



ERIK PENSER BANK

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Zwipe

Ready for take-off

Biometric access cards offer considerable potential at relatively low risk...

Thanks to the demand for greater security, a competitive technology, and companies as end-customer, Zwipe's initial focus on airports and data centres has paid off – we see interest spreading and the pipeline for the access business seems robust. We expect a 14% CAGR for the access cards market in the coming 8–10 years, while penetration of biometrics will continue, and we thus believe Zwipe can take a sizeable share of sales in its chosen verticals. Given a P/S of 1.5x, 15% WACC, and a 40% likelihood that biometric cards can achieve mass market status, we value Access at NOK 5.4, with potential upside to more than NOK 13 if biometric access cards reach mass market.

...while potential for biometric payment cards is enormous but risky

The end-customers for payment cards are consumers, which we believe elevates the risk compared with access cards. The potential is huge, though. We see a 40% likelihood that biometric payment cards will hit one billion cards in the coming eight years – in line with the development of the current generation of cards. Given that it is one of few platform available certified by both Visa and Mastercard, we believe Zwipe can become a key supplier to tier 2 and 3 card producers. Given a P/S of 1.5x, 25% WACC, and a 40% likelihood that biometric payment cards reach mass market status, we value Pay at NOK 5.4, with potential upside to more than NOK 25.

We initiate coverage with a fair value of NOK 10.7–10.9

Having finalised the technological development of its biometric payment cards, with certification from both Mastercard and Visa during 2022 and a successful capital raise behind it, the company is ready to accelerate the commercialisation of both product lines. Recently, it has announced a lowering of its cost base, which should push it to positive cash flows by the end of 2024. We believe intensive news flow will push the share price up, and we initiate coverage with a fair value of NOK 10.7–10.9.

Change in estimates			Forecast (NOK m)				Value and risk														
	23e	24e	25e	2022	2023e	2024e	2025e	Fair value	NOK 10.7 - 10.9												
Total revenue	-	-	-	4	49	157	429	Share price	NOK 3,3												
EBIT, adj.	-	-	-	Revenue growth	55%	>100%	>100%	>100%	Risk level	High											
EPS, adj.	-	-	-	EBITDA, adj.	-96	-71	2	126	<div style="background-color: #006633; color: white; padding: 5px; text-align: center;">Price Performance 12 months</div>												
<div style="background-color: #006633; color: white; padding: 5px;">Upcoming events</div>			EBIT, adj.	-98	-72	0	125														
			EPS, adj.	-2,6	-1,2	0,0	1,7														
Q2 - report	24 August 2023		EPS growth, adj.	N.m.	N.m.	N.m.	>100%														
Q3 - report	26 October 2023		BV/share	1,5	1,4	1,4	3,1														
<div style="background-color: #006633; color: white; padding: 5px;">Company facts (NOK m)</div>			Dividend per share	0,0	0,0	0,0	0,0														
			EBIT margin	Neg.	Neg.	0,3%	29,1%														
Number of shares	58m		ROE, adj.	Neg.	Neg.	0,4%	73,6%														
Market capitalization	193		ROCE, adj.	Neg.	Neg.	0,5%	89,1%														
Net debt	-122		EV/Sales	30,6x	1,4x	0,5x	0,2x														
EV	71		EV/EBITDA	-	-	40,1x	0,6x														
Free float	51%		EV/EBIT	-	-	171,6x	0,6x														
Daily trading volume, average	16k		P/E, adj.	-	-	598,5x	2,0x														
Bloomberg Ticker	ZWIPE NO EQUITY		P/BV	3,1x	2,3x	2,3x	1,1x														
<div style="background-color: #006633; color: white; padding: 5px;">Analyst</div>			FCF yield	-	-	-	24%	<div style="background-color: #006633; color: white; padding: 5px;">Conflicts of interest</div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>Liquidity provider</td> <td></td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Certified adviser</td> <td></td> <td style="text-align: center;">✓</td> </tr> <tr> <td>Transactions 12m</td> <td style="text-align: center;">✓</td> <td></td> </tr> </tbody> </table>			Yes	No	Liquidity provider		✓	Certified adviser		✓	Transactions 12m	✓	
				Yes	No																
Liquidity provider		✓																			
Certified adviser		✓																			
Transactions 12m	✓																				
Markus Almerud			Net debt / EBITDA	0,5x	0,9x	-24,9x	-0,7x														
markus.almerud@penser.se																					

Investment case

Ready for the next step: Having finalised the technological development of Zwipe Pay and received certification from Visa and Mastercard, Zwipe is ready for commercialisation. Its solution is one of few biometric platforms available that is certified by both these giants. During 2022, it established Zwipe Access as its own product line. Thanks to the completed rights issue at the beginning of 2023, the company is ready to accelerate the commercialisation of both product lines.

Increasing demands for security suggest a bright future for biometric access cards: We believe entry control will tighten in line with generally increasing security requirements, and a greater usage of biometrics is a natural next step. Biometric access cards are competitive with other technologies, as they do not require infrastructure upgrades in most cases and as personal information is stored locally on the card. This minimises the need for database management and makes it easier to fulfil GDPR requirements. We see mid-double-digit growth in access cards in the coming decade and believe Zwipe can take a sizeable share of the market as the penetration of biometrics increases.

Enormous potential for biometric payment cards, but with higher risk: We believe biometric payment cards will develop in line with what has been seen with contactless cards and that they will achieve mass market of one billion cards a year in the early 2030s. The card manufacturing market is extremely consolidated, and given it is one of few platforms available that is certified by both Visa and Mastercard, we believe Zwipe can become the dominant supplier to tier 2 and 3 players. The potential is huge, but uncertainty persists, and the risk of whether the technology will succeed or not is high.

Company profile

Zwipe develops biometric authentication solutions for payment, access control and other security and identification applications. The company has two product lines, Zwipe Pay and Zwipe Access, both built on the same tech platform. Zwipe has a strategic partnership and distribution agreement with Idemia, one of the world leaders in identity technologies and among the largest payment card manufacturers, to co-develop a next generation biometric payment card platform – with Zwipe holding exclusive distribution rights to the technology.

The solution comprises a number of pre-certified components with an integrated circuit containing a Secure Element and applets from Visa and Mastercard to approve biometric authentication, a fingerprint sensor from IDEX, and a passive inlay that includes an antenna.

In its Pay business, Zwipe focuses on tier 2 and 3 card producers, offering a turnkey solution and playing the role of R&D partner (acting in the role of inhouse R&D centre). Tier 1 players conduct their own R&D and usually do not need such a solution, as they buy the components and assemble them into finished cards themselves. In its Access business, Zwipe produces the cards built on the same solution as in Pay but with other applets. Initially, Access will focus on airports and data centres before broadening into other verticals.

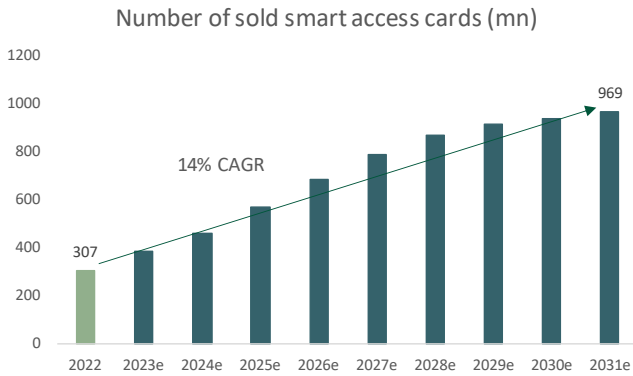
Valuation

We value Zwipe Pay and Zwipe Access separately, as they have different risk profiles. We believe the pipeline in Access has developed better recently, and given its end-customers are companies, while the end-customers for Pay are consumers, we see the probability of the technology taking off as higher in Access than in Pay.

As we expect Pay to reach mass market in the early 2030s – in line with the development for contactless cards – we apply a target multiple for 2031 sales (we use P/S as the technology has not yet achieved commercial breakthrough) and discount that by 25%. We then probability-adjust the valuation with the likelihood that biometric payment cards reach mass market – 40%. To make Access comparable to Pay, we use the same time horizon and also P/S as the multiple since its commercial success still lies in the future. As we see its risk as lower, we discount the value by 15% but also probability-adjust it by 40%. We see a fair value of NOK 10.7–10.9.

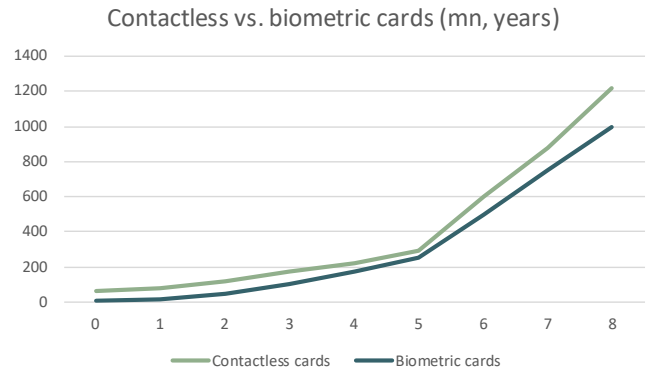
Investment case in charts

Chart 1: Double-digit growth in number of access cards sold



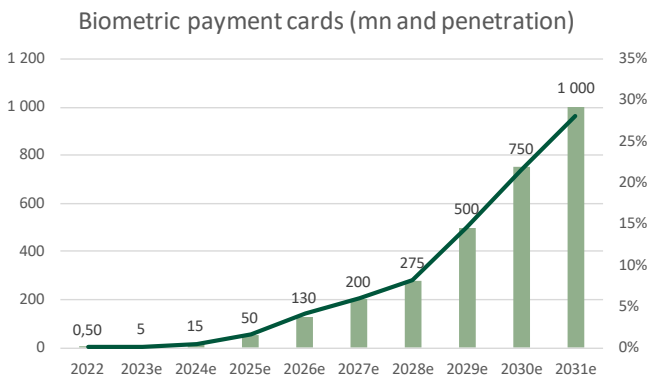
Source: Markets and Markets, Zwipe, EPB

Chart 2: We believe biometric cards will match the development in contactless cards...



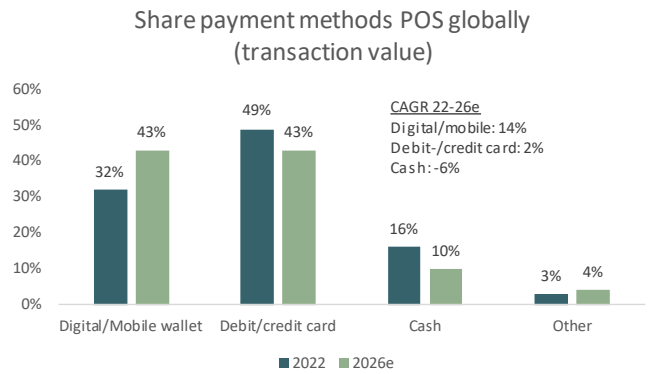
Source: Eurosmart, EPB

Chart 3: ...leading to one billion cards in the early 2030s



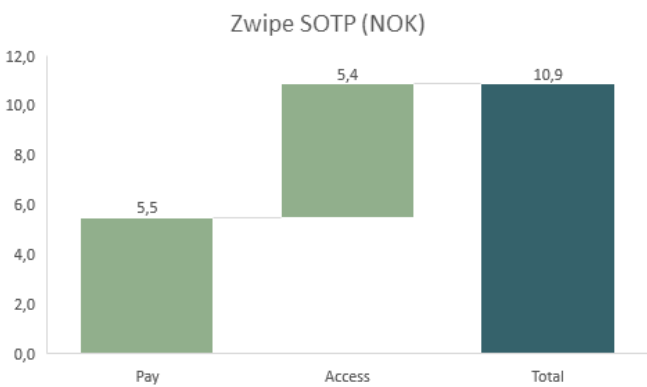
Source: Eurosmart, EPB

Chart 4: Cards will co-exist with mobile wallets



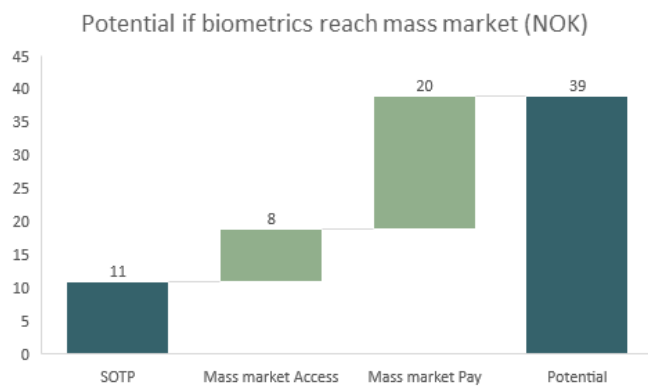
Source: FIS, EPB

Chart 5: We value Zwipe at almost NOK 11 in our SOTP...



Source: EPB

Chart 6: ...with potential upside to almost NOK 40 if both technologies achieve mass market

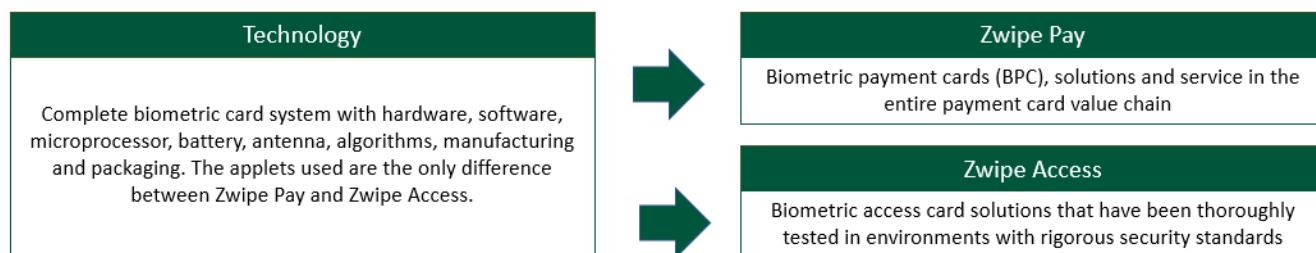


Source: EPB

The company in brief and its history

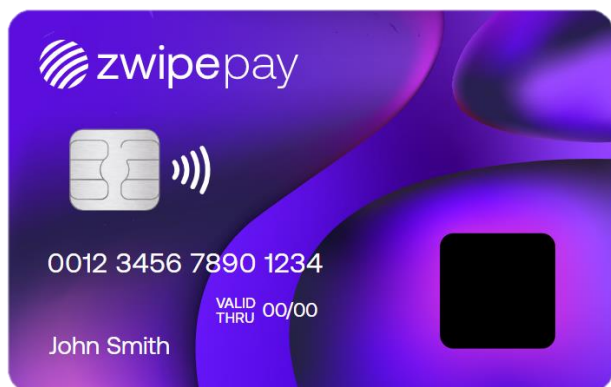
Zwipe is a tech company that develops biometric authentication solutions for payments, access control, and other security and identification applications. The company's headquarters are in Oslo, Norway, and it also has offices in Sweden, the US, and China. As of the end of 2022, it had 43 employees. The company focuses on two product areas, Zwipe Pay and Zwipe Access, both built on the same technology platform (Figure 1).

Figure 1: Overview of Zwipe's product areas



Source: Company, EPB

Figure 2: Example of a biometric payment card



Source: Zwipe, EPB

Figure 3: Example of a biometric access card



Source: Zwipe, EPB

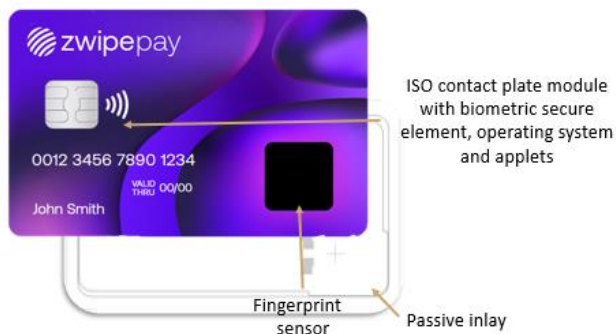
Exclusive distributor of Idemia's solution

In 2019, Zwipe signed an agreement with leading card manufacturer Idemia through which the two parties would co-develop a disruptive biometric payment card platform, with Zwipe gaining exclusive distribution rights to the new technology for card manufacturers, manufacturers of digital accessories (wearables), and other payment solutions that become available.

The solution comprises a number of pre-certified components with an ISO plate module containing the biometric Secure Element with applets for Visa and Mastercard accepting biometric cardholder authentication as the key component. The second component is a fingerprint sensor repackaged onto 35mm tape for seamless mass production. The third component is a customer-specific passive inlay that includes an antenna to power the system contactless and enable the card to communicate with payment terminals and other interfacing devices.

Zwipe offers various enrolment solutions to register biometric payment cards, including unique mobile enrolment solutions much in demand by customers. Mobile enrolment solutions for both iOS and Android were launched in 2022. Zwipe is currently the only supplier able to offer a functioning mobile enrolment solution, which we believe could be an important differentiator.

Figure 4: The key components in Zwipe's solution



Source: Company, EPB

Figure 5: There are solutions for both sleeve and mobile enrolment

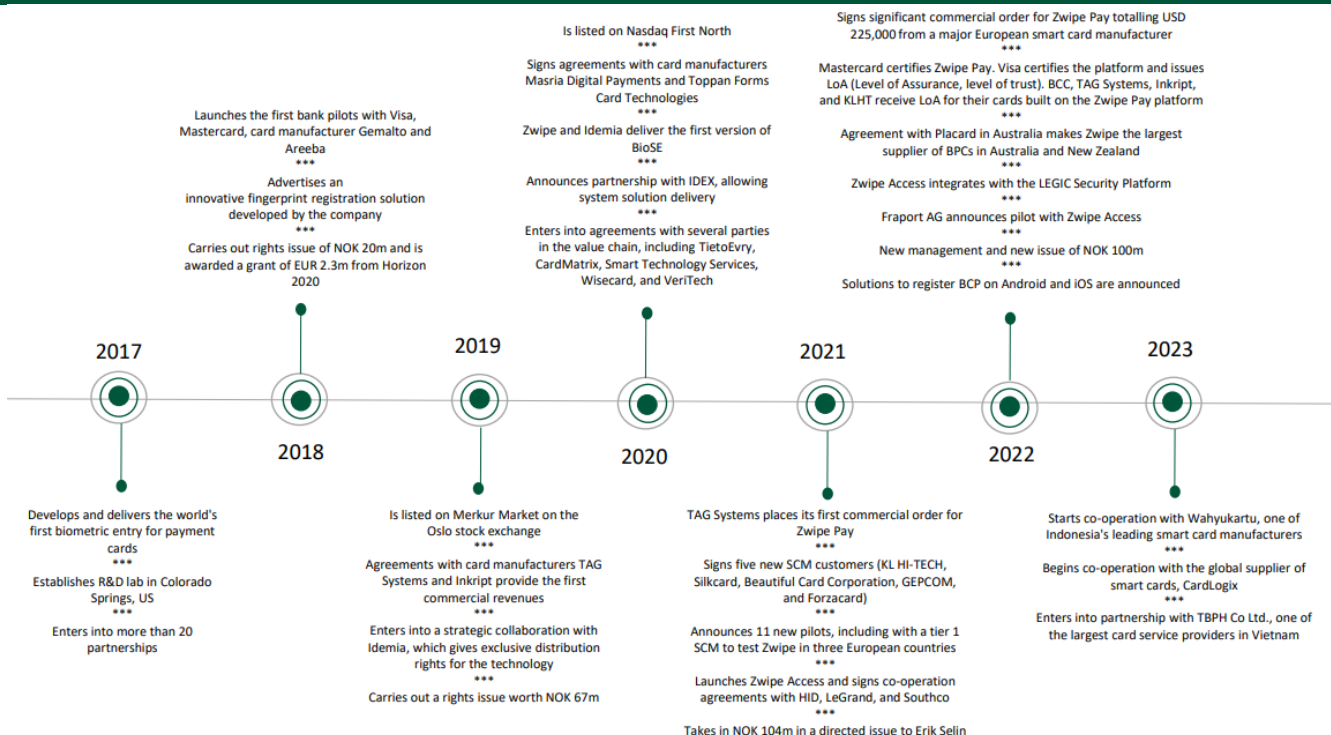


Source: Company, EPB

Ready to take the next step

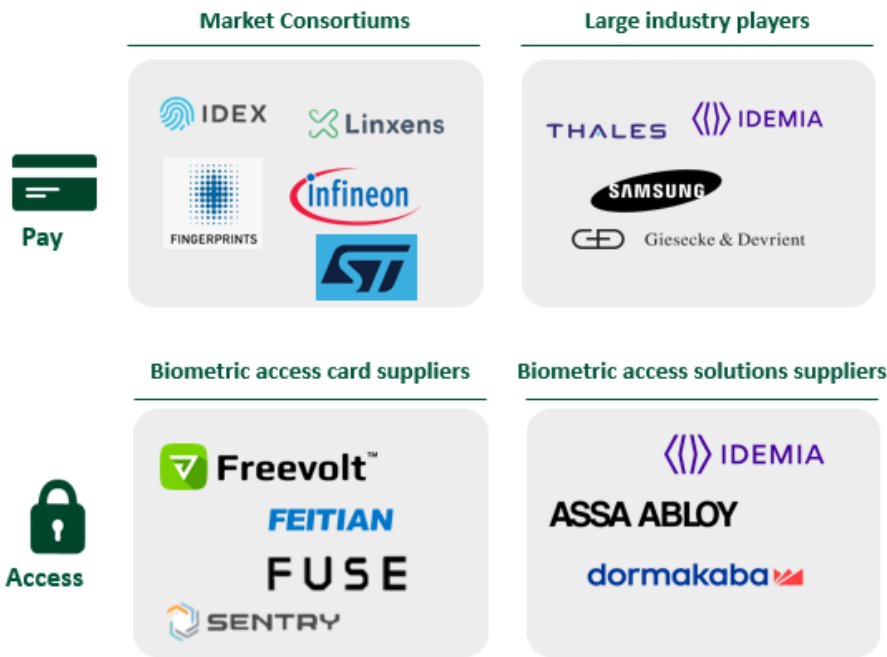
Between 2009, when Zwipe was founded, and 2021, the company focused on developing its technology (R&D), initial pilots of its products and services, and certifications. During 2022, the company switched to a new phase focused on commercial and organisational scaling-up and the rollout of its products and service offerings. Its market strategy is broad: smart card manufacturers (SCMs) and system integrators are approached directly, while it approaches end-customers like banks and corporations indirectly. We believe the pace of its commercialisation will accelerate during 2023 – the company is ready for this next phase.

Figure 6: Zwipe's company timeline



Source: Company, EPB

Figure 7: Competitors to Zwipe Pay and Zwipe Access



Source: Company, EPB

Figure 8: Zwipe SWOT

<p><u>Strengths</u></p> <ul style="list-style-type: none"> Platform is verified by Mastercard and Visa Strategic partnership with Idemia Concentrated ecosystem High barriers of entry 	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> Biometric payment cards have had slow take-off Low share proprietary technology as a system integrator Technology is not commercial yet
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> Commercial breakthrough of biometrics for payment cards Biometrics become new standard for debit and credit cards Commercial breakthrough of biometrics for access control cards More verticals for access cards 	<p><u>Threats</u></p> <ul style="list-style-type: none"> Mobile wallets take market shares from cards Cooperations by component manufacturers take market share Other biometric solutions become standard in access control

Source: EPB

Double-digit growth for access cards

Based on the growth in access card readers, which have expanded in low double digits in value and by more than 20% a year in volume terms, we expect growth in access cards will also expand by double digits. Mid-double-digit growth from a base of some 300 million cards in 2022 suggests an access card market of around one billion by the early 2030s. Zwipe chose to initially focus on verticals like airports and data centres but has received additional inbound enquiries regarding a number of other security sensitive verticals (such as hospitals and prisons).

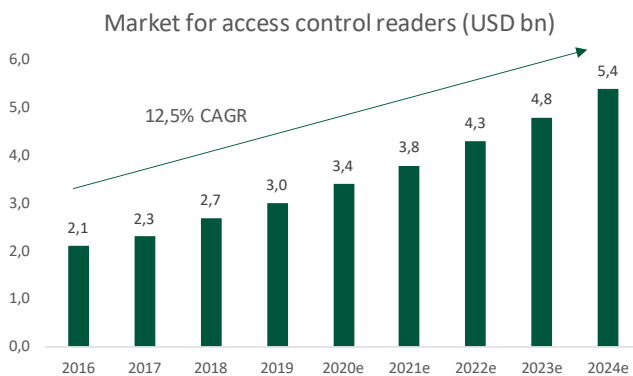
Double-digit access card market growth

Over the past few decades, security awareness has gradually risen, and most companies and organisations use both physical and logical access controls to protect both staff and the company from theft and espionage.

Although most private and public buildings today have some form of access control, many systems are ageing and require upgrading. Card readers based either on proximity or smart readers are likely to dominate, which also brings opportunities for mobile solutions.

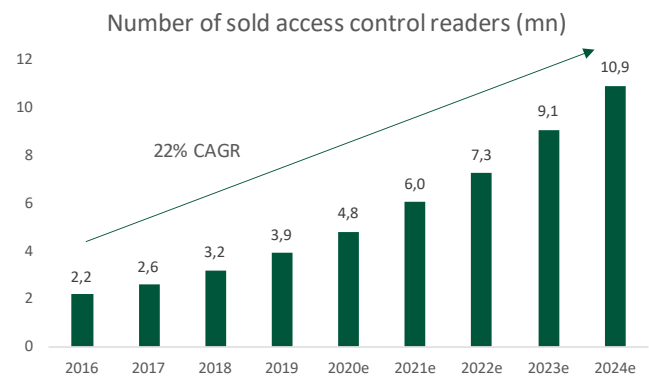
We assume the number of cards will grow in line with the number of card readers, with a slowdown in growth over time (Chart 10). According to Markets and Markets (August 2019), the market has seen substantial expansion since 2016, which is expected to continue (Charts 7–8). It values the global card reader market at USD 4.3bn in 2022 and expects this to grow by 12.5% a year to USD 5.4bn in 2024, while it estimates the number of readers will grow by more than 20% a year. We estimate mid-teens growth in the number of smart cards in the coming decade. Around 300 million smart access cards were sold in 2022, and we calculate sales of about one billion cards a year by the early 2030s. We have chosen to extend our forecast period to match that for payment cards to enable comparisons of the two markets.

Chart 7: The market for access control readers to grow in double digits in both value terms...



Source: Markets and Markets, Zwipe, EPB

Chart 8: ...and in number



Source: Markets and Markets, Zwipe, EPB

Users do not need to change infrastructure and no need for database management...

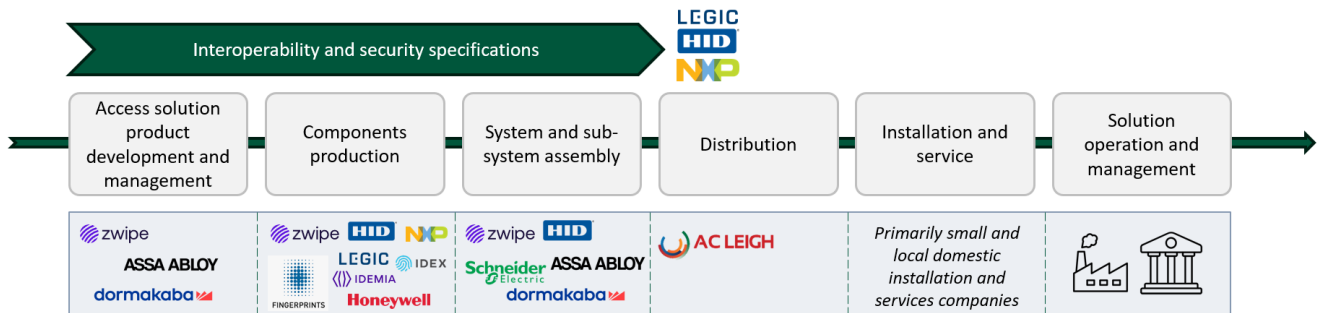
Technology and protocols from American NXP and HID, part of Assa Abloy, dominate the global smart card reader market with 85–90% share (Chart 9). Besides these two, there are medium-sized companies like LEGIC and a number of local players.

Zwipe's biometric cards are based on the same technology as payment cards and are thus verified by Mastercard and Visa, giving the cards a quality stamp. At the end of 2021, Zwipe's solution was fully validated for integration with HID's Seos (its key software). During H1 2022, LEGIC's applet was integrated, rendering the cards ready for that company's solutions.

...making biometric cards competitive with other biometrical solutions

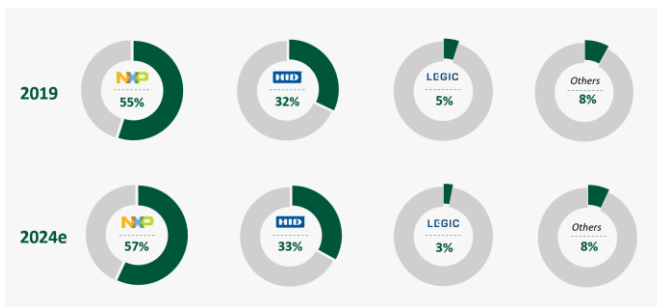
As Seos and LEGIC's protocols are integrated into the cards, users with these protocols do not need to change infrastructure. Moreover, there is no need for a database – all the information is stored locally on the card. Not having to maintain a database is a huge advantage when it comes to adhering to GDPR rules. Avoiding the need to upgrade card readers and change database management is a considerable competitive advantage versus other biometrical solutions.

Figure 9: Value chain for access cards



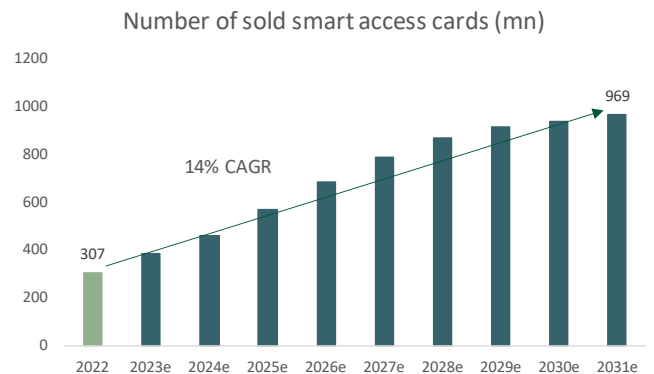
Source: Zwipe, EPB

Chart 9: NXP and HID dominate the card reader market



Source: Markets and Markets, Zwipe, EPB

Chart 10: We expect double-digit growth in the number of access cards sold



Source: Markets and Markets, Zwipe, EPB

We estimate the market reaching almost one billion cards in early 2030s

As stated above, the access card market has expanded considerably in recent years and is expected to continue to grow robustly. We believe the growth in access card readers is a key driver of access cards, and mid-teens growth in the number of cards would take this to one billion cards in the early 2030s (Chart 10).

Zwipe plans initially to focus on airports and data centres in North America and larger European countries. It has chosen these verticals because of the growing need for security and as there is already a large installed base. Lately, it has also seen incoming interest from other verticals with high security needs, such as prisons and hospitals, as well as from larger corporations. At first, Zwipe will work with systems integrators active in these prioritised verticals and markets. Over time, it aims to collaborate with payment card producers already using its solutions and that want to expand into access cards. This means Zwipe initially plans to sell ready-made access cards to integrators but that it can also sell biometric modules similar to those for Zwipe Pay customers.

We anticipate one billion biometric cards by the start of the next decade

It has taken longer than hoped for biometric payment cards to prove successful, but thanks to the entire value chain pushing, we believe the market will pick up this year. Should biometric cards see the same development curve as contactless cards, they will reach mass market status, which we define as one billion cards a year, by the early 2030s.

EMV cards dominate the card market today

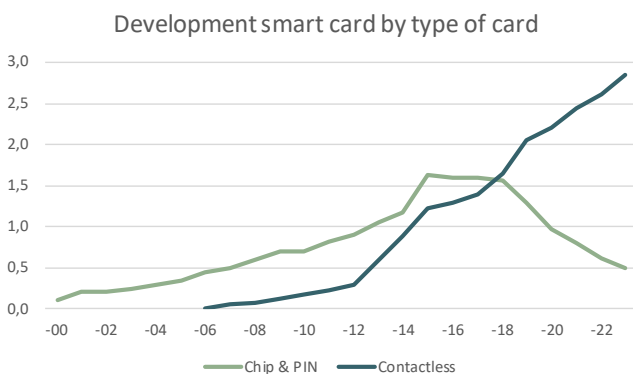
EMV (Europay, Mastercard, and Visa) is a global payment card transaction standard controlled by EMVCo, a joint venture between American Express, Discover, JCB, Mastercard, UnionPay, and Visa – the leading global payment networks. The EMV standard was established to replace the magnetic strip card system with a more secure and advanced chip-based alternative. EMV cards have an inbuilt microchip that stores and processes payment information, making it more challenging to copy or manipulate card data. When an EMV card is used for payment, the card and the payment terminal communicate and verify the authenticity of the other – dynamic authentication.

To undertake an EMV transaction, the card communicates with a compatible payment terminal (point of sale – POS) and the card user typically verifies themselves by inputting a PIN code. The information in the chip generates a unique code for each transaction, which makes it hard for fraudsters to use stolen card information to carry out fraudulent transactions. The EMV standard has been adopted internationally and is used by the majority of credit card and payment card networks across the world to improve security and minimise the number of fraudulent card payments.

First-generation EMV cards are often called Chip & PIN or Chip & Signature. Chip & PIN is most common in Europe, Canada, Australia, and New Zealand, while Chip & Signature is typical in the US, Mexico, and parts of South America and Asia. Second-generation cards – contactless cards – surpassed Chip & PIN in 2018 and now have a penetration rate of more than 80% (Charts 11–12).

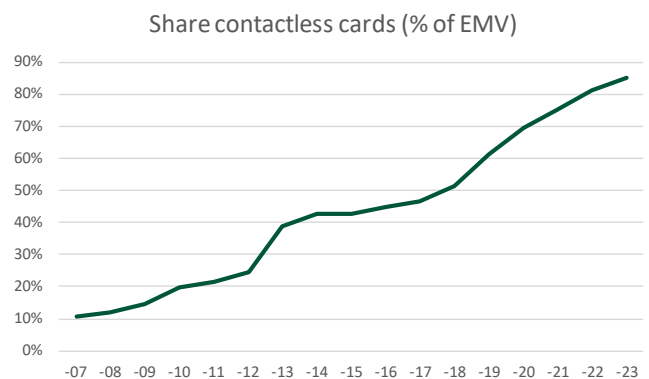
Mass market is often defined as one billion cards per year, and second-generation cards achieved this considerably faster than their first-gen counterparts. First-generation EMV cards took around 18 years to hit one billion a year. Contactless cards were launched in 2007, and it took around eight years for them to reach one billion cards a year. It is not impossible that the penetration of contactless cards could have been faster if the switch to them had not involved an infrastructure upgrade – contactless cards required new POS. COVID-19 and increased hygiene requirements during the pandemic spurred on the penetration rate of contactless cards.

Chart 11: Contactless cards replaced Chip & PIN in 2018...



Source: Eurosmart, EPB

Chart 12: ...and their penetration has now surpassed 80%

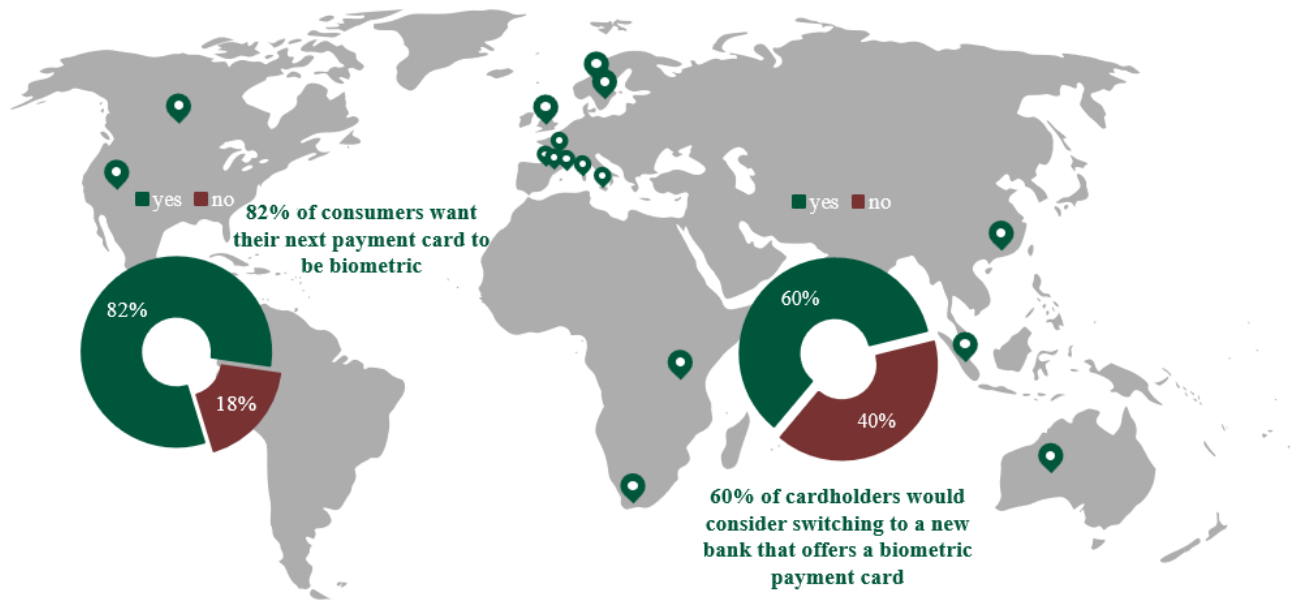


Source: Eurosmart, EPB

The rapid growth of contactless cards illustrates user demand for and appreciation of seamless and fast payment solutions. We believe consumers' desire for greater convenience in the payment experience is confirmed by the rapid growth in mobile payments.

The next generation of EMV cards is biometric payment cards. They offer the same advantages as contactless but are more secure and convenient as no PIN code is needed. A survey by Zwipe of 3,200 users in 17 countries revealed that 82% of respondents want their next card to be biometric, while 60% could consider changing bank to get a biometric card (Figure 10).

Figure 10: Survey suggests high demand for biometric cards

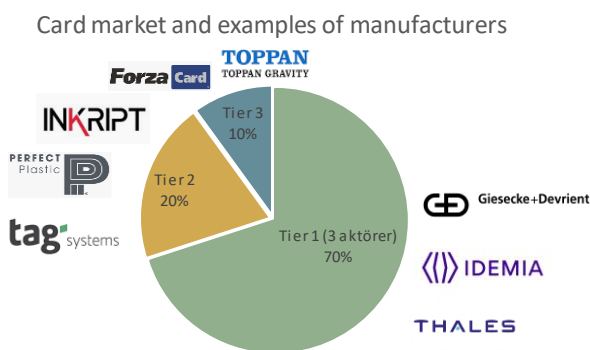


Source: Zwipe, EPB

Card manufacturers consolidated – three largest hold 70% of the market

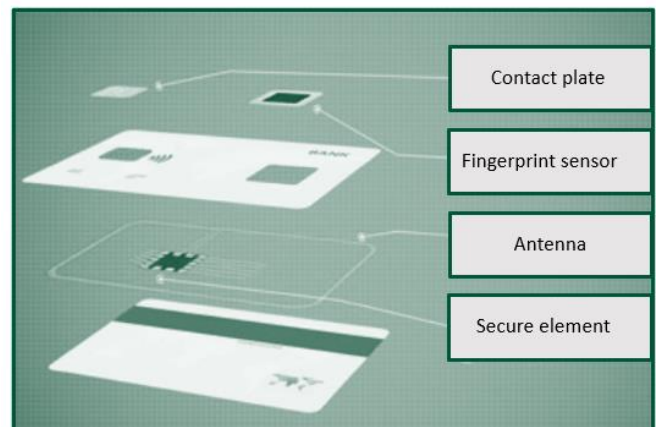
In 2022, 3.2bn EMV cards were manufactured. The three largest card producers – Thales, Idemia, and G+D (tier 1) – are global and together hold around 70% market share (Chart 13). Tier 2, which together account for about 20% of the global market, produces some 50–350 million cards each per year and can increase volumes and market share in some regions even if they are not global. Tier 3 represents the card producers with annual volumes of less than 50 million cards a year. These are typically limited to one or only a few markets.

Chart 13: The card market is consolidated



Source: Zwipe, EPB

Figure 11: Components of an EMV card

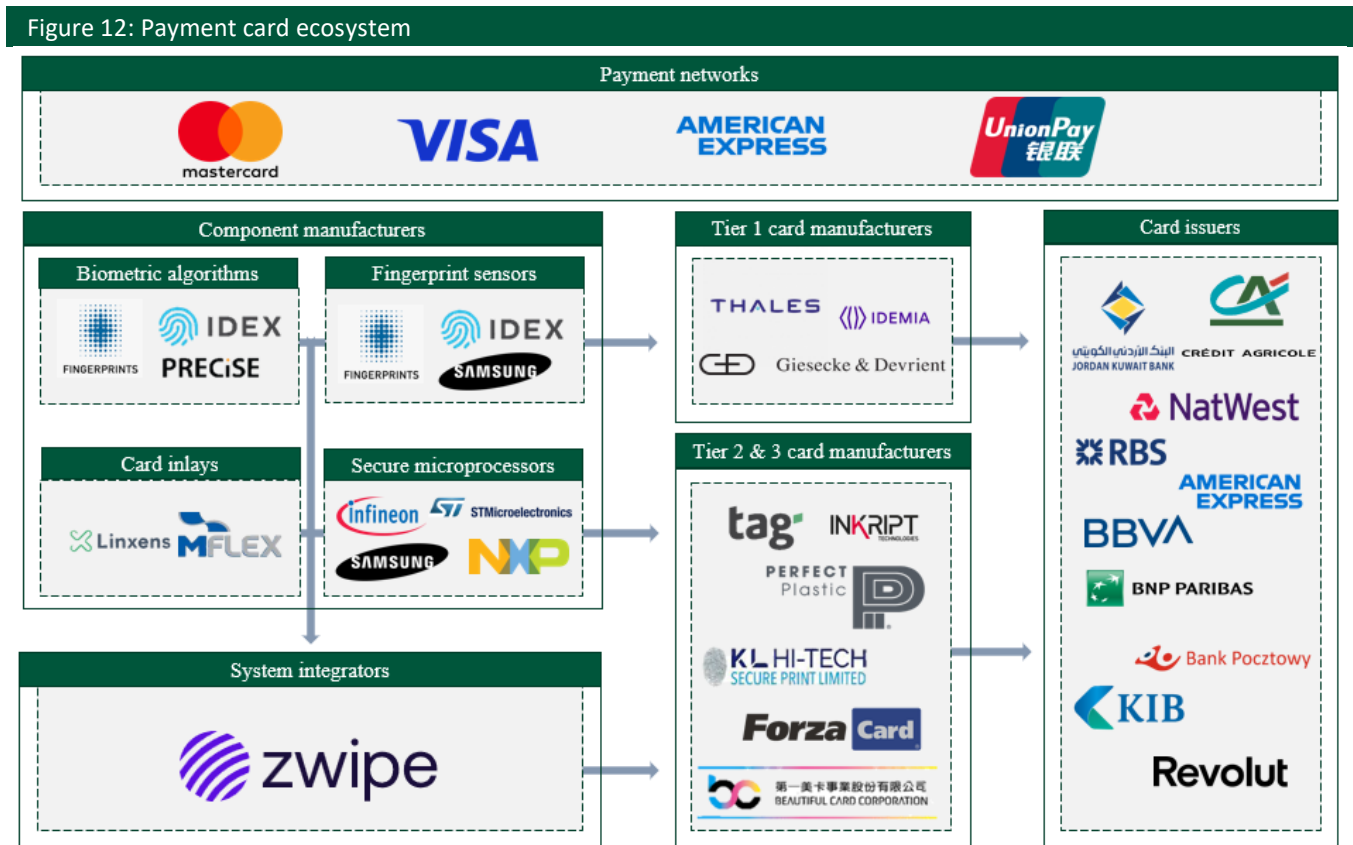


Source: NXP, EPB

The components of an EMV card are the secure processor (Secure Element), which carries out the authentication, and a passive card inlay that includes an antenna to power the system contactless and enable the card to communicate with payment terminals and other interfacing devices (Figure 11). Biometric cards can also include a fingerprint sensor. We believe co-operation is increasing for component manufacturers to deliver a complete solution to card producers.

Thales, Idemia, and G+D integrate the systems themselves and conduct R&D to heighten security and authentication and to improve the technology and user experience. Tier 2 and 3 players do not have these same opportunities as tier 1 producers. Instead, they use systems integrators, such as Zwipe, that also act as R&D centres for tier 2 and 3 smart card manufacturers (Figure 12). This means co-operation between component manufacturers that leads to solutions (such as Infineon and Fingerprint Cards; Infineon and IDEX; and STMicroelectronics, Fingerprints, and Linxens) can prove to be Zwipe's principal competition over time.

Zwipe's market strategy is to use a combination of push and pull approaches with both card producers and card issuers to create demand for biometric cards and its value-added services. Its primary target group is tier 2, as tier 1 players do not require systems integrators and tier 3 players are likely unwilling to invest in the required equipment to produce biometric cards.



Source: EPB

Contactless cards growing 5% a year in coming five years

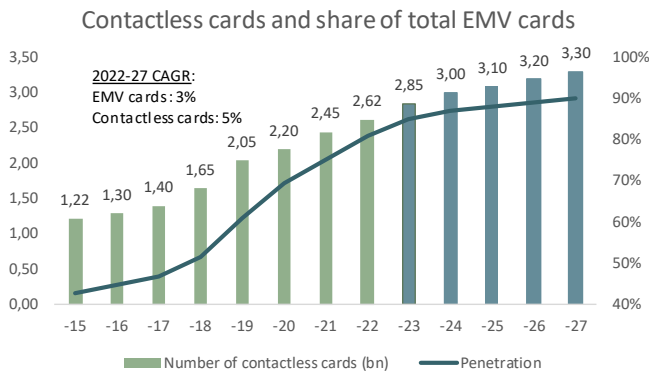
EMV cards (Chip & PIN) were introduced in Europe in 1995, requiring an entirely new POS system. Chip & PIN arrived in the US in 2015, bolstering growth for EMV. Meanwhile, contactless cards were launched in Europe in 2007 and saw rapid growth in the following years. It took less than half the time for contactless to reach mass market as it had for Chip & PIN – 18 years from launch for Chip & PIN to reach one billion cards, while contactless achieved the same in eight years.

Sales of Chip & PIN cards have diminished since the mid-2010s, according to Eurosmart, and contactless accounted for more than 80% of total EMV cards in 2022 (Chart 12). The total number of smart cards declined somewhat in 2022, partly owing to chip shortages, but is expected to bounce back in 2023. Penetration of contactless cards accelerated during the pandemic and has continued to grow since. Eurosmart forecasts growth expanding by four percentage points in 2023 to 85%.

Contactless cards were introduced in 2007 and their numbers reached 60 million cards that year, growing to 80 million in 2008. This can be compared with 100,000 biometric cards in 2020 and 140,000 in 2021. Although initial use has been significantly slower than for contactless cards, we see no reason why it should take biometric cards longer to reach mass market status than contactless cards. The entire ecosystem is pushing for biometric cards, while card providers have an opportunity to increase card use via biometrics – we have seen anecdotal evidence that users with biometric cards have higher card usage.

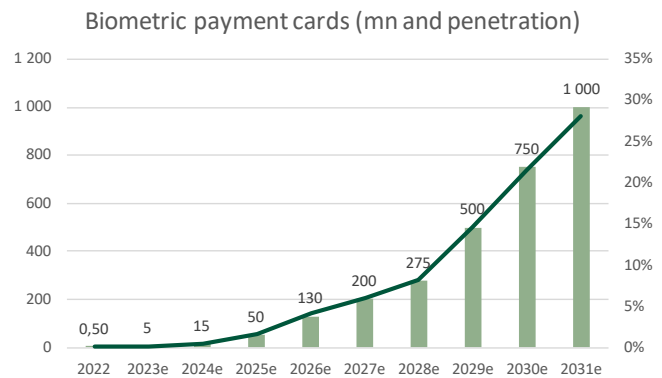
We estimate biometric cards reaching one billion in 2031, eight years from 2023 – our base year. Over this eight-year period, we model a gradual increase in the market for biometric cards (Charts 15–17).

Chart 14: 5% CAGR for contactless cards



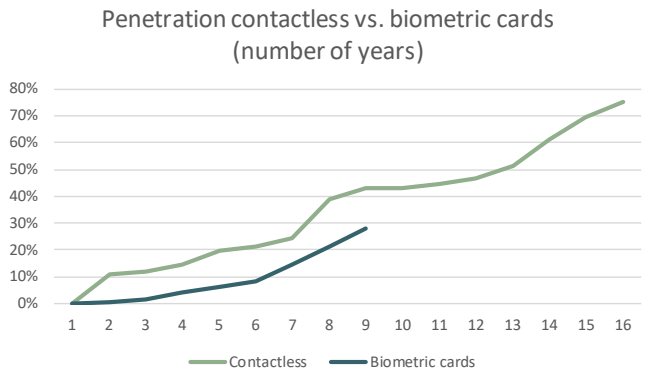
Source: Eurosmart, EPB

Chart 15: Biometric cards estimated to reach mass market (1bn cards) in eight years



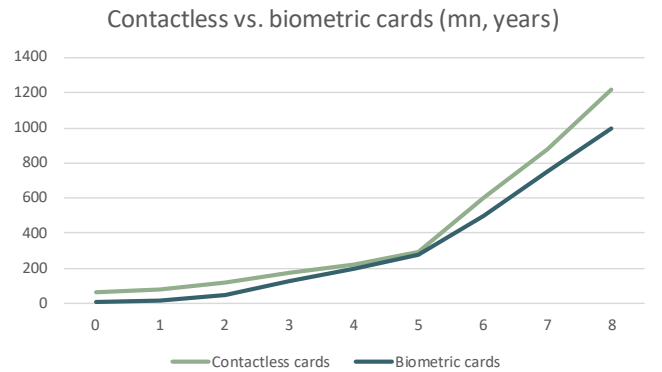
Source: Eurosmart, EPB

Chart 16: We expect the penetration of biometric cards...



Source: Eurosmart, EPB

Chart 17: ...to largely follow the development of contactless in the first eight years



Source: Eurosmart, EPB

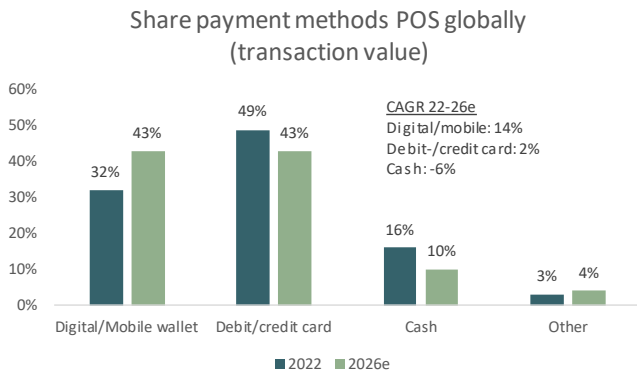
Cards and digital wallets to complement each other in the foreseeable future

Digitalisation of payments continues to expand, particularly at the expense of cash. According to FIS, a company offering tech solutions and services to the financial sector, digital wallets' share of global payments in physical trade will grow from 32% in 2022 to 43% by 2026, while the total share for cash will drop from 16% to 10% (Chart 18). Although payment and credit cards' share will also decline (from 49% to 43%), we see low single-digit growth in the transaction value for cards globally.

Of course, this will vary considerably between regions. Payment and credit cards had a larger share than mobile wallets globally in 2022, but mobile wallets already dominated in Asia, at 47% of payments in physical trade (21% for cards and 15% for cash). In Europe, cards dominate and are expected to do so still in 2026. Although mobile wallets are growing rapidly, cards are expected to grow by 7% a year in 2022–2026 (Charts 19–21).

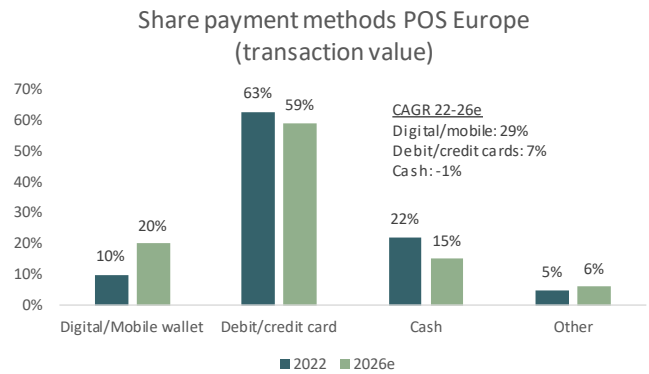
Mobile wallets' competition with cards is one of the most common debates when discussing biometric cards. The data and estimates above and in Charts 18–22 show that cards will complement mobile wallets for the foreseeable future – they will co-exist. It is worth remembering that while mobile wallets dominate in Asia, they are not as dominant in Europe or North America. Europe and North America are significant markets for payment and credit cards – Asia and APAC (excluding China) represent just 13% of the global card market (Chart 23).

Chart 18: Payment and credit cards to grow by 2% a year globally...



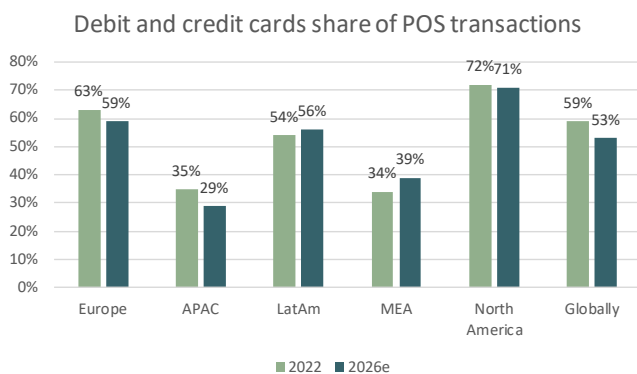
Source: FIS, EPB

Chart 19: ...but to accelerate faster in Europe



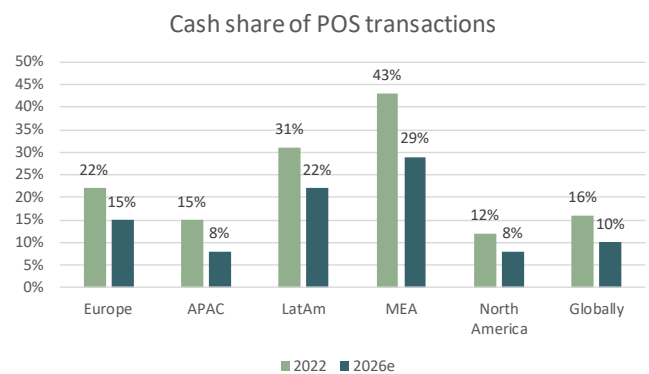
Source: FIS, EPB

Chart 20: Mobile wallets dominate in Asia



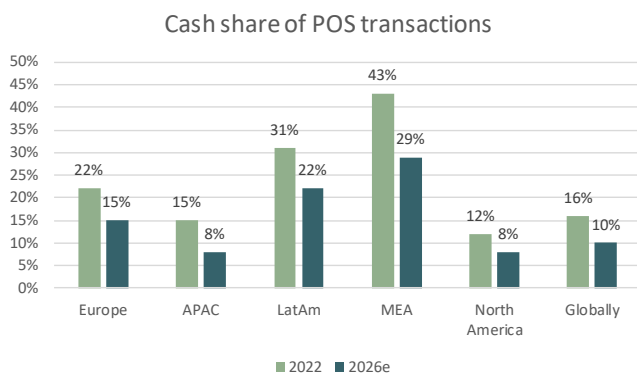
Source: FIS, EPB

Chart 21: Credit and payment cards to remain strong in Europe and North America



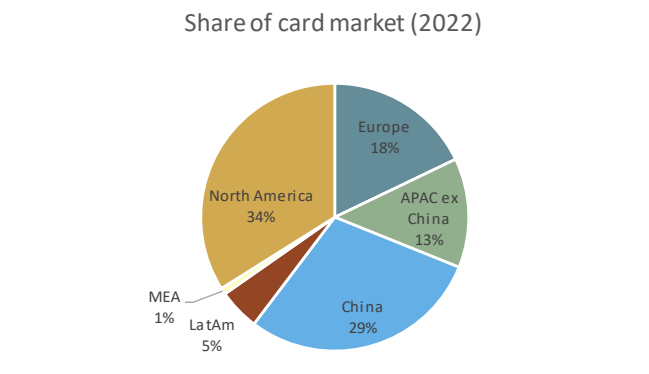
Source: FIS, EPB

Chart 22: Cash losing market share in all regions



Source: FIS, EPB

Chart 23: North America and Europe are important card markets

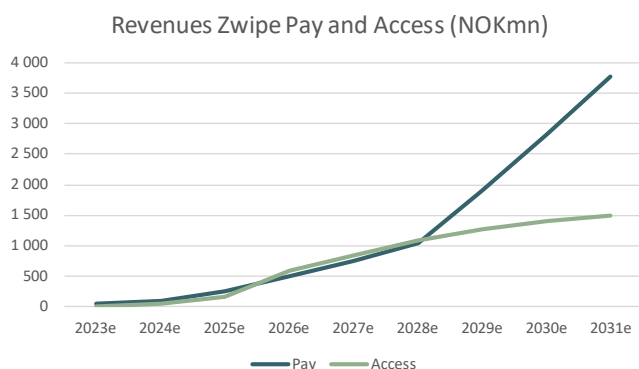


Source: FIS, EPB

Valuing Zwipe at almost NOK 11 per share in our SOTP

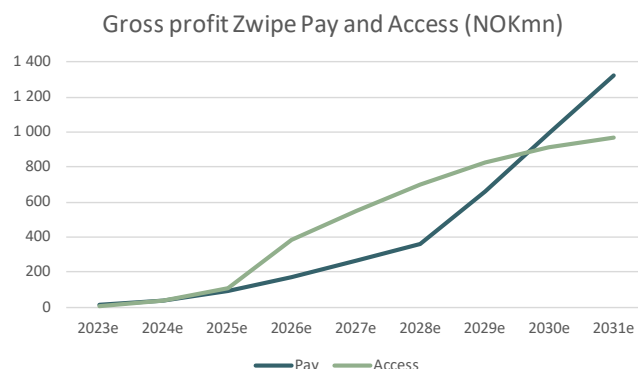
We anticipate solid growth in both Pay and Access in 2023e–2026e and on our estimates it will not be until the end of the decade that Pay overtakes Access (Chart 24). The profit contribution from Access will be larger than from Pay for most of the forecast period (Chart 25) as the gross margins in this business are higher (some 65% versus around 35%). In total, we forecast revenues of over NOK 1bn in 2026 compared to NOK 3m in 2022.

Chart 24: We believe both areas will contribute similar revenues until the end of the decade...



Source: EPB

Chart 25: ...but that Access will contribute more to profits during our forecast period



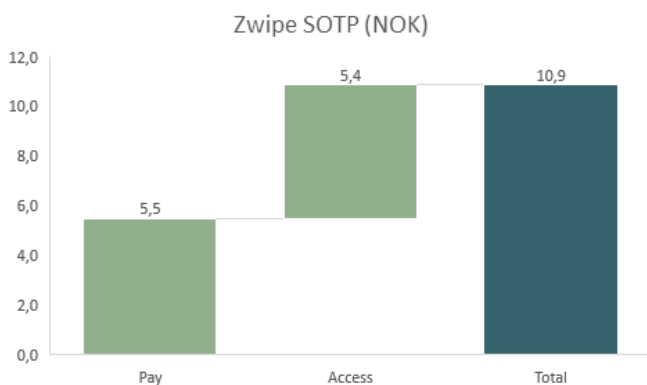
Source: EPB

As biometrics are unproven in both payment and access cards, it remains uncertain if the technology can achieve mass market and whether Zwipe can succeed as a prominent player. Our market scenarios are based on both biometric payment and access cards achieving commercial success and reaching mass market. We estimate penetration for both at around 30% in around a decade's time. We see the likelihood of this happening at some 40% and so we probability-adjust our valuation by 40% to account for this risk.

To account for the likelihood of Zwipe becoming a key player, we discount our valuation for Pay by 25% and for Access by 15%. We believe the pipeline for Access indicates a higher likelihood of this business taking off than for Pay.

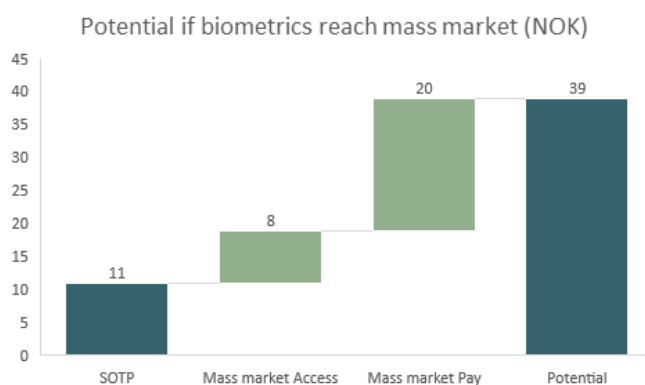
Our probability-weighted aggregate value for Pay and Access is almost NOK 11 per share (Chart 26) – we describe our assumptions in detail below. If it becomes clear that biometrics will achieve commercial success and the likelihood rises to 100%, the discount rate would also drop and we would see a potential for close to a quadrupling of the value (Chart 27).

Chart 26: We value Zwipe at almost NOK 11 per share in our SOTP...



Source: EPB

Chart 27: ...with potential upside to more than NOK 30 if both technologies achieve mass market

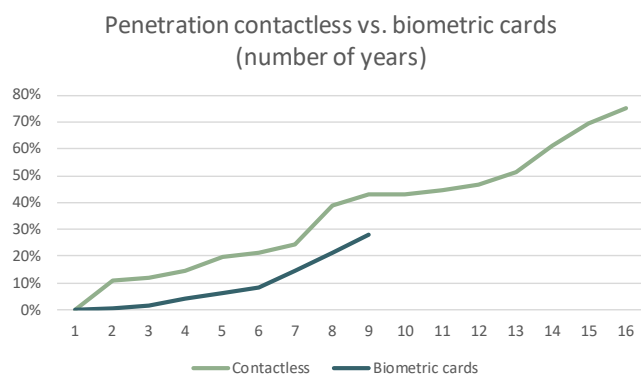


Source: EPB

We value Zwipe Pay at NOK 5.5 per share...

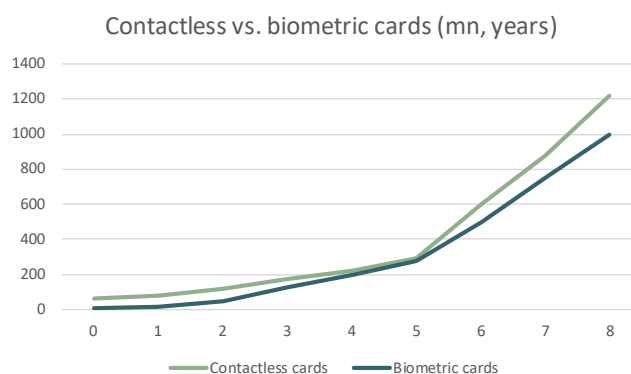
As discussed above, contactless cards achieved mass market (one billion cards a year) within eight years. We believe biometric cards, which are the next generation of EMV, will also reach mass market in eight years (Charts 28–29). Although biometric cards have already been introduced, it has taken longer than expected for them to take off. Now, however, their commercialisation should accelerate, and we use 2023 as the base year, meaning mass market should be achieved at the start of the next decade. This means biometric cards should have around 30% penetration in 2031e (Table 1).

Chart 28: We expect the penetration of biometric cards...



Source: Eurosmart, EPB

Chart 29: ...to largely follow the development of contactless in the first eight years



Source: Eurosmart, EPB

We also expect an average selling price (ASP) of USD 10 this year, declining to USD 7 over time (Table 1). Zwipe's target group is primarily tier 2 and 3 card producers. Given a 15–20% share of this target group, the company will gain a 5% share of the total market over time when it reaches mass market. On these assumptions, we forecast revenues of NOK 3.8bn in the early 2030s, having grown incrementally from NOK 3m in 2022.

Table 1: Solid growth over the coming decade

	2022	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e
Contactless cards (bn)	2,6	2,9	3,0	3,1	3,2	3,3	3,4	3,4	3,5	3,6
Growth, y/y	7%	9%	5%	3%	3%	3%	2%	2%	2%	2%
Biometric penetration (%)	0%	0%	0%	2%	4%	6%	8%	15%	21%	28%
Biometric cards(mn)	0,50	5,00	15	50	130	200	275	500	750	1 000
Zwipe share	7%	7%	7%	6%	5%	5%	5%	5%	5%	5%
Cards Zwipe Pay (mn)	0,03	0,35	1,1	3,0	6,5	10,0	14	25	38	50
ASP (USD)	10,0	10,0	9,0	8,0	7,0	7,0	7,0	7,0	7,0	7,0
ASP (NOK)	96	107	97,2	86,4	75,6	75,6	75,6	75,6	75,6	75,6
Sales (NOKmn)	3,1	37	102	259	491	756	1 040	1 890	2 835	3 780

Source: Company, EPB

As the company has not yet achieved a commercial breakthrough, we use P/S as the target multiple, and we apply this to 2031 – which is when we anticipate commercial success – and then calculate the present value. As it is still uncertain both whether biometric cards will see their commercial breakthrough and what role Zwipe will play, we apply a high discount rate (25%). As it has taken longer than expected for biometric cards to break through, we assume a 40% likelihood that the cards will reach commercialisation and then adjust our present value with this. This leads to a valuation of NOK 5.5 per share for Zwipe Pay (Tables 2–3).

Table 2: Present value of Zwipe Pay of NOK 13.7 per share...

P/S	1,5
Value Dec 2030 (NOKmn)	4 253
Discount rate	25%
Present value (PV, NOKmn)	797
Number of shares (mn)	58
PV per share (NOK)	13,7
EBIT margin	0,98
PV per share (SEK)	13,4

Source: EPB

Table 3: ...which becomes NOK 5.5 when adjusted for 40% likelihood of biometric cards reaching mass market

<u>Probability that mass market is reached</u>	<u>NOK</u>	<u>SEK</u>
20%	2,7	2,7
30%	4,1	4,0
40%	5,5	5,4
50%	6,8	6,7
60%	8,2	8,1
70%	9,6	9,4
80%	10,9	10,8

Source: EPB

Given successful commercialisation and in a scenario in which market volumes increase substantially, the likelihood of biometric cards achieving mass market increases and the discount rate drops. If the likelihood were to rise to 100% for biometric cards and the discount rate to drop to 15%, the valuation of Zwipe Pay would increase more than fourfold (Table 4).

Table 4: Sensitivity analysis (NOK per share)

		Discount rate						
		10,0%	12,5%	15,0%	17,5%	20,0%	22,5%	25,0%
Probability that mass market is	40%	14,2	12,0	10,2	8,7	7,4	6,4	5,5
	50%	17,8	15,0	12,8	10,9	9,3	7,9	6,8
	60%	21,4	18,1	15,3	13,0	11,1	9,5	8,2
	70%	24,9	21,1	17,9	15,2	13,0	11,1	9,6
	80%	28,5	24,1	20,4	17,4	14,8	12,7	10,9
	90%	32,1	27,1	23,0	19,5	16,7	14,3	12,3
	100%	35,6	30,1	25,5	21,7	18,5	15,9	13,7

Source: EPB

...and Zwipe Access at NOK 5.4 per share

In its operational update for Q1, the company stated its North American partner Civix had launched a proof-of-concept (POC) at Richmond international airport. During the quarter, Zwipe took part in ISC West, one of the largest trade fair in the US, gaining more than 20 prospects. The company has more than 15 ongoing POCs over the coming months. We anticipate a significant rise in the number of cards in the coming years (Table 5).

For the sake of simplicity and comparison, we use the same time horizon for Access as for Pay and thus forecast until 2031, although we expect this market to develop completely differently and believe the chance of successful commercialisation here is higher.

We estimate an ASP of USD 35 – card prices are considerably higher than for payment cards as it must produce the entire card itself – and given the assumptions in Table 5, we forecast 2031 revenues of around NOK 1.5bn. Although this is lower than for Zwipe Pay, we see lower risk in these estimates.

Table 5: Solid increase in the number of cards in the coming years

	2022	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e
Smart access cards (mn)	307	384	462	567	688	791	870	914	941	969
Accessible market (mn)		69	106	159	227	261	287	302	311	320
Number of cards focused verticals (mn)		9	19	43	79	96	108	117	124	132
Biometric penetration (%)		1%	3%	7%	14%	18%	22%	26%	30%	30%
Biometric cards focus verticals (k)		88	574	2 989	11 093	17 222	23 849	30 482	37 314	39 586
Zwipe share		35%	25%	15%	14%	13%	12%	11%	10%	10%
Cards Zwipe Pay (mn)	1	31	143	448	1 553	2 239	2 862	3 353	3 731	3 959
ASP (USD)	35	35	35	35	35	35	35	35	35	35
ASP (NOK)	337	373	378	378	378	378	378	378	378	378
Revenues (NOKmn)	0,2	12	54	170	587	846	1 082	1 267	1 410	1 496

Source: EPB

Owing to the solid pipeline, we apply a lower discount rate than for Zwipe Pay – we use 15% for Zwipe Access. Given a 40% likelihood of reaching mass market, we arrive at a value of NOK 5.4 per share for Zwipe Access.

Table 6: Present value of Zwipe Access of NOK 13.5 per share...

P/S	1,5
Value Dec 2030 (NOKmn)	2 245
Discount rate	15%
Present value (PV, NOKmn)	787
Number of shares (mn)	58
PV per share (NOK)	13,5
EBIT margin	0,98
PV per share (SEK)	13,3

Source: EPB

Table 7: ...which becomes NOK 5.4 when adjusted for 40% likelihood that biometric cards reach mass market

	Probability that mass market is reached	NOK	SEK
	40%	5,4	5,3
	50%	6,7	6,6
	60%	8,1	8,0
	70%	9,4	9,3
	80%	10,8	10,6

Source: EPB

The upside potential in Access is lower than in Pay as we believe the risk is lower and we thus apply a lower discount rate. We see a possibility for the discount rate to decline further if a commercial breakthrough is achieved and the likelihood of reaching mass market for biometric access cards increases. If we apply a somewhat lower discount rate and 100% likelihood of commercial breakthrough and mass market, we see potential for a fourfold increase in the value of Zwipe Access (Table 8).

Table 8: Sensitivity analysis (NOK per share)

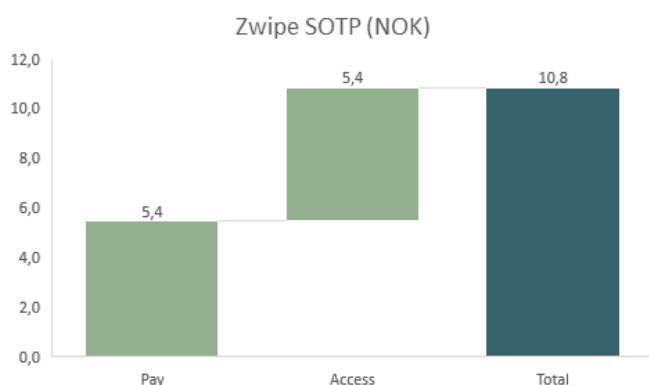
		Discount rate						
		10,0%	12,5%	15,0%	17,5%	20,0%	22,5%	25,0%
Probability that mass market is	40%	7,5	6,4	5,4	4,6	3,9	3,4	2,9
	50%	9,4	7,9	6,7	5,7	4,9	4,2	3,6
	60%	11,3	9,5	8,1	6,9	5,9	5,0	4,3
	70%	13,2	11,1	9,4	8,0	6,9	5,9	5,0
	80%	15,0	12,7	10,8	9,2	7,8	6,7	5,8
	90%	16,9	14,3	12,1	10,3	8,8	7,5	6,5
	100%	18,8	15,9	13,5	11,5	9,8	8,4	7,2

Source: EPB

Almost NOK 11 in our SOTP with potential for quadrupling

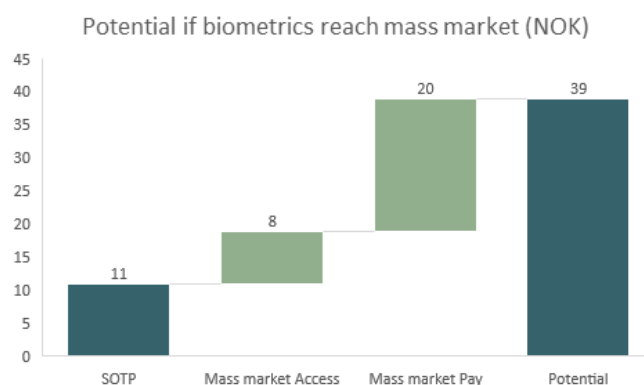
Given 40% probability that biometrics for Access and Pay reach mass market, 15% discount rate for Access and 25% for Pay we reach a probability weighted SOTP for Zwipe of almost NOK 11 (Chart 30). If we were to see signs of broad commercial breakthrough and the probability for success to reach 100%, the discount rate would fall and we would see potential for a quadrupling of the value (Chart 31).

Chart 30: We value Zwipe at almost NOK 11 in our SOTP...



Source: EPB

Chart 31: ...with potential upside to almost NOK 40 if both technologies achieve mass market



Source: EPB

Table 9: DCF – main assumptions and conclusions

Valuation output		WACC assumptions		Terminal value assumptions	
Sum of PV of FCF (explicit period)	828	Risk-free nominal rate	2,5%	Long-term growth rate	3,0%
PV of terminal value (perpetuity formula)	347	Risk premium	5,5%	Long-term EBIT margin	15,0%
Enterprise value	1 175	Small cap premium	2,0%	Depreciation (% of sales)	0,5%
Latest net debt	-122	Extra risk premium	0,2	Capex (% of sales)	0,5%
Minority interests & other	0	WACC	25,0%	Working cap. (% of sales)	19,2%
Equity value	1 297			Tax rate	22%
No. of shares outstanding (millions)	58				
Equity value per share	22				

Source: EPB

Table 10: DCF – sensitivity

	Long-term growth rate					Long-term EBIT margin					
	2,0%	2,5%	3,0%	3,5%	4,0%	10,0%	12,5%	15,0%	17,5%	20,0%	
15,0%	52	52	54	55	56	15,0%	43	48	54	59	64
20,0%	32	32	33	33	33	20,0%	28	30	33	35	38
WACC 25,0%	22	22	22	22	23	WACC 25,0%	20	21	22	23	25
30,0%	16	16	16	16	16	30,0%	15	15	16	17	18
35,0%	12	12	12	12	12	35,0%	11	12	12	13	13

Source: EPB

Ownership, Board of Directors and management

The largest shareholder in Zwipe is Vasastaden/Niclas Eriksson and related parties, controlling 16.3% of the capital and votes. Next is Erik Selin Fastigheter AB with 10.7%. The third-largest shareholder is Lars Windfeldt with a 5.2% stake. After this come Energetic AS (3.5%) and Avanza Pension (3% of the capital and votes).

Board of directors

Zwipe's current board comprises 1+5 ordinary board members, as shown below.

Jörgen Lantto, chair of the board: Joined the board in 2016. Former CEO, Executive Vice President, and CTO and strategy and product development manager at Fingerprint Cards AB. Before Fingerprint, Jörgen worked in a wide range of senior management roles at Ericsson. His other assignments include board member at Cambridge Mechatronics Ltd, Bromma Tech Consulting AB, Dirac Research AB, Wirepas Oy, and Tobii AB. Independent in relation to the company and major shareholders.

Dennis Jones, board member: Joined the board in 2018. Former COO at TSYS Issuer Solutions, board member at Paysafe PLC. Dennis has also been chair of the board and held other executive roles at major corporations in the UK, the US, and China. Independent in relation to the company and major shareholders.

Tanya Juul Kjaer, board member: Joined the board in 2021. Previously held product and management roles at Klarna, H&M Group, and iZettle. Currently, Vice President of Product at Jus Mundi and board member at Yabie. Independent in relation to the company and major shareholders.

Christina Örn, board member: Joined the board in 2023. Serves as Head of Payments and Cards with Länsförsäkringar Bank AB in Sweden. Christina has extensive experience in the financial services industry, particularly in the area of payments and cards. She has held various leadership roles in companies such as Länsförsäkringar Bank, Fido Consulting AB, Tieto, Visa, SEB, and Nordea.

David Chew, board member: Joined the board in 2023. Previously Senior Vice President, Finance, at TSYS Issuer Solutions. He was a member of the Issuer Solutions and International Executive Leadership teams, driving financial management globally and had various positions in TSYS between 2006 and 2023. David has also held positions at Fujitsu, Cincom Systems, and KPMG.

Robert Jansson, proposed board member (EGM to be held 10 July 2023): Director Sales of Northern and East Europe & South Africa with STid Security. He has been working in the field of identity and access management since 1998. Robert has held various positions throughout his career, including sales and export manager roles at Solid (part of the foundation of Assa Abloy) and HID Global in the Nordics.

Management

Robert Puskaric, CEO: Assumed this role in 2022. Previously CEO of Doro Group AB, Eniro Group AB, and Ericsson, where he has also held several other senior management positions.

Danielle Glenn, CFO & Head of IR: Assumed the position in 2022. Previous experience at Goldman Sachs, Caxton Associates, and Bywater Capital, where she was CIO and global macro hedge fund manager, and as CFO at Arctic Bioscience AS.

Eric Mercer, COO: Joined the management group in 2018. Previous experience at Intel Corporation and Cobham Semiconductor Solutions.

Patrice Meilland, Chief Strategy, Product and Marketing Officer: Assumed this position in 2022. Many years' experience in the semiconductor, mobile, and payment card industries at ST Microelectronics and Ericsson, among others.

Dr Robert Mueller, CTO: Joined the management group in 2019. Has more than 20 years' experience in senior tech development positions with a focus on biometrics and smart card technology at companies including Siemens, Giesecke+Devrient, BMW, and Next Biometrics.

Income statement

	2021	2022	2023e	2024e	2025e	2026e
Net sales	2	3	49	156	429	1 078
Other operating income	1	1	1	1	1	1
Total revenue	3	4	49	157	429	1 079
Cost of goods sold	-1	-2	-29	-86	-228	-525
Gross profit	2	2	21	71	201	554
Other Operating Expenses	-83	-98	-91	-69	-75	-85
EBITDA	-75	-102	-71	2	126	469
Items affecting comparability	7	-6	0	0	0	0
EBITDA, adjusted	-82	-96	-71	2	126	469
Depreciation	-8	-2	-1	-1	-1	-1
EBITA, adjusted	-90	-98	-72	0	125	467
EBIT	-83	-104	-72	0	125	467
EBIT, adjusted	-90	-98	-72	0	125	467
Net Financial Items	0	0	0	0	-1	0
Profit before tax	-83	-104	-72	0	124	467
Profit before tax, adjusted	-90	-98	-72	0	124	467
Taxes	0	-1	0	0	-27	-103
Net income	-83	-105	-72	0	97	364
Net income, adjusted	-91	-99	-72	0	97	364
<i>Sales Growth</i>	-	55%	>100%	>100%	>100%	>100%
<i>Gross Margin</i>	91,1%	52,5%	42,1%	45,4%	46,9%	51,3%
<i>EBIT Margin, Adjusted</i>	Neg.	Neg.	Neg.	0,3%	29,1%	43,3%
<i>EPS, Adjusted</i>	-2,66	-2,64	-1,23	0,01	1,65	6,24
<i>EPS Growth, Adjusted</i>	-	N.m.	N.m.	N.m.	>100%	>100%

Source: Zwipe, EPB

Cash flow statement

	2021	2022	2023e	2024e	2025e	2026e
EBIT	-83	-104	-72	0	125	467
Other Cash flow Items	12	5	1	1	-27	-101
Changes in working capital	-6	-9	-17	-18	-51	-121
Cash flow from operating activities	-77	-108	-87	-16	47	244
Investments in Fixed Assets	-2	-1	-1	-1	-1	-1
Cash Flow From Investments	-2	-1	-1	-1	-1	-1
Free cash flow	-78	-110	-89	-18	46	243
New share issue / repurchase	105	5	100	0	0	0
Change in liabilities	0	0	0	18	-18	0
Cash flow from financing	105	5	100	18	-18	0
Cash flow	27	-104	11	0	29	243
Net debt	-152	-50	-62	-44	-90	-333

Source: Zwipe, EPB

Balance sheet

	2021	2022	2023e	2024e	2025e	2026e
ASSETS						
Tangible fixed assets	3	3	3	3	3	3
Total fixed assets	4	3	3	3	3	3
Inventories	2	10	20	23	39	75
Accounts receivable	0	2	10	31	86	216
Other current assets	5	1	1	1	1	1
Cash and cash equivalents	152	50	62	62	90	333
Total current assets	160	64	92	118	216	626
TOTAL ASSETS	163	68	96	121	219	629
EQUITY AND LIABILITIES						
Equity	149	55	83	83	180	544
Total equity	149	55	83	83	180	544
Long-term interest-bearing liabilities	0	0	0	18	0	0
Total long-term liabilities	0	0	0	18	0	0
Accounts payable	1	3	3	11	30	75
Other current liabilities	14	10	10	10	10	10
Total current liabilities	15	13	13	21	40	85
TOTAL EQUITY AND LIABILITIES	163	68	96	121	219	629

Source: Zwipe, EPB

Growth and margins

	2021	2022	2023e	2024e	2025e	2026e
Revenue growth	-	55%	>100%	>100%	>100%	>100%
EBITDA growth, adjusted	-	N.m.	N.m.	N.m.	>100%	>100%
EBIT growth, adjusted	-	N.m.	N.m.	N.m.	>100%	>100%
EPS growth, adjusted	-	N.m.	N.m.	N.m.	>100%	>100%
Gross margin	91,1%	52,5%	42,1%	45,4%	46,9%	51,3%
EBITDA margin	Neg.	Neg.	Neg.	1,1%	29,4%	43,4%
EBITDA margin, adjusted	Neg.	Neg.	Neg.	1,1%	29,4%	43,4%
EBIT margin	Neg.	Neg.	Neg.	0,3%	29,1%	43,3%
EBIT margin, adjusted	Neg.	Neg.	Neg.	0,3%	29,1%	43,3%
Profit margin, adjusted	Neg.	Neg.	Neg.	0,2%	22,5%	33,8%

Source: Zwipe, EPB

Return

	2021	2022	2023e	2024e	2025e	2026e
ROE, adjusted	Neg.	Neg.	Neg.	0%	74%	>100%
ROCE, adjusted	Neg.	Neg.	Neg.	0%	89%	>100%
ROIC, adjusted	Neg.	Neg.	Neg.	1%	>100%	>100%

Source: Zwipe, EPB

Capital efficiency

	2021	2022	2023e	2024e	2025e	2026e
Inventory / total revenue	96%	>100%	40%	15%	9%	7%
Accounts receivable / total revenue	3%	58%	20%	20%	20%	20%
Accounts payable / COGS	100%	>100%	12%	13%	13%	14%
Total short-term liabilities / total cost	19%	12%	11%	13%	13%	14%
Working capital / total revenue	-298%	20%	36%	23%	20%	19%
Capital turnover rate	0,0x	0,1x	0,6x	1,6x	2,4x	2,0x

Source: Zwipe, EPB

Financial position

	2021	2022	2023e	2024e	2025e	2026e
Net debt	-152	-50	-62	-44	-90	-333
Equity ratio	91%	81%	86%	68%	82%	86%
Net debt / equity	-1,0x	-0,9x	-0,7x	-0,5x	-0,5x	-0,6x
Net debt / EBITDA	2,0x	0,5x	0,9x	-24,9x	-0,7x	-0,7x

Source: Zwipe, EPB

Per share data

	2021	2022	2023e	2024e	2025e	2026e
EPS	-2,45	-2,80	-1,23	0,01	1,65	6,24
EPS, adjusted	-2,66	-2,64	-1,23	0,01	1,65	6,24
FCF per share	-2,31	-2,93	-1,52	-0,30	0,79	4,16
Dividend per share	0,00	0,00	0,00	0,00	0,00	0,00
Book value per share	4,37	1,46	1,41	1,42	3,07	9,31
Number of shares, m	34,0	37,4	58,4	58,4	58,4	58,4
Number of shares after dilution, average	34,0	37,4	58,4	58,4	58,4	58,4

Source: Zwipe, EPB

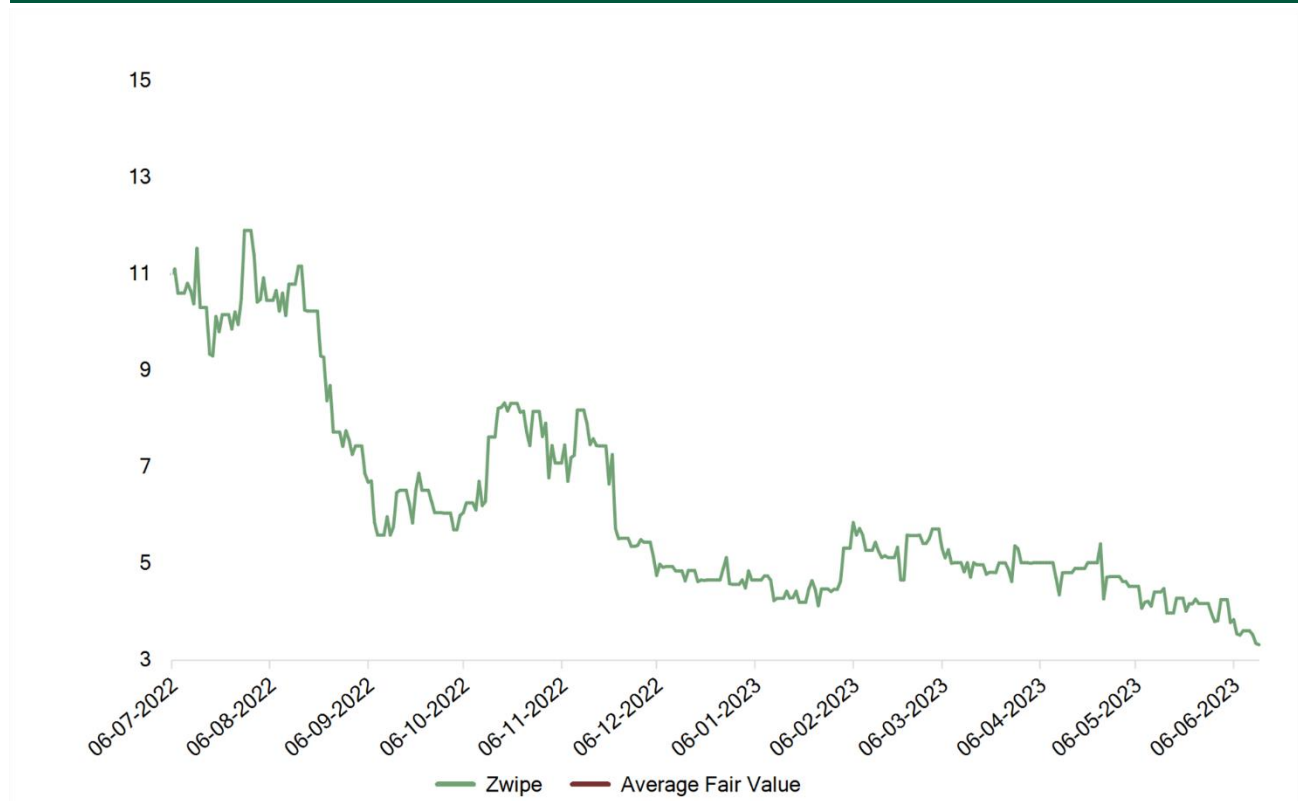
Valuation

	2021	2022	2023e	2024e	2025e	2026e
P/E, adjusted	Neg.	Neg.	Neg.	598,5x	2,0x	0,5x
P/BV	6,2x	3,1x	2,3x	2,3x	1,1x	0,4x
P/FCF	Neg.	Neg.	Neg.	Neg.	4,2x	0,8x
FCF-yield	Neg.	Neg.	Neg.	Neg.	24%	>100%
Dividend yield	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Payout ratio, adjusted	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
EV/Sales	332,0x	30,6x	1,4x	0,5x	0,2x	0,1x
EV/EBITDA, adjusted	Neg.	Neg.	Neg.	40,1x	0,6x	0,2x
EV/EBIT, adjusted	Neg.	Neg.	Neg.	171,6x	0,6x	0,2x
EV	844	120	71	71	71	71
Share price, year end	26,9	4,6	3,3	3,3	3,3	3,3

Source: Zwipe, EPB

Share Price and Fair Value Chart

Zwipe (ZWIPE NO EQUITY)



Source: EPB, IDC

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