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ISSUES IN INFRASTRUCTURE FINANCING IN EMERGING MARKETS

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Abstract

In the context of the current dynamic environment, we present the key findings from a market research and analysis, identifying an investment opportunity on a niche market within the emerging economies. We analyze a subsector within the shipping industry and relate its development to the underlying economics of the trading flows in the region. We argue that exploiting market discrepancies in certain niches may be a successful strategy and lay as a counter strategy to the overall unattractiveness of the particular asset class on a global basis.

В контекста на настоящата динамична среда представяме основните заключения от проведено пазарно проучването и анализ, идентифициращи инвестиционна възможност на нишов пазар в развиващите се страни. Анализираме подсектор от корабната индустрия и свързваме развитието му с икономическата специфика на търговските потоци в региона. Тестваме хипотезата, че изследването на пазарни дисбаланси в определени ниши може да открие добри инвестиционни възможности на фона на общите тенденции за отлив на капитал от сектора в световен мащаб.

Key Words: infrastructure financing, shipping finance, capital budgeting, emerging markets, drybulk shipping, supply and demand for tonnage

JEL Classification: G15, G19

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1. Emerging Markets: the Growth Drivers of the World Economy

Emerging economies have been demonstrating dynamic development and constantly increasing importance in the international trade flows over the recent decades. This suggests their role as the growth engines of the global economy and their potential to capitalize on both market-based and bank-based systems of finance. Many multinational companies are headquartered in the larger emerging markets and are acknowledged as crucial players on the global economic arena. BRIC[1] and N-11[2] countries, being the most important representatives of the league, are said to have a great deal of potential to become the world's largest economies in 21th century, both as a source of sustainable growth and global demand (Table 1 and Table 2). In the times prior to the global financial crisis, the investment activity in emerging economies, including Eastern Europe, was developing at a very high pace, with high investor expectations, relatively cheap capital available and investment vehicles with highly leveraged profile.

Table 1: Real GDP, % chg yoy - **BRIC countries**

Year	2006	2007	2008	2009	2010	2011F	2012F
Brazil	4,0	6,1	5,2	-0,6	7,5	4,5	4,0
China	11,7	13,0	9,6	9,2	10,3	9,4	9,2
Russia	8,2	8,5	5,2	-7,9	4,0	5,3	5,6
India	9,7	9,0	6,7	8,0	8,5	7,5	7,8

Source: GS, IMF, CIA, MMC Research

Table 2: Real GDP, % chg yoy – **N-11 countries**

Year	2006	2007	2008	2009	2010	2011F	2012F
Egypt	6,8	7,1	7,2	4,7	5,2	1,0	3,0
Indonesia	5,5	6,3	6,0	4,6	6,1	6,2	6,2
South Korea	5,1	5,1	2,3	0,3	6,2	4,3	4,4
Mexico	5,2	3,3	1,2	-6,1	5,4	4,4	4,5
Philippines	5,3	7,1	3,8	1,1	7,6	5,2	5,5
Turkey	6,9	4,7	0,7	-4,8	8,9	7,5	3,5
Nigeria	6,2	7,0	6,0	7,0	7,8	7,0	7,5
Pakistan	6,6	5,3	2,7	4,3	4,8	2,8	4,0
Vietnam	8,2	8,5	6,2	5,3	6,8	6,3	6,8
Bangladesh	6,6	6,3	4,9	5,7	6,0	6,3	6,6
Iran	4,3	6,2	6,5	1,5	1,0	0	3,0

Source: GS, IMF, CIA, MMC Research

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[1] BRIC – Brazil, Russia, India and China

[2] N-11 - Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, Philippines, South Korea, Turkey, and Vietnam

The 2008 – 2011 global financial crisis shook both emerging and developed markets worldwide and caused restructurings in entire sectors of economies. The crisis reshaped the perceptions of many global financial market participants, both from the equity and debt perspective, who redefined their focus and priorities to respond to the challenging environment. A preference towards safer grounds has been observed on a global basis and many investors have chosen to abandon assets and markets they consider riskier. Access to debt financing has remained relatively restricted, accompanied by detailed due diligence procedures, increased covenants and reduced leverage opportunities. The frozen investment activity during the crisis was followed by lower flows of inward foreign direct investments in emerging markets after the crisis as compared to their pre-crisis levels. According to Goldman Sachs, however, some of the BRIC and N-11 economies appear to have performed much better than the major G-7[3] throughout the whole economic downturn. On the one hand, countries like India, China, Indonesia and the Philippines experienced a very moderate recession with a fast rebound in growth and activity. On the other hand, countries such as Brazil, Russia, Turkey, Mexico and South Korea have seen sharper contractions, followed by impressive rebounds.

In the light of the current public sector debt crisis occurring in USA and the Euro-zone, emerging markets demonstrate another indisputable advantage. Emerging markets have been much more fiscally responsible, avoiding the mistakes of the "developed world" and most of them are not expected to face any problems in funding their public debt. In the meantime, the market participants worldwide are highly concerned about the recent developments in the major economies. For that reason, many investors are returning their focus to certain emerging markets, looking for better opportunities for portfolio diversification. However, the preference towards safer bets remains and therefore most emerging markets receive high level of scrutiny when considered as an attractive investment opportunity.

Emerging markets share certain disadvantages as well. The recent above-trend economic growth in their economies already causes overheating inducing rising core inflation in some countries. Another important characteristic of these markets is that the population spends a much higher share of their income on food than the population of the developed economies. The rising local and global food and commodity prices play a critical role therefore and are expected to contribute further to the already accelerating inflation pressures. This implies the necessity for policymakers to take measures to tighten and decelerate their economies to normal levels, which should eventually bring them back towards the trend growth rates in the near future.

While all the BRIC states are projected to soon become among the ten largest economies in the world and most N-11 states will continue growing at higher rates than G-7, the living standards in these countries continue to lag far behind the high-income developed world. However, the countries within the BRIC and N-11 groups themselves vary widely in terms of wealth. Both Turkey and Russia, for example, are ranked in the upper-middle income class in 2010, measured by GNI[4] per capita, according to the Classification of Countries by the World Bank. On the other hand, China and India are expected to continue to register among the fastest GDP per capita growth rates in the world, however, they are ranked in the lower middle income and therefore convergence with developed market levels is still a long

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[3] G-7 - meeting of the finance ministers from a group of the seven major industrialized nations - France, Germany, Italy, Japan, United Kingdom and Canada

[4] GNI – Gross National Income

way off. For that reason, further detailed research within each market is highly warranted and may bring very important insights for their differing characteristics.

We continue our analysis hypothesizing that in the context of the current challenging environment, emerging economies offer the potential to uncover attractive opportunities in niche markets which have not been explored much so far. Some experts argue that the result from the recent change in investor sentiment may reduce the historically high returns generated in emerging markets; however, the associated risk may also decline. In any case, the focus of investors should be directed towards comprehensive strategy formulation along with cautious selection of transaction targets, performance enhancement and monitoring.

2. Infrastructure Financing in Emerging Markets

Infrastructure issues play a crucial role for the future development of emerging economies. Many studies point out that increasing amounts of funds need to be invested in infrastructure assets globally, mainly due to the increasing needs of emerging markets as a result of their growing population and economic development. In some countries infrastructure has improved substantially in recent years. Nevertheless, it remains far behind developed countries standards and has been completely insufficient to keep up with the rapid increase in demand. This issue is gaining importance on the worldwide political and economic arena. The World Bank estimates that India loses 1% in economic growth every year due to supply bottlenecks, and Russia is said to have had several high-profile transportation system failures in recent years. Therefore, countries with emerging economies should pay specific attention to their infrastructure development in the years to come to prevent it from constraining future growth.

Many governments have tried to address this issue and have announced large-scale plans and fiscal stimulus packages in recent years. However, public finance continues to be limited, therefore private investments in the sector need to be attracted as well in order to achieve the targets. According to Goldman Sachs' estimates, the private sector currently finances approximately 20-25% of emerging markets infrastructure investments, a level insufficient to meet the needs for further development. Private capital is expected and stimulated to contribute more in the future. Nevertheless, the role of the government policy remains crucial and various financing structures such as public/private partnerships, government credit guarantees and direct funding provisions are being developed with the purpose to promote private infrastructure financing. In addition, improved institutional and business environment, higher efficiency and expanded financial intermediation in local capital markets are necessary conditions to be able to rely more heavily on private funding sources.

Other major participants in the process of infrastructure financing have become the international financial institutions, which are focused on investing in developing regions with the purpose to support their economic development and promote their transition to open integrated markets. The European Bank for Reconstruction and Development (EBRD), the International Finance Corporation (IFC), the Black Sea Trade and Development Bank (BSTDB) and Asian Development Bank (ADB), to name a few, have provided both debt and equity financing for high-profile projects in certain emerging markets, also in cooperation with private investors. Infrastructure is indisputably among their most preferred and supported sectors for project financing.

Additionally, the current lack of adequate private spending for infrastructure projects in emerging markets may be attributed to some of the unique features of the investment itself.

Infrastructure projects are characterized with their large scale and relatively high capital intensity. Moreover, in emerging markets they are highly illiquid in nature and are constrained in the long-term from the lack of hedging instruments. In many cases there is insufficient liberalization of the market and elements of natural monopoly may be observed. The uncertainty for private investors is further strengthened by the country-specific risks inherent in the investment opportunity, particularly in terms of foreign exchange risks and government intervention.

Academics have contributed to the study of infrastructure projects as a separate asset class. There is an ongoing debate on their nature and performance as compared to other asset classes both in stable economic conditions and during economic downturns. Many authors argue that infrastructure is a long-term investment, with predictable and stable cash flows, which exhibit high correlation to inflation and low correlation to other asset returns. According to Benita von Lindeiner and Eckermann[5], infrastructure investments have "defensive nature and stable, contractual income streams". Bitsch, Buchner, and Kaserer[6], however, get different results when analyzing a dataset of infrastructure and non-infrastructure deals, completed by private equity funds. They find that "infrastructure deals do not offer cash flows that are more stable, longer-term, inflation-linked or uncorrelated to public equity markets". On the other hand they also succeed to conclude that downside risk is much lower as compared to other non-infrastructure investments, which is indisputable advantage of the asset class in terms of risk profile. Moreover, they find that these deals have demonstrated higher average and median returns in terms of investment multiples and internal rates of return, which is a direct contradiction to the traditional view that infrastructure investments offer only moderate levels of return. The authors find evidence that these higher average returns may be driven by higher market risk.

The controversial results of the studies further confirm the uncertainties of infrastructure investments and the necessity to have a closer look when analyzing such opportunities, considering the influence of related regulatory and political issues as well. All the factors, listed above, contribute to the higher cost and horizon of the required investment, increased uncertainty about potential returns and respectively, to restricted access to available funds and higher cost of the capital invested.

3. The Drybulk Shipping Market in RRBSM[7] – a Niche Investment Opportunity

We unfold our paper by representing the methodology and key findings from an experience-based market research and analysis, which has been conducted when studying market patterns of an un-systematically researched market. The purpose of the study has been to identify an infrastructure investment opportunity on a niche market within the "emerging economies" and provide sound argumentation in favor of the feasibility of a development project to exploit this opportunity. We analyze a subsector within the shipping industry - the dry cargo shipping market in the Russian Rivers, Black and Mediterranean Sea region (RRBSM region). By assessing the current situation and its long-term trends, given a certain set of assumptions, we construct a methodological approach to the supply and demand of

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[5] "Infrastructure – Defensive Portfolio Diversification", March 2009

[6] "Risk, Return and Cash Flow Characteristics of Infrastructure Fund Investments", Nov 17, 2010

[7] RRBSM - the Russian Rivers, Black and Mediterranean Sea region

tonnage at this transportation market. We directly relate to the underlying economics of the trading flows in the region.

The Global Drybulk Shipping Market

The international drybulk shipping market is highly competitive and extremely cyclical, dependent on the current economic conditions. This business is extremely capital intensive because the value of the assets, i.e. the vessels, is high. Companies within the industry tend to maintain relatively high levels of financial leverage[8] to finance their orderbooks[9], thus increasing risk and uncertainty. As a result of these features, the availability of debt and project financing is a critical factor and influences to a large extent the decisions of the major participants in the sector. In the current restrictive credit environment, both in terms of long- and short-term shipping finance, companies are even further pressured to actively manage their operating activities and strictly control the liabilities side of their balance sheet.

Charter hire rates are the main key driver of the profitability of the shipping companies; however, charter rates are characterized by very high volatility. This characteristic has been very well observed at the beginning of the global financial crisis. After reaching their historically high levels in mid-2008, charter rates for drybulk carriers declined to extremely low levels in December 2008. At the current moment, the market still remains significantly below its highest levels in 2008, exerting an adverse effect on the companies' financial results and solvency position. Since many of them are characterized with high indebtedness, they get into trouble being unable to comply with their loan covenants.

Another important industry-specific factor influencing the profitability of the shipping companies is the current phase of the industry cycle as characterized by the growth of the fleet and the orderbook, expressed as % of the fleet. These factors, however, are highly dependent on the current economic conditions. Goldman Sachs identifies three main phases within a shipping cycle: a prolonged slump, an expansion phase and a peak/plateau phase (Exhibit 1):

Exhibit 1

Source: Goldman Sachs Research.

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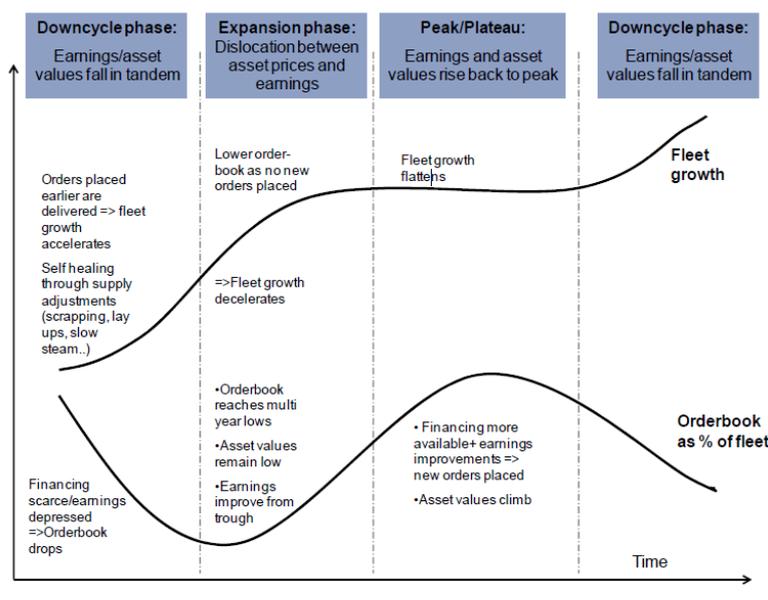
[8] 70% debt / 30% equity has been a typical capital structure arrangement

[9] Orderbook – new vessels ordered and under construction

Downcycle phase:

As already mentioned, due to its cyclical nature, the shipping industry follows the current economic trends. In the downcycle phase, demand for shipping decreases substantially. On the other hand, ship-owners tend to increase orders for newly-built vessels during favorable economic conditions; the new vessels however are delivered in two to three years after the placement of the order. This often accelerates the growth of the fleet and increases supply in the downcycle phase already. The resulting mismatch between the supply and demand on the shipping market depresses the fleet utilization and freight rates come down. Daily earnings and asset values fall as well. Financing becomes scarcer as a company's equity declines; shipping banks start writing down assets and consequently downsize their loan books. The sustained low freight rates and the widening financing gap force some ship-owners to sell assets at distressed prices, usually close to the scrap price itself. As a result, the orderbook as % of the fleet falls. The industry participants try to partially overcome the declining profitability by slow steaming operation, increased waiting time at berth and delayed delivery of newly-built vessels. Deliveries may be even canceled when possible since ship-owners cannot finance expensive orders made at the peak of the cycle and prefer losing the paid-in deposit.

Expansion phase:

In this phase the fleet growth starts gradually decelerating and the orderbook as a percentage of the fleet reaches its lowest level. The improving economic conditions drive higher demand on the shipping market and the gap between supply and demand narrows, consequently daily earnings improve. However, asset prices remain relatively low at the beginning of this phase, thus creating the opportunity to buy "distressed" tonnage and generate abnormal returns over the cycle. According to Goldman Sachs estimations, an investor taking advantage of this opportunity can achieve app. 15% IRR[10] as compared to the assumption of a mid-cycle rate over the life of the asset of app. 8-9% IRR.

Peak/Plateau phase:

In this phase the market starts recovering with demand outpacing supply growth, and thus absorbing excess capacity. This leads to increasing freight rates and considerable improvement in profitability and owners' equity. Asset prices recover as well, returning to peak levels, stimulating higher activity on the second-hand market for tonnage. Shipping financing becomes available again and companies initiate new orders, causing gradual increase in the orderbook as a percentage of the fleet. However, due to the typical lead time, usually in the range of two to three years, the fleet growth flattens in this phase. The ship owners enjoy a prolonged upcycle, before the industry enters into the downcycle phase again.

Our analysis indicates that the global drybulk shipping market is currently in the middle of a downcycle phase as defined by Goldman Sachs. After the collapse in the economic growth and trade, the international seaborne trade volumes, including drybulk shipping, contracted by 4.5% in 2009. There is a significant current mismatch between the demand and supply of tonnage, with the latter substantially exceeding the former. According to a publication by the United Nations on the Maritime Transport Industry, the world merchant fleet had reached 1,276 million deadweight tons (dwt) by the beginning of 2010 – an increase of 84 million dwt over 2009. This growth resulted from a record in new deliveries of 117 million dwt, against demolitions and other withdrawals from the market of

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[10] IRR – Internal Rate of Return

approximately 33 million dwt. After a short rebound in the second half of 2009 and the beginning of 2010, dry bulk freight rates are currently depressed again, swallowing the profitability margins of the ship owners. The signs of a new economic slowdown in the United States and other parts of the world further exert negative impact on the results from the operations and the financial condition of the companies. Capital markets are still characterized by instability, reduced access to available financing and trends of deleveraging and reduced liquidity. According to Goldman Sachs projections, bulk shipping freight rates are likely to remain under pressure due to excessive supply growth, undermining profitability within the next years. Trading is still expected to worsen within the next 12 months and the sector would probably underperform the transportation sector in general.

Supply and Demand for Tonnage on the RRBSM Market – Research and Forecast

Seeking uncorrelated patterns to the general market conditions we conducted an analysis on the carriage of dry cargoes by sea in a niche market – the so called RRBSM Market. The RRBSM market encompasses the shallow draft southern ports of the Russian Federation, the West basin of the river system of the Russian Federation, the Black Sea, Marmara Sea and Mediterranean Sea ports.

The RRBSM market is a geographically restricted market of very intensive and dynamic business environment and practices. The key factors, influencing the development of the market are the strong economies of the coastal states and the existing economical and political measures, restricting the free trade. The cargo carried is determined by the trade patterns in the region and is driven by the production and consumption of commodities. The dry cargoes exported from the Russian Federation and Ukraine are mainly raw products - grain, fertilizers, steel products, coal, timber, etc. According to the USDA[11], EU, Turkey and the CIS[12] countries together account for 45% of the world's annual wheat exports and the Russian Federation is the fourth largest exporter of grain[13]. Ukraine is the world's traditional largest exporter of barley with 35% market share in the barley exports market. In parallel, the Middle East and North African countries are the world's biggest cereals importers, buying almost a quarter of all the cereals traded globally. All these countries are part of the RRBSM market, which determines the strategic location of the region and its impact on the global economy.

The supply of tonnage on the RRBSM market is largely influenced by the economic and political conditions in two of the coastal states – The Russian Federation and the Turkish Republic. A substantial part of the vessels are owned/controlled by old style Russian or Ukrainian shipping companies who are not sufficiently competitive in the newly established commercial environment. Many of them do not have adequate access to funding sources, even during favorable economic conditions. Therefore, they have not been able to implement adequate entry, renewal or development strategies to respond to the increasing needs of the demand on the market.

As a result of our initial analysis of the RRBSM market, we hypothesized that it offers an attractive investment opportunity inherent in the growing imbalance between supply and demand as opposed to the global trends observed on the drybulk shipping market. To prove our hypothesis we constructed a mathematical model to estimate the supply and demand for

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[11] USDA – United States Department of Agriculture

[12] CIS – Commonwealth of Independent States – a regional organization, whose participation countries are former Soviet Republics – Belarus, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan, Uzbekistan, Azerbaijan, Georgia, Moldova, Ukraine, Armenia and Turkmenistan

[13] USDA (United States Department of Agriculture) – "USDA Agricultural Projections: Global Agricultural Trade, 2010-2019", February 2010 (http://www.ers.usda.gov/briefing/baseline/trade.htm)

tonnage on the market and made projections for its development within the next 10 years. We based our methodology on a certain set of assumptions, statistics and research, published by specialized market and financial analysts.

The demand and supply for tonnage is measured in ton-miles. We determined the demand for tonnage on the RRBSM market by the weight of the cargo that needs to be carried and the distance over which it needs to be carried (the average haul between the loading and the discharging port). The future deadweight demand was projected, based on a regression analysis method using the regional GDP growth rate as the independent variable and the tonnage demand growth rate as the dependent variable. The linear relationship between the two variables was supported by a correlation analysis and significance tests, and was also proven by prior analysis by various scholars in maritime economics[14]. Based on the historical deadweight demand and the projected growth rates we estimated the projected future demand for tonnage on the RRBSM market.

We estimated the supply of tonnage, based on the currently available capacities, the new orders and the vessels taken out of trade. The average age of the vessels, currently operating on the market was estimated at 25 years. Typically they are expected to continue operations until they reach the age of 30 years. As of December 2010, 52% of the vessels were at the age 25+ years, where more than half of them were aged 30+ years. The technical condition of these old vessels affects negatively the efficiency of the whole logistics chain. After the age of 30 most of them become economically ineffective to trade and are phased out both by the supervising organizations and by the market players that prefer to charter less risky younger vessels.

The projected development of the supply-demand balance on the RRBSM market is presented in Exhibit 2.

Exhibit 2: Supply-demand balance on the RRBSM market (2010 – 2020)
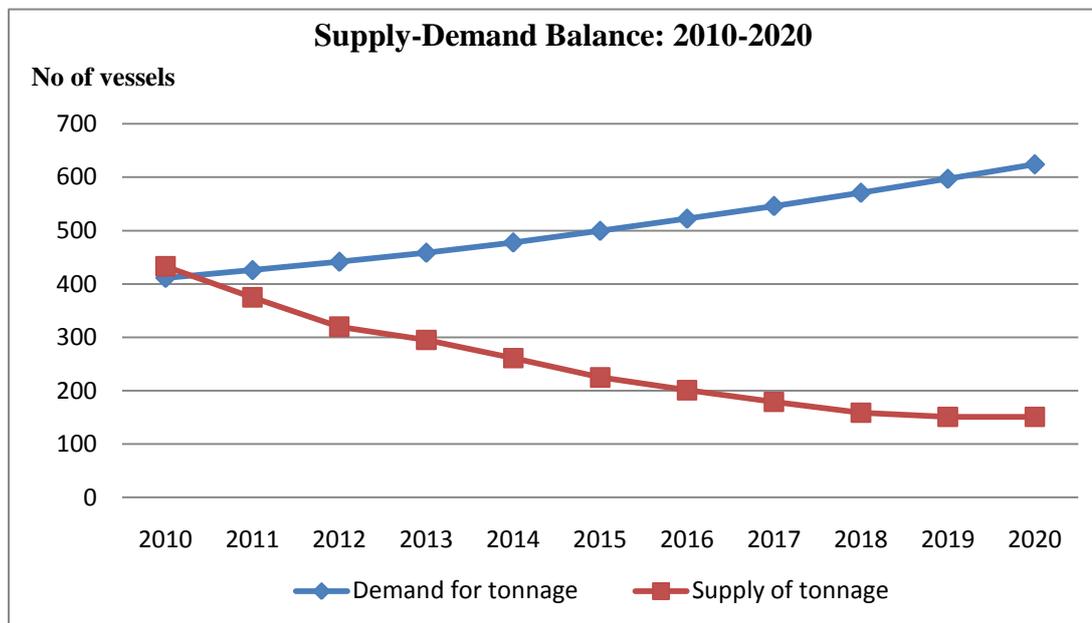
Source: MMC Research

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[14] Stopford, Martin (2009) Maritime Economics, 3rd Edition (London and New York: Routelidge)

The exhibit[15] demonstrates that a substantial shortage of supply of tonnage is observed in 2011 already. In line with the dynamics of the regional economies, the demand for tonnage is expected to further increase in the coming years. On the other hand, we expect that the current low level of supply of tonnage, the ageing of the fleet and the lack of adequate investment initiatives to meet the increasing needs of the market in the short to medium term will considerably widen the already observed mismatch. If no further actions are taken by the RRBSM market participants, this gap is projected to reach a deficit of 473 vessels in 2020[16].

4. Conclusions

Throughout our report, we investigate the specifics of the emerging markets and the infrastructure financing in particular. We consider the impact of the global financial crisis and the arising uncertainty in the public finance in USA and the Euro-zone. We examine the availability of project finance to meet sector investment needs within market constraints and risk taking susceptibility. We describe the unfavorable developments and the restricted access to project financing on a global market with crucial importance in the international trade flows – the drybulk shipping market.

We further conduct a research and economic forecast of a niche segment within the drybulk shipping industry, the RRBSM market. The latter, however, being geographically located within the boundaries of emerging economies, is highly dependent on their specifics. Our findings prove the existence of a trend for increasing gap between the two market forces – supply and demand, and the urgent need to invest in the construction of new capacities. These results directly contradict the global trends in the sector and reveal an attractive diversification investment opportunity with a superior risk-return profile.

As a conclusion, we believe that exploiting market discrepancies in certain niches in emerging markets may be a successful investment strategy and may lay as a counter strategy to the overall unattractiveness of the particular sector on a global basis. The identification of such niches requires the access to specialized knowledge, as well as further profound research of the inherent characteristics and risk-return profile of asset classes on the respective market. It should be noted, however, that our paper is an experience-based work and offers evidence on a separate case with all its specificity. It could be used as a good starting point for further academic research to be able to generalize and additionally elaborate on our conclusions.

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[15] All input data and projected were prepared as of December 2010.

[16] The supply projections are based on the currently initiated or announced investment programs of the players on the RRBSM market only, without trying to forecast further initiatives from existent competitors or potential entrants.

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