulties, any transaction requires an assessment of value (however arrived), hence forecast we must. For this exercise, rather than try to arrive at a “crystalized” assessment of value, our primary objective is to enhance understanding on the key questions which help clients/readers value the business on their own. In the sections below, we will try to answer the following questions:

### What is the market pricing in?

Currently, the consolidated entity (Standalone bank + 42% of bKash + misc investment banking subsidiaries) trades at ~BDT 51/share. If our valuation of standalone BRAC Bank at 2.2x 2019f P/B (BDT 66/share) is even remotely correct, then the market seems to think bKash is worse than worthless (Table 3). In fact, any valuation above 1.7x 2019f P/B (BDT 51/share) for the standalone bank would indicate bKash is not worth anything.

Regardless of how we view the competitive landscape going forward, we don’t really foresee a situation where the entity has no value. If bKash is unsuccessful, the “liquidation” value for a business such as bKash is the acquisition value, which is clearly not zero. On the other hand, if bKash is successful at whatever it wants to achieve, there should be significant upsides to the last deal valuation (~\$US800mn).

Hence, we think the market is fundamentally mispricing this business, which implies a great entry point for a “one sided bet”.

Table 3: Implied valuation of bKash from market data (using BDT 51/share as market price)

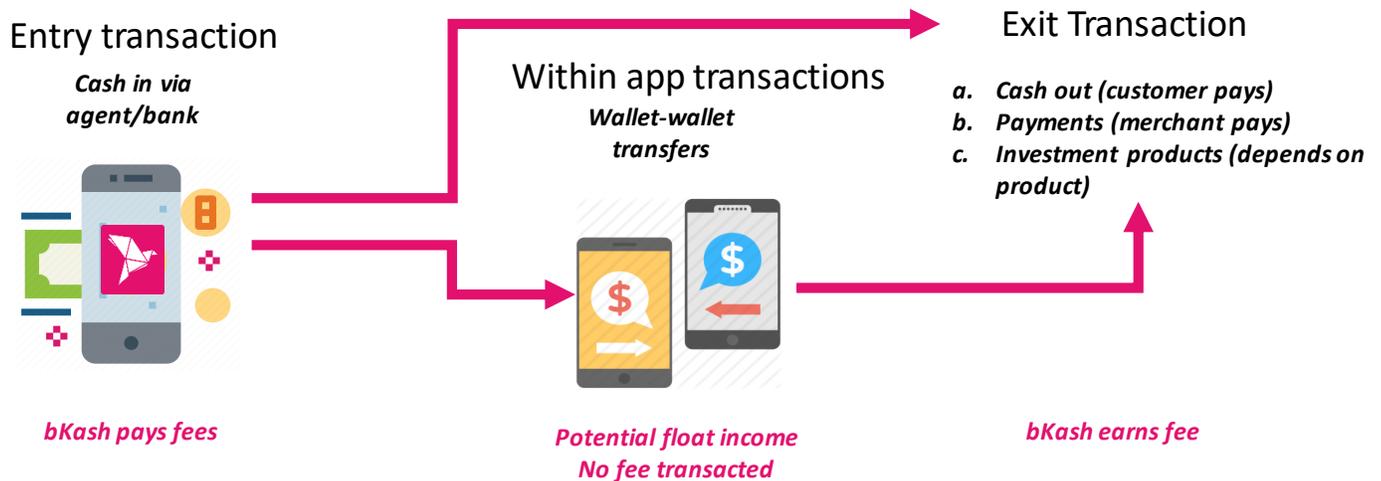
Standalone Bank Multiple (x)	Implied bKash valuation (USD mn)
1.0	736
1.5	212
2.0	(312)
<b>2.2</b>	<b>(521)</b>

Source: EDGE Calculation & DSE

## What are the key product segments?

It is easier to understand the operation if we divide it into three legs (Figure 9)- (i) entry transaction where customer injects money into wallet, (ii) within app transactions (either money stays in wallet or moves to another wallet), and (iii) exit transactions where user takes money out of the system.

Figure 9: The bKash channel



Source: EDGE Research

The first part (entry transaction) involves injection of money into bKash via a bank or agent. Here, bKash pays the other parties such as banks or agents. Once money enters the system, it can be transferred to other users in the (bKash) network. There are no transaction fees charged when money is transferred between bKash wallets i.e. as long as the money stays within the network. It is important to note that bKash does earn float income on this money. The final leg involves money exiting from the network.

This is where bKash earns its fee income. In general there are three types of transactions we would highlight:

- **Cash outs:** This is basically the exit transaction of an internal remittance exercise. In this transaction the charge is levied on the customer, and revenue is shared with banks (if via ATM)/ cash out agent/telcos (if USSD is used). Currently, almost all the money bKash earns is via cash outs.
- **Payments:** Any type of P2G or P2B payments would fall under this category. In this case, the charge is levied on the merchant (payment receiver). However, there are no other counterparties involved, hence bKash can bag a bigger chunk of the fee received.
- **Investment products:** To be clear, bKash has not ventured into this segment yet, but we believe bKash eventually will. We divide investment products into two categories—(i) where bKash simply enables the transfer of funds to an existing vehicle (say EDGE mutual funds), and (ii) where bKash sells an exclusive product, probably developed with some input from bKash (risk management or otherwise). For (i) we basically treat it as payments, but for (ii) the revenue structure can be complicated. In some ways the float income (a money market fund basically)

can be viewed as (ii).

## Expect business to scale and margins to shrink

Whenever we look at margins, we view the transaction in terms of the full cycle, i.e. entry>within app>exit transactions, effectively breaking it down to fee paid, float interest earned and fee earned. Two points need to be understood clearly:

- **Cash in is common:** Regardless of what the exit transaction is, first the money has to be injected into the system via an entry transaction, which means the entry part is common for all transactions. Hence, total transaction value will be at least 2x exit transaction value.
- **Margins should be calculated on transaction value:** bKash reports revenue based on its net fee income (from exit transaction) and float income. However, we think it is more intuitive to use transaction value as the starting point compared to traditional metrics such as Gross and EBITDA margins. Operating income then becomes a function of the amount and type of transactions processed in the system.

Table 4: Margin estimates (bps)

	Cash-out	Payments
(a) Entry [BDT100 transacted]	(74)	(74)
(b) Within App (float)	9	30
(c) Exit [BDT100 transacted]	79	102
Agent	(74)	
Merchant		120
Customer	185	
Telco	(7)	
VAT	(25)	(18)
(d) Total operating income [(a) + (b) + (c)]	14	58
(e) Total transaction value [BDT]	200	200
<b>Margin [ (d) / (e) ] in bps</b>	<b>7.00</b>	<b>29.00</b>

Source: EDGE Research

\*Negative figures imply payment while positive ones are income

For bKash, it is much cheaper when funds are injected via banks rather than through agents (~15bps vs 74bps). Currently, most of the money in the system is coming in via agents, although the specific split is not disclosed (we took agent cash in for margin estimates). Going forward, we think the share of money coming in via banks will rise, hence this should help the cost side. However, we think it is more likely that bKash will pass on this lower cost.

This is because the primary competition going forward is likely to be end-to-end digital operators, hence their cost of “cash ins” should be lower (or zero). If bKash wants to compete, it will likely have to match the charge structure offered by the competition.

- **Cash out:** bKash’s margins from this mode is fairly modest. We think bKash has the leverage to

cut agent margins, but they choose not to as (i) bottom line is not a priority at this point, and (ii) they want to convert their agent network into a merchant network. Overall, we don't see margins changing significantly. The current ~18% of GDP transaction value is almost entirely made up of the CICO business. Growth wise, if CICO is simply a play on the unbanked population, it should plateau and go into a decline within the next 5 years as banked segment increases. We don't see a compelling business case for this segment in the long run; but this retains significant option value due to it being a "stepping stone" for more sophisticated products.

- **Payments:** This mode is significantly more profitable as bKash does not have to share any fees with agents or telcos (transaction done via app) during the exit transaction. Also, float income is higher as the money stays in the system for a longer period. In general we think bKash will reduce margins in this segment going forward, i.e. charge on merchants will decline faster than weighted average cash in cost. We think the potential size of payments is at least 30-40% of GDP, while currently the payments industry generates <1% of GDP as transaction value. Going forward, we think bulk of the growth will come from this segment. As such, given the higher profitability and growth opportunities for this segment, bulk of the potential enterprise value for bKash comes from this segment.
- **Investment products:** For (i) type investment products, margins should be the same as Payments. But for (ii) margins should be relatively higher, as there is more value addition/pricing power from bKash. Growth wise, we would guess this segment can generate at least 5% of GDP in transaction value. However, for the purposes of our forecasts, we have not incorporated any cash flows from this segment, due to lack of visibility.

## Operating expenses are the "wrecking ball"

Tech-based businesses are generally scalable. That is to say the operating incomes of these business typically grow at a faster rate than operating expenses. However, this scale benefit is yet to be reflected in bKash's numbers as the company's opex continues to curtail the bottom line.

It is easier to explain why if we divide the opex into two parts:

- **Opex on "current business":** The day-to-day costs of running the business, key point being these are the opex incurred to generate the current business, and not the future business. These costs tend to be upward-sticky and do not increase in tandem with scale.
- **Investments disguised as opex:** The key point to note is that these are costs that are primarily incurred for future revenue, hence closer to the nature of investments. At the very least, the entirety of economic benefit against these costs are not enjoyed in the current year. Promotional and tech development (human resources) costs are a primary example of this. Promotional costs are incurred based on "lifetime customer value", but expensed entirely. One way of looking at it rests on our thesis that a person will shift to bKash if he/she can be induced to use it ~15 times. If bKash wants to convert say 30mn users, and incurs a cost of BDT30 each time, we are talking roughly BDT13.5bn (US\$160mn). We know bKash has a promotional war chest of ~USD100mn which it plans to burn over 3-4 years. "Burning" should theoretically refer to free cash flows, hence to burn US\$100mn, bKash will have to give out promotional expenditure to the tune of US\$170-180mn at least. Moving on to human resource costs, bKash has been investing heavily in hiring high-skilled personnel who specialize in back-end

technology. If bKash is in the business of simply monetizing its tech, then its human resource expenditure on building back end systems can be viewed as a CAPEX.

The key takeaway here is that a sizeable portion of bKash's present operating expenses are actually investments designed to deliver future returns. We expect these outlays will eventually normalize and pay dividends. When that happens, the scale benefits should be significantly more noticeable.

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