

DEUTSCHE BANK

EUROPEAN BANKS

STUDENT: VALON GERDOVCI

COMPANY REPORT

04 JANUARY 2019

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Be patient – Metamorphosis takes time in the banking environment

- **IB market share stabilizes.** Despite historical declining global IB revenue, DBK's market share is stabilizing. Increased focus on Europe and capital re-deployment leave hope for future IB revenue growth. Furthermore, our forecast includes an increase in FICC revenues which is driven by higher volatility as a consequence of the end of QE in Europe.
- **Increased revenues in P&C business.** We are expecting €1.2bn higher revenues in the Private & Commercial segment in 2021E which is mainly driven by higher net interest income.
- **Decreasing cost base in P&C.** Further cost cutting efforts are expected which are driven by downsizing of branches and the integration with Postbank.
- **DBK has shown strong cost improvements.** The strong focus on cost-cutting efforts has shown its improvement on DBK's profitability. We anticipate further improvement as we expect a stronger strategic focus on reducing the complexity of the whole bank.
- **Extraordinary costs to be normalized.** Litigation and restructuring costs which significantly impacted DBK's profitability in recent years are going to normalize by 2021E.
- **Lower refinancing costs.** DBK has shown good results in the EBA stress test on 2nd November 2018. Its improved balance sheet quality and the fact that the bank is headquartered in Germany will contribute to lower refinancing costs.

Recommendation: BUY**Price Target FY19: 10.50€****Price (as of 4-Jan-19) 7.10€**

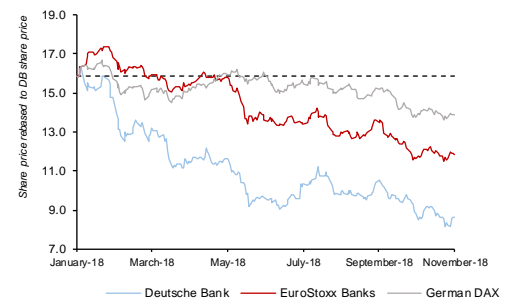
Reuters: DBKGn.DE, Bloomberg: DBK GY

52-week range (€) 6.68 - 16.46

Market Cap (€bn) 14.65

Outstanding Shares (m) 2,066

Source: Bloomberg



Source: Bloomberg

(Values in € millions)	2017	2018E	2019E
Net Interest Income	12,378	11,373	12,045
General adm. expenses	11,973	10,025	9,740
Cost-Income-Ratio	93.4%	92.1%	84.0%
Total assets (€bn)	1.47	1.49	1.50
Loans	401,699	410,670	419,574
CET1 capital	48,300	48,299	49,346
T1 Leverage ratio	3.8%	4.0%	4.4%
RoE	(1.1)%	1.1%	3.0%
P/E	(44.5)x	24.7x	11.4x
P/BV	0.32x	0.30x	0.30x

Source: Company reports, Analyst's estimates

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY VALON GERDOVCI, A MASTERS IN FINANCE STUDENT OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A PURE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL.
(PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

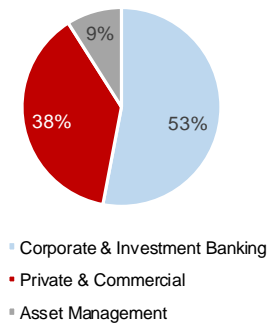
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Company overview

DBK is the 17th largest bank in the world by total assets.

Figure 1: Revenue breakdown



Source: Company report

Company description

A long time ago in Berlin, some bankers had the idea of recreating banking in Germany. The leading figures of these were Ludwig Bamberger and Adelbert Delbrück who are both seen as the “true founders” of Deutsche Bank (“DBK”). During the 1870s, the banking industry was highly affected by industrialization which meant that the industry was in radical change. Based on the industrialization, financing needs were growing and the banking sector had to adapt to this. The initial idea behind the foundation of DBK was to challenge the supremacy of the UK banking sector, which continuously dominated the financing of German foreign trade. DBK’s early decades were focused on rapid expansion and can nowadays call itself one of the largest banks in the world.

DBK is the 17th largest bank in the world by total assets (as of Dec 2017) and the largest bank in Germany. DBK operates in three different segments: **Private & Commercial Bank** (retail banking), the **Corporate & Investment Bank** (CIB) and **Asset Management** (DWS).

Most of its profit is generated from Corporate and Investment Banking services worldwide, but DBK also provides private clients, as well as small and medium sized companies, with retail banking, transaction services and asset management services.

Geographical presence

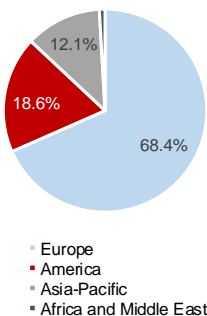
DBK is present in 58 countries with around 2,425 branches and around 97,535 employees. DBK has significant presence in Europe, America and Asia. Its retail banking franchise is centred on Germany with an international presence in Poland, India, Italy, Spain, Belgium and Portugal. Most of its revenue is generated in Germany with an upward trend within the last three years. Contrary to the US, revenues remarkably increased in Hong Kong and India by 29% and 11% respectively. These trends also depict DBK’s current strategy within which they want to downsize its US activities while simultaneously invest into the Asia-Pacific region.

Figure 2: Revenue exposure by country

	% of revenue	Change YoY	3 year trend
Germany	37.5%	6.8%	
US	18.1%	(8.4)%	
UK	15.9%	5.8%	
Luxembourg	5.3%	(8.1)%	
Singapore	3.2%	(4.5)%	
Italy	2.9%	(1.9)%	
Hong Kong	2.4%	28.6%	
India	1.8%	10.5%	

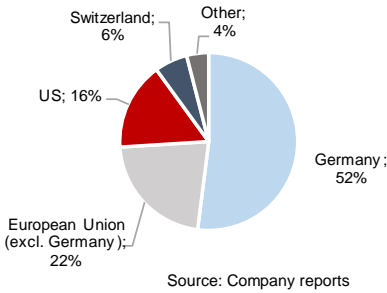
Source: Company report

Figure 3: Revenue exposure by super-region



Source: Company report

Figure 4: Shareholder geographical split



Shareholder structure

DBK has a stable equity structure, within which around 27.5% belongs to institutional ownership. The top 10 institutional holders make up around 16% of total ownership with BlackRock Fund Advisors (4.8%) and The Vanguard Group (2.5%) holding the highest share among institutional investors. Looking at the insider ownership, Hainan Traffic Administration Holding Co. Ltd. (7.6%), Al Thani Hamad Bin Jassim Bin Jabor (4.0%) and Cerberus Capital Management (3.0%) are the top 3 stakeholders of DBK. Recently, DBK’s shareholder structure has been under criticism as Katar holds a significant stake in the company. The shareholders from Katar are advised by Michele Faissola, a former top bank manager of DBK’s asset management division, who has been accused of conducting fraud within DBK. Thus, many shareholders of DBK are sceptical about the future as the main stakeholders seem to not be very patient with DBK’s long-lasting restructuring plans.

Deutsche Bank’s role in the global financial crisis

Since the financial crisis, DBK still has to deal with the consequences of the financial crisis as it did not only hurt the corporation financially but also its worldwide reputation. When the financial crisis started off, DBK recorded its first loss in over 50 years. In more detail, net profit declined from €6.6bn in 2007 to €(3.9)bn in 2008. This huge loss was mainly impacted by the investment banking division. As many other banks during the crisis, DBK was actively trading financial derivatives which were linked to the global housing market (Collateral Debt Obligations and Residential Mortgage Backed Securities). In the end, these financial instruments were the reason why the investment banking division recorded its all-time high loss. However, in order to understand the significant impact, it is important to examine DBK’s risk exposure to CDOs and RMBSs during this time. In the figures 5 – 6, one can see DBK’s high exposure to residential mortgages (Europe and US) which has accounted for 80% of its total exposure amounting to €7.3bn. After Lehmann Brothers defaulted, DBK has put efforts on mitigating its risk by getting rid of risky loans and dismissing employees, who have been accused of illegally exposing DBK to risky transactions.

Figure 5: DBK net exposure 2007

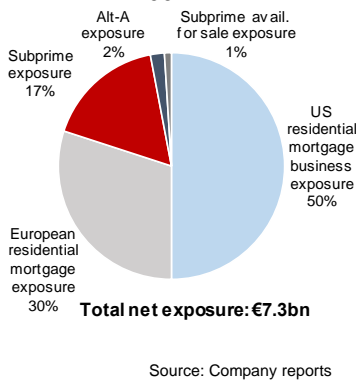


Figure 6: DBK net exposure 2008

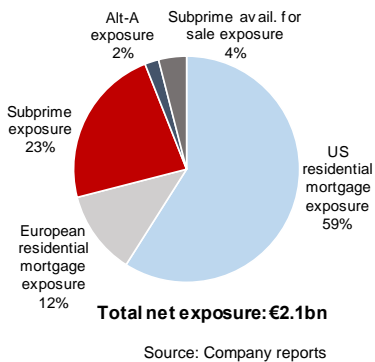
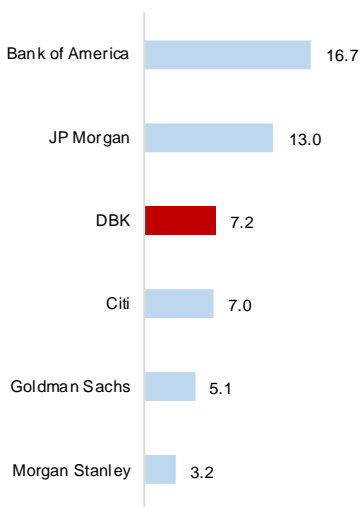


Figure 7: Gross and net exposure of DBK 2007 - 2008

€m	2007	2008
Gross exposure	15,895	6,261
less: hedges and other protection purchases	-9,223	-4,517
less: short position	-446	-6
add: other trading related net positions	989	403
Net exposure	7,215	2,141

Source: Company reports

Figure 8: Paid penalties (\$bn)



Source: Thomson Reuters

DBK's paid penalty was in the midrange of other penalty payments.

Despite the negative impacts during the financial crisis, DBK's hedges were well positioned against the risk of any market fluctuations which can be seen in figure 7 which shows the difference between net and gross exposure for the years 2007 to 2008. In addition to that, most of were insured by the American International Group (AIG). However, the insurer faced financial troubles during the peak of the financial crisis, leading to a bailout package in the amount of €10.4bn for DBK. DBK quickly acknowledged that it had to diversify its revenue streams away from the riskier investment banking division. Thus, in 2008 DBK started to acquire the Deutsche Postbank, a leading German retail bank. In this way, the corporation was able to extend its domestic retail business by 15 million customers.

The actions before and during the financial crisis have caused DBK many long-lasting juridical prosecutions. However, in 2017 DBK has agreed to pay \$7.2bn for its conduct and "irresponsible lending practices" before the global financial crisis. The paid amount is on one hand a civil penalty of \$3.1bn and a relief payment for homeowners in the amount of \$4.1bn. The paid penalty is in the midrange compared to penalty payments of other leading banks (see figure 8).

Controversies

DBK itself as well as employees of the bank were involved in many controversies and allegations of illegal transactions. As of 2017, DBK was involved in around 7,750 legal disputes which makes shareholders sceptical of future litigation costs. One of the most recent controversy is DBK's alleged involvement in Danske Bank money-laundering scandal. On 19th November 2018, a whistle blower informed governmental bodies that a large "European bank" supported the Danish bank to process ca. \$155bn in suspect funds. Even though Howard Wilkinson (the whistle blower) didn't name DBK directly, another information source has claimed that DBK's U.S. unit was involved in these suspicious transactions.

In addition to the possible involvement of money-laundering with Danske Bank, on the 29th of November 2018 170 law enforcement officials raided DBK's headquarter in Frankfurt. The allegations are related to DBK helping companies to evade taxes. The law enforcement officials based their accusation on an assessment of Panama Papers which were leaked in 2015. More specifically, the investigation targets two DBK employees from which one works in the bank's anti-financial crime unit and the other in the private wealth division. DBK's history as well as these recent controversies are again a hit to morale and another distracting factor for the new CEO Christian Sewing. Not only a hit to morale and distractions are caused by these controversies, but also a heavy fine or other regulatory punishments could evolve.

Involvement in controversies and allegations have put DBK under pressure.

On a positive note, the new CEO has recently announced that DBK wants to leave the “dark past” behind them and cooperate with the jurisdictions is the first sign towards that direction – we anticipate this as the right way to go.

Macroeconomic overview

Macroeconomic development

According to IMF and as of half year 2018, global growth is projected to reach 3.9% in 2018/19. However, the expansion is becoming less even and rising trade tensions provoke uncertainty within the global market. Based on expert consensus, trade tensions between China and the US will result in a 0.4% lower long-term global GDP. This already outlines the impact of two world economies being in a trade war and thus dimming overall GDP growth. Moreover, the continued withdrawal of monetary policy accommodation in advanced economies leads to tightened global financing conditions. Based on these facts, the growth in advanced economies is predicted to slow down as can be observed in figure 9.

When examining recent macroeconomic development in Europe, in 2017 the strongest growth within the EU has been registered. The EU as a whole grew by c. 2.4% year over year and this development has even exceeded earlier expectations. Main contributors to this positive development have been a general high confidence, global expansion, very low financing costs as well as decreasing unemployment rates. The economic upward trend which has started in half-year 2013 has reached all member states and for the first time since 2007 all of the member states have experienced an expansion of their economies.

With respect to the positive development of overall Europe’s GDP growth, the short-term outlook for private consumptions appears favourable, which is highly influenced by the expected decrease in unemployment rates and an increased optimism about the general economic conditions. For example, in the fourth quarter of 2017, the number of employed persons has reached its highest level since 2000. These overall economic conditions are also interrelated with the performance of the banking sector. With improving economic conditions, people have a more positive outlook on the future which leads to increased consumer confidence and this consequently also impacts the business outlook for enterprises. This can also be observed in figure 11 where the relation of the Consumer Confidence Index (CCI) and EuroStoxx Banks Index are displayed. Generally, the CCI indicates the degree of confidence and optimism on the economy. The EuroStoxx Banks index includes different market indexes which are representative of the European and global market. These indexes cover different

Figure 9: Worldwide GDP growth per region

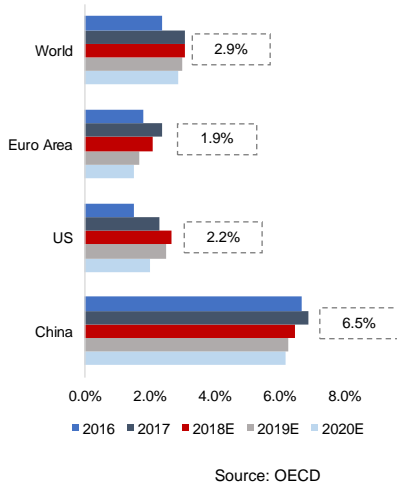


Figure 10: Unemployment rates

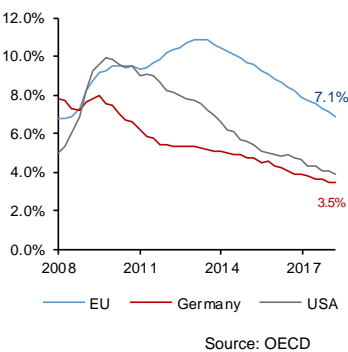
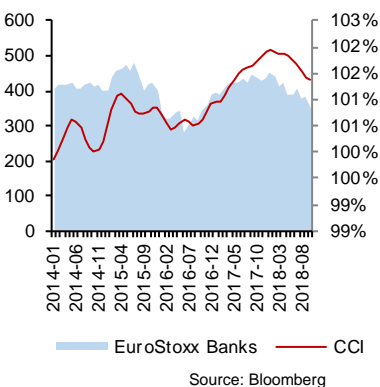


Figure 11: EuroStoxx Banks and CCI



market segments including the blue chips, individual sectors and global indexes. Looking at figure 11, it can be observed that both indexes tend to follow the same direction. Consequently, it can be assumed that the general consumers' confidence and outlooks are positively correlated to the banking sectors' performance.

Figure 12: EuroStoxx Banks and relevant events

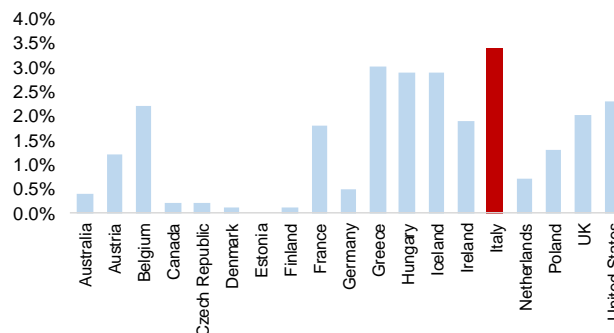


Macroeconomic threats

According to various sources, the economic condition in Italy is currently the biggest threat especially for European banks. Italy's economy is the third largest in the EU and has high debt amounting to 133% of their GDP with only Greece, Japan and Lebanon having a higher ratio globally. This makes their debt amount to the second largest in the whole Eurozone, resulting to the fact that Italy has to substantially pay off interest on these debt obligations (see figure 13). In addition to that, Italy indicates a significant level of Non-Performing Loans (NPLs). In order to get out of this miserable situation, Italy needs a stable economic growth and this economic growth needs a well-functioning banking system. However, Italy's domestic banks have suffered drastically over the last years by various scandals and frauds. These facts paired with the rising populism and their generally weak economy make it difficult to predict how Italy's future economic condition will affect European banks.

Italy, Brexit and trade tensions between the US and China increase market uncertainties.

Figure 13: Net government interest costs



Source: Deutsche Bank

Another major issue is the Brexit which obviously will also affect the banking sector. The concern herewith is the market access based on the fact that if the UK leaves the EU, operating banks might lose the EU passport and thus the access to the European market. In the same way, other European banks will be affected as they might lose access to the UK market. Especially the continuity of contracts indicates a significant risk. Market participants might not be able to continue servicing existing contracts (e.g. derivatives contracts) without a special permission. Even though the risks are clear, many banks are unsure and delay the decisions for relocating, resulting in uncertainty on both the banks themselves and investors. Moreover, the financial industry is of crucial importance for Britain. Including insurances, it is the second largest segment of the economy. 44% of UK's financial services were provided to customers based in the EU. As a consequence of the Brexit, the European banking market may be at risk as activity may partly disappear because services would have to be provided locally which consequently will result in higher costs and lower liquidity.

Industry overview

European banking sector

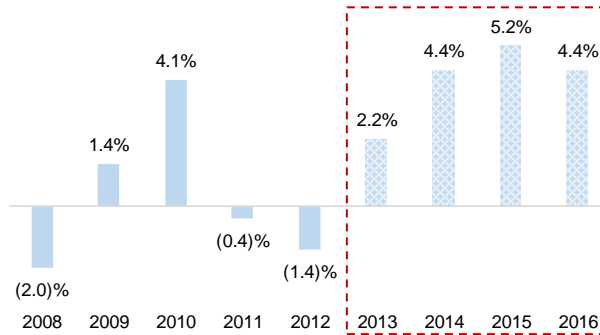
Despite the positive economic outlook, the last years have been challenging for the European banking sector. This was mainly based on increasing banking regulations, handling with the consequences of the financial crisis and implementing the EU state aid. In addition to these challenges, European banks are significantly impacted by low interest rates levels, FinTechs, digitalization and changed customer behaviour. Even though most European banks have improved their performance since the financial crisis in 2008, the average return on capital of European banks with 4.4 percent remains well below the hurdle rate. With an average return on capital of 4.4%, most of these banks don't even earn their cost of equity. However, this is mainly related to the fact that most European banks are still undergoing heavy restructuring. Despite the restructuring efforts and related costs, European banks have shown a positive development of their average return on equity (see figure 14).

Decisions for relocating offices due to Brexit are delayed, which signals further uncertainty.

Last years have been challenging for European banks: low interest rates, regulations, digitalization, NPLs and restructurings ...

Figure 14: Average RoE for European banks

... however European banks have recently shown a slow but positive improvement.

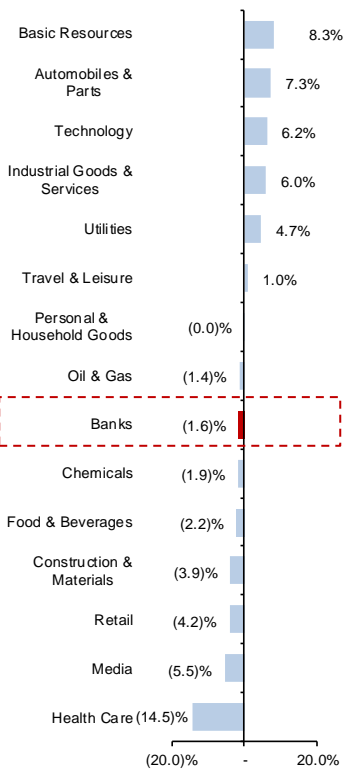


Source: Oliver Wyman

Moreover, with increased regulation, banks are required to increase their capital and simultaneously shorten their balance sheets. Due to the capital regulations, European banks have to prioritize the management of resource requirements while still maintaining a solid level of returns. Moreover, the ECB's decision in mid-June 2018 (confirmed in mid-September 2018) to hold the main rate at 0.00%, deposit facility at 0.40% at least until beginning of 2019 has dampened investors' expectations on the sector. European banks continue to face challenges with regards to revenues, and as a result of this look for volume growth to compensate for margin erosion. However, the QE bond buying program will finish at end of year 2018 which could provide for some relief on margin pressure. Given these latest decisions, investors are losing interest in the banking sector for now given the positive catalyst of rising rates is pushed out to 2019 (at the earliest). Also looking at the LTM performance of different sectors in Europe (see figure 15), banks clearly underperform.

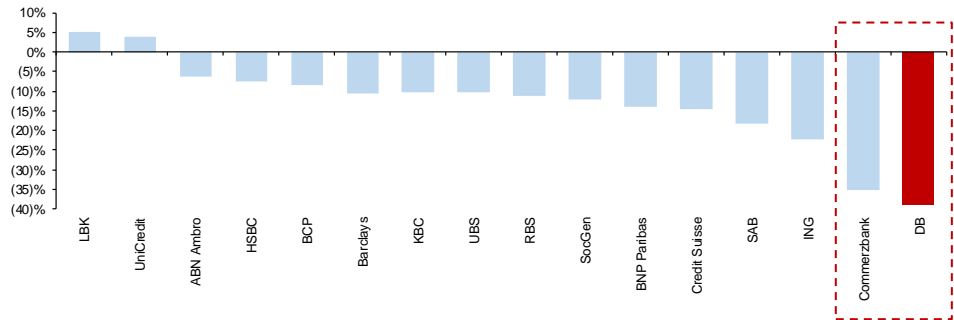
Furthermore, operational efficiency is a significant challenge for European banks. Based on the low interest environment and tightened margins, many European banks, including DBK, have aimed for attaining significant cost savings. However, looking at the numbers, the European banking expenses grew at around 1% per year from 2009 to 2017. Main reasons for this development were fines to the regulation bodies (over €50bn since 2008) and the presence of rigorous labor laws which aggravate the reduction of headcount. In addition to that, the wage inflation of 1-2% and ongoing investments in processes/digitalization continue to put additional pressure on cost reduction targets. These facts contribute to the fact that banks may fall short of investor and analyst profit expectations.

Figure 15: Sector market performance in Europe (LTM share price performance)



Source: Bloomberg

Figure 16: European banks share price performance Jan-18 to Nov-18



Source: Bloomberg

Finally, despite ongoing efforts in restructuring of European banks, many had still unprofitable business lines. Beforehand banks tried to cover as many banking services as possible, however nowadays there is a trend of specialization. For example, Oliver Wyman have estimated that in wholesale banking, European banks have exited lines of business that generated annual revenue of €10bn in 2009 or ca. 10% of total wholesale banking revenues. Many large exits could also be observed within the commercial real estate lending or shipping finance (HSH Nordbank). Moreover, a geographical retreat of European banks could be observed. For example, DBK and BNP Paribas withdrew from their business in Russia and Barclays from Italy.

Figure 17: NPL ratios (2017)

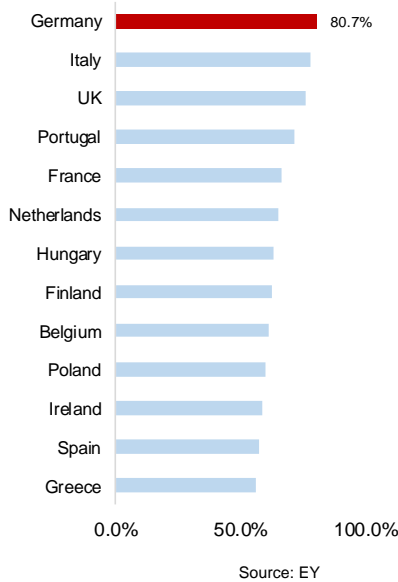


Source: Oliver Wyman

Intensified by the financial crisis, non-performing loans (NPLs) have been a major threat for European banks. Thus, restructuring efforts were also focused on reducing banks' exposure to these NPLs. As of 2017, the average of European's NPLs was 3.5% and almost in line with the world's NPL average of 3.8%. In countries with high NPL exposure such as Italy, Greece or Portugal we expect significant NPL reduction due to pressure by the EU.

To conclude, after a long period of low interest rates, we expect a greater profitability for banks with the beginning of the normalization of the monetary policy. From our point of view, most European banks are currently undergoing significant restructuring activities which clearly erode the return but which are definitely needed for future profitability. Consequently, we expect an improvement of European banks' performance.

Figure 18: Average Cost-income ratio for banks for selected European countries



Outlook on German banking

When looking on the average capital return of Germany in international comparison, it gets clear that Germany is lagging behind. Due to the implementation of the regulatory agenda (especially Basel 3, BCBS 239, IFRS 9 und MiFID II) and consequently the increase in capital buffer, the profitability of German Banks even decreased by around one third in the last ten years. Many German banks tried to counteract this decreasing profitability by the release of hidden reserves. However, it is not clear by how much and especially for how long the decreasing profitability can be counteracted by the banks´ hidden reserves. With an average return on capital of 1% Germany clearly lags behind USA (9%) and other European countries (France: 6.5%, Spain: 5.0%). In addition to that, German banks indicate the highest average cost-to-income ratio with around 80.7% narrowly followed by Italy with 78.4%. It gets clear that German banks are struggling to on one hand counteract their low capital return and on the other hand improve their profitability.

Moreover, the German banking sector is in a consolidation phase. Around 40 smaller banks disappear every year, especially within the cooperative and savings banks sector (so-called Genossenschafts- und Sparkassensektor). These smaller banks are either acquired by larger banks or they join other banking networks. As a result, a considerable downsizing of branches and job cuts are present. However, this consolidation trend has evolved rather slowly in Germany compared to other European countries. Germany´s banking sector is still a highly fragmented market with almost 1,700 banks and over 27,000 branches.

German banks show the highest Cost-Income ratios in Europe and an increased consolidation trend.

Investment Banking industry

With generating more than 50% of its revenues with IB services, the global IB industry and its development plays a crucial role for DBK. The IB industry mainly covers services such as brokerage services (equity and debt underwriting) as well as Mergers & Acquisition services (M&A). The global IB sector is volatile, cyclical and moves regularly between peaks and downturns. After declining IB growth from 2014 to 2016, 2017 has experienced significant growth of 31.9%. In 2017, the global IB sector had total revenues of €76.5bn and a compound annual growth of 7.9% from 2013 to 2017. According to research conducted by Marketline, the global investment banking & brokerage sector is going to have a value of €130bn in 2022 which indicates a CAGR of 11.2% from 2017-2022. Here especially Europe has seen significant growth in recent years and currently accounts for 33.5% of global IB share. For DBK this development is advantageous as the top management wants to significantly focus on European IB in order to increase their

Figure 19: Global IB & brokerage value forecast (€bn)

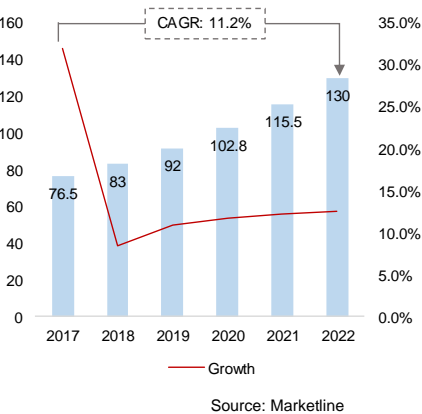
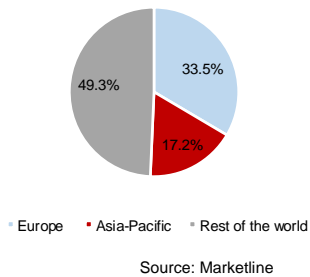


Figure 20: Global IB & brokerage value by geography in 2017



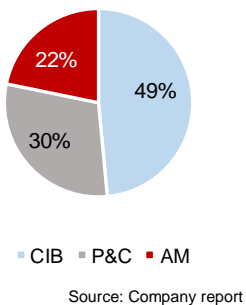
Political disruptions may lead to increased de-regulation of the IB sector.

market share within this geographical region. In addition to that, there are signals that global banks are expanding in the Asia-Pacific region as they hope they can exploit growth in that particular region. In 2016 to 2017, Morgan Stanley, Citi as well as European players such as Barclays have expanded its headcount in Hongkong, Japan and India. With such a re-entry of these global banks, we are expecting increased competition and are anticipating further growth in this geographical area. However, with the dampening Chinese economy and the incalculable status of the UK’s separation from the EU, the IB sector’s future bears uncertainty. Nevertheless, these political acts may de-regulate the sector to some extent; for example the Trump administration has outlined that they are interested in reducing the regulatory burden of the IB sector. In addition to that, European countries are likely to follow to a less burdensome environment as this might attract overseas financial services firms.

Divisional outline and market competition

Divisional outline

Figure 21: DBK’s profit before tax by division



As already outlined, DBK operates its business with three divisions: Corporate & Investment Bank, Private & Commercial clients and Asset Management. This section will give an overview of each division and thereafter examine DBK’s competition.

Corporate & Investment Banking (CIB)

The CIB division offers its clients the whole product range of Investment Banking services such as M&A advisory, trading securities and hedging opportunities. The clients are majorly corporates who look for ways of funding, hedging services or seek for advice in the broad range of Corporate Finance. Next to the corporate clients, there are also hedge funds, on which behalf DBK trades various securities. With respect to the regional focus, the CIB division is globally active with a strong focus on Europe, America and APAC. The Investment Banking division has a significantly strong position in Fixed Income products whereas in areas like Equity Capital Markets (ECM) or M&A it lacks such a strong position.

Private & Commercial Bank

The PCB division of DBK offers customers various banking products e.g. classical retail bank products (checking accounts, savings deposits, mortgage loans) for private customers and smaller corporate customers. This division operates under two brands, namely Deutsche Bank and Postbank. DBK focuses on the upper retail segment while the Postbank targets the average customer. The division’s focus is

on Germany (market share of ca. 10% in the German retail banking market), however they are also active in Spain and Italy.

Asset Management

DBK offers various asset management services to its customers through its subsidiary DWS. Herewith DBK operates active as well as passive asset management services and offers different asset classes such as real estate, alternative or infrastructure assets. Clients are mainly retail and institutional with insurance companies being an important client group.

Market competition

Corporate & Investment Banking (CIB)

Looking on figure 22, it can be clearly observed that DBK has lost around 2.5% of global IB market share since 2015. Looking at more recent numbers, it can also be noted that DBK has the highest decline in IB revenues Q3-18 vs Q3-17 which we think could produce some downside risk (figure 23).

One of the major challenge for DBK is its dependency on their CIB business, which accounts for around 55% of their revenues and is clearly under pressure.

Within the CIB division, most of the revenues were driven by Sales & Trading and Global Transaction Banking (c. 70%). Just like many of its competitors, DBK’s capital markets businesses are being adjusted to conform to regulatory changes and increasing capital requirements, putting additional pressure on keeping their market position. Thus, DBK has only one choice – namely defending its current market position. Based on this, DBK is focusing on defending its market position amongst other leading investment banks while simultaneously trying to optimize its allocated capital to the business. Even though DBK is still a Top 10 player in FICC Sales & Trading, this segment is extremely under pressure given low volatility and in addition to that DBK lacks excess capital for being able to diversify its revenue streams. When focusing on diversified revenue streams, major competitors are in a much better position. For example, JPMorgan and UBS show a lower dependency on their investment banking division, with 42% and 26% of revenues respectively.

Figure 22: DBK global IB market share

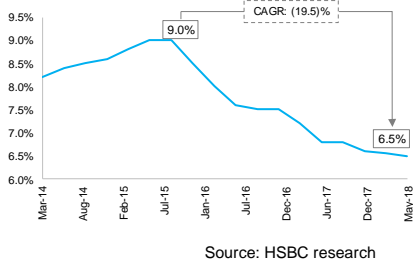


Figure 23: IB revenue development Q3-17 vs Q3-18

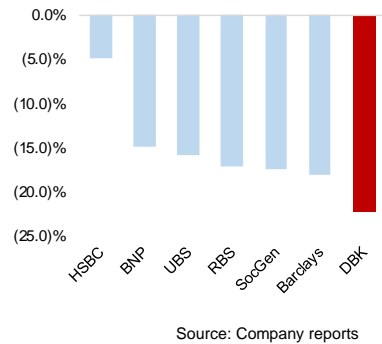
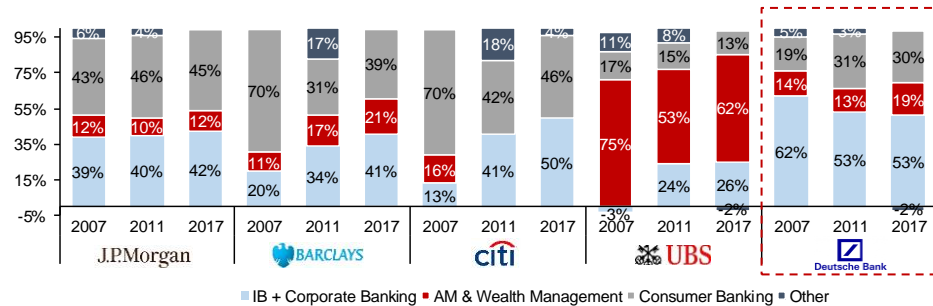


Figure 24: Segment analysis DBK vs peers

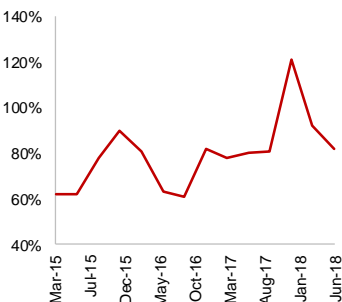


Source: Company reports

High dependency on CIB business may be a pitfall when comparing DBK to its peers ...

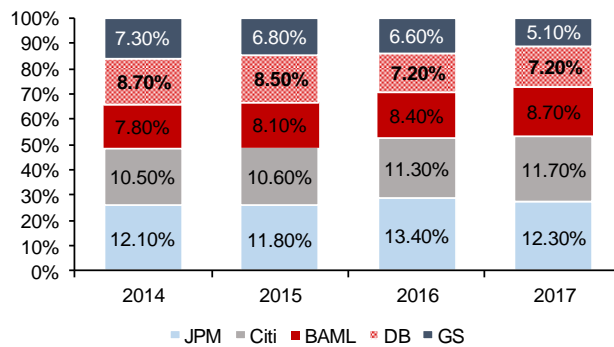
Moreover, DBK always had a strong position within their FICC business. In 2017, DBK was in fourth position in the global FICC market with a market share of 7.2%. At first sight, this seems like good news when ignoring the fact that the FICC market is a highly difficult environment as it can be significantly volatile. The revenues of the FICC market declined by 10% in 2016 and by 44% in 2017. As a result, DBK's FICC market share dropped from 8.7% in 2014 to 7.2% in 2017. As a consequence of this, DBK has suffered a decline of 45% of their FICC revenues. In comparison to its peers who on one hand have a diversified client base within investment banking (e.g. Citi and JPM) and sufficient capital to take further risk on their balance sheet gained market share during these FICC market downturns.

Figure 25: CIB division's Cost-Income ratio



Source: Company reports

Figure 26: FICC market share DBK vs peers



Source: Company reports

DBK is conquering its high volatility of their capital markets business and thus try to strengthen their revenue streams with corporate clients. Even though margins are generally lower with corporate clients, DBK sees cross-selling opportunities as well as the opportunity to generate stable and predictable revenue streams. As a result of this, DBK has integrated the Global Markets segment into the CIB division which now accounts for all corporate market activities. We consider this as the right path to go. In the annual shareholder meeting of Citi, Citi was able to generate around 9% RoE with its investment banking division in 2017. According to their

Figure 27: Citi client mix (2017)

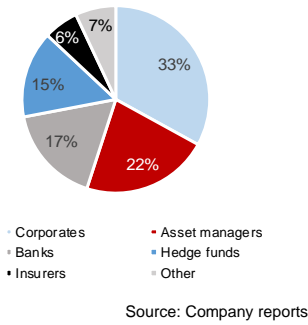


Figure 28: BNP Paribas client mix (2017)

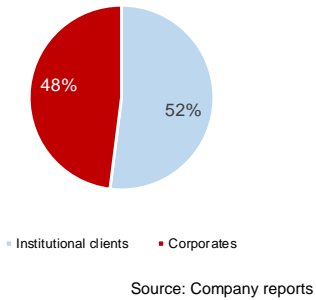
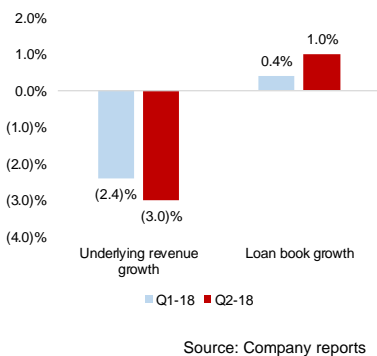


Figure 29: P&C revenue and loan growth



management, the Treasury & Trade business is the major revenue driver and resulted in over 50% of revenues from recurring businesses like cash management, corporate lending and foreign exchange transactions – this has led to the fact that these corporate clients also used their relationship to Citi to hire them for further support in equity as well as debt underwritings and advisory services. Moreover, according to a research conducted by Oliver Wyman, corporates have both the most positive business outlook as well as the highest revenue pool. Thus, DBK wants to increase its lending activities to corporate clients. Another fact which is worth noting is that the client base of the leading investment banks differs significantly. As a result of this, the upside potential in case of volatility within the FICC market differs too. In the annual report of 2017 of Goldman Sachs, it is indicated that around 30% of their revenues have been generated with 23% asset managers, 21% hedge funds whereas corporates only play a minor role with 16%. On the other hand, Citi’s client base mainly consisted of corporates (33%) such as BNP Paribas (48%) and HSBC (50%). Thus, it can be concluded that the majority of DBK’s main competitors continuously implemented the strategic focus on corporate clients which implies that it might not be easy for DBK to expand their corporate client base.

Based on our analyses, we believe that DBK will, despite their historical downfall in IB rankings, be able to grow its IB revenues mainly through their re-deployment of capital and their increased focus on Europe. However, we are not anticipating a significant growth through 2020-2021 based on increasing competition from US banks and from the main EU peers that may have available capital to invest in previously downsized or exited businesses.

Private & Commercial Bank

Within its P&C business, DBK is currently losing market share. DBK’s retail banking loan book grew by 0.5% and 1% in Q1-18 and Q2-18 respectively while revenues declined by 2.4% and 3%. During the same time period, DBK’s main competitor within the P&C business Commerzbank achieved loan book growth of 3% to 4%. Moreover, management was not able to achieve significant improvement of P&C’s cost-income ratio due to investments and restructuring. However, we believe that only the successful integration of Postbank and rising interest rates will significantly improve the P&C division’s market position.

Asset Management

The regional focus is mainly focused on Germany and Europe (no. 1 in the European retail asset management). However, DWS is also active globally and

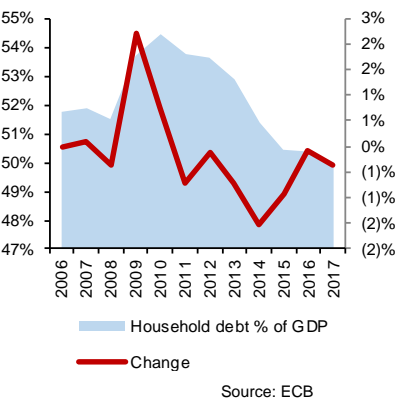
has a strong presence in the US (no. 4 and no. 2 among global insurance asset managers).

Financials

Loans

Before examining DBK’s loan types and their development, it is important to examine some macroeconomic developments as they are closely tied to net borrowing.

Figure 30: Household debt % of GDP for Eurozone



Household debt

Based on the fact that the indebtedness level of a country is directly dependent to the amount of issued loans as well as the real GDP growth, we used the household debt to GDP ratio of Europe. Besides reaching a peak in 2008-2010 of around 55%, the household debt has remained fairly constant over the years with an average of 52%. However, from 2013 onwards there is decreasing trend which is also dependent on the real GDP growth. The real GDP growth from 2014 to 2017 has been around 2.2% and we expect it to remain fairly constant at a 2% level.

Based on our analysis, the household debt to GDP ratio will further decrease. This is based on the strong GDP growth of Europe as well as the expectation of increasing interest rates.

Figure 31: Domestic credit to private sector (% of GDP)

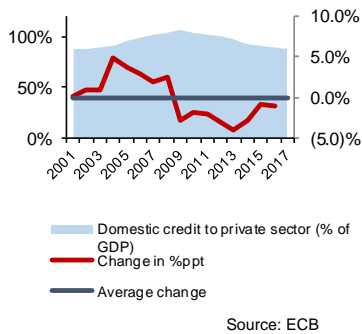
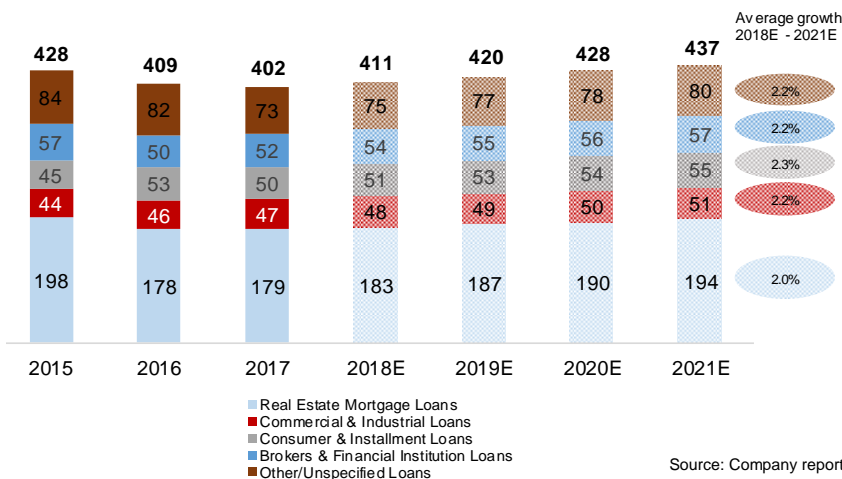


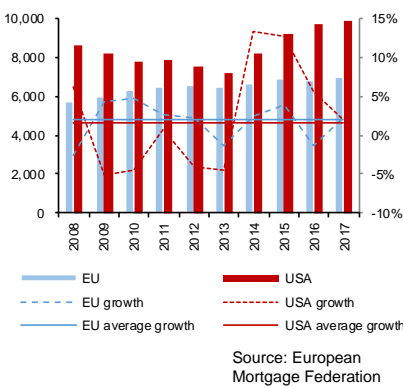
Figure 32: DBK historical loan composition and forecast (€bn)



During the financial crisis, many banks had a significant exposure to real estate mortgage loans. Amongst other banks, DBK also had a significant exposure to the especially risky mortgage-backed securities which were a major cause for the subprime crisis. Nevertheless, DBK still holds a significant amount of outstanding

real estate mortgage loans in their portfolio. Historically, from 2015 to 2017 DBK constantly held c. 45% to 54% in real estate mortgage loans from their total loans, followed by commercial and consumer loans. Thus, for analyses purposes we have examined the development of these loans in order to adequately forecast each loan segment.

Figure 33: Real estate mortgage loans (€bn)



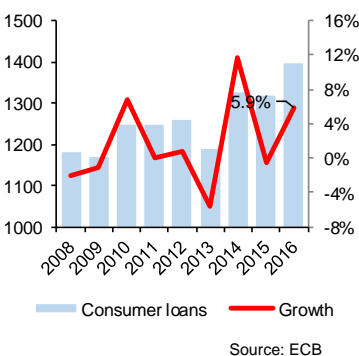
Real estate mortgage loans

Historically, real estate mortgage loans indicated a constant growth of 2.1% and 1.7% within the Eurozone and the US respectively. Generally, the mortgage market is expanding besides a few expectations and reached in 2017 €7tn which is around 46% of the EU GDP. However, in order to avoid overheating of the market, many EU member states took action in 2017 and implemented different measures focused on risk buffers, capital buffers and more stringent Loan-to-Value rules which might damp mortgage issuance generally. Despite the dampening measures, we expect a further constant growth of real estate mortgage loans due to favourable economic conditions.

Consumer loans

Consumer loans in Europe have shown a positive development and are standing around €1,400bn at the end of 2016. After a period of downturn from 2008 to 2013, the market started to stabilize again and has shown strong growth from 2015 on. In 2015, the growth in outstandings was mainly impacted by significant production of personal loans. Especially Germany, France, Italy and Spain indicated a strong growth and the strong development of these countries is enough to increase European outstandings. Moreover, there was a significant new loan production in 2017. According to ECB, new loan production increased by roughly 12% in Germany and ca. 16% in France.

Figure 34: Consumer loans (€bn)



Geographical breakdown for loans

As already outlined, the loan growth is interrelated with overall economic growth. Thus, based on the economic growth which clearly differs across different geographical regions, the growth of loans has to be adjusted. As DBK is a multinational bank and has significant presence in different markets, an analysis based on weighted-average GDP growth of each country helps to assess loan growth potential for the future. DBK is present in the following markets: 1. Germany, 2. UK, 3. Other European countries, Middle East and Africa and 4. America. For each geographical region, the individual GDP growth rates and forecasts for each country have been calculated and weighted based on the revenue distribution.

Figure 35: Weighted GDP growth rates forecast

	Revenue weight	2017	2018	2019	2020	2021
Germany	36.1%	2.2%	1.9%	1.9%	1.6%	1.5%
UK	15.9%	1.8%	1.4%	1.5%	1.5%	1.6%
Rest of Europe, Middle East and Africa	14.0%	2.8%	3.0%	2.6%	2.6%	2.5%
America	21.8%	2.3%	2.9%	2.5%	1.8%	1.7%
Asia/Pacific	12.1%	4.7%	4.4%	4.1%	4.1%	4.1%

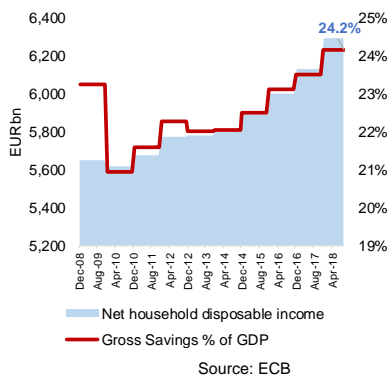
	2017	2018	2019	2020	2021
Germany	0.80%	0.69%	0.69%	0.58%	0.54%
UK	0.28%	0.22%	0.24%	0.24%	0.25%
Rest of Europe, Middle East and Africa	0.39%	0.42%	0.37%	0.36%	0.35%
America	0.50%	0.63%	0.55%	0.39%	0.37%
Asia/Pacific	0.57%	0.53%	0.50%	0.50%	0.49%
Total	2.54%	2.49%	2.34%	2.06%	2.01%

Source: IMF

For forecasting DBK’s loans, the following factors have been considered:

- We observed a constant growth within mortgage and consumer loans which constitute a major portion of DBK’s loans portfolio. Both loan types indicated a constant growth of around 2% within the historical period.
- The real GDP growth from 2014 to 2017 has been around 2.2% and we expect it to remain fairly constant at a 2% level.
- Based on our analysis, the household debt to GDP ratio will further decrease due to strong GDP growth in Europe.
- With our expectation towards increasing interest rates, we are expecting declining demand for loans and possible higher credit losses.
- As already indicated, DBK was involved in many legal issues and disputes over the last years. This bad press negatively impacted its reputation and thus we expect that it will be more difficult for DBK to attract and keep their clients in the near future.

Figure 36: Net household disposable income



Deposits

We predict that generally speaking deposits will increase in the future.

Historically, we can observe a positive development of gross savings rates in the whole Eurozone. As one can gather from figure 36, except for the period after the financial crisis, the savings rate continuously increased and currently stands at 24.2%. This fact combined with a positive outlook on Eurozone’s general GDP growth, leaves hope for an increasing deposit growth. Increasing economic growth will lead to capital investments which is partially financed by loans. These capital expenditures will consequently create new employment which means additional salaries which are deposited on bank accounts. However, considering DBK’s recent scandals and bad press, we expect that some clients might lose faith and check their money out of their deposits in the near future. Moreover, DBK will need to offer better terms to clients in order to convince them to deposit money on their accounts. This again will put pressure on their net interest margin as the corporation will have to pay much more interest on their clients’ deposits for

Figure 37: Deposits CAGR 2011 - 2017

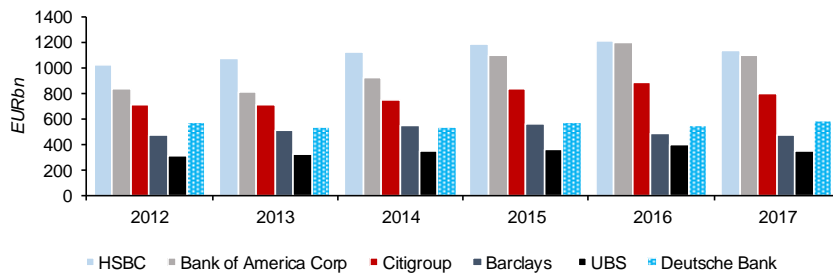
	CAGR
Bank of America Corp	5.4%
Citigroup Inc.	3.1%
Credit Suisse Group AG	3.0%
Barclays PLC	1.2%
UBS Group AG	3.6%
HSBC Holdings Plc	2.7%
BNP Paribas SA Class A	5.4%
Deutsche Bank AG	-0.6%
JP Morgan	5.6%
Average	3.3%

Source: Company reports

compensating for risk. Furthermore, while the ECB may increase interest rates, DBK has to increase the interest rate on deposits accordingly and at same levels as the competitors in order to not lose market share.

Moreover, by observing the deposit development from 2011 to 2017 of DBK and its peers, it is remarkable that DBK is the only bank which has slightly decreasing deposits of -0.6% while the average stands at 3.3%.

Figure 41: Deposits development DBK vs selected peers



Source: Company reports

To conclude, despite the positive macroeconomic outlook on deposits' growth, we expect DBK's deposits growth to be much smaller than those of its peers. Especially considering the fact that all of the peers were able to increase their deposit over the historical period except for DBK emphasizes the current problem.

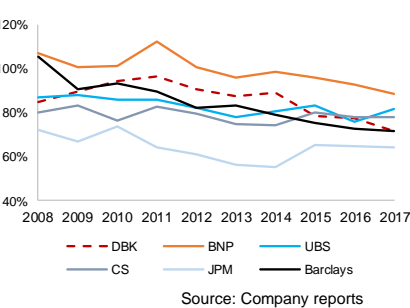
Capital

Since the global financial crisis, financial authorities started to re-think on how regulations could prevent such outcomes. Thereof, Basel III was invented which is a worldwide and voluntary framework focused mainly on capital adequacy and stress tests. The conventions of Basel III were agreed on 2010-2011 with an implementation period from 2013 – 2015. However, as the adaptations were related to radical changes in capital structure which consequently required a certain amount of time, the implementation period has been extend until 31 March 2019.

The main requirements posed by Basel III are the following:

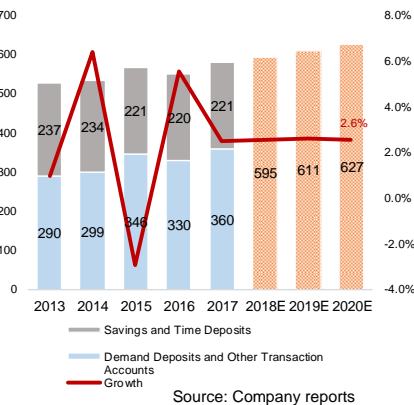
- A minimum capital adequacy ratio of 8% which banks have to maintain. This comprises a minimum of 4.5% of equity as a percentage of a bank's risk-weighted assets and a buffer capital requirement of 2.5% which can be used for financial distress situations. This ratio has the purpose of promoting the bank's financial stability throughout all economic phases.
- Further, banks have to maintain a leverage ratio above 3% which is calculated by dividing the CET1 by total assets.
- Basel III further implemented two liquidity ratios, namely the Liquidity Coverage Ratio (LCR) and the Net Stable Funding ratio (NSF). LCR focuses

Figure 38: Loan-to-deposit DBK vs peers



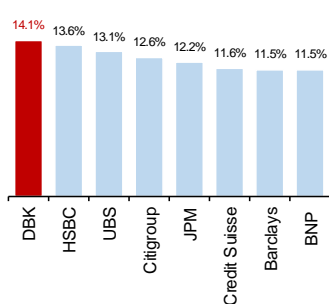
Source: Company reports

Figure 39: Deposits composition (€bn)



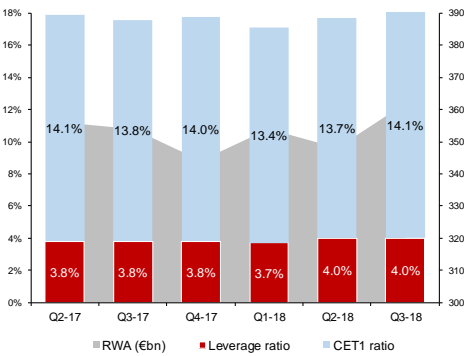
Source: Company reports

Figure 40: CET1 ratio DBK vs peers



Source: Company reports

Figure 42: DBK capital ratios



Source: Company reports

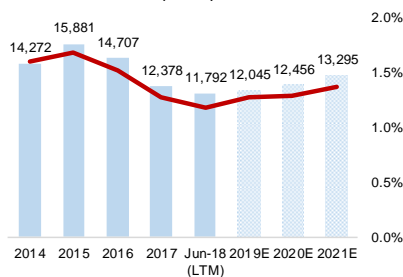
DBK has a solid capital position and has shown good progress in improving its risk profile.

on the high-liquid assets. Herewith, banks have to be able to withstand a 30-day stressed funding situation which is specified by the supervisors. The NSF ratio requires banks to keep a stable funding above the required amount of stable funding for a period of one year.

DBK is focused on strengthening its capital position. Comparing the CET1 ratios to its peers, DBK has the highest ratio (as of 2017). Moreover, by the recently conducted European Banking Authority (EBA) stress test, DBK has showed good progress in improving their risk profile as well as their capital position. Finally, the company is on track to achieve its targets by means of a CET1 ratio of at least 13% at the end of 2018 and a leverage ratio of minimum 4.5%. Thus, we see a CET1 ratio of around 13.5% sustainable.

Net Interest Income

Figure 43: Net interest income and Net Interest Margin % (NIM)



Source: Company reports

Normalization of interest rate environment and assumption of a constant Net Interest Margin of 1.3% to 1.4%.

DBK's Net Interest Income has been decreasing from €14,272m in 2014 to €11,792m in Jun 2018 (LTM), which can be observed in figure 43. This can be explained by the decreasing Net Interest spread (average interest-earning assets (%) – average interest-bearing liabilities (%)). Based on DBK's efforts to realize deposits in combination with increased competition within the European banking sector, have put a downward pressure on the margins and resulting in a decreasing profitability. In addition to that, the long-lasting low-interest environment and higher funding costs clearly impacted DBK's interest margins negatively, resulting in a shift to low-interest yielding asset classes (mainly euro deposits at central banks). Between 2016 and 2017 net interest income decreased by a significant amount of around €2.7bn (ca. 19%). This was mainly influenced by the disposal of Abbey Life, PCS and other assets which were related to the Non-Core Operations Unit (NCOU). The negative effects were partially offset by additional income of ca. €116m related to government grants under the Targeted Longer-Term Refinancing Operations II (TLTRO II) program.

The historically negative development of net interest income was mainly impacted by extraordinary events (e.g. asset disposals). Based on our expectation that interest rates will increase in the near future and that DBK will re-focus its operating businesses, we are expecting interest spreads to be at higher levels and thus contributing to a positive development of DBK's net interest income by assuming a constant Net Interest Margin of 1.3% to 1.4%.

Non-Interest expenses

Cost reduction is a major part of DBK's strategy. In 2017 around 3.2% respectively €843m cost reduction could be achieved. The reduction was primarily driven by

lower salary payments due to decrease of the headcount, favourable exchange movements as well as the sale of Abbey Life which has led to ca. €370m lower operating expenses. Relevant cost drivers in 2017 were mainly driven by higher variable compensation, which reflects the return to normal compensation programs in 2017 (€2.2bn vs. €1.6bn in 2016) and a decrease in professional services of ca. €530m due to lower legal expenses and external advisory services. The IT costs have been stable due to constant modernization of DBK's IT infrastructure.

Figure 44: CIB cost breakdown

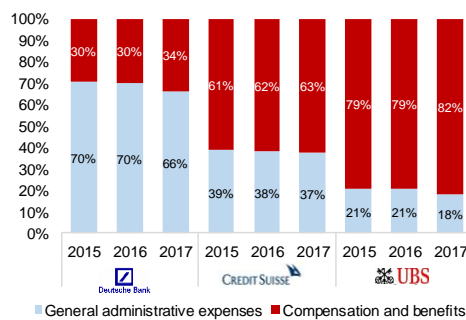
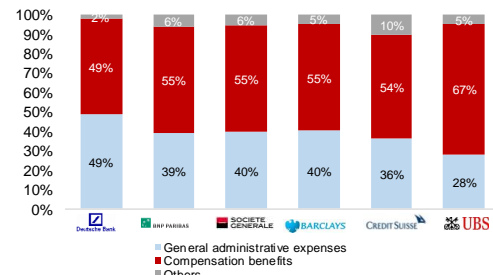


Figure 45: DBK group cost breakdown 2017



Source: Company reports

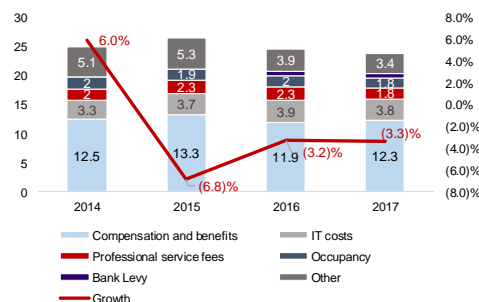
Comparing DBK with its peers based on a cost-base, a major divergence becomes evident. DBK's general and administrative expenses are significantly higher, indicating c. 66% of the CIB's cost line while compensation and benefits only represent 34%. In comparison, main competitor's cost bases only represent 18%-39%. This divergence becomes smaller when analyzing DBK's cost basis on a group level however the general and administrative expenses remain a major cost driver vs peers. From a group level perspective, administrative expenses still represent around 50% of the cost basis whereas within peers it remains lower at 28%-40%.

Compared to its peers, DBK might have a stubborn cost-base ...

Comparing the cost development from 2016 to 2017 to the cost development from 2015 to 2016 a promising picture evolves. The cost reduction in 2016 was mainly impacted by lower variable compensation (reduction of bonuses) whereas in 2017 the cost reduction was due to reduction in other operating costs and decreasing legal expenses/external advisory services. We see this as a positive development.

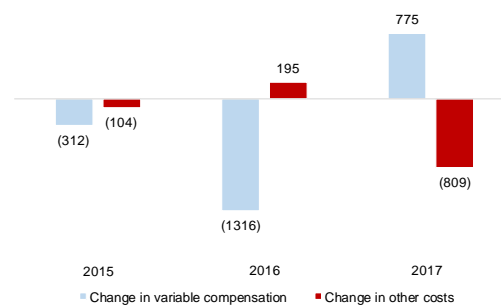
... but recent cost developments picture a promising picture.

Figure 46: Non-interest expenses breakdown



Source: Company reports

Figure 47: Change in costs 2015 - 2017



Source: Company reports

Integration of Postbank leaves hope for further cost reductions.

Next to the already implemented cost reductions, the integration of Postbank leaves hope for further cost optimization. With the integration, DBK plans elimination of similar functions by creating a shared infrastructure resulting in a cut of ca. 1,100 jobs till February 2019. In more detail, 2/3 of the cost reduction by shortening jobs is planned to be achieved by early retirement plans whereas the remaining 1/3 are incentivized to leave with severance payments. With the integration process being successfully implemented, DBK is expecting ca. €910m annual synergies from 2022 on.

Moreover, the new CFO James von Moltke indicated in October 2018 that in order to reach a sustainable RoTE of 4%, DBK has to bring costs down to €22bn. Although we believe that in the near future it will be much harder for DBK to cut costs due to their closely tied high restructuring costs, we see the cost reduction for the future as sustainable. However, we remain sceptical about the fact that DBK might be too focused on cost cutting while revenues are deteriorating.

Valuation

Valuation of financial institutions

Before diving into the DBK’s valuation, it is important to note the differences between financial institutions and “normal” companies. The main distinguishing characteristics are e.g. their regulatory environment, leverage and the fact that financial institutions generally do not offer physical products. Within these differences, there are mainly two which make the valuation difficult.

The first one is the fact that financial institutions are regulated and are thus limited by growth, how they are capitalized and investments they conduct. Financial services firms have to maintain regulatory capital ratios to ensure that sufficient equity is kept and that the claimholders are not exposed to significant risk.

The second is the fact that cash flows to the firm can’t be easily estimated. This is based on the fact that capital expenditures, debt or working capital are not the same for financial institutions as they are for companies operating in a “normal” business environment. For financial institutions, debt plays an operational role and can rather be considered as “COGS” as the bank generates interest with debt.

In consequence, in order to avoid mistreatment of debt when valuing a financial services firm, equity is directly valued by discounting cash flows to equity at the cost of equity.

The valuation of DBK will be based on five different valuation methodologies: intrinsic valuation by means of Flow to Equity and the Dividend Discount Model

Main distinguishing characteristics are regulations, leverage and no physical products.

Figure 48: Valuation approach

Flow to Equity	20%
Dividend Discount Model	20%
Regression analysis	20%
Trading multiples	20%
Transaction multiples	20%
Final valuation	100%

(DDM), Regression analysis, Trading multiples and Transaction multiples. Each valuation methodology will be equally weighted.

Derivation of DBK's cost of equity

For DBK's cost of equity, we broke down DBK's revenue streams based on its geographical exposure and calculated the cost of equity for each specific geographical region. This has the advantage that regional differences in risk profile will be considered for the valuation purpose. DBK's revenues have been clustered into five geographical regions (see figure 50). For each geographical region, the beta of the various banks referring to these regions (regressed to their local index) have been retrieved. Moreover, the risk-free rates for the geographical regions have been estimated by the individual countries' 10-year government bond yields. The country-specific risk premia have been based on the Moody's rating spread. In the end, the calculated geographical regions' cost of equity have been multiplied by the weight. As a result, a cost of equity of 11.7% can be derived. In order to further verify DBK's cost of equity, its implied cost of equity based on its current share price is calculated by making use of the following formula:

$$P / B = (RoE - g) / (CoE - g)$$

For the RoE we apply DBK's target RoE which is a RoE of 4% within a normalized operating environment. Further, we assume 2.5% – 3.5% long-term growth rates. Currently, DBK's Price to Book ratio stands at 0.32. Thus, we come up with an implied CoE of around 8.3% - 10.6%. Giving equal weight to each of the three calculated CoEs (8.3%, 10.6% and 11.7%), we come up with a CoE of 10.2%.

Figure 49: Cost of Equity derivation

Country-level CoE	
	11.7%
Implied CoE	
2.5% growth	8.3%
3.5% growth	10.6%
Average CoE	10.2%

Source: Own analysis

Figure 50: Cost of Equity on a country-level analysis

	Inputs				
	Germany	UK	Rest of Europe	America	Asia Pacific
10-year risk free rate	0.4%	1.5%	4.7%	3.2%	5.1%
i) Mature market ERP	5.1%	5.1%	5.1%	5.1%	5.1%
ii) Risk premium	1.8%	4.1%	5.2%	4.1%	7.5%
Total risk premium (i+ii)	6.9%	9.2%	10.3%	9.2%	12.6%
Cost of Equity					
Risk free rate	0.4%	1.5%	4.7%	3.2%	5.1%
Market risk premium	6.9%	9.2%	10.3%	9.2%	12.6%
Equity Beta	1.03	1.07	1.00	1.12	0.99
Cost of equity (Ke)	7.5%	11.4%	14.9%	13.5%	17.6%
Weight (based on revenue)	36.1%	15.9%	14.0%	21.8%	12.1%
CoE * Weight	2.7%	1.8%	2.1%	2.9%	2.1%
Cost of Equity	11.7%				

Source: Moodys, Bloomberg

Intrinsic valuation (Flow to Equity and DDM)

DBK's intrinsic value is calculated by making use of the FTE and DDM method. By using the FTE method, the amount of cash a business generates which is *potentially* available for the distribution to shareholders is calculated. In contrast, the DDM values the company based on its capacity to *actually* pay out dividends

We assume a CoE of 10.2% and a sustainable growth rate of 2%.

to their shareholders while still maintaining the target CET1 ratio which for DBK we see at 13.5%. Thus, based on the fact that a certain profit has to be retained in order to keep the target level of CET1 ratio, the DDM indicates lower share prices as can be observed in figure 52. Within both methods, cost of equity of 10.2% is used for discounting and a 2% sustainable growth rate which reflects our assumption on long-term GDP growth, LIBOR of around 2.5% and inflation of 1.9%, resulting in a share price of €13.0 for the FTE and €9.3 for the DDM method.

Sensitivity analysis

Figure 51: FTE sensitivity analysis

Share price in €	Sustainable growth rate				
	1.00%	1.50%	2.00%	2.50%	3.00%
9.0%	14.3	15.0	15.9	16.9	17.7
9.5%	13.4	14.0	14.8	15.7	16.7
10.0%	12.6	13.2	13.9	14.6	15.5
10.5%	12.0	12.5	13.1	13.7	14.5
11.0%	11.4	11.9	12.4	12.9	13.6
11.5%	10.9	11.3	11.7	12.2	12.8
12.0%	10.4	10.8	11.2	11.6	12.1

Source: own analysis

Figure 52: DDM sensitivity analysis

Share price in €	Sustainable growth rate				
	1.00%	1.50%	2.00%	2.50%	3.00%
9.0%	9.7	9.9	10.2	10.5	10.8
9.5%	9.4	9.6	9.8	10.0	10.3
10.0%	9.1	9.3	9.5	9.7	9.9
10.5%	8.9	9.0	9.2	9.3	9.6
11.0%	8.7	8.8	8.9	9.1	9.2
11.5%	8.5	8.6	8.7	8.8	9.0
12.0%	8.3	8.4	8.5	8.6	8.7

Source: own analysis

On figures 51-52, different share prices for different scenarios can be extracted. Based on FTE perpetuity growth rates and cost of equities which we find reasonable, we come up with a range of 12.0€ to 14.5€. In the worst scenario with a growth rate of only 1.0% and a comparably high CoE of 12%, a share price of 8.3€ to 10.4€ can be expected. On the other hand, if growth rates as well as CoE are more favourable, we arrive at a share price of 10.8€ to 17.7€. Moreover, it is noteworthy that in order to arrive at the current share price of DBK which amounts to roughly 7.2€, we would need a CoE of 14% with a growth rate of 1.5%. In our view, this price is in the long-term too low considering DBK as a large and multinational bank which has proven that it is able to cut costs effectively and is on the right path of restructuring its business.

Figure 53: Regression implied P/BV multiples

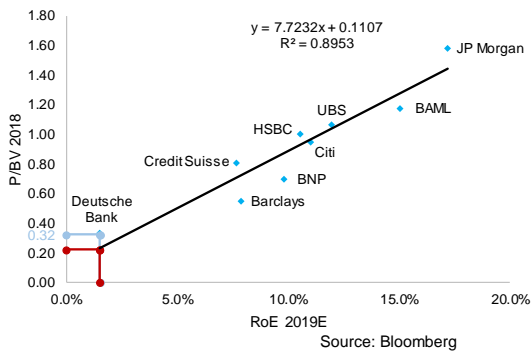
RoE	Regression implied P/BV multiples	Share price
1.50%	0.23	6.5 €
2.00%	0.27	7.6 €
2.50%	0.30	8.7 €
3.00%	0.34	9.8 €
3.50%	0.38	10.9 €
4.00%	0.42	12.0 €
Average		9.2 €

Source: Bloomberg, own analysis

Regression analysis

Another used valuation method is the regression analysis, which is widely used in banking valuations. DBK’s and its peers’ P/BVs have been regressed with the expected RoE of 2019E. The estimated RoE of DBK is around 1.5% and currently trades with a P/BV of 0.32. Even though DBK’s P/BV and its RoE are lowest among all peers, it is still trading at a premium according to the regression analysis. According to the regression model, with a RoE of 1.5% DBK should trade at a P/BV around 0.23 instead of 0.32 (see figure 54).

Figure 54: Regression analysis



With the help of this analysis, we can already notice that the market is rather sceptical about DBK's valuation which is consequently reflected in their share price. By calculating DBK's share price with the help of the regression analysis by assuming an implied P/BV multiple of 0.23, we come up with a share price of 6.5€. However, we see DBK's RoE at around 3% to 4% in a normalized environment within the near future. Therefore, we calculated the implied P/BV for each of the possible RoEs, coming up with an average share price of 9.2€.

DBK's P/BV and its RoE are the lowest among all peers.

Trading multiples

Next to the intrinsic valuation method, a comparables analysis has been conducted with the help of various multiples. For finding an appropriate peer group, the following criteria have been set up: similar business activities, size and international presence. Selected peers have been compared with information from DBK's annual report within which most relevant peers are outlined. However, to verify that these peers are adequately selected, Bloomberg, Thomson Reuters as well as FactSet have been consulted. All consulted sources were in line with DBK's selected peers which were extracted from their annual report 2017. Based on the fact that the corporation is impacted by the global economy, particularly Germany and US, as well as the global activities of the capital markets, also US peers have been included into the peer group.

Figure 55: Trading P/E multiples

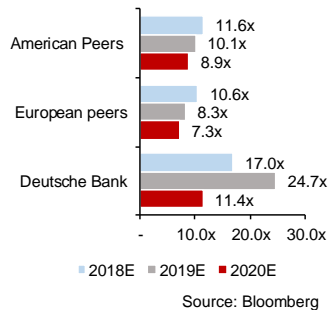


Figure 56: Trading P/BV multiples

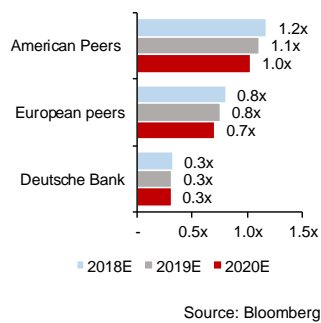
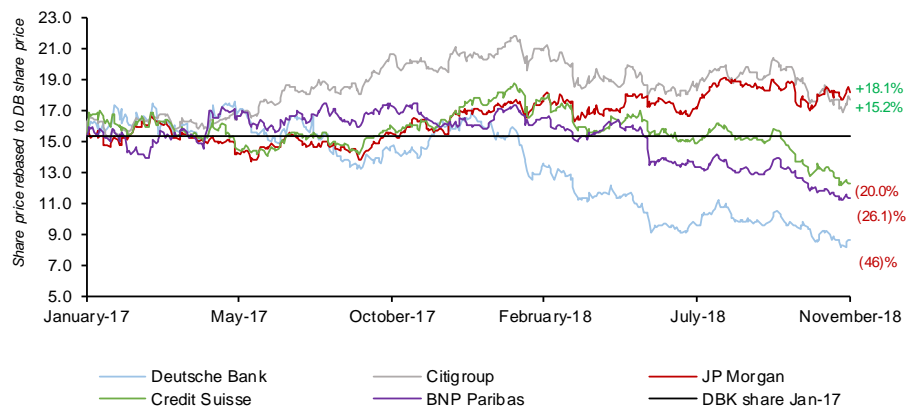


Figure 57: Share prices DBK vs peers (for analyses purposes share prices of peers have been rebased to DBK share price)



Source: Bloomberg

By looking on figure 57 where peers' share prices have been rebased to DBK share price of 15.4€ as of 1st January 2017, we can see the different development

of share prices. Here, DBK indicates the worst performance with a decrease in share price of around 46% from January 2017 to November 2018. This decline in share price shows the already turbulent market sentiment for DBK which will be reflected in its trading multiples.

For the comps analysis, the P/BV and P/E multiple have been used. The P/BV multiples are a shorthand for the valuation of banks. More specifically, P/BV are comparing expected returns vs targeted returns whereas expected returns are the Return on Equity and the targeted returns are the Cost of Equity. Thus, if the P/BV is above 1x, this means that expectations exceed the target and vice versa. Within the peer group, DBK indicates the lowest P/BV with around 0.3. This is mainly correlated to their comparably low average RoE as the P/BV and the RoE have a very strong correlation. When applying the deviated multiples, we come up with a share price of 11.7€ which is above the current share price and supports our assumption that DBK’s current share price does not reflect its real value.

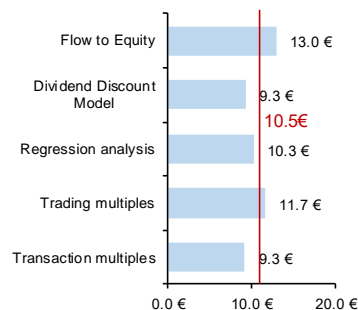
Transaction multiples

As another valuation method, precedent transactions are used. Herewith the precedent transactions set has to be more specific due to different regulation requirements for different types of banks. Thus, only transactions within which the target banks are located in the Eurozone have been considered. Moreover, to make the transactions more comparable, the bank targets should offer a broad range of banking activities. The chosen timeframe has been from 1st January 2014 till 1st November 2018. In total, 76 transactions could be found via Mergermarket and Bloomberg with a median P/E multiple of 15.1x and P/BV multiple of 0.7x.

76 comparable transactions led to a median P/E multiple of 15.1x and a P/BV multiple of 0.7x.

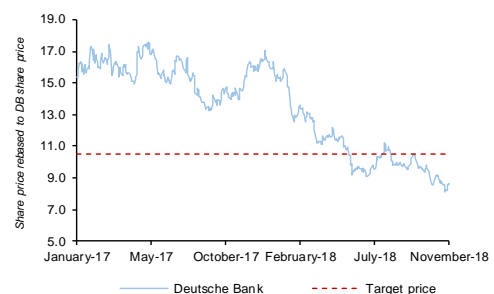
Overall valuation and scenario analysis

Figure 58: Football field analysis



Source: own analysis

Figure 59: DBK share vs target price



Source: Bloomberg

When equally weighting each valuation methodology, we get a share price of 10.5€ which is almost equivalent to DBK’s share price at the end of June 2018 (10.6€).

The share price of 10.5€ corresponds to the base scenario. However, to account for uncertainties, different scenarios on the key financial metrics have been estimated and based on these, different share prices have been calculated.

Grey sky scenario:

In the downside scenario, we see a delay in the Postbank integration and consequently delayed realization of potential synergies which negatively affects the cost base (management expects €900m synergies by 2021E). Moreover, increasing litigation costs from both existing and new issues could further threaten DBK's profitability. Additionally, DBK weakened international position, especially in America, could lead to the fact that DBK could become more of a regional player and thus lead to lower Investment Banking projects with lower business volumes.

Base scenario:

Modest revenue growth due to recovery after bad press and litigation issues. Lower IB revenues in America, but therefore improved revenue growth in Europe and Asia. Cost-cutting focus of top management leads to decreased cost base but target is not fully achieved.

Blue sky scenario:



Restructuring plans are implemented faster than expected and thus RoE improvements are realized before 2021E. Moreover, successful integration of Postbank is benefitting DBK's franchise business and thus improving the Cost-Income ratio on a group level. Additionally, EUR interest rate increases lead to higher Net Interest Income levels and leads to improved group profitability before 2021E.

Conclusion

We assume that due to the normalization of the interest environment, DBK will be able to increase its Net Interest Income. In addition to that, the cost-cutting and restructuring efforts will pay off in the long-term – however patience is needed. The integration of Postbank will not only contribute to cost benefits but will also decrease DBK's business complexity. Moreover, the consolidation trend within the German banking market could lead to increasing pricing power and enhance the profitability of traditionally unprofitable products.

Nevertheless, we know that DBK's reputation has been impacted negatively due to scandals and related bad press. Thus, regaining shareholder's confidence in DBK will take time and patience.

Figure 60: Scenario analysis

2021E / €m	Grey sky		Blue sky
		Base	
Total banking revenues	22,513	26,177	29,434
Non-interest expenses	23,234	22,299	20,485
EBT	1,203	2,914	3,277
Net income	842	2,040	2,294
Cost of Equity	10.4%	10.4%	10.4%
Sustainable growth	0.5%	2.0%	6.0%
Share price €	6.9	10.5	14.4

Source: own analysis

Appendix

Financial Statements

	2016	2017	2018E	2019F	2020F	2021F
Income Statement (€m)						
Interest and similar income	25,636	24,092	20,082	21,849	22,905	24,007
Net Interest Income	14,707	12,378	11,373	12,045	12,456	13,295
Loan loss provision	1,383	525	948	978	849	964
Total non-interest income	15,307	14,070	13,306	12,711	12,629	12,882
Total non-interest expenses	29,442	24,694	22,732	20,750	21,023	22,299
Income (loss) before taxes	(810)	1,229	999	3,028	3,213	2,914
Net income (loss)	(1,356)	(734)	700	2,120	2,249	2,040
Net income attributable to non-controlling interests	45	15	27	29	24	27
Net income attributable to shareholders	(1,402)	(750)	672	2,090	2,225	2,013
Balance Sheet (€m)						
Cash and central bank balances	181,364	225,655	144,698	166,820	173,537	155,841
Loans	408,909	401,699	410,670	419,574	428,181	436,863
Other assets	126,045	101,491	109,518	111,120	109,506	112,264
Total assets	1,590,546	1,474,732	1,489,480	1,504,374	1,519,418	1,534,612
Deposits	550,204	580,812	595,417	610,783	626,694	642,780
Financial liabilities	581,971	478,636	525,586	523,180	519,234	533,211
Provisions	10,974	5,219	7,988	7,924	7,176	7,854
Total shareholders' equity	59,833	63,174	59,047	60,224	62,050	61,647
Total liabilities and equity	1,590,546	1,474,732	1,489,480	1,504,374	1,519,418	1,534,612

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