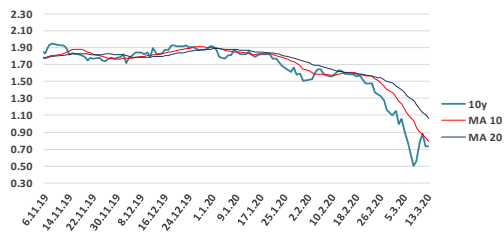


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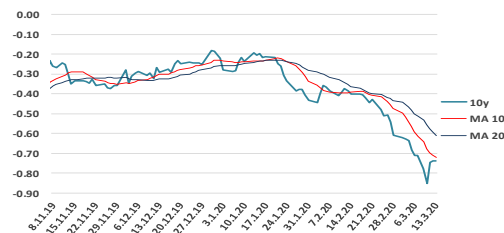
Equity Research Team | Analysts: Elenidis Charalampos, Kelepouris Georgios, Moschou Stefanos
info@vrs.gr | info@valueinvest.gr

Periods are depicted as day/month/year in all graphs and tables of this report.

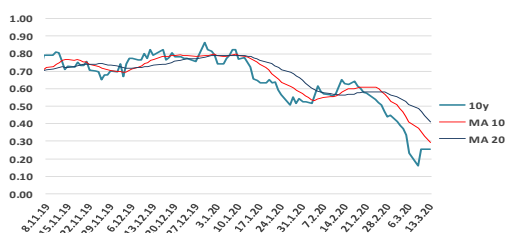
Graph 1: **United States 10-Year Bond (%)** (Nov. 2019 - March 13, 2020)



Graph 2: **Germany 10-Year Bond (%)** (Nov. 2019 - March 13, 2020)



Graph 3: **United Kingdom 10-Y Bond (%)** (Nov. 2019 - March 13, 2020)



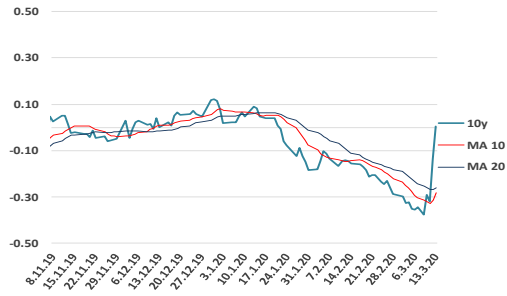
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Recent & Previous Macroeconomic Developments

- Preliminary estimations showed that, the U.S. GDP would grow by 2.3% in 2019, exceeding pre-election forecasts thanks to robust real consumer spending.
- In the beginning of March 2020, Fed announced a further interest rate cut by 50 basis points reaching 1.25%. Driven by that, investors expected an easier monetary policy amid the virus crisis. The next day, due to FED's decision, the 10-Year Treasury Note fell below 1% for the first time ever and a week later reached a record low of 0.556%.
- Due to the overall crash in the global financial markets, FED injected \$1.5 trillion into bond markets, during the second week of March, to prevent a crisis similar to that in 2008.
- The European Commission reported that public debt ratios declined in many Member States. However, it didn't drop in states where it should had been reduced the most, referring to Italy, Greece, Portugal and Cyprus whose debt to GDP ratios were above 100%.
- The ECB estimated that, Eurozone's budget balance would decline steadily from 2019 until 2021 and would stay stable in 2022. Additionally, the three-month EURIBOR would remain at -0.4% from 2019 to 2021 and would increase at -0.3% in 2022.
- In February 2020, Eurozone's unemployment rate reached 7.4%, the lowest since May 2008, and the PMI rose by 0.3%.
- The 10-year Gilt (UK yield) fell in late January as UK was about to formally exit the European Union on January 31st, despite the uncertainty around trade agreements and the access to financial markets.
- Conservatives' win in UK elections on December 12th, led the 10-year Gilt yield to its highest level since early June, whereas Irish 10-year government debt outperformed, narrowing the gap with the German 10-Year bond yield to the lowest level since early 2018.
- On March 11th, the Bank of England voted unanimously to cut its interest rates from 0.75 to 0.25, as an emergency, to shore up UK's economy due to the coronavirus outbreak.
- Optimism regarding U.S.-China trade relations in late December 2019, enhanced stock prices worldwide, in turn, provoking sell-off in bond markets.
- Estimations about the global GDP showed that, it would decline by 0.5% in 2020 as a result of COVID-19, while it could even be reduced by 1.5% if the downside risks would be materialized.
- Greece's upgrade by Fitch Ratings on January 25th, 2020 and the record orders gathered for the 15-year bond issuance on January 28th squeezed the country's 10-year bond yield.
- German's industrial output dropped by 3.5% in December 2019, which was its biggest drop since January 2009. The country's 10-year bond yield fell as low as -0.368% and Eurozone's bond yields dropped due to this event as well.
- In February 2020, Moody's Investors Service downgraded France's ratings from positive to stable. However, Moody's stated that France's public debt remained affordable and its susceptibility to political or external shocks was very low.
- Economists might change their projections for Italy due to the unexpected contraction of the country's GDP and industrial output in the fourth quarter of 2019.

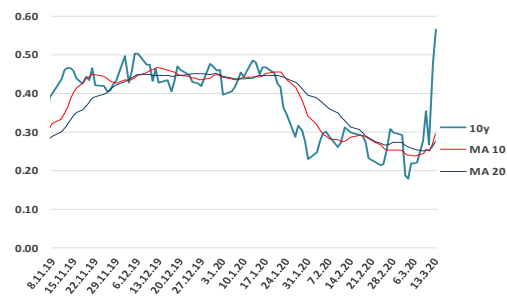
Graph 4: France 10-Year Bond (%) (Nov. 2019 - March 13, 2020)



Graph 5: Italy 10-Year Bond (%) (Nov. 2019 - March 13, 2020)



Graph 6: Spain 10-Year Bond (%) (Nov. 2019 - March 13, 2020)



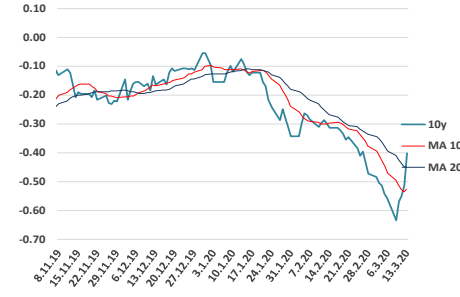
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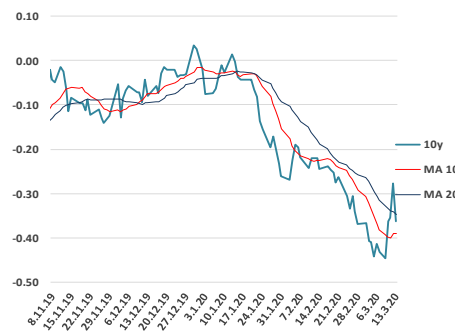
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Graph Analysis

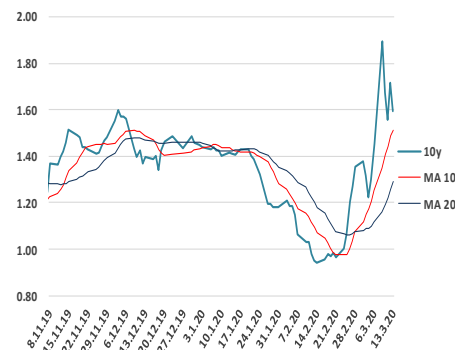
Graph 7: Netherlands 10-Y Bond (%) (November 2019 - March 13, 2020)



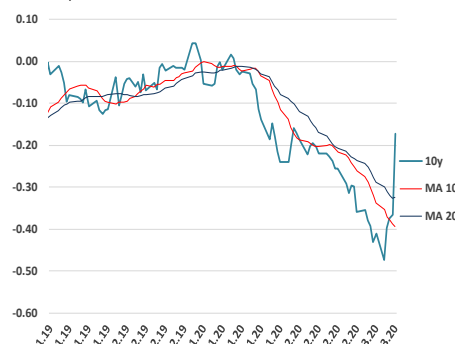
Graph 9: Austria 10-Year Bond (%) (November 2019 - March 13, 2020)



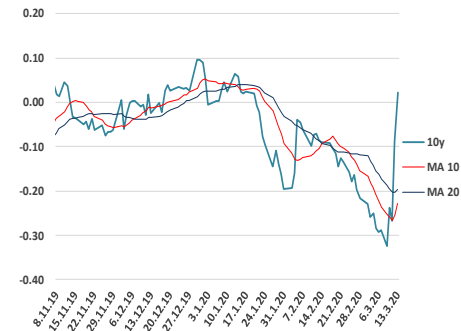
Graph 11: Greece 10-Year Bond (%) (November 2019 - March 13, 2020)



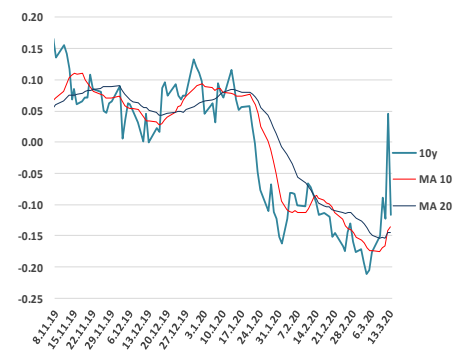
Graph 13: Finland 10-Year Bond (%) (November 2019 - March 13, 2020)



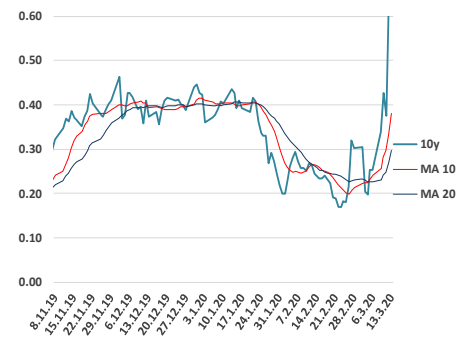
Graph 8: Belgium 10-Year Bond (%) (November 2019 - March 13, 2020)



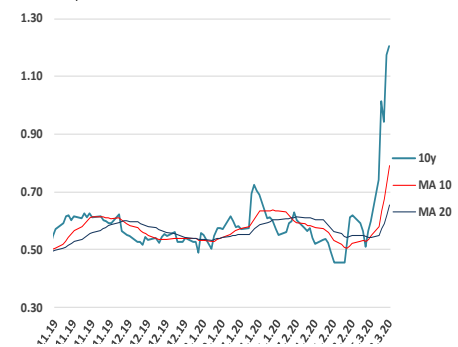
Graph 10: Ireland 10-Year Bond (%) (November 2019 - March 13, 2020)



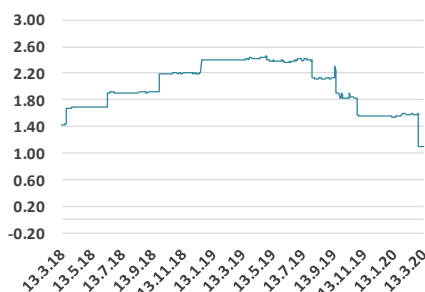
Graph 12: Portugal 10-Year Bond (%) (November 2019 - March 13, 2020)



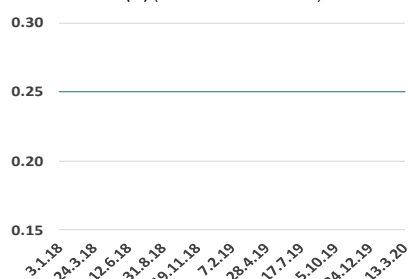
Graph 14: Cyprus 10-Year Bond (%) (November 2019 - March 13, 2020)



Graph 15: Key Rates (Funds Rate) of Federal Reserve Bank (%)
(Period 13.3.18 – 13.3.20)



Graph 16: Key Rates (Interest rate on the marginal lending facilities) of European Central Bank (%) (Period 3.1.18 – 13.3.20)



Graph 17: Key Rates (Official Bank Rates) of Bank of England (%)
(Period 13.1.18 – 13.3.20)



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Table 1: 5-Year & 10-Year Bonds Yields (%)
First Trading Date versus Last Trading Date

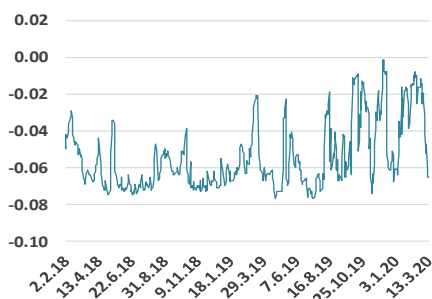
Countries	5y (2.1.19)	5y (13.3.20)	Change %	10y (2.1.19)	10y (13.3.20)	Change %
USA	2.468	0.731	-70.38%	2.633	0.983	-62.67%
Germany	-0.331	-0.752	127.19%	0.165	-0.548	-432.12%
UK	0.838	0.340	-59.43%	1.210	0.410	-66.12%
France	0.038	-0.278	-831.58%	0.656	0.020	-96.95%
Italy	1.355	1.355	0.00%	2.691	1.805	-32.92%
Spain	0.339	0.173	-48.97%	1.407	0.633	-55.01%
Netherlands	-0.208	-0.621	198.56%	0.324	-0.339	-204.63%
Belgium	-0.045	-0.252	460.00%	0.717	0.089	-87.59%
Austria	-0.214	-0.410	91.59%	0.425	-0.059	-113.88%
Ireland	-0.111	-0.023	-79.28%	0.871	0.192	-77.96%
Greece	3.342	1.666	-50.15%	4.383	1.717	-60.83%
Portugal	0.457	0.457	0.00%	1.713	0.791	-53.82%
Finland	-0.193	-0.408	111.40%	0.480	-0.101	-121.04%
Cyprus	1.115	0.331	-70.31%	2.339	1.208	-48.35%

Table 2: Historic GDP Growth Rate (%) 2017 & 2018

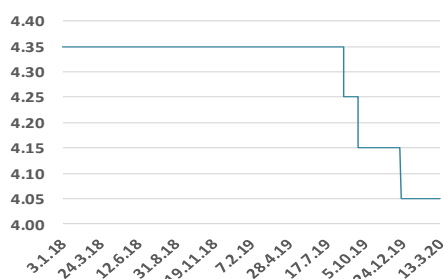
Countries	Change % 2017/2016	Change % 2018/2017
USA	2.20%	2.90%
Germany	2.50%	1.50%
UK	1.80%	1.40%
France	2.20%	1.50%
Italy	1.60%	0.90%
Spain	3.00%	2.50%
Netherlands	2.90%	2.50%
Belgium	1.70%	1.40%
Austria	2.60%	2.70%
Ireland	7.20%	6.80%
Greece	1.50%	2.10%
Portugal	2.80%	2.10%
Finland	2.80%	2.40%
Cyprus	4.50%	3.90%

Source: IMF (International Monetary Fund)

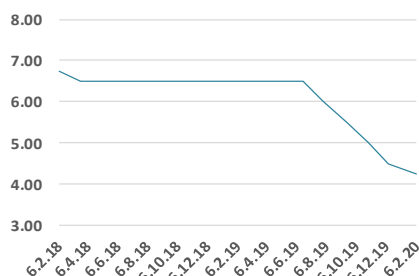
Graph 18: Key Rates (Call Rate) of Bank of Japan (%)
(Period 2.2.18 – 13.3.20)



Graph 19: Key Rates (Benchmark Interest Rate) of People's Bank of China (%) (Period 3.1.18 – 13.3.20)



Graph 20: Key Rates (TBC/SELIC rate targets) of Bank of Brazil (%)
(Period 6.2.18 – 6.2.20)



Important Note:

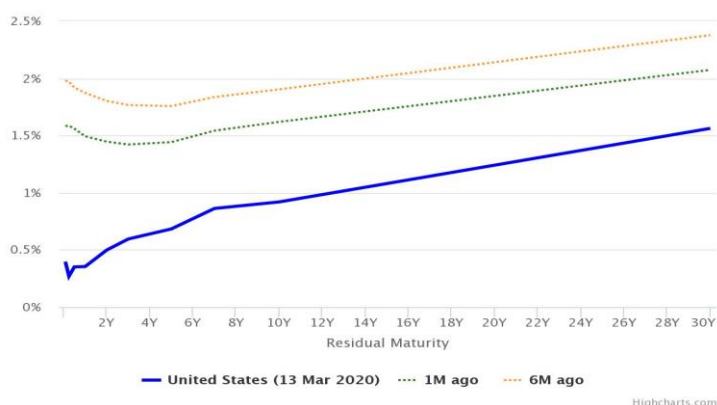
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Table 3: Key Central Bank Rates (%)

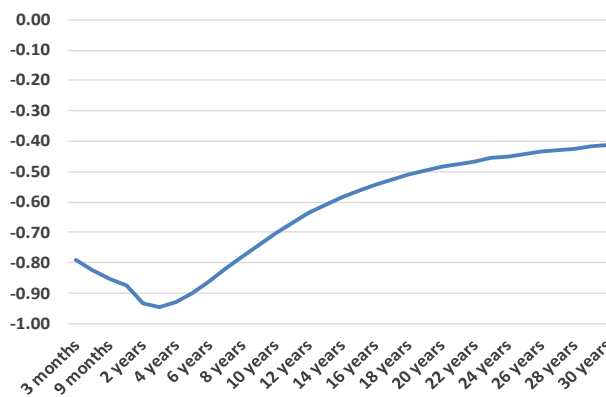
Central Bank	Last Rate	Weekly Average
Federal Reserve Bank (FED)	1.09	1.09
European Central Bank (ECB)	0.25	0.25
Bank of England (BOE)	0.25	0.50
Bank of Japan (BOJ)	-0.065	-0.059
Banco Central do Brazil (BCB)	4.25	4.25
Bank of Canada (BOC)	1.25	1.25
People's Bank of China (PBOC)	4.05	4.05
Bank of Sweden (BOS)	-0.10	-0.10
Bank of Australia (BOA)	0.50	0.50

Graph 21: United States Yield Curve (%) (13.3.20)



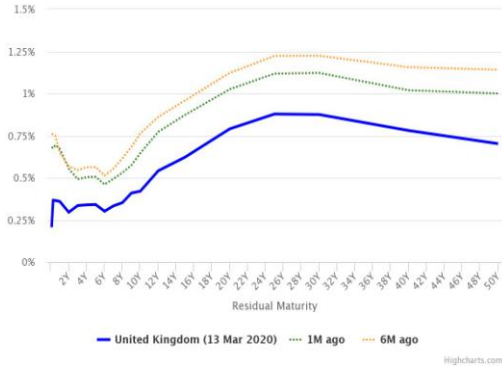
Source: www.worldgovernmentbonds.com

Graph 22: Eurozone Yield Curve (%) (13.3.20)

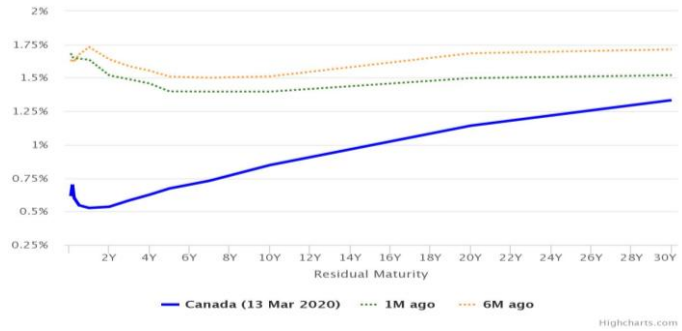


Source: www.ecb.europa.eu

Graph 23: United Kingdom Yield Curve (%) (13.3.20)

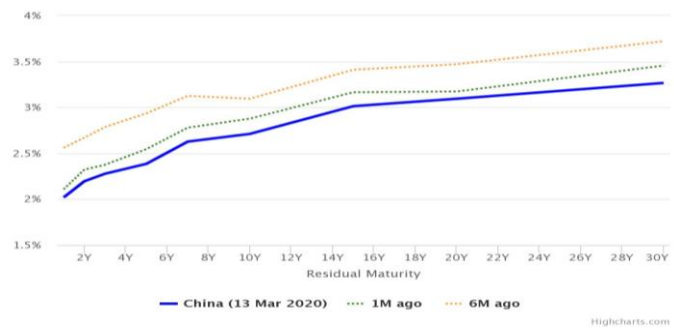


Graph 24: Canada Yield Curve (%) (13.3.20)



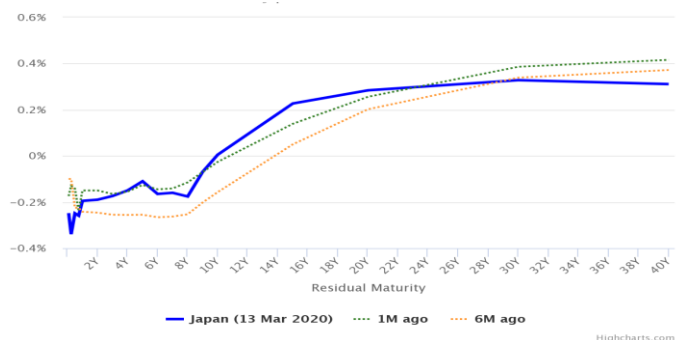
Source: www.worldgovernmentbonds.com

Graph 25: China Yield Curve (%) (13.3.20)



Source: www.worldgovernmentbonds.com

Graph 26: Japan Yield Curve (%) (13.3.20)



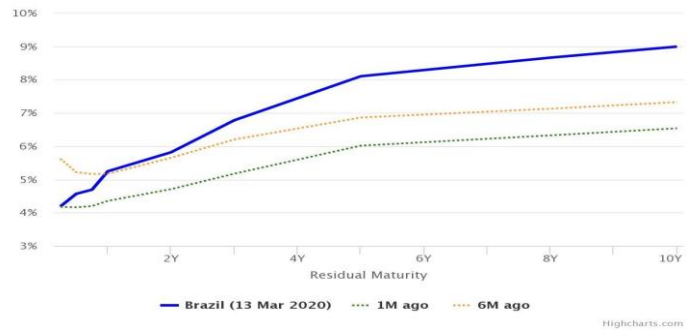
Source: www.worldgovernmentbonds.com

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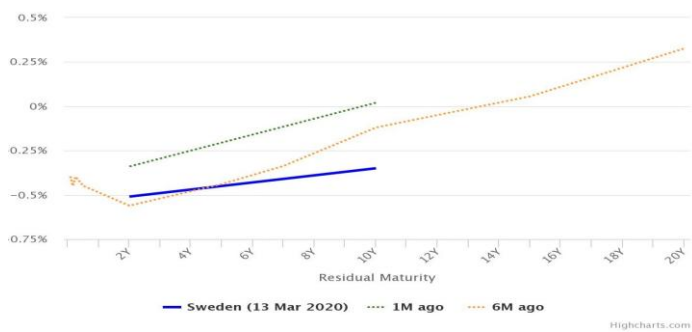
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Graph 27: Brazil Yield Curve (%) (13.3.20)



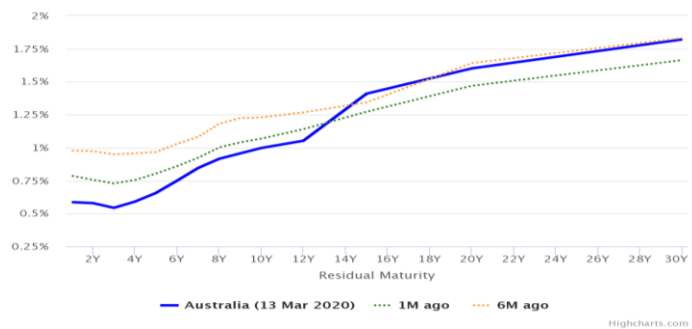
Source: www.worldgovernmentbonds.com

Graph 28: Sweden Yield Curve (%) (13.3.20)



Source: www.worldgovernmentbonds.com

Graph 29: Australia Yield Curve (%) (13.3.20)



Source: www.worldgovernmentbonds.com

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Covered Company	Bloomberg	Reuters	Date	Disclosure
GLOBAL BOND MARKETS	----	----	March 13, 2020	----

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2. VRS has sent the research report to the covered company, prior to publication or dissemination, for factual verification.
3. VRS has changed the contents of the initially sent report, with respect to: factual changes have been made.
4. VRS has received compensation from the covered company for the preparation of this research report.
5. VRS produces research reports for this company on systematic basis.
6. VRS produces research reports for this company on demand basis.
7. VRS has produced a research report for this company within the past 12 months.

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- (a) The market abuse regulation (MAR) seeks to ensure that European Union (EU) regulation keeps pace with market developments to combat market abuse on financial markets as well as across commodity and related derivative markets (i.e. markets trading primary products such as gold, wheat, etc., and financial instruments based there upon).
- (2) It explicitly bans the manipulation of benchmarks (such as the London Interbank Offered Rate — known as the LIBOR).
- (3) It reinforces the investigative and sanctioning powers of the regulators appointed by EU countries to ensure the proper functioning of their financial markets.
- (4) It ensures a single EU rulebook while reducing administrative burdens on smaller and medium-sized issuers where possible.

In this regulatory framework, VRS has also been aware of the following: (1) Persons who produce or disseminate investment recommendations or other information recommending or suggesting an investment strategy shall take reasonable care to ensure that such information is objectively presented, and to disclose their interests or indicate conflicts of interest concerning the financial instruments to which that information relates. (2) Public institutions disseminating statistics or forecasts liable to have a significant effect on financial markets shall disseminate them in an objective and transparent way. (3) Regulatory technical standards have been developed in order to determine the technical arrangements for the categories of person in relation to objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest.

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