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AUTHORS:

Stefano Cascino
Mark Clatworthy
Beatriz García Osma
Joachim Gassen
Shahed Imam
Thomas Jeanjean

The use of information by capital providers
Academic literature review

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Table of contents

Foreword

The objectives of financial reporting are to provide information about an entity that reflects the results of stewardship of management and is useful to a wide range of users in making what are often fundamentally different economic decisions.

The IFRS conceptual framework reflects those two objectives, even though the objective reflecting the results of stewardship has not received sufficient prominence. However, how much is known about what information is useful for users, and is the same information equally useful for all users and for investment decisions and stewardship-related decisions? The European Financial Reporting Advisory Group (EFRAG) and The Institute of Chartered Accountants of Scotland (ICAS) believe that the IASB standard setting process must be supported by a sound analysis and understanding of how the information that results from IFRS application is used.

After receiving strong support from European Constituents in response to its consultation on proactive work, EFRAG launched a proactive project in 2011 to understand how capital providers use financial statements. At the same time the ICAS Research Committee was considering a project in this area, recognising the need to step back from current events and consider whether financial reporting is in fact serving the needs of users.

EFRAG and ICAS identified the need first to take stock of the existing knowledge accumulated through academic research and joined forces to commission an international team of academics to undertake this comprehensive literature review on the use of information by capital providers. EFRAG and ICAS expect to refer to, and search to expand where possible, the lessons learned from this review in providing input to the IASB in the now ongoing revision of the IFRS conceptual framework and other projects.

The aim of this review is to identify, consider and evaluate, from a European perspective, the existing evidence on the use of information by capital providers for decision making and assessing stewardship. The review was undertaken by a team of independent European academics and the resultant report draws conclusions and implications from across Europe for standard setters, highlights deficiencies in the existing literature and identifies opportunities for future research on this important topic.

The review sought to answer the following questions:

- Who are the key capital providers to companies in the European Union?
- What decisions are capital providers making and what are the information needs for these decisions?
- What information do these capital providers currently use to make financial decisions and assess stewardship?
- How and for what purposes is this information accessed and used? In particular, what is the ‘logic’ of the models applied?
- How important are financial statements for capital providers’ decision making and assessing stewardship? How are financial statements used?
- What additional information would capital providers consider to be useful?

The principal conclusion of this review is that financial statements are used in different ways by various capital providers with different needs and different objectives. This reflects the differences in the nature of debt and equity securities, investors' ability to obtain and analyse alternative information sources and different capital providers' level of sophistication.

The authors of the review conclude with the following implications for standard setters: standard setters should focus on the competitive advantages of the financial accounting process when developing standards and financial reporting information should be designed to co-exist with competing information sources with other inherent weaknesses by providing reliable, verifiable data; standard setters need to decide whether they prefer to balance different user groups' interests on a standard-by-standard basis or to focus systematically on a specific subset of users when developing new standards; standard setters should consider the role of information intermediaries when developing new standards; and standard setters should consider the use of financial accounting information in contracting when making standard setting decisions.

The review highlights the need for more research to address the fundamental questions outlined above. In particular, there is a need for new empirical research to investigate what information capital providers use, where and how this information is obtained and what additional information capital providers would like to have.

This project was funded by the Scottish Accountancy Trust for Education and Research (SATER – see page 82) and EFRAG. The Research Committee of ICAS has also been happy to support this project. Whilst the views expressed in this review do not necessarily represent those of ICAS and EFRAG, both bodies hope that the report will contribute to the future evolution of accounting standards and financial reporting.

Allister Wilson
Convener of ICAS Research Committee
December 2013

Françoise Flores
EFRAG Chairman
December 2013

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Executive summary

This report reviews the literature on the use of information by capital providers, who are primary recipients of accounting information. Placing particular emphasis on financial statement data, the report focuses on the role and importance of information in the provision of capital to large, publicly listed companies. Since the main objective of accounting information is to serve the information needs of capital providers, the questions addressed by the review are fundamentally important to standard setters and the accounting profession, as well as to the academic accounting community.

The report surveys the most recent, reliable academic literature to address the following questions:

- Who are the key capital providers to companies in the European Union?
- What decisions are capital providers making and what are the information needs for these decisions?
- What information do these capital providers currently use to make financial decisions and assess stewardship?
- How and for what purpose is this information accessed and used? What is the 'logic' of the models applied?
- How important are financial statements for capital providers' decision making and assessing stewardship? How are financial statements used?
- What additional information would capital providers consider to be useful?

In addressing these questions, the report adopts a European perspective and emphasises 'direct' evidence, which relates as closely as possible to capital providers' individual decision making processes. Although literature using 'indirect' evidence, such as studies of aggregate stock market reactions to, or associations with, accounting information is extensive and also potentially informative, it is not prioritised in this review. The review also examines literature from non-English sources, although the research in this area is predominantly published in English.

Main findings

Who are the key capital providers to companies in the European Union?

Equity investors, debt providers and trade creditors are the primary capital providers in the European Union. Public companies rely on debt at least as much as equity, though there is significant international variation within the EU. Because they are not a homogeneous group, capital providers can be further sub-classified. For example, 'inside' equity investors (such as owner-managers in family firms) with the ability to access price-sensitive information from within the firm can be expected to have different information needs to 'outside' equity investors, who have no such access and therefore rely on information that is generally publicly available. This review therefore examines the use of information by outside professional equity investors, private/retail equity investors, inside equity investors, public and private debt investors and trade creditors.

What decisions are capital providers making and what are the information needs for these decisions?

Capital providers' decisions concern their ability to maintain their capital and to receive an appropriate level of return on their investment, given the level of risk. However, different capital providers have very different information needs, reflecting the differences in the nature of debt and equity securities, investors' ability to obtain and analyse alternative information sources and different capital providers' level of sophistication.

In broad terms, the information needs for equity investors revolve around the amount, timing and risk of future cash flows, so information is deemed useful if it assists in estimating these. On the other hand, debt providers' information needs reflect their primary concern with downside risk, because the upside is limited to the redemption value of the debt.

Both theoretical and empirical research on capital providers' information needs also reflects the fact that the interests of managers, equity investors and debt-providers sometimes conflict. For example, managers may not always act in the best interest of shareholders, while equity investors may prefer managerial actions that increase their wealth at the expense of debt providers. In addition to their need for information relevant for assessing future cash flows, professional equity and debt investors therefore also demand information that is useful in mitigating these potential conflicts.

Inside investors and family owners remain major providers of finance in large European listed companies, although this is changing over time. Due to inside investors' status as preparers, as well as users of accounting information, the literature focuses more on the properties of information produced, rather than used, by such capital providers. The limited available evidence suggests that inside equity investors need information that assists with planning and control purposes. Private investors and trade creditors have limited time and expertise to collect and analyse information, so they have a need for information that is easily accessible and understandable.

Furthermore, a distinction can be drawn between financial or investment decisions and stewardship decisions. Although information is often useful for financial decision making and stewardship purposes simultaneously, there are clearly areas where the two objectives do not coincide. For example, information is useful for stewardship if it focuses on how well management has performed in the previous period, while information on factors beyond managers' control is generally unhelpful; however, information that has no relation to managerial effort can be highly important for valuation purposes. Information that is useful for contracting purposes needs to be verifiable *ex post*, whereas this is not a priority for the *ex ante* estimation of future cash flows.

What information do these capital providers currently use to make financial decisions and assess stewardship?

The evidence on the information used by capital providers reveals that overall, institutional and professional capital providers use a wide variety of sources and they use these sources in different ways. For professional equity investors (including fund managers, buy-side and sell-side analysts), direct contact with company management and financial statements are the most important information sources. These investors rely on such information for both financial and stewardship decisions, in the former case for estimating future cash flows and profits and in the latter case for accountability and executive compensation purposes. The evidence on other information sources is mixed, though sell-side analysts are also an important part of the information environment.

The evidence on debt providers' information usage is far more scarce than for professional equity investors, though as discussed below, accounting information seems highly important, as evidenced by the fact that contracts between lenders and corporate borrowers usually contain multiple references to financial ratios taken from the audited financial statements.

Retail investors and trade creditors rely heavily on intermediaries to process the information used in investment decisions. In addition, the evidence suggests that retail investors sometimes ignore relevant information. Despite the importance of this question to a variety of stakeholders, direct and detailed evidence on what particular financial reporting items are used by capital providers, and how precisely they are used in their respective decision making processes is scarce.

How and for what purpose is this information accessed and used? What is the 'logic' of the models applied?

In the process of studying different information sources such as financial reporting information, direct company communication, analyst reports and media coverage, research often implicitly assumes that the sources are independent of one another. This is clearly not the case as different sources are highly interdependent and the information content of one affects the relevance of another. For example, more timely and relevant information on future cash flows or earnings is often accessed from direct company contact and from sell-side analysts, but the usefulness of this information depends on its verifiability from the audited information in the financial statements.

As is the case with information sources, the logic of models used by capital providers reflects the nature of their claims. Professional equity investors often use valuation models in their financial decision making. There is a large and influential literature demonstrating the theoretical logic of the models used by professional equity investors. The price/earnings ratio and, more recently, discounted cash flow models are the most commonly used, though their application varies across industries. The literature on the models used in debt markets is well established and various statistical and financial models have been developed for predicting financial distress, reflecting the asymmetry in losses *versus* gains faced by debt providers.

How important are financial statements for capital providers' decision making and assessing stewardship? How are financial statements used?

In general, financial statements are highly important to capital providers, though such a conclusion masks the differences in how they are used alongside other more timely and potentially more relevant information. In the case of professional equity investors, financial statements are not used mechanistically and neither are they used in isolation. The valuation models used by professional equity investors require information on future cash flows and/or earnings, creating a demand for financial statement data. For these models, however, equity investors prefer 'persistent' or recurring earnings, so transitory or non-recurring items are often removed from 'bottom line' GAAP numbers. The notes to the accounts are important to professional equity investors, though information recognised in the financial statements receives more attention than disclosures in the notes. There is some evidence that fair value is preferred to historic cost for certain asset classes, but this is not the case where fair value is arrived at using unobservable inputs as part of 'mark to model' valuations.

Direct company contact is often considered more important than the financial statements, yet accounting information forms the agenda for such contact. Both financial statements and management meetings are used for accountability and stewardship assessment purposes, particularly by fund managers. Reflecting the stewardship role of financial statements, information in the financial statements on past and present performance is also important to institutional investors.

Both public and private debt markets rely on accounting information either directly in contracting, or indirectly, through credit ratings agencies. The literature shows that financial statement data are very useful in predicting default and in estimating credit ratings, though little evidence exists on whether it is used by debt providers. What is clear from the literature is that financial statement data are used explicitly by debt investors in contracts with the company. Financial covenants are an important feature of these contracts, and performance pricing, where interest rates are tied directly to financial ratios, is increasingly important. Furthermore, accounting information has been found to influence non-price loan terms, such as loan size and maturity.

Due to the nature of their claims, debt providers prefer conservative accounting to unbiased accounting and this is reflected in the adjustments they make to financial statement data. Debt providers are relatively sophisticated users of accounting information and intangible assets are often excluded from financial statement data used in contracting. Empirical evidence suggests that companies with conservative accounting, where losses are recognised in a timely fashion, benefit from more favourable lending terms.

In contrast to professional equity investors, retail investors rarely use financial statement information directly. Such investors have less time, expertise and wealth to invest than their professional counterparts, so they do not use sophisticated valuation models and rely more on others to process financial statement data, such as public media and stockbrokers. They are much more likely than professional investors to rely on narrative data in the annual report and are prone to behavioural biases when making investment decisions. In combination, these decisions cause them to make suboptimal investment decisions. Still, their trading activity provides liquidity to capital markets, which is potentially relevant for market efficiency.

Despite their importance as short-term capital providers, trade creditors remain largely neglected by the accounting literature. The limited evidence suggests that financial statement information is not directly important to trade creditors, particularly after the initial financing decision. However, financial statements may still be indirectly important because intermediaries, particularly credit bureaus, do rely on them, along with other non-financial information.

What additional information would capital providers consider to be useful?

Some of the research questions are addressed more directly and more comprehensively by the literature than others. In particular, the literature is generally positive, rather than normative in nature, hence there is a lack of evidence on what information would be useful to capital providers. As well as the clear preference for positive research in the literature, this absence may reflect an assumption that the market for information is a highly competitive one, so if other information sources were useful given the cost of collection, it would be provided to and used by capital providers.

Implications for standard setters

The principal conclusion of this review is that financial statements are used in different ways by various capital providers with different needs and different objectives. Standard setters need to balance this heterogeneity in demand for accounting information. A limitation of research in an applied social science field like accounting is that it is incapable of providing a sufficiently complete portrayal of human activities to direct regulatory interventions. Nevertheless, the results of this review provide some suggestions that may assist standard setters.

First and foremost, acknowledging that financial statements are one of many information sources for heterogeneous groups of users, standard setters should focus on the competitive advantages of the financial accounting process when developing standards. Financial reporting provides recurring, standardised, regulated and audited data and these features set it apart from other information sources. Developing a financial accounting regime that provides a self-standing complete true and fair view of a company is not necessarily the only objective. Hence, financial reporting information should be designed to coexist with competing information sources with other inherent weaknesses by providing reliable, verifiable data.

Second, new standards will have different purposes and will inevitably suit different user groups in different ways and to different degrees. Standard setters need to decide whether they prefer to balance these interests on a standard-by-standard basis or to systematically focus on a specific subset of users and/or purposes when developing new standards. The first strategy seems conceptually less compelling, while the latter might be politically unstable given that the political influence of different financial accounting user groups varies across jurisdictions and time.

Third, supply must be met by demand to make a difference. Certain user groups, particularly retail investors, do not use information even when it is available to them at little or no cost. Other user groups refrain from using information when it appears to be too costly to use and evaluate. Standard setters should therefore consider the role of information intermediaries when developing new standards.

Finally, certain capital providers regularly require financial accounting data for contracting purposes. Although these users have the option of amending their contracts when standards change, this may result in significant renegotiation costs. Standard setters should therefore consider the use of financial accounting information in contracting when making standard setting decisions.

The need for further research

Despite the fundamental nature of some of the questions addressed by the review, research that directly targets capital providers' needs and information usage remains sparse. Because of the changes in the complexity of accounting, in company communications and in investor research in recent years, there is a need for more contemporary research to address the questions covered by the review, particularly regarding the information used by investors to make investment decisions and assess stewardship. For instance, the effects on decision making of recent technological advances, international institutional differences and in the increasing use of fair value accounting information are largely unexplored. Furthermore, although there is anecdotal evidence that even the most sophisticated users are concerned about the increasing complexity and volume of financial statement data, reliable evidence on this important issue is distinctly lacking.

For academic researchers, this lack of direct evidence represents an opportunity. More direct descriptive evidence on the information gathering and processing activities of capital providers, particular non-equity investors, is essential. There is also a lack of evidence on what information would be useful to capital providers. In many cases, this might require moving away from well-explored capital market data and public firm settings. Field and laboratory experiments, surveys and case studies can produce helpful data, though carefully designed studies of secondary data can also extend our understanding of the information processing of market participants. In addition, our theoretical knowledge about the determinants and effects of financial-reporting based decision making needs to be enhanced and studies testing the resulting predictions for empirical validity using a rigorous research design are needed. Based on such developments, financial accounting researchers should then be better placed to provide an advisory role to financial accounting standard setting, comparable to the role of say applied economists or even engineers in their respective fields.

Chapter 1

BACKGROUND: CAPITAL PROVIDERS IN EUROPE AND DIFFERENTIAL INFORMATION NEEDS

1.1 Introduction

Recent years have seen capital providers faced with dramatic changes in their information environment. The internationalisation of capital and product markets, advances in information technology, the increasing complexity of financial products and changes to international financial reporting standards all have the potential to fundamentally alter the information sources used by capital providers and the ways in which they are used.

This report aims to examine the sources of information used by providers of capital to large publicly listed European companies, with particular emphasis on financial statement data in both financial and in stewardship assessment decisions. In so doing, it identifies the key capital providers, addresses the nature of the decisions they are making and the models they use to impose structure on their decisions. Since the main objective of accounting information is to serve the information needs of capital providers, the questions addressed by the review are of fundamental importance to standard setters and the accounting profession, as well as to the academic accounting community. The focus on large public companies rather than small private companies may be viewed as a limitation of the review, but this reflects the significant differences in information environments between these sectors. The report prioritises research seeking 'direct' evidence of what capital providers do and it is not confined to research published in English. It turns out, however, that the majority of the peer -reviewed literature is published in English and often orientated towards the US.

Before reviewing the evidence on the use of information by capital providers for financial decisions and for assessing stewardship, important questions need to be addressed. First, who are the providers of capital and how do their needs differ? Second, what is the relationship between the financial and stewardship roles of information? It is also important to recognise at the outset that the very idea of using capital providers' needs as the primary basis for shaping accounting information is relatively novel and is not universally accepted as appropriate (Young, 2006). In addition, the assumption that accounting is shaped by capital markets is sometimes reversed, because the literature also suggests that accounting may influence capital structure (Krishnaswami *et al.*, 1999; Bharat *et al.*, 2008; Dhaliwal *et al.*, 2011).

1.2 Differences in capital providers

Although prior research on capital providers focuses mainly on equity investment (Fields *et al.*, 2001; Kothari, 2001; Armstrong *et al.*, 2010), for most EU firms, debt is the most significant source of capital. The average European country has a debt market twice the size of its equity market, although there are significant international differences. In Austria and Portugal, for example, debt markets are over four times the size of equity markets. Aggregate analyses reveal large differences across Europe, as shown in Figure 1 and Table 1. Compared with US firms, on average, European firms have less equity, significantly more liabilities and, in particular, more current liabilities. Virtually all European firms rely on bank loans and trade creditors for capital, and these jointly represent around 70 per cent of total liabilities. Other sources of debt such as debentures, convertible debt and leases are relatively rare. The data in Figure 1 may favour debt because they are gross figures and based on book value rather than market values. Nevertheless, there is a consensus in more recent research that debt markets are accessed more often than equity markets and that consequently, studies of credit markets are under-represented in the literature (Armstrong *et al.*, 2010).

The literature's concentration on equity market participants as the primary users of accounting information may lead to an incomplete understanding of the use of information by capital providers, both by academics and standard setters. This report attempts to synthesise the existing academic literature on this topic and in doing so, it attempts to reflect the relative economic significance of the main capital providers highlighted in Table 1 and Figure 1. It also aims to identify potential gaps in the current research and to provide recommendations for standard setters.

The report builds on the relatively well-known fact that debt and equity providers require different information and use it in different ways (Ball *et al.*, 2008a; Kothari *et al.*, 2010). It also sees accounting as having evolved from the separation of managers and investors, where managers have more complete information on the profitability of investment projects but are not the most reliable source of information. Auditors are therefore required to provide independent verification of the information produced by managers. When referring to accounting information, the focus in the review is on audited financial statements, rather than on management commentaries or forecasts, press releases, or unaudited reports.

Because of their relative importance and differing information needs, in this review, capital providers are separated first into equity investors, debt providers and trade creditors. Then, equity and debt users are identified and separated into 'insiders', who are likely to have direct access to private communications from those within the company for their decisions, and 'outsiders', who must rely on publicly available information.

Before each type of capital provider is reviewed in detail, the report discusses how differences in claims affect the information needs of capital providers and how they use information. It also documents how differences in depth and size of debt and equity markets, along with variation in other important institutional factors across countries, are important in shaping who capital providers are and how they use accounting information.

Table 1: Capital providers of European firms

Panel A: Relative importance of debt and equity markets (World Bank Data)

Country	Market capitalisation (%GDP)	Stock traded value (%GDP)	Credit to private sector (%GDP)
	Average 2001-2011	Average 2001-2011	Average 2001-2011
Austria	28.1	11.9	114.5
Belgium	64.0	28.0	84.1
Denmark	62.5	50.9	183.5
Finland	94.5	117.9	77.7
France	78.5	75.2	100.4
Germany	44.6	62.7	112.0
Greece	48.2	25.0	84.7
Ireland	44.0	24.8	170.6
Italy	35.9	54.4	97.3
Luxembourg	161.1	0.8	150.5
Netherlands	89.5	143.4	174.9
Portugal	38.2	25.8	158.5
Spain	85.1	132.0	160.7
Sweden	102.6	123.5	116.6
United Kingdom	121.5	179.0	171.0
United States	122.2	240.2	194.8
EU15	73.2	70.4	130.5

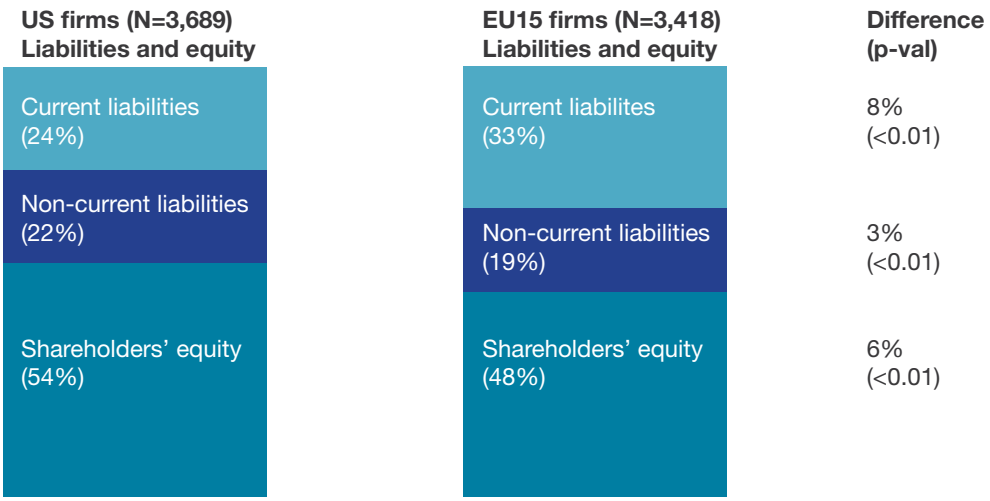
Notes:
Panel A presents World Bank data averaged across 2001-2011 for market capitalisation (as a percentage of GDP): the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. It does not include investment companies, mutual funds, or other collective investment vehicles. Stock traded value (as a percentage of GDP) refers to the total value of shares traded during the period. It complements the market capitalisation ratio by showing whether market size is matched by trading. Credit to private sector (as a percentage of GDP) refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises.

Table 1: Capital providers of European firms
Panel B: Capital structure of European firms

Country	N	Share-holders' equity	Non-current liabilities	Current liabilities	Trade creditors		Debt		Bank loans		Debentures & convertible debt		Lease liabilities	
					% have	% TL	% have	% TL	% have	% TL	% have	% TL	% have	% TL
Austria	61	44.17%	24.92%	30.91%	100%	17%	85%	23%	59%	50%	20%	13%	39%	7%
Belgium	87	45.51%	19.11%	35.38%	100%	25%	89%	23%	68%	53%	20%	11%	48%	14%
Denmark	101	50.41%	19.08%	30.51%	99%	19%	84%	26%	57%	59%	11%	3%	27%	14%
Finland	104	44.61%	20.27%	35.12%	99%	16%	92%	26%	76%	60%	23%	11%	61%	13%
France	491	43.79%	18.94%	37.27%	100%	24%	90%	20%	59%	45%	21%	14%	38%	8%
Germany	539	48.61%	21.55%	29.84%	98%	19%	71%	18%	52%	55%	13%	11%	25%	7%
Greece	189	38.21%	22.82%	38.97%	99%	15%	87%	22%	50%	42%	0%	0%	35%	14%
Ireland	50	53.24%	22.61%	24.15%	94%	21%	62%	22%	40%	58%	2%	0%	32%	14%
Italy	174	35.12%	24.08%	40.81%	100%	27%	94%	22%	91%	89%	0%	0%	3%	1%
Luxembourg	40	52.60%	24.07%	23.32%	95%	18%	85%	27%	50%	42%	5%	3%	45%	11%
Netherlands	92	45.51%	18.87%	35.62%	99%	21%	77%	21%	42%	40%	10%	9%	30%	9%
Portugal	33	26.63%	33.58%	39.79%	100%	16%	100%	35%	94%	74%	3%	1%	21%	3%
Spain	100	34.43%	30.47%	35.09%	100%	20%	97%	30%	94%	81%	0%	0%	22%	3%
Sweden	292	51.77%	15.85%	32.39%	100%	20%	66%	18%	44%	58%	12%	10%	14%	7%
UK	1,065	57.28%	15.51%	27.20%	97%	23%	57%	16%	40%	57%	5%	5%	27%	15%

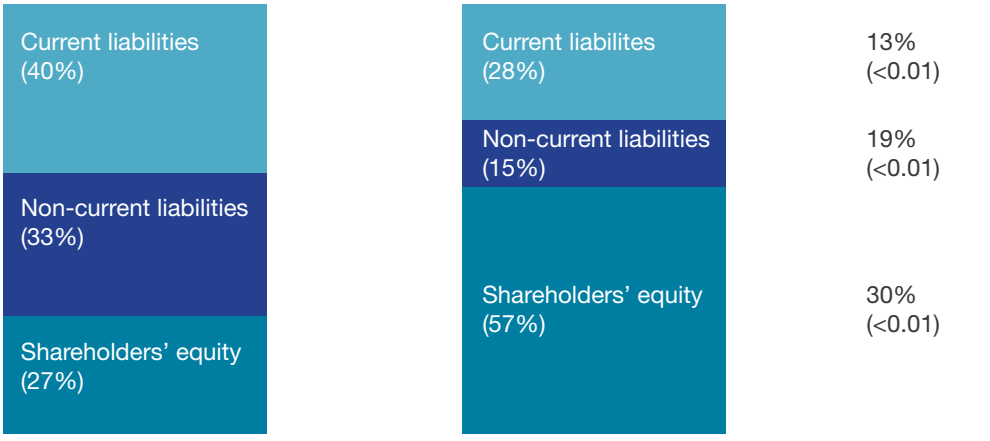
Notes:
Panel B provides average data on the capital structure of publicly listed, industrial EU15 firms that present consolidated accounts and have data available for the year ending December 2011 in the ORBIS database. We exclude firms if the total assets figure does not equal the sum of shareholders' equity plus current and non-current liabilities, or if they have negative shareholders' equity. The columns labeled '% have' report the percentage of firms in a given country that have that type of liability. The columns labeled '% TL' report the average percentage of that type of liability over the total liabilities of firms in that given country.

Figure 1: Comparative balance sheets across EU and US
Panel A: Average US firms and EU15 firms



Notes:
Panel A presents average balance sheets for all active, publicly listed, industrial EU15 and US firms that present consolidated accounts and have data available for the year ending December 2011 in the ORBIS database. Firms are excluded if the total assets figure does not equal the sum of shareholders' equity plus current and non-current liabilities, or if they have negative shareholders' equity. The final sample comprises 7,107 firms (3,689 from the US and 3,418 from the EU15).

Figure 1: Comparative balance sheets across EU and US
Panel B: Average Portuguese and UK firms



Notes:
Panel B presents average balance sheet for two extreme EU15 countries in terms of their capital structure: UK and Portugal. The differences are accompanied by the statistical probablility (p-values in parentheses) that the averages (US *versus* EU in Panel A and Portugal *versus* UK in Panel B) differ significantly at the 0.01 level in t-tests.

1.3 Information usage and differences in claims

In practical terms, equity and debt can be distinguished by the basic feature that debt providers' returns are limited on the downside and upside, whereas equity returns are only constrained on the downside. Lenders and bondholders are therefore more sensitive to downside risk than equity providers. Some studies illustrate the differences between shareholders and debt holders via comparisons with options, noting that shareholders' claims are in some ways analogous to a call option on the value of the firm's assets, with an exercise price equal to the face value of debt (Kothari *et al.*, 2010; Beaver *et al.*, 2010). Debt holders' claim can then be viewed as similar to a put option, where the upside is limited to the face value of debt. If the value of the firm falls below the value of debt, debt holders lose the difference between these two values, and when the firm's value exactly equals the value of debt, there is no value left for shareholders once the debt is repaid.

Because of these fundamental differences, the interests of debt holders and shareholders may conflict, particularly where shareholders and directors attempt to maximise the value of equity and not the value of the firm. Shareholders may, for example, design firms' operations and financial structure in ways that reduce both the value of the firm and its debt. Several influential studies refer to this as the agency conflict of debt (Jensen and Meckling, 1976; Myers, 1977). Smith and Warner (1979) identify the following four possible conflicts:

1) *Dividend payments:* when debt is issued, the price incorporates an assumption of dividend payments and, if the dividend is raised, the value of debt is reduced. Ultimately, if a firm sells all its assets and pays a liquidation dividend, debt holders are left with a worthless claim;
2) *Claim dilution:* if the firm issues new debt of the same or higher seniority, the value of debt holders' claim is reduced;
3) *Asset substitution:* if the firm issues debt to finance certain investments, the value of shareholders' equity rises by substituting projects which increase the firm's risk whereas the opposite happens for debt holders;
4) *Under-investment:* firms with outstanding debt can have incentives to reject projects with a positive net present value if the benefits from accepting the project accrue to the debt holders.

In anticipation of these conflicts, debt holders protect themselves through higher interest rates and to avoid this, shareholders are willing to incorporate covenants into debt contracts that limit the issuance of additional debt and restrict dividend payments or the disposition of assets (Armstrong *et al.*, 2010).

Because the value of debt claims is generally more sensitive to decreases in firm value than to increases, debt contracts treat gains and losses asymmetrically, and contracts include covenants triggered by decreases in the value of the firm, but not by increases. This creates more demand for conservatism in accounting from debt providers. Furthermore, since many post-issuance contractual rights of lenders are specified in terms of financial statements alone, other sources of information are less valuable to them. The report discusses these issues in more depth in Chapter 2 as capital providers and their information needs are reviewed in turn.

A further issue to consider is that despite increasing international harmonisation of accounting standards, the economic, legal and political institutions that shape reporting and enforcement incentives have remained mainly local. This is because accounting standards impose bounds on the outputs of accounting systems, but the incentives of preparers (managers) and enforcers (auditors, courts and regulators), may still lead to significant international differences in accounting (Pope and Walker, 1999; Ball *et al.*, 2000; 2003; Leuz *et al.*, 2003; Burgstahler *et al.*, 2006). In fact, some evidence suggests that between 1950 and 2000 legal procedures have not converged and may have even diverged (LaPorta *et al.*, 1998; Balas *et al.*, 2008).

Even in regions using a single set of accounting standards for large listed public entities, such as IFRS in Europe, enforcement may be uneven causing substantial differences in financial reporting quality to remain (Van Tandeloo and Vanstraelen, 2005; Ball, 2006; Jeanjean and Stolowy, 2008; Lang *et al.*, 2010). If this is the case, European capital providers are unlikely to use financial statements of different quality in the same way, even when prepared using the same principles. The potential impact of international variation in financial reporting post-IFRS is quite widely acknowledged in the literature and its consequences are beginning to be understood in more indirect aggregate market-based research (Pope and McLeay, 2011; Brüggeman *et al.*, 2013); however, direct evidence on the effects of international differences on capital providers' financial and stewardship decisions remains scarce.

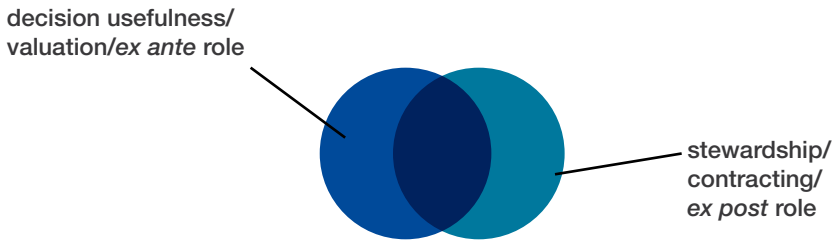
1.4 Financial decision making and stewardship roles

An important feature of the questions addressed by the review is the focus on both the 'decision usefulness' and 'stewardship' roles of information. Succinctly put, the former involves using information to make investment/valuation decisions and typically requires future-orientated information (that is, the *ex ante* role of information), while the latter entails using information to monitor management's use of capital after it has been invested in the company (the *ex post* role). This often requires more emphasis on past actions and sometimes implicates key financial statement information (such as earnings per share or leverage ratios) explicitly in contracts between equity investors, managers and lenders. Although the term stewardship is widely used, there is considerable discomfort about its use in the literature (Lambert, 2010), and the 'contracting' or 'accountability' roles are sometimes used as alternatives. Similarly, the 'financial decision making' role is sometimes referred to as the 'valuation' or 'decision usefulness' role of accounting information.

Overall, the stewardship role of information receives far less attention in the literature than the decision usefulness role (O'Connell, 2007). There is also much more empirical evidence on the role of information in financial or investment decisions, since much of the research on stewardship is based on theoretical analyses. The theoretical research reveals that although the two roles are sometimes aligned, this is not always the case. There is no clear consensus on the relative importance of the two roles, but there is growing concern over the effective demotion of stewardship in the IASB's *Conceptual Framework* (Murphy *et al.*, 2013). For instance, in their recent study of the theory of GAAP, Kothari *et al.* (2010) argue that stewardship and performance measurement are the primary focus of financial statements, while Lambert (2010), a key contributor to literature in this area, disagrees. There is a clear

consensus, however, that while information for valuation is sometimes useful for stewardship, the two roles are not always aligned (Lambert, 2001; 2010). A broad representation of the relationship between the portrayal of the two roles in the literature is provided in Figure 2. While there is disagreement over the relative importance of the two roles and the extent of the intersection between them, there is a consensus that the two roles do not always coincide (e.g. Bromwich, 1992).

Figure 2: Portrayal of decision usefulness and stewardship roles of accounting information in the literature



In a seminal theoretical contribution, Gjesdal (1981) derives a demand for a stewardship objective for accounting and demonstrates that the decision usefulness objective and stewardship objective are not always aligned. Lambert (1993) also distinguishes between the valuation role of earnings and their role for evaluating managers' performance and emphasises the key point that financial statement information is useful for aligning investors' and managers' interest because it is not as affected by factors outside managers' control as share prices. For stewardship purposes, capital providers value information if it is informative about managers' effort (Holmstrom, 1979; Lambert and Larcker, 1987). For financial decisions, however, information is required on future cash flows regardless of whether they are due to managers' effort (Beyer *et al.*, 2010). Lambert (2010) makes the important point that for financial decisions, investors use information for estimating future cash flows, while for stewardship purposes, they use the information to affect future cash flows. This relates to the use of compensation packages to influence managers' actions in the current period to be in line with the interests of shareholders (Kothari *et al.*,2010) and to the argument in Dickhaut and McCabe (1997, p. 61) that 'the simple act of recording a steward's exchanges creates accountability by causing her/him to modify her/his behaviour in light of this accounting'.

Because of these differences, the desirable properties of accounting information are often different under these two roles. In particular, conservatism is often preferred under stewardship and contracting, due to a reluctance to recognise bad news, whereas neutrality is usually preferred for valuation purposes (Bushman and Indjejikian, 1993; Dutta and Zhang, 2002; Chen *et al.*, 2010; Kothari *et al.*, 2010; Wu and Zhang, 2009). Dutta and Zhang (2002) also report that mark-to-market accounting is desirable from a valuation perspective, but not from a stewardship perspective because of its focus on anticipated managerial performance

rather than delivered performance. Furthermore, whereas for financial decision making, non-recurring items are inconvenient and are often removed from accounting figures (Barker, 2000; Barker and Imam, 2008), Christensen *et al.* (2005) show that this is not always the case for stewardship. Nevertheless, both empirical market-based research and theoretical research show that there are significant overlaps between the stewardship and valuation roles (Bushman *et al.*, 2006; Banker *et al.*, 2009; Drymiotes and Hemmer, 2013). In summary, using the terms as they are commonly understood in the literature, the stewardship and decision usefulness roles of financial statements, sometimes coincide, but do not always, even for the same class of investor.

After having identified the main providers of capital in the EU and considering both financial and stewardship assessment decisions, the report now turns to substantive questions on the use of information by capital providers.

Chapter 2

REVIEW FINDINGS: INFORMATION USAGE BY CAPITAL PROVIDERS

2.1 Introduction

In light of the differences in users' needs discussed above, the literature review is structured with reference to different types of capital providers. Despite the importance of debt markets in providing capital to EU companies, the majority of available evidence focuses on equity providers. These investors are therefore covered first, followed by debt providers, then trade creditors. In discussing equity providers, the review distinguishes between professional (or institutional) equity investors, private (or retail) investors and inside equity investors. The review also distinguishes between 'inside' equity investors (such as family owners) who have an entitlement to price-sensitive information from within the firm, and 'outside' equity investors, who have no such access and therefore rely on information that is generally publicly available.

2.2 Outside professional equity investors

Over time, equity investment, which is a major source of capital for many large European companies, has become increasingly institutional, rather than private, in nature. The average level of financial assets held by institutions (comprising mainly pension funds, mutual funds and insurance companies) as a percentage of GDP in OECD countries rose from 110 per cent to 163 per cent between 1995 and 2005 and equity forms the majority of these assets (OECD, 2008). In 2009 institutional investors managed around $22 trillion of equity in the OECD area (OECD, 2011) and even in Germany, where bank finance has historically been dominant, professional equity investors are now major participants in investment and governance processes (Hewitt, 2011). Professional equity investors typically have the necessary time, resources and expertise to gather and process complex accounting and other information. Probably because of these factors, much of the literature on capital providers' information usage focuses on this user group.

Differences between types of professional investors may well be important. For example, pension funds have longer investment horizons than investment trusts, which might cause different emphasis on strategic information rather than on short-term results. In Germany, banks and insurance companies, which act as depositories for private shareholders, may be involved in the investment and governance process by proxy (OECD, 2011). Furthermore, although the European equity investment industry is becoming more integrated over time, foreign and domestic investors may differ due to language and logistical barriers (Hewitt, 2011). There is very little evidence on whether these differences result in the use of different information sources; however, the literature does distinguish between fund managers, those

ultimately responsible for the investment decision, and investment analysts, who are important intermediaries directly involved in the professional equity investment industry (Barker, 1998). Investment analysts can be further split into sell-side analysts and buy-side analysts: the former are typically employed by investment banks and generate and publish earnings forecasts, share recommendations and target prices, while the latter, who work in investment management firms, use information from sell-side analysts and elsewhere to support portfolio investment decisions (Schipper, 1991; Fogarty and Rogers, 2005). Such a distinction is important because buy-side analysts' motivations and objectives are different to those of sell-side analysts (Hirst and Hopkins, 2000; Groysberg *et al.*, 2008).

The distinction between buy-side analysts and fund managers is, however, sometimes blurred. In addition, the literature often views both buy-side and sell-side analysts as analogous to investors, even though analysts are not strictly capital providers and are producers, as well as users, of accounting information. For instance, Schipper (1991, p. 105) notes that 'Given their importance as intermediaries who receive and process financial information for investors, it makes sense to view analysts ('sophisticated users') as representative of the group to whom financial reporting is and should be addressed.' Furthermore, Frey and Herbst (2012) and Cheng *et al.* (2006) find that buy-side analysts have a significant influence on the trading decisions of fund managers.

Ultimately, professional equity investors aim to maximise share returns (usually relative to a benchmark or index) and assess whether shares are over or undervalued with reference to some measure of uncertain future cash flows or earnings (Barker, 1999a; Arnswald, 2001). At its most basic, the equity investment decision can be compared with a simple net present value rule, where the present value of future cash flows arising from ownership of the share should exceed the present price. Equity investors therefore need information that helps them to estimate future cash flows and the associated risk (or future returns). Such a simple representation masks the considerable complexity involved in the practice of equity analysis by professional investors, however, which encompasses questions such as how are future cash flows to be defined and measured: estimated directly (dividends or free cash flows to the firm), or indirectly (such as via earnings)? Over what horizon are cash flows to be forecast? To what extent are social and institutional factors important? Equity investors also have important stewardship assessments to make in holding managers to account for past performance. Accounting information that is not future-orientated may remain important for management appointment and remuneration decisions.

Much research, using various methodologies, has addressed these questions and in some areas, a relatively clear consensus emerges. First, professional equity investors are known to employ fundamental valuation models, particularly the price/earnings (P/E) ratio and, more recently, discounted cash flow (DCF) models (Barker, 1998; 1999b; Imam *et al.*, 2008). Second, they are heavily reliant on financial statements and this finding spans various European countries, including France (Chambost, 2007); Germany (Pike *et al.*, 1993; Marton, 1998; Ernst *et al.*, 2005; 2009; Glaum and Friedrich, 2006; Gassen and Schwedler, 2010); the Netherlands (Vergoossen, 1993); Spain (Rojo *et al.*, 2006); Sweden (Olbert, 1994) and the UK (Imam *et al.*, 2008; Clatworthy and Jones, 2008; Campbell and Slack, 2008). Third, information obtained through direct contact with company personnel is very heavily relied upon and is sometimes considered to be at least as important as financial statements and annual reports (Barker, 1998; Holland, 1998; Glaum and Friedrich, 2006; Barker *et al.*, 2012). When it comes to the relative importance of other information, there is less of a consensus, however.

Professional equity investors' use of valuation models

The accounting literature on equity valuation models is large and involves both theoretical and empirical research. Since the 1990s, theoretical discussions have evolved from models based on dividends and cash flows, to models based on accounting data - particularly on accounting earnings. The essential logic and structure of these models is, however, similar (indeed, they are mathematically equivalent under certain assumptions) as each attempts to use information designed to capture the present value of expected future cash flows, discounted by the cost of capital. Information is generally deemed useful if it assists in this task. Appendix 1 briefly discusses the logic behind the principal equity valuation models discussed in the literature.

Studies of the models used by professional equity investors show that accounting-based fundamental valuation models are used to a large extent, although with varying levels of sophistication. These studies are typically based on interview and questionnaire surveys and have the significant advantage of more directly observing the processes by which analysts and professional investors use information. However, the research is often quite dated, based on relatively small samples that are not always independent of one another and is often susceptible to sampling bias.

Early survey evidence shows the price/earnings (P/E) ratio to be widely used by analysts and fund managers and discounted cash flow (DCF) models to be generally less important. However, more recent evidence shows the latter to be more important than earnings models (Demirakos *et al.*, 2004; Glaum and Friedrich, 2006). In a study involving an analysis of equity research reports and interviews with buy-side and sell-side analysts, Imam *et al.* (2008) conclude that discounted cash flow models have become significantly more important than implied by earlier research.

The popularity of the P/E ratio is consistent across countries, though there are surprisingly few recent surveys outside the UK. In a survey of UK and German analysts, Pike *et al.* (1993) find that simple valuation multiples, predominantly the P/E ratio, are more widely used than DCF models, while Vergoossen (1993) obtains similar results in the Netherlands. These results are also broadly representative of the US (Block, 1999; Bradshaw, 2002; Graham *et al.*, 2002). In contrast, several studies point to differences between industries, potentially driven by different variability of cash flows, the extent to which accounting captures firms' assets and different growth levels (Barker, 1999a; Demirakos *et al.*, 2004).

Analysts' approach typically involves the prediction of one-year ahead earnings and the application of a P/E ratio to estimate value. Barker (1999b) suggests that a potential reason for this unsophisticated approach is that valuation models play a limited role in investment decisions. P/E ratios and dividend yields might offer an initial screen of investments, but are not relied upon for final decisions. Moreover, determinants of investment decisions are mostly qualitative and often difficult to quantify precisely. The popularity of the P/E ratio therefore seems partially attributable to its ability to communicate valuations of earnings efficiently rather than as an intrinsic valuation model; meanwhile, use of the DCF model may be attributable to it having more latitude to support positive recommendations (Imam *et al.*, 2008).

Valuation models are rarely used mechanistically in isolation and are often used on a relative, rather than an absolute basis. Valuation takes place in the context of macroeconomic, industry and strategic considerations (Glaum and Friedrich, 2006; Penman, 2010) and subjective judgements are usually made to the outputs of the model (Imam *et al.*, 2008). Demirakos *et al.* (2004) find that in industry sectors where accounting captures firms' value well, single-period accounting models such as P/E are more common. In contrast, cash-flow based models are used more often in the sectors where accounting does not do a good job of capturing firm value. In a rare example of single-industry research, Glaum and Friedrich (2006) find UK and German telecommunications analysts use multiples to compare with other firms to prompt further investigation in the case of divergence from industry norms.

Information sources used by professional equity investors

Because the logic of equity valuation models demands information on future cash flows, returns and/or earnings, information is considered useful for financial decision making when it is informative about future cash flows or earnings (Barker and Imam, 2008). Surveys on information sources used by professional equity investors show that two sources of information are regarded as most useful: financial statements (particularly the income statement) and direct managerial contact. Generally, narrative information is not highly valued (Campbell and Slack, 2008).

Table 2: Importance of financial statements to professional investors

Vergoossen (1993)	Olbert (1994)	Barker (1998)	Barker (1998)	Marton (1998)	Martinez Conesa and Ortiz Martinez (2004)	Clatworthy (2005)	Ernst *et al.* (2005)	Glaum and Friedrich (2006)	Ernst *et al.* (2009)	Gassen and Schwedler (2010)
Question-naire: 175 Dutch analysts (both buy-side and sell-side)	Question-naire: 273 Swedish analysts (both buy-side and sell-side)	Question-naire: 42 UK analysts	Interviews: 39 UK fund managers	Interviews: 15 German, UK and US sell-side analysts (1 buy-side)	Question-naire: 45 Spanish analysts (buy-side and sell-side)	Question-naire: 380 UK analysts and fund managers	Question-naire: 37 German and 16 'Anglo' institutional investors in Deutsche Post[5]	Interviews: 25 sell-side telecoms analysts; UK and Germany	Question-naire: 149 institutional investors in Thomson Financial One	Question-naire: 242 (mainly equity) analysts mainly from Europe[6]
1. Most recent annual report	1. Financial statements[1]	1. Direct company contact[2]	1. Meetings with man-agement	1. Income statement[3]	1. Con-solidated income statement[4]	1. Meetings with man-agement	1. Annual report (inc. financial statements)	1. Contact with company representa-tives	1. Direct personal company communica-tion	1. Annual financial statements
2. Manage-ment Com-munication	2. Interim results	2. Analysts' meetings	2. Annual report and accounts	2. Balance sheet	2. Contact with directors	2. Company visit	2. Direct personal company communica-tion	2. Financial statements	2. Quarterly reports	2. Direct personal manage-ment contact
3. Interim reports	3. Notes to financial statements	3. Results announce-ments	3. Interim report and accounts	3. Manage-ment report	3. Annual report	3. Most recent annual report	3. Quarterly reports	3. Analyst conferences	3. Annual report (inc. financial statements)	3. Notes to financial statements
4. Offering prospec-tuses	4. Company personnel	4. Annual report and accounts	4. Analysts	4. Notes to financial statements/ cash flow statement	4. Notes to consolidated accounts	4. Preliminary earnings announce-ments	4. Investors meetings	4. Company visits	4. Investor meetings	4. Quarterly financial statements

Notes:

[1] = Profit and loss account and balance sheet.
[2] = Included in personal contact: results announcements, analyst meetings and annual report and accounts.
[3] = Based on number of analysts mentioning respective items in interviews; results only include components of annual reports
[4] = Parent company accounts were deemed far less informative.
[5] = Includes investors from the Netherlands and US.
[6] = Based on mean responses to questions on the relevance of various information sources.

Studies based on interviews, questionnaires and analyses of sell-side analysts' reports show that the financial statements in general, and the income statement in particular, are used extensively by professional equity investors. Table 2 summarises the most important information sources from several European surveys of professional equity investors and shows that the annual report, particularly the financial statements, and direct contact with the company are consistently rated the highest. The income statement is typically the most influential of the financial statements and in more recent research, management contact is considered more important than the financial statements. Recent international comparisons are rare, but tend to reinforce the main findings; Ernst *et al.* (2005) find Anglo investors to be more focused on cash flow statements than German investors, though the sample size in this study is small. Studies of European investor relations departments tend to support the findings on the importance of the main sources to professional equity investors (Marston and Straker, 2001; Hoffman and Fieseler, 2012).

A limitation of the survey evidence is that it treats different information sources as independent when in practice, they are highly interdependent. This means, for example, that one cannot assume that non-accounting sources would be as important or used in the same way if accounting information were absent from the information environment. In many countries, financial reporting information is most often used alongside other information sources, particularly management contact (Marton, 1998; Holland, 1999). Barker *et al.* (2012, p. 219) find that management meetings are used to 'frame or make sense of the plethora of hard data provided by the companies themselves and by analysts.' Hence, even though management contact includes discussion of information outside of the financial statements, such as strategic information and management's ability to implement strategy (Roberts *et al.*, 2006; Glaum and Friedrich, 2006), it is not possible to conclude from the survey evidence that management meetings would remain as useful in the absence of audited financial statements.

Similarly, while non-accounting information is useful to professional equity investors, Barker and Imam (2008) find that it is used to contextualise and add meaning to accounting data. Interestingly, they also suggest that analysts prefer using non-accounting information because, unlike with verifiable accounting data, they have more latitude when communicating with investors, without being shown to be wrong.

The importance attached to information sources may also transcend economic considerations. In a study of management meetings involving UK fund managers, Barker *et al.* (2012) report that meetings provide information that is useful, but not price sensitive. Fund managers use meetings to develop personal relationships, to acquire tacit knowledge and to form subjective opinions of managements' capabilities, rather than to acquire short term information directly relevant for valuations.

Table 2 shows that notes to the financial statements are important to professional equity investors (see also Fülbier *et al.*, 2008). Experimental research, which sometimes uses students as surrogates for actual analysts, shows that disclosures in notes are not given the

same weight as recognised figures; however, recent work indicates that when analysts go through the process of adjusting the data in the notes as if it were recognised, they attach greater weighting to it (see Nelson and Tayler, 2007 and references therein).

The extent to which professional investors conduct detailed analyses of accounting data is sometimes surprisingly low. Breton and Taffler (1995) report that UK sell-side analysts make very few adjustments to financial statements known to contain 'window dressing' (though these results are now dated), while Barker (2000) finds analysts have only a limited understanding of the structure and valuation relevance of the financial statements. In particular, analysts' interpretation and use of earnings information is not always grounded in a complete understanding of accounting issues of recognition and measurement. Lachman *et al.* (2010) find experimental evidence that German investors are misled by fair value accounting for liabilities.

In addition to the survey evidence confirming the importance of the financial statements, a great deal of research has used stock market data to confirm the importance of accounting information. The literature in this area is vast and a comprehensive discussion is beyond the scope of this review. Essentially, there are two main approaches. The first is the 'value relevance' research, which examines statistical associations between accounting data (such as profits) and share prices. Generally, accounting information is highly correlated with share prices and returns, though there are strident views about the inferences standard setters can and should draw from this research (Barth *et al.*, 2001; Holthausen and Watts, 2001; Fukui, 2008). The second approach examines changes in share returns, volatility or trading volume surrounding the release of accounting information and research confirms that stock markets do react to the release of accounting information, particularly to earnings announcements. However, the reaction is sometimes slower than expected - a phenomenon referred to as 'post earnings announcement drift.' Dumontier and Raffournier (2002) provide a general discussion of the European evidence in this field, while Pope and McLeay (2011) and Brüggeman *et al.* (2013) survey the more recent market-based evidence following IFRS adoption by European companies.

There is an extensive (primarily US-based) literature on sell-side analysts, mainly focusing on earnings forecasts. Many studies report that analysts fail to incorporate all publicly available information in their forecasts (Lys and Sohn, 1990; Abarbanell and Bernard, 1992) and are prone to over- and under-reaction (DeBondt and Thaler, 1990; Easterwood and Nutt, 1999). European evidence is generally consistent with US findings (Hodgkinson, 2001; Capstaff *et al.*, 1995; 1998; 2001; Wallmeier, 2005). A generally accepted feature of analysts' earnings forecasts is that they are optimistic, due to a desire to maintain good relationships with management and to a reluctance to jeopardise investment-banking ties between the issuer and analysts' employers (O'Brien *et al.*, 2005; Hunton and McEwen, 1997; Das *et al.*, 1998; Groysberg *et al.*, 2011; Lin and McNicholls, 1998; Lim, 2001). The optimistic bias is found to fall over the forecast horizon (Richardson *et al.*, 2004) and there is unsystematic variation between European countries (Capstaff *et al.*, 2001). Analysts also produce biased recommendations and target prices on average (Mokoaleli-Mokoteli *et al.*, 2009; Bradshaw, 2011). Despite these biases, professional investors still rely on analysts' outputs (Schipper, 1991; Barker, 1998;

Clement and Tse, 2003). Brown (1993), Ramnath *et al.* (2008) and Bradshaw (2011) provide comprehensive reviews of the sell-side literature.

An important issue not directly addressed by the survey literature is which definition of earnings professional investors use in their financial decisions. Theoretical analyses (Kormendi and Lipe, 1987; Walker and Wang, 2003; Callen, 2009) show that transient (or non-recurring) items in profits are less highly valued than other components. Thinggaard *et al.* (2006) review the literature on other comprehensive income and conclude it is less relevant to investors than net income. Analysts find 'pro-forma' earnings useful in their financial decisions because they exclude 'one-off' items (Gu and Chen, 2004), and standard forecast data typically exclude such items (see Lambert, 2004 for a discussion). Interestingly, experimental research based on 36 Swedish analysts suggests that pro-forma earnings may mislead professional analysts (Andersson and Hellman, 2007). Evidence from Germany, Spain and the UK shows that both buy-side and sell-side analysts use earnings definitions that exclude interest, tax, depreciation and amortisation (Glaum and Friedrich, 2006; Clatworthy and Jones, 2008; Martinez Conesa and Ortiz Martinez, 2004).

Despite the importance of the usefulness of fair value information to standard setters, to date, the empirical evidence on professional investors' views of different valuation bases is limited. Gassen and Schwedler (2010) is a rare example and they find that professional investors prefer fair value for liquid non-operating assets when it is based on mark-to-market (rather than mark-to-model) but not for non-liquid operating assets. In a theoretical study of fair value *versus* historical cost, Plantin *et al.* (2008) report that mark-to-market accounting is most problematic for assets that are long-lived, illiquid, and senior. A good summary of the pros and cons of fair value accounting is provided by Laux and Leuz, 2009.

An obvious question arising from the preceding discussion is why financial statements should be so useful when they are published infrequently, are less timely and less future-orientated than other sources, such as analysts' forecasts and information from company personnel. Analysts appear to recognise these limitations of accounting data (Glaum and Friedrich, 2006; Campbell and Slack, 2008) and emphasise the importance of the annual report as a reference document, both for the basis of forecasts of future earnings, and for resolving uncertainty about the present and recent past (Marton, 1998). More recent literature, however, posits that accounting information, particularly earnings, includes a relatively modest amount of new information to professional equity investors, and plays a more important 'disciplining' or verification role of confirming prior information (such as that contained in management forecasts) and in facilitating debt and compensation contracts (Ball and Shivakumar, 2008). Providing a persuasive review to support this view of accounting information, Beyer *et al.* (2010) find that US mandatory accounting information explains a very low proportion of equity returns, though it represents a crucial 'benchmark' against which voluntary disclosures can be assessed.

In addition to the financial statements, direct management contact and other analysts, there is evidence from several industries that other non-financial information is also useful for valuation purposes (Amir and Lev, 1996; Ittner and Larcker, 1998; Wyatt, 2008; Orens and Lybaert,

2010; Livne *et al.*, 2011; Coram *et al.*, 2011). Such research is usually confined to sectors where assets are not recognised in the financial statements, such as in telecommunications and new technology companies, though Penman (2001) warns against generalising too much from studies of new economy firms, especially during exceptional economic circumstances. Interview evidence on UK analysts' use of narrative information in the annual report suggests it is of limited use in valuation (Campbell and Slack, 2008). Interestingly, a study of Italian sell-side analysts (and corporate lenders) by Quagli and Riva (2005) shows that while the internet is used extensively for retrieving financial news from sources outside the company, it is also often used to retrieve the financial statements.

Professional equity investors' use of information to assess stewardship

Empirical research specifically measuring professional equity investors' use of information for assessing stewardship is relatively sparse. Most research is US based and examines the use of accounting data in executive compensation contracts following the theoretical studies mentioned in the introduction showing accounting information to be preferable to share prices for assessing management performance because it more closely captures managers' effort (Lambert, 2001). There is considerable 'indirect' evidence from investigations of the statistical association between executive compensation and accounting numbers and this indicates that accounting information is used in contracts with executives for determining compensation (Sloan, 1993; Bushman and Smith, 2001; O'Connell, 2007); however, heavier reliance on share-based compensation and option plans may have reduced the strength of the association between pay and earnings (Core, 2002). Little is known about the definition of earnings being used due to the lack of access to contracts, but Lambert (2010) conjectures that few contracts use 'bottom line' earnings. Ozkan *et al.* (2012) find weak evidence of a stronger relationship between earnings and compensation for European countries after the introduction of IFRS.

Several interview-based studies point to professional investors using key information sources for this purpose. Barker (1998) finds that UK fund managers use accounting information in meetings with management to assess management's performance track record, possibly explaining why fund managers rate the annual report more highly than analysts; hence, accountability is an important feature of management meetings. Similarly, Holland (1999) finds that financial statements are used in combination with information gathered from UK professional investors' management meetings in assessments of management performance relative to previous year's objectives. In a study of pan-European investor relations, Marston (2004) found that among the most important topics for discussion in management meetings is an 'Explanation of recent results in the context of the general economic environment', while Roberts *et al.* (2006) find that a key purpose of UK management meetings with professional investors is holding company management to account and monitoring financial performance.

Despite the evidence above, the literature is short of recent studies of professional equity investors' information usage that fully consider changes in the information environment. This

is particularly the case for stewardship assessment decisions. Although it is improving over time, there is also relatively little evidence on investors based in many European countries and the potential variation imposed by international institutional differences remains under-explored.

KEY POINTS:

- **Equity valuation models require information relevant for the forecasting of future cash flows or earnings.**
- **Valuation models, particularly the P/E ratio and, more recently, DCF models, are highly important to professional equity investors.**
- **Professional equity investors rely heavily on financial statement information, particularly the income statement, in their decision making.**
- **Notes to the accounts are important to professional equity investors, though levels of understanding of accounting issues can be low.**
- **Whether items are recognised in the financial statements or placed in the notes can affect professional equity investors' decisions.**
- **Financial statement data are rarely used mechanistically or in isolation.**
- **Direct management contact is a vital information source, even though price-sensitive information is not disclosed as part of this contact.**
- **An important role for accounting information is one where it acts as a disciplining mechanism for other sources, which may be more timely and relevant, but less verifiable.**
- **A need for measures of persistent earnings for valuation purposes leads to adjustments to GAAP figures and/or increased reliance on pro-forma earnings.**
- **Financial statements and direct management contact are both important to professional equity investors for stewardship purposes.**
- **The literature in this area is often dated and comparative international studies are rare.**

2.3 Private/retail equity investors

Retail investors are defined as investors with relatively low endowment, both in terms of personal wealth as well as in information processing capacities. Although retail investors do not directly contribute significantly to price discovery nor govern firms, they are important providers of liquidity for stock markets around the world (Kumar and Lee 2006; Kaniel *et al.*, 2008). This view seems to be shared by regulators, since levelling the playing field and protecting the anonymous investor appear to be common objectives among them (SEC 2012; IASB Framework QC.37).

Information usage of retail investors

Much of the available direct evidence on retail investors is based on surveys, which suffer from low response rates and thus, the representativeness of their findings is hard to judge. In addition, the actual behaviour of respondents cannot be observed to assess whether they do what they say they do.

Regardless of these drawbacks the evidence provides a reasonably cohesive picture. Retail investors use four main information sources for their investment decisions, namely: public media; advice by financial institutions; friends or family; and financial statements. However, the ranking of these four sources varies across studies (Bartlett and Chandler, 1997). Early research presented by Lee and Tweedie (1975), Epstein and Pava (1993) and Anderson and Epstein (1996) reveals a preference for financial advice by brokers and other members of financial institutions, whereas more recent evidence shows that public media play a major role (Ernst *et al.*, 2005; 2009).

Regardless of whether personal advice or public media are deemed to be the most important information source, both provide 'filtered' information, meaning that the underlying financial accounting information has been selected, condensed and interpreted by information intermediaries. A survey of US investors by Elliot *et al.* (2008) indicates that the use of unfiltered, 'raw' financial accounting information by retail investors is linked to lower returns on investment. This negative relationship is less pronounced for more experienced investors.

When using financial reporting information, retail investors focus on core components of the financial statements: balance sheet; income statement; and cash flow statement. The income statement is regarded as slightly more informative than the balance sheet. Also when using financial statements directly, retail investors prefer filtered and qualitative information to unfiltered and quantitative information. Moreover, unlike professional equity investors, they seem to discard the notes of the financial statements almost completely (Ernst *et al.*, 2009: 31). In a recent study, Arnold *et al.* (2009) use explorative group interviews to identify the demand of professional and non-professional investors for topics to be discussed in the management discussion and analysis (MD&A) section of financial statements. They find that retail investors attach larger weights to MD&A items, consistent with the general result that they prefer narrative information relative to professional investors. The difference seems to be particularly pronounced for information about issues like product development and research and development in general. A potential explanation is that retail investors have a pronounced demand for publicly disclosed qualitative information in the financial statements, while professional investors are able to acquire this information by other means.

Research shows that more experienced and better educated retail investors rely relatively more on unfiltered quantitative information (Ernst *et al.*, 2009; Elliot *et al.*, 2008). Furthermore, Cohen *et al.* (2011) find that retail investors who hold socially responsible investments generally use more non-financial information than other investors.

There is also evidence that retail investors prefer audited to non-audited information (Hodge *et al.*, 2003; Ernst *et al.*, 2009; Cohen *et al.*, 2011 for non-financial information). Overall, retail investors are critical about the agency problems related to their investment: around 50 per cent assume that managers manage earnings opportunistically (Hodge, 2003. p. 42). Also, Ernst *et al.* (2009, p. 43) show that more than 40 per cent of responding retail investors fear to be exploited by other stakeholders. This view is also more pronounced among inexperienced investors.

An alternative method of investigating retail investors' information usage is experimental research. Experimental studies investigate causal relations by randomisation within a controlled setting and encompass field studies and laboratory experiments. This makes it easier for researchers to reliably identify whether and how one variable (such as accounting information) affects another (such as investment decision making). As mentioned above, most laboratory studies tend to rely on postgraduate students as subjects, so may not be representative of the typical private investor. A noteworthy exception is a large-scale field experiment by Bhattacharya *et al.* (2012), who study a randomly selected sample of around 8,000 customers of a large German online brokerage firm. The subjects are presented with unsolicited and unbiased investment advice and the few investors (about 5 per cent) accepting free-of-cost advice are older, better educated, and more experienced on average. Hence, investors who would benefit most from the information do not use it.

An accounting study using genuine retail investors as experimental subjects is Coram (2010). He studies whether retail investors use non-financial performance measures in a way similar to professional investors. He finds that retail investors seem to use only negative non-financial performance information, while professional investors with more tacit knowledge use positive as well as negative non-financial information. This is also consistent with the results presented by Bhattacharya *et al.* (2012) that retail investors (choose to) ignore relevant information.

In general, experimental studies find that behavioural biases documented in the psychology literature (such as irrational aversion to losses and investors' reluctance to sell shares that have performed poorly – see Khaneman, 2011) are also present in financial accounting settings (Lipe, 1998; Koonce *et al.*, 2005; Pinsker *et al.*, 2009). In addition, retail investors use data differently to professional investors (Anderson, 1988). They are more easily misled by pro-forma earnings disclosures and often use basic valuation models (Frederickson and Miller, 2004). In addition, Elliot (2006) indicates that retail investors react naïvely to strategically reported pro-forma earnings information and that a quantitative reconciliation to GAAP data mitigates this effect. Related to this, Koonce *et al.* (2010) show that retail investors are unable to use reconciliations of prior year managerial estimates to identify firms that produce opportunistic forecasts.

As is the case for professional investors, accounting presentation matters for retail investors' information analysis and they assign different weights to these measures depending on their location in the financial statements (Hodge *et al.*, 2010; Maines and McDaniel, 2000). In a study of the use of fair value information for liabilities by master's students, Lachmann *et al.* (2011) find that investors are more likely to use information when it is recognised in the balance sheet rather than in the notes.

Although the literature is sparse, there is some evidence that private investors use financial statements and the annual report for stewardship assessment purposes. In a study of 36 Swedish annual general meetings, Carrington and Johed (2007) find that private shareholders, either individually or as part of shareholder associations, are often concerned with financial accounting issues, management compensation and the past performance of the firm. Consequently, financial statement-related issues seem to form an important part of the dialogue at the AGM.

Financial market-based studies of retail investors' information usage

Relatively recent evidence on retail investors is available from the finance literature using market-based evidence and documenting that retail investors tend to invest in 'attention grabbing' stocks (Barber and Odean, 2008) and on firms they know from product markets (Keloharju *et al.*, 2012). They are not able to obtain private information by investing in shares of firms with which they are professionally close (Døskeland and Hvide, 2011).

Taken together, these findings seem to indicate that there is potential to improve market efficiency by enhancing the information environment of retail investors. However, studies of the trading behaviour of retail investors around earnings announcements and analyst recommendations cast doubt on this conclusion. Battalio and Mendenhall (2005) show that retail investors systematically under-estimate the implication of earnings announcements for future earnings. Furthermore, Malmendier and Shanthikumar (2007) find that retail investors fail to adjust the well-documented bias in analyst recommendations. Finally, Hirshleifer *et al.* (2008), using personal trade data provided by a discount broker, document that retail investors tend to be net buyers around earnings announcements with extreme earnings surprises, regardless of whether these surprises are positive or negative.

Chiyachantana *et al.* (2004) find that retail trading increased relative to institutional trading around earnings announcements after Regulation Fair Disclosure was introduced in the US, consistent with retail investors abstaining from trading when they fear institutional investors have better information. In addition, Vieru *et al.* (2006) for the Finnish market and Kaniel *et al.* (2012) for the US market provide evidence of informed trading of retail investors prior to earnings announcements. This indicates that at least some retail investors possess private information, which they incorporate into their valuations.

Thus, it appears that retail investors use some but not all of the information provided in publicly available financial reports. In addition, regulatory interventions, aimed at improving the information environment of retail investors tend to have an effect on retail trading behaviour. This is also indicated by studies showing that the likelihood of informed trading of small investors increased after the introduction of the EDGAR (Electronic Data Gathering, Analysis, and Retrieval) system in the US (Asthana *et al.*, 2004). However, Miller (2010) provides additional evidence that retail investors' trading behaviour is negatively related to the complexity and length of regulatory SEC filings.

KEY POINTS:

- **Retail investors prefer filtered information provided by management or intermediaries to direct financial statement data.**
- **They do not use sophisticated valuation models and their use of accounting information rarely extends beyond the narrative data and the main financial statements.**
- **Retail investors ignore much relevant information, especially when it is complex and less readable.**
- **Retail investors provide uninformed liquidity to capital markets. While this does not benefit them directly, this liquidity facilitates trading activity by informed investors.**

2.4 Inside equity investors and family ownership

While in Anglo-Saxon countries outside equity investors seem to represent the main finance providers for corporations, in some European countries and in East Asia, large public companies have significant levels of inside equity investment. Major stock markets often require as little as 25 per cent of companies' share capital to be in public ownership. Inside investors are typically defined as equity investors with an active involvement in the firm's managerial decision processes. Insider (or managerial) ownership involves an overlap of ownership and control (Demsetz and Lehn, 1985). Unlike the archetypal public corporation where professional managers are endowed with the resources to be managed on the behalf of shareholders, insider investor firms are commonly run by large shareholders that hold poorly diversified portfolios and control key management positions within the firm (Berle and Means, 1932; Jensen and Meckling, 1976; Demsetz, 1983). The most common type of inside investors is entrepreneurial families. According to Shleifer and Vishny (1986), family firms are very common, even within the US: around 33 per cent of US Fortune 500 companies are firms where founding families hold large equity stakes and control a substantial portion of board seats.

Despite the common belief that family firms are a less efficient form of organisation, a substantial number of studies in the accounting, finance, and management literatures provide evidence that the combination of ownership and control can be beneficial (Demsetz and Lehn, 1985; Anderson and Reeb, 2003). When insider ownership is high, firms face a lower risk of wealth expropriation from the management (lower agency costs) and there is a better alignment between manager's and shareholders' goals. Founding families also ensure a longer investment horizon as families normally have incentives to retain their equity stakes or to pass them on to the next generation (Anderson and Reeb, 2003). There is therefore a lower probability of short-termism by managers. However, the alignment of interest between owners and managers potentially gives rise to an 'entrenchment risk'. This happens when highly concentrated family ownership increases the risk of wealth expropriation at the expense of minority shareholders. For these reasons, whether the demand for accounting information from this group differs from other capital providers is difficult to resolve in theory.

The use (and production) of accounting information by inside investors

A recent survey of the role of accounting information in family firms (Salvato and Moores, 2010) highlights some important peculiarities that make families and inside investors different from other investor types in the way they use financial reporting information. The overlap of ownership and control that characterises family firms translates into inside investors being at the same time users and producers of accounting information. Hence, this type of capital provider is in fact actively involved in the preparation of financial reports resulting in these owner-managers being responsible for accounting policy choices. However, because of their incentive structure and investment horizon, inside investors have specific information needs that require accounting information to be useful for managerial control, setting managerial compensation and linking actual performance to planning. Separating the use from the preparation of accounting information for inside investors is therefore virtually impossible. For this reason, evidence is reviewed on both, aiming to highlight the features of financial information produced by inside investors and their use of this information simultaneously.

Studies providing empirical evidence on the information needs of inside investors are very rare, as yet. Much research often examines the way families, the most prominent form of inside investors, influence the preparation of accounting information. While, at first glance, this represents an obvious limitation, the evidence on the active involvement of inside investors in the production phase may provide useful indirect insights on the information needs of this category of capital providers. Most of the reviewed research is based on secondary data and therefore only provides indirect evidence. Furthermore, non-US research often involves small samples and thus the external validity and generalisation of findings is difficult to judge.

The only study providing direct evidence based on a survey of 65 high-growth family firms is Upton *et al.* (2001), who find that the majority of family firms prepare financial reports with a clear intention to tie this information to their written formal plans. The feature of financial reports that inside investors mostly require is therefore a sufficient level of detail to link business planning to actual performance and to calibrate management compensation to financial results (Tiscini and Raioli, 2012). The study by Upton *et al.* (2001) in essence represents the only piece of evidence on the direct use of accounting information by inside investors. The study highlights how financial reporting numbers can play a stewardship role enhancing managerial compensation and efficient contracting in general.

A substantial body of the literature investigates the quality and properties of financial accounting information used and produced by inside investors across different geographic regions and most studies compare the financial reports of family firms with non-family firms. The evidence appears to be mixed and determined by national institutional factors. Most studies investigating US companies focus principally on S&P 500 or S&P 1500 firms. Warfield *et al.* (1995) find that the level of managerial ownership is associated with the quality of earnings, while Ali *et al.* (2007) find that family firms report higher quality earnings and are more likely to issue warnings upon arrival of bad news. Chen *et al.* (2008) find that family firms have a strong preference for a lower level of voluntary disclosure and insider ownership is associated with fewer earnings forecasts and fewer conference calls. Furthermore, family firms tend to provide

more earnings warnings, consistent with the argument that inside owners are more concerned with potential litigation and reputation costs arising from the withholding of bad news.

There is considerable evidence that the quality of information produced by family firms is relatively high. Accounting information is considered to be of high quality when it more faithfully represents the features of the firm's fundamentals that are relevant to a specific decision made by a specific decision-maker (Dechow *et al.*, 2010). In other words, high quality financial reporting information implies a high degree of transparency about the firm's underlying value creation process. In the context of inside investors, Hutton (2007) finds that family firms have a preference for higher quality financial disclosures, while Carlson and Bathala (1997), Wang (2006), Tong (2007) and Jiraporn and Dadalt (2009) all document a positive association between financial reporting quality and managerial ownership. In a study of companies from 11 Continental European countries, where high inside ownership concentration is particularly common, Jara-Bertin and Lopez-Iturriaga (2008) find that higher contestability of control (that is, major shareholders' ability to challenge one another) is associated with lower earnings management. Moreover, Cascino *et al.* (2010) investigate Italian listed firms and find that family firms report financial information of higher quality than non-family firms and that earnings quality is influenced by the institutional environment, corporate governance structures, and investment policies. Other results from research on Italian companies (Prencipe *et al.*, 2008; Prencipe *et al.*, 2011; Di Pietra, 2004; Tiscini and Di Donato, 2009; Viganò, 2007) produce similar findings. Gabrielsen *et al.* (2002), on the other hand, find that for Danish firms, insider ownership is negatively associated with the information content of earnings but there is no significant association between managerial ownership and accounting quality.

Research on French companies by Lakhal (2005) documents a negative association between voluntary disclosures and managerial ownership concentration whereas in Spain, family ownership positively impacts the informativeness of earnings but this reverses when the percentage of shares held by families exceeds a certain threshold (Sánchez-Ballesta *et al.*, 2007). Finally, Stockmans *et al.* (2010) investigate a sample of private Flemish firms and find that insider ownership leads to higher earnings management when firm performance is poor.

KEY POINTS:

- **Companies with inside equity capital providers need accounting information that assists in internal planning and control.**
- **Inside investors use accounting information in compensation contracts. This stewardship role of financial reporting information seems to enhance efficient contracting.**
- **The literature on accounting in family firms emphasises the fact that these capital providers may be preparers/producers, as well as users, of accounting information.**
- **Accounting information prepared by family firms is generally, though not universally, of high quality.**

2. 5. The use of information by debt providers

As shown in the introduction, debt investors provide the majority of capital to companies in the EU. The fundamental decision they have to make is whether to provide debt financing or not, and if so, on what terms. The latter include price (the interest rate at which they lend) and non-price (such as loan maturity, collateral and covenants) features of the loan. Their decisions may be affected by a number of factors, such as the agency conflict with shareholders mentioned in Section 1.3, but assuming it is possible for debt and equity investors to negotiate *ex ante* and minimise these costs, the key issue becomes the probability that the firm may not be able to repay its obligations when due, that is, firm financial distress.

To assess financial distress, debt providers could simply predict that bankruptcy, loan, or bond default will not happen. In around 99 per cent of cases, they would be correct, as bankruptcy is extremely rare, and default is uncommon (Beaver *et al.*, 2010). However, the costs of classifying a healthy firm as distressed is far lower than classifying a failing firm as not distressed, that is debt providers face an asymmetric loss function. Appendix 2 provides further details of distress prediction models.

There is a great deal of research evaluating the usefulness of financial statement data to predict financial distress. Much evidence exists on the many accounting-based ratios that serve this purpose, but unlike the normative models for equity valuation discussed in Appendix 1, there is no unifying theory. The early work of Beaver (1966) suggests up to 30 ratios in six categories are useful: cash flow; income; debt to total assets; liquid assets to total assets; liquid assets to current debt; and turnover ratios. Subsequent research by Altman (1968), Ohlson (1980), and Zmijewski (1984) in the US and Taffler (1983) in the UK, or Laffarga Briones *et al.* (1987) and Mora Enguídanos (1994) in Spain, analyse similar ratios using multiple discriminant analysis (MDA) and logit models, while Shumway (2001) proposes hazard analysis which has higher predictive power. In addition to analysing whether a company will default, hazard analysis also assesses 'when'.

Beaver *et al.* (2005, 2010) summarise the voluminous literature in this area and show that the three key ratios that help predict distress are:
- ROA (profitability of assets);
- EBITDA to total liabilities (ability of cash flow to service the payments); and
- Total liabilities to total assets (a measure of the assets available to repay the debt).

The finance literature proposes an alternative approach, using option pricing theory (Black and Scholes, 1973), based on the work of Merton (1974). This treats the equity of the firm as a call option on the underlying value of its assets, with an exercise price equal to the face value of debt. Market value-based variables are used and a number of prior studies (Vassalou and Xing, 2004; Hillegeist *et al.*, 2004; Chava and Jarrow, 2004; Campbell *et al.*, 2008; Bharath and Shumway, 2008) argue that the accuracy of accounting models may be low, because distress prediction is concerned with the likelihood of future events, and financial statements first measure past performance and are formulated under the going-concern principle (which, by

design, limits their ability to assess distress), and second are less timely than other sources of information and do not provide estimates of volatility, (which are generally important factors in distress prediction).

The extent to which option models outperform accounting-based models is still unresolved. Some report that market-based models outperform accounting-based models (Hillegeist *et al.*, 2004), while subsequent work suggests otherwise (Campbell *et al.*, 2008, Beaver *et al.*, 2010). In particular, Beaver *et al.* (2010) compare these approaches for US firms between 1962 and 2002 and find that accounting models correctly predict bankruptcy for 80.02 per cent of cases, whilst market models have a slightly greater accuracy, at 82.1 per cent. This is consistent with market models capturing all the information content of the accounting models, but also, with the information not reflected in accounting adding very little explanatory power.

The use of financial statement data in debt contracts

At the time of the initial provision of capital and during any subsequent renegotiations, financial statements data are a fundamental source of information for lenders. Many features of debt contracts can be affected by accounting attributes and/or require accounting data in their calculations. These include: the interest rate; loan size and maturity; level of collateral; the presence and nature of performance-pricing provisions; financial covenants; restrictions on investment; dividend and the borrowing base; and whether ('frozen GAAP') or not ('rolling GAAP') the accounting principles used are fixed at loan initiation (Armstrong *et al.*, 2010).

Despite the central relevance of accounting for debt contracts, research in this field remains scarce (Sloan, 2001), mainly due to difficulties in obtaining data. This is especially the case in the EU, where debt contracts are not publicly disclosed. Nevertheless, influential research published decades ago recognised the importance of accounting in debt contracts (Watts and Zimmerman, 1978; 1986). Smith and Warner (1979) show that debt covenants that restrict dividends, financing and production/investment policy are frequently specified in terms of income or balance sheet numbers. Subsequent work unequivocally demonstrates that financial covenants based on accounting variables are commonly used in debt contracts (Leftwich, 1983; Beneish and Press, 1993; Dichev and Skinner, 2002; Bradley and Roberts, 2004; Chava and Roberts, 2008; Nini *et al.*, 2009 in the US and Citron, 1992a in the UK), particularly when the agency conflicts between shareholders and stock-holders are high and there is risk that debt holders will be expropriated, such as in small, high-growth firms (Billet *et al.*, 2007) and where leverage is high (Citron, 1992a). On average, debt contracts contain around three financial covenants (Citron, 1992b; Ball *et al.*, 2008b, Christenson and Nikolaev 2012).

The most common financial covenants are those based on net worth, working capital, leverage, interest coverage, and cash flow (Citron, 1992b; Bradley and Roberts, 2004, Gârleanu and Zwiebel, 2009), in particular, debt/EBITDA covenants are increasingly popular (Demiroglu and James, 2010). In a recent study, Demerjian (2011) suggests that from 1996 to 2007, the use of covenants based on balance sheet variables and ratios declined compared with income

statement ratios due to the broader adoption of fair value measurement by standard setters. Debt holders prefer to rely on a conservative balance sheet with high verifiability thresholds (Citron, 1992b). However, Skinner (2011) questions this trend away from balance sheet covenants, arguing that debt providers can make adjustments to balance sheet numbers. Moreover, Christensen and Nikolaev (2012) present conflicting evidence in a study of balance sheet (capital) and income and cash flow statement (performance) covenants. They argue that debt contracts address two problems: interest alignment *ex ante*, and reallocation of control rights *ex post.* Thus, through contracting, the interests of the different parties can be aligned initially so that there is little disagreement about the desired actions subsequently. When this *ex ante* agreement cannot be easily established, the contract can reallocate decision rights *ex post*, so that debt-holders can decide on the action to be taken. Capital covenants deal with the first issue by imposing restrictions on capital structure, and rely on information about sources and uses of capital. Performance covenants deal with the second issue and require contractible accounting information to be available on current period profitability and efficiency indicators. Christensen and Nikolaev (2012) show that as accounting becomes less informative (or contractible), capital covenants are preferred to performance covenants.

An important question in this literature is whether or not debt contracts use GAAP numbers (Schipper 2005; Guay and Verrecchia 2006). The evidence suggests that GAAP numbers are an important reference point, but that debt providers often make adjustments to accounting. Adjustments to both balance sheet and particularly, income statement numbers are common, and observed measurement rules may differ markedly from GAAP. For example, net worth covenants are adjusted for subsequent equity build up (Dichev and Skinner 2002; Beatty *et al.*, 2008), and sometimes eliminate intangible assets (Citron, 1992b; Frankel *et al.*, 2008), while income-statement based covenants use adjusted earnings numbers such as EBIT or EBITDA that are more insulated from the effect of GAAP changes (Li 2010). Recent trends towards performance pricing in loan agreements, where interest rates are based on values taken by accounting ratios such as gearing and/or interest cover, have made financial statements even more important to debt providers (Armstrong *et al.*, 2010).

Confirming the view that debt markets are sophisticated users of accounting, there is evidence of modifications to debt covenants when accounting rules change (Frankel *et al.*, 2008) and that higher interest rates are charged when contracts retain discretion to select amongst accounting treatments (Beatty *et al.*, 2002). There is also evidence that firms with more opaque accounting are more likely to have more restrictive covenants (Chava *et al.*, 2010), and that firms with restated financial statements agree to additional covenants in subsequent contracts to allay the concerns of lenders (Graham *et al.*, 2008), although in an interview study of 33 UK bank lenders, Citron (1992a) finds that banks impose few costs on borrowers when covenant breaches are caused by changes to accounting standards. Finally, different types of adjustments are made to income statement and balance sheet numbers. Income adjustments tend to remove transitory components, whereas this is less common for balance sheet items (Li, 2010). The latter are more likely to be conservatively adjusted (Beatty *et al.*, 2008) by, for instance, excluding revaluation reserves and intangible assets (Citron, 1992b).

The evidence on conservative adjustments relates to a fundamental issue: is there an accounting measurement basis that improves contracting? Theoretically, if lenders prefer conservatism, they can write firm-specific conservative contracts making adjustments over time, without requiring biased reporting in the first place. The evidence suggests a role for conservatism in accounting. Beatty *et al.* (2008) examine syndicated loans, a major source of debt capital to large companies, and find that many debt contracts do not incorporate adjustments when there is greater pre-existing accounting conservatism and that many contracts exclude purchased intangibles from the calculation of net worth. These authors conclude that both reporting conservatism and conservative contract modifications are a result of lenders' demand for conservatism. Nikolaev (2010) finds that firms reporting more conservatively include a greater number of covenants in their public debt agreements, indicating that more conservative information makes it more relevant to incorporate accounting-based covenants in contracts. Conservatism has also been shown to affect the type of covenants used in syndicated loans (Beatty *et al.*, 2012; Vasvari, 2012). Indeed, a theoretical study by Caskey and Hughes (2012) suggests that a 'conservative fair value measure' leads to the most efficient debt covenants, although Gigler *et al.* (2009) caution that conservatism may lead to excessive abandonment of projects.

A final issue is that the inclusion of accounting numbers in debt contracts may produce incentives for management to manipulate accounting figures (Watts and Zimmerman, 1978; 1986) given the high expected costs of violating covenants. A number of studies try to determine if managers manipulate accounting figures to avoid debt-covenant violations (DeFond and Jiambalvo, 1994) and also attempt to estimate the costs of covenant violations (Nini *et al.*, 2012). The evidence is generally inconclusive on the first issue (Fields *et al.*, 2001). On the second issue, Citron (1992) finds that UK lenders are likely to impose significant costs (such as loan acceleration) where companies have provided no warning of a breach, whereas contract negotiation or waivers are likely if warning is provided. Nini *et al.* (2012) study a large sample of US loan agreements and find that between 10 per cent and 20 per cent of firms in any given year will be in breach of a financial covenant. Moreover, violations are typically followed by reduced dividends and capital expenditure and increased CEO turnover rates.

The use of information by bond/credit analysts and loan/bond officers

A particularly relevant class of users is bond/credit analysts employed by brokerage firms. Like equity analysts, they are both users and providers of information and they collect and interpret information about public corporate bond securities, ultimately providing recommendations. Certified agencies generally provide information useful for contracting, whereas non-certified provide information more for investing purposes (Beaver *et al.*, 2006).

Prior literature establishes that accounting can predict credit ratings, leading researchers to conclude that rating agencies make extensive use of accounting numbers (Horrigan, 1966; West, 1970; Kaplan and Urwitz, 1979). Simple models using return-on-assets, debt-to-assets, firm size and dividend payment as explanatory variables can explain up to 56 per cent of the cross-sectional variation in S&P credit ratings (Barth *et al.*, 1998), and by adding two additional indicators on whether the firm has subordinated debt or negative ROA, this explanatory power

goes up to 66 per cent (Barth *et al.*, 2008). This suggests that accounting information is a major input, but also, that credit analysts gather other information (Graham *et al.*, 2001; Lee, 2002) and have access to private information (Jorion *et al.*, 2005).

Credit analysts frequently adjust accounting figures by incorporating off-balance sheet financing via operating leases and securitisations, leading to significant adjustments to leverage ratios (Kraft, 2011). Despite being sophisticated users, they sometimes fail to incorporate all the accounting information into their recommendations, particularly related to taxes (Ayers *et al.*, 2010), or asset securitisations, as indicated by differences in risk assessments between credit analysts and the bond market (Barth *et al.*, 2012). In fact, their lack of timeliness in predicting some high-profile bankruptcies has attracted regulatory scrutiny (Cheng and Neamtiu, 2009). The SEC has specifically questioned if they were thorough in their review of public filings and whether they 'probed opaque financial disclosures and aggressive accounting practices' (SEC, 2003) and it has been implied that this failure may have been driven by conflicts of interests (Bolton *et al.*, 2012).

In line with the previous discussion, credit analysts have a greater demand for negative rather than positive information (De Franco *et al.*, 2009; Easton *et al.*, 2009), consistent with the well-established Merton (1974) finding that the sensitivity of debt to changes in the value of the company's assets increases in the company's financial distress. These analysts therefore monitor more closely and report more frequently when their clients are likely to experience bad news (Johnston *et al.*, 2009). There is little evidence on how properties of accounting may affect them, but Crabtree and Maher (2005) report that the degree of earnings predictability is positively associated with a firm's credit rating and Hasan *et al.* (2012) also report that earnings predictability is also rewarded by banks when supplying loan capital. This is in line with equity analysts' preference for persistent earnings components discussed above.

Prior research has also conducted a number of experiments dealing with how loan officers use accounting information. Viger *et al.* (2008) suggest that they fixate on reported figures and fail to fully process disclosed (as opposed to recognised) information, behaving differently when stock option expenses were recognised in the income statement as opposed to simply disclosed in the footnotes. Overall, and as discussed below, loan officers as 'insiders' are sophisticated users, but accounting data is of lesser importance in their decision making processes. Moreover, they require strong signals on accounting quality (such as qualified audit opinions) to change their risk perceptions (Gul, 1987; Bamber and Stratton, 1997; LaSalle and Anandarajan, 1997).

The literature also indicates that loan officers are not free from biases (Guiral-Contreras *et al.*, 2007) and like equity investors, treat the financial statements and accompanying information differently, depending on their own mental processes (Rodgers, 1992). This is consistent with the general view that financial statement users have limited attention and processing abilities (Hirshliefer and Teoh, 2003), and specialist knowledge and experience may not eliminate psychological biases (Dearman and Shields, 2005). Thus, simple recommendations, like keeping all relevant information relatively close either on the face of the financial statements or in the notes but not spread out, may help loan officers in their decisions (Bloomfield *et al.*,

2011). However, it is possible that loan officers' decisions may in fact be efficient, as recognised figures seem to be more reliable than those in the notes (Libby *et al.*, 2006; Schipper, 2007).

Accounting quality, access to capital and the cost of debt

There is an extensive literature indirectly examining debt providers' use of information through studies of the association between financial reporting attributes, firm access to debt capital and the cost of debt. Much of this evidence is highly abstracted from investors' actual decisions and needs to be treated with caution because identifying the nature and direction of causality can be very difficult in this area and this may lead to biased statistical estimates (Nikolaev and Van Lent, 2005).

A number of studies measure the association between overall disclosure quality and the cost of debt financing. This literature predicts that firms making timely and informative disclosures are less likely to withhold bad news relevant to debt providers and as a result, are charged lower rates of interest. It is thus based on the premise that lenders consider borrowers' accounting policies when estimating default risk. This is a reasonable assumption since it is Standards & Poor's policy to consider 'accounting quality as a factor in establishing the rating of an industrial bond issue' (Sengupta, 1998, p.459). Moreover, Francis *et al.* (2005) confirm that better disclosures lead to lower cost of debt in a study of companies from 42 different countries. In general, this literature confirms that debt markets use accounting information in relatively sophisticated ways and that lenders reward borrowers with higher quality accounting by charging lower rates (Francis *et al.*, 2005; Ashbaugh *et al.*, 2006). Armstrong *et al.* (2010) provide an excellent summary of this literature.

Evidence on debt providers and conservative accounting

A growing literature argues that debt holders favour conservative accounting (Watts, 2003a; 2003b; Ball *et al.*, 2008a) and explores the association between conservatism and debt financing. In their seminal work, Modigliani and Miller (1958) argue that financing and investment decisions are separate in perfect capital markets. However, various frictions create linkages between financing and investment decisions (Myers, 1977; 1984). While accounting does not affect the level of internal cash flows, it can affect investment by facilitating access to debt capital and reducing the cost of debt.

Göx and Wagenhofer (2009, p. 13) state that conservatism is the accounting policy that maximises the *ex ante* probability of obtaining financing. Regarding the cost of debt, as argued by Ahmed *et al.* (2002) and demonstrated theoretically in Chen *et al.* (2007) and Gao (2012), conservatism reduces incentives to manipulate earnings. By requiring timely recognition of losses and deferring recognition of gains, conservatism restricts the artificial inflation of earnings available for distribution to shareholders and limits managers' ability to overstate earnings and be over-compensated via accounting-based plans (Khan and Watts, 2009).

Limitations on the overstatement of earnings affect the likelihood of violating debt covenants (Zhang, 2008; Nikolaev, 2010), leading lenders to accept lower rates of return. Ahmed *et*

al. (2002), Zhang (2008) and Wittenberg-Moerman (2008) find evidence consistent with this hypothesis. They show, respectively, that conservatism improves firms' debt ratings, reduces interest rates and reduces information asymmetries between informed and uninformed traders in the secondary loan market. Beatty *et al.* (2010) and García Lara *et al.* (2012) also show that more conservative firms issue more debt when they are prone to the under-investment problem mentioned in Section 1.3 above.

Splitting debt providers: Public *versus* private debt

Although the general discussion above is relevant to both public debt (such as bonds) and private debt (such as individual or syndicated bank loans), there are significant differences between these types of finance. As Table 3 shows, they differ across four dimensions (Bharath *et al.*, 2008).

Table 3: Differences between public and private debt

	Private debt	Public debt
Access to information	High	Low
Ability to monitor the firm	High	Low
Flexibility in resetting contract terms	High	Low
Costs of renegotiating the contract	Low	High

Generally, in private lending, banks have superior information-processing abilities and better access to private information, which is used in both designing the contract and in subsequent monitoring (Fama, 1985, Bhattacharya and Chisea, 1995). In addition, co-operation among private lenders is easier, resulting in more effective monitoring of the borrower (Diamond, 1984; 1991). Because of these characteristics, Rajan (1992) defines bank financing as 'insider' debt.

Accounting information is particularly important when companies issue public debt. In private borrowing, particularly when companies enter into a relationship with their lender, financial intermediaries can obtain information from various sources from repeated interactions, limiting the value of accounting. These characteristics lead to systematic preferences for some companies preferring public *versus* private debt. Diamond (1991) argues that borrowers with the most severe information asymmetries have the most to gain from the close monitoring provided by banks. According to Berlin and Mester (1992), such firms should obtain bank loans with stricter financial covenants. The evidence confirms that debt covenants are more common and stricter in private debt agreements (Kahan and Tuckman, 1995; Bradley and Roberts, 2004; Chava and Roberts, 2008) and also indicates that firms issuing private debt are smaller, have fewer tangible assets and lower credit quality (Denis and Mihov, 2003). Recently, Bharath *et al.* (2008) show that in the case of private debt, because of the greater flexibility for renegotiating debt contracts, both the price and the non-price terms are more stringent for poorer accounting quality borrowers; however, for public debt, only the price terms are more stringent.

KEY POINTS:

- **Financial statement data are useful for predicting default and for estimating credit ratings.**
- **Accounting information is also used by intermediaries, such as credit ratings agencies, in public debt markets, though little is known about its importance relative to other, more qualitative information sources.**
- **Debt providers rely extensively on financial statement information in their contracts with companies, even where alternative private communication channels exist.**
- **Debt providers are relatively sophisticated users of financial statement data.**
- **Although GAAP financial statement data are used in debt contracts, adjustments are typically made to these figures, especially to those in the balance sheet.**
- **Due to the nature of their claim, debt providers prefer conservative accounting to unbiased accounting.**
- **Characteristics of accounting information can affect lending terms in various ways, and may result in lower interest rates, larger loans and longer loan maturity.**

2.6 Trade creditors

As shown in Table 1, trade credit is a fundamental component of European firms' financing. Consistent with this a 2006 survey, conducted by the University of Leeds on 2,000 businesses in ten European countries, revealed that 83 per cent of the sampled companies sell between 81-100 per cent of their goods and services on trade credit. Germany (94 per cent), Poland (92 per cent), and France (86 per cent) have the highest proportion of countries within this 81-100 per cent bracket. The Netherlands holds the highest percentage of companies (27 per cent) whose overall sales on trade credit are low (between 0 and 20 per cent of their sales) followed by Portugal with 24 per cent. In Europe, negotiated average credit terms typically range between 23 (Norway) and 75 (Greece) days (Intrum Justitia, 2011). Most firms also experience late payments from their customers (Euler Hermes, 2006), leading to higher actual credit terms (including late payment) that vary from 32 days (in Norway) to 110 days (in Greece). Most countries experience actual credit terms between 35 and 65 days (Intrum Justitia, 2011).

Despite its importance, academic research into the information used by firms to extend trade credit is scarce and examines this issue 'indirectly'. Overall, accounting information seems to play a relatively limited role in creditors' decisions as non-financial factors also explain a significant portion of the trade credit terms (Peterson & Rajan, 1994; Gianetti *et al.*, 2011; Klapper *et al.*, 2011). Furthermore, information intermediaries such as credit bureaus play a key role in processing and sharing information about companies' credit quality (Japelli and Pagano, 2002; Jones, 2010). Their ratings rely both on non-accounting information, such as company visits and information from other firms that have extended credit to the company (Pertesen, 2004), and on financial statement data (Kallberg and Udell, 2003; Arrunada, 2011).

There are many factors that may explain the importance of non-financial factors in credit terms (Pertersen and Rajan, 1994). Compared with other financiers, a supplier may better investigate the credit worthiness of his clients and monitor and ensure repayment of the credit due to advantages in information acquisition (the seller can visit the premises of the buyer), control over the buyer (supplied goods may not be substitutable because there are no alternative sources other than the supplier) and salvaging value from existing assets (if the buyer defaults, the supplier can seize the goods that are supplied). Burkart and Ellingsen (2004) and Cunat (2007) provide reviews of this literature.

There are also non-financial motives for the use of trade credit. Large buyers may use market power to gain favourable contract terms (Gianetti *et al.*, 2011) and trade credit is also a way for suppliers to guarantee the quality of the products to buyers because the buyer has time to verify the quality of the product before paying (Antras and Costinot, 2011).

Information use by credit managers

Those who decide on the parameters in a trade credit contract are credit managers or sales persons. Pike and Cheng (2003) report that 81 per cent of 154 UK firms surveyed use credit bureaus to assess credit risk. Findings from the University of Leeds survey (Euler Hermes, 2006) are consistent with these figures: 90 per cent of firms manage their credit policy internally, though 64 per cent rely on external sources for credit risk assessments. These external sources include credit bureaus and credit insurers in Europe (ICISA, 2012). This European market is dominated by the 'big three': Euler Hermes; Atradius; and COFACE (Jones, 2010).

A credit bureau is a formal exchange mechanism of credit information by lenders. The bureau collects and consolidates information about borrowers and in Europe, most credit bureaus also offer credit insurance. According to Galindo and Miller (2001), bureaus are critically important in both developed and developing countries due to changes in banking systems and advances in technology.

Arrunada (2011) is the only study detailing the information valued by users of credit information services. Based on a survey of almost 6,000 users of an online credit information service, he finds that 90 per cent use the service to obtain information about SMEs, mainly for new clients (60 per cent) and for decisions about credit terms (67 per cent). Information sources relied upon to make these decisions are accounting information (83 per cent) and past history of judicial incidents (55 per cent).

Another salient finding is that, once the decision about accepting a new customer is made, credit terms are largely determined by non-financial factors. Cheng and Pike (2003) argue that industry standards determine credit terms for a sample of UK firms, though Gill (2012) finds that credit terms are largely determined by firm-specific factors. Klapper *et al.* (2011) find that large, investment-grade buyers get long terms from small suppliers consistent with relatively untrusted suppliers extending longer terms to buyers to guarantee product quality. However, this leaves suppliers exposed to riskier credits. To compensate, riskier buyers are

offered discounts to repay early so that suppliers can offer warranties about the quality of the product supplied even while containing the credit risk in their trade credit portfolio. Whatever the correct analysis, there is little room for accounting information in setting credit terms.

Information use by credit bureaus

Credit bureaus (Euler, SFAC, Atradius) play an essential role in Europe and in the US. Their main role is the production of a comprehensive report that is sold to lenders (Kallberg and Udell, 2003). These credit reports contain an organised presentation of information about an individual's and/or company's credit record that a credit bureau communicates to those who request information about the subject's experiences with credit, leases, non-credit-related bills, collection agency actions, monetary-related public records, and inquiries about the individual's credit history. Credit bureaus maintain the records of negative and positive information in their databases. Negative information contains defaults including the amounts of the outstanding at default and the date of last payment, whereas positive information contains credit history information on current and closed accounts. In other words, credit bureaus collect both qualitative and quantitative items for their credit reports. A condition for these items to be collected is that they are standardised, so that they can be stored in databases and used in subsequent analyses of default (Peterson, 2004). Credit providers use credit reports to conduct credit risk analysis of prospective borrowers in order to mitigate credit risk.

Kallberg and Udell (2003) provide a rare empirical analysis of the information used by credit bureaus when issuing their report. They find that the value of the information generated by credit bureaus goes beyond information that is otherwise available to lenders including information contained in borrower financial statements. They state that 'to many credit grantors, the most important part of these reports is the information relating to how well the subject firm is meeting its credit obligations. This includes detailed information about the firm's payment experiences'. This suggests that if accounting information is a necessary ingredient for credit bureaus it constitutes only a small part of the inputs actually used.

KEY POINTS:

- **Trade credit is a highly important source of finance to European companies, yet very little academic research exists on the information used in trade credit decisions.**
- **Accounting information is not used extensively by providers of trade credit, particularly once a decision to extend credit has been made.**
- **As in other capital markets, information intermediaries are important.**
- **Credit bureaus are used extensively by providers of trade credit and these bureaus rely on financial statement data, as well as on non-financial information.**

Chapter 3

RECOMMENDATIONS AND POLICY IMPLICATIONS

The overarching finding from this review is that capital providers have highly diverse information needs, access and information processing abilities. This diversity is reflected in the differences in information sources used and in the ways in which information is used. Financial statements remain very important to the most significant capital providers for financial decision making and for assessing stewardship, but they are by no means the only source. In some cases, they are not considered to be the most important source.

Accounting information is rarely used in 'raw' form, and is supplemented by other information directly from the company and from important intermediaries, such as sell-side equity analysts, ratings agencies and credit bureaus. Each of these intermediaries also uses a range of more frequent and timelier information sources, though the usefulness of these sources often depends on audited and verifiable accounting information being there in the first place. Even for the same class of capital provider, the same set of information can be used for different purposes and therefore has different objectives. For example, information used for valuation may well be useful for stewardship and internal planning decisions in many cases, but in some cases it will not. Financial statements may be too complex for one class of equity investor or creditor, whereas for another, endowed with more time, resources and expertise, they will not. The implications of the review's findings for standard setters are that one set of financial statements will not meet the needs of every type of user simultaneously. Deciding on the shape financial statements take will therefore inevitably reflect the importance standard setters attach to different user groups. Standard setters may therefore need to decide whether they want to balance these differing interests on an *ad hoc* standard-by-standard basis or whether they generally want to focus on a specific subset of users and/or purposes when developing standards. The first strategy is conceptually less compelling, while the latter might give rise to evolutionary instability given that the political influence of different financial accounting user groups varies across jurisdictions and time.

Despite the wide variety of alternative sources available, it should reassure standard setters that audited financial statements occupy a unique position in capital markets, regardless of their inherent limitations. They are unique in being regulated, recurring, standardised and independently verified and thus enhance the utility of other sources of information, making them flourish. In acknowledging that financial accounting is only one of many information sources for a heterogeneous group of users, standard setters may wish to focus their efforts on the competitive advantages of the financial accounting process when developing standards. Thus, trying to develop a financial accounting regime that provides a self-standing, comprehensive true and fair view of the enterprise might not necessarily be optimal. Instead financial statements could be deigned to function best where competing information sources have weaknesses. Providing objective, verifiable 'hard' data that complements and enhances the value of other, 'softer' less verifiable sources of information might therefore be the aim.

Costly supply of information must also be met by demand from 'users'. Certain capital providers, retail investors in particular, do not use information even when it is available to them at little or no cost. Other user groups refrain from using information when it appears to

be too costly to use and evaluate. Standard setters should focus on the role of information intermediaries like analysts and the financial press when developing new standards. Increasing the complexity of standards may not be a preferred way forward. Training and educational activities by standard setters, like the IFRS teaching sessions, also seem relevant in that respect and could potentially be extended to cater to specific user groups, such as financial analysts and media representatives.

Finally, some contractual and regulatory users of financial accounting require financial accounting data that is conservatively biased. Although these users have the ability to redesign their contracts when standards change, this may be inefficient. Standards that ignore this requirement reduce the value of financial statements to these users, who may simply opt to use non-GAAP figures in their contracts, rendering financial statements less useful.

For the academic accounting community, as ever, more research remains to be done. Although this review has focused primarily on the economics of the use of information by capital providers, the sociology and politics of the accounting standard setting process are highly important as well. While the questions addressed by this review are central to the financial reporting process, very little is known about the information needs of significant capital providers such as inside equity investors and trade creditors. For professional equity investors, the literature on information usage is dated and has yet to fully take account of the many changes that have affected the information environment, such as changes in financial reporting standards, advances in information technology and the internationalisation of financial, labour and product markets. Even for debt providers, who provide the majority of long term capital for many large European companies, the evidence on what information is used and how it is used remains scarce and is often highly abstracted from the decision making domain. Answering key questions about capital providers' preferences for measurement bases is still difficult due to the lack of evidence. Finally, despite an attempt to adopt a European focus not limited to the English language literature, relatively little is known about capital providers' use of information in many EU countries and even less about the direct effects of international differences in institutional environments on individual decisions.

The research covered by the review seems to be centred on the UK/US or English language. The non-English literature was scanned as far as it was accessible, so this is a reasonably complete view of the academic research on the main questions published in English, French, Spanish, Italian, and German. It is possible that the responsibility for the relatively few non-English studies lies with the orientation of the review. The vast majority of non-English language academic work on financial accounting standard setting uses a normative measurement-based framework. It therefore examines financial accounting standards not with a users' perspective in mind but elaborates on the conceptual soundness and goal congruence of competing recognition and measurement rules. This research is potentially relevant for standard setting, but it is silent on the information needs of capital providers. When interpreting the findings, it should be remembered that using capital providers' needs as the basis for shaping accounting information is a relatively new approach and there are persuasive arguments that it may not be the only, or even an appropriate, approach (Young, 2006).

All this indicates that work needs to be done along several dimensions. First, based on this review, detailed descriptive evidence about the information usage of different user groups is surprisingly scarce. Researchers should strive to observe information gathering and subsequent decision making processes of financial statement users as directly as possible. This will require field- and case-work as well as carefully designed survey studies.

Second, this descriptive evidence has to form the base for theory development. These theories can be based on economic, psychological or sociological paradigms. Compared with standard economic modelling, theories in the area of financial accounting need to cater to the observed particularities of the financial reporting setting to yield potentially useful cause-effect predictions.

While these predictions might create direct normative input to the standard setting debate, the third step, testing these causal predictions on data generated by experiments or observations of how investors behave in practice, will allow researchers to assess whether the theoretical predictions are empirically descriptive. As becomes apparent from this survey, the vast majority of the existing academic literature can be categorised as being a part of this third step. However, some studies fall short from being informative for standard setters, since:

(a) their tested theories are fuzzy or detached from the descriptive reality of financial accounting standard setting and reporting;
(b) their assumptions, e.g. about market efficiency, have been documented not to be empirically descriptive;
(c) their research design may not be capable of detecting genuine cause and effect relationships; and
(d) their approach to measuring their constructs of interest generate too much noise and/or bias, rendering the resulting evidence uninformative.

Fourth, based on the insights generated by the first three steps of the research process, academics should not shy away from providing advice on well-structured design problems. Standard setters and others have a strong demand for 'engineering work' in financial accounting. A similar argument can be found in Basu (2012). What this means is that researchers need to come up with normative statements that are based on theory and existing evidence. Obviously, these statements will come with a lot of caveats and, ultimately, identifying the 'correct' accounting standard will remain a political question. But, like an engineer that can make the statement that 'given prior evidence and our theoretical understanding of structures and load, I expect that this steel beam is going to hold for at least the next one hundred years', an academic engineer of financial accounting standard setting should be entitled to make a statement like 'given prior evidence and our theoretical understanding of the processing of complex information by different investor groups, I expect that increasing the disclosures for lease accounting will only have a modest effect on investment decisions relative to changing the recognition and measurement rules to require the recognition of operating lease-type contracts.'

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Appendix 1

EQUITY VALUATION MODELS

Like any financial asset, equity value is originally expressed as the present value of expected future cash flows, which, in the case of equity, arise in the form of dividends. The dividend discount model (DDM) can be expressed as follows:

$$P_t = \sum_{\tau=1}^{\infty} \frac{E_t[d_{t+\tau}]}{(1+k_e)^{\tau}} \qquad \text{(A1.1)}$$

Where, P_t is price (market value of equity) at time t; k_e is the cost of equity capital, E_t represents expectations at time t and d_t are dividends (including share buy-backs and net of new equity contributions by shareholders). According to the DDM, therefore, any change in share price must be due to: (i) a change in market expectations of future dividends, and/or (ii) a change in the cost of equity. Assuming that current dividends are maintained indefinitely and the cost of equity remains constant, the DDM reduces to:

$$P_t = \frac{d_{t+1}}{k_e} \qquad \text{(A1.2)}$$

This can be rearranged to show that the dividend yield is equal to the cost of equity capital (that is, $\frac{d_{t+1}}{P_t} = k_e$). It can also accommodate a constant perpetual growth rate g which, as long as $k_e > g$, transforms (A1.2) into the Gordon Growth Model (Barker, 2001):

$$P_t = \frac{d_{t+1}}{(k_e - g)} \qquad \text{(A1.2)}$$

Despite being the conceptual starting point for equity valuation, applying the DDM is problematic in practice, not least because dividend payments are at the discretion of management and may not be linked to firm performance. For instance, high growth and young firms often do not pay dividends over long periods, making it difficult to value these firms' shares based on dividend forecasts; Microsoft famously did not pay a dividend until 2003, despite being formed in the early 1980s and being valued at $300 billion in 1998. In addition, the DDM says little about companies' operating performance (Penman, 2010).

Consistent with these arguments, dividend policy is theoretically irrelevant for valuation purposes (Miller and Modigliani, 1961), because dividend payouts should be exactly offset by a fall in the value of the firm. Alternatively, if firms retain earnings, investors can sell shares and leave themselves in the same position as if the firm had paid dividends (in practice, dividend payments are not a matter of indifference to investors because of differential tax treatments of income and capital gains and dividends being informative of future cash flows; Lintner, 1956). Dividends therefore represent the distribution of wealth, not the creation of wealth. Penman (2010) refers to this as the 'dividend conundrum', namely that equity value is based on expected future dividends, yet predicted dividends are uninformative of value (at least over finite horizons).

Discounted cash flow (DCF) valuation models attempt to capture companies' value generating capabilities and focus more on dividend-paying capacity. The 'input' to this model is expected free cash flows to the firm (*FCF*), that is, cash flows available to the providers of capital after meeting all operating expenses and capital investments. In contrast to the DDM, DCF models estimate the value of the firm's operations V_t (enterprise value, comprising the value of debt and equity) and use the firms' weighted average cost of capital (WACC) as the discount rate:

$$V_t = \sum_{\tau=1}^{\infty} \frac{E_t[FCF_{t+\tau}]}{(1+k_{WACC})^{\tau}} \qquad \text{(A1.4)}$$

A paradox of the DCF model is that capital investments *(I)* are deducted from operating cash flows (*OCF*) to arrive at *FCF* (that is, *FCF* = *OCF* – *I*). New investments are therefore treated negatively, despite representing a source of future wealth. This feature has caused some to view *FCF* as cash distributions, the effect of which is to reduce the value of operations (Penman and Yehuda, 2009). Moreover, for growing firms, negative *FCF* can occur for several years, making forecasts over typical horizons of around 5 years difficult.

A defining feature of the theoretical literature on valuation models is the (re-) emergence of models based on accounting data. Although they can be traced back to Preinreich (1938) and to Peasnell (1982), models based on discounted abnormal earnings (DAE) have been the focus of a great deal of research following Ohlson (1995) and Feltham and Ohlson (1995). The model is sometimes referred to as the residual income model (Ohlson, 1995), the abnormal earnings model, and EVA.

The DAE model originates in the DDM model, requiring only the uncontroversial 'clean surplus' assumption that book value of equity at time *t* (bv_t) is equal to opening book value, plus earnings for the period ending time *t* (x_t), less dividends; earnings are thus defined as comprehensive income:

$$bv_t = bv_{t-1} + x_t - d_t \qquad \text{(A1.5)}$$

Isidro *et al.* (2004) examine international violations of this relationship (that is, balance sheet movements not caused by profits or dividends) in a study of France, Germany, the UK and the US from 1993-2001 and find that although 'dirty surplus flows' are large and non-zero on average, omitting them does not materially affect performance of the DAE model.

Rearranging (A1.5) to solve for dividends and substituting into the DDM allows equity value to be expressed in terms of book value of equity and abnormal (or residual) earnings:

$$P_t = bv_t + \sum_{\tau=1}^{\infty} \frac{E_t(x_{t+\tau} - bv_{t+\tau-1}k_e)}{(1+k_e)^{\tau}} \qquad \text{(A1.6)}$$

The DAE model states that investors will pay a premium over book value (that is, the second term in the numerator in (A1.6) is positive) if companies earn positive abnormal profits, (or, in other words, when the return on equity exceeds the cost of equity).

This model represents a highly important development to the literature in accounting by positing a direct role for accruals-based financial statement data. Empirical tests using market-based data

indicate that it performs well when compared with DDM and DCF models. Typical tests involve comparing the share value estimate provided by the model (based on either actual or forecast future profits) with actual share prices (Penman and Sougiannis, 1998; Francis *et al.*, 2000). Lundholm and O'Keefe (2001) criticise such tests pointing out the mathematical equivalence of the three models; however, Penman (2001) emphasises the lack of equivalence in the *application* of the models, particularly the fact that in practice, investors do not produce forecasts over infinite horizons (which is when DDM/DCF/DAE models produce identical results); rather they forecast over a horizon (of say 5 years) and then make assumptions about what happens after that (such as year 5 cash flows or profits growing or fading at a constant rate). It is here that major differences arise between models' estimates of equity value.

Following Feltham and Ohlson (1996), distinguishing between operating activities (of primary interest to equity investors) and financing activities (in theory, zero NPV investments of limited interest to equity investors) has been emphasised in the more recent accounting literature. In particular, Nissim and Penman (2001) develop the DAE model to focus on valuation of companies' operations and the returns generated by them, rather than the comprehensive income generated by total book value of equity. Barker (2010), however, recognises some of the conceptual difficulties of distinguishing between the two types of activities, despite the importance of the distinction to investors.

A further major development in the theoretical accounting literature on equity valuation models is the abnormal earnings growth (AEG) model of Ohlson and Juettner-Nauroth (2005), which relates share price to the level of (and growth in) expected earnings per share:

$$P_t = \frac{1}{k_e}\left[x_{t+1} + \sum_{\tau=2}^{\infty}\frac{z_{t+\tau}}{(1+k_e)^{\tau}}\right] \qquad \text{(A1.7)}$$

Where x represents earnings per share (EPS), k_e is the cost of equity and $z_t + \tau$ represents abnormal growth in earnings per share at time $t + \tau$, defined as $(x_t + kd_{t-1} - (1+k_e)x_{t-1})$. In words, abnormal growth in EPS is assumed to be the difference between expected EPS for the period (adjusted for dividend pay-out—hence proceeds for reinvesting last period's dividend are added back) less last period's EPS invested at the cost of equity. In short, this model (which again originates in the DDM) justifies a price earnings ratio for companies where next period's earnings are expected to grow over and above the normal rate.

The model in (A1.7) is important because although it can be reconciled with the DAE model, it does not rely on the clean surplus assumption and is consistent with dividend policy irrelevance and the DDM. Furthermore, it bases equity valuation on what many argue to be the most important output of the accounting system, namely earnings. It also aligns the theory with the practice of professional equity investors' financial decision making, where the P/E is very widely used, as discussed in Section 2.2.

For a more complete discussion of the theoretical research on the accounting models above, see Ohlson (2009), Ohlson and Gao (2006) and Pope (2010). For a more practically orientated discussion with a clear discussion of the theory behind accounting-based valuation models, see Barker (2001).

Appendix 2

DEBT HOLDERS' DISTRESS PREDICTION MODELS

Debt holders are concerned with modelling financial distress, that is, predicting if the firm will meet its financial obligations as they mature. To do so, they must identify the set of predictors that helps them assess the probability that the firm will default on its payments, when (the duration to default), and the losses that would occur under various levels of financial distress (Ohlson, 1980). Hence, the variable of interest is not dichotomous (default *versus* non-default), but zero over some range of outcomes and of varying magnitudes as financial distress increases (Beaver *et al.*, 2010). Even so, basic models commonly start by predicting the probability of distress, accounting for the fact that the loss function for prediction errors is not symmetric, meaning that the losses associated with incorrectly predicting that a firm will fail are substantially lower than those associated with incorrectly predicting health.

To formalise these ideas, consider the following model. Let X_i be a vector of predictors of financial distress (FD) for firm *i*. Debt holders are interested in assessing the probability of FD conditional on observing X_i. In arriving at estimates of this conditional probability, the events are viewed as dichotomous: either the firm experiences FD or not (NFD). Before looking at X_i, prior probabilities are formed, based on the unconditional probability of FD, which for example, may be assessed at 1 or 2 per cent (or higher in periods of financial instability). Once X_i is observed, assessments of the likelihood ratio of FD are formed, i.e., the probability that the observed value would appear if the firm were financially distressed $P(X_i|FD)$, divided by the probability that the value would be observed if the firm were not distressed $P(X_i|NFD)$, where P is some probability function, $0 \leq P \leq 1$. Further, in predicting distress, debt holders consider loss ratios, to reflect the cost of assuming the firm will not experience FD when it will (loss|FD*), relative to the cost of assuming it will experience FD when it will not (loss|NFD*). Then, if the decision criterion is to minimise expected losses, a debt-holder would predict FD if the prior-odds ratio times the likelihood ratio exceeds 1/loss ratio:

$$\frac{P(FD)}{P(NFD)} \times \frac{P(X_i|FD)}{P(X_i|NFD)} > 1 / \frac{(loss|FD^*)}{(loss|NFD^*)}, \frac{P(FD)}{P(NFD)} \times \frac{P(X_i|FD)}{P(X_i|NFD)} \qquad \text{(A2.1)}$$

where the cost of misclassifying a firm that is NFD is the opportunity cost of the interest income lost, and the cost of misclassifying a FD firm also includes the loss of (some or all of) the principal, plus collection costs, and legal fees in the case of litigation or bankruptcy proceedings. To better understand (A2.1) an example may help. Consider a one-year loan of 100 at an annual interest rate of 4 per cent (risk free rate of 1.5 per cent). If we assume that when a firm fails, the principal is lost entirely, but no other costs are incurred, the loss ratio would be 40.6, being [(100+1.5)/(4-1.5)], where the numerator reflects the loss from misclassifying a FD firm as healthy and the denominator the loss from misclassifying a NFD firm as distressed. In this example, to minimise expected losses, a loan should be rejected if it has a posterior odds ratio in excess of 1/40.6 (approximately 2.5 per cent).

To obtain an estimate of $P(X_i|FD)$, prior research uses different approaches, such as multivariate discriminant analysis, logit, or more recently, option pricing theory and hazard models such as the one presented in Beaver *et al.* (2005), which uses financial accounting-based ratios as inputs:

$$\ln [h_i(t) / (1-h_i(t))] = \alpha(t) + BX_i(t) \quad \text{(A2.2)}$$

where, $h_i(t)$ is the hazard or instantaneous risk of FD/bankruptcy, at time t for firm i, conditional on non-default/survival to t; $\alpha(t)$ is the baseline hazard (normally assumed to be constant); B is the vector of coefficients and $X_i(t)$ is a matrix of observations on financial ratios, which vary with time.

About the authors

Stefano Cascino is a Lecturer in Accounting at the London School of Economics. He holds a PhD from the University of Naples Federico II and is a CPA in Italy. His research interests are in the areas of international accounting, corporate governance, and executive compensation.

Mark Clatworthy is Professor of Accounting at the University of Bristol. He obtained his PhD from Cardiff University and the subject of his thesis was the use of accounting information in overseas equity analysis. He has research interests in the links between financial reporting and capital markets and in corporate audit markets and his research in these areas has been published in national and international journals. Mark is involved in undergraduate and postgraduate teaching in financial reporting and is also Associate Editor of *Accounting and Business Research*.

Beatriz García Osma is senior lecturer at Universidad Autonoma de Madrid. She obtained her PhD from Lancaster University. Her research focuses on the areas of corporate governance, earnings quality and the links between accounting information and capital markets, having published in various national and international journals. She teaches both postgraduate and undergraduate courses on financial reporting and securities valuation. Beatriz is an Associate Editor of the *European Accounting Review* and the *Spanish Journal of Finance and Accounting* and she is presently Director of the Masters in Accounting, Auditing and Finance joint title between the Universities of Alcalá and Autonoma de Madrid. She holds the AECA Chair in Accounting and Auditing.

Joachim Gassen holds the chair for financial accounting and auditing and is head of the Institute of Accounting and Auditing at Humboldt University, Berlin. He obtained his Diploma in Economics from the Westfälische Wilhelms-Universität, Münster (1995). His Doctorate (2000) and his Habilitation (2006) were awarded by the Ruhr-Universität Bochum. Before joining Humboldt University, he worked as postdoctoral researcher at Ruhr-Universität Bochum and was a visiting scholar at New York University and University of Wisconsin – Madison. His research focuses on international accounting and the impact of accounting information on capital markets and corporate governance, has won several academic awards and has been published in leading national and international journals. Joachim enjoys teaching at undergraduate, graduate, PhD and executive levels. His consulting and scientific advisory work for several major German companies focuses on international accounting and investor relation related topics. He serves on numerous editorial boards and was a member of the management committee of the European Accounting Association.

Shahed Imam is an Associate Professor of Accounting at Warwick Business School, University of Warwick. Shahed obtained his PhD from Judge Business School, University of Cambridge where he worked on analysts' use of accounting information. In his PhD he interviewed analysts from leading investment banks in London. He has published in leading accounting journals such as *Accounting and Business Research* and *European Accounting Review* on analysts' use of information. His research has also been published and quoted in various professional journals such as *Professional Investor* magazine of CFA. He is the joint editor of the forthcoming edition of *Wiley Encyclopedia of Management (Accounting)*.

Thomas Jeanjean is the KPMG Financial Reporting Co-Chair in the Accounting and Management Control Department at ESSEC Business School, Paris. He obtained his PhD from University of Paris Dauphine and worked at HEC Paris between 2003 and 2010. Thomas conducts research into many aspects of financial reporting and accounting, particularly on European and international issues. Thomas's work, which is published in French and English, appears regularly in leading international journals. He is a member of the editorial board of *The International Journal of Accounting*, *Issues in Accounting Education*, *China Journal of Accounting Research* and *Comptabilité-Contrôle-Audit*.

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