VOLUME 14

THE IRISH MARITIME TRANSPORT ECONOMIST

Irish Maritime Development Office

The Irish Maritime Development Office

The Irish Maritime Development Office (IMDO) is Ireland's national dedicated development, promotional and marketing agency for the shipping and shipping services sector.

The IMDO is the Irish government agency which provides support to national and international maritime businesses in Ireland. It is the aim of the IMDO to be the focal point for maritime business in Ireland. The IMDO provides government and industry with a range of information and reporting across the sector and works with international businesses to help them set-up or expand in Ireland. The IMDO is also Ireland's designated Shortsea Shipping Agency and provides independent advice and guidance on EU funding initiatives.

The IMDO was established by the Fisheries (Amendment) Act 1999, as part of the Marine Institute, under an amendment to the Marine Institute Act 1991 in December 1999. The IMDO commenced operations in July 2000. After subsequent amendment in the Harbours (Amendment) Act 2009 its legislative mandate includes the following functions:

1. To promote and assist the development of Irish shipping and Irish shipping services and seafarer training.
2. To liaise with, support and market the shipping and shipping services sector.
3. To advise the Minister for Transport on the development and co-ordination of policy in the shipping and shipping services sector so as to protect and create employment.
4. To carry out policy as may be specified by the Minister for Transport relating to the shipping and shipping services sector and seafarer training.
5. To advise the Minister for Transport on the development and co-ordination of policy and to carry out policy, as may be specified by that Minister, relating to ports and the ports services sector, and;
6. any additional functions relating to the shipping and shipping services sector conferred on the Institute under section 4(4) of this Act.

Shipping services is defined as: sea routes, ship management, technical management, commercial management, crew management, ship finance and mortgages, marine insurance, maritime legal services, shipbroking and ship chartering.

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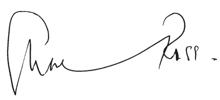
As Minister for Transport, Tourism and Sport, I am pleased to provide the foreword for this, the 14th edition of the Irish Maritime Transport Economist. This publication adds to a valuable time series that has tracked the development and performance of our ports and shipping services for many years and has become a reference text for policy makers and practitioners in the maritime industry.

Our National Ports Policy recognises the importance of the maritime industry in facilitating economic growth through trade, tourism and supply chain efficiencies. As an island nation, we depend on our ports and shipping services to a much greater degree than many of our trading partners, with more than 90% of our external trade moving through the ports network. Irish ports continue to respond admirably in meeting the needs of our growing economy. In 2016, total port traffic reached its highest level since 2007, mainly as a result of a 7% increase in unitised traffic. From a tourism perspective, our ports provide efficient and convenient gateways to markets in the UK and on the Continent. In the year under review more than 4.7 million passengers, including cruise tourists, passed through Irish ports. Our ports also function as transport and logistics hubs, industrial centres and nodal points in the supply chain for offshore industries. Across this wide range of activities, Irish ports make an invaluable contribution and I would like to take this opportunity to thank those who work in our port companies for the role they play in supporting the national economy.

My Department closely monitors how growing demand and changes in trading patterns affect our ports and shipping services. In order to meet future demand, major port infrastructure projects are taking place in Dublin, Cork and Shannon Foynes, which are strategically important and supported by EU funding (TEN-T Programme). I am confident that these projects will lead the way in providing the port capacity needed to grow our economy. Looking to the future, my Department has participated fully in planning for Brexit, working closely with colleagues from other Departments in developing a whole of Government response.

We have consulted with industry, participated in the All-Island Civic Dialogue at a sectoral and national level and have been briefed by various organisations and agencies involved in the maritime industry. We will continue to engage fully with stakeholders in relation to Brexit preparations to ensure that the interests of the maritime industry and the national economy are protected.

I would like to conclude by recognising the progress that the maritime industry made in 2016. I commend the contribution made by all stakeholders in the industry to its continued success and thank the IMDO for its analysis and reportage on a sector that is vitally important to the development of international trade and tourism, and as a result, to the success of our national economy.



Shane Ross T.D.
Minister for Transport, Tourism and Sport

Key Indicators 2016:
GDP: +5.2%
GNP: +9%
Inflation: 0.0%
Merchandise Exports: +4%
Merchandise Imports: -1%
Trade Surplus: +7%

Welcome to this edition of the Irish Maritime Transport Economist (IMTE), which reports on Ireland's maritime industry and identifies factors that influenced its performance in 2016.

This is the 14th edition of the IMTE, which builds on a time series that has tracked the development of the Irish maritime industry through periods of unprecedented growth and contraction. The publication has been refined and improved over the last fourteen years and is made possible by the continued support and collaboration of industry partners in our ports and shipping companies.

As a maritime nation and as an economy, we are heavily dependent on seaborne transport, which facilitates international trade and is an indispensable part of a supply chain that links Irish industry to world markets. Our ports and shipping services also support Ireland's tourism industry by providing ferry services to and from ports in the UK and Continental Europe. In meeting the needs of trade and tourism, the maritime industry has shown itself to be flexible and resilient and has demonstrated the ability to respond appropriately to growth and contraction in the Irish economy. In 2016, total port traffic increased by 2%, reaching 952 points on the iShip Index, an aggregate measure that includes the five principle maritime transport modes. Notwithstanding this increase, total port throughput in 2016 was still 9% below the record levels recorded in 2007.

Looking in more detail at each shipping mode, it is clear that unitised trade, comprising Roll-on/Roll-off and Lift-on/Lift-off traffic, drove growth in the industry. Roll-on/Roll-off volumes grew by 7% to 1,073,403 freight units and Lift-on/Lift-off trade also grew by 7% to 916,852 TEUs. These trades are closely correlated with consumer demand, with growth in these sectors pointing to increased consumer confidence in the Irish economy. The growth in Roll-on/Roll-off traffic was concentrated in Dublin, where volumes increased by 8% to 944,531 freight units. Dublin's share of the Republic of Ireland (ROI) Roll-on/Roll-off market now stands at 88%. Rosslare's volumes, representing 12% market share, grew by 3% to 128,350 freight units. Dublin also performed strongly in the Lift-on/Lift-off sector, recording growth of 8% and increasing throughput to 663,732 TEUs, or 72% of the ROI market. Lift-on/Lift-off traffic also grew through Cork and Waterford, by 7% and 2% respectively.

In contrast to unitised traffic, total bulk traffic, comprising dry bulk, liquid bulk and break bulk, fell by 5% in 2016 to 28.5m tonnes. The volume of bulk traffic handled by Irish ports is susceptible to fluctuations that are not demand led, such as weather conditions or the propensity to stockpile commodities because of international market conditions.

- Dry bulk volumes, a large proportion of which is animal feed, coal and fertilizers, fell by 1% in 2016 to 15.8m tonnes. Demand for these commodities was affected by the relatively warm and dry weather conditions experienced in 2016. Shannon Foynes dominated the dry bulk sector, with 61% of the market, or more than 9.7m tonnes. Dry bulk traffic is more regionally dispersed than unitised trade, with Dublin, Cork, Waterford, Drogheda and Greenore all handling significant volumes.
- Liquid bulk volumes fell by 9% in 2016 to 11.3m tonnes, influenced in large measure by the reduced demand for oil in the milder than usual weather conditions that prevailed. Liquid bulk traffic is concentrated in southern ports, with Cork and Bantry Bay together sharing 51% of the market.
- Finally, break bulk traffic fell by 5% to 1.4m tonnes, mainly driven by a 40% decrease in shipment of refuse derived fuel. When these shipments are excluded, break bulk traffic grew by 2% in 2016, with increases recorded in the shipment of commodities such as cement, which underpin growth in the construction sector. Break bulk

Key Indicators 2016:
LoLo Traffic: +4%
RoRo Traffic: +6%
Passenger Traffic: -2.6%
iShip Index: +2%
Bulk Traffic: -5%

traffic is also well dispersed throughout the ports network, with Cork, Drogheda, Shannon Foynes, Greenore, and Wicklow all featuring strongly in this category.

The development of Ireland's international trade, and by extension, the development of our maritime industry, is influenced by international, as well as domestic factors. Inflation, interest rates, exchange rates and oil prices all impact on national competitiveness and our ability to trade in foreign markets. While inflation and interest rates were largely unchanged in 2016, more significant movements in oil prices and exchange rates were recorded, particularly in the second half of the year. As noted by the US Energy Information Administration, oil prices faced upward pressure in the second half of 2016, with Brent crude closing at $56.74 per barrel in December, up 67% on January 2016 prices. Exchange rates, most notably the euro/sterling rate, showed increased volatility, mostly as a result of the outcome of the Brexit referendum in June. The pound depreciated by 10% in the immediate aftermath of the referendum and closed the year at £0.86 to the euro. The Central Bank of Ireland predicted that the euro/sterling exchange rate will remain close to £0.84 throughout 2017 and as a result will pose challenges for Irish exporters to the UK, many of whom have seen margins eroded or eliminated because of recent exchange rate volatility. The impact of this tougher trading environment in the UK was not immediately apparent in the bilateral trade volumes recorded in the second half of the year. However, the Central Bank of Ireland has linked the appreciation of the euro versus sterling to a 3.8% erosion of Ireland's competitiveness in Q4 2016, which is expected, in turn, to have a negative effect on export volumes to the UK in 2017.

The maritime industry will also be affected at an operational level by Brexit. Given the possibility of the re-introduction of border and customs controls, terminals and shipping companies will have to prepare for operational consequences of increased processing times at our ports, for both freight and passenger traffic. Concerns have also been raised about the efficiency of the UK landbridge in a post-Brexit situation, where delays at borders, administrative burdens and the cost of customs procedures, could have a detrimental effect on Irish exports. The IMDO is working closely with industry and the Department of Transport, Tourism and Sport to evaluate the likely operational effects of Brexit on the maritime industry and will report with recommendations on how these effects can be managed and mitigated.

I would like to close by thanking our partners in industry for supporting our work and for their broader support for the role that the IMDO plays in realising the ambitions set out in the Government's integrated plan for the marine industry, Harnessing Our Ocean Wealth. 2016 was a challenging year for business. However, the maritime industry demonstrated that it can respond to the needs of our growing economy, and through the ambitious development plans that are being implemented in Dublin, Cork and Shannon Foynes, ensure that the industry can support the development of the national economy for decades to come.

Finally, I would like to thank our economic analysts, Ciaran Corr and Daniel Fallen Bailey for their professionalism in completing this edition of the IMTE, and the other members of the editorial team, Edel O'Connor and Kelli O'Malley, who gave so generously of their time.

Liam Lacey.

Liam Lacey
Director
Irish Maritime Development Office

ECONOMIC REVIEW

Economic

NATIONAL ACCOUNTS

Irish Gross Domestic Product (GDP) increased by 5.2% in 2016 to €256.3bn, the highest rate of growth in the European Union for the third consecutive year. The Irish economy expanded by 2.5% in Q4 2016 compared to Q4 2015, while strong employment growth boosted consumer spending by 3% for the year in total. The unemployment rate registered 6.7% in January 2017, down from 8.5% in January 2016. Gross National Product (GNP), a measure that takes repatriated income into account, increased by 9% to €211.4bn; the fifth consecutive year of positive growth.

GDP growth was strongest in the second half of 2016, with Q3 and Q4 reporting growth of 6.2% and 6.6% respectively when compared to the same periods in 2015. By comparison, Irish GDP grew by 4% in Q1 and 3.8% in Q2 2016.

The Balance of Payments current account, a measure of Ireland's financial flows with the rest of the world, had a surplus of €13bn in 2016; down from a surplus of €26bn in 2015. This can mainly be attributed to a Balance of Payments deficit of €11.1bn in Q4, where there was an increase of €21.5bn in the service imports category. According to the Central Statistics Office (CSO), this was largely driven by research and development.

Service imports increased by 15% in 2016 to €174bn. The largest service import categories were business services, valued at €80bn and royalties and licenses, valued at €63bn. These categories grew by 38% and 2% respectively. The service export category expanded by 9% to €133bn in 2016. The largest service export categories were computer services, valued at €64bn and business services, valued at €26bn. These categories grew by 11% and 17% respectively.

Gross Value Added within Irish industries rose by 2.4% overall in 2016 compared to 2015. The distribution, transport, software and communications sectors recorded value added increases of 7.8%, and the agriculture sector reported a rise of 6.2%. Public administration and defence recorded an annual increase of 4.4%, while building and construction recorded an 11.4% rise, and manufacturing recorded a 1.8% increase.

The Central Bank of Ireland, in its first quarterly bulletin of 2017, made reference to the impact of Brexit on the Irish economy. It stated that, "in the absence of any weakening in the UK economy, the impact of the Brexit referendum outcome on the Irish economy has mainly been felt through the volatility in the euro/sterling exchange rate." The Central Bank's forecast for Irish GDP growth in 2017 remains positive at 3.3%. This forecast reflects a favourable outlook for consumer and investment spending and predicts that domestic demand will continue to be the main driver of growth. The Central Bank also forecasts an increasing contribution from net exports to GDP growth in 2017 due to a gradual and sustained increase in external demand.

TABLE 1A

National Accounts, 2006-2016

	Constant Prices €millions (Chain Linked to 2014)			
Year	GDP	% change	GNP	% change
2006	184,559	5.9%	159,227	6.7%
2007	191,475	3.7%	162,356	2.0%
2008	183,050	-4.4%	156,151	-3.8%
2009	174,616	-4.6%	143,973	-7.8%
2010	178,100	2.0%	149,341	3.7%
2011	177,961	-0.1%	143,427	-4.0%
2012	176,022	-1.1%	142,924	-0.4%
2013	177,900	1.1%	149,662	4.7%
2014	192,923	8.4%	163,465	9.2%
2015	243,591	26.3%	194,015	18.7%
2016	256,312	5.2%	211,388	9.0%

Source: CSO

TABLE 1B

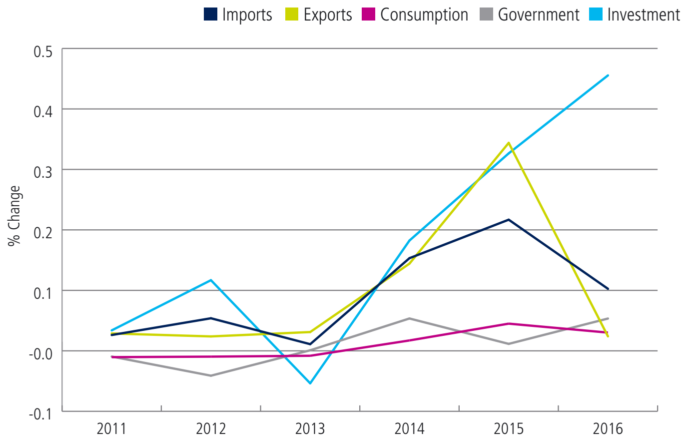
Real GDP Growth in Selected Economies, 2013-2018

	Real GDP % Change (national currency)					
Country	2013	2014	2015	2016	2017 (f)	2018 (f)
Ireland	1.1	8.6	26.3	5.2	3.4	3.3
Spain	-1.7	1.4	3.2	3.2	2.3	2.1
United Kingdom	1.9	3.2	2.2	2	1.5	1.2
Germany	0.5	1.6	1.7	1.9	1.6	1.8
France	0.6	0.6	1.3	1.2	1.4	1.7
Italy	-1.7	0.1	0.7	0.9	0.9	1.1
EU	0.2	1.6	2.2	1.9	1.8	1.8
Euro Area	-0.3	1.2	2	1.7	1.6	1.8
USA	1.7	2.4	2.6	1.6	2.3	2.2
China	7.8	7.3	6.9	6.7	6.4	6.2

Source: European Commission

GRAPH 1A

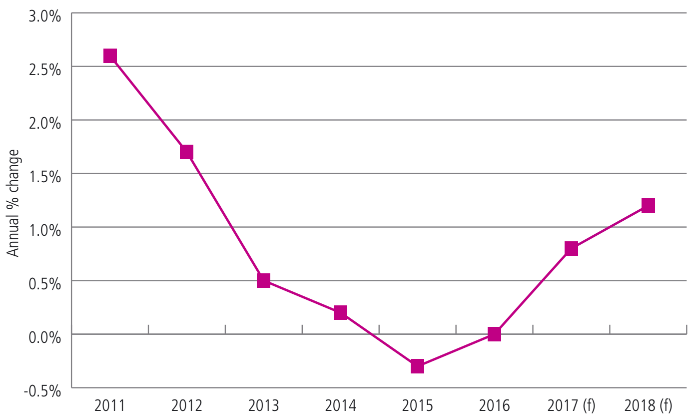
Growth in Components of Irish GDP, 2011-2016



Source: CSO

GRAPH 2A

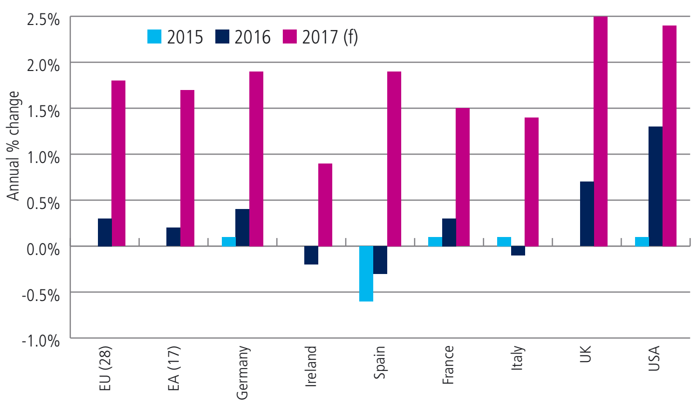
Consumer Price Index, 2011-2018(f)



Source: CSO, Central Bank of Ireland (f)

GRAPH 2B

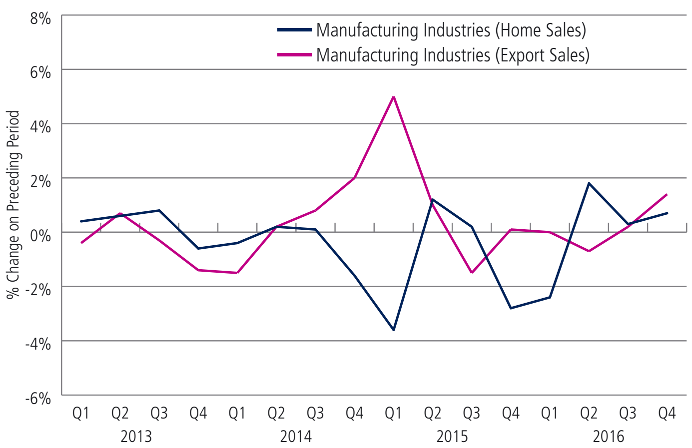
EU Harmonised Index of Consumer Prices, 2015-2017



Source: European Commission, CSO

GRAPH 2C

Wholesale Price Index, 2013-2016 (Base Year: 2010 = 100)



Source: CSO

INFLATION

Inflation in the Republic of Ireland, as measured by the Consumer Price Index (CPI), was unchanged in 2016 compared to deflation of 0.3% in 2015. The Harmonised Index of Consumer Prices (HICP), which allows for cross country comparisons of inflation within the EU, reported marginal deflation of 0.2% in 2016, compared to a 0% change in 2015.

The Central Bank of Ireland has emphasised the disproportionate contribution in 2016 of sterling movements in driving Irish consumer prices. Exchange rate volatility saw the pound depreciate by 10% in the four weeks after the UK referendum to leave the EU, which led to a 16% depreciation for the year (based on year end values). According to the Central Bank's first quarterly bulletin of 2017, this caused exchange rate appreciation of the euro against the pound to replace energy as the main source of deflation in the second half of 2016. By reducing import and producer prices, this sharp appreciation passed through to consumer prices. As the Central Bank points out in its first quarterly bulletin of 2017; "a rise in the value of the euro serves to decrease the euro price that foreign producers selling in Ireland need to charge to maintain profits in their own currency."

The Wholesale Price Index (WPI) measures changes in prices received by Irish manufacturers for goods produced in Ireland and sold to the home and export markets by that sector. In 2016, Ireland's WPI decreased by 0.7%, following on from an increase of 5.4% in 2015. Prices for goods sold on the home market fell by 2.5% in 2016, compared to a 4.4% rise in 2015, and prices for exported goods fell by 0.4% after a 7.1% rise in 2015. According to the CSO, producer prices were significantly impacted upon by exchange rate movements in 2016, particularly those of the British pound and US dollar.

The Central Bank has forecasted a modest rebound in inflation in 2017 to 0.8% for both the CPI and the HICP. This is expected to reflect higher energy prices, coupled with a "partial reversal" of the exchange rate appreciation of the euro against the pound. By 2018, the Central Bank is forecasting the CPI and HICP to reach 1.2% and 1.1% respectively.

Economic

INTEREST RATES

The U.S Federal Reserve (Fed), the European Central Bank (ECB) and the Central Bank of England (BoE) all engaged in interest rate changes in 2016.

On March 10th 2016, the governing council of the ECB took the decision to decrease the interest rate on the main refinancing operations of the Eurosystem (the MRO) by five basis points to 0.00%. Commenting on the decision, ECB President Mario Draghi said that interest rates would stay low for "an extended period." Mr Draghi also said that the set of policy decisions were taken with the aim of "providing substantial monetary stimulus to counteract heightened risk to the ECB's Price Stability objective." That Price Stability objective aims at inflation rates of below, but close to, 2% over the medium term. As of November 2016, Euro area inflation stood at 0.6%.

On August 4th, the Bank of England's Monetary Policy Committee introduced a package that contained a 25 basis point cut in the Bank Rate to 0.25%. The BoE outlined that, following the United Kingdom's vote to leave the European Union, it was faced with a trade–off between firstly; the significant weakening of sterling which was "likely to push up on CPI inflation" and secondly; a weakening of demand which was likely to lead to "an eventual rise in unemployment." Facing such a trade–off, the BoE decided that given the extent of the likely weakness in demand relative to supply, it was appropriate to provide additional stimulus in the form of an interest rate cut, "thereby reducing the amount of spare capacity at the cost of a temporary period of above–target inflation." The BoE also left open the option of further rate cuts to "close to, but a little above, zero."

On December 12th, the Federal Open Market Committee (FOMC) of the U.S Federal Reserve raised the target range for the federal funds rate by 0.25%, bringing it from 0.5% to 0.75%. This is only the second rate increase in a decade, the other being implemented in December 2015.

The decision was made, according to the Fed, in recognition of the considerable progress that the U.S economy has made towards the Fed's dual objectives of full employment and a 2% inflation rate. A strengthening labour market and rises in household spending were also cited as reasons for this decision. Fed Chairwoman Janet Yellen also indicated that there will be further rate increases in 2017, with the Fed projecting the federal funds rate to reach 1.4% by the end of the year.

Ms Yellen also recognised the influence which the new administration of President Trump may have on the U.S economy. Noting that the current U.S economic outlook is "highly uncertain", Ms Yellen mentioned that changes to U.S fiscal policy, or any other policies, could affect the economic outlook.

With regard to Irish bond yields, the cost of borrowing for the Government has remained historically low despite global geopolitical uncertainty. Yields on Ireland's 10-year benchmark Government bonds, which reached a historical low of 0.34% in August 2016, have continued to remain under 1%.

In the Central Bank's first quarterly bulletin of 2017, it is noted that minor fluctuations in Irish bond yields occurred as a result of, among other things, the UK's vote to leave the EU, the U.S presidential election result, and the Federal Reserve's increasing of U.S interest rates. However, the Central Bank also notes that "the ECB's non–conventional monetary policy and volatility in equity markets has, in general, contributed to the downward pressure on European sovereign bond yields."

TABLE 3A

Interest Rates, 2011-2016

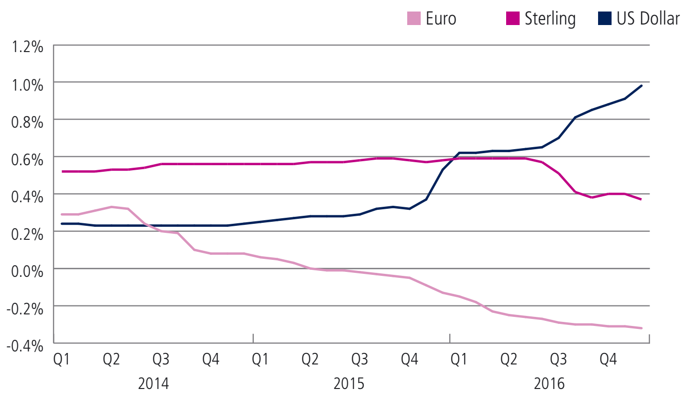
	2011	2012	2013	2014	2015	2016
US (Fed Funds Rate)	0.25	0.25	0.25	0.25	0.5	0.75
Euro (Refi Rate)	1	0.75	0.25	0.05	0.05	0.00
UK (Bank Rate)	0.5	0.5	0.5	0.5	0.5	0.25

Source: Global-rates.com

Note – interest rate shown is the rate in effect at the end of the year in question

GRAPH 3A

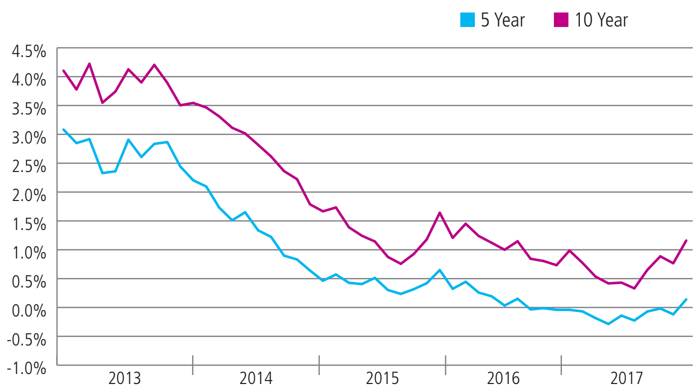
International 3-Month Interest Rates, 2014-2016



Source: Eurostat

GRAPH 3B

Irish Bond Yields, 2013-2017



Source: Investing.com

TABLE 4A

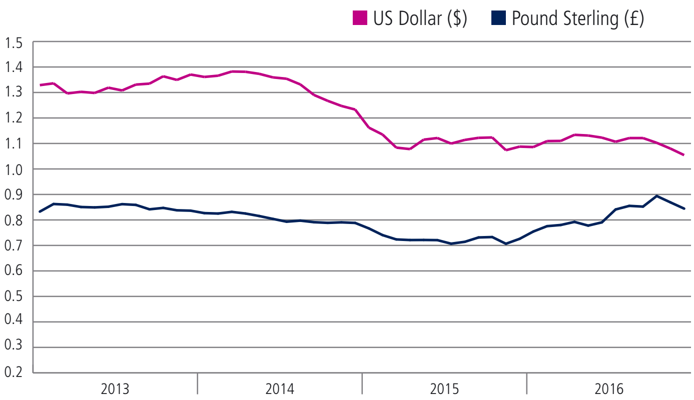
Selected Exchange Rates: Annual Averages (Units per Euro)

	Annual Averages				
Year	USD	GBP	CNY	CHF	JPY
2006	1.256	0.682	10.009	1.573	146.015
2007	1.370	0.684	10.418	1.643	161.253
2008	1.471	0.796	10.224	1.587	152.455
2009	1.395	0.891	9.528	1.510	130.337
2010	1.326	0.858	8.971	1.380	116.239
2011	1.392	0.868	8.996	1.233	110.959
2012	1.285	0.811	8.105	1.205	102.492
2013	1.328	0.849	8.165	1.231	129.660
2014	1.329	0.806	8.186	1.215	140.310
2015	1.110	0.726	6.973	1.068	134.310
2016	1.107	0.819	7.352	1.090	120.197

Source: Central Bank of Ireland

GRAPH 4A

Euro Exchange Rates, 2013-2016



Source: Central Bank of Ireland

GRAPH 4B

EU HICP by Commodity Group & Month (Base 2015 = 100)

Source: CSO

EXCHANGE RATES

As can be seen in table 4A, average annual exchange rates for the euro appreciated for three of the five major currencies.

The first nine months of the year saw the euro appreciate modestly against the U.S dollar. However, in the final months of 2016 that trend reversed. For the year in total, the euro depreciated 3.3% against the dollar, closing at $1.05 in December. The euro ended 2016 at its weakest point against the dollar since 2002, based on annual averages.

The euro/sterling exchange rate saw considerable volatility in 2016, the main driver of which was the outcome of the Brexit referendum. The pound depreciated by 10% in the four weeks after the vote, and closed the year at £0.86 to the euro. This represents a 16% depreciation when compared to the end of 2015. The Central Bank has forecasted the euro/sterling exchange rate to remain close to £0.84 in both 2017 and 2018.

In their first quarterly bulletin of 2017, the Central Bank emphasised the significance of present and predicted UK currency movements on the Irish economy. This is due to the fact that "exchange rate appreciation replaced energy as the main source of deflation in the second half of 2016, as the sharp appreciation of the euro/sterling exchange rate quickly passed through to consumer prices." This has impacted upon Ireland's international competitiveness. Figures for Ireland's Harmonised Competitiveness Indicators (HCI's) – which are trade weighted exchange figures that provide comparable measures of the price and cost competitiveness of euro area countries – show that in Q4 of 2016, Ireland's nominal HCI increased by 3.8% compared to Q4 2015. This indicates a loss of competitiveness which the Central Bank links to the strengthening of the euro with respect to sterling.

OIL AND BUNKER PRICES

The price of Brent crude oil averaged $45.43 per barrel (/bbl) in 2016. This represents a 14% decline when compared to its annual average price in 2015, continuing a downward trend that began in July 2014. That decline has seen average annual price/bbl decrease by 59% since 2011. Brent crude also fell to below $30/bbl in January of 2016, its lowest level since 2003. This decline has been driven primarily by oversupply in the oil market, as producers continued a strategy of maintaining market share by way of increased production.

The fall in oil prices had a knock–on effect on bunker markets. The annual average price for the Intermediate Fuel Oil (IFO) benchmark 380cst Rotterdam fell by 19%, while L.A and Singapore fell by 19% and 20% respectively.

However, as noted by the U.S Energy Information Administration (EIA), oil prices faced upward pressure towards the end of 2016 due mainly to the agreements made within the Organization of the Petroleum Exporting Countries (OPEC) to curb production over the first six months of 2017. At a meeting on November 30th 2016, OPEC member countries agreed to cut oil production by approximately 1.2 million barrels per day (bbl/d) beginning January 1st 2017. Following the meeting, non–OPEC oil producing countries met and agreed to curb production by 558,000 bbl/d.

OPEC said in a statement that; "The global oil market has witnessed a serious challenge of imbalance and volatility pressured mainly from the supply side" and that; "Current market conditions are counterproductive and damaging to both producers and consumers, it is neither sustainable nor conducive in the medium–to long–term."

Expectations of such an agreement were, inter alia, a significant factor behind a steady rise in Brent crude oil prices throughout 2016. Brent's price per barrel averaged $56.74 in December, 67% higher than its January 2016 average of $34.07. It ended the year $17 higher than its recorded level at the end of 2015.

Similarly, while the annual average West Texas Intermediate (WTI) crude oil price in 2016 was $43/bbl – down 11% from 2015 – it ended 2016 at $53/bbl, $16 higher than its recorded level at the end of 2015.

The EIA, in its January 2017 Short–Term Energy Outlook, has forecasted Brent crude and WTI crude oil prices to average $53/bbl and $52/bbl, respectively, in 2017. This is close to their levels during the last three weeks of 2016. These prices are then expected to rise to $56/bbl and $55/bbl, respectively, in 2018.

Bunker prices generally track those of crude oil – a correlation of 99% in 2015. Therefore, a forecasted average Brent crude oil price of $53/bbl in 2017, a 17% increase over its 2016 average, indicates that an equivalent rise in bunker prices is to be expected.

TABLE 5A

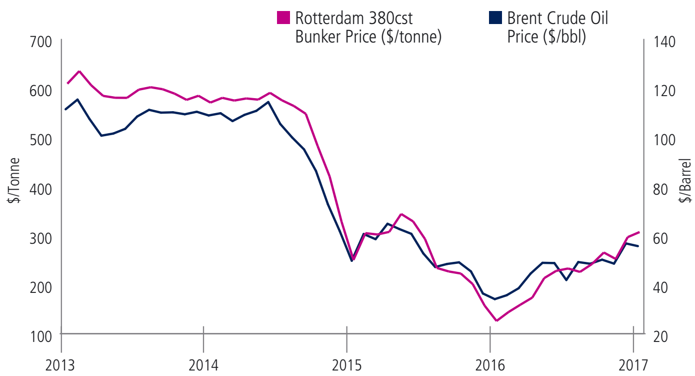
Bunker Prices, 2006-2016 (IFO 380cst $/Tonne)

Year	Rotterdam	L.A.	Singapore
2006	293.04	320.96	313.18
2007	345.06	381.66	372.82
2008	471.91	524.54	505.62
2009	353.81	375.12	371.87
2010	450.23	468.83	464.14
2011	617.94	655.87	646.94
2012	639.64	681.37	664.06
2013	594.80	631.43	615.93
2014	532.14	568.31	559.68
2015	264.15	288.00	291.60
2016	213.11	233.97	232.76

Source: Clarksons

GRAPH 5A

Bunker & Oil Prices, 2013-2017



Source: Clarksons

TABLE 5B

Oil Prices, 2006-2016

	Annual Average USD per Barrel		
Year	Brent Crude	OPEC Basket Price	WTI
2006	65.01	61.08	66.05
2007	72.29	69.08	72.34
2008	98.67	94.45	99.67
2009	60.93	61.06	61.95
2010	79.28	77.45	79.48
2011	111.30	107.46	94.88
2012	110.57	109.45	94.05
2013	108.24	105.87	97.98
2014	98.34	96.29	93.17
2015	52.98	49.49	48.66
2016	45.43	40.76	43.29

Source: Clarksons, OPEC, EIA

TRADE REVIEW (ALL MODES)

EXTERNAL MERCHANDISE TRADE: VALUE

Ireland's merchandise trade performance improved in 2016 in terms of monetary value. This was due to an expansion in exports and a contraction in imports. The merchandise trade surplus grew by 7% to €47bn in 2016. Specifically, Q1 reported a trade surplus of €10.1bn, and Q4 reported a trade surplus of €12.7bn.

Merchandise trade exports increased by 4% in 2016 to €117bn. The Central Bank of Ireland, in its first quarterly bulletin of 2017, noted that sluggish export growth occurred due to exchange rate volatility as well as a decline in 'contract manufacturing'.

The biggest drivers of growth in merchandise exports in 2016 were firstly; 'chemicals and pharmaceuticals', which rose by 3% to reach €66bn, and secondly; 'machinery and transport equipment', up 13% to €19bn. 'chemicals and pharmaceuticals' reported a drop of 1% in export share to 57%, while 'machinery and transport equipment' reported a 2% increase in export share to 16%. All commodity groups reported positive growth, with the exception of 'crude materials' (–14%), 'mineral fuels and lubricants' (–14 %), and 'other commodities' (–17%).

Merchandise trade imports contracted by 1% in 2016 to €70bn. The biggest driver involved in the decline of merchandise imports were 'mineral fuels, lubricants and related products', which includes coal, petroleum and gas. This category contracted by 27%. This was partially offset by a 7% increase in 'chemicals and pharmaceuticals' to €15bn, and a 20% increase in 'commodities not classified elsewhere' to €1.9bn. 'Food and live animals', and 'machinery and transport equipment' declined by 0.4% and 2.2% respectively.

The Central Bank estimates that the monetary value of Irish exports will increase by 1.3% in 2017, and 5.2% in 2018. The Central Bank also forecasts the monetary value of Irish imports to increase by 0.1% in 2017 and 5% in 2018. According to the Central Bank, the projected marginal growth of exports and imports in 2017 will be tied to volatility in trade data, uncertainty surrounding Brexit, and the changing economic and political policy landscape.

In terms of global economic growth figures for 2017 and 2018, the International Monetary Fund (IMF) forecasts that growth will be 3.4% and 3.6% respectively. The IMF's emerging economies category is expected to grow by 4.7% in 2017 and 4.8% in 2018, while the rate of growth in advanced economies is projected to be lower: 1% in 2017 and 0.8% in 2018.

TABLE 6A

Irish External Merchandise Trade Growth (Value): 2006-2016

Year	Exports €m	Imports (€m)	Trade Surplus (€m)	% Export Change	% Import Change	% Trade Surplus Change
2006	86,246	63,329	22,917	1%	9%	-17%
2007	89,363	65,286	24,077	4%	3%	5%
2008	87,604	58,716	28,888	-2%	-10%	20%
2009	86,786	47,698	39,088	-1%	-19%	35%
2010	89,963	48,093	41,870	4%	1%	7%
2011	93,164	52,936	40,228	4%	10%	-4%
2012	93,507	55,057	38,450	0.4%	4%	-4%
2013	89,182	54,772	34,410	-5%	-1%	-11%
2014	92,616	60,865	31,750	4%	11%	-8%
2015	112,407	70,111	44,015	21%	15%	39%
2016	116,916	69,604	47,312	4%	-1%	7%

Source: CSO

TABLE 6B

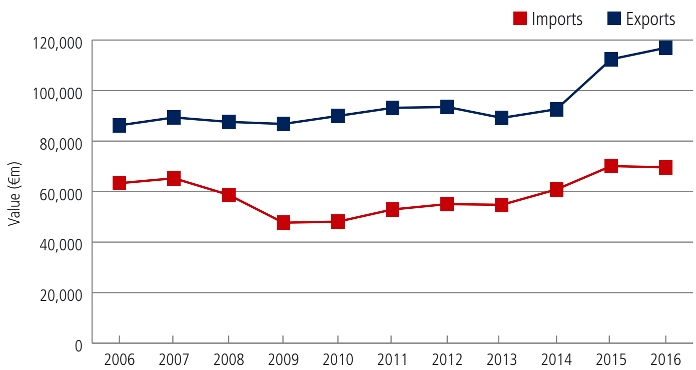
Irish External Merchandise Trade by Commodity Group (Value): 2015-2016

	Exports			Imports		
Commodity Group	(€m)	% Change 2015	% Share 2016	(€m)	% Change 2015	% Share 2016
Food & live animals	10,073	2%	9%	6,658	-0.4%	10%
Beverages & tobacco	1,330	3%	1%	906	3.5%	1%
Crude materials	1,531	-14%	1%	822	-3.9%	1%
Mineral fuels & lubricants	661	-14%	1%	3,743	-26.7%	5%
Animal & vegetable oils	78	38%	0.1%	245	0.2%	0.4%
Chemicals & pharmaceuticals	66,440	3%	57%	14,964	7.1%	21%
Manufactured goods	2,137	2%	2%	4,826	2.7%	7%
Machinery & transport equipment	19,008	13%	16%	27,283	-2.2%	39%
Miscellaneous manufactured articles	14,658	3%	13%	8,221	0.7%	12%
Other commodities	1,000	-17%	1%	1,935	20.0%	3%
Total	**116,916**	**4%**	**100%**	**69,604**	**-0.7%**	**100%**

Source: CSO

GRAPH 6A

Irish External Merchandise Trade (Value): 2006-2016



Source: CSO

TABLE 7A

Irish External Merchandise Trade Growth (Volume): 2006-2016

Year	Exports -Tonnes (000s)	Imports -Tonnes (000s)	Trade Balance - Tonnes (000s)	% Export Change	% Import Change	% Trade Balance Change
2006	13,898	38,114	-24,216	2%	3%	4%
2007	13,918	41,474	-27,556	0.1%	9%	14%
2008	14,000	38,196	-24,195	1%	-8%	-12%
2009	12,369	32,814	-20,444	-12%	-14%	-16%
2010	13,885	35,150	-21,264	12%	7%	4%
2011	15,017	34,165	-19,148	8%	-3%	-10%
2012	15,728	34,007	-18,278	5%	-0.5%	-5%
2013	15,672	36,602	-20,930	-0.4%	8%	15%
2014	16,714	36,385	-19,671	7%	-1%	-6%
2015	18,551	39,061	-20,510	11%	7%	4%
2016	18,825	38,676	-19,851	1%	-1%	-3%

Source: CSO

TABLE 7B

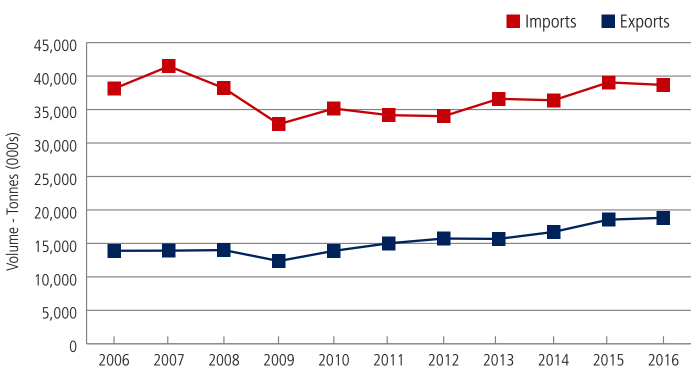
Irish External Merchandise Trade by Commodity Group (Volume): 2015-2016

	Exports			Imports		
Commodity group	Tonnes (000s)	% Change 2015	% Share 2016	Tonnes (000s)	% Change 2015	% Share 2016
Food & live animals	3,791	-1%	20%	7,697	5%	19%
Beverages & tobacco	822	5%	4%	871	-2%	2%
Crude materials	5,213	3%	28%	7,664	7%	18%
Mineral fuels & lubricants	2,792	1%	15%	13,337	-12%	39%
Animal & vegetable oils	133	27%	1%	296	5%	1%
Chemicals & pharmaceuticals	1,124	3%	6%	3,602	4%	9%
Manufactured goods	3,797	9%	20%	3,169	7%	8%
Machinery & transport equipment	409	5%	2%	1,051	6%	3%
Miscellaneous manufactured articles	348	5%	2%	973	21%	2%
Other commodities	397	-46%	2%	15	-17%	0.1%
Total	**18,825**	**1%**	**100%**	**38,676**	**-1%**	**100%**

Source: CSO

GRAPH 7A

Irish External Merchandise Trade (Volume): 2006-2016



Source: CSO

EXTERNAL MERCHANDISE TRADE: VOLUME

In terms of volume, Ireland's total merchandise trade remained constant in 2016. Ireland imports more in tonnage terms than it exports and 2016 reported a 19.9m tonnage imbalance, a decrease of 3% compared to 2015. The decline of the tonnage imbalance can be attributed to an increase in the volume of exports and a decrease in the volume of imports. Q1 had the largest gap between import and export volumes at 5.1m tonnes, while Q3 reported a gap of 4.8m tonnes.

Merchandise export volumes increased by 1% in 2016 to 18.8m tonnes. The three commodities with the largest amount of tonnage exported out of Ireland in 2016 were 'crude materials' (+3%), 'manufactured goods' (+9%) and 'food and live animals' (–1%). 'Crude materials' maintained its export share of 28%, while a market share of 20% (+ 1%) was reported for 'manufactured goods'. 'Food and live animals' reported an export share of 20% (+1%). All of the other commodity groups reported positive growth.

Merchandise import volumes decreased by 1% in 2016 to 38.7m tonnes. This follows on from a 7% increase recorded in 2015. The decline in import volumes can be attributed predominantly to a 12% drop in 'mineral fuels and lubricants.' This is due to the fact that 'beverages and tobacco' and 'other commodities', which were the only other categories to see negative 2016 values, only amount to a combined share of 3% of import volume. 'Crude materials', 'chemicals and pharmaceuticals', 'machinery and transport equipment' and 'manufactured goods' each reported an increase in tonnage of between 4% and 7%.

A noteworthy characterisation of these figures is that there is a disparity between the value and volume of commodities traded. 'Chemicals and pharmaceuticals' for example, were the most valuable commodity group exported in 2016, worth €66bn – or 57% of the monetary value of total Irish exports. However, in terms of volume, this category only accounts for 1.1m tonnes, or 6% of total tonnage exported. 'Crude materials' is the commodity with the most tonnage exported, with 5.2m tonnes or 28% of total tonnage exported. In monetary value terms however, these exports are worth €1.5bn, equivalent to 1% of total exports.

EXTERNAL MERCHANDISE TRADE: COUNTRY

In terms of value, the United States was Ireland's largest trading partner for merchandise goods in 2016, with €42bn worth of trade, or 22% of total (i.e. imports and exports) trade. Great Britain was Ireland's second largest trading partner with €28bn worth of trade, equivalent to 15% of total trade. The U.S was Ireland's largest exporting partner, with 26% of all Irish exports arriving there in 2016. This trade was valued at €30.2bn. Great Britain was Ireland's largest importing partner, with 22% of all Irish imports originating there in 2016. This trade was valued at €14.8bn.

Total trade with EU countries was valued at €100bn in 2016, or 53% of total trade. Exports from Ireland to countries within the EU rose by 1% to €59.2bn in 2016. Imports from countries within the EU fell by 2% to €40.6bn in 2016, driven in part by a 9% contraction in imports from Great Britain. Great Britain's share of Irish imports also declined, due to an increase in imports from the United States.

Ireland's largest trading partner in terms of volume in 2016 was Great Britain, with 19.5m tonnes or 34% of all tonnage traded. Ireland exported 7.2m tonnes and imported 12.2m tonnes to/from Great Britain. This equates to 38% of total export volume and 32% of total import volume respectively. Northern Ireland was the second largest trading partner in volume terms, with 6.6m tonnes or 11% of all tonnage traded.

77% of the monetary value of Irish exports goes to the European Union and the United States, and 74% of the monetary value of Irish imports comes from the European Union and the United States. China is Ireland's biggest trading partner in Asia, with €3bn (3%) worth of exports, and €4bn (6%) worth of imports in 2016.

In terms of volume, 86% of Irish exports go to the European Union and the United States. China is Ireland's biggest export trading partner outside of the European Union or the United States, accounting for 2% of total exports, or 459,662 tonnes. For Irish imports, the European Union and the United States account for 64% of total volume. Guinea is Ireland's next biggest trading partner outside of the European Union or the U.S, accounting for 3.3m tonnes, or 8% of total imports. Tonnage imported from Guinea is made up of 'metalliferous ores & metal scrap', and reported a 0.05% decline in 2016.

TABLE 8A

External Merchandise Trade by Country (Value): 2015 -2016

Country	Exports €	% Change	Country	Imports €	% Change
United States	30,204,402	12%	Great Britain	14,822,522	-9%
Belgium	14,681,902	1%	United States	11,441,171	5%
Great Britain	13,008,612	-4%	France	8,646,455	0.1%
Germany	7,804,872	5%	Germany	6,546,994	14%
Switzerland	6,318,484	4%	China	4,076,926	-4%
Netherlands	5,884,206	19%	Netherlands	2,517,556	-3%
France	4,979,789	3%	Switzerland	1,431,663	6%
China	3,051,715	84%	Italy	1,341,159	18%
Spain	2,935,763	-27%	Belgium	1,331,428	6%
Japan	2,886,923	-26%	Japan	1,214,828	-33%
Italy	2,382,994	-6%	Norway	1,127,754	-6%
Northern Ireland	1,509,202	-6%	Spain	1,090,401	17%
Australia	1,476,092	60%	Northern Ireland	957,038	-4%
Israel	1,474,966	69%	South Korea	887,046	53%
Poland	1,373,712	16%	India	540,429	8%
All Other	16,942,181	-3%	All Other	11,630,360	-2%
Total EU	59,187,152	1%	Total EU	40,555,676	-2%
Eurozone	40,412,114	-1%	Eurozone	22,603,626	4%
Total	**116,915,816**	**4%**	**Total**	**69,603,730**	**-1%**

Source: CSO

TABLE 8B

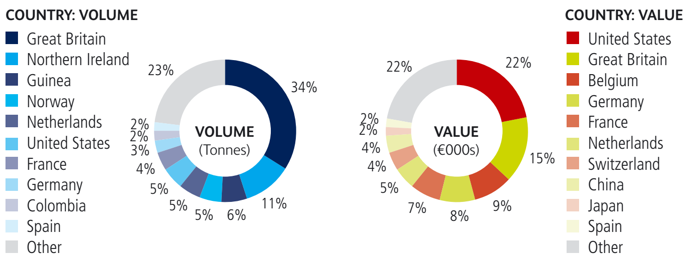
External Merchandise Trade by Country (Volume): 2015 - 2016

Country	Exports - Tonnes (000s)	% Change	Country	Imports - Tonnes (000s)	% Change
Great Britain	7,222,831	9%	Great Britain	12,227,640	-10%
Northern Ireland	3,501,778	8%	Guinea	3,278,785	-0.05%
Netherlands	1,223,068	6%	Northern Ireland	3,049,622	7%
France	1,179,023	-6%	Norway	2,739,931	5%
United States	587,281	-33%	United States	1,992,115	35%
Belgium	532,291	-15%	Netherlands	1,452,313	25%
China	459,662	1%	Colombia	1,393,854	-31%
Germany	441,884	7%	Germany	1,331,216	6%
Sweden	299,901	-10%	Brazil	1,212,246	-0.02%
Spain	264,316	22%	Spain	1,058,937	28%
Italy	260,661	-12%	France	977,520	-18%
Norway	224,565	28%	Russia	867,013	72%
Iceland	213,761	1%	Belgium	784,861	15%
Finland	177,211	-17%	Argentina	691,753	24%
Russia	138,971	-34%	China	493,920	-4%
All Other	2,098,036	0.4%	All Other	5,123,949	-4%
Total EU	15,626,593	6%	Total EU	23,037,269	-3%
Eurozone	4,353,170	0.4%	Eurozone	6,756,399	10%
Total	**18,825,240**	**1%**	**Total**	**38,675,676**	**-1%**

Source: CSO

GRAPH 8A

Market Share of Countries by Volume & Value: 2016



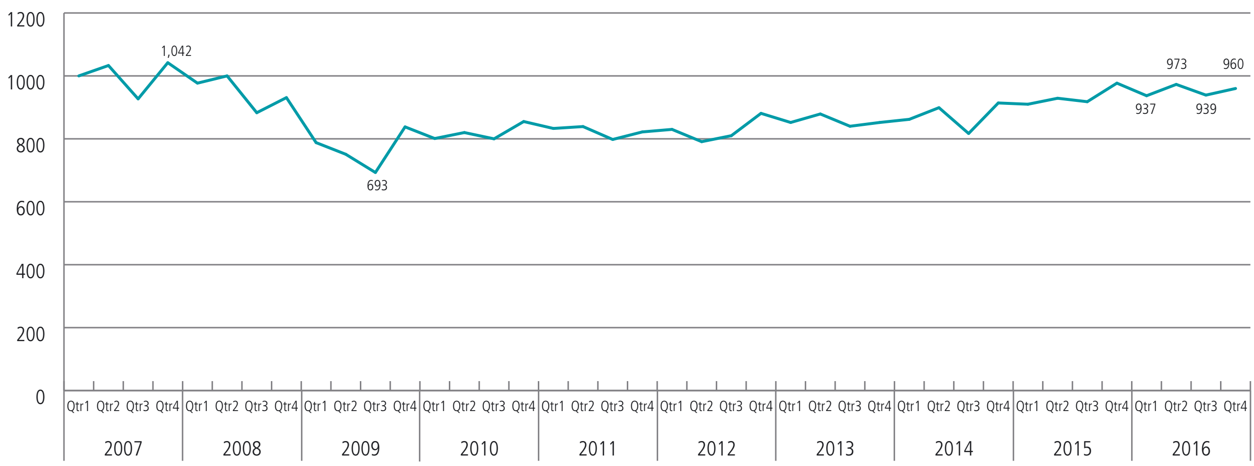
Source: CSO

iSHIP INDEX

Irish Shipping Index

SHIPPING INDEX

iShip Index: 2007-2016



Source: IMDO

iSHIP INDEX

The iShip Index is a quarterly weighted indicator that gauges the health of the Irish shipping industry. The iShip Index is comprised of five separate indices. These represent the main maritime traffic categories that move through ports in the Republic of Ireland: LoLo, RoRo, Dry Bulk, Liquid Bulk and Break Bulk. As the Dry, Liquid and Break Bulk segments are traditionally measured in tonnes, LoLo and RoRo traffic are therefore converted into tonnage terms, whereby 1 TEU = 10 tonnes, and 1 Freight Unit = 14 tonnes. The base period of the iShip Index is Q1 2007, at which point all indices are set to 1000.

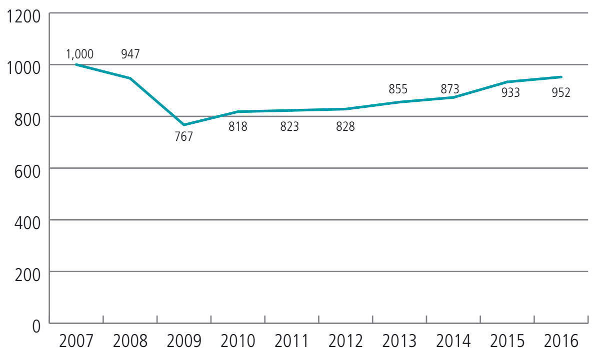
The iShip Index for 2016 indicates a 2% increase in overall shipping volumes through ports in the Republic of Ireland. The unitised trade segment (LoLo and RoRo) registered positive growth, while all three Bulk segments registered negative growth in 2016.

Both the LoLo and RoRo categories performed strongly in 2016 with growth of 6% and 7% respectively. RoRo traffic is a reliable indicator as to the level of trade between Ireland and Great Britain. As such, the positive growth recorded in this category represents a strengthening of trade between the two economies in 2016. Bulk trade differs from unitised trade in that it is more volatile; reacting more to changes in agriculture, harvest yields and commodity prices. A fall in volumes of coal, scrap steel and petroleum is therefore not entirely representative of underlying demand in the Irish shipping industry.

When taken on a yearly basis, the iShip Index figure stands at 952. Although this is 5% lower than the base year in 2007 of 1000, this is the highest the index has been since then; a substantial recovery from the low of 767 recorded in 2009.

GRAPH A

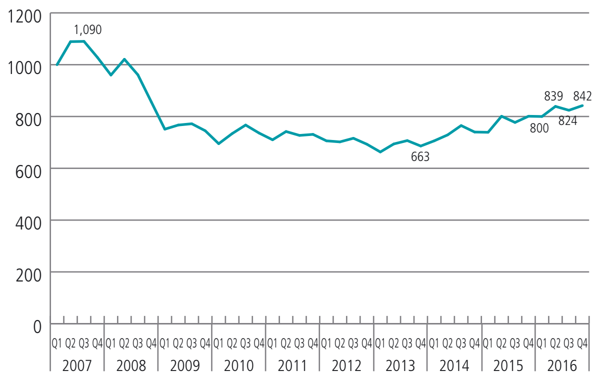
Annual iShip Index



Source: IMDO

GRAPH B

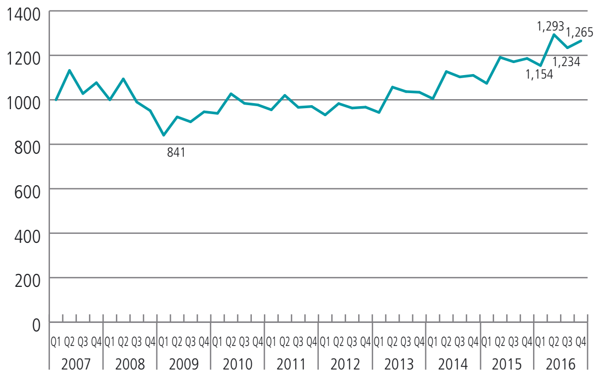
LoLo Index



Source: IMDO

GRAPH C

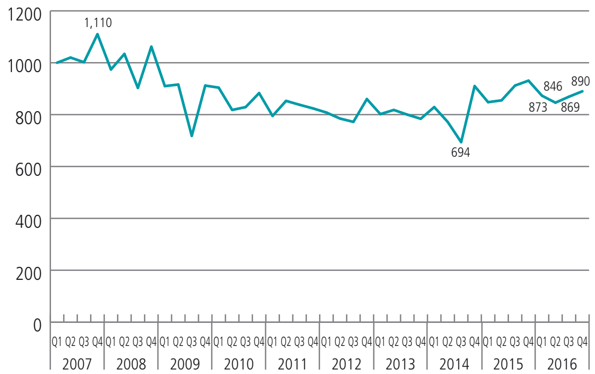
RoRo Index



Source: IMDO

GRAPH D

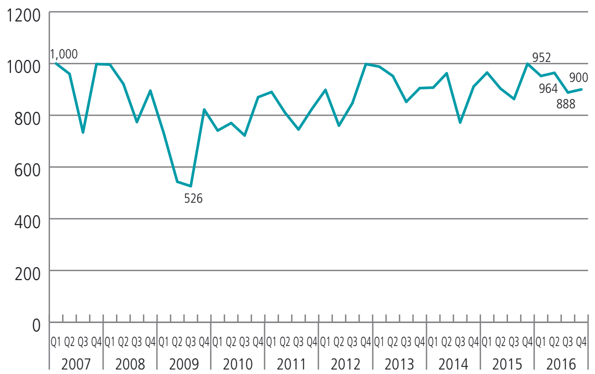
Liquid Bulk Index



Source: IMDO

GRAPH E

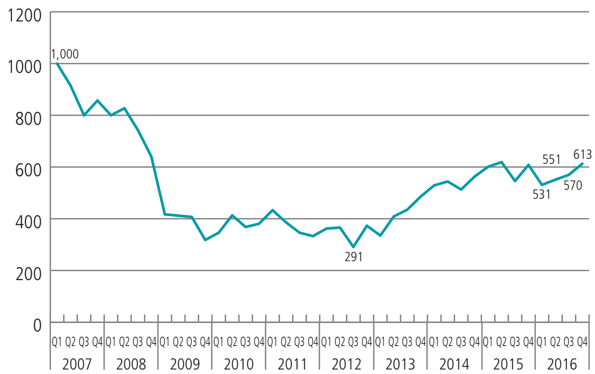
Dry Bulk Index



Source: IMDO

GRAPH F

Break Bulk Index



Source: IMDO

IRISH MARKET REVIEW

IRISH PORT TRAFFIC: TOTAL BULK VOLUMES

Total Bulk volume decreased by 5% to 28.5m tonnes in 2016. This figure represents Dry, Liquid and Break Bulk volumes that passed through ports in the Republic of Ireland in 2016. When transhipments from Bantry are excluded, total Bulk volume falls by a further 2% to 28.2m tonnes.

When transhipments from Bantry are included, figures show that Liquid Bulk contracted by 9%, while Dry Bulk and Break Bulk reported declines of 1% and 5% respectively.

The Dry Bulk market is the largest Bulk segment, standing at 55% of all Bulk volume. This is compared to 40% for Liquid Bulk and 5% for Break Bulk. Most Bulk volumes in the Republic of Ireland move through three ports: Shannon Foynes (39%), the Port of Cork (25%) and Dublin Port (21%). These ports make up 85% of total Bulk volume.

A decline in imports of coal and petroleum had the largest impact on total Bulk volume in 2016. The volume of petroleum products and coal fell as a share of total Bulk, while the share of bauxite and cement rose slightly. The performance of the individual Bulk categories, each of which has different demand drivers, is assessed in more detail in the following sections.

TABLE 9A

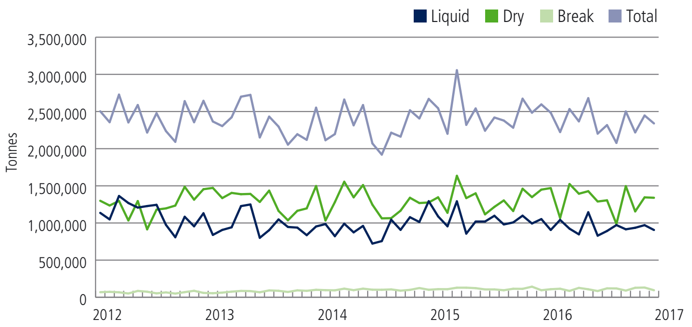
Irish Port Traffic: Total Bulk (Tonnes)

	Total		
Port	2015	2016	% Change
Bantry Bay	1,164,674	297,927	-74%
Cork	7,642,919	7,009,145	-8%
Drogheda	1,226,283	1,222,783	-0.3%
Dublin	5,686,624	6,117,329	8%
Dundalk	79,381	43,009	-46%
Galway	562,548	588,103	5%
Greenore	619,497	630,609	2%
New Ross	286,286	271,915	-5%
Shannon Foynes	11,113,084	11,013,400	-1%
Waterford	1,228,834	1,046,055	-15%
Wicklow	134,470	151,403	13%
Youghal	94,371	89,306	-5%
Total ROI	**29,838,971**	**28,480,984**	**-5%**

Source: IMDO

GRAPH 9A

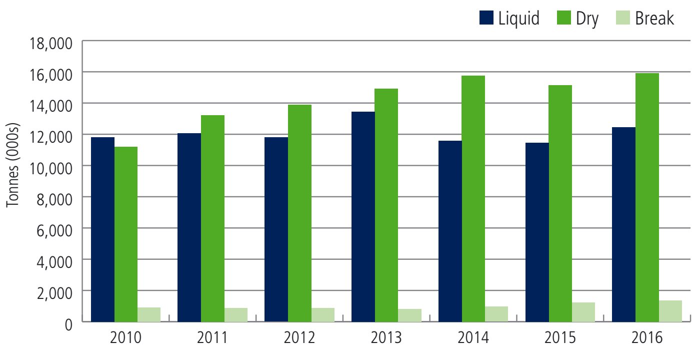
Total Bulk Tonnage through ROI Ports (Monthly)



Source: IMDO

GRAPH 9B

Bulk Traffic by Category 2010-2016



Source: IMDO

TABLE 10A

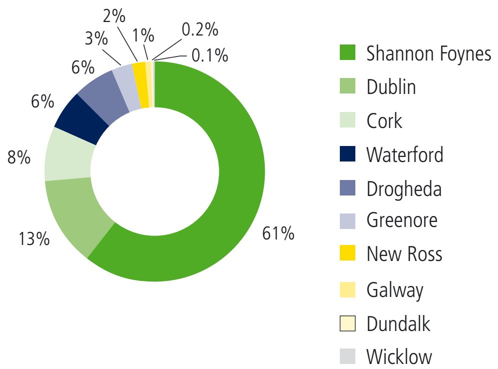
Irish Port Traffic: Dry Bulk (Tonnes)

	Dry		
Port	2015	2016	% Change
Cork	1,442,307	1,257,373	-13%
Drogheda	835,547	934,417	12%
Dublin	1,779,931	2,053,199	15%
Dundalk	47,016	28,890	-39%
Galway	137,499	128,113	-7%
Greenore	424,949	433,668	2%
New Ross	286,286	269,348	-6%
Shannon Foynes	9,855,392	9,702,951	-2%
Waterford	1,098,669	970,089	-12%
Wicklow	2,997	21,076	603%
Total ROI	**15,910,592**	**15,799,123**	**-1%**

Source: IMDO

GRAPH 10A

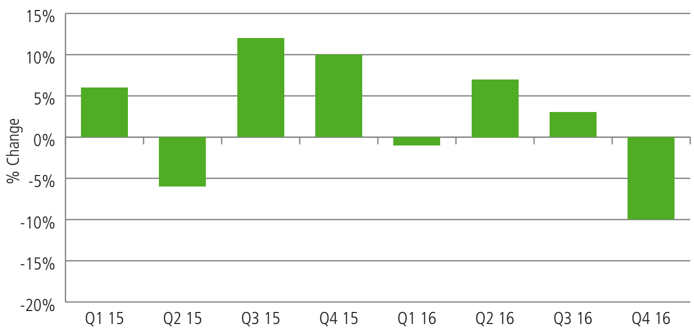
Market Share of Dry Bulk Traffic, by Port: 2016



Source: IMDO

GRAPH 10B

% Change in Dry Bulk Traffic through ROI Ports



Source: IMDO

DRY BULK

Dry Bulk volume through ports in the Republic of Ireland fell by 1% to 15.8m tonnes in 2016. The main commodities in this segment are animal feed, ore, coal, fertilizer, and bauxite and alumina.

The Dry Bulk market was particularly affected by a 22% decline in coal volumes and an 8% decline in animal feed. Animal feed makes up 16% of the Dry Bulk market, while coal makes up 11%.

The fall in coal volumes in 2016 can be attributed to a coal /gas price differential and an increase in stockpiles, both of which were recorded in 2015. As for the drop in animal feed, Teagasc – the agriculture and food development authority of Ireland – reports that this was driven by a fall in milk yields in 2016, which came about as a result of increased international competition.

Bauxite and alumina volumes dominate the Dry Bulk sector with 43% market share. In 2016 this category reported volume growth of 2%.

Q4 2016 registered the steepest decline in Dry Bulk volume, with a 10% fall. However, the demand for Dry Bulk commodities was highest during the first half of the year, with Q2 and Q3 reporting a 7% and 3% increase in volumes respectively. The International Energy Association noted that the use of coal is rapidly declining in Western European nations as more restrictive climate policies are implemented and alternative energy becomes more affordable. Such policies include carbon pricing regimes, as well as The Paris Climate Agreement.

In terms of Dry Bulk market shares for 2016, Shannon Foynes Port dominates with 61%, down 1% from 2015. This is followed by Dublin Port with 13%, up 2% from 2015. The Port of Cork recorded a market share of 8%, down 1% from 2015, and Drogheda Port reported a 6% share, up 1% from 2015. Waterford's market share fell by 1% in 2016 to 6%, while Greenore reported an increase in market share to 3%, up from 2% in 2015.

LIQUID BULK

Liquid Bulk volumes through ports in the Republic of Ireland decreased by 9% to 11.3m tonnes, with each quarter of 2016 reporting negative growth. This decline can be primarily attributed to Liquid Bulk transhipments through Bantry Bay, which fell by 74% in 2016. When transhipment activity and crude oil storage from Bantry Bay are excluded from the overall figure, Liquid Bulk volumes fell by 3% to 11m tonnes.

Petroleum, bitumen, and oil dominate the Liquid Bulk sector. When combined, these commodities make up 91% of the category. In 2016, petroleum based products made up 86% of the Liquid Bulk category alone, with oil from Bantry Bay making up 3% and bitumen, 2%. The volume of petroleum based products fell by 2% in 2016. Volumes of oil through Bantry Bay were down by 74%, while bitumen volumes increased by 19% in 2016.

The Port of Cork reported a decline in Liquid Bulk volume of 8%. Despite this fall, the Port of Cork maintained the largest share of the Liquid Bulk market in 2016 with 48% – unchanged from 2015. Dublin Port recorded an increase of 4% in Liquid Bulk volume, increasing its market share to 36% (up 5%). Liquid Bulk volumes at Shannon Foynes fell marginally by 0.4%, with its market share remaining unchanged at 9%. These three ports handle 93% of Liquid Bulk volumes in the Republic of Ireland.

Galway Harbour reported an increase in Liquid Bulk volumes of 9%, but no change in its market share of 4% from 2015. Bantry Bay recorded a market share of 9% in 2016, down 3% from 2015.

When transhipments are excluded, the Liquid Bulk sector contracted for four consecutive quarters. The largest decline in volume of 5% – or 2.7m tonnes – was recorded in Q3, mainly the result of an 8% drop in Liquid Bulk volume through the Port of Cork.

TABLE 11A

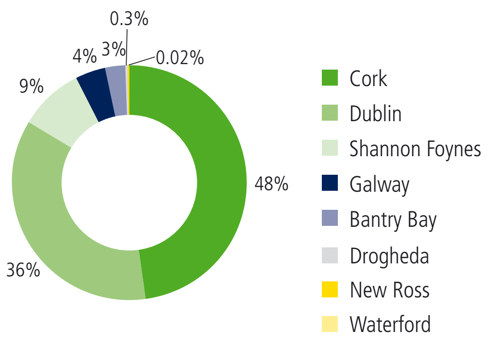
Irish Port Traffic: Liquid Bulk (Tonnes)

	Liquid		
Port	2015	2016	% Change
Bantry Bay	1,164,674	297,927	-74%
Cork	5,945,149	5,442,847	-8%
Drogheda	29,977	33,057	10%
Dublin	3,856,899	4,016,703	4%
Galway	400,652	438,417	9%
New Ross	0	2,567	n/a
Shannon Foynes	1,054,589	1,050,417	-0.4%
Waterford	10,395	0	-100%
Total ROI	**12,462,335**	**11,281,935**	**-9%**

Source: IMDO

GRAPH 11A

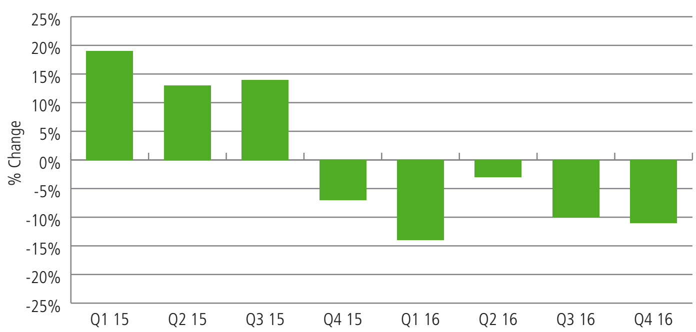
Market Share of Liquid Bulk Traffic 2016



Source: IMDO

GRAPH 11B

% Change in Liquid Bulk Traffic through ROI Ports



Source: IMDO

TABLE 12A

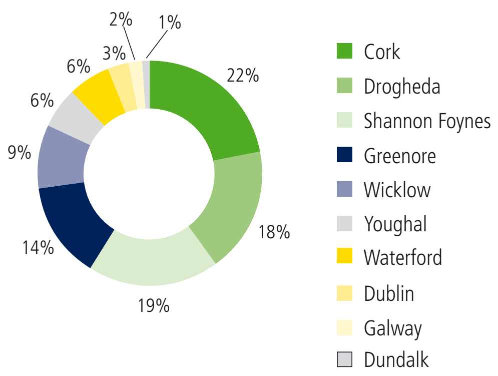
Irish Port Traffic: Break Bulk (Tonnes)

	Break		
Port	2015	2016	% Change
Cork	255,464	308,925	21%
Drogheda	360,759	255,309	-29%
Dublin	49,794	47,427	-5%
Dundalk	32,364	14,119	-56%
Galway	24,397	21,573	-12%
Greenore	194,549	196,942	1%
Shannon Foynes	203,103	260,033	28%
Waterford	119,770	75,966	-37%
Wicklow	131,473	130,327	-1%
Youghal	94,372	89,306	-5%
Total ROI	**1,466,045**	**1,399,926**	**-5%**

Source: IMDO

GRAPH 12A

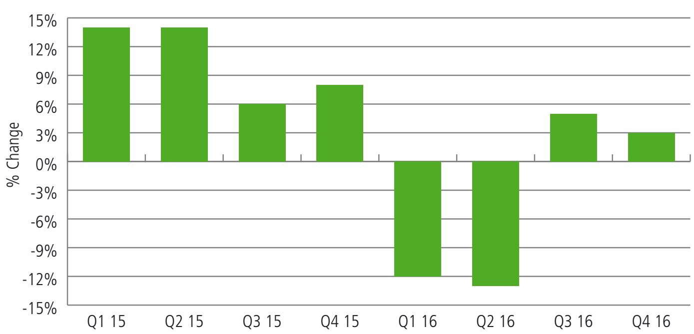
Market Share of Break Bulk Traffic 2016



Source: IMDO

GRAPH 12B

% Change in Break Bulk through ROI Ports



Source: IMDO

BREAK BULK

Break Bulk volumes decreased by 5% in 2016, to 1.4m tonnes. This decrease can be attributed to the first half of the year, which recorded 12% and 13% declines in Q1 and Q2 respectively. Q3 and Q4 reversed that trend, registering 5% growth in Q3 and 3% growth in Q4. This is the first decline in annual Break Bulk volumes since 2012.

Commodities such as timber, steel products, machinery and general project cargo make up the majority of Break Bulk cargo moving through ports in the Republic of Ireland. However, the decline in Break Bulk volumes recorded in 2016 was mainly driven by a 40% fall in 'refuse derived fuel.' When this commodity is excluded, Break Bulk volumes grew by 2% to 1.25m tonnes.

Scrap metal and timber also reported decreases of 8% and 5% respectively for 2016.

Cement volumes grew by 25% in 2016, which is in line with the improved sentiment reported in the Irish construction industry. The Ulster Bank Purchasing Managers Index (PMI) report for 2016 noted that the construction sector ended the year positively, with construction activity continuing to rise sharply amid fast expansion of new orders. The report added that rates of job creation, as well as growth in purchasing activity remain at high levels, and that firms are strongly optimistic that construction activity will increase further in 2017. The IMDO's recorded growth in Break Bulk figures – when adjusted for the decline in refuse derived fuel – support these findings.

Break Bulk volumes through the Port of Cork increased by 21% to 308,925 tonnes in 2016, while volumes through Shannon Foynes increased by 28% to 260,033 tonnes. Conversely, 2016 recorded declines in volume through seven of the other eight Break Bulk ports. Drogheda reported a decline of 29% to 255,309 tonnes, and Youghal reported a decline of 5% to 89,306 tonnes.

The Port of Cork had the largest share of the Break Bulk market in 2016 with 22%, up 5% compared to 2015. This was followed by Shannon Foynes with 19%. Both the Port of Cork and Shannon Foynes increased their market share by 5% in 2016.

Drogheda, with 18% of the Break Bulk market in 2016, recorded a decline of 7% in market share. Greenore increased its market share by 1% to reach 14%, while Wicklow maintained its share of 9%.

Irish Market

LIFT-ON/LIFT-OFF MARKET: PORTS*

Total laden container traffic for the island of Ireland increased by 4% in 2016 to reach 891,915 TEUs. This is the third consecutive year of positive growth and the largest volume of container traffic recorded since 2008, when traffic stood at 1,012,171 TEUs.

Laden exports from the Republic of Ireland increased by 5% to 297,858 TEUs, with Dublin Port, the Port of Cork and the Port of Waterford all reporting positive growth. Growth in laden exports is in line with Ireland's strong export performance overall for 2016, and correlates closely with improved sentiment within the manufacturing sector as measured by the Ulster Bank Purchasing Managers Index. Laden exports from Northern Ireland also recorded positive growth of 1% to reach 92,872 TEUs.

Laden imports into the Republic of Ireland increased by 6% in 2016. The year ended strongly with 4% growth recorded in Q4. These trends reflect those contained in the Central Bank's first quarterly bulletin of 2017. That report notes how, despite the uncertainty surrounding Brexit, Irish consumer sentiment – which correlates strongly with laden import performance – rebounded to pre–Brexit levels by the end of 2016.

In Northern Ireland, Belfast Harbour reported laden import growth of 2% in 2016. Warrenpoint however, recorded a contraction of laden imports of 49%, reporting negative growth in Q1 to Q3. For Northern Ireland in total, laden imports declined by 3% to 97,207 TEUs. Dublin Port had the largest share of the LoLo market in 2016, with 57% of all laden and unladen traffic for the island as a whole. Belfast Harbour had the second largest share with 18%.

For unitised traffic, both RoRo and LoLo freight moves in an all-island context. While figures for bulk in its various forms are given for the Republic of Ireland, it is our normal practice to include traffic through Northern Ireland ports for analysis of unitised traffic.

TABLE 13A

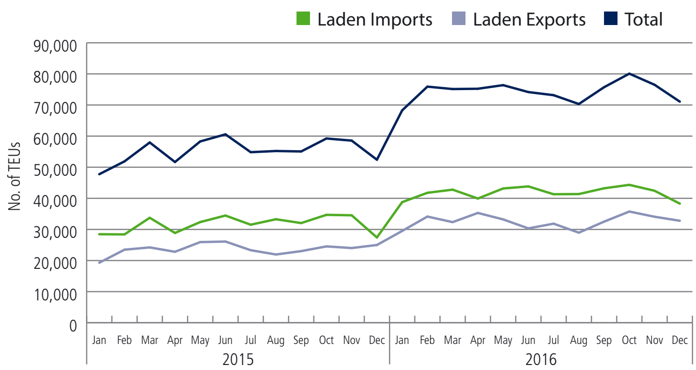
Laden Container Port Traffic (TEU)

No. of TEUs	Total			
Port	2015	2016	% Change	% Share
Dublin	471,485	507,129	8%	57%
Cork	163,969	165,416	1%	19%
Waterford	28,359	29,291	3%	3%
Belfast	159,358	164,452	3.2%	18%
Warrenpoint	32,247	25,627	-21%	3%
Total ROI	**663,813**	**701,836**	**6%**	**79%**
Total NI	**191,605**	**190,079**	**-1%**	**21%**
Total IRL	**855,418**	**891,915**	**4%**	**100%**

Source: IMDO

GRAPH 13A

Total Monthly Container Traffic through All Irish Ports 2015-2016



Source: IMDO

TABLE 13B

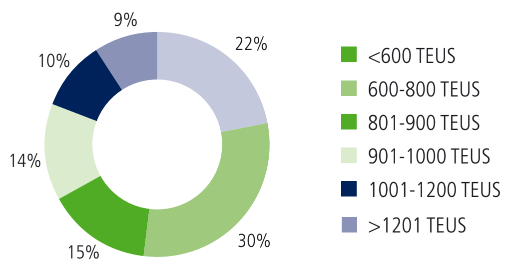
Total Container Port Traffic (TEU) (Laden and Unladen)

No. of TEUs	Total			
Port	2015	2016	% Change	% Share
Dublin	614,226	663,732	8%	57%
Cork	205,828	209,881	2%	18%
Waterford	40,224	43,240	7%	4%
Belfast	208,820	212,504	2%	18%
Warrenpoint	52,008	42,233	-19%	4%
Total ROI	**860,278**	**916,852**	**7%**	**78%**
Total NI	**260,828**	**254,738**	**-2%**	**22%**
Total IRL	**1,121,106**	**1,171,590**	**5%**	**100%**

Source: IMDO

GRAPH 14A

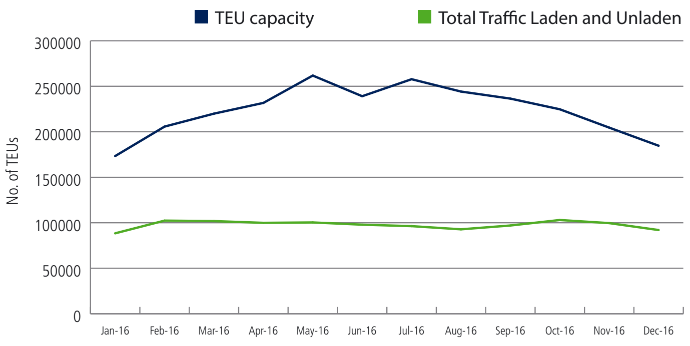
TEU Distribution of LoLo Vessel Arrivals in Irish Ports 2016



Source: Marine Traffic

GRAPH 14B

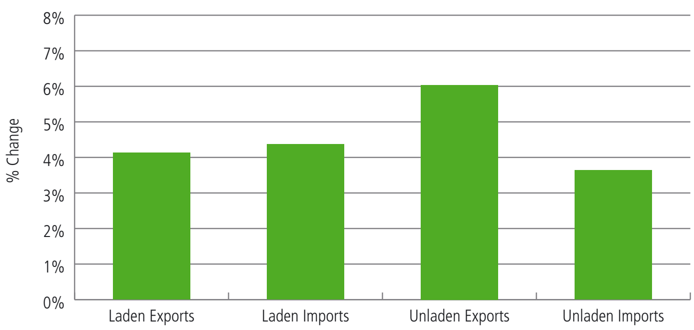
Estimated Total Capacity and Traffic in Irish Ports per Month 2016



Source: Marine Traffic

GRAPH 14C

Container Imports and Exports 2016



Source: IMDO

LIFT-ON/LIFT-OFF MARKET: OPERATORS

There were 14 short sea operators in the Irish LoLo market in 2016, offering 61 weekly services to the Irish market. Vessel Sharing Agreements (VSAs) continue to be an important part of the short sea and feeder markets, with the majority of operators entering into such agreements.

In 2016, the annual average capacity per containership was 869 TEUs, up from an average of 864 TEUs in 2015. The majority of containerships calling to Irish ports are below the 1000 TEU vessel size. Vessels within the 801–900 TEU class represent 30% of the all–Ireland total, while ships with TEU capacity between 1001 and 1200 increased their share of the Irish market to 10%, a rise of 7% over 2015.

2016 registered some of the biggest containerships ever to call at Irish ports, with the Nicholas Delmas (2,240 TEUs) calling at Dublin Port and Belfast Harbour during the summer, and the Northern Dedication (3,540 TEUs) calling to the Port of Cork in April 2016. Maersk Line also began the company's first ever direct connection between Cuba, Ireland and various other Northern Europe ports on April 22nd 2016.

Unitised trade continued to move away from LoLo, and towards RoRo services in 2016, as documented by the iShip Index. RoRo and LoLo accounted for 68% and 32% of unitised trade respectively in 2016. This is a trend that has been developing since the iShip Index began in 2007, when RoRo accounted for 59% and LoLo accounted for 41% of unitised trade. This movement can be explained by the emergence of Cobelfret.

There was a 4% increase in empty containers shipped to the island of Ireland in 2016. This amounted to 89,231 TEUs, 59,661 of which moved through the Republic of Ireland. Empty containers shipped into Northern Ireland fell by 5% to 29,570 TEUs.

In 2016, empty containers shipped out of the Republic of Ireland increased by 10% to 155,316 TEUs, while empty containers shipped out of Northern Ireland fell by 8% to 35,088 TEUs.

Irish Market

ROLL-ON/ROLL-OFF MARKET: PORTS

RoRo traffic in the Irish market increased by 6% in 2016 to 1,890,409 freight units. This was the fourth consecutive year of growth in RoRo traffic volumes in the Irish market. The Republic of Ireland recorded growth of 7% in 2016, while Northern Ireland recorded growth of 5%. With the exception of the Port of Cork, all ports that process RoRo traffic reported increases in freight units of between 5% and 10%. Driver accompanied traffic increased by 7% to 762,670 freight units, while unaccompanied traffic increased by 5% to reach 1,127,739 freight units.

There were 173,226 trade vehicles imported and exported through the Republic of Ireland in 2016, an increase of 3% compared to 2015. Northern Ireland reported 59,512 trade vehicles imported and exported in 2016, a 24% increase on 2015. Trade vehicle data, which correlates strongly with Irish GDP and consumer sentiment indices, is further evidence of growing consumer confidence in the Irish economy.

Dublin Port increased its share of the RoRo market in 2016 to 50% (up 1%), while Larne (11%), Rosslare (7%) and Warrenpoint (5%) maintained their market shares. Belfast Harbour's market share declined slightly, down 1%. The Republic of Ireland accounts for 57% of the RoRo market on the island of Ireland, with Northern Ireland accounting for 43%.

Services between Great Britain and the island of Ireland remain unchanged from 2015; accounting for 91% of total RoRo volume. Direct continental services to France, Belgium and the Netherlands increased by 15% in total, to 179,234 freight units.

TABLE 15A

Roll-on/Roll-off Freight Traffic (Freight Units)

Freight Units	Total			
Port	2015	2016	% Change	% Share
Dublin	877,826	944,531	8%	50%
Rosslare	124,331	128,350	3%	7%
Cork	763	522	-32%	0.03%
Dún Laoghaire	725	0	-100%	0%
Belfast	496,498	513,885	4%	27%
Larne	193,168	206,748	7%	11%
Warrenpoint	87,699	96,373	10%	5%
Total ROI	**1,003,645**	**1,073,403**	**7%**	**57%**
Total NI	**777,365**	**817,006**	**5%**	**43%**
Total IRL	**1,781,010**	**1,890,409**	**6%**	**100%**

Source: IMDO

TABLE 15B

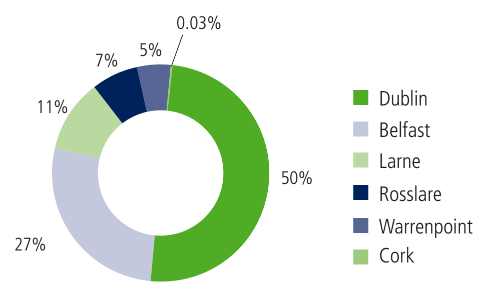
Roll-on/Roll-off Freight Traffic (Freight Units)

Freight Units	Accompanied			Unaccompanied		%
Port	2015	2016	% Change	2015	2016	% Change
Dublin	335,372	354,641	6%	542,454	589,890	9%
Rosslare	66,321	69,523	5%	58,010	58,827	1%
Cork	657	477	-27%	106	45	-58%
Dun Laoghaire	725	0	-100%	0	0	-
Belfast	180,180	192,468	7%	316,318	321,417	2%
Larne	120,763	137,919	14%	72,405	68,829	-5%
Warrenpoint	6,469	7,642	18%	81,230	88,731	9%
Total NI	**307,412**	**338,029**	**10%**	**469,953**	**478,977**	**2%**
Total ROI	**403,075**	**424,641**	**5%**	**600,570**	**648,762**	**8%**
Total IRL	**710,487**	**762,670**	**7%**	**1,070,523**	**1,127,739**	**5%**

Source: IMDO

GRAPH 15A

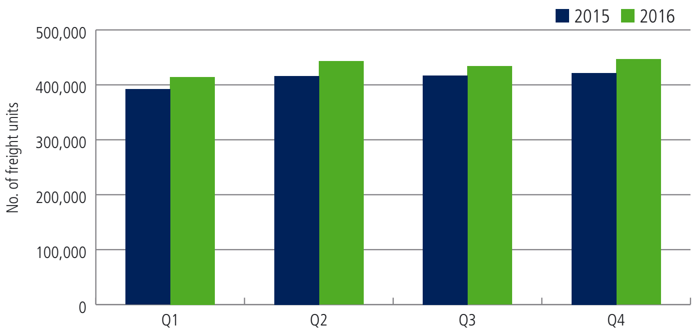
Market Share of Roll-on/Roll-off Traffic by Port 2016



Source: IMDO

GRAPH 16A

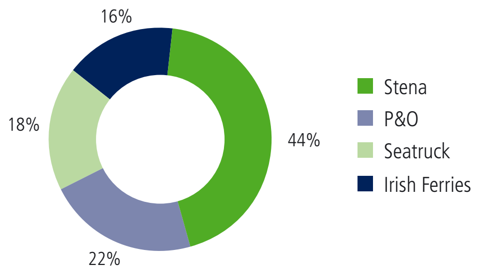
Quarterly Roll-on/Roll-off Freight Traffic



Source: IMDO

GRAPH 16B

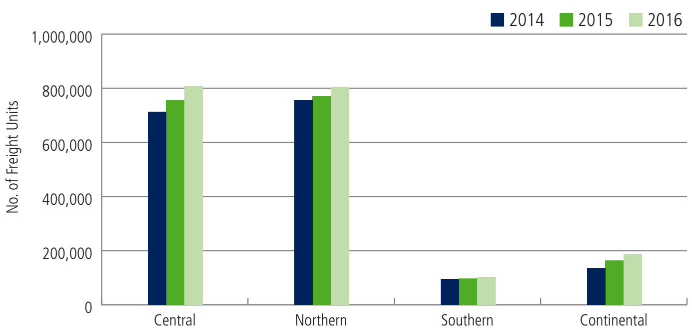
Market Share of Ireland-UK: Roll-on/Roll-off Traffic 2016



Source: IMDO

GRAPH 16C

Roll-on/Roll-off Freight Traffic per Corridor



Source: IMDO

ROLL-ON/ROLL-OFF MARKET: OPERATORS

In 2016, there were six freight operators providing scheduled services between Ireland, Great Britain and the European continent: Stena Line, P&O, Seatruck, Irish Ferries, Cobelfret and Brittany Ferries. The market can be separated into four corridors: Northern, Central, Southern and Direct Continental.

The Central Corridor reported an increase of 7% in volume; the third consecutive year of positive growth. This follows a 9% increase reported in 2015. The Central Corridor is now the busiest corridor between Ireland and Great Britain. P&O, Irish Ferries, Stena Line and Seatruck all serve this corridor, to Liverpool, Holyhead, Heysham, Pembroke and Fishguard. The Central Corridor also increased its market share in 2016 to 43% (up 1%), now the largest corridor in terms of freight volume. The Northern Corridor reported an increase in freight units of 4% in 2016, the second consecutive year of positive growth. However, the Northern Corridor reported a drop in market share of 1% to 43% in 2016 also. This corridor is serviced by Stena Line, P&O and Seatruck, providing services to Liverpool (Birkenhead), Heysham and Cairnryan.

On the Southern Corridor, services from Rosslare to Fishguard and Pembroke, which are provided by Stena Line and Irish Ferries, recorded volume increases of 5%. The Southern Corridor also reported a 1% drop in market share to 5% in 2016. The Direct Continental Corridor registered a 14% rise in volume in 2016, the second consecutive year of volume growth above 10%. Such strong growth resulted in a 1% increase in market share to 10% in 2016. The Direct Continental Corridor provides direct services from Dublin Port, Rosslare and the Port of Cork to Cherbourg, Brittany and Roscoff. These routes are serviced by Cobelfret, Brittany Ferries, Irish Ferries and Stena Line.

There were a number of important developments in the RoRo market in 2016. Seatruck Ferries began services connecting Dublin Port and Bristol in September 2016. They also added a new vessel, the Clipper Ranger, to their Dublin to Liverpool route.

P&O closed down their Larne to Troon route in 2016. Irish Ferries placed an order for a new ferry, which is expected to replace the MV Epsilon in 2018, and Stena Line signed a contract for four new RoPax ferries in the first quarter of 2017.

Irish Market

PASSENGER TRAFFIC

Passenger numbers between the island of Ireland, Great Britain and continental Europe declined by 2.6% to 4.3m in 2016. Three of the four corridors reported passenger number decreases.

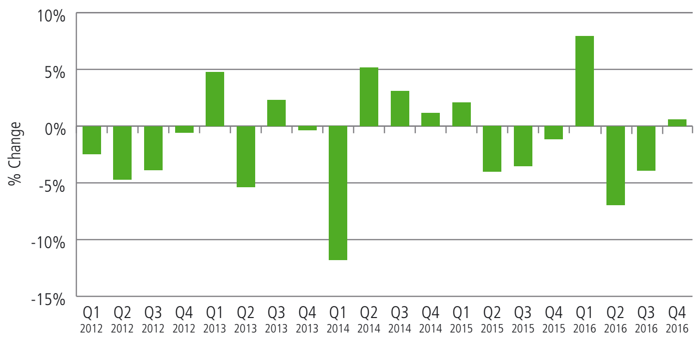
The 2.6% decline in passenger numbers is attributable primarily to a decrease in traffic between the Republic of Ireland and Great Britain, where a decrease in passenger numbers of 5% to 2.2m was recorded. Continental traffic also declined in 2016, registering a 0.4% fall in passenger numbers to 368,000. Passenger traffic between Northern Ireland and Great Britain increased by 0.3% to reach 1.7m passengers. The decline in overall sea passenger traffic is in contrast to strong growth in air passenger traffic, as represented in graph 17C.

Car volumes to and from the island of Ireland decreased by 1% in 2016 to 1.28m. Car volumes moving from the Republic of Ireland to Great Britain reached 672,700, an increase of 0.3% compared to 2016. Car volumes moving from Northern Ireland to Great Britain increased by 3% in 2016 to 492,209.

Recent developments in the Irish market include firstly; Stena Line's introduction of its new vessel, the Stena Superfast X, operating between Dublin and Holyhead and secondly; P&O's plans to discontinue its Larne to Troon service due to a decline in passenger and car numbers.

GRAPH 17A

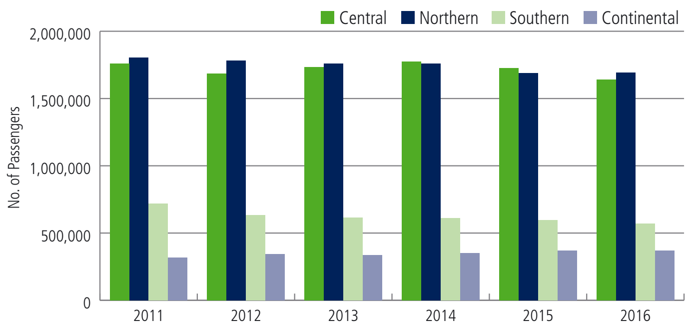
Quarterly Change in Passenger Traffic from the Island of Ireland



Source: IMDO

GRAPH 17B

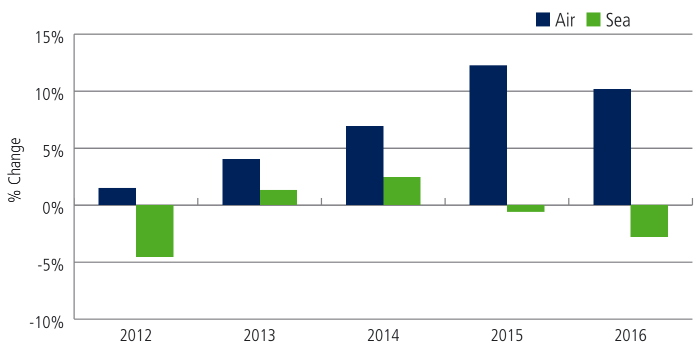
Passenger Traffic per Corridor 2011-2016



Source: IMDO

GRAPH 17C

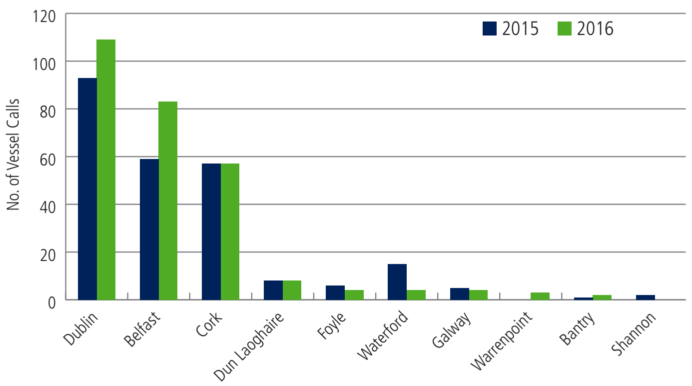
Annual Change in Air & Sea Passenger Traffic 2012-2016



Source: Fáilte Ireland

GRAPH 18A

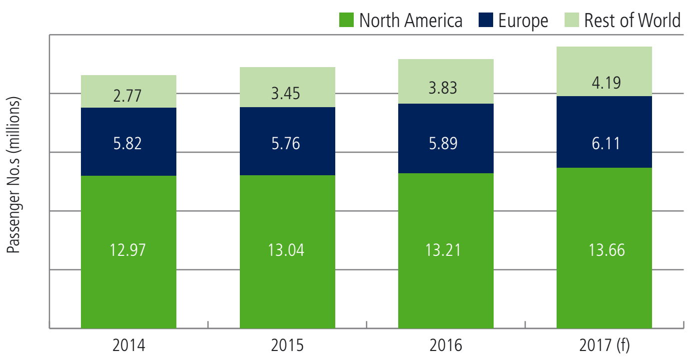
Annual Numbers in Cruise Ship Calls



Source: Individual ports

GRAPH 18B

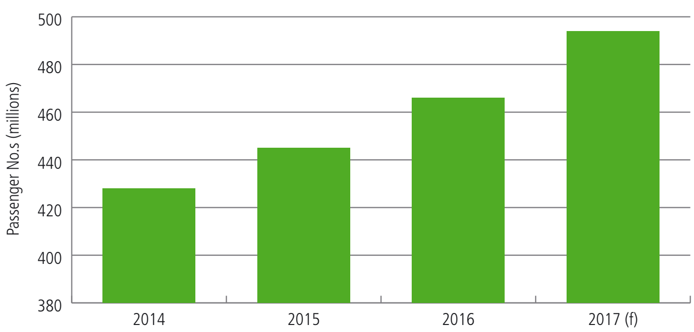
Passenger Numbers Carried by Cruise Ships



Source: Statista

GRAPH 18C

Passenger Capacity of the Global Cruise Industry



Source: Statista

CRUISE SECTOR

There were 274 vessel calls to Irish ports in 2016 carrying 442,304 passengers and crew. While vessel calls have increased by 11%, the number of passengers and crew has fallen by 1%, primarily driven by the fall in passenger and crew through the Port of Cork.

Elsewhere, 2016 was a year of expansion, with both Dublin Port and Dún Laoghaire progressing plans for new cruise berths. The new cruise terminal in Dublin Port is intended to future–proof the port, allowing it to accommodate the next generation of cruise liners which will be more than 300m in length. Dún Laoghaire's new cruise berth is intended to accommodate cruise vessels with a maximum length of 250m.

Dublin Port remained Ireland's busiest cruise terminal, receiving 159,124 passengers and crew (+7%) and 109 calls in 2016. Belfast Harbour reported strong growth, with 134,592 passengers and crew (+21%) and 83 vessel calls in 2016. Bantry Bay and Warrenpoint also reported increases in vessel calls and passenger and crew numbers.

There was no change in the number of vessel calls for the Port of Cork, which remained at 57. However, the number of passengers and crew at the Port of Cork fell to 127,865, a 12% fall compared to 2015. Dún Laoghaire received 8 vessel calls in 2016, which is unchanged compared to 2015. However, passenger and crew numbers fell to 9,434, a 49% drop from 2015. The Port of Waterford reported 4 vessel calls and 3,096 passengers and crew in 2016, down from 15 vessel calls and 11,641 passengers and crew in 2015. Foyle Port also reported a decline in vessel calls with 4 in 2016, down from 6 in 2015.

Cruise Liners International Association (CLIA) has projected that its cruise line members will see global passenger numbers rise to 25.3 million passengers in 2017, a rise of 4.5% over 2016. 26 new cruise ships with a cost of €6.8bn are on order. This is expected to add 30,006 passengers to the global fleet in 2017. It is projected that by 2026, 97 new ships will be ordered and delivered, adding a capacity of 119,510 passengers to the global fleet. According to CLIA's Cruise Line Member Survey statistics for 2016, the top passenger source countries include: USA (51.7%), UK (8.1%), Germany (7.7%), Italy (4%), Australia–NZ (3.6%), Brazil (3.4%) and Canada (3.4%).

Irish Market

FORECASTING

The IMDO forecasts RoRo traffic and Laden LoLo traffic to grow by 6% each in 2017.

Clarksons forecast that global containership trade will grow by 4.2% in 2017. Although such predicted growth is encouraging, there is a significant amount of uncertainty in the shipping sector, as reported by Clarksons in their Container Intelligence Monthly report for January 2017.

Irish GDP however – which is highly correlated with Irish unitised trade – is forecast to increase by 3.3% in 2017, according to the Central Bank of Ireland.

The IMDO forecasts the Irish Bulk sector to contract by 2% in 2017. Clarksons have predicted that global Dry Bulk trade will expand by 2.1% in 2017.

The IMDO's forecasts were generated using a univariate model (see technical note in the annex). There are a number of advantages to using a univariate method when forecasting port throughput in the short term, i.e. 1–2 years. The first is that it is independent of other variables, and it is also independent of any resulting uncertainty which surrounds the forecasting of explanatory variables such as GDP and the exchange rate. Secondly, it offers a systematic approach to the forecasting of time series models that can be easily replicated.

Conversely, univariate models have one main disadvantage, which is that these models are only informed by past values and as such, are incapable of forecasting significant unforeseen deviations from the long term trend.

TABLE 19A

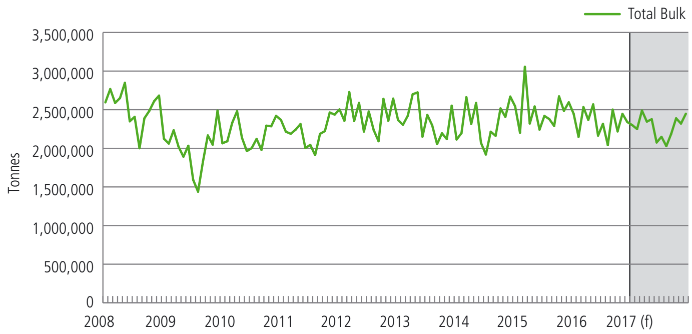
Forecast for 2017 for three major categories

	2015	2016	2017 (f)
Total Bulk	9%	-2%	-2%
Laden LoLo	6%	6%	6%
RoRo	6%	7%	6%

Source: IMDO

GRAPH 19A

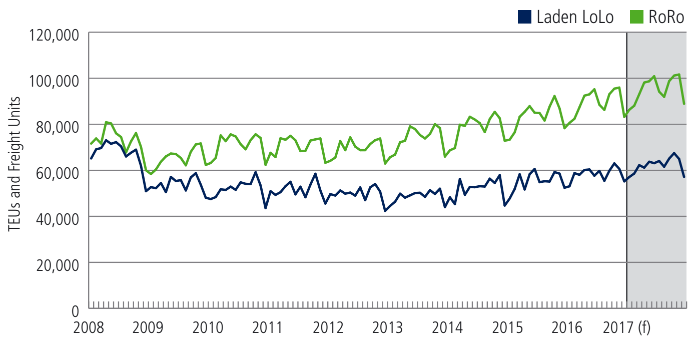
Total Bulk Forecast 2017



Source: IMDO

GRAPH 19B

Laden Lolo and RoRo Forecast 2017



Source: IMDO

GLOBAL MARKET REVIEW

TANKER MARKET

Global Tanker market conditions deteriorated in 2016, with average earnings across all tanker categories down by 42%; having reported growth of more than 50% in both 2015 and 2016. Tanker demand continues to grow; increasing by 4% in 2016, following a 3% rise in 2015. Tanker supply grew by 6% in 2016, up from 2% growth observed in 2015.

The global seaborne crude oil trade is estimated to have expanded by 4.3% to 39m bbl/d in 2016. Brent crude's oil price fell by 11% in 2016. This was partially offset however, by a 19% price increase in Q4 stemming from an initiative by OPEC producers to restrict output in 2017.

The combined total of global oil products is estimated to have increased by 4.4% in 2016 to 23.1m bbl/d. This lower projected rate of growth was driven by drawdowns in inventories across a number of regions such as North America and Europe.

The crude sector refers to the movement of unrefined crude oil from its point of extraction to refineries. The sector is made up of, inter alia: Very Large Crude Carriers (VLCC), Suezmax and Aframax vessels. Spot earnings for VLCCs fell by 36% to an average of $41,488/day in 2016. Demand for VLCCs is expected to grow by a relatively limited 1.1% in 2017, driven by OPEC's announcement to cut crude output by roughly 1.2 m bbl/d. Spot earnings for Suezmax vessels decreased by 41% to $27,567/day in 2016. Demand for Suezmax vessels is expected to remain steady in 2017, with the MEG–India route projected to rise by 11%, driven by a continuation of Iranian imports.

Aframax spot earnings fell by 41% in 2016 to reach $22,441/day. The demand for Aframax vessels is expected to increase marginally in 2017 however, with intra Far Eastern routes projected to rise by 7%.

Product tankers are able to carry "clean" refined petroleum products such as gasoline, jet fuel, kerosene, naphtha and gas oil. The category is comprised of Medium Range (MR), Long Range 1 (LR1), Long Range 2 (LR2) and Clean Handy vessels. Spot earnings for MR vessels declined by 43% to an annual average of $12,124/day in 2016, and Clean Handy vessel spot earnings fell by 59% to an average of $8,962/day in 2016. LR1 vessel spot earnings reported a drop of 23% to an average of $18,116/day in 2016. Despite these negative figures, Clarksons expect product tanker demand to increase by 1.8% in 2017, driven by the projected growth of Indian and Chinese product exports.

Elsewhere, product tanker trade on the U.S – South America route is currently projected to rise by 3% in 2017 to 2.2m bbl/d. This is to be supported by robust U.S products exports as well as continued weakness across much of the South American refinery sector.

Clarksons have forecasted global tanker demand to grow by 1% and global tanker fleet supply to grow by 5% in 2017. Crude tanker demand is expected to expand by 0.8%, and crude tanker fleet supply is expected to increase by 5.1% in 2017. Product tanker demand is forecast to grow by 1.8% in 2017, and product tanker fleet growth is forecast to grow by 3.9%.

TABLE 20A

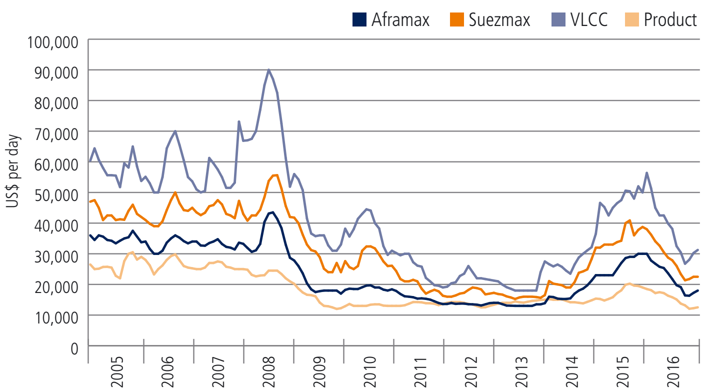
One Year Time Charter Rates ($/day), 2016

	Product	Aframax	Suezmax	VLCC
Jan-16	18,135	27,800	36,250	51,400
Feb-16	17,175	26,750	34,063	45,000
Mar-16	17,469	25,750	32,625	42,500
Apr-16	17,175	25,350	30,500	42,500
May-16	16,313	23,656	28,750	39,875
Jun-16	15,813	21,750	27,875	38,125
Jul-16	15,100	19,750	26,050	32,500
Aug-16	13,750	19,125	23,375	30,438
Sep-16	13,175	16,400	21,350	26,750
Oct-16	12,063	16,313	21,750	28,063
Nov-16	12,250	17,250	22,500	30,250
Dec-16	12,525	18,000	22,500	31,250
Jan-17	12,875	17,719	22,000	29,688
Feb-17	12,500	16,875	20,750	27,625

Source: Clarksons

GRAPH 20A

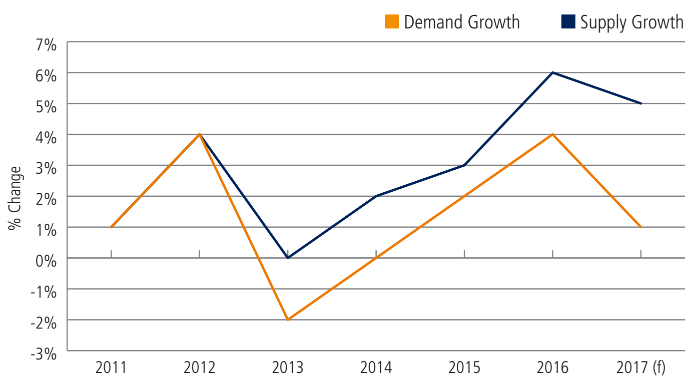
Tanker One Year Time Charter Rates, 2005-2016



Source: Clarksons

GRAPH 20B

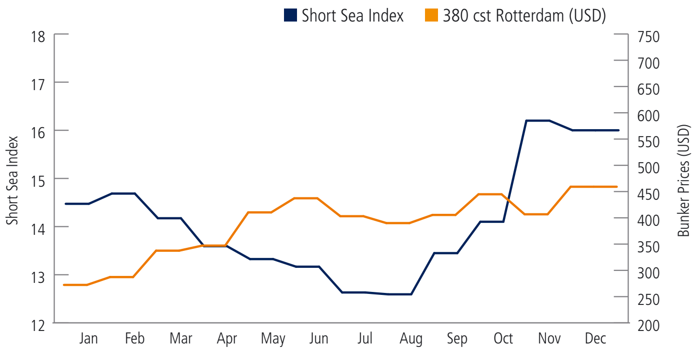
Demand Supply Dynamics: Crude Tankers, 2011-2017(f)



Source: Clarksons

GRAPH 21A

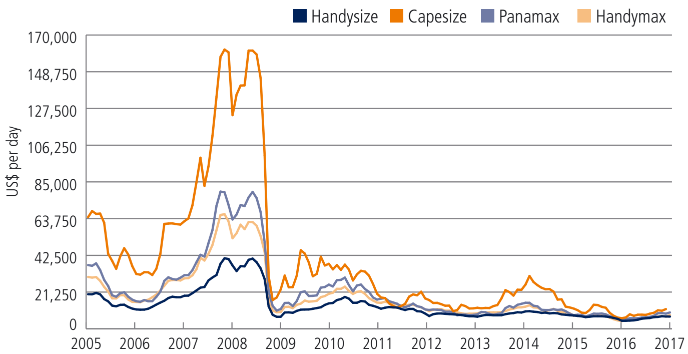
European Dry Bulk Short Sea Market, 12 Month Graph 2016



Source: HC Shipping and Chartering

GRAPH 21B

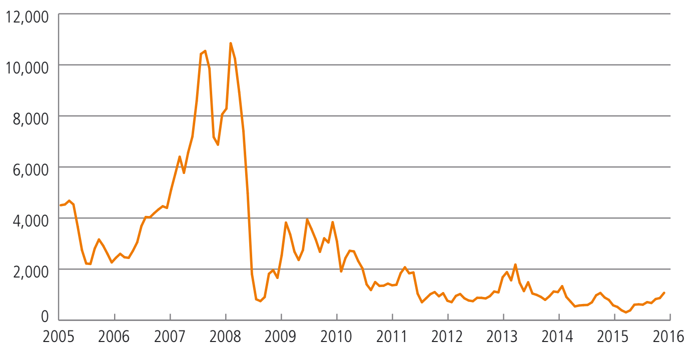
Dry Bulk One Year Time Charter Rates, 2005-2016



Source: Clarksons

GRAPH 21C

Baltic Dry Index, 2005-2016



Source: Clarksons

DRY BULK MARKET

2016 was a challenging year for the Dry Bulk sector. An imbalance between fleet capacity and demand for Dry Bulk trade resulted in downward pressure on freight rates. Full year Bulk carrier earnings averaged $6,218/day in 2016. The Baltic Dry Index averaged 675 in 2016, down 6% from the annual average of 715 recorded in 2015. 2016 improved at the end of the year, where the Baltic Dry Index reported an average of 994 for Q4, the highest quarterly value since 2014.

Global seaborne Dry Bulk trade grew by 1.2% in 2016, bolstered by 7% growth in Chinese iron ore imports, but offset by a 20% contraction in European coal imports. According to Clarksons, the strong performance of iron ore imports can be attributed to a drop in China's domestic output, increased stockpiling by Chinese steel mills, and a Chinese Government stimulus package that drove up the demand for iron ore.

Clarksons forecast that the global wheat and grain market will contract by 2% in 2017, despite it recording growth of 7% in 2016. This is expected to be driven by a fall in import demand in China and Indonesia, as well as an increase in supply of domestic grain in Iran.

Global Dry Bulk capacity increased by 2.3% to 794m tonnes in 2016, the slowest pace of growth in 17 years. This slowdown in growth was largely driven by a drop in new building interest and a shrinking of the Bulk carrier orderbook to 86m deadweight tonnes (dwt) by the end of 2016, the lowest recorded since 2006.

The aforementioned supply imbalance in the Dry Bulk sector persisted throughout 2016, with the Bulk carrier fleet expanding by 2.3%, more than double the increase recorded in Dry Bulk trade growth. The effect of this can be observed in average one–year time charter rates, which are down across all Bulk carrier vessel types: Capesize (–27%), Panamax (–16%), Handymax (–21%) and Handysize (–21%).

In 2017, Clarksons have predicted that the gap between Dry Bulk trade growth and fleet growth will narrow. It is forecasted that Dry Bulk trade will expand by 2.1%, while Dry Bulk fleet growth will expand by 1.8% in 2017. The projected imbalance is likely to result in upward pressure on freight rates.

The Short Sea market index declined in 2016. Rates decreased steadily from February 2016 onwards, before bottoming out in August due to significant increases of imported steel from Asia into Europe. The market began to improve by September 2016, but index growth remained sluggish due to economic uncertainty, as well as both Flinter Shipping and Abis Shipping selling off vessels. November and December 2016 recorded a decrease in spot tonnage in order to fulfil inventory requirements and stock up ahead of the Christmas period. This resulted in an increase in Bulk carrier freight rates. The recovery at the end of 2016 meant that the Dry Bulk market finished the year stronger than it began, fuelling some optimism going forward.

CONTAINERSHIP CHARTER MARKET

Earnings in the containership time charter market remain at "historically low, bottom of the cycle levels", according to Clarksons Container Intelligence Quarterly report for Q1 2017. According to that report, this was driven by: a slowdown in container trade growth which has eroded vessel demand, a prolonged environment of weak freight rates, and a significant portion of the containership fleet still lying idle.

This was reflected in Clarksons Time Charter Rate Index, which reported an average monthly decline of 1% throughout 2016. The index dropped 5 points overall in 2016, and now sits at its lowest point since 2009. This represents a continuation of a downward trend in the index, which has recorded a decline of 3% on average per year since 2011.

Furthermore, the proportion of the containership fleet that sat idle at the end of the year was 7.1%, enough, according to Clarksons Container Intelligence report, to maintain the downward pressure on the containership charter market. This marks the highest level of idle fleet capacity since 2010.

The broader trend in time charter earnings in 2016 was reflected in the sub 1,700 TEU handy and feeder classes, which are predominantly the vessels that serve Irish ports. The one–year time charter rate for a 1,700 TEU vessel averaged $6,804 in 2016, 23% below its average the previous year. It closed the year at $6,200, 11% below its January 2016 standing. Regarding the time charter rates for 350, 725 and 1000 TEU vessels, all of these categories exhibited positive monthly average growth of roughly 1% for the first half of 2016. This was offset however, by negative average monthly growth of 2% in the latter half of the year.

On the supply–side of the market, demolition has registered record levels of activity in recent years. The number of total containership demolitions was 194 in 2016, compared to 92 in 2015. This amounted to 0.65m TEUs, compared to 0.2m TEUs the previous year. Demolition activity is at its highest point since 2013, and has experienced an upward trend which has seen an average of 62% growth per year since 2007. As for containership deliveries, this amounted to 0.9m TEUs in 2016, 46% below its 2015 equivalent, while the containership orderbook grew by 13% to 3.95m TEUs.

Clarksons Research has noted that positive supply–side fundamentals will provide support to the charter market, but with 7% of the containership fleet still idle at the end of 2016, "fundamental recalibration" is required before any significant improvement is likely to be seen.

TABLE 22A

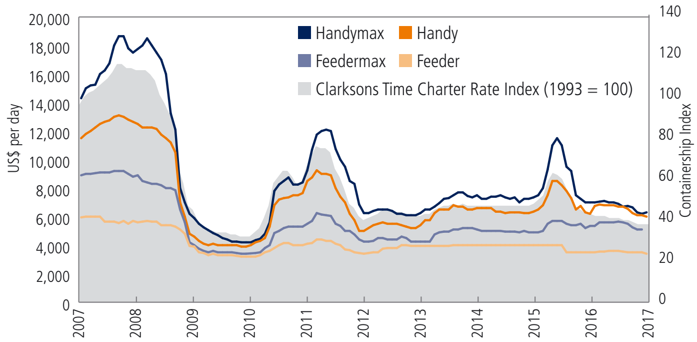
One Year Time Charter Rates ($/day), 2016

	Feeder 350 TEU	Feedermax 725 TEU	Handysize 1000 TEU	Handymax 1700 TEU
Jan-16	3,500	5,350	6,200	7,000
Feb-16	3,500	5,350	6,750	7,000
Mar-16	3,550	5,600	6,850	7,050
Apr-16	3,550	5,600	6,800	7,100
May-16	3,600	5,600	6,800	7,000
Jun-16	3,600	5,600	6,800	7,000
Jul-16	3,600	5,650	6,700	6,900
Aug-16	3,550	5,600	6,700	6,700
Sep-16	3,500	5,500	6,550	6,750
Oct-16	3,500	5,250	6,250	6,650
Nov-16	3,500	5,100	6,100	6,300
Dec-16	3,500	5,100	6,100	6,200
Jan-17	3,400	5,000	6,000	6,300

Source: Clarksons

GRAPH 22A

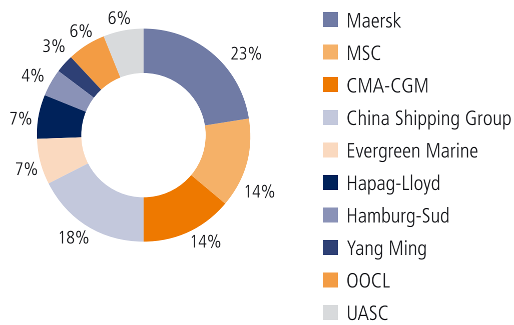
Container One Year Time Charter Rates, 2007-2016



Source: Clarksons

GRAPH 22B

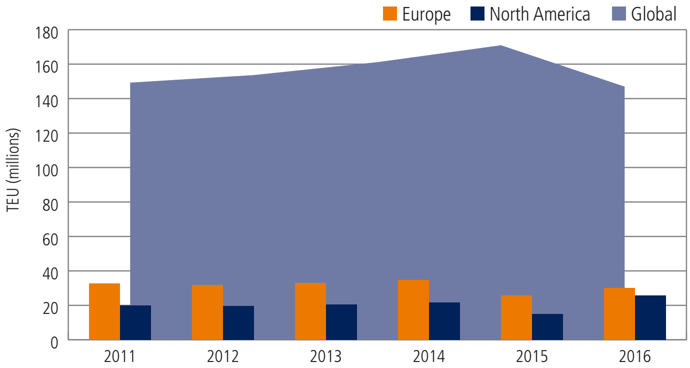
Top 10 Containership Operators by DWT, 2016



Source: Clarksons

GRAPH 23A

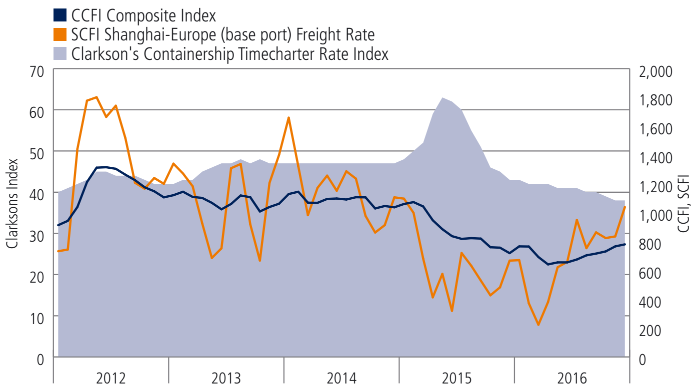
Container Import Volumes, (Excluding Intra Regional): 2011-2016



Source: Container Trade Statistics

GRAPH 23B

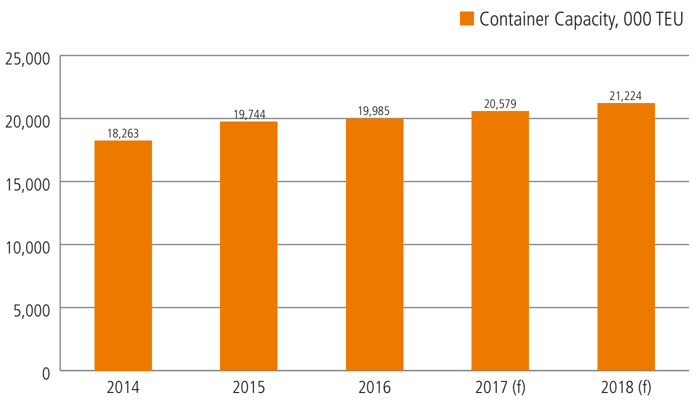
Containership Charter Rates vs Container Freight Rates: 2012-2016



Source: Clarksons

GRAPH 23C

Annual Container Capacity 2014-2018(f)



Source: Clarksons

DEEP SEA CONTAINER TRADES & FREIGHT RATES

CONTAINER TRADE GROWTH

Global growth in container trade was 3.4% in 2016, up from 2.2% in 2015. Such improvements were driven primarily by a return to growth in peak leg Far East – Europe trade, as well as robust expansion of intra–Asian route volumes which were bolstered by more positive trends in the Chinese economy. Global growth was limited somewhat by weak commodity prices which continued to exert pressure on Middle Eastern imports as well as North–South trade. Demand side improvements are expected to continue however, with global container trade expected to expand by 4.2% in 2017. Such growth is expected to be driven by improvements in mainlane and intra–Asian trades. However, Clarksons also note that recent political developments in the U.S and Europe present risks to the demand outlook.

CONTAINER CAPACITY

Fleet capacity growth slowed significantly in 2016, expanding by 1.2% year–on–year compared to 8.1% in 2015. Positive demand trends and limited fleet growth meant that the fundamental balance of supply and demand in the containership sector improved. Despite this however, 2016 was a challenging year for the sector according to Clarksons Shipping Intelligence Network. The positive supply and demand trends were not sufficient to generate significantly improved market conditions and as such, high levels of surplus capacity continued to impact upon the market.

Fleet growth is forecasted to expand by 3% in 2017, driven by rising deliveries. Demolitions however, are expected to remain constant.

BOX FREIGHT RATES

The freight rate environment remains challenging, with rates generally weak in 2016. The collapse of South Korean operator Hanjin Shipping, formerly among the world's ten largest shipping companies, provided a stark reflection of the pressures currently faced by carriers. By the end of 2016 however, freight rates appeared to have bottomed out on some major trade lines, with improvements being made on both mainlane and non–mainlane routes. For the year in total, the key SCFI spot rate on the China–Europe trade averaged $690/TEU, 11% above the average across 2015.

Clarksons note that, in general, freight rates continue to face a long–term downward trend, driven in part by the deployment of 'megaships' which can offer lower unit costs. This is set to present challenges in the coming year.

CONSOLIDATION

By the start of 2017, the ten largest liner companies accounted for 70% of all containership capacity, which, according to Clarksons Research, indicates that consolidation amongst liner companies is now a well–established trend. Furthermore, a wave of recent M&A activity means this figure is expected to rise to 80% by the end of 2017.

The existence of major liner company alliances is set to continue in the form of 'Ocean Alliance' and 'The Alliance', both of which will begin in 2017.

NEWBUILDING AND DEMOLITION MARKET

RORO FLEET

At the end of 2016, global RoRo fleet capacity stood at 7.6m dwt, down 0.7% YoY from 2015. RoRo fleet capacity fell by 4% on average between 2010 and 2015. The lack of significant decline in RoRo fleet capacity in 2016 can be attributed to the fact that demolitions for the period remained relatively low, totalling 8 vessels in 2015 and in 2016, compared to an average of 50 vessels per annum between 2009 and 2014. As at the beginning of 2017, Clarksons have forecast the RoRo orderbook to expand by 42%, reversing a downward trend which has seen that orderbook decline by an average of 19% between 2010 and 2015.

CONTAINERSHIP FLEET

Total Containership Capacity (in terms of TEU) grew by 8% YoY, a rise of 1% over 2015. Containership capacity has expanded, on average, 8% per annum since 2010. However, containership fleet growth fell from 8.1% in 2015 to 1.25% in 2016. This can be attributed to the sharp fall in deliveries, which fell by 46% in 2016, its first decline since 2011. After a 46% contraction in 2015, containership demolitions rose by 111% in 2016. This corresponds to a total of 194 vessels with a combined capacity of 654,000 TEUs. The rise can be attributed to improved scrap prices, as well as depressed time charter rates – which fell 23% based on Clarksons Containership Time Charter Rate Index.

At the beginning of 2017, the containership orderbook stood at 428 vessels, 14% below the amount at the same period in 2016.

DRY BULK FLEET

According to Clarksons, 2016 was a challenging year for Bulk carriers, as the Baltic Dry Index (BDI) fell to a record low of 291 early in the year, and earnings fell below $4,000/day. The Dry Bulk sector responded by way of supply–side measures, which included a sharp drop–off in newbuilding interest, and firm demolition figures.

In 2016, the Bulk carrier fleet registered its slowest rate of growth since 1999, expanding by 2.3%. The Bulk carrier orderbook also shrank to a 10 year low of 86m dwt. Demolitions and deliveries appeared to offset one another, falling by 5% and 4% respectively. Clarksons note that as 2016's Bulk carrier fleet growth of 2.3% outpaced Bulk demand growth of 1.2%, oversupply pressure will contiunue to weigh on the market in 2017. However, fleet growth is forecast to slow in 2017 to 1.8%, while Bulk demand growth is forecast to rise to 2.1% in 2017.

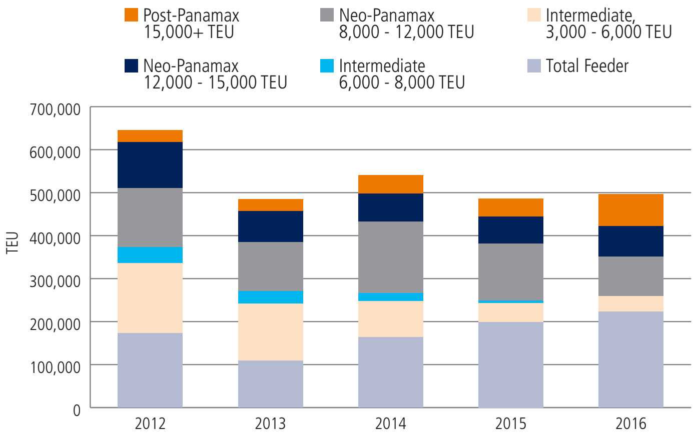
TANKER FLEET

Total tanker fleet development grew by 3% in 2016, reaching 524m dwt. This is the fastest pace of growth since 2013, and is forecast to double to 6% in 2017, according to Clarksons. This was driven by the fact that only 41 vessels were demolished in 2016, a drop of 18% compared to 2015. Demolitions in this sector have continued to drop since 2013, reversing a trend which saw an average of 124 vessels demolished between 1999 and 2013. 2016 demolitions took 2.56m dwt off the market, 9% more than 2015.

Finally, average tanker earnings fell by 41% in 2016 after a 74% rise in 2015. The tanker orderbook grew by 22% to 1,026 vessels.

GRAPH 24A

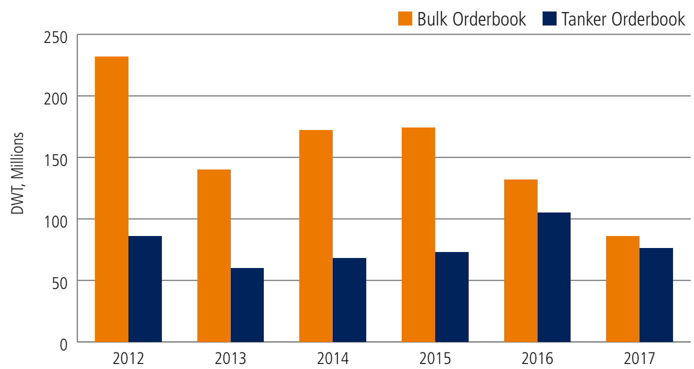
Containership Orderbook by Size Range, 2012 - 2016



Source: Clarksons

GRAPH 24B

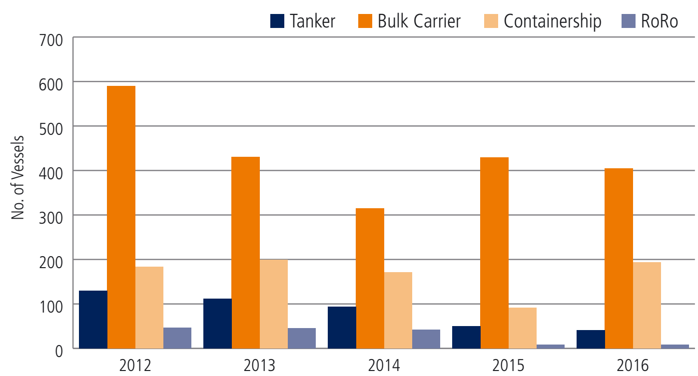
Bulk Carrier Orderbook, 2012-2017



Source: Clarksons

GRAPH 24C

Demolition by Fleet Category, 2012-2016



Source: Clarksons

GLOSSARY OF TERMS

Aframax: Oil tanker vessels between 80,000 – 120,000 dwt in size.

bbl: Oil Barrel

bpd: Barrels Per Day

CPI-Consumer Price Index: Designed to measure the change in the average level of prices (inclusive of all indirect taxes) paid for consumer goods and services by all private households in the country and by foreign tourists holidaying in Ireland.

cst: Centistoke (measurement of fuel viscosity)

dwt-deadweight tonnage: A measure of how much weight a ship is carrying or can safely carry.

ESRI: Economic and Social Research Institute

GDP-Gross Domestic Product: Represents the total value added (output) in the production of goods and services in the country. The rate of growth in GDP measures the increase in the value of output produced in the state, irrespective of whether the income generated by this economic activity accrues to citizens of the state or not.

GNP-Gross National Product: The sum of GDP and Net factor income from the rest of the world. The rate of increase of GNP attempts to capture the increase in the incomes of the state's citizens irrespective of where the activity that generated the income took place.

HCI-Harmonised Competitiveness Indicators: A measure of euro area countries' price and cost competitiveness.

HICP-Harmonised Index of Consumer Prices: An indicator of inflation and price stability.

IFO: Intermediate Fuel Oil

LoLo: Lift-On/Lift-Off

Merchandise Trade: Goods which add or subtract from the stock of material resources of a country by entering (imports) or leaving (exports) its economic territory. Goods simply being transported through a country (goods in transit) or temporarily admitted or withdrawn (except for goods for inward or outward processing) do not add to or subtract from the stock of material resources of a country and are not included in the international merchandise trade statistics.

Neo-Panamax: Neo-Panamax locks are for vessles with length of up to 366m; and/or beam up to 49m and/or draught up to 15.24m.

OPEC: Organisation of the Petroleum Exporting Countries

Panamax: Panamax locks are for vessels with length of up to 294m, beam of up to 32.31m and draught of up to 12.04m.

RoRo: Roll-On/Roll-Off

RoRo Freight Unit: Wheeled equipment for carrying cargo, such as a truck, trailer or semi-trailer, which can be driven or towed on to a vessel. Port or ships' trailers are included in this definition.

Suezmax: Oil tanker vessels between 120,000 – 200,000 dwt in size.

TEU: Twenty-foot Equivalent Unit

VLCC-Very Large Crude Carriers: Oil tanker vessels between 150,000 – 320,000 dwt in size.

SOURCES OF DATA

The bulletin contains the results of quarterly and annual analysis of activity at Irish ports, and the activity of shipping lines operating from Irish ports. The data is compiled from returns made by the Harbour Authorities, State Companies, Northern Ireland Ports and RoRo shipping lines on routes to and from Ireland and the UK as outlined below:

PORT COMPANIES:

Drogheda Port Company

Dublin Port Company
(Including Dundalk Port Company)

Dún Laoghaire Harbour Port Company

Galway Port Company

Greenore Port Company

New Ross Port Company

Port of Cork Company
(Including Bantry Bay Port Company)

Port of Waterford Company

Rosslare Europort

Shannon Foynes Port Company

Wicklow Port Company

Port of Youghal Company

NORTHERN IRELAND PORTS:

Belfast Harbour Commissioners

Foyle Port

Port of Larne

Warrenpoint Harbour Authority

ROLL-ON/ROLL-OFF SHIPPING LINES:

Irish Ferries

P&O Irish Sea Ferries

Seatruck Ferries

Stena Line

- *Data for graph 14A and graph 14B was provided by MarineTraffic.com*

TECHNICAL NOTE

- The *iShip Index* is a weighted indicator comprised of five separate indices, representing the main maritime freight categories moving through ports in the Republic of Ireland: LoLo, RoRo, Dry Bulk, Liquid Bulk & Break Bulk.
- The LoLo index comprises solely of laden traffic.
- The following ports have been included in the index: Port of Cork, Drogheda Port, Dublin Port, Dundalk Port, Dún Laoghaire Harbour, Galway Harbour, Greenore Port, New Ross Port, Rosslare-Europort, Shannon Foynes Port, Port of Waterford and Wicklow Port. Bantry Bay has been excluded as its throughput is predominantly of a transhipment nature.
- All data is derived from the individual port companies and subject to a one-year revision period.
- The base period is Quarter 1 2007 at which all indices equal 1000.

TRAFFIC BREAKDOWN

LIQUID BULK:
Consists mainly of petroleum, heavy fuel oil, liquefied gas and bio-ethanol.

DRY BULK:
Consists mainly of animal feed, fertilizer, cereals, ore, bauxite, alumina, and coal.

BREAK BULK:
Consists mainly of construction related materials and project cargo.

LOLO (LIFT ON/LIFT OFF):
There are direct daily container services from the Republic of Ireland to Great Britain, mainland Europe and the Mediterranean. There are also worldwide transhipment services available from the Republic of Ireland.

RORO (ROLL ON/ROLL OFF):
This traffic is wheeled accompanied and unaccompanied goods vehicles. The majority of this trade is between Ireland and the United Kingdom, but there is also a Con-Ro service between Ireland and Continental Europe included in this traffic classification.

FORECASTING

A univariate time series model is determined by its own history and by random effects that have taken place in a variable's past.

The variables used within this forecasting model are monthly throughput for the following traffic categories: Laden LoLo, RoRo and Total Bulk.

After assessing the forecasting accuracy of a multitude of univariate models, the Seasonal Auto Regressive Integrated Moving Average (SARIMA) method and the Exponential Smoothing (ES) method were found to be the most appropriate for the data in question. SARIMA was found to be the best univariate model in forecasting RoRo and LoLo, while ES was found the most appropriate for Bulk. Both SARIMA and ES are well established methods of forecasting variables.

Note: Only Republic of Ireland throughput data is used. Bantry is excluded from Total Break due to the volatility of transhipments making it harder to make forecasts in the Bulk category.

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