CHAPTER 28

SHIPPING FINANCE AND INTERNATIONAL CAPITAL MARKETS

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1. INTRODUCTION

This chapter discusses key issues in modern shipping finance and explores the growing role of global capital markets in fund-raising for investment projects of shipping firms. We critically assess the attractiveness and efficiency of international equity and bond markets in particular, as important ship financing mechanisms that offer funding opportunities distinctive from traditional bank lending.

The structure of the chapter is as follows. Section 1 discusses the financial decisions in shipping and the implications of the capital structure mix for the financial performance of the firm. The major phases in modern ship finance are summarised and the dynamic role of global capital markets in shipping finance is assessed. Section 2 examines in details the function of equity markets as a financing mechanism, discusses the pricing of equity issues, analyses the risk return and volatility profile of shipping stocks and concludes with a brief presentation of alternative hybrid financing instruments. Section 3 covers the role and functions of bond markets with a focus on shipping bond credit rating and probability of default. Section 4 contributes a note on the important issue of efficient corporate governance mechanisms, emphasising on implications for shipping firms. Section 5 concludes.

2. FINANCIAL DECISIONS IN SHIPPING

2.1 Strategic finance dynamics

An important shift has been seen recently in shipping finance instruments, as international capital markets, predominantly equity and bond markets, have gradually gained a growing share in fund-raising for shipping firms (Syriopoulos, 2007). The capital intensity and

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magnitude of shipping investments requires capital availability at reasonable cost, but also careful project selection, based on a solid capital budgeting framework (Cullinane and Panayides, 2000). In a highly dynamic and volatile business environment, modern shipping finance becomes highly sophisticated, innovative and complex.

Shipping is a cyclical industry with idiosyncratic characteristics, highly leveraged assets, active second hand market and an estimated average ROA at 10% (Veraros, 2008). Market timing is critical to shipping investment decisions that bear high levels of risk and uncertainty. The behavioural pattern of shipping business is related to a number of factors, including, predominantly, the derived nature of shipping demand being sensitive to economic growth and trade, cyclicality in freight rates and vessel prices, demand and supply imbalances and fragmented business structure. The issue of optimal capital structure mix and the appropriate funding method is critical for an industry that is capital intensive and its operation employs real assets (vessels) of high commercial value.

Strategic decision making in shipping firms gradually shifts from simple profit maximisation to corporate value enhancement. To attain this, shipping firms require a selection of investment plans that bear growth potential and produce positive returns higher than the respective cost of capital employed. Intensified competition and tighten margins in the shipping markets have led companies to constantly pursue managerial efficiency, operational flexibility, and robust financial liquidity. A shipping company can attain business growth by following either an internal or external course of development. Subject to freight market conditions, shipping firms can expand their fleet by building new assets or purchasing second hand vessels. On the other hand, mergers, acquisitions and strategic alliances can be an alternative external growth path. In any case, these corporate growth strategies, combined with replacement requirements of ageing fleets, require substantial capital funding and careful financial planning.

As shipping companies adjust to a dynamic and rapidly changing environment so do the financial methods and instruments available to funding their investments. Convenient, cheap and timely access to capital financing is a prerequisite for a flexible capital structure mix, competitiveness, undisturbed operation and sustainable growth, particularly for shipping business. Two broad approaches in fund raising can be distinguished: (1) self-sustained or internal funding, by own (shareholder) equity finance; and (2) external funding, by debt finance (borrowing). Increases in own equity are based on corporate profitability and robust retained earnings sufficient to finance prospective investment projects. This source of funding is directly affected by the dividend policy of the firm that defines profit share distribution to shareholders, albeit at the expense of potential reinvestment decisions. As to external financing, shipping firms can alternatively turn towards international capital markets in order to raise investment funding. Debt financing may come from bank lending of wide variety and sophistication (bank mortgages, leasing, mezzanine finance, securitisation). In fact, this has been the prevailing and dominant source of ship funding over the years. Alternatively, shipping firms can turn into international debt markets to issue corporate bond securities or commercial paper. Furthermore, global equity markets can enhance own equity funding by issues of Initial Public Offerings (IPOs) or Seasoned Equity Offerings (SEOs).

The role of capital markets is critical for the promotion of shipping business growth and the creation of corporate value, since capital markets perform the following fundamental functions. As 'primary' markets, capital markets act as intermediaries to provide the funds required to financing new investment projects and sustain business

growth. Fresh funds are channelled to firms in need through the issuance of securities. Furthermore, as 'secondary' markets, capital markets provide an efficient mechanism for valuation and trading of outstanding equity and bond securities. Growth potentials then of the underlying shipping firm (issuer) are reflected on the price movements of the issued securities, signalling investors' perception of the firm's value creation prospects.

Despite the marginal participation of international capital markets in ship finance for a number of years, some revitalisation was seen in public equity and bond issues more recently, in addition to dominant bank lending. However, the recent and still ongoing global financial crisis, escalated since mid-2008, may affect shipping firms' priorities as to their sources of capital funding. This is related to the fact that this unprecedented crisis and the induced economic recessionary phase directly involve the international banking system as a cause of the problem rather than simply as a victim of it. Combined with pressures imposed by a much more demanding disciplinary framework, such as the Basel II Accord and governmental supervisory constraints, bank lending is expected to become more careful, selective, conservative (relative to commercial risks undertaken) and, ultimately, scarce.

2.2 Capital structure and financial performance

A company can obtain long-term financing in the form of equity (issuing shares), debt (borrowing), retained profits or some combination. There is a fundamental distinction between equity and debt as sources of capital: equity refers to firm's own funding by its shareholders and shares correspond to ownership rights. Debt, on the other hand, implies a core liability the firm has to meet over a plausible time horizon. A fundamental financial decision then relates to which of the two major fund raising approaches or mix should the firm prefer to finance its investment projects. The relative proportion of debt, equity and other outstanding securities constitutes the firm's capital structure.

When corporations raise new funds from outside investors, they must choose which type of security to issue. The most common choice is financing through equity alone or through a combination of debt and equity. Whatever the firm's choice, it affects its weighted average cost of capital (WACC) and has critical implications for the firm's ROE and risk. The firm can attain growth and enhance corporate value only in case it undertakes investment projects that produce returns higher than their cost of capital funding. An incorrect financing decision may result in many forms of higher direct or indirect costs, such as higher cost of capital, lower stock price and lost growth opportunities, increased probability of bankruptcy, higher agency cost and possible wealth transfers from one group of investors to another.

The seminal Modigliani-Miller (MM) theorem on the 'capital structure irrelevance principle' has been the cornerstone of the firm's capital structure decisions in perfect markets (Modigliani and Miller, 1958). According to the MM theorem, in an efficient market that follows a certain price process (random walk), in the absence of taxes, bankruptcy costs and asymmetric information, the value of a firm is unaffected by how that firm is financed. It does not matter if the firm's capital is raised by issuing stock or selling debt or what the firm's dividend policy is. In other words, the market value of a firm is determined by its earning power and the risk of its underlying assets and is independent of the way it chooses to finance its investments or distribute dividends (Pagano, 2005). However, as a firm's debt increases, critics of the MM theorem argue, the risk of bankruptcy is ignored, though it can be substantial. Bankruptcy costs have

two components: (1) the probability of financial distress; and, (2) the costs that would be incurred given that financial distress occurs. This relates to the 'trade-off theory of leverage' in which firms trade off the benefits of debt financing (favourable corporate tax treatment) against higher interest rates and bankruptcy costs. In practice, managers often have better information than outside investors, implying asymmetric (and not symmetric) information effects. Financing decisions then indicate some signalling to market participants about the firm's prospects, according to 'signalling theory'. For instance, the announcement of a stock offering is generally taken as a signal that the firm's prospects, as seen by its management, are not bright. A firm with positive prospects would try to avoid selling stock and seek to raise new capital by other sources instead; a debt offering is then taken as a positive signal. Issuing stock emits a negative signal, potentially depressing the stock price (even if the firm's prospects are positive), so the firm should maintain a 'reserve borrowing capacity' to finance exceptional investment opportunities. This in turn implies that firms should, in normal times, use more equity and less debt than is suggested by the trade-off theory of leverage. However, the presence of flotation costs and asymmetric information may cause a firm to raise capital according to a 'pecking order'. In this case, a firm first raises capital internally by reinvesting its net income and selling its short-term marketable securities. When that supply of funds has been exhausted, the firm will issue debt and perhaps preferred stock. The firm will only issue common stock as a last resort.

To conclude, the optimal capital structure for the firm is that which maximises corporate market value (the firm's stock price). This generally calls for a debt ratio that is lower than the one that maximises expected earnings per share (EPS). As a brief illustration, Table 1 summarises the capital structure and financial performance of a diversified sample of shipping firms listed in the US equity markets (NYSE, NASDAQ), as they are depicted by the debt-equity ratio, Return on Equity (ROE) and Return on Assets (ROA). An anticipated, though striking, finding points to the extremely high debt/equity ratios for most of the shipping firms in the sample, albeit at diverging levels. This holds irrespective of the corresponding market segment and supports the view that shipping finance is heavily dependent on debt funding over time.

2.3 Major phases in modern shipping finance

During the last 30 years, international shipping markets have been moving through a volatile sequence of upward and downward swings but culminated in an extraordinary eight-year boom from 2001 to 2008. Over this period, daily earnings soared persistently from US $24,006 to US $50,000. Then, the global financial crisis and economic recession hit the world economy as well as the shipping markets. Freight earnings crashed down to a daily bottom of US $5,000 in (handymax) dry bulk markets before gradually adjust to US $8,500 by mid-2009, with many vessels though still earning less than operating costs. At the same time, the bulker fleet grew by a robust 10.8% rate and the balance in fundamentals worsened (Stopford, 2009, 2010). Diverging shipping demand and supply imbalances were already apparent in the 2007 figures, there were three times as many orders as deliveries (270 mln dwt vs 80 mln dwt). Recent market figures (end-2009) estimate the market value of a consolidated order book standing at around US $300 bn., a figure which raises scepticism as to the recovery horizon of the shipping business. This gloomy international environment has captured shipping companies into unfolding capital investment programmes, abrupt earnings decline

Table 1: Capital structure and financial performance of shipping firms

Shipping firm/ market segment	**Debt/equity (%)**			**ROE (%)**			**ROA (%)**		
	2006	**2007**	**2008**	**2006**	**2007**	**2008**	**2006**	**2007**	**2008**
Dry Bulk									
Diana Shipping Inc	41	18	36	17	17	29	12	14	21
Dryships Inc	159	129	278	13	46	–28	5	20	–7
Excel Maritime Carriers Ltd	72	106	231	10	21	–4	6	10	–1
Navios Maritime Holdings Inc	245	156	180	8	35	15	2	14	5
TBS International Plc	80	75	74	17	31	32	10	18	18
Tankers									
Frontline Ltd	587	744	474	77	128	100	11	15	17
General Maritime Corporation	18	10	265	22	21	19	18	19	5
Nordic American Tanker Shipping Ltd	31	20	3	11	7	15	8	5	15
Overseas Shipholding Group Inc	92	129	126	18	12	18	9	5	8
Teekay Corporation	206	292	394	10	2	–23	3	1	–5
Tsakos Energy Navigation Ltd	161	176	186	26	21	22	10	8	8
Containers									
Danaos Corporation	129	232	1191	18	34	53	8	10	4
Horizon Lines Inc	499	681	708	19	3	–31	3	0.3	–4
Seaspan Corporation	81	199	342	5	–1	–27	3	–0.4	–6
LPG									
Stealthgas Inc	95	58	100	11	7	9	6	5	5

Notes: The sample shipping firms are listed on the US equity markets (NYSE, NASDAQ) and bear diversified corporate characteristics in terms of size, value, specialisation, profitability, growth prospects and capital structure. Debt = Book value of (short + long-term) liabilities;
Equity = Book value of total stockholder equity; ROE = Return on Equity; ROA = Return on assets; Profits = Net income;
Assets = Book value of total assets.
Source: Company Financial Statements

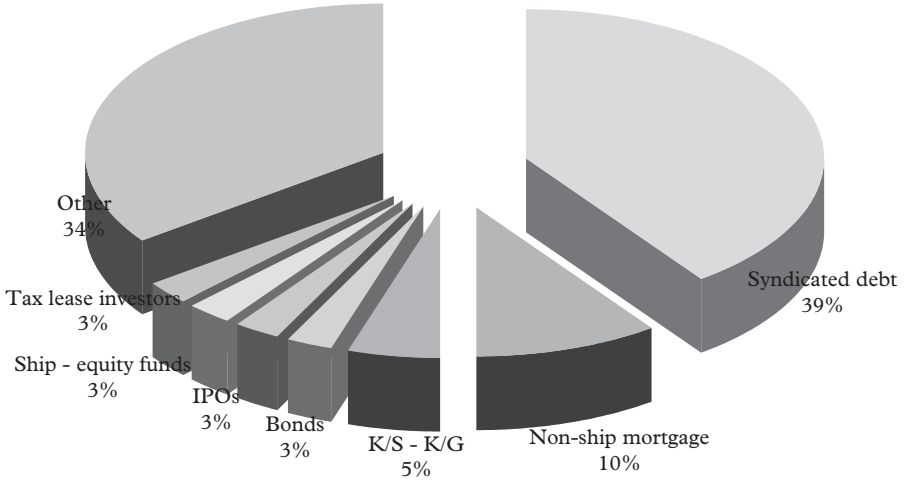
Table 2: Major phases of shipping finance

Period	Ship finance phase	Major characteristics	Shipping market environment
1945–mid-1950	Cash	Financing by retained earnings and cash liquidity – debt signalled weakness	Booming business
mid-1950–end-1960s	Charter back	Time-charter contracts collateral to bank finance; enhanced role of banks	Golden-age of growth; Up-swinging markets
early-1970s–start-1980s	Bubble	Ship vessel the favourable collateral to bank finance; extreme dwt overcapacity	Two oil crises; depression phase; market collapse; long-term impact
1980s–1990s	Distress	Extremely high default rates; extensive bank losses; disturbed relationships of banks vs. ship firms; reassessment of shipping risk	Profound demand–supply disequilibrium; business restructuring
1990s–2001	Convalescence	Reshaping of firms–bank relationships; further fund raising needs for shipping firms	Market consolidation; demand-supply convergence; gradual recovery; volatility
2002–2009	Super-cycle	Unique boom cycle; equity and bond markets attractive to shipping firms	Unprecedented earnings growth; the China factor; global financial crisis; overcapacity conditions

and excess tonnage capacity, with an ailing global banking system under restructuring (Clarkson Research Services, 2009). This in turn raises market concerns about the critical adjustments required in shipping firms' capital funding decisions and the most appropriate financing instruments for the time being.

The methods, instruments and characteristics of ship finance are seen to change over time, adjusting accordingly to the prevailing economic, market and sectoral conditions. Five major phases in modern ship finance can be distinguished during 1950–2000, according to Stopford (2002); we expand this framework to add a recent, sixth, ship finance phase (see Table 2). These phases have been closely associated with shifts in shipping market fundamentals, predominantly international trade and fleet growth.

Figure 1: Major sources of ship finance



Source: Lloyd's Shipping Economist (2005)

Furthermore, according to Lloyd's estimates, the contribution of major capital funding sources to shipping is seen to diverge substantially over time (Matthews, 2005). 'Debt financing', predominantly bank loans, continues accounting for the largest share of shipping finance. Over the last decade, the annual volume of syndicated debt gradually five-folded, from US $2 bn to over US $10 bn. A broad source of funding, termed 'other', corresponds to more than one-third of the pie and incorporates diversified financing instruments, such as bilateral loans, shipyard credit, governmental contributions and internal equity finance. International capital markets are seen to gradually gain an active role in shipping finance. The respective shares of global equity markets (IPOs) and debt markets (bond issues) are estimated at 2–3% each. The K/S partnerships in Norway and particularly the KG companies in Germany are also considered critical financing vehicles in shipping business. The remaining capital share is associated with a variety of funding sources (see Figure 1).

2.4 The dynamic role of capital markets in shipping

Following a period of fast and robust growth rates, shipping markets collapsed in the fourth quarter of 2008. Freight earnings evaporated abruptly, as the global financial crisis escalated. In an environment of severe adjustments in the banking sector, liquidity constraints and overcapacity conditions, shipping market players have been wondering what their next steps should be. Fundamental questions, as to whether to expand business operations, consolidate with a competitor or proceed to asset liquidation and exit the market, remain unanswered. These strategic decisions are examined against a consolidated order book of an estimated contract value exceeding $300 bn. (end-2009). This, nevertheless, remains an attractive capital pie for financiers, shipyards and brokers (Clarkson Research Services, 2009). In this setting of recessionary conditions, banking

restructuring and freight market swings, a key question remains where all this funding will come from. A convenient and timely response to the question of capital fund raising has critical implications for shipping firms' capital structure, cost of capital, cash flow liquidity, profitability and performance (ROA, ROE) and ultimately shareholder value. As has been invariably the case in past shipping market history, financial crises also imply entrepreneurial opportunities for prudent shipowners.

The shipping business consists of approximately 30,000 companies and is one of the most finance-intensive industries. Financing requirements per annum have been roughly estimated at US $80 bn. for funding only new buildings (Goulielmos and Psifia, 2006). Traditional bank lending dominates ship finance over time, although some decline in its share has been recorded more recently at around 65%, in favour of alternative forms of financing (Petropoulos, 2009). Shipping finance techniques and instruments become more innovative and synthetic. An increasing number of shipping companies is seen to gradually switch towards international capital markets, to finance their ambitious investment projects by equity funding (stock markets) or debt issuing (bonds markets). Traditional and modern ship finance instruments can be distinguished into three broad classes: (1) equity finance: public funding (IPOs); seasoned equity offerings (SEOs); retained earnings (operations and sales), private equity funding; (2) debt finance: bank lending (wide variety and sophistication), corporate bond issues, specialised financial institutions, shipyard finance, private debt finance; (3) alternative finance: lease, mezzanine finance, securitisation, hybrid finance (Syriopoulos, 2007).

The year 2005 was declared 'the year of the shipping IPOs', as 12 new shipping firms raised more than US $4 bn. in US equity market IPOs, most of them of Greek shipownership. In fact, from 2005–2007, Greek shipping companies alone raised total funds of about US $1.5 bn. in the US markets. The renaissance of shipping IPO market was confirmed by a tenfold increase in the funds raised by the industry, according to Lloyd's estimates. As market timing proved to be right, fund raising was further supported by freight rates sky-rocketed at record levels and international investors' appetite for 'fashionable' shipping stocks. Investors, after all, remain in constant search of attractive investment opportunities and alternative style investments (Bernstein, 1995). This trend underlines an important shift not only in shipping finance decisions and the capital structure of the firm but in the corporate governance front as well. Shipping companies, previously private, family owned and managed, introverted, with no disclosure constraints were now being transformed into publicly listed, extrovert, multi-shareholder entities with ownership dilution and extensive disclosure responsibilities (Syriopoulos and Theotokas, 2007). These issues have considerable implications for the growth prospects of shipping firms as well as for the risk-return profile of the listed shipping stocks and will directly affect shareholder value and investors' asset allocation decisions.

3. EQUITY MARKETS AND SHIPPING IPOS

3.1 Shipping firms discover equity markets

Despite the fact that bank lending continues dominating shipping finance, a gradual shift in shipping firms' funding attitudes has been apparent more recently in favour of international equity markets. This shift has been associated with the interactive impact of critical factors, including internationalisation and integration of global capital markets;

deficiencies and consolidation of major banking players; emphasis on capital adequacy and 'solvency ratios' by banks, shipping firms and investors; liquidity constraints and erosion of firm capital reserves; substantial funding requirements to replace ageing fleets; structural and cultural adjustment of shipping firms, partly induced by capital market requirements and investors' expectations; extrovert market approach and promotion of wider multi-shareholdership; market visibility and prestige towards institutional and private investors; emphasis on the concepts of corporate governance, social responsibility and business ethics.

Expanding on these issues, major advantages for shipping firms going public include: (i) access to capital markets that are not readily available to private companies; (ii) liquidity, at potentially higher valuations, if the company's fundamental are compelling enough to attract new investors; (iii) stock options as a means to attract and retain key personnel; (iv) opportunities for companies to utilise their stock to acquire other companies. However, the long-term attractiveness of international equity markets for shipping companies will only be sustained where case freight and equity market performance remains robust and corporate profitability is less volatile.

Until 2004, equity markets had played only a marginal role in shipping finance, despite their prime role as an investment funding mechanism. From an investor's point of view, historically, shipping stocks were not a particularly attractive choice for fund allocation but had a rather 'negative' reputation. This adverse attitude can partly be related to a series of shipping defaults in the 1990s, including, bank loans, high yield bonds and corporate bankruptcies. Other reasons include close family ownership ties, reluctance of shipowners to dilute company control, non-disclosure of sensitive company information and the unattractiveness of shipping stocks due to volatile earnings (Syriopoulos, 2007). Shipping companies only recently have discovered the virtues of public listing on international stock exchanges. The shipping IPO wave, during 2000–2007, has tackled investors' appetite, as the latter also discover the attractiveness of exchange traded shipping firms. This trend has been supported by booming freight rates and strong balance sheets in an environment of bullish stock markets. Steady growth rates in the US economy and high growth rates in the Chinese economy, particularly during 2003–2007, led the shipping sector into a unique growth super-cycle during 2001–2008, generating strong earnings and cash flows.

Shipping IPOs are distinct from those of ordinary industrial or service companies. The market value of a shipping company is often closely associated with the underlying value of the physical assets (vessels). In this respect, shipping IPOs bear similarities with the respective IPOs of closed-end funds and property firms. Furthermore, due to extensive information flows in international vessel sales and purchase markets, shipping IPOs tend to exhibit lower information asymmetry. Due to the cyclical nature of shipping business, shipping firms tend to prefer listing on the equity markets whenever shipping market prospects appear to be robust.

3.2 Leading equity markets in shipping IPOs

In the 1980s, the universe of publicly listed shipping stocks was small and London was the principal equity market for shipping stocks. Apart from London, shipping stocks were also listed in the New York stock market. In the 1990s, Oslo took the top position in Europe as the leading stock exchange for shipping IPOs. Due to market shifts, London has gradually lost its leading role in shipping IPOs, partly due to companies

going private or to mergers and acquisitions, such as the P&O acquisition by DP Ports World (Erdogan, 2005). In general, European equity markets have experienced declining trends in shipping market value from more than 1% in the early 1990s to 0.6% of total market value recently (Matthews, 2006). In the US equity markets, a series of de-mergers and spin-offs of shipping businesses led to the restructuring of the shipping sector. Shipping firms and investors have more recently switched towards a number of upcoming Asian stock markets that now attract shipping IPOs, including Hong Kong, Singapore, Bangkok and Taiwan.

The transportation sector, on aggregate, lags behind in global equity market values. The market capitalisation of global transportation companies increased substantially during the last 30 years. It reached a high of US $700 bn. corresponding to a share of total market capitalisation of above 4% (end of 1980s), before declining to below 2% (2006). As a comparison, the oil and gas sector and the financial sector account for nearly 20% and 15% of global stock market capitalisation, respectively (Matthews, 2006). Against an estimated 8–9% of GDP in OECD countries, the low market share in capitalisation indicates that transportation remains persistently neglected in international stock markets. The shipping sector, in particular, has also seen a marginal capitalisation share at about 0.4% of global equity market value; liner shipping covers the largest share (Matthews, 2006). Despite the recent IPO activity, this figure reflects low shipping market participation, taking into account that the shipping sector is estimated at about 2% of world GDP. Only a limited number of about 30 shipping firms have been estimated to bear a market value of above US $1 bn., with A.P. Moller-Maersk Group, a Danish shipping conglomerate, the only firm accounting for about 20% (around US $30 bn.) of total shipping stock market value globally (Syriopoulos, 2007).

More recently, the US stock markets have seen some revitalised IPO activity, attracting most shipping IPO issues and regaining their leading role as preferred equity markets to IPO launches. Oslo follows at a distance now, leaving London Stock Exchange behind. The US stock exchanges (NYSE, NASDAQ) jointly host the largest number of shipping firms and Oslo follows (Merikas *et al.*, 2009). Strong advantages of the US capital markets include fundraising depth, improved position in the investment community, improved share liquidity, reliable pricing, high corporate reputation and exposure to an international investor base. Based on Clarkson's data, there were about 170 shipping companies listed worldwide by 2006, corresponding to an estimated market value of US $210 bn., although pure shipping firms are only about half that number (Matthews, 2006). During the recent intensive IPO cycle (mid-2004 to end 2005), total shipping IPO value and secondary listings were estimated in excess of US $4 bn., whereas in the first half of 2006 alone, international shipping IPOs amounted to a value of more than US $100 bn. (Matthews, 2006).

Table 3 presents a summary of major shipping IPO issues per country and per stock market, during 1984–2007. Over this time span, the US equity markets (NYSE, NASDAQ) confirm their leading position, as they have seen the largest IPO number (55 issues). The Oslo Stock Exchange enjoys persistently high levels of shipping IPO activity and follows with 15 IPOs but the London Stock Exchange (LSE) ranks lower (6 IPOs). Of these sample IPOs, only 38 firms were listed before 2000; most of these IPOs have come into equity markets after 2000, supporting the shift of shipping firms towards global equity markets, as discussed earlier.

Taking into account the leading role of the US markets and the upward coming Asian markets, European stock markets may see further declines in shipping market

Table 3: Shipping IPOs in global equity markets: 1984–2007

Country of domicile	Number of issues	Stock Exchange (SE) of listing	Number of issues
Belgium	3	Brussels SE	2
Bermuda	7	Over-the-Counter	4
China	5	Shanghai SE	1
Denmark	6	Copenhagen SE	5
Finland	4	Helsinki SE	3
Germany	3	Berlin SE	4
Greece	29	Athens SE	6
Hong Kong	4	Hong Kong SE	5
India	6	Bombay SE	6
Norway	15	Oslo SE	15
Singapore	6	Singapore SE	7
Sweden	5	Stockholm SE	6
UK	4	London SE	6
USA	27	NYSE	30
USA	19	NASDAQ	25
Other	19	Other SEs	18
Total	*143*		*143*

Source: Adapted from Merikas *et al.* (2009)

value. Major reasons that explain the limited presence of the shipping sector in the European markets include the highly fragmented industry structure, the ownership structure (as founding families remain major shareholders), the large number of relatively small private companies, the decision of some public shipping companies to go private and the limited number of IPOs in Europe compared with the US.

3.3 Key issues in shipping IPOs

3.3.1 Models of IPO pricing

A company can be listed and traded on a Stock Exchange by issuing new shares. Whenever this share offering to investors takes place for the first time, it is known as an Initial Public Offering (IPO). The company 'goes public' and its shares can then be freely traded in the open equity market. The IPO price is the price at which the new shareholders buy the shares at issue. The initial return of an IPO relates to the difference between the equilibrium price following the issue and the IPO price. The IPO price is jointly decided by the underwriter and the listing firm at the end of the IPO procedure, according to financial analysts' valuations and the demand expressed for

the shares. The definitive offer price is generally lower than the first equilibrium price; this is well known under the term of 'IPO underpricing' (Ljungovist, 2005). The IPO motives, pricing, initial market appraisal and long-run performance have been the focus of a large theoretical and empirical financial literature.

Alternative theoretical approaches, such as the information asymmetry and signalling models or the life cycle and market-timing models, have been proposed to explain these issues (Ritter and Welch, 2002; Drobetz *et al.*, 2005; Derrien and Kecskes, 2007). The primary motive as to 'why do firms go public' relates to their decision to raise equity capital and to create a public market in which the founders and other shareholders can convert part of the corporate value they possess into cash at a future date. In addition, being the first in an industry to go public sometimes confers a first-mover advantage, whereas IPOs allow more ownership dispersion with relevant advantages and disadvantages. Furthermore, by going public, entrepreneurs help facilitate the acquisition of their company for a higher value than what they would earn from an outright sale (Brau *et al.*, 2002). Market timing is also important to IPO decisions. An IPO may be delayed, if a bear market phase can potentially result to a low firm value; whereas a bull market may offer more favourable pricing conditions (Lucas and McDonald, 1990). It has been also argued that larger companies and companies in industries with high market-to-book ratios are more likely to go public and that companies going public seem to have reduced their costs of credit. IPO activity is affected by investor sentiment and follows high investment and growth, not vice versa (Pagano *et al.*, 1998; Lowry, 2003). To recap, the evidence of large variation in the number of IPOs suggests that market conditions are the most important factor in the decision to go public. The other important factor seems to be the life cycle stage of the firm.

A large body of empirical studies documents a systematic price increase from the offer IPO price to the first-day closing price ('IPO underpricing puzzle'). Ritter and Welch (2002), for instance, study a sample of 6,249 IPOs from 1980–2001 and estimate an average 'first day' return of 18.8%. Approximately 70% of the IPOs end the first trading day at a closing price greater than the offer price. This pattern of underpriced IPOs is seen to apply in different firms, sectors, markets and countries. A possible justification of the IPO 'undepricing puzzle' relates to reasons of asymmetric information between market participants, as IPO issuers are expected to be more informed than investors. Better quality issuers deliberately sell their shares at a lower price than the market believes they are worth, which deters lower quality issuers from following. These issuers can recoup their initial value sacrifice post-IPO, either in future issuing activity, favourable market responses to future dividend announcements or analyst coverage. In line with a body of signalling models, firms demonstrate that they are high quality by throwing money away; one way to do this is to leave money on the table in the IPO. Empirical evidence indicated that the relationship between IPO price and underpricing may be U-shaped, whereas in contrast, post-IPO turnover may display an inverted U-shaped relation to IPO price (Fernando *et al.*, 2004). However, the conclusions produced on these issues remain rather mixed. Compared with the extended financial literature on a country level, the body of studies on individual sectors, especially shipping, remains thin.

The long-run stock price underperformance in the years after the IPO offering is another key topic of interest in IPO research ('IPO long-run underperformance puzzle'). Measuring long-run performance can focus either on absolute (raw) performance, or relative performance (abnormal returns vs market benchmark). Empirical evidence

indicates that IPOs underperform in the long run. A number of IPOs in the US, for instance, were seen to underperform significantly relative to non-issuing firms for three to five years after the listing date (Ritter, 1991; Loughran and Ritter, 1995). According to other estimates (Ritter and Welch, 2002), an investor who buys shares at the first-day closing price and holds them for an investment horizon of three years, would attaint IPO returns of 22.6%. However, compared to a market benchmark (CRSP value-weighted market index), the average IPO price underperforms by 23.4%. IPO long-run performance remains a controversial issue, sensitive to the empirical approach employed and directly dependent on the preferential theoretical stance of market efficiency or behavioural finance framework. Many studies have contributed international evidence on the long-term IPO underperformance consistent with what has been found for the US market, including Australia (Lee *et al.*, 1996); Japan (Cai and Wei, 1997); Sweden (Brounen and Eichholtz, 2002); Germany (Jaskiewicz *et al.*, 2005); United Kingdom (Goergen *et al.*, 2006); France and Greece (Chahine, 2008). In a pan-European study, evidence of long-run underperformance has been documented for a sample of 15 countries, indicating long-term abnormal returns in Europe to be negative (Gajewski and Gresse, 2006).

3.3.2 Shipping IPO pricing

Capital markets can play a key role in promoting shipping business growth and value creation. They may act as an intermediary mechanism to provide funds required to finance new investment projects and sustain business growth. Fresh funds can be channelled to shipping firms in need through the issuance of new securities by an IPO process. As secondary markets, capital markets provide an efficient mechanism for trading outstanding securities. Following IPO market listing and trading, a shipping company has the privilege to regularly return to stock market investors and request additional funding through seasoned equity offerings (SEOs).

Major factors that contribute to corporate value creation, as reflected on the firm's stock price upward behaviour, include, *inter alia*: robust fundamentals; efficient and well reputed management; high cash flows/earnings; realistic market valuations; M&A corporate stories; and growth potential. The positive behaviour of shipping stocks can be further enhanced by upward freight markets, bullish stock market trends and rich cash liquidity conditions. Nevertheless, private and institutional investors have remained sceptical for about shipping firms' stocks. This investors' attitude has been adversely affected by 'inward' family organisation, structure and management; ship-owners' reluctance to expand shareholder base; non-disclosure of critical corporate actions; low or no dividend yield; not-appealing risk-return trade-off; highly volatile freight markets, resulting to abnormal corporate earnings and highly risky investments.

A critical question relates to the motives driving shipping firms' shift towards listing on international equity markets. In the past, the strict requirements of transparency and disclosure that listed companies should meet was a constraint for many shipping firms, especially at volatile market times and earnings fluctuations. However, this is seen to gradually change. Equity markets appear now to be an attractive choice for firms with stable income flows and growth potential. With interest rates remaining at low levels, banking finance may still appear to be a cheap funding alternative. However, a number of shipping companies have decided to go public recently and raise funds quickly

(despite significant public listing costs), to take advantage of the robust freight markets and investors' positive sentiment towards shipping stocks. Still, a number of shipping firms have experienced substantial market value losses, since freight markers moved downwards amidst conditions of global financial crisis and economic recession.

These developments are anticipated to have an adverse impact on cautious investors' expectations, probably making it more difficult for shipping firms to raise financing from the equity markets in the near future. Good quality shipping IPOs can be successful, though there have been cases in the recent past that it was not always easy to sell shipping shares to investors. Despite the fact that investors' sentiment may not remain as positive as it was earlier, fair IPO pricing, backed by robust earnings cash flow streams and stable freight markets, can conclude to successful shipping IPOs. A critical advantage of shipping firms' listings is related to the fact that shipping is a real asset-backed business and certain risk levels can still be acceptable with some confidence by investors. The most risky bet appears to be on whether institutional and private investors will continue to consider shipping stocks as an attractive alternative 'style' investment class, hence, facilitating shipping firms' funding (Syriopoulos and Roumpis, 2009).

The pricing of IPO equity issues remain a central issue for shipping firms interested in raising equity funding in global stock markets. Since the majority of shipping IPOs refers to bulk shipping offerings, the issuer will set an IPO price at or near market-adjusted net asset value (NAV) per share. This is reasonable in cases where company earnings and cash flows fully support NAV (Stokes, 1997). In practice, however, ship prices in the second-hand market do not necessarily reflect operating cash flow and earnings generated by the ships. More frequently, ship prices represent a very high multiple of operating cash flow, whereas in certain bulk shipping segments operating earnings were negative for a number of years.

Equity financing can be an attractive source of capital for shipping companies, taking into account the relatively lower implied cost of capital against other sources of funding. This is related to the fact that shipping companies traditionally pay low or no dividend to investors and investors accept this practice, since, due to the capital intensive nature of shipping business, retained earnings are channelled to fleet replacement and expansion. On the other hand, investors' target of expected return on equity is set at high levels. Assuming that a shipping company can borrow at a spread over Libor (+1% to 2%), this can result to borrowing costs on senior debt of, say, 7%. Subordinate debt might cost 10–12% per annum, on a 10–year maturity. Investors, however, will typically seek a return on equity of 15–20% per annum, given the volatile freight markets and their risk exposure (Stokes, 1997). Taking into account that many shipping companies are rated below investment grade, it implies that they must attain return on equity well above average stock market returns to prevent their share price from declining.

The key role of equity markets in shipping business has been surprisingly neglected in past empirical research. A pioneer exception is Grammenos and Marcoulis (1996), who study shipping IPOs in a cross-country framework. A sample of 31 IPO cases is examined in seven different countries (US, Norway, Sweden, Greece, Luxembourg, Hong Kong and Singapore), over 1983–1995. Shipping companies with prime business on vessel operations are mainly considered and critical factors associated with shipping IPOs are investigated. As these companies grow bigger over time, they reorganize their structures and meet their capital needs in the stock markets more frequently.

Table 4: Shipping IPOs: Investment purpose – Funds raised: 1983–1995

Issue purpose	Number of offers	Avg. gross proceeds (USD mln.)	Avg. company size (USD mln.)
Vessel acquisition	19 (63%)	59	153
Asset play	7 (24%)	61	72
Debt repayment	3 (13%)	62	203
Trading activities	1 (3%)	48	152

Source: Grammenos and Marcoulis (1996).

Table 5: Shipping IPOs: Cross-country analysis

Stock market	Vessel acquisition	Asset play	Debt repayment	Trading activities
USA	2	6	2	–
Norway	8	–	1	1
Sweden	4	–	–	–
Greece	3	–	–	–
Luxembourg	–	1	–	–
Singapore	3	–	–	–
Hong Kong	–	–	–	–

Source: Grammenos and Marcoulis (1996)

The following important factors are evaluated as to their impact on shipping IPO stock market performance: gross proceeds of the IPO issue; size of the company; proportion of equity offered; gearing level; age of the company; and, age of the fleet. Gearing is argued to be the single most statistically significant factor in explaining IPO stock market performance. Furthermore, the average initial day return of the sample shipping IPOs is found to be consistent with past empirical evidence. Shipping IPO underpricing of small magnitude is concluded at about 5.32% on average. IPO costs are estimated at 8% of the amount raised with a high fixed cost component in average direct costs; the highest direct costs are seen in the US stock markets and the lowest in Norway. The purpose of the issue, the number of offers, the average proceeds, the average company size and the cross-country listings for these IPOs are summarized in Tables 4 and 5. Vessel acquisitions receive by far the highest part of IPO funding and asset play strategies follow at a distance.

Shipping companies with high pre-IPO gearing levels are seen to experience more underpricing of their share issues than the companies with low pre-IPO gearing levels. In the context of reorganisation strategy, shipping companies may have to lower their gearing level to minimise potential stock market underpricing. Furthermore, shipping companies that offer more equity to the public exhibit higher underpricing than those offering less equity. This is related to information signalling to market participants,

implying a kind of 'private' valuation by shipowners for the amount of equity retained. Risk averse shipowners would improve expected utility by holding a diversified portfolio and not only a large stake in their own firm. Since this argument does not seem to apply to the case of companies offering limited equity, it may signal that these shipowners are based on an implicit 'fair' firm value. In this case, shipowners of high value companies would prefer to forego diversification benefits but avoid selling undervalued stocks. As investors realise shipowners' positioning, they would be keen to invest on shipping stocks of companies where owners are retaining larger holdings.

The topic of IPO underpricing and long-term performance in global shipping issues has been the subject of a recent study (Merikas *et al.*, 2009), the key points of which we now summarise. The study investigates the short- and long-term price performance of 143 global shipping IPOs, listed during 1984–2007, in major stock exchanges; it also tests whether relevant theories can adequately explain their behavior in the aftermarket. The study calculates estimates of 'Buy-and-Hold Abnormal Returns' (BHARs) of the IPOs for six months and up to 36 months after listing on the stock market and 'Cumulative Average Returns' (CARs) on a three-year basis to better test the stability and the Fama-French 3-Factor model. The empirical findings indicate that shipping IPO underpricing stands at an average adjusted first day return of 17.7%. This underpricing is positively related to the age of the firm, the reputation of the stock exchange the IPO is listed on and the market conditions prevailing at the time the firm went public, whereas it is negatively related to the reputation of the underwriters. In the long run, shipping IPOs are seen to underperform after a five-month holding period. As to the long-run shipping IPO performance, when BHARs is taken as a benchmark, the empirical findings indicate that investors, who buy immediately after listing and hold shares for three years, will make a loss of –9.91%, –4.40% and –15.72%, after the first, second and third years of listing, respectively.

The study incorporates several variables to explain cross-sectional variations of shipping IPO underpricing. First, the history of the firm prior to going public is anticipated to exert a negative impact on IPO underpricing, since a short history before the IPO increases the risk to investors so that a larger underpricing is required. Secondly, the regulated market and the respective segment in which the shipping IPO is listed, since firms that are listed in the parallel market segment (small capitalisation – high growth) will have their shares underpriced in order to attract a large number of shareholders. Thirdly, the reputation of the underwriter is a 'quality', lower risk signal to the market and a banking syndicate or an established investment bank can attain a more efficient penetration to new shareholders. Empirical evidence indicates that underwriters proceed to stock price stabilisation during a short period of time after the IPO to avoid any issue failure (Rock, 1986). Furthermore, the mean long-term underperformance of firms introduced by more prestigious underwriters is found to be weaker (Ruud, 1993). Fourthly, the IPO size is argued to affect the post-IPO stock price reaction (Carter *et al.*, 1998; Stehle *et al.*, 2000). To gain a better insight on that, the sample was divided into four size categories. Fifthly, market conditions are also considered to be important for IPO price reaction. Empirical evidence indicates that the number of IPOs tends to increase in bullish markets because the placement of stocks is easier, the risk of failure for an IPO is lower and securities are priced higher, which softens the cost of initial underpricing (Helwege and Liang, 1999; Lowry, 2003). Furthermore, IPOs taking place in hot market conditions (robust investor interest for IPOs) are expected to yield larger returns in the first few trading days than IPOs made in a cold market.

Table 6: Shipping IPOs aftermarket performance: 1984–2007

Stock Exchange	6-months	12-month	24-months	36-months	Sample size
Athens	84.30	66.46	78.20	47.50	6
Bombay	–93.81	–97.73	–116.86	–134.05	6
Copenhagen	–43.15	–56.03	–75.98	–93.15	5
NASDAQ	7.97	16.98	28.79	13.85	25
NYSE	17.23	8.21	21.94	5.55	30
Oslo	–93.74	–98.63	–99.29	–103.56	15
Singapore	–33.98	–3.24	18.88	–16.05	7
Stockholm	–84.76	–90.31	–95.51	–96.64	6
Others	0.89	2.60	8.16	5.10	43

Source: adapted from Merikas *et al.* (2009)

Subsequently, IPO prices in a hot market reverse as a result of adjustments in investors' perception that excessive optimism may have been attributed to the new IPO issues (overvaluation) under hot market conditions. The average number of shipping IPOs per year in the sample under study indicates only two shipping IPOs per year over 1984–1987; around three shipping IPOs per year over 1988–1997; and, an average of 11.1 shipping IPOS per year over 1998–2007, rendering this decade a hot shipping IPO market globally. Finally, the reputation of the stock exchange where the IPOs are listed is considered to be an important factor in explaining IPO underpricing. For that, shipping IPOs are classified into two major groups: (a) IPO listings on the main global stock markets (NYSE, NASDAQ and LSE), to reflect strict listing requirement implications; and (b) IPO listings on other stock exchanges. A summary of the empirical findings is presented in Table 6.

Long-term performance estimates of shipping IPOs are produced by calculating returns over a three-year investment horizon. According to the 'buy-and-hold' trading strategy employed, each IPO is bought at the end of the first day of trading and is sold at the end of the first, second and third year of trading. The same amount of invested funds is allocated on every IPO (equally-weighted long-term returns). Table 7 reports the average BHARs of the global shipping IPO sample listed during 1984–2007 and summarises adjusted returns based on the listing price of the new issues.

3.3.3 Shipping stock returns, risk and volatility

The cyclical and highly volatile behaviour of shipping business and corporate earnings has been an issue of great concern for shipowners, bankers, charterers and investors and has raised an adverse sentiment against asset allocation to shipping stocks (Syriopoulos and Roumpis, 2009). The various forms of risks in shipping business can be broadly grouped into the following major classes: business risk; liquidity risk; default risk; financial risk; credit risk; market risk; political risk; and, technical and physical risk (Syriopoulos, 2007).

Table 7: BAHR for global shipping IPOs: 1984–2007

Return of	Mean return (%)	Standard deviation (%)	Number of observations	Median (%)	Minimum return (%)	Maximum return (%)
1st day	17.69	32.01	143	8.69	–25.56	201.45
6 months	–13.52	68.74	143	–6.74	–139.60	215.38
12 months	–9.91	81.76	141	–16.86	–139.02	311.78
24 months	–4.40	95.55	134	–15.76	–154.13	343.85
36 months	–15.72	104.48	127	–27.85	–220.79	309.78

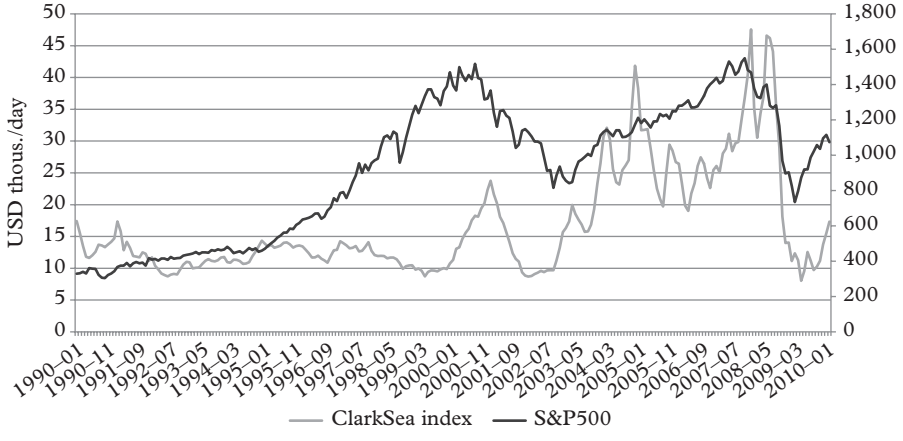
Notes: Figures refer to excess or adjusted returns based on the listing price.
Source: adapted from Merikas *et al.* (2009).

Empirical work on shipping market behaviour remains limited in number and scope. More recently, few empirical studies have investigated the relationship between shipping business and stock markets from different perspectives. These include, *inter alia*, the performance of shipping stocks in the international equity markets; the identification of key risk-return characteristics in shipping stocks; and, the dynamic management of shipping equity portfolios. Other studies investigate certain aspects of shipping volatility patterns; validity of the efficient market hypothesis; and, risk-return comparisons with complementary or substitute transportation sectors (Kavussanos, 1997, 2003; Kavussanos *et al.*, 2003; Gong, 2003; Tvedt, 2003; Mulligan and Lombardo, 2004; Chen and Wang, 2004; Syriopoulos and Roumpis, 2006; Syriopoulos *et al.*, 2006; Andriosopoulos *et al.*, 2009). These studies follow a market or even a route-disaggregated approach to investigate volatility behaviour in dry bulk, tanker and container market segments. The empirical findings indicate that shipowners can diversify business risks by holding portfolios of ships of different size; switching between contracts of different duration; and, hedging with forward freight contracts; vessels of small and medium size were found to show relatively lower volatility compared with larger size vessels. Furthermore, the impact of trading volume (activity) on vessel price changes is assessed, since trading volume can contribute useful information to a market where real assets are traded.

The macroeconomic environment can exert a significant impact on shipping stock returns, according to Grammenos and Arkoulis (2002), who study a sample of 36 shipping companies, listed in 10 stock exchanges worldwide, during 1989:12–1998:3. The model employs returns on a world equity market portfolio as the dependent variable in the following pre-specified set of global macroeconomic variables: (a) industrial production; (b) inflation; (c) oil prices; (d) exchange rate fluctuations against the US dollar; and (e) laid up tonnage. Empirical evidence indicates several significant relationships between returns of international shipping stocks and global risk factors. Oil prices and laid up tonnage are found to be negatively related to shipping stocks, whereas the exchange rate variable to display a positive relationship. These macroeconomic factors are seen to exhibit consistent interrelationship patterns in the way they are linked to the shipping industry worldwide.

The dynamic asset allocation and active management of shipping stock portfolios has been the core objective in Syriopoulos and Roumpis (2009). Alternative dynamic

Figure 2: Shipping markets vs equity markets



volatility models investigate the risk and return characteristics of a carefully selected portfolio of shipping stocks, in order to gain some insight on potential asset allocation opportunities. As private and institutional investors are in search of alternative style investments, the assessment of stock volatility is a critical issue for efficient asset allocation, dynamic portfolio management and firm valuation. Shipping stock portfolio returns are compared against representative stock market indices, since a key issue to portfolio investors remains whether shipping stock picking can potentially lead to superior stock returns relative to the market portfolio. Shipping stock selection may then be considered as an investment style that can add value to other styles such as value, growth, technology or emerging markets. According to the empirical findings, shipping stock returns exhibit a highly volatile profile, in accordance with corresponding (tanker and dry bulk) earnings. Sectoral and company fundamentals may affect shipping stock volatility that is found to be sensitive to asymmetric shocks. The results indicate superior portfolio returns for shipping stock portfolios relative to market benchmarks, albeit associated with higher risk levels (Figure 2).

As the shipping industry is exceptionally capital intensive, volatile and highly risky, alternative risk management approaches have been proposed to control for shipping risk (Kavoussanos and Visvikis, 2006; Alizadeh and Nomikos, 2009). To hedge against underlying risks, predominantly freight rate volatility, shipping market participants have gradually turned their attention into specialized derivatives products, particularly freight forward agreements (FFAs) and freight options. The freight derivatives market has grown rapidly in recent years and traded volumes have more than quadrupled since 2000 (Syriopoulos, 2007).

3.4 Alternative hybrid finance instruments

A number of innovative alternative methods have been employed more recently in ship finance, to take advantage of the benefits equity markets offer. We briefly discuss these methods that shipping firms use to go public and have been well received by the capital

markets. These are: (a) merger with a Specified Purpose Acquisition Company (SPAC); (b) the combination of reverse merging into a publicly traded corporation and funding through a Private Investment in a Public Equity (PIPE); (c) private equity funding; (d) mezzanine finance; and, (e) 'At-The-Market' (ATM) offerings. These financing options of accessing capital and going public are good examples of the creativity of the shipping business community when presented with funding challenges.

3.4.1 SPACs – PIPEs

A recent approach to financing a shipping firm is merging with a Specified Purpose Acquisition Company (SPAC). A SPAC is a newly formed industry-specific publicly traded buyout/venture capital fund. The purpose of the SPAC is to acquire an operating business in a specified industry, in this case shipping. The SPAC is managed by highly experienced management teams and advisors who are recognised leaders in their field. Performance results have been mixed for those SPACs that have announced or have completed deals.

An alternative method is the combination of reverse merging into a publicly traded corporation and funding through a PIPE. In essence, a reverse merger is a transaction in which a private company becomes public through a combination with an existing public company, with the private company ending up in control of the combined entity. More often than not, the public entity in a reverse merger is a 'shell' company, with neither operating business nor assets. Potential advantages of a reverse merger include: (i) ability to complete the transaction without engaging an underwriter, thus reducing overall costs; (ii) avoidance of IPO process rigors, including long road shows; (iii) less vulnerable than an IPO to the vicissitudes of the public markets and risk of being unsuccessful; and, (iv) the ability to complete the transaction in a shorter time, provided the private company has audited financial statements and other required information available at the time of the transaction.

In the past, reverse merging into a public vehicle often resulted into a company only achieving one thing: increasing its legal and accounting expenses. Today, however, with the advent of PIPE financing, this has changed for many well-represented companies. The turbulent public markets of the last years have resulted to increased interest by private investors in PIPE transactions. PIPE investors purchase securities directly from a publicly traded company in a private placement transaction, typically at a discount to the market price of the company's common stock. This private sale of securities is often not pre-registered with the SEC; as a result these securities are 'restricted' and cannot be immediately resold by the investors into the public markets. Accordingly, the company will agree as part of the PIPE deal to promptly register the securities with the SEC. Thus, the PIPE transaction can offer the company the speed and predictability of a private placement, while providing investors with a nearly-liquid security at a discount from the current trading price.

3.4.2 Private equity funding

Private equity funding activity has been recently seen in shipping finance. Private equity funding is equity capital that is not quoted on a public exchange and can be considered to have a complementary, yet independent, financing function to equity markets. Private equity consists of funding by private investors and funds that make investments

directly into private companies or conduct buyouts of public companies that result in a delisting of public equity.

Capital for private equity is raised from retail and institutional investors and can be used to fund new technologies, expand working capital within an owned company, make acquisitions or strengthen the balance sheet. The majority of private equity consists of institutional investors and accredited investors who can commit large sums of funding for long periods of time. Private equity investments often demand long holding periods to allow for a turnaround of a distressed company or a liquidity event such as an IPO or sale to a public company. The size of the private equity market has grown steadily since the 1970s. Private equity firms will sometimes pool funds together to take very large public companies private. Many private equity firms conduct what are known as leveraged buyouts (LBOs), where large amounts of debt are issued to fund a large purchase. Private equity firms will then try to improve the financial results and prospects of the company in the hope of reselling the company to another firm or cashing out via an IPO.

Private equity firms are seen to exhibit growing interest in shipping companies, as they are searching for new industries to invest and are backed by strong capital liquidity. In contrast to other sectors, the penetration of private equity funding in shipping remains at modest levels in the US, although it is anticipated to have potential for further increase. Since shipping business is an international activity, private equity firms seek to have a regionally dispersed presence worldwide. Private equity firms offer advisory and arranger services in diversified and innovative shipping finance structures, including US finance, UK tax leases and KG finance. A core objective for private equity firms remains whether their financial support to shipping companies results to enhancing the firm's corporate value. Part of the increasing attention paid to private equity finance is supported by the fact that investors are better informed and more diligent on fund investing relative to IPO investors. As investors' interest in listed shipping stocks is seen to slowdown and shipping companies become more experienced in the use of capital markets, private equity funds can take advantage of new financing opportunities.

In spite of the high risk element seen in shipping investment returns, private equity funds have already financed a number of shipping companies, including, inter alia, Quintana, Eagle Bulk, US Shipping and Horizon (Syriopoulos, 2007). Still, a growing number of private equity funds are active in raising capital to shipping finance. AMA Capital Partners, for instance, has raised funding at US $100 mn. to finance marine and rail transportation projects. Earlier funding (2000), at US $45 mn., raised jointly with fund partners NIB Capital and GATX, was used to acquire ships and succeeded in attaining a net IRR above 20% for its shareholders (Matthews, 2005). A number of US private equity firms (such as Carlyle, Wexford Capital, Castle Harlan, Stockwell Fund, Blackstone Group, and Sterling Investment Partners) have been involved in shipping finance. Navigation Finance Corporation (NFC), for instance, a joint venture between DVB Bank and Northern Navigation, entered into a US $181 mn. sale-and lease-back deal with Singapore based offshore vessel operator Ezra Holdings (McGroarty, 2006).

3.4.3 Mezzanine finance

Mezzanine finance is a hybrid of equity and debt financing. It is typically used to finance the expansion of existing companies and has been also employed in shipping business

as an alternative vehicle of finance (Harwood, 2006). Mezzanine finance is basically debt capital that gives the lender the rights to convert to an ownership or equity interest in the company, if the loan is not paid back in time and in full. It is generally subordinated to debt provided by senior lenders, such as banks and venture capital companies. Since mezzanine finance is usually provided to the borrower in short time with limited due diligence on the part of the lender and limited or no collateral on the part of the borrower, this type of financing is aggressively priced with the lender targeting a return at an estimated range of 20–30%.

Mezzanine financing is advantageous because it is treated like equity on a company's balance sheet and that may make it easier for the firm to obtain standard bank lending. To attract mezzanine financing, a company usually must demonstrate a track record in the industry with an established reputation and product, a history of profitability and a viable expansion plan for the business (e.g. expansions, acquisitions, IPO).

3.4.4 ATM offerings

An at-the-market (ATMs) offering refers to securities offered on a continuous or delayed basis in the future, at a price that is not fixed at the time of registration. They are one of the latest techniques in financial engineering to raise capital in bad markets. They are also known as 'dribble programmes' or 'controlled equity offerings' and allow the issuer to 'dribble out' a share offering, when market or price conditions are more favourable. This is in contrast to a conventional secondary offering that takes place all at once. Hence, the issuer gains flexibility to set a floor below which will not sell and can seek best prices over time; or, the issuer can stop selling ATM shares. Apart from banks, other corporations that have found ATM offerings preferable recently include Delta Airlines, Carnival Corporation, UAL Corporation and the Ford Motor Company.

Ailing publicly listed shipping companies are also seen to employ this technique to raise capital and recapitalise their impaired balance sheets (Majarian, 2010). When a shipping company is interested in selling a large trance of shares in unfavourable equity market conditions, it will be extremely difficult to attract investors' attention. Under these circumstances, institutional investors would make a placement only in case they can acquire a percentage of shares at a substantially discounted price. However, these offerings, when used to pay down debt and recapitalise, are highly dilutive. The firm's longer-term prospects and the prospects of the freight markets are important for investors' allocation decisions. Because the trading process is blind, investors do not really know whether they are buying existing shares or new shares being marketed by an underwriter. With no pressure to complete an issue within a tight time-framework, companies can proceed at their own pace and, ideally, have some control over what price the shares are sold at over weeks or months. At a recessionary market phase, many publicly listed companies (especially in the dry bulk sector) are under pressure to pay down debt in conformance to their debt/asset coverage covenants. Whether an ATM offering targets additional funding to repay debt is an important issue for investors to evaluate. According to market experts, increased trading volumes seen at times in a number of listed shipping companies may have been boosted by ATM share offerings rather than primary trading activity (Majarian, 2010).

4. SHIPPING BONDS AND YIELD RISKS

4.1 The shipping bond market

A major alternative source of capital to fund shipping investments is debt finance, especially by issuing bond securities. This is a funding choice distinctive from equity finance, bears certain merits but is also associated with risks. Traditionally, financing shipping projects with bond issues has not been a prime choice for shipowners, as low interest rates have supported banking finance; furthermore, shipping IPOs have attracted substantial funding in the international capital markets recently. This section overviews the high yield bond market for shipping companies, as this capital market segment has also experienced some revitalised activity.

One important distinction of bond markets refers to that of primary and secondary bond markets. The primary bond market is the market where a new bond issue is initially offered to investors for the first time. The secondary market, refers to the market where a bond issue, following its initial offering (in the primary market), is already traded, driven by demand and supply forces. However, as liquidity in shipping bond issues has proven to be historically low in the secondary market and trading in a large sum has been difficult, shipping companies rely predominantly on the primary market. According to their credit rating grade – that signals lower or higher default risk – bonds can be broadly rated as of 'investment grade' or 'high yield' bonds (HYB). Due to their highly risky profile, many shipping bonds have been graded as 'high yield' bonds (speculative bonds).

Past empirical research on shipping debt and high yield bonds remains surprisingly thin. A pioneer exception is Grammenos and Arkoulis (2003), who examine significant determinants affecting primary pricing of new shipping high yield bond offerings in the US, during 1993–1998. Based on the empirical framework of Fridson and Garman (1998), the study investigates the impact of key factors on shipping high yield bond spreads, such as credit rating, callability, term (years to maturity), float (issue amount), default rate, security, gearing, fleet age, market conditions (laid-up tonnage), and, 144a status. Primary pricing refers to the determination of spread of the new high yield bond offerings. The spread is defined as the difference between the yield to maturity on a coupon-paying corporate bond and the yield to maturity on a coupon-paying government bond of the same maturity.

In a background of low interest rates over the past years, HYB markets have played a peripheral only role in shipping finance until recently, when this capital market segment attracted anew the interest of shipping companies and international investors. The first high yield bond in shipping was issued in 1992 by Sea Containers, targeting an amount of US $125 mn. in subordinated debentures. During 1992–2005, more than 60 shipping issues have taken place in the US HYB market alone (Table 8). Total funding in this speculative grade bond segment have come up to US $10.1 bn. with an average coupon of 9.73% and an average term to maturity of 9.5 years (Grammenos *et al.*, 2008). The years 1993 (9 issues), 1997 (9 issues), 1998 (17 issues), 2003 (10 issues) and 2004 (5 issues) have shown intensive activity in shipping bonds. This translates into a total of 50 shipping high yield bonds and corresponds to 82% of the overall issues during 1992–2005. During 2003–2005 alone, 16 new shipping bond issues have come into play, pointing to a robustly revitalised interest of shipping firms in bond market financing. Major reasons that led to this exceptional activity in the revitalised HYB market in shipping include the relatively modest interest rate levels (1993);

Table 8: Shipping high yield bonds

Year	No. of Issues	Total Float (USD mln.)	Average Float (USD mln.)	Average Coupon (%)	Average Term (years)	S&P Average Rating
1992	1	125	125	12.50	12.00	BB–
1993	9	1,235	137.2	9.13	10.77	BB
1994	1	175	175	11.25	10.00	BB+
1995	1	175	175	10.50	10.00	BB
1996	3	490	163.3	9.61	9.61	BB–
1997	9	1,190	132.2	10.39	8.44	B+
1998	17	2,738	161.1	10.11	9.41	B+
1999	1	115	115	10.75	7.00	BB–
2000	0	–	–	–	–	–
2001	1	250	250	8.80	10.00	BB–
2002	2	400	200	10.00	10.00	BB
2003	10	2,196.6	219.6	9.18	8.50	BB–
2004	5	843	168.6	8.35	12.00	BB–
2005	1	200	200	9.50	10.00	B–
Total	61	10,132.6	166.1	9.72	9.53	BB–

Source: Grammenos *et al.* (2008)

replacement needs of ageing fleets, backed with high gearing (1998); and a particularly positive performance of shipping and bond markets (2003–2005).

However, international investors remain sceptical towards shipping firms' bond issues in the HYB market, due to a range of concerns. Cyclicality, volatility and high leverage may jeopardise shipping companies' expected cash flows, especially in economic recessions. These conditions can further result to deterioration of corporate credit quality and increase the probability of default of shipping bonds. Financial crises and economic shocks exert a critical adverse impact on the shipping markets, as did, particularly, the Asian financial crisis and the Russian economic upheaval, during 1997–1998. The deterioration in global terms of trade affects mostly the shipping firms that are exposed to high gearing and operate mainly in the spot market, resulting to problematic servicing of high debt.

The adverse reputation of shipping bonds has worsened further by a series of defaults and bankruptcies seen in the sector during the 1990s. In the past, depressed market conditions hit shipping markets and led to dramatic declines in freight rates and vessel prices in most market segments. As a consequence, several shipping companies proceeded to default on their high yield bond issues. In 1999, for instance, ten shipping firms defaulted on their high yield debt issues. This negative performance overshot shipping bond default rates up at 38% against a corresponding figure of 1.28% for

Table 9: Bond rating standards

Moody's	S & P's	Characteristics	Comment	Class
Aaa	AAA	highest grade	maximum safety	*Investment grade*
Aa	AA	high grade	slightly lower standards	
A	A	upper medium	favorable but possible future problems	
Baa	BBB	medium grade	moderate security and protection	
Ba	BB	moderate protection	contain speculative elements	*Speculative*
B	B	potentially undesirable	low assurance of future payments	*'High Yield'*
Caa	CCC	danger of default	dangerous elements present	*or 'Junk' Bonds*
Ca	CC	likely in or to default	highly speculative	
CC	C	lowest class	extremely poor prospects	
C	D	bottom most grade	unlikely to attain any standing	
NR	NR	not ranked	no evaluation available	

Source: Fabozzi (2009)

overall public debt default rates (Grammenos *et al.*, 2008). Shipping industry issuers have been estimated to represent less than 0.5% of the overall public debt by issuer outstanding (January 2000). However, total shipping industry defaults reached nearly 9% of all defaults by issuer in 1999.

4.2 Shipping bond credit rating

4.2.1 Bond rating grades

Credit rating is a critical issue in fund raising through bond issues and we now discuss this topic briefly. Since the early 1900s, bonds have been assigned quality ratings that reflect their probability of going into default. The major US rating agencies are Moody's Investors Services (Moody's), Standard & Poor's Corporation (S&P), Fitch Investors Service (Fitch) and Duff & Phelps.

Bonds are rated either as of 'investment' or 'non-investment' grade (termed 'high yield' or 'junk' bonds). This distinction is based on the credit ratings these bonds receive from the rating agencies. Bonds rated in the range of Aaa/AAA (Moody's/S&P's) to Baa/BBB (Moody's/S&P's) are considered as 'investment grade'. Any bonds rated B (Moody's/S&P's) or below are included in the 'high yield' class (Table 9). Adjustments

Table 10: Bond rating criteria: Financial ratios (median)

Ratios (%)	AAA	AA	A	BBB	BB	B	CCC
EBIT interest coverage	23.8	19.5	8.0	4.7	2.5	1.2	0.4
EBITDA interest coverage	25.3	24.6	10.2	6.5	3.5	1.9	0.9
Funds from operations / Total debt	203.3	79.9	48.0	35.9	22.4	11.5	5.0
Free operating cash flow / Total debt	127.6	44.5	25.0	17.3	8.3	2.8	–2.1
Total debt/EBITDA	0.4	0.9	1.6	2.2	3.5	5.3	7.9
Return on capital	27.6	27.0	17.5	13.4	11.3	8.7	3.2
Total debt/Total capital	12.4	28.3	37.5	42.5	53.7	75.9	113.5

Source: Standard & Poor's (2009)

can be made within a rating category by adding a + or – (Moody's) or 1, 2 and 3 (S&P's) to indicate a higher or lower issue in its class.

4.2.2 Key factors to bond credit rating

Bond ratings are based on a number of both qualitative and quantitative factors, the most important of which are now briefly discussed: financial ratios (including debt ratio and EBIDTA coverage ratio); mortgage provisions (bond security by collateral); subordination provisions (bond subordination to other debt); guarantee provisions (guaranteed by third party); sinking fund (to ensure systematic repayment); maturity (longer maturity–higher risk profile); stability (in sales and earnings); regulation (regulated or not issuer and implications); antitrust (actions pending against issuer); overseas operations (overseas percentage of operations and earnings); environmental factors (heavy expenditures for pollution control); product liabilities (product safety); pension liabilities (unfunded pension exposures); labour unrest (labour tensions and problems); accounting policies (conservative approaches).

A strong correlation is apparent between high bond ratings and sound financial performance (predominantly relating to liquidity, operational profitability, debt exposure and debt servicing capability; Table 10). Plausibly, companies with lower debt ratios, higher cash flow to debt, higher returns on capital, higher EBITDA interest coverage ratios and EBIT interest coverage ratios typically gain higher bond ratings. In general, credit rating agencies take into account sovereign/macroeconomic issues, industry outlook, management quality, operating position, financial position, company structure, and, issue structure.

Market participants pay particular attention to bond ratings as a key factor that affects rate spreads and bond value. Since bond rating indicates competitive credit risk of any two investments within the group of rated instruments, rating also can support forecasts of probability of default. It is considered as an indicator of investors' protection in case a bond issuer faces adverse long-term economic conditions. To evaluate shipping bonds, credit rating takes into account a number of specific issues, including

Table 11: Bond spreads and ratings

	Spread above a:			
Long-term bonds	**Yield (%)**	**T-Bond (%)**	**AAA (%)**	**BBB (%)**
Investment grade				
US Treasury	5.08			
AAA	5.52	0.44		
AA	5.83	0.75	0.31	
A	6.18	1.10	0.66	
BBB	6.52	1.44	1.00	
High yield (junk) bonds				
BB	7.23	2.15	1.71	0.71
B	7.70	2.62	2.18	1.18
CCC	8.68	3.60	3.16	2.16

Source: Ehrhardt and Brigham (2009)

the impact of cyclicality and volatility on shipping markets; the uncertainty about the future direction of freight rates; the shipping business allocation into spot or chartered markets; the ability of the issuing shipping companies to attain sustainable future cash flows; and the issuer's vulnerability to economic cycles and implications for interest and principal payment (Standard and Poor's, 2009).

4.3 Spread determinants in shipping bonds

Bond ratings are important both to firms and to investors. Most bonds are purchased by institutional investors rather than individuals; many institutions are restricted to investment-grade securities. If a firm's bonds fall below BBB, it will be rather difficult to sell new bonds because many potential investors will not proceed to buy them. Furthermore, a number of bonds incorporate covenants stipulating that the coupon rate on the bond is to automatically increase, in case the rating falls below a specified level. In addition, because a bond rating is an indicator of its default risk, the rating has a direct, measurable influence on the bond's yield. Changes in a firm's bond rating affect the default risk premium on its debt, the ability of the firm to borrow long-term capital and the firm's cost of capital.

Table 11 indicates that yields increase monotonically as ratings become lower. In other words, investors demand higher required rates of return as a bond's risk increases. It is interesting that the AAA spread is only marginally (0.44%) above a Treasury-bond (T-bond), indicating that the two bonds are very similar except with respect to default risk and liquidity. Because AAA bonds often have good liquidity, this spread is an estimate of the default risk premium for AAA bonds. The spread between a bond and a T-bond of a similar maturity is often used as an approximation of the default risk for the bond. Based on that, it would be reasonable to estimate the default risk premium for a BBB bond at about 1.44%. The analysis of bond spreads could also take place between

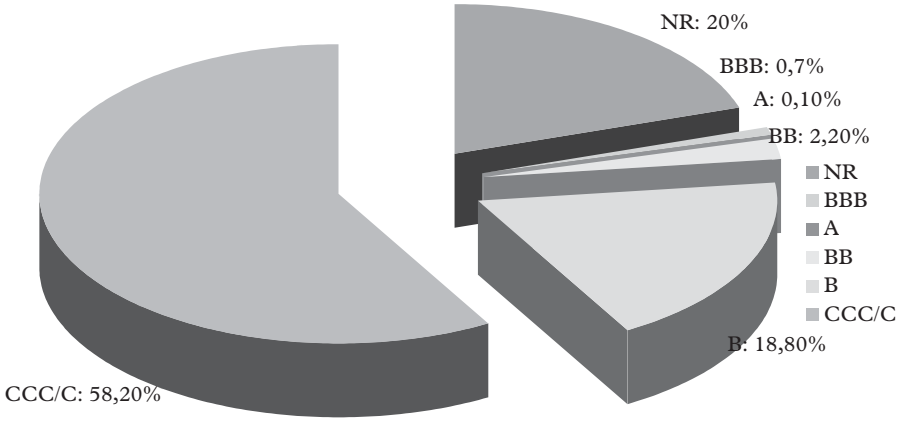
any two corporate bonds. It can be seen that spreads increase dramatically for junk bonds which reflects their risk and the fact that institutional investors are not allowed to hold junk bonds in many cases. Apart from rating, spreads also vary with respect to maturity; longer maturity bonds are expected to have higher spread reflecting a higher risk profile. For instance, a five-year AAA bond may have only a spread of, say, 0.37% while a 10-year AAA bond of 0.44% (Ehrhardt and Brigham, 2009).

In this framework, Grammenos and Arkoulis (2003) conclude that rating is a prime factor in pricing high yield shipping bonds and plays a key role in setting bond spreads. Significant correlation has been detected between bond rating and high yield bond spreads. Lower rated issues are associated with higher default probabilities. Hence, one would anticipate a positive relationship between rating and the spreads on new shipping high yield bond issues. Callability of a shipping bond implies that the issue has a call option embedded and the issuer retains the right to retire (call back) the bond at specified prices before maturity. This option is of value in case of lower interest rate expectations, since the issuer may have the opportunity to refinance debt with a lower interest rate instrument, thus improving company debt terms. However, investors are exposed to reinvestment risk; hence, they would target higher returns for that. Primary pricing may be affected by the maturity term of a bond and a negative relationship between maturity and spread is anticipated. The float (issue amount) of a shipping bond indicates the liquidity of the issue. Larger bond issues are expected to have lower risk premiums than smaller bond issues traded in thinner markets. Hence, an inverse relationship is anticipated between float and spread (smaller issues – larger spreads).

The default rate is a measure of credit risk in the high yield bond market. It reflects relative likelihood that there may be a difference between what investors were promised and what they actually receive by the bond issuer. That is, a default implies any missed or delayed disbursement of interest or principal. It includes, furthermore, 'forced exchange', in case a bond issuer has offered a new instrument containing a diminished financial obligation, such as preferred or common stock or debt with a lower coupon or par amount (Fabozzi, 2009). Since higher default rates are associated with higher risk premium and investors demand a higher spread for compensation, a positive relationship between default rate and spreads would be plausible. The spread is also affected by subordination (in terms of debt claims priority) and is related to whether debt is secured (collateralised by assets) or unsecured; unsecured bond issues are expected to carry wider spreads.

Gearing has critical financial implications for shipping companies and is affected by high swings in freight rates and vessel prices. In periods of market growth, cash flow capacity may suffice to cover investment needs; however, in recession periods, external financing may be necessary. Shipping bonds issued by highly geared companies are associated with wider spreads. The fleet age can also be an important factor, since it affects vessel value. New vessels are usually more expensive and companies with younger fleet are seen to perform better in the capital markets. Nevertheless, in strongly upward markets and tight demand conditions, vessels can earn similar freight rates regardless of their age factor. High-yield bonds issued by companies with an older fleet (higher running costs) are associated with wider spread (higher risk). Finally, since larger laid-up tonnage reflects weakening demand interest and deteriorating industry conditions, the larger this factor the wider the associated high-yield bond spreads. Of the previous factors discussed, rating predominantly but also gearing and laid-up tonnage appear to be statistically significant in explaining shipping high-yield bond spreads (Grammenos and Arkoulis, 2003).

Figure 3: Default distribution prior to 'D': 1981–2008



Source: Standard & Poor's (long-term averages)

Table 12: Cumulative defaulters among global corporates: 1981–2008

	AAA	AA	A	BBB	BB	B	CCC/C
3-months	0.0	0.0	0.0	11.1	0.0	22.2	66.7
6-months	0.0	0.0	0.0	7.1	0.0	46.4	46.4
12-months	0.0	0.0	0.0	3.6	10.8	55.4	30.1
3-years	0.0	0.0	0.9	4.6	19.5	64.9	10.2
5-years	0.0	0.2	1.2	5.8	23.1	62.3	7.3
7-years	0.2	0.3	2.0	6.8	24.3	60.0	6.4
Total	*0.3*	*1.4*	*4.5*	*9.1*	*25.8*	*53.8*	*5.0*

Source: Standard & Poor's (2009). (As from original rating)

4.4 Probability of default in shipping bonds

Based on Standard & Poor's aggregate bond data, over 1981–2008, the (long-term average) default distribution of bond issues for ratings above 'D' indicates that the lower the rating grade of the bond, the higher the default vulnerability (probability). Whereas, for instance, bonds rated 'A' exhibited a marginal default rate (0.10%), more than half (58.2%) of the bonds rated 'CCC/C' proceeded to default (Figure 3).

Within the high yield (speculative) grade category, the lower the original rating on an issuer, the shorter the time to default over the long term. For example, for the entire pool of defaulters (1981–2008), the average times to default for issuers that were originally rated in the 'BB' and 'B' categories were 6.0 years and 4.6 years (from initial rating), respectively; whereas, issuers in the 'CCC' rating category or lower had an average time to default of 2.7 years. These empirical conclusions are further validated in Table 12,

Table 13: Key sectoral characteristics and drivers of credit risk

Risk factor	Cyclicality	Competition	Capital intensity	Technology risk	Regulatory/ government	Energy sensitivity
Industry	H	H	H	L	M/H	H
Airlines (US)	H	H	H	L	M	H
Autos*	H	H	H	L	M	M
High Technology*	H	H	H	M	M/H	H
Mining*	H	H	H	L	M	L
Chemicals (bulk)*	H	H	H	L	M	H
Hotels*	H	H	H	L	L	M
Telecoms (Europe)	M	H	H	H	H	L
Shipping*	H	H	H	L	L	M

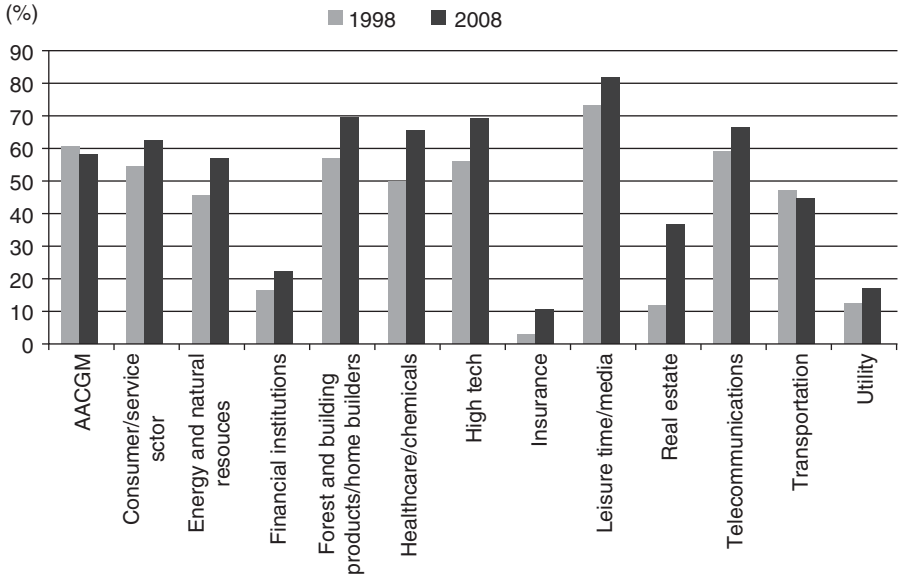
Source: Standard & Poor's (2009). * Global. Credit risk impact: High (H); Medium (M); Low (L).

where data on fastest cumulative defaulters among global corporate from original rating, during 1981–2008, are summarised in percentages of total defaults per rating category and time frame.

The evaluation of industry risk is an important prerequisite for the evaluation of respective corporate issuers, since it provides a robust understanding of the company's external business and operating environment (growth prospects, competition, risks, challenges). Although characteristics significant to credit risk across industries are broadly similar, the impact of these factors can vary substantially between industries. As Table 13 highlights, a common set of industry characteristics/metrics can be applied to identifying the relative credit impact of key industry factors across some major industries in the US (Standard and Poor's, 2009). The nature and impact of key characteristics can vary markedly between countries for a given industry. Utilities, telecom and retail tend to be more affected by national characteristics. By contrast, shipping, oil and gas, chemicals and technology sectors are more global in nature. Factors with a high level of impact on credit risk are cyclicality, degree of competition, capital intensity, technological risk, regulation/deregulation, and energy cost sensitivity.

As to the industry profile of bond defaults, some variation is seen by sector (Standard and Poor's, 2009). Of the 1,668 defaults recorded globally over the long-term, six sectors display an average time to default that is lower than the overall average of 5.7 years. These sectors are energy and natural resources, financial institutions, high technology, leisure time/media, real estate and telecommunications. If the median time to default is considered, then transportation should also be included in this group (Figure 4). The variation in industry stems partly from differentiation in the rating mix across sectors, since some sectors have a much higher representation of speculative-grade ratings than others (e.g., leisure/media vs financial institutions or insurance).

Figure 4: Share of speculative-grade rating to total by industry



Source: Standard & Poor's (2009)

As to the shipping sector, two recent complementary studies focus on a sample of shipping high yield bonds to identify factors that affect yield premia dynamics (Grammenos *et al.*, 2007); and, to assess the risk profile of these shipping bonds and estimate their probability of default (Grammenos *et al.*, 2008). The former study employs a sample of 40 seasoned high yield bonds offered by 32 shipping companies between April 1998 and December 2002 and investigates the impact of a set of microeconomic, macroeconomic and industry-related factors. Despite market perception about yield changes of corporate bonds, key determinants of credit spread changes have not been clearly identified (Collin-Dufresne *et al.*, 2001). Empirical evidence indicates that the dynamics of credit premia of seasoned shipping high yield bonds can be explained by credit rating; term-to-maturity; changes in earnings in the shipping market, as well as in the yield on 10-year Treasury bonds; and the yield on the Merrill Lynch single-B index. The second study focuses on an updated sample of 50 shipping high yield bonds, issued during 1992–2004 and employs a binary logit model to predict the probability of default. Furthermore, the explanatory power of critical factors in best predicting the probability of default for shipping bonds at the time of issuance is also statistically tested.

Of the total 50 shipping bond issues in the sample under study, 13 issues were defaulted as of the end of 2004 and the remaining 37 issues were still trading in the market or had expired. The respective credit ratings and the categorisation in defaulted and non-defaulted issues of this bond sample are summarised below (Table 14). Most of the new shipping high-yield bonds were assigned a credit rating falling into the BB level (68% of the sample); few issues were rated at the B level (30%) and one issue at the C level (2%). Of this sample, 8.82% of the BB rated bonds defaulted compared

Table 14: Shipping high yield bond ratings

	All issues number	Defaulted issues		Non-defaulted issues	
		Number	% of Group	Number	% of Group
BB+	4	0	0	4	100
BB	5	1	20	4	80
BB–	25	2	8	23	92
Total BBs	*34*	*3*	*8.8*	*31*	*91.2*
B+	6	3	50	3	50
B	8	5	62.5	3	37.5
B–	1	1	100	0	0
Total Bs	*15*	*9*	*53.3*	*6*	*46.7*
CCC+	1	1	100	0	0
All Issues	50	13	24	37	76

Source: Grammenos *et al.* (2008)

to 53.3% of the B rated bonds. This outcome implies that investors that prefer higher rated shipping bonds in a shipping bond portfolio stand on average a lower probability of default. This, however, is not necessarily the case on an individual bond basis.

A number of important financial, industry and issue specific variables are considered, including issue amount raised to total assets (issue factors); current assets to current liabilities (current ratio); cash to freight revenue (liquidity indicators) and pre-issue gearing as a debt indicator (financial factors); and, laid-up tonnage to total fleet (industry factors). Shipping companies with low liquidity (current ratio), high gearing levels and operating in the spot market are anticipated to have difficulties in meeting short-term obligations to their bondholders. The lower the liquidity indicators of a shipping company, the higher the probability of default for its high yield bonds, particularly in adverse shipping market conditions.

The gearing level is a most important factor for the probability of default. Pre-issue gearing is calculated as the ratio of long-term debt over long-term debt plus shareholder equity. A higher exposure to debt indicates higher vulnerability of the shipping company during recession phases and higher risk for bondholders due to higher probability of default. These negative conditions have jeopardised the viability of several shipping companies in previous years, whereas a number of high yield bond issues have defaulted, as in 1998–1999. A substantially large amount raised in the high yield bond issue over the company's total assets indicates a higher risk exposure for bondholders; hence, a higher probability of default. High laid up tonnage over total fleet indicates weak demand and depressed market conditions, which in turn increases the probability of default for shipping bonds.

To conclude, despite some overcapacity conditions and demand–supply imbalances in the shipping markets recently, the shipping industry is anticipated to face considerable capital requirements over the coming years, as a result of ageing fleets, loan rescheduling and intensified trade flows (Leggate, 2000), whenever the global financial

crisis will be over. This growth in demand will be in contrast to a potential contraction in the number of banks willing to support the industry and a general tightening of credit facilities. As a result, shipping companies will have to reconsider accessing the capital markets for equity and debt. The difficulties experienced particularly in the bond markets have led to an early dismissal of this relatively new form of ship finance. Debt finance with bond issues remains largely dependent on the perception institutional investors bear of the shipping industry.

5. CORPORATE GOVERNANCE IN SHIPPING

The issue of efficient corporate governance is a critical topic directly related to the firm's financial decisions and capital structure and has attracted increasing theoretical and empirical attention recently (Syriopoulos, 2007). This section explores briefly the topic of corporate governance in shipping firms.

Corporate governance, according to OECD (2004), is the system by which business corporations are directed and controlled. In other words, corporate governance specifies the distribution of rights and responsibilities among different participants in the corporation, such as the Board of Directors (BoD), managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. The following main pillars can be distinguished: ownership structure and influence of major stakeholders; shareholder rights; transparency, disclosure and audit; and, board effectiveness. A variety of internal and external corporate mechanisms contributes to an efficient corporate governance model (Jensen and Meckling, 1976; Shleifer and Vishny, 1997; Mallin, 2007). These mechanisms include, *inter alia*, managers' monitoring by BoDs, independent BoD members, ownership structure and dispersion, committee formation, managerial remuneration (stock options) and transparent market disclosure processes (internal level); as well as, the market for corporate control (takeovers), external stakeholders' monitoring, shareholder minority rights or active institutional investor shareholder clauses (external level).

The shift seen in funding sources towards global capital markets and international investors brings about fundamental shifts in the corporate governance model of the shipping companies. This shift has been partly imposed by the institutional framework of the host capital markets, particularly the US. A fundamental prerequisite for shipping firms going public refers to compliance with a core set of corporate governance practices. A number of reasons justify the empirical interest in corporate governance of shipping firms. For a start, in a highly risky, capital-intensive industry, the business operation takes place on a global scale. The property of the shipping firms constitutes super-national subjects, whereas human resources can emanate from all over the world (Randoy, 2001). Shipping firms have been argued to gain comparative advantages from the combination of 'local' characteristics (internal environment) and 'international' characteristics (external environment) of corporate governance (Randoy *et al.*, 2003). Moreover, the earlier traditional private, family-owned and managed shipping firms are now transformed into publicly listed, multi-shareholder entities. On top of that, a gradual separation of ownership and management is seen to prevail in shipping firms' top management level. Empirical research in these issues remains, surprisingly, limited.

In this background, a recent empirical study investigates corporate governance implications for the financial performance of shipping firms (Syriopoulos and

Tsatsaronis, 2009). Based on a carefully selected sample of Greek shipping companies listed in US equity markets, the study assesses the implications for and evaluates the impact on corporate value of the following: (1) managerial executives (CEOs) directly related to the founding family (founding family CEO); (2) the level of independence of the Board of Directors (BoD independence); and, (3) the Board of Directors' ownership stake in firm's equity (BoD ownership concentration). To sum up the main empirical findings, founding family CEOs are found to exert a positive impact on shipping firms' financial performance (measured by ROE or ROA ratios). Furthermore, a positive impact is confirmed between equity ownership of BoD members and the firm's financial performance. Despite the notion that the participation of independent members in BoDs is a good corporate governance practice, this is not confirmed for the sample shipping firms. It should be noted though, that shipping firms have traditionally experienced strong growth rates based on the advantages of a family-type management and ownership model. On the other hand, listing on global stock exchanges has encouraged shipping firms to now follow more extrovert managerial strategies and modernise their corporate governance principles, including top management duality and separation of ownership from management. Empirical evidence supports that sound corporate governance mechanisms can mitigate the 'agency conflict problem' (divergence of managers' vs shareholders' interests) and can have a positive impact on corporate value (Panayides and Gong, 2002; Randoy *et al.*, 2003; Syriopoulos and Theotokas, 2007).

6. CONCLUSION

This chapter has discussed key issues on shipping finance and global capital markets and has assessed the attractiveness and efficiency of equity and bond markets as important financing mechanisms for shipping companies. Alternative financing vehicles, such as SPACS, PIPEs, private equity, mezzanine finance and ATM offerings have been also briefly presented.

The contribution of capital markets to shipping finance has evolved in a background of recent super-cycle trends in the freight markets and robust performance of international equity markets, before the global financial crisis affects both markets dramatically. The extraordinary growth rates seen in the shipping markets over the last years resulted to unprecedented corporate profits and robust liquidity reserves for shipping companies. Based on this booming environment, many shipping firms pursued an intensive fleet expansion strategy, albeit at high vessel values, building tense overcapacity conditions and creating serious demand-supply imbalances. In any case, this business growth was predominantly funded by external sources of financing and led many shipping firms conclude this period at alarming levels of leverage.

The recent shipping IPO wave in global equity markets indicates that an increasing number of shipping firms appear to discover the virtues of equity finance. Key factors for successful shipping IPOs include attractive valuation, efficient management, robust organic growth prospects, modern corporate governance and successful investment plans. Focusing on shipping firm valuation, the following parameters are critical: cash flows, net asset value, revenue and operational earnings, total book value and enterprise value. Empirical evidence supports that the well documented puzzle of IPO underpricing and long-run underperformance also applies in the case of newly listed shipping firms. Global bond markets offer alternative fund raising opportunities to shipping

firms. Shipping firms have exhibited a revitalised interest in bond markets with a number of bond issues traded over the last decade. Despite their high yield profile, the majority of the shipping bond issues have performed decently and credit default rates have remained low. Overall, the financing decisions of the shipping firm have important implications for its risk, profitability, growth and value creation. The choice between alternative capital funding sources, equity or debt finance, and the resulting capital structure mix is a complex issue and cannot be uniformly decided a priori for each shipping firm. It is guided by the optimal mix that enhances ultimately the firm's corporate value. As the number of shipping companies going public increases, interesting management issues come high in priority, especially, the implementation of efficient corporate governance systems, including the active role of BoDs, the application of duality between BoD Chairman and CEO, information transparency and dissemination or shareholder rights protection.

To conclude, for companies interested in expanding their fleets, international capital markets and relevant financing instruments present interesting opportunities to fund raising. Shipping companies realise they should apply more outward-looking business strategies and take advantage of international capital mobility, following a more tailor-made use of global capital markets. Although the recent shipping IPO wave may not be repeated soon, further activity is anticipated in international capital markets by shipping firms. At the same time, shipping finance appears to have reached a stage where innovative financing methods are combined with traditional approaches to create new, sophisticated instruments.

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