

# Chapter 5

## Corporate Financial Structure in East Asia: What Do We Know?

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March 2010

**This chapter should be cited as**

Corbett, J. (2010), 'Corporate Financial Structure in East Asia: What Do We Know?', in Findlay, C., F. Parulian and J. Corbett (ed.), *Linkages between Real and Financial Aspects of Economic Integration in East Asia*. ERIA Research Project Report 2009-1, Jakarta: ERIA. pp.130-152.

## Chapter 5

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### Abstract

This paper surveys studies in corporate financial structure, focusing on studies that include East Asia. The paper looks at three clusters of research on i) the structure of corporate finance, ii) explaining the company choices of financial structure, and iii) the impact of financing on real economic outcomes such as growth or productivity. The paper concludes that, although such studies are fundamental to understanding how financial shocks are transmitted to the real sector few studies cover East Asia. Some data are available that can be used to extend studies in the region but there is also a need to extend data sources and to supplement existing data which could provide a useful base for work in this area. This paper proposes a further extensive survey involving ERIA's RNIM to identify macro- and industry-level data and recommends linking with ERIA's microdata studies stream to build more comprehensive company databases.

**Keywords:** Company finance, corporate finance, corporate governance, corporate investment, financial statistics, firm, firm level

**JEL Classifications:** G320, G380, G390, O330, O160 K000

## I. Introduction

There is a very large literature on corporate financial structure, including studies by finance specialists, economists, lawyers and corporate governance specialists, and on the link between financial structure and growth. It is not the intention of this paper to provide a comprehensive survey of that literature (for a survey, see Beck (2009), Beck et al., Chapter 5 in Demirguc-Kunt and Levine (2001) and Carlin and Mayer (2003), and for a critical perspective, Trew (2006)).

While there is an emerging consensus that financial systems become more developed and more “market-oriented” as countries become richer and that there is a link between overall financial development and growth, there is no *consistent* evidence that a particular *type* of financial structure (e.g. bank-based versus market-based systems) makes a difference. However, the latter conclusion, and variations on the question of the impact of financial structure, remains a fertile field for research and one that is subject to continuous challenge.

The sheer volume of work on the subject of whether and how financial structure affects growth testifies to the enduring importance of the question. Curiously, in view of the recent history of financial markets, there is much less work on the link between financial structure and the volatility of economic outcomes. Arner (2007) is an exception in the field of legal studies, but there are relatively few economic studies. At the top level of policy questions relating to finance these two must be the most important. Directly researchable questions necessarily break these big questions into smaller and more manageable pieces, resulting in a proliferation of literature that goes in many directions and cannot always be clearly related to other studies.

The purpose of this paper is not, therefore, to survey the whole field but to focus on studies of the East Asian region (where they exist), and on the types of data and approach used in the different areas of research. The objective is to identify gaps in the research field and to identify what data are available to support further research. In doing this, we hope also to identify types of data that could be collected or made more easily useable and to make concrete policy recommendations about data collection that

would be an appropriate task for ERIA.

To provide some structure for the survey and because data needs and usage depend on what question is being asked, the paper looks at three clusters of research that are broadly related and describes a representative research approach in each area, the types of data used by existing studies, and outlines some key conclusions. The three groups are i) studies describing the structure of finance, ii) studies that explain financing choices, and iii) studies of the impact of financing on real outcomes. Where studies covering East Asia are available, attention is given to whether East Asian results are similar to results for other countries or groups of countries. The paper concludes by linking the existing research with key policy questions in the region and setting out the data needs and research approaches that would help answer those questions.

## **Section 1**

### **Financial Structure and Sources of Finance**

One broad theme of research has been aimed at simply describing how the corporate sector has been financed. These studies are positive, not normative, and do not have immediate policy relevance but form an important part of our understanding of the financial systems in different countries.

As the World Bank team best known for collecting data on financial structures (Demirguc-Kunt and co-authors) note in describing The Financial Structure Database, now available at the World Bank website,<sup>1</sup> there was an absence of cross-country data on financial structures before they began compiling the data. The database now provides macro, aggregate data on indicators that measure the size, activity, and efficiency of financial intermediaries and markets. These are supplemented by other datasets on deposit insurance around the world, bank regulation and supervision, episodes of systemic and borderline financial crises and bank concentration. The Financial Structure Database itself has country coverage that varies for each variable, depending on underlying data availability. Several of the countries in the East Asian Summit group are

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<sup>1</sup> <http://go.worldbank.org/X23UD9QUX0>

well covered. These data allow much better descriptions of the institutional and market structure of financial systems and have become a well-used source of variables for certain types of studies described below. They do not, however, give any picture of how the corporate (borrowing sector) is financed and focus only on descriptions from the lending side of the financial markets.

Studies that describe how the corporate sector is financed therefore provide a different picture of financial structure, one that focuses on the borrowing side and that might, arguably, give a better picture of how the financial system connects with real business activity.

One approach to this descriptive exercise is based on the method described in Mayer (1988, 1990) using companies' sources of financing. An example is found in Corbett and Jenkinson (1996) and the methodology is described in more detail in the working paper version of the latter paper (Corbett and Jenkinson, 1994). That methodology involves constructing aggregate flows of funds for different countries over extended periods using National Accounting Statistics (the underlying data is provided by companies, financial institutions and securities markets). Estimates of the proportion of the corporate sector's aggregate investment financed from different sources are derived by categorizing flows of funds under various headings, such as retained earnings, bank loans, trade credit, bonds and new equity, and averaging them over several years. The methodology provides more-or-less internationally comparable estimates of the financing of physical investment by the non-financial corporate sectors of different countries over particular periods. The Appendix to this paper gives the details of how this was done in the original work for Germany, Japan, the US and the UK in Corbett and Jenkinson (1994). As can be seen there, even in advanced OECD countries there is considerable difference in the definition of the corporate sector and in the definition of financial instruments used. This requires some care when making international comparisons

The reason that the "net flows approach" is the appropriate basis for measurement at the aggregate level is that it correctly answers questions concerning the flows that have taken place across the boundaries between different sectors. It can, therefore, answer questions about flows between the banking and corporate sectors or between bond

markets and the corporate sector over particular time periods. It cannot answer questions about what goes on within sectors or within time periods (there has been some criticism of details of this approach for these reasons, but that is not relevant to the current discussion).

The approach using aggregate flow of funds data appeared to establish some patterns across many countries and time periods that challenged some received wisdom about sources of financing. The results suggested that retained earnings were the main source of financing for new investment (that is, the flow of new investment in a period) and that the next most important source of finance was debt. Myers' (2001) survey of the field opens with a statement to the effect that most investment by US non-financial firms has been financed from internal cash flows. External equity raising seemed to be a small part of finance for investment. These results were consistent with "pecking order theories" of finance but did not accord with expected differences across countries because of the diminished importance of bank financing in many countries considered to be "bank-dominated" or bank-centered. The method was also applied to other countries (Cobham and Serre (2000) for France, Cobham et al. (1999) for Italy, Singh various years for developing countries). Unpublished studies were done for Thailand and Korea. The implications might be considered likely to be significant in East Asia but no consistent study has been done for the region.

### **1.1. East Asia**

Two studies after the Asian financial crisis attempt a similar exercise for samples including some East Asian countries. Glen and Singh (2003) shows that liabilities fund a much lower share of growth in assets for developing than for developed countries and argues that emerging market corporate sectors use both more internal sources and more external equity than developed economy firms. His interpretation is that stock markets are indeed an important source of finance for firm expansion in emerging markets, contrary to their role in developed markets. He notes, however, considerable variation between countries in the emerging markets group compared with developed countries.

In the same volume, Ratha et al. (2003) argue a different view, that emerging market firms, particularly in East Asia, were excessively debt financed (had high leverage) and,

although they have reduced their debt financing significantly post-crisis, they are still excessively dependent on external finance because of their low profit rates (and resulting low retained earnings).

One source of the difference in these views of the sources of finance in regional emerging economies is the type of data used as well as in the interpretation of it. Singh uses company accounting data from the Osiris database while Ratha et al. use a combination of macro data on financial flows and equity outstanding, with company accounting data drawn from Worldscope.

Even for other developed countries (beyond the big four) there are difficulties about using National Income Accounts Flow of Funds data. Cobham et al. (1999) notes that comparable data are not even available for Italy. Ratha et al. make a strong plea for better data in the Asian region, noting that “the flow-of-funds data compiled for the United States ... are a model of top-down data. Few developing countries, however, produce such complete accounts” (p. 450). This matters for a number of reasons. While similar information can be created from company accounts, these suffer from selection bias (covering only listed, large companies), they may have time lags, and they may be based on different national accounting definitions, making reliable cross-country comparisons difficult. As Ratha et al. (2003) note,

The absence of comprehensive, timely data is more than a hindrance for researchers: it also is a concern for market participants and policymakers. With financial markets prone to sharp adjustments and given the easy availability of derivatives ... it is increasingly important for market participants to be aware of the extent of exposure of the corporate sector as a whole. If the entire sector is over-exposed, individual companies are likely to have trouble rolling over their debt in times of market stress. (p. 450)

If those remarks were true before the GFC they are even more so now.

The broad purpose of most of the work in this area of describing financial structure is aimed at establishing what sources of data are most reliable and what patterns emerge across different countries in the way companies finance their investments in assets. The data are not explanatory but are descriptive. Some papers in this tradition speculate

about explanations of cross-country differences but do not provide formal tests. Studies of this type may use either national income accounts or company accounting data, may present either sources and uses (flow) data or stock data (e.g. leverage ratios) and may present results at the country level or at the industry level. A number of studies include developing countries but data limitations mean that there is no substantial body of results for the region.

## **Section 2**

### **Explaining Financial Choices**

Another strand of literature is related more closely to conventional corporate finance concerns and asks how to explain the choice of financial structure that firms make. While originally growing out of the Modigliani–Miller tradition (looking for evidence that tax and bankruptcy costs explain non-random financing choices), the literature has evolved to ask increasingly complex questions about determinants of financial structure. The literature now has a strong policy element since it asks which institutional features at country level have an impact on financing choices. Many of the institutions that are examined are amenable to policy change.

Representative examples of this type of study include Fan et al. (2008) and the literature reviewed there (Rajan and Zingales (1995) and Myers (2001) describe much of the standard work) and several studies by Demircuc-Kunt and co-authors (2001; 2002).

The original question that these studies asked was what firm characteristics determined the choice of capital or financing structure. The dependent variable could be either capital structure ratios, such as leverage, or maturity choices, or could equally be financing structure choices based on source and uses (flow data) such as new equity issues, new debt issues, etc. A range of firm characteristics might be considered but gradually interest focused on characteristics beyond the confines of the firm and studies looked at whether industry and country characteristics matter. Following the series of papers by La Porta and colleagues in the late 1990s many authors now look at the effect of legal institutions.

These studies normally use company accounting data since they require firm

characteristics as a key part of their apparatus, although some studies have considered the financial structure of different industries. The underlying theory behind the empirical work is summarized by Myers (2001). There is not yet a firmly established consensus view about what drives company choices. There is broad support for a role for taxes and bankruptcy costs, as in the original MM formula. Beyond this, several firm characteristics are known to have some effect: asset tangibility, profitability, and the market-to-book ratio. Asset maturity can be included to describe the extent to which companies have to finance long-term assets. In developed-country data it is desirable to include effective tax rates, operating risk and R&D expenditure but in studies using developing country data these variables are often missing. Results in Fan et al. (2008) show that the choice of leverage (use of debt) is positively related to asset tangibility and firm size and negatively related to profitability and the market-to-book ratio. These results, from a sample of 39 countries including a cross-section of developing countries, are consistent with evidence on US firms and more recent international evidence (Rajan and Zingales, 1995). Examining the choice of maturity (how much long-term debt is used in total debt), typical results are that more long-term debt is used by firms with greater asset tangibility, larger size, higher profits and higher market-to-book ratios. Asset maturity is unrelated to debt maturity.

## **2.1. Industry and Country Characteristics**

Recent papers (since Rajan and Zingales, 1995) have extended the list of factors that affect financing choices to include both industry and country variables. It has become clear that different industries are typically financed in different ways (with different mix of debt vs equity and different maturity of financing) so these effects need to be accounted for. In addition, the literature linking financial structures to growth (reviewed below) introduced a number of country characteristics that might also be relevant in considering the financial choices that firms make. Fan et al. (2008), Carlin and Mayer (2003) and several papers by the World Bank group (Demirguc-Kunt and colleagues) add in country characteristics and, increasingly, interact these with either firm or industry characteristics.

The results show that country characteristics matter a good deal in explaining leverage

choices and that firm characteristics have different effects in different countries. The results on industry characteristics are less clear with some studies (Carlin and Mayer, 2003) finding strong industry characteristic effects while some do not (Fan et al., 2008).

These results are important for the current paper's purpose since they mean that having good detailed studies of country characteristics in the East Asian region will add value to our understanding of how firms are financed. Country differences matter and some of them (such as the relative development of different parts of the capital markets, tax policy, investor protection laws and so on) can be affected by policy.

The Carlin–Mayer approach would have considerable interest in the region but requires industry-level financial information that may not be easily available in the region. As noted elsewhere, firm-level data are available for large, listed companies in the major countries in the region with functioning stock markets.

### **Section 3**

#### **Does Financing Matter: Finance and Growth**

The question of the link between countries' financial structure and development and their growth has been, as noted above and by Demirguc-Kunt and Levine (2001), a focus of attention since the work of Goldsmith (1969). Linking the developments in methodology from the corporate financial structure literature with an interest in economic growth and performance has resulted in several recent studies looking for an effect of financial structure on growth either at the firm level, industry level or at the country level (in the case of Carlin–Mayer, the dependent variable is investment growth in industry  $i$  in country  $j$ ).

Firm level studies typically use cross-sectional data from different countries to look for an impact on firm performance from the firm's financial structure and industry and country characteristics. This allows us to say something about whether the financial choices that firms or industries make (which are, in turn, driven by some industry and country characteristics) have effects on the amount and/or type of investment they can carry out. Further, it allows us to take account of the impact of the industry

characteristics in which the firm is embedded and of the effect of many institutional and policy settings at the country level. These studies are at an early stage (mainly from 2000) and are only beginning to include developing countries and to take account of the significant differences between developed and developing countries (see Carlin and Mayer (2003) for a discussion of the problems of including developing and developed countries in the same samples).

The emerging evidence suggests that the quality of financial systems (captured by accounting standards in Rajan and Zingales, 1998) affects the growth of firms dependent on external finance, and that either the size or the structure of the banking system also affects growth (Cetorelli and Gambera, 2001, cited in Carlin and Mayer, 2003, find evidence that concentrated banking systems are associated with higher growth). Papers from the World Bank group authors (Demirguc-Kunt and co-authors) argue strongly that the overall level of financial development and the efficiency of the legal system affect investment growth, but that financial structure (i.e. bank dominance vs market dominance) does not matter.

Carlin and Mayer (2003) show that these results can be more complex. They interact industry characteristics with country characteristics to show that certain country institutional features matter more for industries with certain characteristics. For example, accounting disclosure standards are associated with faster growth of industries that are equity and skill dependent while concentration of the banking system is associated with slower growth and lower R&D expenditure in this type of industry. Their research focuses on three particular country characteristics (information disclosure, concentration of banking systems, and concentration of firm ownership) since these are linked to three separate theoretical models of capital structure. They report a strong relationship between good information disclosure, fragmentation of banking systems, concentration of ownership and the growth of equity-financed and skill-intensive industries. Different factors matter for different types of industries. They note also the differences between developed and developing economies not only because of the differences in their financial systems but also because they support different industries. They therefore attempt to account for levels of development by considering differences between low-income countries and others and find evidence that their results are sensitive to stages of

economic development. Again, this argues for the value of studies within the region that are carefully constructed to be comparable to existing studies so that we can discover where general research based on cross-country evidence is applicable to the region and where it is not.

These results, while approaching the question of the link between finance and the real sector in a different way from those of Demirguc-Kunt and Maksimovic (2002), are consistent with them. Demirguc-Kunt and Maksimovic find that the development of the legal system is associated with a higher proportion of firms relying on external finance. Stock markets and banking systems affect the proportion of externally financed firms differently but the relative development of stock markets to banking sectors does not matter.

As reported in Corbett and Twite in this volume, the evidence is that country characteristics matter more than financial characteristics in explaining the growth of investment by firms.

## **Conclusions**

A number of the research questions addressed by the literature briefly surveyed here are particularly important in the East Asian region. Fundamental to the pattern of development in the region and to the progress of closer integration is an understanding of which institutional and industry characteristics have an impact on the financial structure of the corporate sector, and whether differences in financial structures matter for real economic outcomes such as growth, productivity, investment and volatility. This survey indicates that few studies look at the individual countries of East Asia and that relatively few of these include either ASEAN or the full sample of the East Asian Summit group of countries. This makes it difficult to know whether the behavior observed across large groups of countries is also observed within the region and whether there are specific policy targets that could be improved. To carry out such studies we need better data.

We need a detailed look at the availability of National Income Accounts-type Flow of Funds data. This requires country-by-country knowledge since there may be collections of such data available even if they are not included in the formal National Income

Accounts. To supplement and support the analysis of that data we also need good company accounting data that go beyond the narrow sample of large, listed companies that are included in Worldscope, Datastream and similar databases. So further work is needed to identify whether ministries of finance, central banks or securities market regulators, or local stock exchanges may have wider company accounting databases. Finally, a great deal can be done by studying financial structure at the industry level. Data are available in Japan, showing the sources and uses of funds at industry level. Some data are available for the OECD, although not with the same level of detail as Japan, and it would be useful to find out whether similar information is available around the region. A first attempt at a survey is included in Appendix B of this paper.

It is proposed that ERIA's Research Institute Network be invited to help do a survey of what types of data covering company financial information are available in the region so that recommendations for systematic collection and sharing of data can be achieved. There may be scope for joint activity to collect and maintain data between ERIA, universities and institutes in the member economies and government agencies to create a resource for important policy research leading to evidence-based policy reform.

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## Appendix A. Corbett–Jenkinson, 1994, Methodology Using Flow of Funds Data

**Table A.1. Examples of Sources of Aggregate Flow of Funds Data**

US	Federal Reserve System, <i>Flow of Funds Accounts</i> , “Sector Statements of Saving and Investment”
UK	Central Statistical Office, <i>Financial Statistics</i>
JAPAN	Economic Planning Agency, <i>National Income Accounts</i>
GERMANY	Deutsche Bundesbank, <i>Capital Finance Accounts of the Deutsche Bundesbank</i>
ALL COUNTRIES	OECD, <i>Financial Accounts</i>

**Table A2. Definitions of the Non-financial Enterprise Sector in Flow of Funds Statistics**

Country	Public enterprises	Unincorporated enterprises and partnerships	Consolidation (netting) of intra-sectoral transactions*
US	Excludes	Includes (our data excludes farm sector)	No (but equities are consolidated)
UK	Excludes <sup>a</sup>	Excludes	Usually yes <sup>b</sup>
JAPAN	Excludes <sup>c</sup>	Excludes	Usually yes, but depends on items <sup>d</sup>
GERMANY	Includes <sup>e</sup>	Includes	Usually yes <sup>f</sup>

Notes:

\*SNA definitions recommend recording transactions on a gross basis where possible but recognizes that a minimum degree of netting of transactions is more likely to be practical. The minimum degree of netting is to subtract dispositions from acquisitions of each class of asset and to offset redemptions of each class of liability against new incurrences of that liability. Higher degrees of netting may also occur (e.g. (i) transactions of a given category of financial assets against the same category of liabilities – equivalent to our netting procedure in Table 2 – or (ii) transactions of one category of financial assets against liabilities of another category) but the disadvantage is that “significant differences in behaviour between the transactions of a class will be obscured.” UN, *System of National Accounts* (1968), p. 136.

(a) For the UK, figures for private enterprises only were used. Privatizations therefore result in changes in the sector as previously public enterprises are included.

(b) OECD notes state that “Intersectoral transactions are, as far as possible, consolidated.” This implies relatively higher degree of consolidation in the UK than other countries as no separate items are listed as non-consolidated.

(c) Our figures for Japan are based on EPA, *National Income Accounts* and exclude virtually all public enterprises. The sector definition in this source is more consistent than the OECD one, which is based on Bank of Japan sources. The latter include some public enterprises but not all. Gas and electricity companies, legally classified as private companies, are included in our definition of the sector. As a result of privatization, Nippon Telegraph and Telephone Company and the Tobacco and Salt Public Corporation were included after 1985 and Japan National Railways after 1987.

(d) In principle, intra-sector transactions are consolidated in Japan but where it is useful to show non-consolidated data this is done. Non-consolidated items are: short- and long-term securities, equities, bills bought and sold, trade credit.

(e) Germany also includes legally dependent pension funds under the control of enterprises in the enterprise sector. In other countries where these are administered by outside companies (e.g. by trust departments of banks) they are included in the financial sector.

(f) Financial transactions in Germany are “largely consolidated figures, as the financial relationships within a sector are normally set off against each other”. Exceptions are equities and claims and liabilities evidenced by securities.

**Table A3.1. US Definitions – Gross Sources**

<b>Sources</b>	<b>Definition</b>	<b>Notes</b>
Internal sources	Total internal funds plus inventory valuation adjustment	Standard definition but numbers in the original US source differ from those reported by OECD
Bank finance	Mortgages, bank loans, loans from foreign sources, bankers' acceptances, non-bank finance loans, US government loans	Book value
Bonds	Tax-exempt bonds and corporate bonds	Book value. Equals figures reported by OECD
New equity	Net new equity	Market value. Consolidated figures so intra-corporate sector disappear.
Trade credit	Trade debt and consumer credit (latter on uses side)	
Capital transfers	Not available, no distinction between current and capital transfers in the data	
Other	Includes commercial paper, foreign direct investment in US	Contrast with UK where net commercial paper is included in bank finance.

**Table A3.2. UK Definitions – Gross Sources**

<b>Sources</b>	<b>Definition</b>	<b>Notes</b>
Internal sources	Saving (after payment of taxes, dividends and interest) including depreciation less amounts set aside for tax liabilities	
Bank finance	Borrowing from banks including commercial bills; other loans and mortgages (on the uses side, instalment credit by retailers), loans by non-bank financial institutions, net commercial paper, shares of retail coops.	
Bonds	Debentures and preference shares	No separate uses figures for this category are shown (see notes under “net sources”).
New equity	Ordinary shares and other capital issues (e.g. management buyouts, ESOPS, issues abroad of UK securities)	
Trade credit	Domestic and foreign trade credit received from government and public enterprises	Very incomplete coverage. Does not record intra-sector trade credit or credit received or extended to households.
Capital transfers	Standard SNA definition	
Other	Other overseas investment	Commercial bills and commercial paper are included under bank finance

**Table A3.3. Japanese Definitions – Gross Sources (consolidated except where noted)**

<b>Sources</b>	<b>Definition</b>	<b>Notes</b>
Internal sources	Savings of the non-financial private enterprise sector (after interest, dividends and tax payments) plus depreciation	Depreciation for the non-financial enterprise sector is not separately reported and had to be calculated from the National Income Accounts
Bank finance	“Market loans”. Includes bank loans, loans from government financial institutions and is assumed to include bills bought and sold (“TEGATA” BILLS DISCOUNTED AT BANKS).	“Tegata” (bills) figures are non-consolidated so both sales and purchases by companies are included. After 1987 includes commercial paper (new instrument)
Bonds	Corporate bonds issued domestically and abroad	Non-consolidated
New equity	Shares	Non-consolidated
Trade credit	Receivables and payables plus deferred payments	Non-consolidated but reporting conventions mean that negative numbers may appear in both sources and uses (e.g. when trade credit advanced falls year-on-year the creditor companies’ uses are negative <u>and</u> the debtor companies’ sources are also negative)
Capital transfers	No data available	
Other	Short-term securities, some government loans, foreign direct and portfolio investment (excluding foreign bond issues)	

**Table A3.4. German Definitions – Gross Sources**

<b>Sources</b>	<b>Definition</b>	<b>Notes</b>
Internal sources	Retained earnings plus depreciation plus pension funds	
Bank finance	Short-term and long-term bank loans	Includes insurance loans
Bonds	Bonds	Includes money market paper
New equity	Shares	
Trade credit	Domestic trade credit not separately shown	Includes only foreign trade credit.
Capital transfers		Includes the internally generated funds of government-owned enterprises as well as subsidies to industry.
Other		Excludes foreign trade credit. Includes flows of funds between non-financial enterprises and housing, which in Germany is a distinct enterprise sector.