ESMT BERLIN

Research Report

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SAP SE

STORY OF STABILITY AND SUCCESS

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SUMMARY

Stock: SAP SE

Recommendation: BUY

Target Price Range= 104,77 € - 137,20 €

CURRENT PRICE	94.49 €	1-YEAR RETURN	-3.37%
52 WEEK RANGE	81.16-108.52 €	P/E	26.54
MARKET CAP	116.081 bn	EPS	3.56
30 DAY AVG VOLUME	3,164,701	DIVIDEND	1.4

SAP SE OVERVIEW

SAP SE is a German-based European multinational software corporation that makes enterprise software to manage business operations and customer relations. It operates in 130 countries and declared 23.46 bn revenues in FY2017. SAP operates in the software industry concentrating on the CRM and Cloud Platform segments as the major contributors to revenue.

The SAP is expected to see steady sales growth, mirroring the overall software industry. It has shown consistent execution and is one of the few companies to demonstrate steady gains in both on-premise and cloud products.

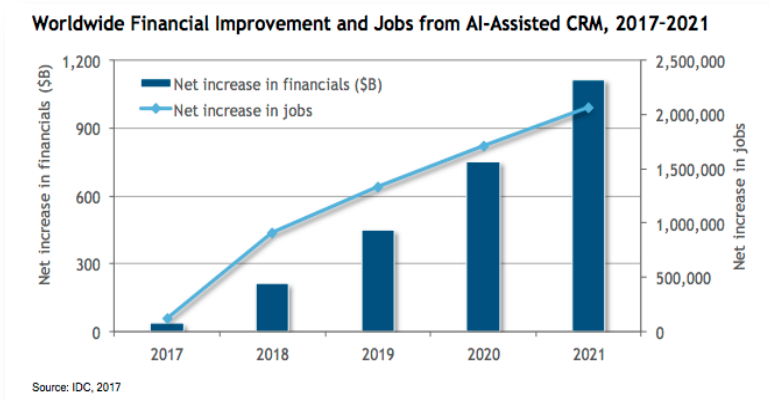
The company's large client base of legacy enterprise applications should provide a solid foundation as it moves more of its portfolio to the cloud, with customer relationship management being the latest target area. Profitability should also improve over the next 12-24 months as cloud products gain scale.

As the market leader in enterprise application software, SAP empowers users to streamline processes, utilize live data to predict business trends, drive growth initiatives and define new possibilities. Recognized as one of the world’s most innovative and trustworthy independent computer technologies developers, SAP offers a product portfolio that ranges from pioneering ERP software to industry-leading data solutions like SAP HANA. This wide range of products is helping SAP widen its market domination in few industries (CRM) and staying relevant in a few industries (Blockchain).

SAP also ventured into latest technologies like Blockchain, Internet of Things and Machine Learning recently and is trying to be the face of technology innovation. A detailed overview is given in the technology development section of the report.

MARKET RESEARCH

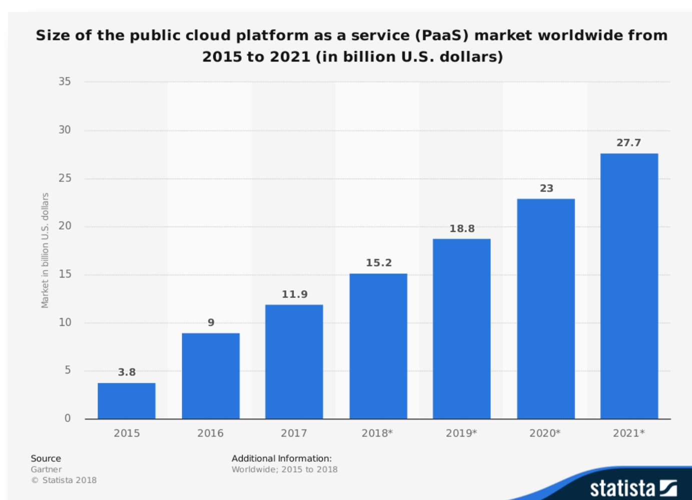
CRM INDUSTRY OVERVIEW



CRM became the largest software market in 2017 and will be the fastest growing software market in 2018, according to Gartner. Worldwide CRM software revenue amounted to $39.5 billion in 2017 overtaking DBMS revenue, which reached $36.8 billion in the same year. In 2018, CRM software revenue will continue to take the lead of all software markets and be the fastest growing software market with a growth rate of 16%. With revenues expected to reach over $80 billion by 2025, it's no surprise that CRM is the fastest growing software market. AI-powered CRM activities will drive new efficiencies in how companies sell, service, and market, ultimately expected to create more than $1.1 trillion in new GDP impact worldwide and 800,000 net-new jobs by 2021 — surpassing those lost to automation.

CLOUD INDUSTRY OVERVIEW

SAP SE developed SAP Cloud Platform as a service for creating new applications or extending existing applications in a secure cloud computing environment managed by SAP. The SAP Cloud Platform integrates data and business processes. Cloud computing is the company's fastest growing business stream, in the third quarter of 2018 fiscal year it has managed to increase the cloud subscriptions and support revenues by 40%, making it €1.3bn in revenues. This growth is easily seen on the income statement as SAP decided to split the business departments clearly. This shows that the company is confident in the profit margin growth in this market unlike Oracle, one of their biggest competitors, which combines their cloud revenues with their legacy license support unit.

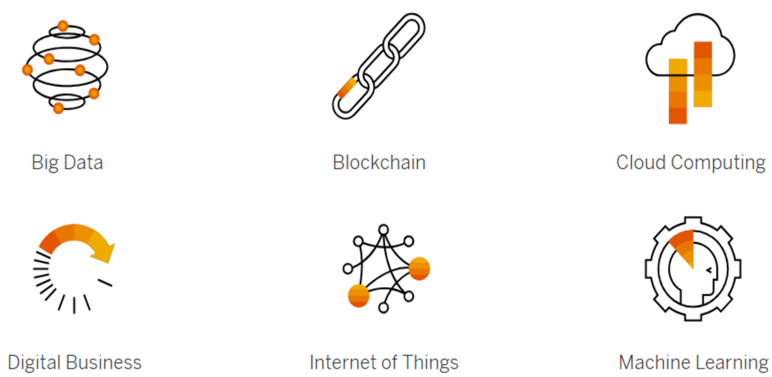


Cloud computing has become an essential part of corporate IT Systems because of its ease of use, technological advancement, and business capabilities. 77% of enterprises have at least one application or a portion of their enterprise computing infrastructure in the cloud. Enterprises predict they'll invest on average $3.5M on cloud apps, platforms, and services this year. Technology-dependent industries including manufacturing, high-tech, and telecom are being led by executive management to become 100% cloud.

The chart above shows the size of the public cloud revenue from 2017 to 2021. In 2018, the market for Platform as a Service is predicted to reach around 15 billion U.S. dollars worldwide, while the whole market is expected to reach 186.4 billion U.S. dollars.

SAP TECHNOLOGY DEVELOPMENT

Being a tech company, SAP is striving hard for technology innovation and we can clearly see from their website that they are innovating and making software products in all the emerging technologies which transform the way businesses function.



One of SAP's impressive and latest product innovations is SAP Leonardo Intelligent Technologies. SAP Leonardo is a digital innovation system, an umbrella term that helps customers access SAP's components and products across emerging technologies, such as Machine Learning, Big Data, Internet of Things (IoT) and Blockchain. It is often associated with SAP Cloud Platform services, but it's not limited to this, as it covers anything that fits into modern technologies and includes e.g. predictive capabilities in S/4HANA – whether on premise or in the cloud. SAP Leonardo is supposed to be the future of ERP innovation.

SAP LATEST BUSINESS DEVELOPMENT & UPDATES

1. **Latest product development**
    a. SAP Leonardo
    b. SAP Workbox
    c. SAP Cloud Platform - SAP Analytics Cloud, SAP Success Factors
2. **Organizational Changes** - SAP SE (NYSE: SAP) announced today that Chief Innovation Officer Juergen Mueller will join the company's Executive Board as head of Technology and Innovation, effective Jan. 1, 2019. Thanks to Juergen Mueller's dedication and hard work, SAP is a leader in machine learning, blockchain, and many other innovative technology areas
3. **SAP Business Partnerships**
    a. **Egnyte Partnership Extension** - Egnyte Extends SAP Cloud Platform for Easy, Secure Business Collaboration. The California-based company, which also has offices in Europe, has developed a solution that extends the SAP Cloud Platform
    b. **Social Initiatives**

i. SAP supports Elephants, Rhinos & People (ERP) initiative, a social initiative to conserve Rhinos and Elephants, with donations and SAP Cloud Platform. This work was carried out in partnership with EPI-USE.

ii. Code Unnati and Latin Code Week are digital skills programs offered by SAP. This gives individuals a chance to succeed in a fast-paced digital world. Code Weeks are organized by SAP all over the world. SAP also has training centers.

c. **Google Partnership Extension - Google** in partnership with SAP is working on a range of co-innovation projects to help customers address their biggest business challenges.

COMPETITION AND POSITIONING

Throughout 46 years in the market, SAP had positioned itself as a pioneer and leader in the application software. SAP now offers additional services such as a webinar series and training to complement its core products and differentiate from the competition. Moreover, SAP engages in sustainability activities. For example, SAP developed tracking devices to protect animals from poachers and preserve wildlife. SAP also committed to becoming carbon neutral by 2025.

The following table shows SAP's main competitors across product families:

PRODUCT FAMILY	PRODUCTS	COMPETITORS
ERP AND DIGITAL CORE	ERP Cloud	Oracle Netsuite, Acumatica, Syspro, AccountMate, Open, Bitrix24, Sage, Aquilon
DIGITAL PLATFORM	Data Management Suite, Databases, Enterprise Information	Amazon Web Services, IBM Watson Data Platform and DataFirst, Microsoft SQL Server, Oracle Big Data SQL, Teradata MDM
PROCUREMENT AND NETWORKS	Supplier Management, Strategic Sourcing, Procurement, Services Procurement, External Workforce, Selling and Fulfillment	SMART by GEP, Coupa Procurement Software, Noosh, Amazon Business, BravoSolution. Oracle
ANALYTICS	Analytics Cloud, Business Intelligence, Enterprise Planning, Predictive Analytics, Machine Learning	Sinsense, Birst, LiveHive, GoodData, Domo, Microsoft Tableau, Logi Analytics, Pentaho, Sinsense
CUSTOMER EXPERIENCE	Marketing, Sales, Service, Commerce, Revenue	SalesForce, Oracle CRM, Hubspot, Pipedrive, Sugar, Batchbook, Apptivo
IOT AND DIGITAL SUPPLY CHAIN	Digital Supply Chain, Internet of Things, Manufacturing, R&D/Engineering, Asset Management	Oracle SCM, JDA, Infor Global Solutions, Manhattan Associates, Epicor
PEOPLE ENGAGEMENT	Core Human Resources and Payroll, Time and Attendance Management, Recruiting and Onboarding, Performance and Compensation, Workforce Planning and Analytics	BambooHR, Zoho People, Workday, Sage Payroll, ADP Workforce Now, Paycor, Oracle

FINANCE	Cybersecurity, Governance Risk, and Compliance, Financial Planning and Analytics, Accounting, Tax Management, Treasury Management, Payables and Receivables	FreshBooks, Sage50cloud, NetSuite ERP, Keeper, Oracle, Tipalti, SevDesk, Sage Business

Oracle is the main direct competitor. It operates in all business units with SAP, has similar size and worth. Amazon can potentially become a strong player across all business units of SAP. It already has such offerings as Amazon Business and Amazon Web Services. Most of the other competitors are specialized in only one product area or focused only on small businesses.

Additionally, to remain competitive SAP actively strengthened its artificial intelligence expertise and presence via acquisitions. In 2018 SAP made three major acquisitions: Coresystems, CallidusCloud and Recast.AI. Coresystems is a Swiss artificial intelligence powered mobile and cloud-based software provider, which pioneered a crowd service and a leading field service management platform. It is now part of the SAP Service Cloud portfolio. CallidusCloud is an American artificial intelligence driven software provider specialized in lead-to-cash processes, now part of SAP Sales Cloud and SAP Customer Experience. Recast.AI is a French start-up which developed a collaborative natural language platform for developers, now part of SAP Leonardo.

FUNDAMENTAL ANALYSIS

SUMMARY

The SAP is a mature company with sound fundamentals and stable growth prospects. According to SAP's Q3 2018 Report, its 2018 outlook is raised based on strong revenue growth in cloud subscription (Up 39%). All financial data is in million €.

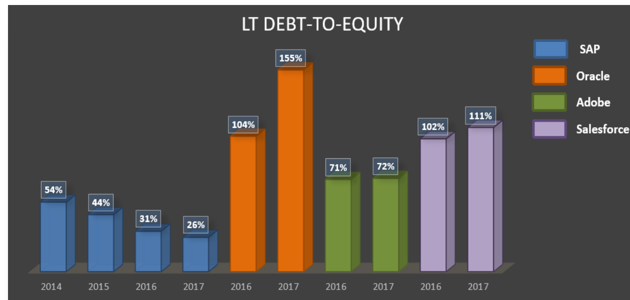
To have a better view on the company financials, we three comparable companies: Adobe Inc, Salesforce.com Inc and Oracle. Salesforce.com Inc and Oracle are direct competitors of SAP based on similarities in the business model and revenue range. Adobe is a less obvious competitor since it defines itself as an IT service company. However, most of Adobe's revenues come from the software and programming business. Oracle, Salesforce.com, Adobe Inc and SAP are also leaders in the cloud computing market packaged software. Besides the business model, they were selected based on the Market Cap to control for size effect. Further in the Valuation section, Salesforce, Oracle and Adobe are used for the SAP's price derivation.

	Adobe Inc	Saleforce.com Inc	Oracle	SAP SE
Market Cap. €	105,32B	89,84B	159,76B	114,31B

SOLVENCY

Solvency	SAP				Oracle		Adobe		Salesforce	
	2014	2015	2016	2017	2016	2017	2016	2017	2016	2017
Debt-to-Assets ratio	49%	44%	40%	40%	60%	66%	42%	42%	55%	57%
LT Debt-to-Equity	54%	44%	31%	26%	104%	155%	71%	72%	102%	111%
Z-score	3.48	3.90	4.24	4.58	4.82	4.08	5.92	6.31	0.67	0.33

SAP has been redefining its capital structure, repaying L-T debt and increasing Shareholder's equity though high retained earnings. Debt-to-Asset and Long-term Debt -to-Equity are the lowest among chosen competitors. Altman Z-score is well above 3 and improving over the years, which means SAP is not likely to go bankrupt, unlike Salesforce, that is highly leveraged and in the high growth stage. Altman Z-score is a comprehensive metric predicting probability of bankruptcy that uses 5 financial ratios covering profitability, leverage, liquidity, solvency and activity of the company.



PROFITABILITY

Profitability	SAP				Oracle		Adobe		Salesforce	
	2014	2015	2016	2017	2016	2017	2016	2017	2016	2017
Revenue	€ 15,453	€ 18,298	€ 19,415	€ 20,646	€ 33,201	€ 35,051	€ 5,152	€ 6,425	€ 9,222	€ 7,384
Gross Profit Margin	72%	70%	70%	70%	63%	80%	86%	86%	74%	73%
Operating Profit Margin	25%	20%	23%	21%	34%	34%	40%	44%	29%	27%
Profit after tax Margin	18%	15%	16%	15%	9%	29%	35%	37%	28%	29%
Net Income	€ 2,886	€ 2,689	€ 3,198	€ 3,569	€ 8,215	€ 3,366	€ 1,028	€ 1,490	€ 112	€ 158
Net Income growth		-7%	19%	12%		-59%		45%		41%

Net Income has been growing over the past 2 years. However, SAP cannot boast the highest profit margins compared to the competition. On the opposite, SAP has room for improvement in profitability. The highest profit margins were in 2014, fluctuating around stable lower levels in the following years.

EFFICIENCY

Efficiency	SAP				Oracle		Adobe		Salesforce	
	2014	2015	2016	2017	2016	2017	2016	2017	2016	2017
Working capital	€ 374	€ 1,647	€ 1,663	€ 1,514	€ 44,297	€ 49,957	€ 2,665	€ 3,274	-€ 738	-€ 1,143
Days Sales Outstanding	90.25	92.60	98.01	91.78	51.27	48.38	51.94	60.89	136.42	139.02
Days Payable Outstanding	75.59	63.59	71.03	59.58	15.60	23.89	39.22	40.84	264.57	286.25
Asset Turnover	0.46	0.50	0.50	0.55	0.28	0.29	0.46	0.50	0.50	0.48

In 2015 SAP introduced Run Simple operating model to bring operational efficiency and agility to its business model. Gap (32.2 days) between Days Sales Outstanding and Days Payable Outstanding grew the largest over the past 4 years indicating deterioration in receivables and payables managements. The levels are still smaller than those of Salesforce. Another metric, Asset turnover ratio (0.55), indicates the highest efficiency of SAP among its closest competitors.

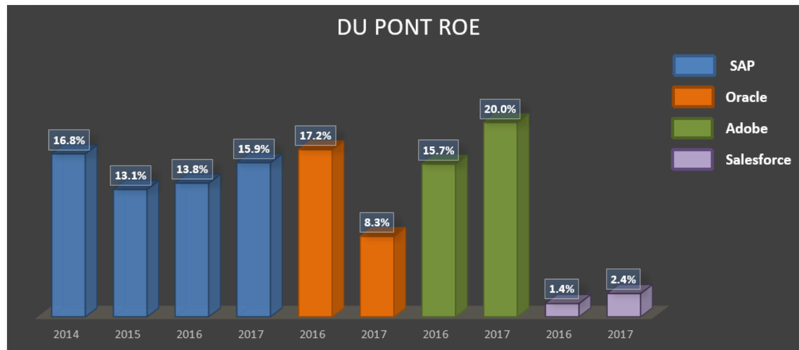
LIQUIDITY

SAP has been improving its liquidity evident from growing Cash account and share of retained earnings in equity. Current ratio is above 1, meaning that SAP is well-positioned to cover short-term liabilities.

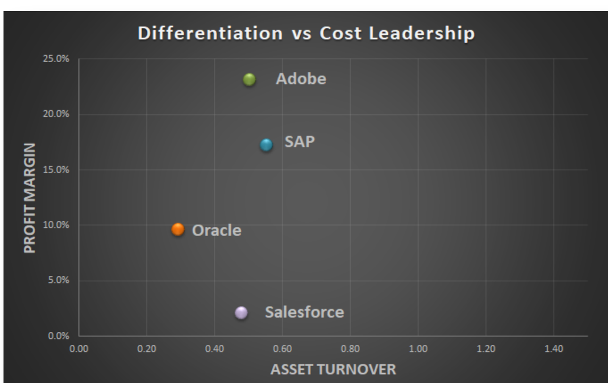
Liquidity	SAP				Oracle		Adobe		Salesforce	
	2014	2015	2016	2017	2016	2017	2016	2017	2016	2017
Cash Amount (mln)	€ 3,328	€ 3,411	€ 3,702	€ 4,011	€ 19,086	€ 18,942	€ 886	€ 2,020	€ 2,228	€ 1,407
Current ratio	1.05	1.24	1.20	1.17	3.08	3.96	2.08	2.05	0.92	0.82
Ret. Earnings/Equity	10.7%	7.5%	8.5%	10.0%	12.4%	1.5%	15.7%	20.0%	1.4%	2.4%

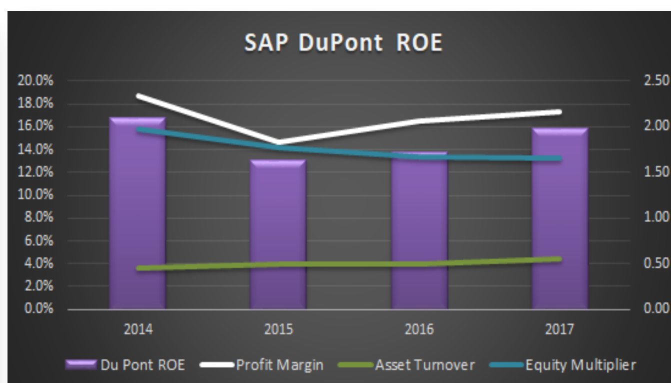
DUPONT ROE

Return on equity is showing how efficient the company at generating income and growth from company financing. SAP's ROE has been recovering over the past 3 years. In 2017 SAP was better at managing shareholder's equity than Oracle and Salesforce, underperforming Adobe. Each dollar of SAP common equity stockholders generated 17.2% profit.



Relative to Oracle and Salesforce, SAP is using differentiation strategy, seen from a higher profit margin. At the same time, SAP is carefully utilizing its assets, being strongly positioned on cost efficiency too. For example, Salesforce cannot manage to charge high margin and sustain high efficiency.





DUPONT decomposition gives insight into what is driving value generation. In the case of SAP, asset turnover stayed relatively stable over the years at 0.5, while Equity multiplier has been slowly declining. The highest impact on ROE is made by Profit Margin, evident from drop in Profit Margin and ROE in 2015.

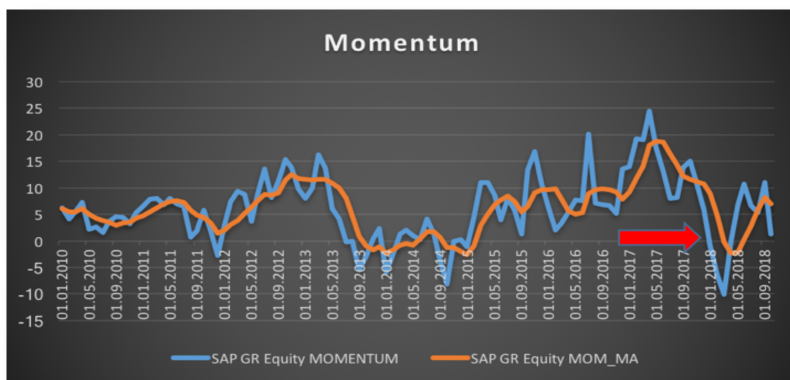
From a fundamental point of view, SAP is a strong buy in times of volatility and looming crisis. It is highly solvent, profitable and liquid. The SAP is not promising rocket high returns like Salesforce, that is currently in the growth stage, but it delivers healthy stable growth for a limited risk. It is **a strong 'buy'** given raising political and economic uncertainty in Europe and Germany in particular – naming few - Brexit, Merkel stepping down in December, fear of rising interest rates, high levels of public debt in Italy and populist government, return of volatility in the financial markets.

TECHNICAL ANALYSIS

Technical analysis focuses on 3 technical indicators: Momentum, Bollinger band, and the Triangular Moving Average. Bloomberg data was used for the calculations.

MOMENTUM FACTOR

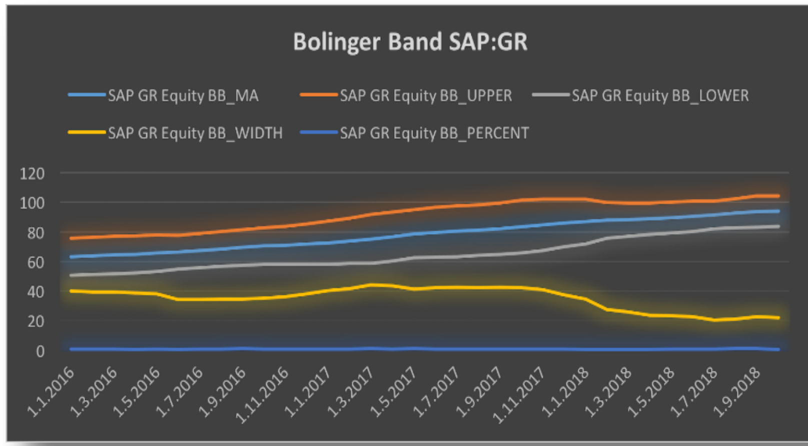
Momentum factor is one of the most well-known style factors in the literature. It shows how an asset's recent relative performance history affects its return. While style factors are mostly used in improving portfolio diversification, here momentum is used to describe the expected future movement of the SAP SE stocks. Momentum is measured using the most common method, the last 12-month cumulative raw return on the asset. The analysis can be seen in the picture mentioned below.



The analysis results show that SAP has suffered in the tech sell-offs happened earlier this year and recovered sharply with a sharp "V" pattern between November 2017 and June 2018. The return pattern suggests that the price will continue recovery from the latest losses and persist its upward moving trend. Thus, it puts the SAP security in a **'buy'** position.

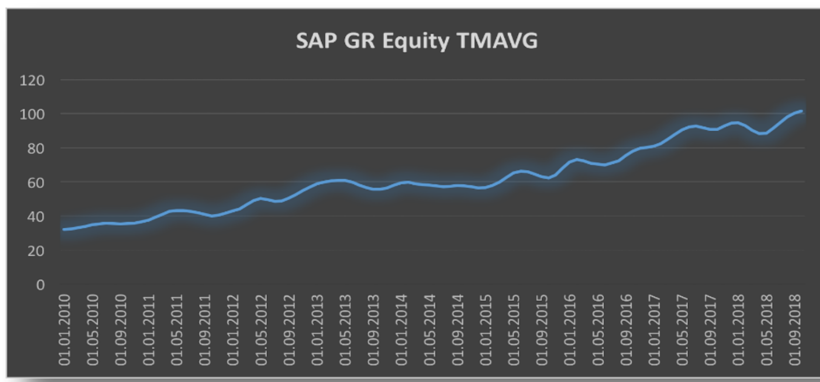
BOLLINGER BAND

The Bollinger Band is used to compare the moving average (MA) of a stock relative to the upper and lower bands. Bands are positioned above by a degree of standard deviations from the moving average. SAP stocks are experiencing a lower volatility compared to last year. Narrowing in the bands can be interpreted as an upcoming widening and thus, higher volatility levels are expected in the near future. Current closing prices are at the same levels with what the moving average indicates.

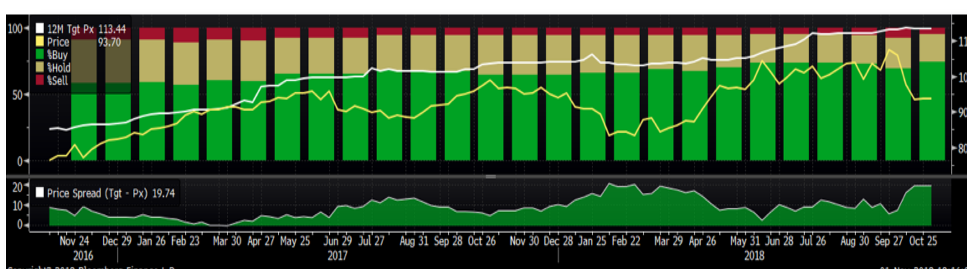


TRIANGULAR MOVING AVERAGE

The triangular moving average of the stock is a double smoothed indicator which helps us to clean out the noise in the recent price changes data. While it is slower to react to recent up-and-downs, it gives us the direction of the stock trend. Combining triangular moving average upward trend with the expected higher volatility in the near term indicates **'buy'** position regards to SAP SE stocks.



OTHER ANALYST RECOMMENDATIONS



To have a better understanding of market's valuation of SAP SE, we have also added the analyst recommendations that are retrieved from Bloomberg Terminal. Largest majority over 2 years recommends 'buy' with an average 12-month target price level of 113.44 Euro.

VALUATION

The following data and results are calculated as of day 29th October 2018. SAP SE price equals €93,38 per share, with 1,23M shares outstanding.

MULTIPLES - INDUSTRY AVERAGES

The initial stage of SAP valuation is a general comparison based on SAP multiples and industry averages of Application Software industry.

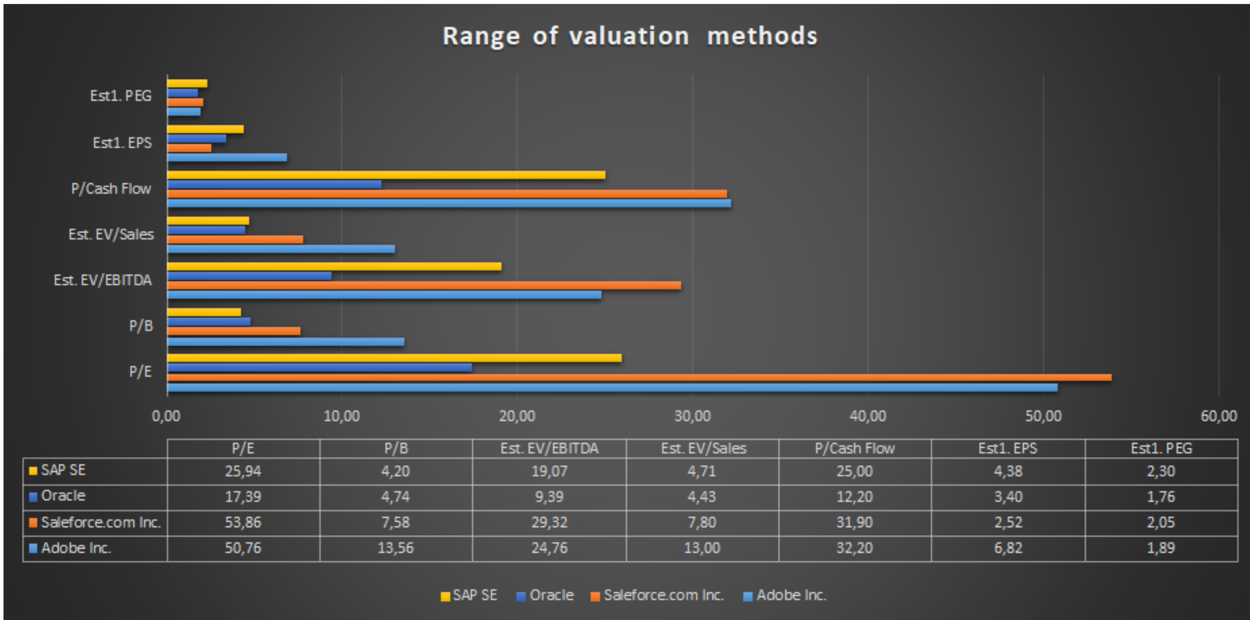
	SAP SE	Industry average	Implied Price (€)
P/E	25,94	40,43	144,81
P/B	4,20	6,48	144,07
Est. EV/EBITDA	19,07	23,99	121,14
Est. EV/Sales	4,71	7,34	126,21
P/Cash Flow	25,00	20,97	64,27

According to the results obtained from this initial evaluation, there is a clear tendency toward the underpriced conclusion; in fact, only the P/Cash Flow ratio is suggesting that the stock is overpriced. Nevertheless, the P/Cash Flow ratio is one of the less reliable metrics. Academic research has shown that it is one of the multiples with the highest error component. On the other hand, the EV/EBITDA ratio, which is generally regarded as one of the most reliable ratios, is suggesting a price well above the current one.

MULTIPLES - CLOSE COMPETITORS

Industry averages are not good estimates of multiples' fair levels since they aggregate companies that are not comparable to SAP in terms of size and/or business model. Small firms tend to outperform large companies and, moreover, the stage of the firm shall also be considered.

To carry forward the analysis, we used the same competitors as in Fundamental analysis section: Salesforce, Oracle and Adobe. Multiples of these companies were averaged using harmonic mean. It was chosen instead of the simple average because academic research has shown that in the evaluation with multiples, harmonic mean is effective in decreasing the error by reducing the interquartile range. (Liu, Nissim and Thomas 2002).



	P/E	P/B	Est. EV/EBITDA	Est. EV/Sales	P/Cash Flow	Est1. EPS	Est1. PEG
SAP SE	25,94	4,20	19,07	4,71	25,00	4,38	2,30
Oracle	17,39	4,74	9,39	4,43	12,20	3,40	1,76
Saleforce.com Inc.	53,86	7,58	29,32	7,80	31,90	2,52	2,05
Adobe Inc.	50,76	13,56	24,76	13,00	32,20	6,82	1,89

	SAP SE	Harmonic mean	Implied Price (€)
P/E	25,94	31,32	137,20
P/B	4,20	7,20	160,09
Est. EV/EBITDA	19,07	16,58	79,44
Est. EV/Sales	4,71	6,96	70,42
P/Cash Flow	25,00	20,78	63,69

After conducting multiples valuation based on the close competitors' data, the situation becomes more doubtful: three ratios out of five suggest that the company is rather overpriced than underpriced. Moreover, P/B ratio is misleading, since it carries a meaningful information only in case of financial institutions; in all the other cases, its accuracy is limited.

NOMINCAL VALUATION MODELS: FCF AND DDM

The last valuation stage consists of a nominal valuation model.

	Implied price
DDM Gordon growth	72,66
DFCF with 8% gr rate	152,45
DFCF with 7% gr rate	104,77

The classical DFCF uses the firm's value as the dependent variable. In our analysis, the unknown parameter is moved from the firm's value to the FCF growth rate. The model assumes that the company is perfectly priced at the current €93,38 per share, and therefore the firm's value considered is the intrinsic value of the company (118,284 M €). The estimated future cash flows for 2019 are 4,124M. Only 1-year horizon is considered. Expanding the model to more years can be harmful since the accuracy of FCF estimation falls proportionally with time.

The weighted average cost of capital was estimated with the traditional formula, taking taxes into account: WACC = E/(D+E)*Cost of leveraged equity + D/(D+E)*cost of debt*(1-T), giving a cost of 10,2%.

The final model used: g =r - FFCF/EV, where g – FCF growth rate, r – WACC

The result for this nominal valuation model is that given current price is the fair price, the underlying free cash flows growth rate should be 6,71%.

At this point, a couple of considerations are needed: SAP has delivered, on average, a free cash flows growth of 11% in the previous three years, even though on an eight-year period the average is much smaller, but it is so because the company had a three-years bad performance (2012-2014).

Therefore, it is spontaneous to challenge the initial assumption of perfect pricing: given sound accounting ratios (see Fundamental analysis section) and growth prospects (business acquisition) of the firm, we assume that the growth rate should be higher (7% as base scenario, 8% - 9% as an optimistic scenario). Therefore, SAP is currently underpriced.

Finally, classical DDM Gordon growth model was to value SAP. The company pays regular dividends to its shareholders. The average dividend growth over the past 4 years is 7.91%. WACC, calculated above, is 10.2%. Projected dividends for 2019 and 2020 are 1.325 and 1.322 respectively. Therefore, fair price based on DDM is 72.66 €. However, the price target acquired from DDM model must be treated with caution. The model falsely assumes that the only value of a stock is the return provided through dividends. Therefore, it is no surprise that DDM suggests current overpricing of SAP stock.

Based on the valuation, we suggest a reasonable price range **between 104,77 (base DFCF scenario) and 137,20 € (P/E multiple)**. JPMorgan analysts (Stacy Pollard) in SAP valuation report suggest a target price of 115,61, implying 7.3% FCF growth rate.

Conclusion

From the described analysis of SAP's market positioning and performance, an overall positive result emerges on the business. The company has certainly a great potential in the medium-long run, and the stock price is expected already to rise in the following months.

The outcome of the valuation and of the technical analysis credits the conclusion that SAP is currently undervalued, thus providing a further reason to invest in this company. The targeted price is in the following range: 104,77 € - 137,20 €. Therefore, the expected return on investing in this stock now fluctuates between 10% and 45%.

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