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Performance measures and components of other comprehensive income (OCI) : volatility and impact for a sample of European companies over ten years

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Performance measures and components of other comprehensive income (OCI): volatility and impact for a sample of European companies over ten years

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Listed European companies must report their financial statements in order to comply with user information requirements, on the basis of a pre-defined format in compliance with accounting standards as outlined by the International Accounting Standards Board (IASB). Accounting methods have traditionally been used to measure managers' performances in retrospect, in a use that is referred to as stewardship (Gjesdal, 1981; Ohlson, 1999). However, accounting practices are also now used for the purposes of firm valuation (Barth et al., 2001). On the one hand, this assessment can be obtained indirectly via restatements carried out by users, who rely on financial statements to predict future cashflow or future earnings. Financial analysis involves identifying the transitory portion from the persistent share[1] of earnings (Beaver, 1999; Graham and Dodd, 1934; Ohlson, 1999; Paton et al., 1940). Financial analysts work on the basis of earnings figures to which they apply a multiplying factor in order obtain enterprise value (Black, 1980): this is known as predictive analytics. On the other hand, the assessment can be carried out directly using a model that links market value to book value (Barth et al., 2001; Ohlson, 1995). This is referred to as informational relevance. These approaches all require the use of an earnings figure, but its exact composition (expenses, income, gains and losses included or excluding from the earnings figure) may differ depending on what the figure seeks to demonstrate i.e. measure past performance, value the company, or project future earnings.

Increasing numbers of companies use Alternative Performance Measures (APM) when communicating with financial analysts (Doyle et al., 2013). Similarly, an increasing number of potential gains and losses that do not result from transactions with third parties are included along with net income in comprehensive income, a figure that is usually more volatile than net income. But earnings volatility makes it more difficult for financial analysts to extrapolate future earnings projections (Dichev and Tang, 2009). Furthermore, surveys carried out with professional bodies (International Accounting Standards Board, 2009; Société Française des Analystes Financiers et al., 2010) reveal that analysts and investors have very limited interest in comprehensive income, even when the figure is reported. The various types of income can be summarized as follows:
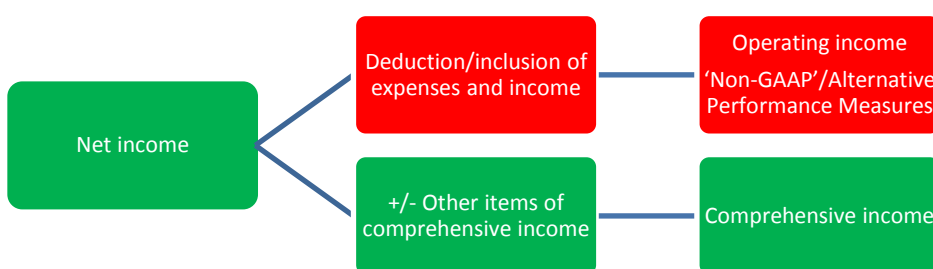

Diagram 1: Comprehensive income vs. Alternative Performance Measures

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1 We have deemed persistent, permanent and recurring earnings to be synonyms.

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Diagram 1 above reveals a paradox: accounting standard-setters require additional information on top of net profit in a <u>comprehensive income</u> statement, yet users exclude more and more items from net profit in order to obtain a result that is useful from an information standpoint i.e. primarily for forecasting and valuation. **Are the components added to net income to achieve comprehensive income truly useful and if so, for who ? Is the impact on financial statements significant ? Are they volatile ? What are the most potentially useful areas for research ?**

This **position paper** consists of two parts: firstly, we provide an account of the various components of comprehensive income, and secondly we provide an empirical section to assess the impact of the components of other aspects of comprehensive income[2] on the financial statements of a sample of European companies over a period of ten years and endeavour to draw some conclusions on the behaviour of OCI over time and across various sectors.

PART 1: ACCOUNTING OF OTHER ITEMS IN OVERALL COMPREHENSIVE INCOME

Accounting standards for OCI involve presenting overall comprehensive income in a summary statement and also listing the categories of its components. These two aspects raise two very different questions, which are discussed in the two sections of part 1: in what ways can OCI be useful and does its usefulness depend on the way it is presented ? Is the current classification system useful and how can it be improved ?

A. Comprehensive income

Having outlined the various processes that led to the current accounting standards governing OCI reporting and its components in part (1), we remind readers of the impact for users of the way OCI is presented in part (2). The third section looks into the theoretical justifications for OCI (3). The fourth section notes that net income remains a highly useful indicator, regardless of its uses (4). The fifth part demonstrates that OCI could be connected to risks that companies have to face (5).

1. Standard-setting for comprehensive income

The first attempts to set standards for comprehensive income were made in the United States and the United Kingdom. As early as 1985, the US standards association issued a formal definition of comprehensive income[3] (FASB, 1985, p. 28).

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[2] Other comprehensive income covers the various components added into net income to achieve comprehensive income.

[3] "Comprehensive income is the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners" (FASB, 1985, p. 28).

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In 1993, the UK standards association recommended that companies issue a specific statement covering all OCI known as the "*Statement of Total Recognised Gains and Losses (STRGL)*" (Accounting Standards Board, 1992). In the USA, the AIMR, now known as the CFA Institute, published a report that spoke out in favour of comprehensive income. This report requested that the US standard-setting board, FASB, take steps to promote comprehensive income reporting (CopeAnthony et al., 1996; Knutson, 1993). The ensuing debate led to the adoption of the Statement of Financial Accounting Standards N°130 in 1997, which recommends the publication of a comprehensive income statement, also adopted by the IASB in 2003. The IASB does not make a distinction between net income and comprehensive income (Barth, 2014) from a conceptual standpoint. Income and expenses are defined by the IASB as variations in the value of assets and liabilities over a given period. In practical terms, it is difficult to undisputedly identify a criterion that differentiates net income from comprehensive income (Barker, 2004; Linsmeier, 2016; Rees and Shane, 2012).

Presentation of OCI is not outlined in IAS 1. OCI, which is currently included in comprehensive income, is dealt with separately in each individual standard (IAS 39 on available-for-sale financial assets; IAS 19 on employee benefits, IAS 21 on translation differences). In other words, accounting treatment of the various elements of OCI existed well before their presentation was subject to accounting standards. OCI equates to fluctuations in values that are not initially included in net income. At the end of any given year, the various components of OCI for that year are transferred into equity, i.e. the financial position at the end of the year, and make up Accumulated Other Comprehensive Income[4]. Amounts booked to AOCI can remain in this line or be reclassified as net income for an ensuing year: this transfer is generally referred to as "recycling".

We note that changes in equity are the result of three types of events: transactions with owners (investment, dividends, etc.), transactions with third parties (as reflected in net income) and changes in values resulting from factors outside the company, which involve neither third parties (clients, supplies, sponsors and other stakeholders) nor owners, and are traditionally presented:

- in a separate statement of gains and losses as in the UK (STRGL, introduced in 1993);
- in the statement of changes in equity;
- in the statement of comprehensive income including net income.

Since 2011, IASB and FASB standards have restricted the possible presentation of OCI to a single comprehensive income statement or a separate financial statement presenting net income.

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[4] Accumulated Other Comprehensive Income (AOCI) includes the various components of other elements of comprehensive income that are booked to equity.

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2. Impact of presentation

Experimental studies, taken as a whole, indicate that "naive" investors are more sensitive to presentation format than professional investors. According to experimental research, whether the various components of OCI are presented in equity or in a separate statement seems to have an impact on the way users process the information in financial statements. In the United States, financial analysts do not assess information on capital gains and losses on available-for-sale financial assets in the same way when the information is featured in the statement of changes in equity as when it features at the bottom of the income statement in OCI (Hirst and Hopkins, 1998). Another US experimental study indicates that the location in accounts has an impact on the way naive, or non-professional, investors interpret the information (Maines and McDaniel, 2000). According to Tarca (2008), the impact of the presentation format is of greater relative importance for the least sophisticated users (Tarca et al., 2008). A recent study based on information from 44 analysts, each with more than 10 years' experience, shows that presentation format affects how analysts assess non-recurring items of income depending on the measurement subjectivity classification (Hewitt et al., 2015). According to these experimental studies, where OCI is presented within comprehensive income is useful for all user categories.

Meanwhile, empirical studies are much less conclusive. These studies, primarily American, analyse the effects of where OCI information is presented, whether within equity or in a specific summary statement, and they give different results. According to two studies, investors reportedly pay closer attention to OCI items when booked to the statement of changes in equity (Chambers et al., 2007; Lin et al., 2014). Another study contradicts these findings, showing that management at less virtuous insurance companies apparently prefers to present information in the statement of changes in equity rather than in OCI in order to hide questionable practices (Lee et al., 2006). Lastly, a European study including 16,511 firm-year observations between 2006 and 2011 did not manage to prove that the choice of a specific type of presentation had any impact on the informational relevance of comprehensive income (Mechelli and Cimini, 2014).

3. The clean surplus relationship and comprehensive income

The notion of comprehensive income is based on a valuation theory whereby the market value of equity is a function of the book value of equity and of expected future changes in residual income (Easton, 2009; Ohlson, 2009, 1995; Zhang, 2013). Ohlson's model theoretically warrants using comprehensive income as a performance measure (Bromwich et al., 2010; Stark, 1997), based on the principle of complying with the clean surplus relationship. This relationship specifies that flows between net income and capital are "clean" i.e. there is no direct adjustment to book equity, apart from contributions and withdrawals (dividends, capital repayments) from owners (Stark, 1982).

This relationship is based a priori on the notion of comprehensive income, as this is the only accounting measurement that can capture all the effects of value creation and allow for clear a distinction between distribution and creation of value.

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4. Superiority of net income over comprehensive income

Several studies compare the relative usefulness of comprehensive income and net income. Usefulness can be assessed in several ways: in terms of <u>predictive analytical value</u> when information is correlated with future cashflows or future income, in terms of <u>value relevance,</u> if the information is correlated to share prices or profitability of shares, and lastly in view of <u>stewardship,</u> for example, when accounting information is used as a basis for setting management remuneration, drafting certain loan contract clauses or to set distributable profits.

Mostly studies, independently of the context, conclude that net income has greater **predictive value** for cashflows and future income than comprehensive income (Agnes Cheng et al., 1993; Barton et al., 2010; Dhaliwal et al., 1999; Goncharov et al., 2014; Humayun Kabir and Laswad, 2011; Isidro et al., 2006; Jones and Smith, 2011; O'Hanlon and Pope, 1999; Pronobis and Zülch, 2011).

However, other studies, generally more recent and more rare, show the opposite (Biddle and Choi, 2006; Cahan, 2016; Chambers et al., 2007; Evans et al., 2014; Kanagaretnam et al., 2009; Kubota et al., 2011; Lin et al., 2007). In Europe, the difference is more marked as the predictive value of net income remains better than for comprehensive income across all studies carried out on European samples.

Looking at the relationship with **enterprise value**, the predominance of net income over comprehensive income has been shown in a number of studies. Two different types of relationships have been analysed: relationship with price and relationship with profitability. Net income better explains share prices than comprehensive income in the United States (Dhaliwal et al., 1999) and comprehensive income is not always relevant in explaining the market value of equity for a sample of US companies (Landsman et al., 2011). In Europe, Goncharov (2014) shows that net income is preferable to comprehensive income in explaining share profitability and share price in the 16 countries that make up the sample. Ramon achieves similar results for France and the United Kingdom (Goncharov et al., 2014; Ramond et al., 2007).

The **stewardship aspect** involves interactions between indicators such as comprehensive income and past contracts with management (remuneration), creditors (loans) and shareholders (dividends) respectively. In assessing managers' past performances, Skinner explains that comprehensive income is an indicator that should be useful in a contractual context where performance is assessed ex post for compensatory purposes (Skinner, 1999).

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According to a study carried out in 2010, contractual rather than information objectives warrant managers booking OCI to the statement of changes in equity rather than to comprehensive income where possible (Bamber et al., 2010). The Lee et al. (2006) study explains that remuneration is inversely correlated to OCI volatility, so management with volatile comprehensive income prefers to book to equity in order to gloss over the negative effects (Lee et al., 2006). Comprehensive income is included in equity, which measures a company's wealth and thereby enables investors to assess its solvency: this figure can be featured in certain lending covenants. OCI is currently included in the calculation of a bank's prudential capital (Black, 2016). Some academic authors recommend calculating comprehensive income per share in order to demonstrate wealth creation (Brief and Peasnell, 1996; Van Cauwenberge and De Beelde, 2007). One case study shows that comprehensive income can have an impact on the sharing out of wealth between minority and majority shareholders when setting dividends to be paid out (Goncharov and van Triest, 2014). For the purposes of maintaining physical capital and not paying dividends on fictional amounts, one particular author recommends booking asset revaluations to OCI without recycling (Bradbury, 2015) and suggests paying out net income only.

5. Relationship between comprehensive income and risks faced by companies

Following on from studies on these various relationships, some research, often more recent, looks into the relationship between comprehensive income and risk, and deems that overall comprehensive income should provide a decent estimate of risks borne by the company i.e. prices, interest rates and currency. A recent study indicates that comprehensive income volatility is related to market risk as measure by the share's beta (share price past volatility as compared to volatility of the market index) and by the volatility on share yield (Khan and Bradbury, 2014). This shows that comprehensive income volatility points to price shifts that can affect future performances. The unrealised gain reflects a decrease in profitability. However, investors factor in this information with a lag when the unrealised gain offsets the loss of the hedged item, when they could have taken the information board as soon as the unrealised gain appeared (Campbell, 2015). A recent study by Huang et al. (2016) shows that auditors who have more information than investors grant greater informational relevance to OCI volatility, unlike investors. The auditor factors in information on OCI volatility ahead of time and therefore invoices higher audit fees (Huang et al., 2016). One report shows that the volatility of theoretical income calculated by applying full fair value for a sample of 202 US commercial banks reflects risk components that are not included in either net income or comprehensive income (Hodder et al., 2006). Investors therefore fail to sufficiently take on board information reflected by OCI volatility in their information analysis procedures when this information could potentially be useful as there is a statistically significant correlation with risk indicators.

Various documents reflect the statistically significant link between risk and comprehensive income. The relative usefulness of comprehensive income could be connected to the economic and financial context.

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One potentially interesting area for research is a comparison of the usefulness of net income and comprehensive income depending on the context in order to test the following hypothesis: in a stable environment, net income would be sufficient to explain an entity's performance; in an unstable context, projections are more difficult to draw up due to increased volatility of the various parameters that must be assessed. In this case, comprehensive income that includes several volatile items would therefore be more useful.

To conclude this first section, we can state that:

- **Comprehensive income consists of varied and transitory items so its predictive analytical value is weaker than that of net income. Net income should therefore not be forsaken in favour of comprehensive income.**

- **The usefulness of comprehensive income for investors for valuation purposes has been proven useful in certain cases.**

- **Comprehensive income volatility seems important in projecting market risks (price, interest rates and currency) that companies face. In a more volatile economic context, information on the volatility of comprehensive income is not yet understood by users, yet this volatility seems to be partly factored in by the markets and auditors.**

- **Presentation format does have an effect. This is probably due to the use of accounting for legal purposes. Comprehensive income could therefore be an indicator to be included in covenants.**

B. Usefulness of components of OCI

The various components that account for the difference between comprehensive and net income appeared over a period of time and are varied (Detzen, 2014; Rees and Shane, 2012).

After highlighting that OCI is a residual category (1), we will look at the contribution and the limitations of academic studies on the usefulness of OCI in both predictive analytics and for valuation purposes. We will successively broach unrealised gains and losses on available-for-sale financial assets (2), gains and losses on asset revaluations (3), effects of cashflow hedges (4), exchange rate gains and losses on translation of subsidiaries' financial statements (5) and actuarial gains and losses on pension liabilities (6). We have not looked specifically into tax aspects as they are highly correlated to overall trends in comprehensive income and no academic studies examine this issue, as far as we know.

The other residual aspects of comprehensive income are not broached in our paper as they have not been examined in academic studies, as far as we know, and their amount overall is not very significant.

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1. Lack of criteria to define and identify recyclable and non-recyclable items

At this stage, there are no clear criteria within the FASB and IASB framework that enable us to distinguish between items of OCI and net income (Barker, 2004; Linsmeier, 2016; Rees and Shane, 2012). Value adjustments are booked directly to book equity, via OCI, and are excluded from net income for the period (O'Hanlon and Pope, 1999; Peasnell, 1982; Shuto et al., 2009). As a result of their transitory nature (not permanent and not recurring), components of OCI add additional "clutter" to reported income and make future earnings projections more difficult to draw up. Barker (2004) suggests looking at three criteria of this transitory aspect: operating/non-operating, recurring/non-recurring, within or outside management's control. Rees and Shane (2012) state that OCI components that make up comprehensive income are neither operating nor recurring items, even when taken individually (Rees and Shane, 2012). One author suggests using the breakdown based on historical cost criteria vs. fair value (Linsmeier, 2013): the usual characteristics used for differentiating are:

- Degree of persistence or sustainability of income;
- Core vs. non-core activities
- One-time non-recurring remeasurements vs. recurring items;
- Time horizon until realization;
- Operating vs. Investing and Financing

Some factors related to remeasurements feature in OCI while others do not. Among those booked directly to OCI, some are recyclable while others are not. Differentiating characteristics that are of the same nature can be booked directly to net income or to OCI and then recycled to net income or booked directly to equity, i.e. to OCI without recycling (Casò et al., 2015). Meanwhile, according to Semba, who looks at a sample of Japanese companies, non-recyclable elements are useful in projecting future net income (Semba and others, 2015). OCI therefore seems to be a non-homogeneous residual category.

Academic texts fail to provide a definitive answer on the identification of criteria to differentiate seamlessly between items booked to net income and those that should booked to comprehensive income. We should note that the notion of permanence is not appropriate in distinguishing items of net income that should be booked to OCI, as this is the most frequently used criterion in including income and expenses to operating income (APM). Looking at other criteria, there are a number of possible answers depending on the real aim of the accounting process. For the purposes of accounts presentation, if we seek to assess a manager's performance, then all items that are not the result of managerial decisions should be excluded from net income, while if we are assessing the entity's performance, comprehensive income is a useful indicator (Semba and others, 2015). Meanwhile, if income is used to define payout, then the items related to revaluations required to ensure continued production capacity should not be recycled (Bradbury, 2015).

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For the purposes of <u>absolute valuation</u>, i.e. compatible with a clean surplus relationship, comprehensive income should be used rather than net income (Van Cauwenberge and De Beelde, 2007). If we maintain net income, it would be useful to recycle all items of other comprehensive income to net income. **The lack of a clear answer can also be seen at the international standards-setting bodies, as they do not provide criteria to differentiate between net and comprehensive income.**

2. Unrealised gains and losses on available-for-sale financial assets (AFS) (IAS39.55).

These gains and losses reflect a change in the value of financial assets that are not intended to be held by a company on a lasting basis. Most studies show that investors use information that appears in AFS to value companies (Biddle and Choi, 2006; Chambers et al., 2007; Dhaliwal et al., 1999; Ernstberger, 2008; Goncharov et al., 2014; Jones and Smith, 2011; Kanagaretnam et al., 2009; Kubota et al., 2011).

Two studies carried out for the banking sector in the United States look into the usefulness of recycling OCI on other-than-temporary impairment on AFS. These studies provide information on risk and are useful for valuing banks (Badertscher et al., 2014; Dong et al., 2014). A study carried out by Bratten on a sample of bank holding companies shows that fair value adjustments booked during the financial crisis in 2007-2009 enhanced the predictive value of future profitability across a one to two year timeframe (Bratten et al., 2016). Lastly, from a covenant standpoint, one study shows that insurance companies manage earnings through sales of AFS (Lee et al., 2006).

An analysis of this item seems useful for valuation purposes, regardless of the sector, as it appears to have predictive value for the banking sector, and can also have an effect on covenants in the insurance sector to a lesser extent.

3. Effects of revaluation of tangibles assets (IAS 16.39) and intangible assets (IAS 38.85)

An initial study carried out in Australia (776 companies in 1976) not only shows that the amounts of revaluations are related to share prices, but also that they are correlated to future profitability (Barth and Clinch, 1998). According to another UK study, upward revaluations of fixed assets are significantly and positively related to changes in future performance which are measured by operating income and cash from operations (Aboody et al., 1999). For a sample of New Zealand companies, differences in revaluation of tangible assets are statistically and significantly correlated with share prices (Cahan et al., 2000). A study based on 301 Korean companies during the adoption of IFRS shows "that the relation between revaluation announcements and wealth effects is stronger for firms with less information costs and lower firm risk" (Hwan Shin and Willis, 2014). However, a study indicates that the effects of revaluation can vary depending on the country of origin (Paik, 2009). We can conclude that information on tangible asset revaluation included in OCI is useful. Depending on the position adopted on maintaining physical or nominal capital, recycling is either ruled out or considered necessary (Bradbury, 2015).

This component is very obviously useful for the three functions of accounting: prediction, valuation and covenants.

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4. Effects of effective portions of cashflow hedges in hedge accounting (CFH) (IAS 39.95).

Cashflow hedges are derivative instruments that enable companies to hedge against changes in their future cashflows. A priori, a potential gain (potential loss) on the hedge indicates that the price of the hedged item is set to decline (increase) in the future. Therefore, after reclassification of the potential gain, this item has an impact on future operating performance (improvement or deterioration).

According to a study of Swiss and German non-financial company managers, hedge accounting can reduce earnings volatility if the hedge is effective (Glaum and Klöcker, 2011). Therefore, companies that cannot opt for hedge accounting tend not to hedge in order to reduce net income volatility (Hughen, 2010). A study by Beneda looking at a sample of companies that use IFRS or US standards shows that OCI apparently has no intrinsic value relevance, but that recycling improves the relevance of net income adjusted for exceptionals (Beneda, 2016). Gains and losses on cashflow hedges are negatively associated with future income and future cashflows. However, investor expectations as reflected in share prices do not anticipate this negative relationship (Makar et al. 2013; Campbell 2014). Another study shows a negative relationship between market value and companies' tendency to adopt hedge accounting in a US sample of 10,589 firm-year observations over a period from 2007 to 2014 (Kiy, 2015). Another study on a sample of Canadian companies listed in the United States over the 1998-2003 period found that losses, and to a lesser extent gains, on cashflow hedges are inversely correlated to stock price and returns. Companies are therefore managing their risk (Kanagaretnam et al., 2009). This OCI provides a clear signal on the impact of changes in prices of all hedged components on future profits (after the hedge has expired) for any given company (Campbell, 2015). In theory, it allows for a company's future performances to be anticipated but analysts incorporate this signal with a lag (Campbell et al., 2015).

The relationship between the underlying capital gain or loss on cashflow hedges is complex. However, studies show that there is a statistically significant link between the amount and the sign, whether positive or negative of this item and enterprise value. **This component also contributes to better predictive value on a company's future earnings.**

5. Gains and losses on the translation of foreign subsidiary financial statements (Foreign currency translation - FCT) (IAS 21.39).

The differences resulting from the translation of financial statements denominated in foreign currency are booked to OCI. Beyond accounting effects, fluctuations in exchange rates have <u>real effects</u> resulting from economic exposure (impact of an unexpected currency fluctuation on future cashflows), which is different from the exposure related to a transaction and translation-related exposure (Oxelheim and Wihlborg, 1991). One study shows no statistically significant relationship between adjustments related to translation differences and value (Brimble et al., 2005).

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Most studies show a positive impact from increased transparency on unrealised foreign currency gains and losses. In the United States, the adoption of SFAS 52 promoted better valuation for multinational groups (Collins and Salatka, 1993; Soo and Soo, 1994). A more recent study shows that positive value adjustments on the translation of financial statements are on average related to a loss of value for a sample of industrial companies.

This can be attributed to companies that are the most labour intensive (Louis, 2003); accounting regulations most often lead to the opposite effects to economic effects; gains translate losses and vice versa[5.] Adjustments from the translation of financial statements provide additional information on net income to explain share profitability (Chambers et al., 2007; Kubota et al., 2011; Pinto, 2005). According to Pinto, the exchange rate influences the value of shares in a very heterogeneous way: when a company has operations in several countries, the translation difference includes exposure to several currencies and is therefore less useful (Pinto, 2005). Another study shows that these elements do not improve predictive value in any way (Pronobis and Zülch, 2011). Another study on companies from 16 European countries shows the usefulness of these adjustments to improve financial analysts' projections using a sub-sample of 2,368 firm-year observations (Goncharov et al., 2014). However, one particular Canadian study does not show any significant relationship between adjustments to translation differences and analysts' projections (Deol, 2013). These elements could potentially facilitate analysts' projection-making in a European context.

Translation differences can be related to companies' future performances, but the relationship is complex: there are time lags between the time the change in value is reflected in OCI and its impact on performances, even beyond booking the figures to the income statement. Due to a statistically significant correlation between exchange rate gains and losses in the translation of financial statements for foreign subsidiaries and the future share prices for companies, this OCI can improve analysts' projections when they better understand the relationship between the two.

6. **Actuarial gains and losses on defined benefit plans (pension liabilities - PEN) (IAS 19.93).**

Actuarial gains and losses on pension liabilities were only partly booked for a long time. It was only recently in 2006 in the United States and 2010 for IFRS, that amortisation over time of any charges related to changes in the amount of these pension liabilities disappeared. However, differences remain between the US standard and IAS 19. In IFRS, actuarial gains and losses and the difference between real and expected profitability of assets are booked to comprehensive income with no opportunity for recycling.

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[5] Costs are more rigid than sales. Therefore, an increase in the local currency increases costs while this increase cannot necessarily be passed onto sales.

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A US study indicates that investors and financial analysts included the information on pension costs in their projections with a lag (Picconi, 2006). Since 2011, companies no longer have a choice[6] and revaluation must be booked to OCI. For a long time, managers had considerable leeway in the way they presented the impacts of changes in pension liabilities, which meant that those analysing the financial statements were unable to analyse the economic effects of these changes and they wrongly included some expenses in share prices as these expenses were booked using the corridor amortisation method (Shin and Yu, 2014). This situation considerably changed with the booking of pension liabilities to OCI after implementation of FAS 158 in the United States (Shin and Yu, 2014).

Most studies do not manage to show that the adjustment on pension liabilities has any informational relevance (Chambers et al., 2007; Dhaliwal et al., 1999; Jones and Smith, 2011; Pronobis and Zülch, 2011). However, some studies contradict these conclusions. One study, which is relatively old, indicates that this adjustment makes comprehensive income more useful than net income in explaining informational relevance (Biddle and Choi, 2006). Another study on a sample of 697 companies rated by Standard and Poor's (S&P) shows a statistically significant relationship, although only for the largest firms, between adjustments to OCI related to pensions and share price, both the level and the change (Mitra and Hossain, 2009).

To conclude this second section, we can state that:

- Components of OCI, when considered individually, often provide additional information that is useful in valuing shares, but the usefulness of each component varies depending on the context. Results are sometimes contradictory and it is difficult to reach a definitive conclusion.

- The nature, complexity and variety of rules that apply severely dent the use of OCI for predictive purposes and probably explain the lack of conclusive results on their predictive value.

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[6] Before 2011, actuarial gains and losses could be booked either totally to net income or totally to OCI or deferred (not booked when changes from one period to another did not exceed a threshold known as the corridor).

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- As regards the usefulness of the various components for valuing a group of companies, one potential area for research would be to understand which components of OCI are truly used by financial analysts. Disaggregation by type as recommended by IFRS should not be altered as it provides information by changing the behaviour of financial markets players). However, it could be improved by making it more coherent with risk management. Differences remain between the economic rationale for transactions and accounting categories. For example, interest rate risk can be managed by a cashflow hedge or a fair value hedge which use by available-for-sale financial assets. The disappearance of different accounting options and the improvement in transparency should promote the use of this OCI in the future.

To conclude this overview of the various existing studies, we can conclude the following:

- Net income is a key indicator that should continue to be used;
- Comprehensive income volatility gives useful information and it is important to publish it in a specific statement;
- Transparency on the components of comprehensive income should increase its usefulness due to greater availability of information. The classification of OCI could be improved by being more closely linked to risk management and to underlying transactions, where necessary by providing additional information in the appendix.

As regards potential areas for research, the agency theory framework looks like the most appropriate in explaining the usefulness and also the limitations of comprehensive income. Meanwhile, analysing the contribution from comprehensive income volatility is an interesting area for research on the relationship with the markets.

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PART 2: ANALYSIS OF OCI FOR A SAMPLE OF EUROPEAN COMPANIES OVER TEN YEARS.

The objective of this empirical study is to analyse the relationships between comprehensive income and net income and identify any potential specific features of OCI i.e. sector, components, meaning of the relationship with net income and comprehensive income in particular.

A. Study sample and methodology

This study looks at changes in OCI over the ten years from 2005 to 2014 for 80 listed European companies (see details in appendix 1). The initial sample was split into four business sectors, in the broadest sense of the term: nine insurers, 12 banks, 39 industrial companies and 20 services companies. A more detailed analysis does not seem useful given the limited number of available observations.

Diagram 2: Companies' market of listing and nationality
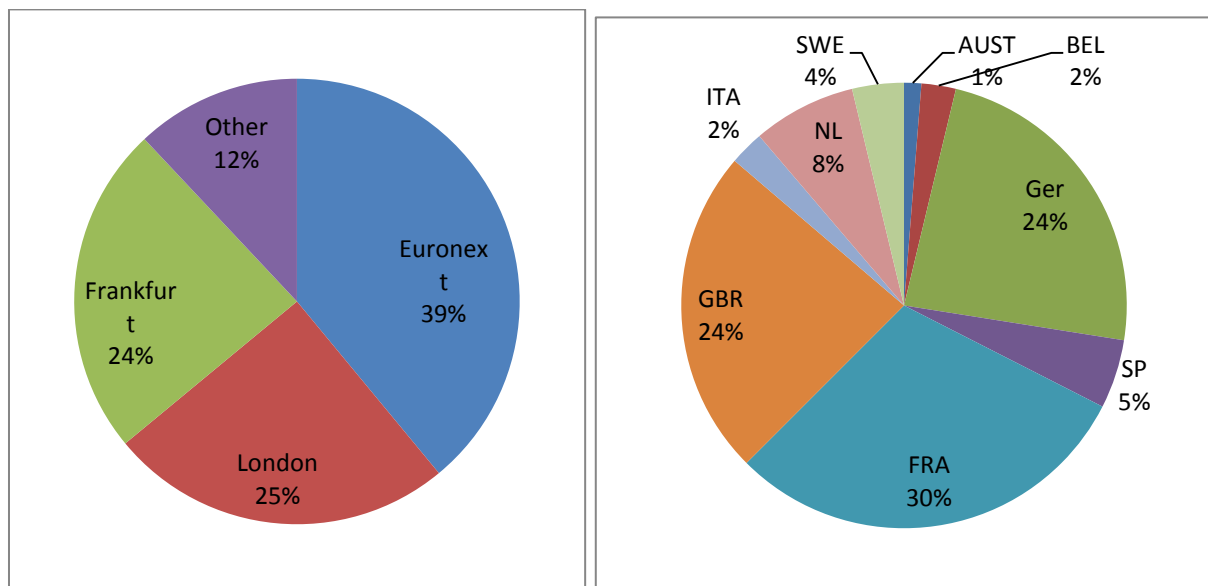
Data were collected manually with the help of the SFAF on the basis of reference documents published annually by the European groups in the functional currency of their consolidated accounts over the period in question, and complying with IFRS. Data are those "as reported" by companies. We therefore avoid two factors that could skew the results: the use of data that is reconstructed "as if" (Chambers et al., 2007) and access to market databases that are not always sufficiently precise. Data collected were transposed into panel data format in order to analyse firm-year observations, with 800 observations assessed overall. Four different currencies are used by companies in our sample: EUR, GBP, USD and SEK.

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Figures initially in foreign currencies were converted as follows: cashflows were converted at average annual rates and positions on balance sheets were converted at rates on the date of financial year-end. OCI and AOCI are not always available with the required degree of detail, so some components of OCI, such as revaluations, have not been examined in the study. The presentation of results will only include the most significant components identified in research[7].

To conclude this first section:

- The sample consists of 800 observations i.e. 80 European companies over a period of ten years.

- Manual data collection increases data reliability.

- Information on OCI and also AOCI was collected.

B. Analysis of relative weighting of OCI on financial statements

1. Relative weighting of OCI compared to net income

Aggregate net income over the period of ten years stands at €2,287bn (€2,515bn if we take the absolute value of each result). OCI comes to -€174bn (i.e. -8% of net income) but €985bn in absolute value i.e. 39% of net income in absolute terms. Therefore, if OCI components cancel each other out from one period to another or from one company to another, their relative weighting in absolute value terms over ten years can be the sign that these components are the reason behind severe volatility.

Table 1 presents the relative overall share over ten years of the study into net income, OCI, equity and AOCI in the sample depending on the various business sectors identified. The percentages for OCI and AOCI are calculated as compared to the sum of absolute values (if we take the algebraic sum, the percentage expressed does not correspond to the amounts), as we have positive or negative elements depending on sectors. The breakdown of OCI by business sector is considerably different from the breakdown of net income. Similarly, the breakdown of AOCI by business sector is different from the breakdown of equity. The amount of AOCI is relatively high for companies in the insurance sector (almost 38% of AOCI for 11% of individuals in the sample) while it is low for banks (almost 3% of AOCI for 15% of individuals in the sample). The gap is smaller for industrial and services companies. The widest gap for flows (OCI) is on industrial companies (more than 60% of OCI for less than 50% of individuals in the sample).

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7 We have considerable information on tax aspects, but this was not included. Components are booked either net of tax or in gross terms with tax information on a specific line.

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Table 1: Relative weighting of sectors in percentage of values in € for the sample

Sector	No. of groups studied	Net income	OCI	Equity	AOCI
Panel	100.00%	100.00%	100.00%	100.00%	100.00%
Insurance	11.25%	8.04%	10.66%	10.16%	37.81%
Banks	15.00%	21.79%	7.32%	30.19%	3.10%
Industrials	48.75%	51.63%	61.62%	40.44%	43.16%
Services	25.00%	18.54%	20.40%	19.21%	15.93%

This initial analysis of the sample reveals sector disparities but does not highlight any trends. A more detailed analysis of the relative weighting of OCI compared to net income is therefore required (Table 3) [and AOCI compared to equity (Table 4)].

Table 2: Average and standard deviation of OCI, net income and annual average comprehensive income by business sector

€m	OCI		Net income		Comprehensive income	
	Average	Stand. deviation	Average	Stand. deviation	Average	Stand. deviation
Panel	-217.4	2,358.7	2,859.4	4,490.4	2,6420	4,928.8
Insurance	+261.9	2,817.6	2,044.5	2,151.0	2,306.5	3,887.8
Banks	-134.9	3,956.7	4,153.6	3,787.7	4,018.7	5,515.1
Industrials	-348.1	1,736.0	3,008.9	4,685.5	2,660.9	4,727.8
Services	-227.8	1,841.8	2,158	5,054.4	1,930.2	5,214.4

Table 2 outlines the averages and standard deviations (σ) (including both firm and year effects) of indicators for observations (firm-year) and confirms substantial fluctuations in net income and OCI from one sector to another. Standard deviations are similar for net income and OCI, while standard deviations for OCI are 10 to 30 times the average of OCI but only 0.9 and 1.6 times the average of net income. Volatility of comprehensive income, which combines OCI with net income, is therefore higher than volatility for net income alone. In cases of extreme variations, while OCI components can vary together in the opposite way to net income, they can sometimes have a neutral impact on net income as the average standard deviation of OCI is almost equal to the average net income.

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For the panel, the ratio of standard deviation to average comprehensive income is 1.87 times for comprehensive income vs. 1.57 for net income and almost 11 times for OCI (σ(OCI) = -10.85 average (OCI)). OCI is therefore very volatile and increases the volatility of comprehensive income.

The standard deviation of comprehensive income for banks is 1.37 times the average of comprehensive income vs. 0.91 for net income and 29x for OCI. Net income is therefore not very volatile, while OCI is extremely volatile and sharply increases the volatility of comprehensive income.

The standard deviation of comprehensive income for insurance companies comes out at 1.68 times the average of comprehensive income vs. 1.05x for net income and almost 11x for OCI. Net income is therefore not very volatile, while OCI is very volatile and sharply increases the volatility of comprehensive income.

The standard deviation for comprehensive income for industrial companies stands at 1.78 times the average of comprehensive income vs. 1.56x for net income and only 5x for OCI. Net income is not very volatile, while OCI is more volatile. However, volatility of comprehensive income is similar to volatility for net income.

The standard deviation of comprehensive income for services companies comes out at 2.7 times the average of comprehensive income vs. 2.34x for net income and only 8x for OCI. Net income is therefore not very volatile, while OCI is very volatile and slightly increases the volatility of comprehensive income.

At this stage, the results above indicate that:

- **there is sharp volatility of OCI across all sector observations, but we do not know whether this volatility is due to the firms or the years studied;**

- **excess OCI volatility broadly contributes to the volatility of comprehensive income for banks and insurance companies.**

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Chart 1: Average annual net income per sector
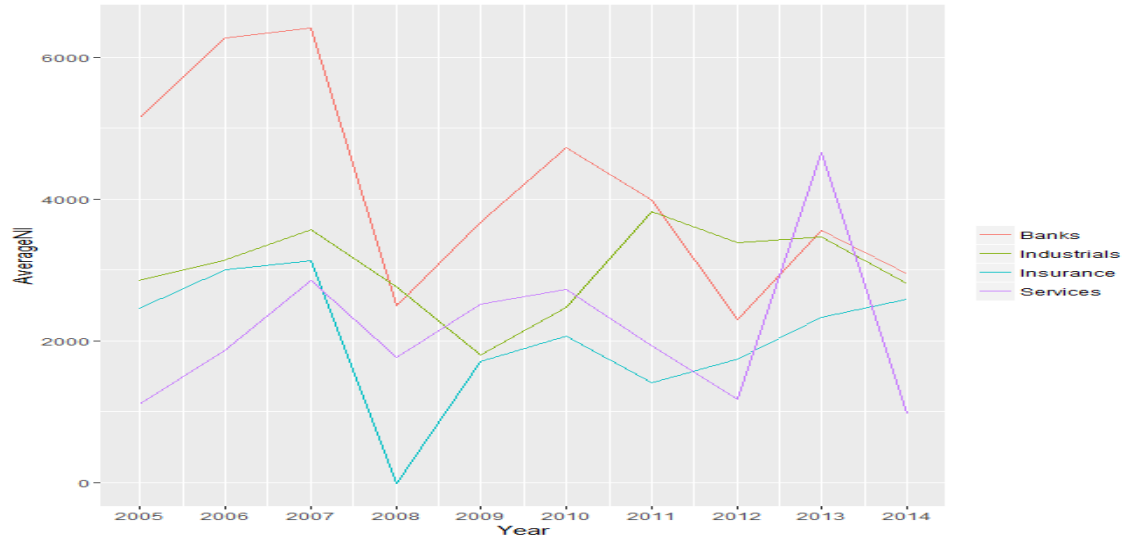
Chart 1 shows that average net income for the various sectors follows a similar trend until 2011, with a peak in 2007, a drop in 2008 and then a rise until 2010, followed by a decline in 2011 that continues in 2012. 2013 marks the start of a period of decorrelation between insurance and banking sector companies on the one hand and industrials and services companies on the other. The comparison of this chart with chart 2 below shows that volatility of total OCI is very different to volatility for net income for each business sector and for each year.

Chart 2: Average annual OCI (in €m)

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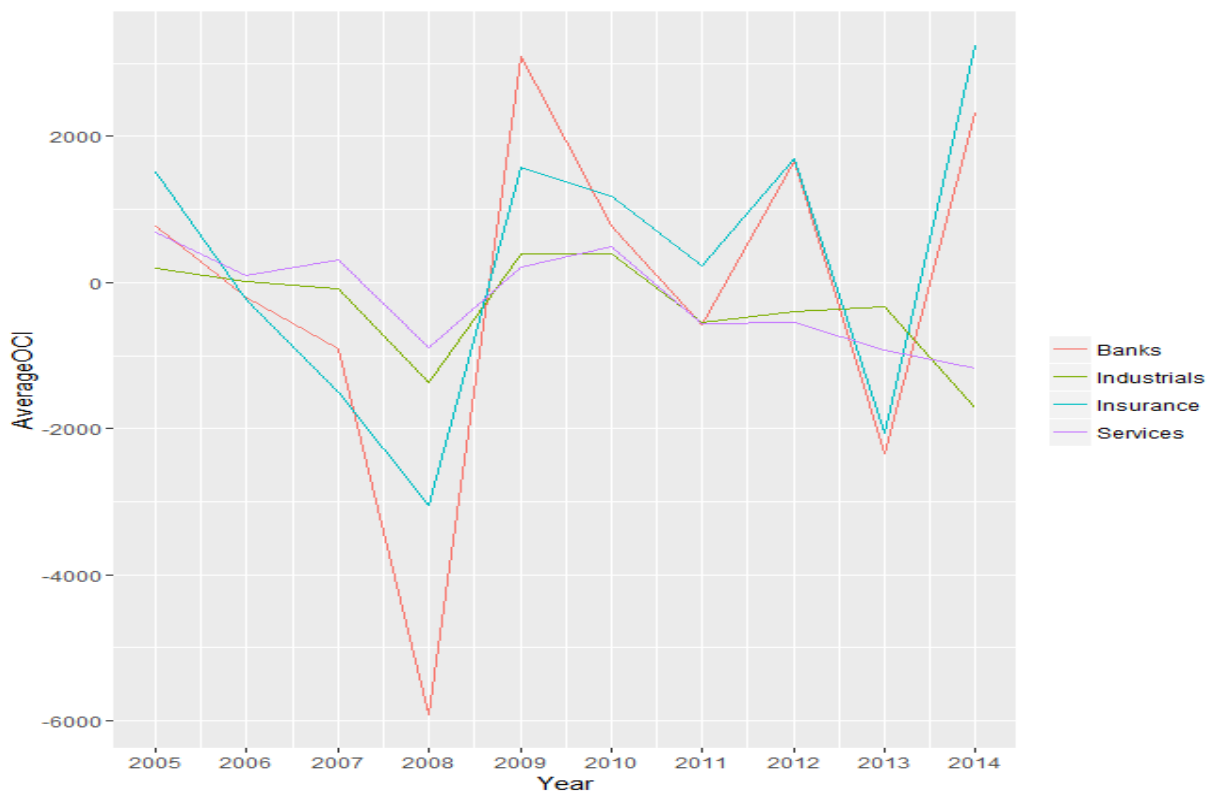
Analysis of appendix 4 shows that the interquartile gap is fairly small [-580; +328], i.e. less than 1 billion, while the gap between the maximum and the minimum for all observations on the banking sector is around 30 billion.

Table 3: OCI in percentage of net income by sector

Sector	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average
Panel	21%	-4%	-13%	16%	29%	23%	-4%	-1%	-40%	6%	3%
Insurance	48%	-32%	-33%	6%	324%	58%	166%	62%	-83%	145%	66%
Banks	19%	-7%	-25%	61%	-31%	15%	-79%	66%	-107%	180%	9%
Industrials	19%	-4%	-10%	22%	-4%	8%	-15%	-26%	-32%	-6%	-5%
Services	0%	-12%	-30%	-75%	-32%	3%	-29%	-55%	-65%	-98%	-28%

OCI decreases net income for some years (2006 to 2007 then 2011 to 2013), but increases the figure in other years. In 2009, there was a positive impact amounting to 29% of net income. In 2013, OCI stood at more than 40% of net income but only 6% the following year. **The panel (Table 3) shows the volatility of the relative weighting of OCI as compared to net income.** However, it is important to note that average OCI over the period stood at 3% of net income: the impacts broadly offset each other over the ten years for the panel. Nonetheless, there are clear differences between sectors and years. OCI is very volatile.

To summarise:

- apart from the insurance sector (where OCI on average represents 66% of net income), OCI has an opposite sign (negative) to net income and indicates value destruction.

- excess volatility of average OCI compared to average net income volatility is always passed onto comprehensive income volatility.

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2. Relative weighting of AOCI in equity

This section quantifies the impact of AOCI on equity.

Table 4: Average and standard deviation of AOCI, equity excluding AOCI and average equity by sector over the period

€m	AOCI		Equity - AOCI		Equity	
	Average	Stand. deviation	Average	Stand. deviation	Average	Stand. deviation
Panel	42.2	3,089	24,347.5	26,336.2	24,389.6	26,424.7
Insurance	1,880.7	3,182.6	20,142.1	15,701.5	22,032.8	17,391.2
Banks	-116.2	4,100.63	49,207.9	31,161.3	49,091.7	30,124.3
Industrials	-499.0	2,229.1	20,095	25,905.8	20,594.0	25,739.8
Services	360.0	3,431.6	18,642.7	18,467.4	19,002.7	19,868.6

Table 4 reveals a very marginal effect of AOCI on the average amount of equity (less than 0.017%) over a period of ten years for the sample as a whole. The standard deviation/average ratio is identical for equity adjusted for OCI and for reported equity. The combined effect of the various OCI components is virtually zero. The standard deviation for AOCI accounts for more than 73 times the average amount of AOCI, while observations (firm, year) are very far from this average, so an analysis by sector and year is required.

For the industrials sector, we note that AOCI volatility is relatively high as the average standard deviation stands at 4.4 times the amount of average AOCI (average = -4.4σ). This effect remains marginal on average, with AOCI accounting for only 2.5% of average equity. The ratio of standard deviation to the average decreases from 1.28 to 1.24.

AOCI has a slightly positive impact on equity in the services sector. It accounts for 1.9% of equity in value terms. AOCI volatility is relatively high (average = 9.5σ).

Looking at banks, a reduction in equity volatility emerges after factoring in OCI. The ratio of standard deviation to the average for equity drops from 0.63 to 0.61 after factoring in AOCI. The impact is negative but very marginal as the average amount of OCI equates to slightly more than 0.25% of average equity. AOCI accounts for around 0.027% of the amount of equity; in other words, the impact is neutral. Over the period in question for our sample, the effects cancel each other out. However, AOCI volatility is is very high (average = -35.2σ).

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The insurance sector stands out from the others. The relative weighting of AOCI to the amount of equity is high as it accounts for more than 8.5%; this percentage is 40 times higher than the figure for the panel and those of other sectors. However, the standard deviation for AOCI is only 1.7 times average AOCI (average = -1.7σ). This effect can be seen across most observations.

When we compare AOCI volatility with OCI volatility by sector, and if we rank sectors in descending order of volatility, we obtain the following results: banks, insurance, services and industrials for flows, and banks, industrials, services and insurance for inventories. Apart from the notable exception of banks, volatile OCI does not necessarily mean volatile AOCI.

The results above indicate that there is very strong AOCI volatility for banks, high volatility for services, lower volatility for industrials and low volatility for insurance.

Table 5: AOCI as percentage of group equity

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average
Panel	3.8%	2.2%	1.6%	-6.2%	-2.5%	0.5%	-0.8%	-1.5%	-4.7%	-5.0%	-1.3%
Insurance	15%	10%	5%	-10%	2%	7%	7%	13%	5%	13%	7%
Banks	8%	6%	4%	-10%	-2%	0%	-1%	1%	-3%	2%	0%
Industrials	0.3%	-0.3%	0.4%	-5.8%	-3.7%	-1.1%	-3.1%	-6.2%	-7.5%	-11.3%	-3.8%
Services	3.4%	1.6%	1.5%	-3.4%	-2.7%	1.6%	0.8%	0.2%	-4.1%	-3.8%	-0.5%

Firstly, we note that the effects of AOCI on the amount of equity were positive before the crisis in 2008 and have been negative since 2009, apart from 2010 for the panel. However, AOCI contributes to increasing insurance companies' equity over the period, apart from in 2008 (start of the financial crisis). This can probably be attributed to the unrealised capital losses on components of the bond portfolios booked as available-for-sale financial assets due to low interest rates (confirmation with specific AFS chart). Over the period in question, the average AOCI/equity ratio is zero for the banks and services sectors.

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To conclude this second section, we note that:

- **The average value of OCI is well below the average value of net income.**
- **OCI generally has a negative effect on net income, except for the insurance sector, where AOCI has a positive effect on equity;**
- **Trends in net income and OCI differ depending on sector;**
- **Comprehensive income volatility is always higher than net income volatility. OCI therefore increases income volatility[8].**
- **Volatility of OCI from one year to another is usually high;**
- **OCI for the banks and insurance sectors have very high standard deviations, pointing to higher volatility for these two sectors.**

C. Relative weighting of components in OCI

The aim of this section is to look into the relative weighting of the various components in total OCI. We firstly look into the correlations between the various components and OCI for our sample. We then compare these correlations with those seen in similar studies carried out on different samples i.e. US and New Zealand companies. A correlation coefficient describes the type and extent of the relationship between two variables by measuring the degree to which they fluctuate together.

1. The relative weighting of OCI in Europe.

We analyse the relative weighting of each component compared to the total amount of OCI. We assess this weighting by analysing the amounts and correlations.

Relative weighting in value terms. Table 6 outlines a number of items to assess the relative weighting of each component of OCI. The sum gives the total value of flows (the positives and the negatives cancel each other out) while the sum of absolute values indicates the overall value of flows. This figure measures the extent of the potential impact of each component of OCI.

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8 Volatility is volatility of all observations (firm-year) and therefore includes firm and year effects.

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Table 6: Relative weighting of OCI (€m)

	OCI TOTAL	PEN	CFH	FCT	AFS	EM	TAX	OTH
Σ	-173,920	-156,003	-24,921	-76,858	+50,116	-7,317	35,458	5,608
Σ (abs)	984,526	293,938	181,983	587,378	489,731	29,850	183,302	15,823
Σ /Σ (abs) in %	-17.7	-53.1	-13.7	-13.1	10.2	-24.5	19.0	35.4

This table provides the algebraic sum Σ and the sum of absolute values Σ (abs) for the panel. The third line of the table gives the percentage of the sum compared to the total of absolute values.

A high absolute figure indicates a monetary impact. Changes in value of FCT of close to 587.4 billion account for 60% of changes in absolute value of OCI, 50% for AFS, 30% for PEN and 18% for CFH and TAX. The ratio between the two amounts is an indicator of the relative importance and the consequence of the balancing out of positive and negative effects. This indicator reveals the potential and unexpected effects of any individual OCI component on the amount of total OCI. Using the percentages obtained for this indicator, we can rank the various OCI in descending order of importance: available-for-sale financial assets (AFS), foreign currency translation (FCT), pension liabilities (PEN) and cashflow hedges (CFH).

The PEN variable has a primarily downward impact while CFH, FCT and AFS have upward and downward effects as their total is well below the sum of absolute values. The final total only comes to 10% of changes for AFS.

Relative weighting on changes. Table 7 below outlines the Pearson correlation coefficients, which measure the relationship between two variables, for each panel and each sector. We aggregated industrial and services sectors, or so-called non-financial, in order to compare results ex post with the Pearson test.

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Table 7: Correlation statistics (Pearson test) between OCI and its four main components

	PEN	CFH	FCT	AFS
Panel	**0.29****	**0.21****	**0.70****	**0.70****
Insurance	-0.29**	0.11	0.60**	0.93**
Banks	0.00	0.12	0.70**	0.85**
Industrials	0.58**	0.35**	0.75**	0.21
Services	0.27**	0.15*	0.79**	0.49
Non-fin. Europe	0.49**	0.29**	0.76**	0.34**

*This table outlines the Pearson correlation statistics for our sample (N = 800) from 2005 to 2014. PEN is the OCI item on pension liabilities, CFH is the OCI component on cashflow hedges, FCT denotes unrealised capital gains or losses on foreign currency translation and AFS available-for-sale financial assets. * indicates statistical significance of 5% and ** statistical significance of 10%.*

The results show that the amount of OCI co-varies primarily alongside the change in foreign currency translation (FCT) and capital gains and losses on available-for-sale financial assets (AFS). The coefficient of determination comes to 0.49 for these two variables. Each of these two variables, taken separately, accounts for close to half of total OCI regardless of business sector. Foreign currency translation accounts for 36% of total AOCI for insurance companies, 49% for banks, 56% for industrials but close to 63% for service companies. Non-financials (industrials and services) seem to be heavily exposed to currency risk.

The AFS variable (86.5%) is very extensive for insurance companies and high at 72.25% for banks. This is probably due to the fact that they are particularly exposed to interest rate risk on their bond portfolios, and also due to increased exposure to market risk in the case of banks.

Actuarial gains and losses on pension liabilities account for 33.67% of total OCI in the industrial sector. The coefficient of determination of around 8% is very marginal for insurance and services companies.

These results show that any given component of OCI can be dominant in some sectors and can also characterise that sector and we can therefore conclude that the sector in question has particular exposure to certain types of risk.

2. Comparison with US studies

This comparison aims to identify whether our results are restricted to our sample or if they can be applied more generally to a certain extent. We compare them with studies by Black and Bradbury (Black, 2016; Bradbury, 2016). These two baseline studies analyse the correlations and volatility of OCI in the United States and New Zealand respectively.

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Black analyses the correlations by using US data from Compustat Industrial and Compustat Banks by applying the Pearson test, while Bradbury analyses the correlations within a sample of New Zealand firms (Spearman test carried out with adjusted comprehensive income, which excludes revaluations and unadjusted income[9]).

We analysed the correlations of the four main components of OCI to:

- pensions (PEN),

- cashflow hedges (CFH),

- foreign currency translation (FCT),

- available-for-sale financial assets (AFS).

The "other" category, as reported, is not consistent from one study to another and we therefore it excluded from our comparison. We did not study the asset revaluation differences revealed in the New Zealand study.

Table 8: Correlation statistics (Pearson test) between OCI and its four main components

	PEN	CFH	FCT	AFS
Banks Europe	0.00	0.12	0.70**	0.85**
Non-fin. Europe	0.49**	0.29**	0.76**	0.34**
Non fin US	0.46*	0.22*	0.63*	0.63*
Banks US	0.44*	0.11*	0.54*	0.85*

*This table outlines Pearson correlation statistics for our sample (N = 800) from 2005 to 2014 and for the US sample (N=0. The Pearson statistic is used in both cases. * indicates statistical significance of 5% and ** statistical significance of 10 %.*

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[9] The Pearson correlation assesses the linear relationship between two continuous variables. The change in one variable is related to a proportional change in the other variable. The Spearman correlation analyses the monotonic relationship between two continuous or ordinal variables. Variables shift together but not necessarily at a constant pace. This correlation is based on ranked variables.

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Comparison of European and US banks. If we look at AFS, we note that the correlation in the AFS column is similar in Europe and the United States (correlation coefficient of 0.85) The correlation for CFH across our sample stands at 0.70, indicating that currency effects account for 49% of the amount of OCI. For US banks, the coefficient falls to 0.54 i.e. a limited effect of 29%. The correlation is identical for cashflow hedges (CFH) with respectively 0.12 and 0.11 but the impact is marginal at around 1%. Other elements are not significant and are not correlated to the total amount of OCI.

Comparison of non-financial companies. Broadly speaking, figures are comparable in the two geographical areas for pensions (PEN), cashflow hedges (CFH) and foreign currency translation (FCT). Variations in values on pension liabilities (PEN) are correlated to OCI (0.49 in Europe and 0.46 in the United States in the second column of Table 8. Pension liabilities account for respectively 21% and 24% of total OCI in Europe and in the United States. Gains and losses on cashflow hedges are strongly correlated to OCI in all cases. In the industrial sector, the coefficient of 0.58 indicates that this OCI accounts for 33% of overall OCI.

Table 9 outlines the Spearman correlations, which measure the extent of the relationship between the two variables, by comparing them with the results from New Zealand and Europe.

Table 9: Correlation statistics (Spearman test) between OCI and its four main components

	PEN	CFH	FCT	AFS
New Zealand (industrials and services)	0.043	0.391*	0.685*	0.136*
Europe - Industrials	0.266**	0.114	0.626**	0.127
Europe - Services	0.152	0 .224	0.622**	0.399*

The table outlines the Spearman correlations. Coefficients represent Spearman's rho. Variables are the same as in the previous table.

The correlation is only strong for FCT across all samples. The highest OCI component for industrial and services companies is on foreign currency translation. Results are varied for the other variables: PEN has a significant impact for European industrial firms, CFH has a moderate effect for New Zealand companies only and AFS is weakly correlated for services companies in our European sample. Furthermore, correlations are very weak or non-existent.[i.]

In the New Zealand study, the most correlated item with comprehensive income is (FCT) with a correlation coefficient of 0.685. The results for our sample are similar in nature, with a correlation coefficient of 0.62 for industrials and services.

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To conclude this third section, we note that:

- Overall, OCI is heavily related to AFS and FCT. Each OCI taken individually shows that the impacts for AFS and PEN are sector-specific, but FCT effects can be seen across all sectors.
- For all samples, components related to translation differences are statistically and significantly linked to the total of OCI. The available-for-sale financial assets (AFS) component is highly correlated to OCI for European insurance companies and banks. For banks, this conclusion is similar to that of the American study. The OCI component on pension liabilities (PEN) is significant for European and US industrial companies. Some potential explanations could probably be the profile of employees, the statistics tables used and the age of companies in question.

D. Detailed analysis of components of OCI by year and sector

The previous analysis reveals correlations between total OCI for a sector and some of its components. In this section, we will analyse the four components that have a material impact for each sector in greater detail: available-for-sale financial assets, cashflow hedges, foreign currency translation and pension liabilities.

The following analysis reveals potential sector or situational factors.

1. **Unrealised gains and losses on available-for-sale financial assets (AFS) (IAS39.55).**

Chart 3: Changes in AFS component of OCI by sector

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Analysis of sectors. The average OCI component on available-for-sale financial assets (AFS) is 12 times higher for banks (€120m) and 32 times higher for insurers than for industrial and services companies (with an average around €10m broadly speaking). The median comes to zero for industrial and services companies, and is very slightly positive for financial institutions. The interquartile range enables us to distinguish between the different sectors: €15m for industrial companies, €35m for services companies, as compared to €1.5bn for insurers or banks. However, the differences in extreme values are much smaller, at 5, 15, 20 and 30 billion respectively. This OCI component therefore characterises financial institutions. The standard deviation is more than 3 billion for banks and insurers, 950 million for services and 425 million for industrials (Appendix 4). The standard deviation for each sector as compared to its average i.e. the <u>relative standard deviation,</u> reveals the variability of observations within a given sector. The results for AFS are as follows: 35.7 for industrials, -123 for services, 8.5 for insurers and 28.2 for banks, with a figure of 27.7 for the panel. These figures demonstrate that services companies are very heterogeneous on AFS, while insurers are more homogeneous on the basis of this criterion. This OCI component is therefore particularly characteristic of insurers.

Analysis of years. The chart reveals successions of increases and decreases in the average amount, with a drop to reach a very negative amount in 2008, then a rise in 2009, a decline in 2010 and 2011, a jump in 2012, a fall in 2013 that was stronger for banks, followed by an increase in 2014. The average stands within a range from -1,505 million to 899 million euros in 2009. The median is close to zero for most years apart from 2008 and 2009. 75% of observations in 2008 were on negative amounts, while more than 75% of observations were for positive amounts in 2009. The minimum of -17.9 billion seen in 2008 and the maximum of 15.5 billion witnessed in 2009 were both on banks. Appendix 5 outlines these statistics. The average standard deviation per sector comes to 1,942 million vs. 1,406 million per year. Volatility within any given sector is greater than volatility over time for this OCI component. Volatility for the panel of 1,740 million is lower than volatility per sector.

To conclude, we can state that this OCI component is characteristic of the banking and insurance sectors and is subject to major fluctuations from one year to another.

2. Effects of effective portions of cashflow hedges in hedge accounting (IAS 39.95).

Analysis of sectors. The average amount of the OCI component on cashflow hedges is of the same order of magnitude between 17 and 53 million. This figure is almost twice as high for industrials and services as it is for insurance companies and banks, but no clear trend can be identified for any one sector in particular. The impact is successively positive and negative across all sectors. The median stands at zero across all sectors and is slightly negative for banks, with similar numbers of individuals with unrealised losses and unrealised gains. The interquartile range comes out at 72 million for industrial companies, 125 million for services companies, 2 million for insurers and 300 million for banks. This OCI component has no impact on half of the insurance companies in our sample. The minimum and maximum amounts were seen in 2014 and come out at -6.39 billion for an industrial company and 3.3 billion for a bank respectively. Overall, the impact in value terms is smaller than for other components of OCI.

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Standard deviations (Appendix 5) show that banks and industrial companies are potentially fairly heavily impacted. The standard deviation on CFH for each sector is as follows: 13.7 for industrials, 8.28 for services, 7.58 for insurers and 41.43 for banks. Banks and industrial companies are the most diversely affected. We see the beginnings of a divergence between the financial sector and the industrial and services sector in 2014.

Chart 4: Changes in CFH component of OCI by sector
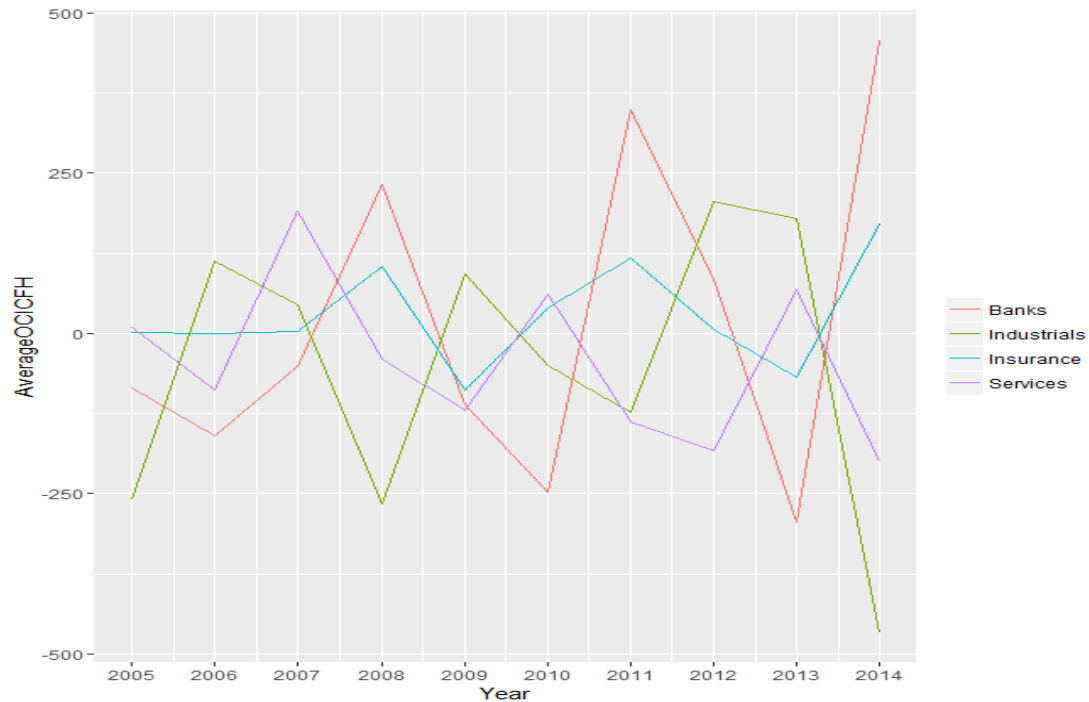
Analysis of years. The average comes out at -190 million in 2014 and +68 million in 2012. Amounts are negative over six years and positive over four years. The maximum is reached in 2014 and the minimum in 2007 and this item can vary considerably from one year to the next. It is characterised by extreme values that reflect the volatility of items hedged for some companies. 2014 was marked by very severe volatility as it included the two extreme values for industrial companies.

The average CFH standard deviation per sector comes to 504 million, vs. 554 million per year. Volatility within a sector is weaker than volatility over time for this OCI component. There is no discriminatory sector effect. To conclude, we note that this OCI component affects all sectors, but all insurers do not seem to affected[10]. Figures are subject to major fluctuations from one year to the next, yet no real trend can be identified.

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[10] Interest rate risk is probably hedged using instruments booked as AFS.

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3. Foreign currency translation gains and losses

Analysis of sectors. The average for each sector compared to the average for the panel (around 100 million) gives a coefficient of +0.4 for insurers and -2 for banks (Appendix 5). The standard deviation is similar for industrial companies (1,536 million) and services companies (1,206 million), but it is higher for banks (2,041 million) than for insurers (874 million). Gains and losses are relatively symmetrical. Interquartile ranges go from 340 million for services companies to 540 million for industrial companies, 600 million for insurance and 1 billion for banks. The standard deviation in FCT for each sector is as follows: 11.3 for industrials, 19.5 for services, 23.1 for insurance, and 10.7 for banks. Services companies and insurers are more diversely affected.

Chart 5: Changes in unrealised capital gains and losses on FCT component of OCI by sector
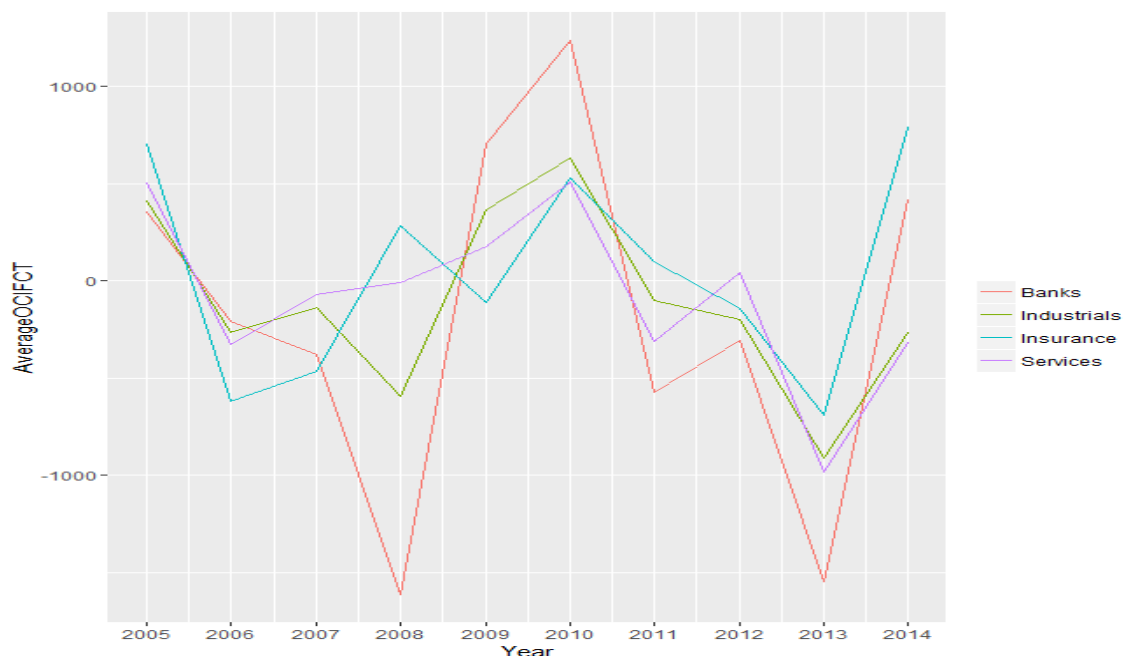
Analysis of years. The average stands at −1 billion in 2013 and +680 million in 2010. Amounts are negative over six years and positive over four years. The maximum and minimum are reached in 2008. This component can vary considerably each year. The standard deviation is at its highest in 2008 and its lowest in 2012. This component is marked by extreme values that reflect the volatility of items hedged by some companies. 2014 was characterised by very severe volatility as it included the two extremes, which are on two industrial companies.

The average FCT standard deviation per sector is 1,414 million vs. 1,239 million for each year. Volatility within the sector is greater than volatility from one period to the next for this OCI, but there is no clearly identified sector slant.

Currency translation-related OCI follows a general trend that is not sector-dependent, as the four sectors fluctuate in the same direction, apart from in 2008. Fluctuations reflect exposure to changes in the value of currencies in the years in question.

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4. Pension liabilities

Analysis of sectors. The average is negative, apart from for service companies where it is slightly positive: -276 million for industrial companies, +23.75 for services companies, -89.33 million euros for insurance companies and 64.32 million euros for banks. However, the standard deviation is greater for industrial companies (more than 1 billion euros vs. 684 million for services, 549 million for insurers and 428 million for banks). The median comes out at zero and interquartile ranges are very close to zero. The effects on banks, services companies and insurance companies are negligible for half of our observations and relatively focused on extreme observations. Half of our industrial companies see actuarial gains and losses ranging between [– 300; + 6] million euros. Effects are positive for slightly over 25% of companies in the sample. Sectors are diversely affected by this OCI component.

Chart 6: Changes in pension liabilities component of OCI by sector
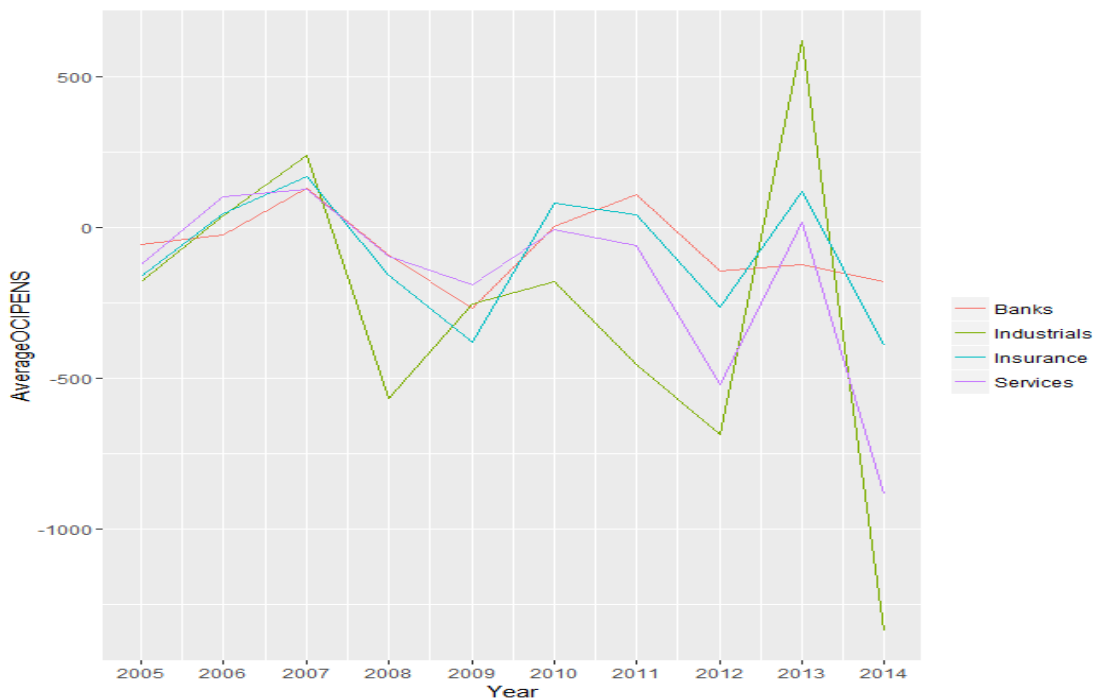
Analysis of years. The averages are negative in seven years out of 10. A simultaneous analysis of the median and the interquartile ranges shows that OCI is negative for at least 75% of companies in 2005 and as of 2008. It is negative for 50% of companies in 2006 and 2007. In 2014, several actuarial difference amounts are more negative than for other years, which is probably due to the effects of low interest rates on debt valuations, which are discounted.

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A comparison of the various years can be skewed by changes in accounting methods[11]. Extreme values are on the same industrial company with a maximum of +4,764 million euros in 2013 and a minimum of -8,430 million euros in 2008.

The average standard deviation in pension liabilities (PEN) by sector comes to 704 million while it is 755 million per year. Volatility within each sector is weaker than volatility over time for this OCI. There is no sector effect.

Pension liability-related OCI involves greater and more volatile amounts for industrial companies. Overall, we see no sector differentiation and effects are negative overall. Volatility seems to be dependent on situational factors for the years in question.

To conclude this fourth section, we can state that:

- **Each OCI when taken individually shows that impacts for AFS are sector-specific.**

- **Some OCI components have a relative weighting and a greater impact for some sectors (such as pension liabilities for industrials). All OCI components see a substantial year bias due to fluctuations in prices from one year to the next. Sector volatility is greater than volatility over time for AFS and FCT. Volatility over time is slightly higher for PEN and CFH.**

To conclude our empirical analysis, we can draw three main conclusions:

- **Total OCI is disconnected from net income, and excess volatility of average OCI compared to volatility of average net income can be passed onto volatility of comprehensive income for banks and insurers;**

- **The relative weighting of the various components in the total amount of OCI is not identical for all OCI: two OCI components are fairly heavily correlated with total OCI (AFS for banks and insurers and FCT for all sectors).**

- **Four OCI have properties that can reflect companies' exposure to market risks (price, interest rates and commodities).**

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[11] 23 companies (29% of the sample) applied the corridor method in 2005 (two companies in the insurance sector, six banks, ten industrial companies and five services companies). Renault stopped in 2006, l'Oréal at end-2007, Danone and BBVA in 2010, Total, Daimler and EDF en 2011. Other companies abandoned the corridor method at the end of the authorised period in 2012 (Appendix 2).

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CONCLUSION

This position paper discusses OCI in Europe and aims to answer the following questions: Are the components added to net income to achieve comprehensive income truly useful and if so, for who?; Is the impact on financial statements significant?; Are they volatile?; What are the most potentially useful areas for research?

Conclusions on comprehensive income

When we make an empirical comparison of comprehensive income with net income for a sample of European companies, we note that net income and OCI display different trends depending on the sector involved. OCI generally has a negative impact on net income (comprehensive income is lower than net income), apart from in the insurance sector, where incidentally AOCI has a positive effect on equity. **A sector-based approach is therefore required.** Comprehensive income consists of varied and transitory items, so its predictive analytical value is lower than that of net income. **Net income is a key indicator that should not be forsaken.** From an empirical standpoint, comprehensive income has been proven useful for investors for valuation purposes in certain cases, but comprehensive income volatility seems useful in projecting the market risks (price, interest rates and currency) that companies faces. In a more volatile economic context, information on the volatility of comprehensive income is not yet understood by users, yet this volatility seems to be partly factored in by the markets and auditors. Comprehensive income volatility is always greater than net income volatility. OCI therefore increases income volatility. OCI volatility from one year to the next is usually high. Comprehensive income volatility gives useful information and it is **important to publish it in a specific statement.**

Presentation format does have an effect. This is probably due to the use of accounting for legal purposes. Comprehensive income could therefore be an indicator to be included in covenants or in managers' remuneration contracts. **Transparency on the components of other comprehensive income should increase its usefulness** in the future due to greater availability of information. Increased transparency should change users' behaviour in the future although with some lag (principle of hysteresis followed by change in behaviour).

Academic research has primarily looked into the informational role of comprehensive income and its components (predictive value and informational relevance in valuation). Meanwhile, analysing the contribution from comprehensive income volatility is an interesting area for research on the relationship with the markets. Issues of stewardship have been subject to less research. Other potential areas for research could involve the agency theory framework, which looks like the most appropriate for explaining the usefulness and also the limitations of comprehensive income. One idea could be to look into the interactions between accounting choices on OCI and agency theory.

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Conclusions on other comprehensive income components

Academic research has been extended to other comprehensive income components. Results are very encouraging as they seem statistically related to future earnings and cashflow. Statistically significant relationships between OCI and share value have also been identified. However, these relationships depend on context (exposure to various currency, commodities and interest rate), sectors and OCI. Components of OCI, when considered individually, often provide additional information that is useful in valuing shares, but the usefulness of each component varies depending on the context. Results are sometimes contradictory and it is difficult to reach a definitive conclusion. The nature and variety of rules that currently apply probably explain the lack of conclusive results on their predictive value.

An empirical analysis reveals that the relative weighting of components in total OCI is not identical for all OCI (two OCI are fairly heavily correlated with total OCI, AFS for banks and insurance companies, and FCT for all sectors, and also PEN for industrial companies to a lesser degree). Across our panel, OCI is heavily related to AFS and FCT. Each OCI taken individually shows that the impacts for AFS and PEN are sector-specific, but FCT effects can be seen across all sectors. For all samples, adjustments related to translation differences are statistically and significantly linked to comprehensive income. The available-for-sale financial assets (AFS) component is highly correlated to OCI for European insurance companies and banks. For banks, this conclusion is similar to that of the American study. The OCI component on pension liabilities (PEN) is significant for European and US industrial companies. Some potential explanations could probably be the profile of employees, the statistics tables used and the age of companies in question. Furthermore, all OCI components see a substantial year bias due to fluctuations in prices from one year to the next. Sector volatility is greater than volatility over time for AFS and FCT. Volatility over time is slightly higher for PEN and CFH.

Disaggregation by type as recommended by IFRS should not be altered as it provides information that changes the behaviour of financial markets players. Separating out recyclable items from non-recyclable is an interesting approach and the impact of this should be subject to research in the future.

Differences remain between the economic rationale behind transactions and accounting categories used for risk management. For example, interest rate risk can be managed by a cashflow hedge or by available-for-sale financial assets. Three OCI have properties that can reflect companies' exposure to market risks (price, interest rates, commodities). Disaggregation could be improved by making it more coherent with risk management, where necessary by publishing additional information in the appendices. Transparency on the components of other comprehensive income should increase its usefulness due to greater availability of information. However, rules must not be made overly complex.

Looking at the usefulness of the various components in valuing a group of companies, a potential area for research could be to identify users of OCI and understand what OCI information they actually use. Research into the relationship between the various types of risk (price, interest rates, currency, commodities) and OCI may not appear relevant but it is probably a promising area for studies in the future. Detailed research should therefore be carried out on specific items and specific sectors.

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APPENDIX 1: List of companies in our sample

MEUR	Insurance	AEGON	MEUR	Industrials	DAIMLER
MEUR	Insurance	ALLIANZ	MEUR	Industrials	DANONE
MGBP	Insurance	AVIVA	SEKM	Industrials	ELECTROLUX
MEUR	Insurance	AXA	MEUR	Industrials	ESSILOR
MEUR	Insurance	CNP	MEUR	Industrials	FINMECCANICA
MEUR	Insurance	Munich Re	MGBP	Industrials	GSK
MGBP	Insurance	Prudential	MEUR	Industrials	HENKEL
MGBP	Insurance	RSA	MGBP	Industrials	Imperial Tobacco
MGBP	Insurance	SCOR	MEUR	Industrials	KERING
MGBP	Banks	BARCLAYS	MEUR	Industrials	LAFARGE
MEUR	Banks	BBVA	MEUR	Industrials	LINDE
MEUR	Banks	BNP Paribas	MEUR	Industrials	L'OREAL
MEUR	Banks	Crédit Agricole	MEUR	Industrials	MERCK
MEUR	Banks	Deutsche Bank	MEUR	Industrials	PEUGEOT
MEUR	Banks	Erste Group	MEUR	Industrials	PHILIPS
USDM	Banks	HSBC	MGBP	Industrials	RECKITT BENCKISER
MEUR	Banks	ING	MEUR	Industrials	RENAULT
MEUR	Banks	KBC	M$	Industrials	SAB MILLER
MEUR	Banks	NORDEA	MEUR	Industrials	Saint-Gobain
MEUR	Banks	SANTANDER	MEUR	Industrials	SANOFI
MEUR	Banks	SOGE	M$	Industrials	SHELL
MGBP	Industrials	ABF	MEUR	Industrials	THALES
MEUR	Industrials	ABINBEV	MEUR	Industrials	THYSSENKRUPP
MEUR	Industrials	AIRBUS	MEUR	Industrials	TOTAL
SEKM	Industrials	ALPHA LAVAL	MEUR	Industrials	UNILEVER
MEUR	Industrials	ALSTOM	MEUR	Industrials	VALEO
MEUR	Industrials	BASF	MEUR	Industrials	VOLKWAGEN
MGBP	Industrials	BAT	MEUR	Services	ABERTIS
MEUR	Industrials	BAYER	MEUR	Services	Centrica
MEUR	Industrials	BEIERSDORF	MEUR	Services	Deutsche Post
USDM	Industrials	BG GROUP	MEUR	Services	Deutsche Telecom

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MEUR	Industrials	BMW	MGBP	Services	Easy Jet
MEUR	Industrials	BP			
MEUR	Services	EDF			
MEUR	Services	ENEL			
MEUR	Services	EON			
MGBP	Services	KINGFISHER			
MEUR	Services	LUFTHANSA			
MEUR	Services	ORANGE			
MEUR	Services	ProSiebenSat1			
MEUR	Services	PUBLICIS			
MEUR	Services	SAP			
MGBP	Services	SKY			
MEUR	Services	TELEFONICA			
MGBP	Services	TESCO			
MEUR	Services	VEOLIA			
MEUR	Services	VINCI			
MEUR	Services	VODAFONE			

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APPENDIX 2: List of companies that use corridor method

Sector	Company	Abandoned
Industrials	RENAULT	2006
Industrials	L'OREAL	2007
Banks	BBVA	2010
Industrials	DANONE	2010
Industrials	DAIMLER	2011
Services	EDF	2011
Industrials	TOTAL	2011
Insurance	AEGON	2012
Insurance	ALLIANZ	2012
Industrials	ALPHA LAVAL	2012
Industrials	BG GROUP	2012
Banks	BNP Paribas	2012
Services	Deutsche Post	2012
Industrials	ELECTROLUX	2012
Services	ENEL	2012
Banks	ING	2012
Banks	KBC	2012
Services	LUFTHANSA	2012
Banks	NORDEA	2012
Services	ProSiebenSat1	2012
Industrials	SHELL	2012
Banks	SOGE	2012
Industrials	THALES	2012

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APPENDIX 3: Orange accounts

In €m (actuarial gains and losses in OCI from 2008)	2005	2014
Net Income	6,360	1,225
o/w Group Share	5,709	925
o/w Minorities	651	300
Other Comprehensive Income	1,578	263
o/w Remeasurement of the defined Liabilities	0	-150
o/w Related Tax Items	48	151
o/w Cashflow Hedges	-41	-358
o/w Foreign currency translation for foreign operations	1,573	672
o/w Net change in fair Value of AFS	-2	-26
o/w Equity Accounted Method		-26
o/w Others		
Comprehensive Income	7,938	1,488
o/w Minorities	191	326
Accumulated Other Comprehensive Income	1,924	658
o/w Remeasurement of the defined Liabilities	0	-546
o/w Related Tax Items	68	319
o/w Cashflow Hedges	-200	-488
o/w Foreign currency translation for foreign operations	1,933	1,424
o/w Net change in fair Value of AFS	123	21
o/w Equity Accounted Method	0	-72
o/w Others		
Retained Earnings, Treasury Shares & Others		-3,879
Shareholder Equity	28,438	31,701
o/w Group Share	24,860	29,559
o/w Minorities	3,578	2,142
EPS (Non Diluted, Reported)	2.28	0.31
EPS (Diluted, Reported)	2.20	0.31

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Appendix 4: OCI statistics by sector

OCI	Total	Industry	Services	Insurance	Banks
Min.	-24,357.85	-12,715	-10,637	-8,794	-24,357.85
1st Qu.	-580	-548.8	-370.51	-483.5	-1,204.5
Median	-41.33	-68.7	-18.09	109.3	-17.58
Mean	-217.4	-348.1	-227.79	261.9	-134.88
3rd Qu.	327.95	182.7	140.88	1,151.6	1,249.5
Max	10,587	4,799.1	9,854	8,517	10,587
Standard deviation	2,358.7	1,735.9	1,841.8	2,817.6	3,956.7
OCIAFS	**Total**	**Industry**	**Services**	**Insurance**	**Banks**
Min.	-17,911	-3,233	-10,186	-10,421	-17,911
1st Qu.	-16	-5	-9.232	-387.9	-670.2
Median	0	0	0	62	72.5
Mean	62.65	11.91	-7.742	359.4	119
3rd Qu.	70.25	10.05	26.45	1,266.2	1,135
Max	15,531	4,291	4,698	9,996	15,531
Standard deviation	1,740.2	425.1	957.2	3,027.3	3,357.1
OCICFH	**Total**	**Industry**	**Services**	**Insurance**	**Banks**
Min.	-6,390	-6,390	-2,030	-731	-2,898.42
1st Qu.	-49.23	-38.75	-70.8	0	-128.25
Median	0	0	0	0	-6.5
Mean	-31.15	-53.13	-44.14	28.69	17.04
3rd Qu.	42	33	54.74	1.75	175.05
Max	3,304	2,521	1,548	1,188	3,304
Standard deviation	610.07	728.6	365.3	217.5	705.9
OCIFCT	**Total**	**Industry**	**Services**	**Insurance**	**Banks**
Min.	-8,423.5	-8,237	-6,733	-2,453	-8,423.46
1st Qu.	-324.5	-309.4	-211.2	-262.77	-758.69
Median	-17.5	-28.5	0	-46.11	-66.53
Mean	-96.07	-106.6	-78.8	37.78	-191.09
3rd Qu.	216.38	230.6	127.5	335.9	300
Max	12,506	4,784	12,506	3,378.88	5,914.97
Standard deviation	1,416.1	1,206.4	1,536.16	874.27	2,041
OCIPEN	**Total**	**Industry**	**Services**	**Insurance**	**Banks**
Min.	-8,430	-8,430	-1,402	-2302	-2,578.22
1st Qu.	-171.3	-296.5	0	-72.27	-22
Median	0	-6.19	0	0	0
Mean	-195	-275.98	23.76	-89.33	-64.32
3rd Qu.	0	6.75	0	0	0
Max	4,764	4,764	939	2,064	1,823.78
Standard deviation	913.1	1,154.6	683.8	549.2	428.9

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Appendix 5: Statistics by year

	2005	2006	2007	2008	2009
OCI					
Min.	-4,274	-4,387	-5,545	-24,360	-1,104
1st Qu.	22.5	-361.4	-696.5	-2,676	-29.36
Median	138.4	-55.37	-115.2	-750	186.7
Mean	555.4	-18.83	-271.2	-2,123	884.5
3rd Qu.	1,132	106.5	95.51	-43.7	775.3
Max	5,305	4,554	6,909	9,854	10,590
Standard deviation	1,515.5	1,368.7	1,757.3	4,207.4	2,052.1
	2010	**2011**	**2012**	**2013**	**2014**
OCI					
Min.	-4,489	-5,108	-3,751	-6,823	-12,720
1st Qu.	31.65	-876.5	-562.1	-1,575	-1,384
Median	246.6	-150.4	-110.5	-383.6	-65.2
Mean	558.6	-469.2	108.7	-979.80	-418.8
3rd Qu.	945.9	-3.25	221.8	-66.75	363.6
Max	4,401	2,889	5,746	1,360	9,188
Standard deviation	1,336.8	1,158.7	1,645	1,651.5	3,400.6

	2005	2006	2007	2008	2009
OCIAFS					
Min.	-858	-1,047	-3,749	-17,910	-92
1st Qu.	0	-5.4	-232.8	-1,984	1.5
Median	1.5	0	-0.5	-91	66.6
Mean	252.2	221.8	-312.8	-1,505	898.7
3rd Qu.	164	136.7	2,456	0	723.2
Max	4,698	4,291	1,379	460	15,530
Standard deviation	766	815.2	862.9	3,308.5	2,291.5
	2010	**2011**	**2012**	**2013**	**2014**
OCIAFS					
Min.	-2,719	-2,844	-628.5	-4,805	-2,760
1st Qu.	-26.2	-65.5	0	-61.25	-0.7
Median	0	-1	7	0	3
Mean	-8.9	-62.7	693.6	-202.7	651.9
3rd Qu.	41.5	11.3	528.3	23.14	329.3
Max	4,771	2,600	8,103	1,794	9,996
Standard deviation	971	656.2	1,605.6	963.5	1,818.8

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Appendix 5: Statistics by year

	2005	2006	2007	2008	2009
OCICFH					
Min.	-5,724	-1,131	-925	-5,427	-1,097
1st Qu.	-45.5	-20.5	-7.7	-76.3	-67
Median	-2.7	0	4.5	0	-6.2
Mean	-137	8.6	61.5	-92.9	-11.27
3rd Qu.	2.9	37.7	61	58.7	41
Max	764	1,863	1,548	1,352	1,483
Standard deviation	702.5	337.5	303.3	754.8	376.3
	2010	**2011**	**2012**	**2013**	**2014**
OCICFH					
Min.	-2,135	-2,079	-1,241	-2,898	-6,390
1st Qu.	-64.2	-93.4	-26.2	-3.5	-127.8
Median	-1	-4.5	4.9	8.5	-1
Mean	-41.8	-29.7	68.13	52.9	-190
3rd Qu.	17.7	10.5	81.25	62.7	61.7
Max	1,096	1,906	2,521	2,291	3,304
Standard deviation	348.7	446.6	492	633.2	1,149.3

	2005	2006	2007	2008	2009
OCIFCT					
Min.	-3,563	-3,826	-2,764	-8,423	-1,144
1st Qu.	43.76	-527	-531.1	-857.2	-60.5
Median	161.70	-177	-195	-128.3	40.2
Mean	460	-313	-192.9	-502.5	315.3
3rd Qu.	766.5	-24.88	2.75	1.4	275.7
Max	4,287	3,727	5,477	12,510	5,915.0
Standard deviation	1,119	979.8	1,238.2	2,417.8	1,056.3
	2010	**2011**	**2012**	**2013**	**2014**
OCIFCT					
Min.	-2,776	-4,385	-2,170	-7,027	-6,787
1st Qu.	119.9	-193	-269	-1,360	-171.1
Median	421.6	-11.65	-66	-539.5	229.5
Mean	680.3	-200.8	-149.8	-1001	-56.75
3rd Qu.	941.0	105.2	39.93	-210.1	669
Max	5204	1498	1288	193.1	4,189
Standard deviation	1,053.3	800.6	525.9	1,237.1	1,963.3

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Appendix 5: Statistics by year

	2005	2006	2007	2008	2009
OCIPENS					
Min.	-1,231	-4,875	-60	-8,430	-2,578
1st Qu.	-118.5	0	0	-318.2	-301.6
Median	0	0	0	-1.9	-13.4
Mean	-144.1	46	187.2	-330.6	-254.5
3rd Qu.	0	89.5	175.1	0	0
Max	975	2,615	1717	391	238
Standard deviation	340.9	658	386	1,047.4	458.8
	2010	**2011**	**2012**	**2013**	**2014**
OCIPENS					
Min.	-1,948	-6,031	-5,589	-1,172	-7,929
1st Qu.	-58	-254.2	-522.4	-1,558	-1,046
Median	0	-5.7	-130.6	47	-303.5
Mean	-79.24	-215.4	-516.4	302.7	-945.8
3rd Qu.	0	0	0	371.5	-53.11
Max	1,145	1,123	0	4764	2,063
Standard deviation	360.1	778.1	998	861	1,668

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Appendix 6: Table of Acronyms

AOCI	Accumulated other comprehensive income
AFS	Available-for-sale financial assets
APM	Alternative performance measures
CFH	Cashflow Hedge
EM	Equity Method
FCT	Foreign Currency Translation
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
FASB	Financial Accounting Standards Board
OCI	Other comprehensive income
OTH	OCI on other items (not identified)
PEN	OCI on pension liabilities
PENS	Variable for OCI on pension liabilities
SFAF	Statements of Financial Accounting Standards
STRGL	Statement of Total Recognised Gains and Losses (STRGL)
TAX	OCI on tax

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