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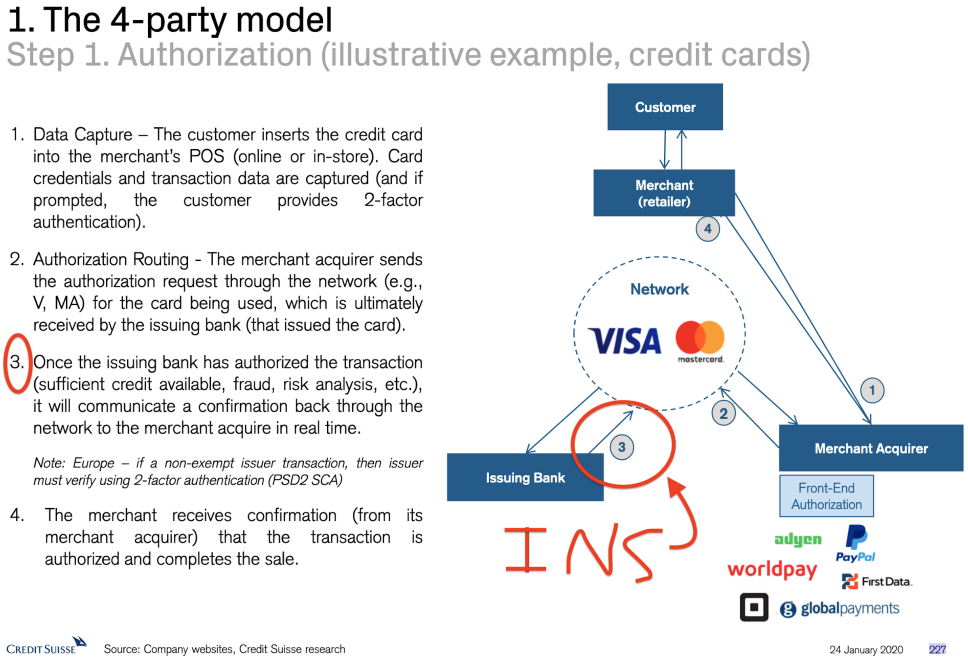
3/20/2021

Can Intelligent Systems (INS) be worth 10x more in a decade?

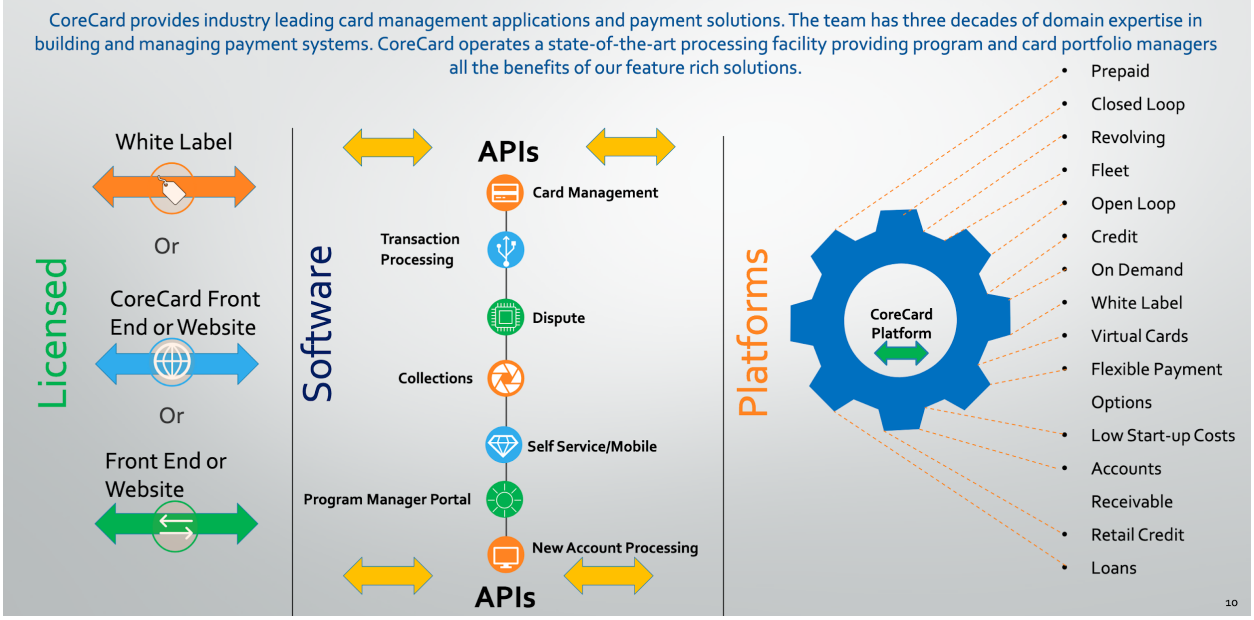
It's not immediately clear that Intelligent Systems is undervalued today, but it does have the makings of a potential multibagger:

- Large TAM: payments > GDP!
- Attractive margin profile: 20-30% profit margins while not at achievable scale
- Ability to win growing amount of new business and take share from incumbents
- Incentivised management

What they do is process payments on the end of issued cards. There's a lot of processing to be done when someone pays for their lunch using a credit/debit card and a portion of that falls on the end of the bank that issued their card of the hungry customer in order to verify funds, prevent fraud, and give the green light to the rest of the moving pieces.




In addition to goalie, they are also the manager for the issuing bank, taking care of oversight for all accounts which means producing statements, deciding who is or is not delinquent, and calculating payments due. They sell these services either as a license/white label tool (what Goldman uses in order to provide services to the Apple Card) or as a suite of APIs that can also be processed by the company. Licensing usually entails customization done for the system to mesh with the rest of their customer's backend and additional feature requests. The API side allows customers to fit CoreCard in where needed for their use case or to have INS manage the process entirely.

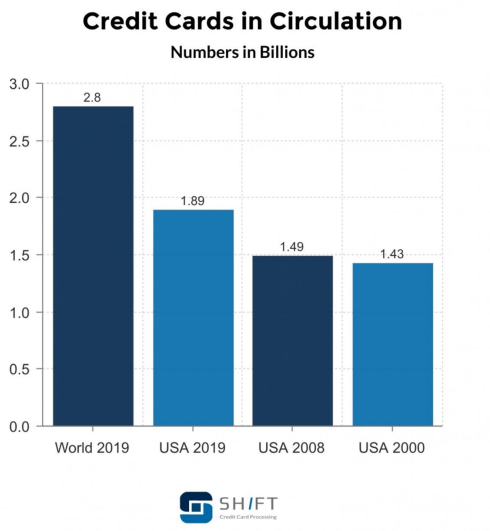



The first driver of growth is obviously signing up clients to use their service. That's where they get paid for support and to develop new features, which they can later add to the platform at large. From there it's hinged on account growth and usage. Note that this is a call on the number of users of credit, but not their extent of use since they aren't receiving any variable take depending on ticket size. For a company like Visa, variable take (interchange) makes them great - probably the best business in the world - given that the expanding use of credit/debit is essentially written in the stars and they receive their share of that total use for 0 marginal cost. But for INS, account-based pricing is purposeful, and may be what sets them apart from peers. As CEO Leonard Strange explains:

> I sometimes hear from an investor or analyst, why don't you get paid by the transaction? Or why is your revenue model not built around sharing interchange? You'll note our revenue model is more skewed to the number of active accounts. We'd rather give up the upside that the other models provide and hedge the downside that's provided by our model. You will see less downside in recession and perhaps less upside in a boom with our model, and I emphasize the word perhaps. But this is the reason that our revenues are likely to remain fine despite the lower volume of transactions in this kind of market.
> -Q1 2020 Earnings Call

As such, growth is going to depend on their ability to add customers who share their incentive in adding accounts. The total market size food issuance solutions in the US is estimated at $7bn. Credit Suisse sees this as $15bn when considering immediate value add services that can be filled for the

issuing bank (aka their customer). INS also has a share of their revenues coming from Europe and offices in India and Dubai (acquired from Wirecard) so obviously has their mind set on international markets where the opportunity is larger and growing faster. The true TAM would probably be some % of the world population * the average amount of cards per person * the fee per account - but this isn't realistically addressable nor where they are fishing.




Overall, 87% of worldwide and 86% of US transactions remain uncarded. Of that, 32% and 29% are cash and check transactions - the most immediately addressable market (ACH is the remaining category). And, while in the US people may have more than 2 credit cards per person (+ a debit, which INS also works on), they may have even more payment accounts that operate the same way. For example, when you order groceries to be delivered you select them and then pay. From there it will be routed to someone to pick out, pay for, and deliver. Then that person must be paid. The short timeframe between you paying for the items and the grocery store being paid is essentially a line of credit - you just pay more for the delivery and other fees. Essentially any payment made by consumers where a monthly statement is provided is within INS's realm of expertise. These transactions are increasingly complex and increasingly common and hits on what INS actually does in the market dominated by incumbents.

When I first began to look into this company I thought it was pure marketing whenever I saw them described as "specializing in complex credit solutions" because credit IS complex - how is it remotely possible that this tiny company was going to compete with payment giants, across the ecosystem, who have already signed up every customer in the market already, and who have all the

means to implement any feature that INS boasted in their presumably fluke win of the Apple Card business? Then I started to do research.

It's true: credit IS complex. It's also true: credit is getting more complex. Leonard gives a more depthful overview of their business in 2018, emphasising flexibility and scale:

> In simple terms, it maintains the relationships between an account. **An account can be a person, a company, a vehicle or any number of things and with a currency.** And **the currency can be dollars, rewards, gallons of gasoline or any number of things** So that software is generally productized most often around what's commonly called a card management system or an account management system that provides account personalization and life cycle management of a credit account. It is a robust financial transaction engine that can be used many ways and for many purposes. And it can have very complex programs, which are sometimes called schemes and complex terms. Ways to have credits that have not even been dreamed up, or some people say dreamt up, can be parameterized on the system. So it -- again, we take this robust, real-time financial transaction processing software and productize it. A majority of our revenue that was generated this quarter and also this year came from customers who have licensed our issuer processors system that we call CoreISSUE. So that's a product, an issuer processor system. It's a software system that a bank or a program manager of a bank uses to issue a prepaid or credit card to a consumer or to a business. **CoreCard software has a complete process starting from embossing, which means ordering the plastic card if it's not virtual, keeping all the rules that surround the use of the card, authorizing or declining transactions real-time, [straightening] of the customer accounts, which may include calculating interest and rewards. The accounts or cards could be debit, credit, prepaid, gift, virtual. They could be revolving credit, plain charge or could be installment.** The software then does the reporting and settlement with the networks for the issuing banks and the program manager.
>
> -2018 Q3 Earnings Call

As use cases expand to suit consumer needs, the demand for real real-time processing grows. That's where CoreCard shines brightest. Anecdotally, with the Goldman Apple contract, it seems that the incumbents could offer the needed services, but not on a timeline that would work.

The question is begged - why can't other players simply do better? The $50m touted as the visionary investment to create what CoreCard is today is a rounding error for the giants. The first factor is time. Call it 2-3 years to get to INS. That's time to win sticky business and grow into their valuation. Contracts, once signed, can grow substantially since the incentive of their customer is to add their own customers, so continuous wins of INS customers are less pertinent if their existing partners are doing the work for them. INS currently has 0 marketing or sales employees.

Next, the market simply isn't that attractive given the scale of these players. At their touted $7bn TAM, much of that is already locked up and unexpected to be poachable. It's only growing 2-3% a year, which is simply not going to be worth the effort given the undertaking required. This is also why

the big bucks are made on the side of payments supporting merchants - since you have to incentivise consumers to use cards so merchants can be later taxed. It should be entirely free to use your basic credit card but will cost the seller of whatever is bought. So looking at their competition, almost all have their focus in some other side of the payments stack.

Some of the merchant acquirers, like Stripe, even issue cards for their customers. There still lies a difference in the two capabilities since the consumer side needs to verify funds, prevent fraud, and handle loans in statements. The merchant side is also generally more debit-based, providing solutions for fleets and companies like Instacart. INS, in contrast, has built their APIs to focus on consumer account management, going all-in on this unloved and underserved niche. It's not a reason bigger players can't compete - but why they probably aren't especially inclined to. The fight here, given how issuers simply cannot have any disruption to their services, is for the marginal customer - the 2-3% growth. INS should be better equipped to win that business, given how the marginal demands are leaving the wheelhouse of incumbents.

On these marginal customers - is the opportunity really there? It's essential to remember that CoreCard's customers are the credit card issuers - not the businesses that want to issue their cards (Apple). And, not every business is going to have cards being issued - at their core, INS is simply a customer credit solution that can be applied to cards. For example, likely through board relations, one of their customers is ParkMobile, a company that allows you to pay for parking via your phone. It's unclear exactly what INS does here, but can manage account payments or the customer statements that are delivered. That's the beauty of an API-derived solution: it puts the power in the hands of the user instead of the developer. ParkMobile is more of a fringe case. Some of the more traditional customers are Kabbage, which provides small business loans (acquired by Amex), Deserve, a modern card issuance platform, and obviously Goldman Sachs, the issuer processor for Apple that is currently licensing INS technology.

Starting with Goldman, this is actually a unique agreement they have given that they are licensing their technology. Instead of getting paid per account, they receive recurring maintenance revenue, "repeating" product improvement payments, and lump-sum milestone based license payments (based on the number of users). INS has said in their 10k that they are moving away from licensing due to poorer scalability for years, even before the Goldman deal. It was definitely too good to pass up. The benefit that comes from this deal is the proof of concept, allowing them to sign up future customers in the processing services segment - more aligned with their growth. Further, any improvements demanded by Goldman (via their customers) are paid for, adding more to INS's offerings. R&D who? Apple was Goldman's first foray into card issuance. They recently acquired GM's cardbook and are eyeing Jetblue's. All of this benefits INS in the long run since they are tired to

Goldman's total account numbers, not just one program. Additionally, maintenance revenue is tied to the tiers. So even if they are only getting one payment for crossing some milestone, it increases their recurring revenue in perpetuity.

The other customers would fall under the "Processor Servicing" flag of the business. INS essentially gives them access to their APIs, some help getting started, and then earns based on the number of active accounts managed. This is the exciting part of the business. INS is like shoelaces. Different brands of shoes will all use shoelaces to create the best shoes to enable runners. Runners will buy those shoes and try to win their races. INS is an enabler. They help platforms help customers grow their business. The better these parties do, the more INS is paid. And it just so happens that they might have a sprinter.

Deserve is a digital-first credit card platform that uses Celtic Bank to issue its cards, since the networks only allocate the 16 digit numbers to banks. It created its first card as a solution for those with no credit history, particularly students. I actually used their card in college and had no issues at all - they even offer cashback. Today they see themselves as a "credit as a service" platform. They have built an agile solution for their own card, so why not lease out that technology to interested parties? That has meant creating wine enthusiast cards, crypto cards, and women empowerment cards. To these credit card hopefuls, Deserve offers the needed bank partnerships and a balance sheet (with Credit Suisse and Goldman). These large advantages pull customers in, adding their own clients, indirectly using CoreCard.

Deserve has also partnered with Marqeta, an issuer and processor that was previously only focused on the simple debit market. They have partnerships with Uber, Square, and DoorDash, likely due to their similar API-first approach. Deserve helps provide the Marqeta customer with the 16 digits and manage customer accounts while Marqeta manages the use of the card, including modern solutions like just-in-time funding and expense management. This combined entity has the power to bring in the next Apple Card deal. I'll eat my hat if Square, a current debit customer of Marqeta, doesn't offer both merchants and consumers (via CashApp) credit cards in the next 2 years. If digital-first solutions are the future for credit, INS has a call (on account growth) through this entity best equipped to capitalize on it.

It's a large envelope but it's not hard to see why this works. The company sees a path for 25% topline growth for a couple years. At ~20x EV/EBITDA and 35x P/E the stock is fairly-to-undervalued based on how long that can continue. But that's just okay. Can this thing 10x? I think it might have some gas in the tank. Here's why:

1. Margins fell 10% in 2020 as they built out another office in India and increased their headcount. These are fixed costs. Margins went from 30% to 20% on only $35m in revenue.

Imagine what they can do at scale. That's revenue growth and margin expansion working in tandem to break your model's estimates more than a year out.

2. Say that 10x sales is a fair multiple. I think it is, given their margins. It's a $7bn market. Say the $7bn is all accounted for. They only have a fight for the 2-3% growth. That's still $210m in annual potential revenues that they are probably best equipped to snatch up. That's on their $35m base. Their purported $8m in annual revenue growth now seems like it's due to accelerate or at have a longer duration than we may think. A 10x is $350m in revenue. Seems possible, especially considering we are only thinking domestically and this business already has major operations in India and Dubai.
3. 2-3% market growth is looking backwards. Possibilities were limited and slow to be realized. Today's customers have ripped off a band-aid in making their credit demands possible. Tomorrow's customers have much more to work off of. The Deserve-Marqeta team is well-positioned to win new contracts and usher Marqeta's current clientele into credit. Even their business with Goldman has legs as they move into the consumer banking business, providing loans and cards. Their acquisitions of cardbooks is how that $7bn may be targetable after all.

But here's why it crashes and burns:

1. Incumbents are quick-to improve. Superior scale picks up new business with ease. INS is left with their current clientbase and you've paid 20x and 35x for a no-growth company with attractive economics.
2. A modern API-forward merchant acquirer like Stripe sees value in adding this part of the payments process to their stack.
3. Non-recurring revenues dry up. A significant portion of INS's revenue is derived from Goldman outside of the base-rate. An example of how this happens is the Apple Card stops growing and the need for new features significantly slows. It's been a few years and $20m of their annual revenue came from this "repeating but not recurring" professional services category. There may come time where the card is more or less done.
4. A cool 69% of total revenues were from Goldman. That's a lot! What happens if they want to switch or go in-house?
5. Unit economics significantly worsen. The big 3 are in the 15-20% range. INS is able to use their India offices to upstage them, but with scale they may have to rely less on comparatively cheaper labor. We would normally expect poorer margins in earlier stage companies.

I like the stock. The CEO likes the stock, too. Lealand Stange has consistently owned over 15% of the business throughout it's almost 2 decade long history. He built CoreCard and knows what it can accomplish. He also thinks that shares are undervalued relative to other fintech companies and has shown a willingness to buy back shares on the open market. Currently more than 10% of the current market cap sits as cash. If we believe in the aptitude of management, and see that this 20%+ ROIC business is finding value in their own shares (only to the tune of $1m in 2020), that's a strong signal.

Ultimately, in weighing the risk/reward here I think that it's best to see what's in arms reach for propelling INS's story forward:

1. If the business continues as is, with ~20% topline growth and 20-30% operating margins, it's a buy.
2. Goldman is adding clients to its consumer loan business quickly, partnering with Amazon and Walmart in addition to the acquisition of existing cardbooks. The Apple Card is still adding users (probably ~5m today) and has international expansion left on the list.
3. Deserve itself has many promising partnerships that are bearing fruit for INS. Their partnership with Marqeta expands the playing field exponentially. Marqeta's existing customers, like Square, will have credit aspirations that can now be filled. Uber, for example, already has a card out via GreenDot's GoBank. Businesses want you using their cards because it keeps you in their network. Those of yesteryear were satiated by ADS and other simple programs. Companies today, like AirBnB, Google, and Square, have the same aspirations but need more.
4. Bank charters have become a hot commodity, as it's needed to issue cards and underwrite credit. As a result, almost all of today's fintech darlings have some previously unloved bank that now demands a premium multiple, proving the market to laggards. That's one incentive to modernize. Another might be that 75% of COBOL programmers will either be dead or retired by 2025. First it rains, then it pours.
5. Account growth, seen from a traditional lens, still has room to grow. Modern uses greatly expand the playing field. You still may only have 2 credit cards and a debit, but your parking app, fleet card from work, and small business loan still count.

INS's current client base is already attractive and capable of fueling growth for years to come. I can only imagine what their pipeline may bring.

## Appendix

A customer goes online to Bass Pro Shop to buy a $3,000 pontoon boat. When they're checking out, an app asks, if they would like to pay over time. They're given a choice of 12 months, 24 months or 3 years. And that's based on the size of the purchase and with instant scoring of credit. The customer can click for details and see 12 months is at 8% interest, 24 months is 10% and 36 months is 12%. Different customers also may get different offers that get different interest and/or duration, length of loan, based on a scoring algorithm. And they can see what the monthly payment will be for each plan. So in this case, the customer chooses 36 months at 12%. Now that's simple enough, most installment loan platforms can do all of this up to this point. But let's go on, 20 days later, he goes online again with Bass Pro Shops and buys a new motor for his pontoon boat. The price is a $1,000, and he's given similar options for paying over time, but Bass Pro Shops and the motor manufacturer will subsidize the interest on this purchase and offer no interest. The customer then chooses between 6- and 12-month plans and he accepts a 12-month plan at no interest. Of course, if he fails to make timely payments, interest or fees will be assessed later. And then the customer goes online the next month and buys fishing gear for $500. The offer is 6 months at 6% interest. He now has 3 loans. Most loan platforms can handle 3 or any number of separate and distinct loans. But is it really very customer-friendly to send out 3 statements and expect him to make 3 separate payments? Of course not. And ultimately, everything gravitates to the most customer-friendly solution. CoreCard combines these loans into one statement. There's still 3 loan plans because each is different. That sounds simple enough. But if you give a customer one payment amount, there are regulations, called Reg Z, that require you to inform the customer what the APR, that's annual percentage rate, is in a combined form. Here, we have interest rates of 12%, 0% and 6% with durations of 36 months, 12 months and 6 months. CoreCard presents one statement that aggregates the required payment amounts and computes the APR for the combined loans. And guess what? When he sends in his check, he sends in the wrong amount and sends the check 10 days late. Oh, oh, computer, what do I do? To which loan do we apply his payments and which loan will be delinquent because he underpaid? CoreCard has rules and algorithms that spread the payment over the proper buckets to stay in compliance with debt regulations and loan agreements. The software determines where to apply interest, fees and principal and at what amounts to each loan plan. Remember, one of these loans was interest free. That's complicated enough, but on the 59th day, he has 60 days, by the way, to make any returns. On the 59th day, he returns the motor to Bass Pro Shops. And the check he sent in on day 60, by the way, for the wrong amount, it gets returned and insufficient funds 3 days later. This is where the rubber meets the road, so to speak, as far as handling a complex transaction, while staying in compliance. A payment reversal has to look at the plans again, just like the payment did and reestablish the proper billed-not-paid amounts and also generate appropriate fees, again staying in compliance with regulations. I guess to get really exciting, let's do a return followed by a payment reversal for the customer that has over 100 loans on their account. And yes, we process for a unicorn that has an account just like I described, with over 100 loans on the account. Oh, did I say we could also add a standard revolving account to the loan account that incorporates minimum payments? So CoreCard generates all the documentation necessary for the loan, that's loan agreements, welcome letter, temporary shopping pass, et cetera, and we have integrated collection software that keeps up with the required collections.

When collecting, one often waives certain penalties, they re-age the loan and report to the credit bureaus. And then he might want to securitize one part of one loan and sell it off or move the loan from one bank to another and reissue the loan agreement, or the CFO wants to look across all loans of a certain type and project in the future how much interest or fees are coming in for each month the next year.

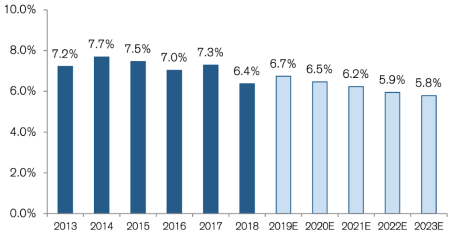
Q4 2018 Example

## 28. Issuer Processing key drivers and overview

### Card issuer processing seeing stable volumes and TAM additions

- Traditional issuer processors enable banks to approve card transactions and can provide end-to-end card services, with key functions including:
  - Outsourced authorization and settlement of card transactions
  - Card production, billing, and statement printing
  - Operating customer service call centers
- Key drivers of issuer processing revenues are (1) account growth and (2) transaction growth
  - Number of customer accounts: Receive monthly service fees based on the total number of active customer accounts
  - Card transaction growth is expected to remain in the mid-single digits through 2023E
  - Credit is generally more economically sensitive than debit
  - Note: This is how traditional issuer processing fees are earned – modern issuer processors (e.g., Marqeta) do not charge fees directly to their customers – rather, they share in the interchange earned (i.e., are not compensated by the issuer on a per account or transaction basis, rather via a revenue share)
- $15b+ traditional issuer processing TAM
  - Core TAM: ~$7.4b growing ~3% CAGR long-term, based on spend by card issuers on processing costs that are currently or can be outsourced
  - Expanded TAM: $8.5b additional value-added services that card issuers spend on digital experiences, self-service, digital marketing, and customer acquisition and commercial payments

**US card transactions have grown in the ~6-7% range and are expected to sustain mid-single-digit growth (account growth & transaction growth are revenue drivers for issuer processors)**




**TSYS sizes the issuer processing market $15b+ when including expanded services that card issuers spend on digital, customer acquisition, etc.**


Source: Company data, Euromonitor, TSYS, Credit Suisse research

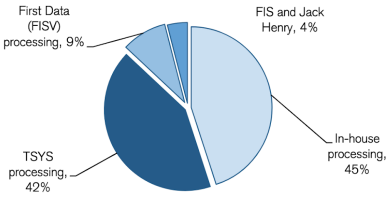


## 28. Issuer Processing key drivers and overview

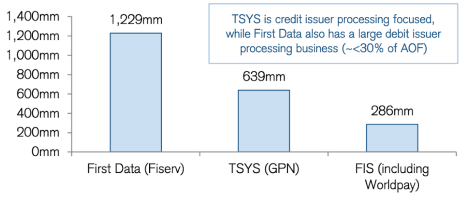
### Concentrated market in credit issuer processing, less so for debit

- Credit issuer processing is dominated by TSYS (Global Payments), which maintains ~40% share, processing ~40% of all US Visa and Mastercard accounts, including ~90% of their US commercial credit cards.
- For larger financial institutions, TSYS, First Data (Fiserv), and FIS (including the legacy Worldpay issuer processing) are the key players.
  - TSYS is focused almost exclusively on credit issuance and larger issuers (although we could see TAM expansion for TSYS further into debit and/or by engaging with smaller issuers on a select basis).
  - TSYS has dominant share in the US (8 of the top 10 issuers), Canada (7 of the top 10 issuers), UK (6 of the top 10), Ireland (4 of the top 5 issuers), and China (JV with China Union Pay), along with the second largest issuer processing business in Western Europe.
- For smaller community banks & credit unions, Fiserv (legacy Fiserv), Worldpay (legacy issuer processing), and Jack Henry are the more common providers.
- Additional players more in the "modern card issuance" category include Marqeta, i2c, Stripe Issuing, InComm, Galileo, CoreCard, and others.


**US credit card issuer processing market share data based on number of accounts (estimated), with TSYS the clear leader (largest competition being in-house processing)**




**By accounts on file (credit and debit) on a global basis, First Data is the largest base, while TSYS is the leader in US credit issuer processing (and in Canada, UK, Ireland, and China [JV with CUP] and is the number two business in Western Europe)**




Source: TSYS, Company reports, Credit Suisse estimates

# 30. Modern Card Issuance Platforms

## Enabling any platform, brand, or FinTech to issue cards

- Card issuance is no longer just for traditional banks (e.g., Chase, Bank of America, Capital One) and large merchant co-brands (e.g., Delta Airlines, Marriott , Costco).
- Platforms and service providers ("modern card issuance" technology companies such as Marqeta, Stripe Issuing, i2c, Green Dot, Galileo Financial Technologies, etc.) are now enabling any company or brand to issue cards across a wide range of use cases, including:
  - Employers (to employees for smart expense control)
  - On-demand platforms (for couriers)
  - Challenger banks ("Neo banks")
  - Core payments & P2P platforms (e.g., Square, PayPal, Venmo)
  - Additional FinTech issuers (e.g., Transferwise, Betterment, etc.)
  - Brands (for customers, i.e., loyalty, engagement)
- To date, modern issuer processing platforms like Marqeta have been more focused on new channels of card issuance (FinTechs, brands, etc.) vs. traditional banks, although we believe that both could begin to win portions of larger traditional issuer portfolios (which would be meaningful business and a positive for Marqeta and/or i2c, but likely *di minimis* for the likes of TSYS, FIS, and FISV.

**Technology platforms and FinTechs are partnering with licensed card-issuing banks (typically smaller, Durbin-exempt) to issue cards (typically pre-paid debit cards) for employees, contracts, and customers**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| COMPANY | Betterment | wealthfront | STASH | acorns | N26 | TransferWise | NOVO |
| PARTNER BANK | GBC | green dot | green dot | Lincoln | axos | CFSB | Middlesex Federal |
| COMPANY | Square | Cash App | Uber | PayPal venmo | chime | Current | zero |
| PARTNER BANK | SuttonBank | Lincoln | green dot | The Bancorp | The Bancorp | Metropolitan Commercial Bank | EVOLVE |



# 30. Modern Card Issuance Platforms

## The four roles (and key players) in modern card issuance

- Green Dot is the only player that has offerings across all four capabilities and expands beyond cards (BaaS).
- Often times, the issuer processor and program manager are the same (e.g., Marqeta handles both).
- Additional players are the networks (Visa, Mastercard) and, at times, a distribution partner (e.g., Blackhawk).

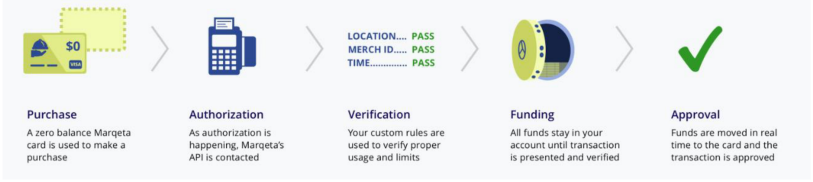
| Non-bank issuer | Issuing Bank | Issuer Processor | Program Manager |
|---|---|---|---|
| • Owns the cardholder relationship (e.g., employee, contractor, consumer)<br>• Marketing and/or distribution of the cards (sometimes through a distribution partner) | • Holds an actual bank license<br>• Final approval on account creation (i.e., risk tolerance on NSF, fraud)<br>• Typically a more minimal role, but cobrand issuers (e.g., SYF, ADS) can be more active in marketing | • Routing of card transactions for approval (including advanced rules for case-specific approvals)<br>• Account number & card generation<br>• Offer APIs to developers | • Oversees P&L of program, along with fraud and compliance<br>• Maintains relationship with issuing bank and card networks (V/MA)<br>• Earns the largest portion of interchange on smaller programs |
| Examples:<br>• DoorDash<br>• PayPal & Venmo<br>• Uber<br>• Square<br>• Green Dot<br>• Walmart<br>• Hyundai<br>• Apple | Examples:<br>• Green Dot Bank<br>• Axos Bank<br>• Sutton Bank<br>• Cross River Bank<br>• Lincoln Savings Bank<br>• MetaBank<br>• Evolve Bank & Trust<br>• The Bancorp Bank | Examples:<br>• Marqeta<br>• Stripe Issuing<br>• i2c<br>• Green Dot<br>• Galileo<br>• InComm<br>• CoreCard<br>• Large-caps FISV, FIS, GPN/TSS | Examples:<br>• Marqeta<br>• Stripe Issuing<br>• Green Dot<br>• Galileo<br>• Fiserv, FIS, & TSYS<br>• NetSpend (GPN/TSYS-owned)<br>• I2c<br>• BREX |

# 30. Modern Card Issuance Platforms
## "Smart" controls on card transaction approvals

- An increasing use case provided by modern card platforms is the placement of smart controls on transaction approvals. Generally speaking, controls on cards can be placed at three difference levels:

1. **At the network level** – Visa and/or Mastercard are able to stop a transaction before it reaches the issuer for an approval decision (e.g., "no international transactions").
2. **At the issuer (issuer processor) level** – Certain Merchant Category Codes (MCC) can be turned on and off or purchase caps can be placed over a time period (e.g., a dollar amount that can be spent at a certain location over the course of a week). Fuel cards are another example (e.g., may enable only fuel, supplies, and vehicle maintenance-related MCCs). All issuer processors can restrict MCCs, although Marqeta APIs allow co-brand partners to control these by making real-time and/or grouped changes to restrictions.
3. **An additional layer of control – Just-in-Time (JIT) funding** – Auto-funding of card-linked accounts in real time, only after the transaction is approved through the custom evaluation process (e.g., approval rules based on the specific order, time, and merchant).

**Marqeta JIT example: DoorDash uses JIT funding by Marqeta to help reduce fraud related to delivery courier order pick-up, allowing DoorDash to ensure couriers are paying for the exact orders (and only exact orders) at the right time and at the right merchant (e.g., transaction approvals are specific to the order that came through the DoorDash platform)**






# 30. Modern Card Issuance Platforms
## Economics of pre-paid debit (majority of modern card issuance)

- **The vast majority of modern card issuance platforms are issuing prepaid debit cards**, with the economics on prepaid debit interchange generally ~20-40bps higher than on traditional debit.
- Bank partners used by FinTechs are typically exempt from Durbin debit interchange caps (unregulated) – e.g., The Bancorp, MetaBank, Green Dot Bank, Sutton Bank, Axos Bank, etc.
- Economics are spread across all four parties in the stack (non-bank issuer and/or co-brand partner, bank issuer, issuer processor, and program manager), with the program manager generally receiving the largest portion, although depending on volumes (tier-based contracts), the non-bank issuer may garner the majority of the economics.
- Example: Square Cash Card receives ~65% (CS est.) of the prepaid debit interchange, while its bank partner (Sutton Bank) and issuer processor & program manager (Marqeta) share the remainder.

| Visa US Interchange (US Retail category) | Regulated debit | Exempt debit (unregulated) | Exempt prepaid (unregulated) |
|---|---|---|---|
| Illustrative transaction size | $39 | $38 | $38 |
| + Cents per transaction | $0.21 | $0.15 | $0.15 |
| x Bps of volume | 0.05% | 0.80% | 1.15% |
| = Total interchange ($) | $0.23 | $0.45 | $0.59 |
| **Total interchange (%)** | ***0.59%*** | ***1.19%*** | ***1.54%*** |

| Rank | Pre-paid debit issuer | 2018 purchase volume |
|---|---|---|
| 1 | The Bancorp Bank | $41.9b |
| 2 | MetaBank | $37.7b |
| 3 | Green Dot Bank | $26.0b |
| 4 | Comerica Bank | $19.6b |
| 5 | JPMorgan Chase | $18.7b |
| 6 | Axos Bank | $9.7b |
| 7 | Bank of America | $8.5b |
| 8 | MB Financial | $5.5b |
| 9 | US Bank | $5.4b |
| 10 | UMB Bank | $5.0b |
| 11 | Sunrise Banks | $4.6b |
| 12 | Sutton Bank | $3.2b |
| 13 | Webster Bank (incl. HAS) | $2.4b |
| 14 | Comdata | $1.7b |
| 15 | PNC Bank | $1.4b |
| 16 | KeyBank | $1.3b |
| 17 | Wells Fargo | $1.0b |
| 18 | Metro. Comm'l Bank | $0.7b |
| 19 | BB&T | $0.6b |
| 20 | Fifth Third Bank | $0.5b |

# 30. Modern card issuance platforms

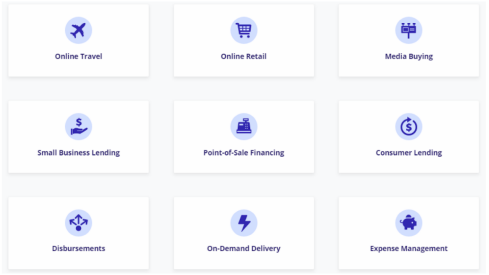
## Marqeta 2019 update and highlights

- Platform would now rank as a top 25 issuer of debit cards in the US (if consolidated as a single card issuer)
- Issued 140 millionth card & saw revenue double for the 4th consecutive year
- New offerings launched in 2019
  - Marqeta Reserve Financing - financing option that allows for seamless funding of reserve accounts
  - Push-to-Card – allows funds to be loaded on to virtual cards or tokenized into a digital wallet (used in lending applications and beyond)
  - One Sandbox Project – developer interface enhancement
- Additional highlights disclosed:
  - Added to premier customer list (naming Expensify, Lydia, YAPEAL, Twisto, Ramp Financial, ConnexPay, and Capital on Tap as examples of wins)
  - Extended Visa partnership to 10 Asia-Pacific markets (vs. most issuers active in three countries), as part of early global expansion efforts
  - Headcount ~400 (+175 YoY), with offices in Oakland and London
  - Valuation increased (~4x) to ~$2b, after closing a $260mm Series E

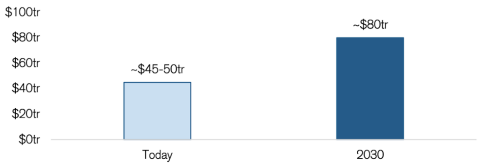
*"…We are in the midst of a transformation in card issuing around the globe," said Jason Gardner, founder and CEO of Marqeta. "When today's innovators are in need of modern payment solutions, they aren't turning to banks as their primary issuers anymore and want a platform built for their needs. We've been proud to power this transformation as the most advanced card-issuing platform built in over two decades. It has been exciting to see our customers embrace these new possibilities and build extraordinary products and services that have helped define markets in their own right.."*

– Jason Gardner, Founder and CEO, Marqeta (May 2019)

**Marqeta serves a range of issuers, with modern card issuance extending beyond the traditional bank issuers of the past (i.e., non-bank issuers)**




**Marqeta sees the global card issuance market reaching ~$80tr in volumes by 2030, increasing ~$30tr+ over the decade (per to Edgar, Dunn & Company)**




Source: Company reports, Credit Suisse research



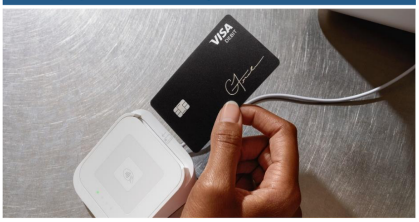
# 30. Modern card issuance platforms

## Cards allow for a "recycling" of volumes (get paid 2x on the same business)

- Traditional fund access was done via ACH bank transfers, which are not only slow but come with a small cost (vs. card issuance, which is immediate and is a revenue generator).
- Example: Square Card for sellers
  - Square gets paid when a consumer makes a purchase at a seller's POS or website (~3% gross), and then Square gets paid again (~2% unregulated debit interchange) when the seller accesses the funds (spends) via card.
  - Fees earned by Square, PayPal, and Venmo (interchange share with partner bank and program manager) are roughly similar to the "Instant Transfer" and "Instant Deposit" fees earned today (which we consider to be at risk longer term due to increased usage of The Clearing House's RTP network and eventually FedNow, although not a near-term concern).
- Square is an example of a platform that has successfully monetized cards both from a consumer (Cash Card associated with Cash App balances) and merchant perspective (Square Card associated with seller account balances).

**Square Card issuance to sellers allows instant access to seller balances (sales made that day) at no charge, yet Square still earns commercial debit interchange when card is used…**


**…similarly, Cash Card issuance to consumers provides instant access to Cash App balances at no charge, and Square earns prepaid debit interchange when the card is used**




Source: Company reports, Credit Suisse research

# 30. Modern card issuance platforms

## "Recycling" examples in PayPal, Square, Stripe, Adyen, etc.

- While PayPal (both for core PayPal and Venmo), Square, and Stripe all offer forms of "instant transfer" to bank accounts or debit cards (i.e., Visa Direct or Mastercard Send), we believe card issuance could prove to be the better way to address supplier liquidity needs.
- It also increases seller stickiness via expansion into expense management (a payments platform's involvement was traditionally more limited to the revenue side of the business).
- Stripe Issuing was launched in July 2018, followed by Stripe Corporate Card in September 2019.
- Adyen announced a card-issuing program in November 2019, highlighting the access to faster funds for its merchant base (e.g., for marketplaces to provide to their sellers).

**PayPal & Square business debit cards earn unregulated debit interchange and provide instant access to funds for sellers, while Stripe Issuing offers cards for employees (dynamic expense controls), contractors (on-demand platforms), and customers, along with a formal Corporate Card program**



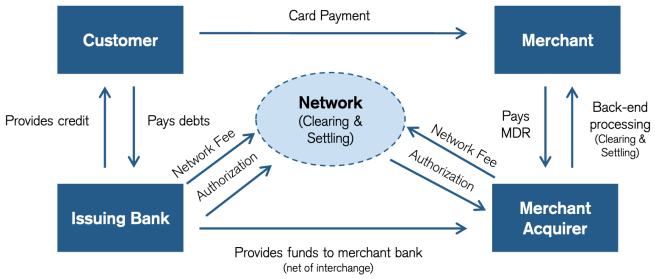

# 1. The 4-party model

## Description of parties with examples (illustrative economics)

| Merchant | Network | Merchant Acquirer | | Card Issuer | Issuer Processor |
|---|---|---|---|---|---|
| | | Front-end processor | Back-end (acquirer processor) | | |
| Accepts payments from consumers and pays the merchant discount rate (MDR) to the merchant acquirer | Acts as the hub for card payment transactions, relaying authorization and settlement messages between issuing and acquiring banks (earning fees from both in the process) | Signs up individual merchants, underwrites a merchant account for them at the underlying acquiring bank, and enables merchants to accept card payments; captures card/transaction data, routes the message to appropriate network for authorization (in real-time); earns the majority of the acquiring spread[1] | Handles settlement and clearing messages received from the card network, and deposits funds net of fees into the merchant's account; receives fixed fee per transaction, a minority portion of the acquiring spread[1]; chargebacks come to the merchant via the back-end processor | Provides consumers and businesses with bank accounts, credit extension, and cards; earns interchange on card transactions, the largest portion of the MDR. Interchange rates are set by V/MA | Sits in front of the issuing bank to receive authorization request messages from the card network, and relays decision back to the card network (in real time); then, clears and settles transaction for the issuing bank; earns account and transaction fees, outside of the MDR (indirectly funded by the issuers' portion) |
| Target, Home Depot, McDonald's, Lululemon, Reebok, Safeway, WaWa | Visa & Mastercard (open-loop); American Express & Discover (closed-loop); STAR, Accel, NYCE, Pulse, Interlink, Jeannie (PIN debit) | FIS (Worldpay), Global Payments & TSYS, Adyen, Chase Paymentech, Fiserv (First Data), Repay – all technically operate as ISOs in the US, sponsored by an acquiring bank | | Chase, Barclaycard, Bank of America, Wells Fargo, US Bank, Capital One, Citi, Synchrony Financial | TSYS, FIS, Fiserv (First Data), Marqeta, Galileo, i2c, or in-house for larger banks (TSYS is the share leader among banks that outsource) |
| | | Square, PayPal, Stripe | Acquiring banks (BIN sponsor): Wells Fargo, BMO Harris, BBVA USA, MetaBank, etc. | | |
| **Sample economics on $100 eCommerce credit card transaction** | | | | | |
| + $100 Customer payment<br>- $2.50 (250bps) MDR<br>= + $97.50 | + $0.15 Merchant network fee<br>+ $0.10 Issuer network fee<br>- $0.03 3bps rebates (acquirer)<br>- $0.03 3bps rebates (issuer)<br>= +$0.19 net | + $2.50 MDR<br>- $0.15 Merchant network fee<br>- $0.05 Back-end processing fee<br>- $2.05 Interchange<br>= + $0.25 acquiring spread<br>- $0.05 back-end acquiring fee<br>+ $0.03 Network rebates<br>= + $0.23 net | + $0.05 Back-end acquiring fee (~25% of acquiring spread ex-rebates, which was $0.20 in this example) | +$ 2.05 ($0.10 + 195bps) Interchange<br>- $0.10 Issuer network fees<br>- $0.03 (flat charge) Issuer processor fee<br>+ $0.03 network rebates<br>= + $1.95 net | +$0.03 (flat charge) issuer processor fee<br><br>Note: Issuer processors also charge fees based on the number of accounts, along with other services like statement printing, card production, customer service, etc. |

Source: Glenbrook Partners, Credit Suisse research, [1] Acquiring spread refers to the portion of the MDR the acquirer retains after all other parties receive their fees (networks, back-end acquiring processor, and the issuing bank); depending on the contract, these fees are fixed (cost +) or variable (in which case the spread is dictated by the level of interchange associated with the specific type of card), generally for smaller merchants without pricing power; merchant acquirers also pay small fees to their sponsoring acquiring bank for BIN rental (~1-3bps)

## 1. The 4-party model
### Diagram and economics




| **Issuing Bank:** | **Customer:** | **Network:** | **Merchant_Acquirer:** | **Merchant** |
|---|---|---|---|---|
| + 205bps – interchange<br>- 10bps – network fees<br>- 3bps – issuer processing<br>+ 3bps – rebates<br>= + 195bps net | - $100 – payment<br>- $100 net | +15bps – merchant fee<br>+10bps – issuer fee<br>- 6bps – rebates<br>+19bps net | + 250bps – MDR<br>- 205bps – interchange<br>- 15bps – network fees<br>+ 3bps – rebates<br>= + 23bps net | + $100 – sale<br>- 200bps – MDR<br>+ 2bps – rebates<br>= + $98.02 net |

**Transaction notes:**
- Customer inserts card into POS terminal (data capture), then the merchant acquirer routes the data to the network, which then queries the issuing bank for authorization (sufficient funds, fraud checks, etc.)
- Then the authorization flows back through the system to the merchant acquirer, allowing the transaction to close
- Then the issuing bank settles the outstanding balance with the merchant's bank, and the funds are deposited net of fees

CREDIT SUISSE Source: Company reports, Glenbrook Partners, Credit Suisse research 24 January 2020 225

"We've already been operating with some of our customers in the [employer] expense area or the travel-related area," he said. "Per diem spending is a complex area for even midsize companies that are trying to allocate a certain amount of money to an employee."

https://www.slideshare.net/dennischan45/4-ins-12-june-2019-160204822