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Introduction **Noël Amenc**

In the past few years the advisability of including commodities in institutional investors' portfolios and the supposed role of speculative activity in the volatility of commodity prices have been widely discussed within the industry, not least as a response to EDHEC-Risk Institute's research on these topics. We have participated extensively in the public debate both in Europe and the US on the question of the influence of the derivatives markets on the spot prices of commodities, notably that of oil, and have always fought against the idea of a structural influence of the futures markets on the cash market.

In view of the importance of commodities investment, we have decided to devote a considerable portion of the current Research Insights supplement in partnership with Investment & Pensions Europe (IPE) to commodities investing, from both the research and practitioner perspectives.

In the first article, Hilary Till draws some lessons from the history of commodity futures trading in order to better appreciate the current regulatory developments and determine what we can learn from past regulatory history. Developing the theme further, Professor Joëlle Miffre, on the basis of research conducted with the support of CME Group, looks at the implications of long-short commodity investing for portfolio risk and market regulation. We then feature an interview with Dr Blu Putnam, chief economist and a managing director with CME Group, who reacts to the results of this research and discusses the financialisation of commodity futures markets.

Another important topic which has been widely debated in the industry lately is the risks of exchange-traded funds (ETFs). In our article, we first look at the counterparty and liquidity risks of UCITS ETFs and

discuss how the risk exposures of UCITS ETFs compare to those of other exchange-traded products and UCITS, and then give our recommendations on what the regulator should do to legislate for ETF risks. With the publication of the ESMA consultation paper on ETFs and other UCITS issues (ESMA/2012/44) on 30 January, this is a particularly timely piece.

Finally, we feature an article of particular interest to European institutional investors, on accounting and sponsor risks in European pension plans. This article, which was produced as part of the research chair on regulation and institutional investment at EDHEC-Risk Institute, endowed by AXA Investment Managers, finds that the institutional set-up has a great influence on the risk management practices of sponsors and pension funds and that it contributes to inefficiencies in the management of risks. On the whole, accounting risk is an important risk for sponsors, and sponsor risk is the main risk for traditional defined-benefit pension funds, but these two risks are often not hedged or managed because doing so is not facilitated by the institutional set-up – laws, social, accounting and prudential rules, as well as the pension insurance schemes and governance rules that define the organisation of pension plans.

I would again like to extend our sincere thanks to our friends at IPE for enabling us to make our research results available to European institutional investors through this Research Insights supplement and I trust that you will find the content useful, informative and relevant.

Noël Amenc, Professor of Finance, EDHEC Business School, and Director, EDHEC-Risk Institute

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Lessons from history on commodity futures trading controversies

Hilary Till, Research Associate, EDHEC-Risk Institute and Principal, Premia Capital

Current debate on commodity futures trading

Let us first briefly examine the oil price spike of 2008. Was this caused by index investors or speculators? From examining data in CFTC (2008), it is unlikely that index investors were the source of this price spike, given that total over-the-counter and on-exchange commodity index investment activity in oil futures contract equivalents actually declined from 31 December 2007 through 30 June 2008.

Using data from the CFTC's Disaggregated Commitments of Trader report, Ribeiro *et al* (2009) found that oil prices and positions of banks and funds were correlated through common reactions to fundamental information. Further, from 2006 to 2009, the variability of oil prices was mostly due to (1) changes in the US dollar, (2) changes in oil market tightness; and (3) expectations of future changes in oil inventories.

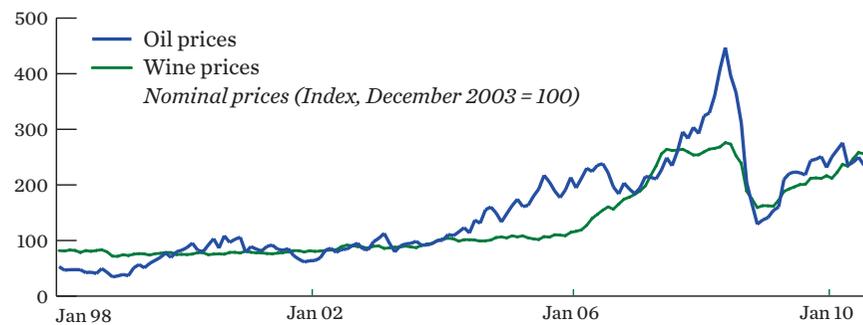
Lynch (2010) obtained unreleased CFTC reports through a Freedom of Information Act request. In one report, CFTC staff had found that, for crude oil prices from January 2003 to October 2008, price changes led position changes, rather than the other way around, as summarised in ITF (2009). If speculators were indeed driving price changes, one would have expected their position changes, instead, to have led price changes.

Last year two IMF researchers creatively contributed to the debate on what caused the extreme fluctuations in oil prices from 1990 to June 2010. When analysing two very distinct commodities – crude oil and fine wine, Cevik and Sedik (2011) found that there are common macroeconomic factors, which were the main determinants of each commodity's price changes. Although supply constraints were a factor for each commodity, the key factor for both commodities was aggregate demand growth. For both crude oil and fine wine, the researchers found that “advanced economies account for more than half of global consumption [while] emerging economies make up the bulk of the incremental change in demand,” which is a recent phenomenon. That said, “global excess liquidity ... [was] likely to have magnified the price pressures stemming from [each commodity's] supply/demand imbalances”.

As Cevik and Sedik discuss, Figure 1 shows how the prices of oil and wine rose “in tandem between 2003 and mid-2008 and [then collapsed] ... simultaneously in the second half of 2008,” which “makes it difficult to ignore the influence of common economic factors”.

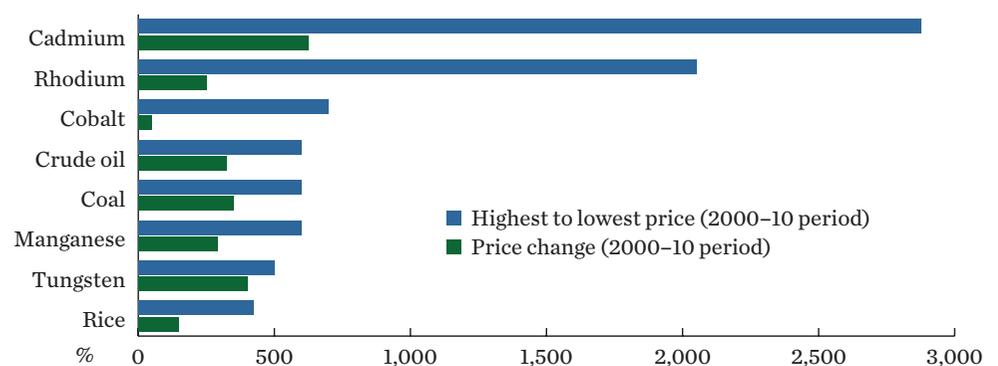
In March 2011, the IEA found qualitatively similar results for a basket of non-exchange-traded commodities versus crude oil from 2000 through 2010. Figure 2 shows how price spikes were not unique to crude oil. The IEA's ‘non-exchange-traded’ basket included rice, coal, manganese, rhodium, cadmium, cobalt, and tungsten. That said, futures do exist on rough rice and Appalachian coal, but the open interest for these two commodities is quite small. The IEA report also showed similar results for the

1. Crude oil and fine wine prices



Data: spot price of crude is measured by the monthly average price of Brent and West Texas Intermediate. Monthly fine wine prices are measured by the Liv-ex Fine Wine Investable Index. Graph based on Cevik and Sedik (2011), Figure 1

2. Performance of crude oil and non-exchange-traded commodities



Data source: Bloomberg

volatility of non-exchange-traded commodities versus crude oil, except that the non-exchange-traded commodities had more frequent volatility spikes than crude oil.

What can we learn from past regulatory history?

A review of the politics around futures trading since the 1890s gives one a sense of déjà vu.

For example, US Congressional testimony from 1892 shows just how extremely unpopular grain futures trading had been, given the competitive dislocations that were occurring at the time. From 1884 through 1953 alone, there were at least 330 bills introduced to the US Congress that sought to “limit, obstruct, or prohibit futures trading”, according to Jacks (2007). More recently, the 1970s witnessed a period of rapid increases in commodity prices with new all-time highs set across a broad range of markets. These price increases were “blamed on speculative behavior associated with the tremendous expansion of trading in futures in

a wide range of commodities”, noted Sanders *et al* (2008). Not surprisingly, “public pressure to curb speculation resulted in a number of regulatory proposals”, continued Sanders *et al*, while “in hindsight, economists generally consider this a period marked by rapid structural shifts such as oil embargoes, Russian grain imports, and the collapse of the Bretton Woods fixed exchange-rate system”, wrote Cooper and Lawrence (1975).

Essentially, challenges to futures trading have been common in US and European history. Over time, regulatory interventions have not been unusual. If a futures contract has not been seen as economically useful, it has been at risk of being prohibited. Thus far, futures trading has survived frequent challenges because market-participant data and positions have been made transparent. This transparency has meant that researchers have been able to carry out objective, empirical studies to prove or disprove the benefits or burdens of exchange-traded futures trading, dating back to

at least 1941 with the release of the Hoffman and Duvel report.

The historical lessons from past challenges to futures trading are as follows:

- ➔ constantly revisit the economic usefulness of commodity futures trading;
- ➔ insist upon transparency in market-participation and position data in a sufficiently disaggregated fashion as to be useful, but also in a sufficiently aggregated fashion as not to violate individual privacy; and
- ➔ carry out empirical studies to confirm or challenge the benefits and/or burdens of futures trading.

In addition to transparent price discovery, one crucial economic function of commodity futures markets is to enable the hedging of prohibitively expensive inventories, with the assumed result that more inventories are privately held than otherwise would be the case. If commodity futures markets do perform that function, then one would expect that their existence would actually lessen price volatility. More inventories than would otherwise be the case would lessen the possibility of commodity price spikes, as argued by Philip Verleger, formerly of the University of Calgary.

The more speculators there are, the more opportunity there is for commercial hedgers to find a natural other side for hedging prohibitively expensive inventories. This in turn means that more inventories can be economically held. Then with more inventories, if there is unexpected demand, one can draw from inventories to meet demand, rather than have prices spike higher to ration demand.

Verleger (2010) noted that, with the forthcoming US position limits in the energies, the volume of speculation could be decreased and therefore the same with the ability to hold hedged inventories. With less inventories being held, one may see the re-emergence of energy price spikes in the winter. Verleger basically argues that the economic function of using derivatives to hedge inventories is so crucial that, even if position limits eventually become draconian, this activity will continue, but will take place in other financial centres. This would be unfortunate for the United States since this could mean that the hedged inventories would be held outside the US, meaning that the US would be more at risk from price spikes because of the time it would take to ship the hedged inventories to the US.

Does futures trading actually lower the price volatility of a commodity?

Professor David Jacks of Simon Fraser University in Canada examined what happened to commodity price volatility, across countries and commodities, before and after specific commodity contract trading has been prohibited in the past. Jacks (2007) also examined commodity-price volatility before and after the establishment of futures markets, across time and across countries. He generally, but not always, found that commodity price volatility was greater when there were no futures markets than when they existed, over one-year, three-year and five-year timeframes.

Consistent with Jacks's historical results, more recently two Illinois professors found that index positions led to lower volatility in a statistical sense. Specifically, Irwin and Sanders (2011) find "mild evidence of a negative relationship between index fund positions and the volatility of commodity futures prices, consistent with the traditional view that speculators reduce risk in the futures markets and therefore lower the cost of hedging". But there

is a caveat. "Excessive speculation as measured by Working's T index is however associated with greater subsequent price variation" in some futures markets, concluded Irwin and Sanders (2010). This could be a breakthrough in our understanding of commodity futures markets. Provided that we have sufficiently reliable data that categorises market participation, we potentially have an empirical guide as to what actually constitutes excessive speculation.

In review, Working's T index is calculated by measuring the amount by which speculation exceeds commercial hedging needs, divided by commercial open interest, as described in Working (1960). A value of somewhat greater than 1 is acceptable for the T index since technically an excess of speculation is economically necessary for a well-functioning market, explain Sanders *et al* (2008). A particularly large T index would indicate that there is an excess of speculators relative to commercial hedging needs. And if individual commodity futures markets reach levels of T indices that are proven to lead to increased price volatility, then at last, futures-market critics would have their 'smoking gun'.

A 2009 EDHEC-Risk position paper evaluated whether the balance of outright position-taking in the US exchange-traded oil derivatives markets had been excessive relative to hedging demand during the previous three years. Till (2009) did so by calculating T indices for the US crude oil market. Using this data and with some notable caveats, one could conclude that speculative position-taking in the US oil futures markets did not appear excessive when compared to the scale of commercial hedging at the time, as of the end of 2009. One has to be careful with how strongly one states this paper's conclusions since, for example, the paper did not examine whether there was excessive speculation in the oil markets in other venues besides the US exchange-traded oil futures markets. In addition, Buyuksahin and Harris (2009) found that the average level of Working's T index in 2008 for the US crude oil market was "rather comparable to historical index numbers in other markets".

An essential historical lesson from past challenges to commodity futures trading has been to encourage transparency in the dealings of market participants. And thus far, this is the approach taken by both the CFTC and the US Congress. Also, according to a CFTC commissioner, as quoted in de la Hamaide and Maitre (2011): "We've been trying to express our desire for other [international] regulators to collect data .. to be able to make sure they're very aware of the correlations between how all those markets work together."

De la Hamaide and Maitre write that "the [regulatory] aim is to be able to reconcile how much trading activity in derivatives and physical market volume can be directly linked to real demand and supply. The data should help regulators see whether speculators are playing a role in commodity price inflation – a causal link that has been difficult to empirically prove."

Conclusion

Public scrutiny of, and scepticism about, commodity futures markets has had a long tradition in both the United States and Continental Europe, dating back to (at least) the last great era of globalisation in the 1890s. Over the past 120 years, two determinations have historically prevented futures trading from generally being heavily restricted.

The first supportive determination has been

a general (although not unanimous) recognition by policy-makers that futures markets serve a legitimate economic purpose. The second determination has been to base public policy on an objective examination of extensively gathered facts, which are summarised via appropriate statistical measures. Clearly, public policy governing futures markets should continue to be based on this framework, both in the US and in Europe.

Hilary Till is a research associate for the EDHEC-Risk Institute and is based in Chicago. She is a member of the Federal Reserve Bank of Chicago's Working Group on Financial Markets; serves as a member of the North American Advisory Board of the London School of Economics, and is the co-editor of Intelligent Commodity Investing.

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Long-short commodity investing: implications for portfolio risk and market regulation

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In recent research¹ produced as part of a project on Exploring the Commodity Futures Risk Premium: Implications for Asset Allocation and Regulation at EDHEC-Risk Institute conducted with support from CME Group, we looked at three aspects of long-short dynamic strategies for commodity portfolios: the performance characteristics of long only portfolios and long-short portfolios; the volatility of long-only portfolios and long-short portfolios; and the correlation between traditional asset classes (equities and bonds) and commodity investments when traditional asset classes are experiencing high volatility.

In order to compare the performance and risk characteristics of long-only commodity portfolios and of long-short commodity strategies we model the kinds of portfolios implemented by hedge fund managers who focus on commodities. We start by mimicking the trading behaviour of long-short participants in commodity futures markets for the period 1992–2011. This is done by implementing a series of long-short strategies, where these strategies are based on a momentum signal, on the slope of the term structure of commodity prices, on a double-sort that combines momentum and term structure signals, or on the positions of hedgers and speculators. The rule-based strategies that we implement specify minimum liquidity requirements for commodity contracts and then include in a long-short portfolio the commodities with the strongest momentum, the highest absolute roll-returns, or the most extreme hedging pressures.

The dataset includes Friday settlement prices for 27 commodity futures as obtained from Datastream International. These include 12 agricultural commodities, five energy commodities, four livestock commodities, five metal commodities (copper, gold, palladium, platinum and silver) and, finally, random-length lumber. The frequency, time series and cross section of our strategies are chosen based on the availability of the positions of commercial traders (often termed ‘hedgers’) and non-commercial traders (often termed ‘speculators’) in the Commodity Futures Trading Commission (CFTC) Commitment of Traders Report (COT). These positions are collected every Tuesday and made available to the public the following Friday.

All portfolios short-list the 75% most liquid contracts out of the universe of commodity futures that are available at the time of portfolio construction. The momentum portfolio is composed by buying the (remaining) 20% with the highest past performance and shorting the (remaining) 20% with the lowest past performance over a chosen observation period. Likewise, out of the 75% of contracts that are the most liquid, the term structure portfolio buys

the 20% with the highest roll returns – ie, the highest difference between the current spot price and the futures contract price, and sells the 20% with the lowest roll-returns. Finally, the hedging pressure strategies use commercial traders’ and non-commercial traders’ positions, as reported by the CFTC, as asset allocation signals. More specifically, the strategies take long positions in liquid backwardated commodities (ie, commodities whose futures are trading below the expected spot price at contract maturity) and short positions in liquid contangoed commodities (the opposite market condition to backwardation). The either single- or double-sort strategies we end up with aim at systematically taking long positions in the 15% of commodities whose prices are expected to appreciate and short positions in the 15% of commodities whose prices are expected to depreciate.

In terms of standalone performance and as previously reported in the literature, long-short commodity portfolios are found to dominate long-only commodity indices. The average mean excess return of the single-sort long-short portfolios equals 7.99% a year and that of the double-sort portfolios equals 9.03% a year. Over the same period, the mean excess return of the S&P-GSCI is 0.64% a year and that of the long-only equally-weighted portfolio of the 27 commodities included in this study is 4.28% a year. The conclusion is similar when we adjust for risk. The Sharpe ratios of the long-short portfolios average out at 0.5093 with a range from 0.2711 (for the single-sort momentum strategy) to 0.6302 (for the single-sort hedger-based strategy). These Sharpe ratios always substantially exceed those of long-only benchmarks (0.0529 for the long-only equally-weighted portfolio and 0.1965 for the S&P-GSCI).

In the context of multi-asset class investment, the relationship between the volatility of commodity investments and that of traditional

investments as well as the correlations between commodity investments and traditional asset classes have important implications for risk management and diversification.

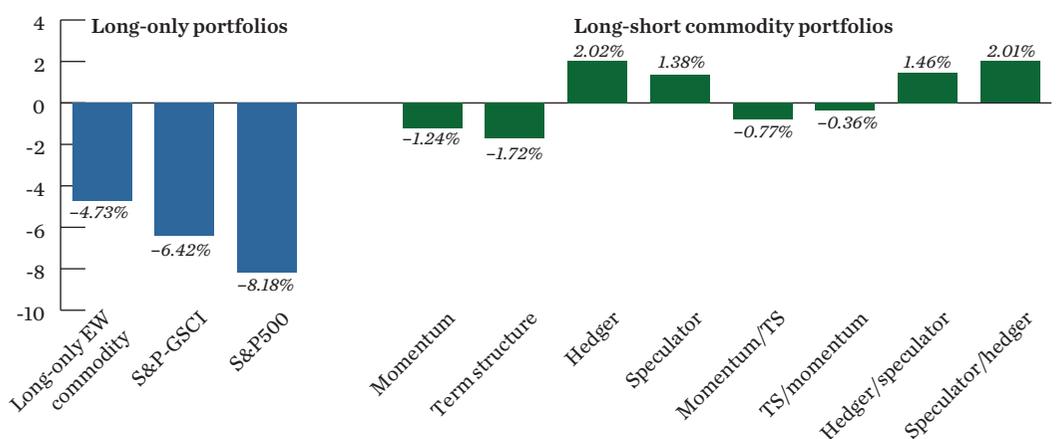
The averages of the conditional volatilities of the long-short commodity strategies studied here range from 15.09% to 17.61% a year and are less than the average of the conditional volatilities of the S&P-GSCI, which stands at 20.81% – these differences are statistically significant. The equally-weighted portfolio of the 27 commodities is found to have a conditional volatility of 11.28%.

The conditional volatilities of the long-short commodity strategies are also found to rise by less than that of the S&P-GSCI or the equally-weighted benchmark in periods of increased volatility in equity markets. Furthermore, they fall in periods of increased volatility in fixed-income markets at a time when the conditional volatilities of the long-only commodity indices rise. This is good news for investors as it indicates that they can reduce the total risk of their multi-class portfolios more effectively by being long-short commodities as opposed to being long-only.

The conditional correlations of the S&P500 with the commodity investments studied are low over the period, confirming their strategic role as risk diversifiers. The conditional correlations modelled relative to the long-short commodity portfolios are lower than those modelled relative to the long-only commodity indices, suggesting that the risk diversification benefits of commodity futures are stronger within long-short portfolios. Focusing on the period following the demise of Lehman Brothers, we observe a sharp rise in the conditional correlations between the S&P500 and long-only commodity indices while those between the S&P500 and long-short commodity strategies remain very low, which again shows the stronger diversification benefits associated with long-short strategies compared to long-only indices.

The conditional correlations between the long-short and long-only commodity portfolios and the Barclays Capital US Aggregate Bond index are also found to be low over the period. A

1. Average weekly performance of the S&P500 index, of long-only and long-short commodity portfolios over the four weeks following demise of Lehman Brothers



1 Miffre, J., 2011. “Long-Short Commodity Investing: Implications for Portfolio Risk and Market Regulation”, EDHEC-Risk Institute Publication supported by CME Group.

statistical test of differences between these correlations suggests that, all else being equal, bond investors are better off from a risk management perspective holding the S&P-GSCI than commodity portfolios based on past performance or on past roll-returns.

In periods of high volatility in equity markets, the conditional correlations between the S&P500 index and the long-short commodity portfolios based on commercial and non-commercial traders' positions are found to decrease. This is welcome news for equity investors as it is precisely when the volatility of equity markets is high that the benefits of diversification are most appreciated. In contrast, the conditional correlations between long-only commodity indices and equity indices rise with the volatility of the S&P500, suggesting that the risk reduction that comes from diversification is less prevalent when needed most. The month that followed the failure of Lehman Brothers provides a test of these relationships. As depicted in Figure 1, the S&P500 lost 8.18% a week and the long-only commodity portfolios retreated sharply, while the long-short commodity strategies studied here earned between -1.72% and 2.02% a week. These results suggest that, unlike long-only commodity portfolios, long-short commodity strategies can serve as a partial hedge against extreme equity risk.

In periods of high volatility in bond markets, the conditional correlations between the Barclays Capital US Aggregate Bond index and the long-short commodity portfolios based on commercial and non-commercial traders' positions are found to remain constant, whereas the conditional correlations relative to long-only commodity portfolios are found to rise sharply. This suggests that long-short commodity portfolios based on hedgers and speculators' positions can serve as better diversifiers than long-only commodity portfolios in periods of extreme risk in bond markets.

Our results confirm that commodity futures investment is relevant and presents reasons as to why long-short strategies should prevail over long-only investing: they have lower conditional volatility than the leading long-only benchmark index; and they offer more effective diversification qualities for equity portfolios, especially in the recent period. Furthermore, long-short commodity portfolios have partial hedging characteristics providing protection against extreme-risk in the equity markets and to offer stable diversification properties in times of turbulence on the fixed income markets.

We examine whether the increased involvement of financial investors has been disruptive for commodity futures markets. This is done by testing whether the increase in the long, as well as short, interests of speculators caused a change in the conditional volatility of long-short commodity portfolios or a change in the conditional correlation between their returns and those of traditional assets. Our (Granger) causality tests are tests of the hypothesis that changes in the positions of long-short investors do not cause changes in the volatility of the long-short commodity portfolios or have no impact on their conditional correlation with traditional assets. A failure to reject the hypothesis indicates a lack of causality. We find virtually no support for the hypothesis that long-short investors have destabilised commodity prices by increasing volatility or co-movements between commodity prices and those of traditional assets. Interestingly, this conclusion holds regardless of whether investors are labelled 'non-commercial' or 'commercial'. Thus the analysis presented here does not justify regulatory changes due to increased participation of professional money managers in commodity futures markets.

Commodity prices over the last decade were greatly influenced by the rise of emerging markets

An interview with [Blu Putnam](#)

Bluford (Blu) Putnam has served as managing director and chief economist of CME Group since May 2011. He is responsible for leading economic analysis on global financial markets by identifying emerging trends, evaluating economic factors and forecasting their impact on CME Group and the company's business strategy. He also serves as CME Group's spokesperson on global economic conditions and manages external research initiatives.



The first EDHEC-Risk Institute research study supported by CME Group, entitled 'Long-Short Commodity Investing: Implications for Portfolio Risk and Market Regulation', has just been released. As a practitioner, as a scholar active in academic research, as well as the chief economist of CME Group, what do you think are the study's key take-aways?

Blu Putnam: There are two main findings from Professor Joëlle Miffre's research. First, there are important diversification benefits relative to traditional equity and bond benchmark indices from trading commodities futures dynamically according to a long-short strategy. Second, her empirical results support the view that there is no basis to the assumption that the inflow of new investors (sometimes seen as speculators) into commodities has contributed to volatility in recent years.

While long-short investment strategies are often lumped into the category of speculation, my own perspective is that these strategies represent carefully constructed portfolios that balance risk and return potential. Moreover, the liquidity provided by long-short traders plays a critical role in absorbing the risk that is not desired by commercial hedgers.

The study confirms the financialisation of commodity futures markets; what is CME Group's experience of this development – for example, what has been the impact on volumes and transaction costs?

BP: Commercial hedgers need to manage their risks, and that means finding investors and other market participants to take the other side of the trade. A professional asset manager utilising long-short strategies plays a critical role in the market, providing liquidity and often taking on the risk that commercial hedgers want to shed. What is important to realise is that the

“While long-short investment strategies are often lumped into the category of speculation, my own perspective is that these strategies represent carefully constructed portfolios that balance risk and return potential”

more players that participate in the market with different investment objectives, the better the liquidity and the lower the transactions costs for everyone. A search engine works better when there are more users. An online auction system is improved when the number of users increases. Commodity markets are no different; the price discovery process and orderly functioning of futures markets improves as new participants enter the market.

The rise in commodity prices over the last 10 years, which has roughly paralleled the financialisation of markets, and recent volatility episodes has led some politicians and market participants to call for regulation restricting the participation of financial investors in commodity futures markets. What is your view of the causes of the commodity price increases over the last 10 years?

BP: While many factors are in play, EDHEC's research findings correspond with my own, that commodity prices over the last decade were greatly influenced by the rise of emerging mar-▶

◀ kets. Emerging market countries grew much more rapidly than the mature industrial world, and because they are also less efficient users of energy, metals and agriculture, the marginal increase in commodity demand outpaced real GDP growth.

We also have to appreciate that over the last decade, the equity indices of the mature industrial countries did not provide much return. The global investment community, from retail, to pension funds to hedge funds, is driven to seek superior returns adjusted for risk. When one

“The bio-fuel legislation passed by the US Congress pushed as much as 40% of the corn crop out of the food supply chain. It is a little disingenuous for politicians not to recognise the serious price implications for agriculture and food, but then denial of responsibility is part of the political rhetoric”

major asset class, such as equities, falls behind, it is only natural for other asset classes with stronger demand fundamentals to see exceptional price appreciation.

The fixation on the role of speculators is mainly a political phenomenon, as politicians play for press coverage and to their local audiences. Indeed, in the US, for example, the bio-fuel legislation passed by the US Congress pushed as much as 40% of the corn crop out of the food supply chain. It is a little disingenuous for politicians not to recognise the serious price implications for agriculture and food, but then denial of responsibility is part of the political rhetoric.

While the study has a global focus, it originated from discussions managed by EDHEC-Risk and CME’s respective Asian offices – what are CME Group’s objectives in Asia for the next few years?

BP: CME Group is committed to growing its business in Asia by offering products and services that address Asian customers’ risk management and investment requirements, and that includes developing new Asia-specific products via our research and product development team in Singapore. We also look to provide access to existing Asian-based products for our existing global customer base. And importantly, we are focusing on growing the proportion of our daily volume that originates in the Asian time zone.

Why did CME Group choose to support EDHEC-Risk Institute’s research on commodities futures investing?

BP: CME Group, as the manager of the world’s leading derivatives marketplaces with the widest range of global benchmark products across all asset classes, sets a high store by innovation in our products and services. For the commodities sector, like any other, good research is essential to giving us the data we need to guide our product development activities. And as we have found, it is also very important in shaping our dialogue with regulators. There is no substitute for hard data, analysed rigorously and independently, and that is what EDHEC does exceedingly well.

Assessing the risks of European ETFs

Noël Amenc, Professor of Finance, EDHEC Business School, Director, EDHEC-Risk Institute

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Recently, the risks underlying exchange-traded fund (ETF) structures have been discussed by financial regulators and international organisations. These discussions have given rise to debate as well as a fair amount of confusion. A number of providers looking to strengthen their competitive edge in the fast-growing and profitable ETF market have ‘informed’ investors and regulators of the counterparty risk arising from the use of OTC derivatives by funds implementing synthetic replication. The same have emphasised the distinction between unfunded and funded swaps, suggesting that the latter offered better protection against counterparty risk. This article looks at the counterparty and liquidity risks of UCITS ETFs and also provides a broader perspective by discussing how the risk exposures of UCITS ETFs compare to those of other exchange-traded products and UCITS.

What are the risks of different replication methods?

Counterparty risk

The debate on the counterparty risk present in ETF structures initially centred on the use of over-the-counter (OTC) derivatives that are required in synthetic replication ETFs prior to engulfing the securities lending activities that are typical of physical-replication ETFs.

Most ETFs are passively managed and replicate indices relying on full or sampling replication (physical replication) and swap-based replication (synthetic replication).

A synthetic ETF enters into OTC swap agreements with third parties that agree to deliver the index returns to the ETF in exchange for the returns on a portfolio, which is either held by the ETF (the substitute basket of the unfunded swap structure) or held in its name as collateral (of a funded swap structure), plus a fee. In such a way, the ETF transfers the tracking error risk to the swap counterparty but takes on counterparty risk – ie, the risk that the counterparty fails to deliver the promised return.

However, investors should be aware that OTC derivatives – which all UCITS can use in the same limits – are not the only source of counterparty risk. While physical replication ETFs hold constituents of the tracked index, they typically lend out the underlying securities in return for fees – in this case, even a full-replication ETF in effect holds a portfolio that no longer corresponds to the index.

In her survey of physical replication in Europe, Bioy (2011) finds that all issuers (with the exception of Think Capital, a small Dutch player) engage in securities lending. Her report

documents securities lending of up to 100% of the funds’ assets, sometimes on a near-constant basis. Such operations expose physical ETFs to counterparty risk linked to the borrowers. A survey of synthetic replication in Europe by Johnson *et al* (2011) finds that synthetic ETFs on the other hand do not engage in securities lending, with only one exception (Comstage).

The use of OTC derivatives and securities lending are not only legal but also legitimate to the extent that they facilitate the implementation of a fund’s strategy or generate ancillary revenues that benefit investors. However, these activities entail assuming counterparty risk. In the case of OTC derivatives, this risk is strictly limited by UCITS to 5% or 10% (if the counterparty is a credit institution) of the fund’s net asset value. For ETFs engaged in securities lending, the counterparty exposure must be considered from the point of view of the issuer concentration limit, which is 20% of the NAV.

In the event of a default by the swap/securities lending counterparty, what really matters is the level of collateralisation and the marketability of the collateral or the assets in the substitute basket.

The collateral pledged for the funded-swap ETFs has to comply with the Committee of European Securities Regulators (CESR) guidelines, which concern liquidity, daily valuation, issuer credit quality, correlation with OTC counterparty, diversification, operational and legal risks, third-party custodian, full enforceability and investment limits.¹ As for the assets in the substitute basket of unfunded-swap ETFs, they must comply with the asset eligibility, liquidity and diversification rules of UCITS as laid out in the Eligible Assets Directive and its CESR guidelines, as well as comply with applicable home domicile law.

Similarly, the collateral received from a security lending operation also needs to comply with the UCITS asset eligibility rules.² Therefore, in the context of UCITS funds, the counterparty risk as well as the collateral risk should the counterparty default are limited, in particular in relation to OTC derivatives.

This notwithstanding, we believe that there should be consistent EU-wide regulation of counterparty risk and counterparty risk mitigation: limits on counterparty risk should apply to all transactions giving rise to such risk and not simply to OTC derivatives and the existing CESR guidelines could be used as a reference

¹ Non-cash collateral cannot be sold, re-invested or pledged and cash collateral can only be invested in risk-free assets.

² CESR guidelines on collaterals are only applicable for UCITS engaged in OTC derivative transactions.

to improve collateralisation of all transactions, exposing investment vehicles to counterparty risk, notably securities lending, repurchase agreements and other economically comparable operations.

Provided the counterparty risk arising from securities lending is properly mitigated, we consider that it makes little sense to pit physical-replication against swap-based replication and that the negative allegations made by providers on both sides of the replication divide about the risks in each other's products are a disservice to the index-tracker industry and the UCITS ETF brand.

When it comes to categorising funds, the focus needs to be on the economic exposure achieved or the payoff generated and not on the methods or instruments used to engineer this exposure or payoff.

Liquidity risk

Recent criticisms also raise concerns on the potential liquidity risk associated with large redemptions of ETFs that give access to illiquid underlying securities or hold illiquid collateral.

First, ETFs do not have the objective of improving the liquidity of the underlying securities and they should not be blamed for reflecting the liquidity of these assets. Furthermore, the possibility that large redemptions will create stress on the underlying markets is not at all specific to ETFs, but is common to any open-ended investment fund. UCITS need to manage liquidity risk to ensure that they are able to meet redemptions and asset eligibility rules limit the extent to which UCITS funds, as open-ended funds, can provide maturity transformation, precisely to mitigate the risk and severity of liquidity crises. At any rate, regulators and investors alike should recognise that it is not possible to guarantee the liquidity of open-ended funds invested in illiquid underlying via asset eligibility or diversification rules and explore closed-end funds as the natural vehicles to access illiquid assets or strategies.

Likewise, the fears that synthetic replication and securities lending would exacerbate liquidity risk appear overblown. UCITS are subject to strict counterparty risk limits in the context of OTC derivatives transactions and to asset eligibility rules that would mitigate the consequences of a counterparty falling to a liquidity crisis. While mitigation of risk arising from securities lending is not specifically regulated at the European level, UCITS asset eligibility rules still apply. Note that for index-tracking UCITS, the liquidity in case of default by a counterparty ultimately depends upon the existence and quality of the collateral and has little to do with the replication method used. Here again, we find no serious basis to create distinctions within index-tracking UCITS that would be based on the replication method, but recommend a harmonised approach to counterparty risk mitigation.

Table 1 summarises various risk sources for ETFs with different replication methods, with a focus on three types of structures only: full replication with securities lending, sampling replication with securities lending, and synthetic replication without securities lending. We choose these three categories as we believe that they are the most relevant practices in the industry.

Table 1 shows that although ETFs may be constructed in different ways, their risk exposures with respect to counterparty risk, collateral risk and liquidity risk are comparable within the UCITS framework. As far as counterparty risk is concerned, it makes more sense to address the issue through clear guidelines on counterparty risk mitigation up to the quality, marketability and diversification of assets performing the

1. Summary of risk sources for different types of replications

Risk sources	Full replication with securities lending	Sampling replication with securities lending	Synthetic replication without securities lending
Tracking error risk	<ul style="list-style-type: none"> Can be low for the most liquid market and high for less-liquid markets 	<ul style="list-style-type: none"> Can be low due to reduction of transaction cost and high especially in stressed periods. 	<ul style="list-style-type: none"> Lowest but not necessarily zero
Counterparty risk	<ul style="list-style-type: none"> Main source : securities lending counterparty/counterparties Counterparty risk arising from OTC derivatives transactions is limited to 10% of the fund's NAV by UCITS. Counterparty risk arising from securities lending must be considered from the point of view of issuer concentration limit, which is 20% of the NAV 		<ul style="list-style-type: none"> Main source: swap counterparty/counterparties
Collateral risk	<ul style="list-style-type: none"> Limited by standard UCITS asset eligibility rules. 		<ul style="list-style-type: none"> Funded swap: Limited by CESR requirements. Unfunded swap: the assets in the substitute basket have to comply with the standard UCITS asset eligibility rules.
Liquidity risk	<ul style="list-style-type: none"> Potential direct or indirect liquidity risk when large redemptions occur and the underlying is relatively illiquid Should the counterparty default, the fund would have to sell the collateral to meet redemptions The collateral are subject to the requirements listed above 		
Legal risk (in case of counterparty default)	<ul style="list-style-type: none"> Securities lending collateral recourse may be hampered by existence of multiple competent jurisdictions across member countries 		<ul style="list-style-type: none"> For funded swaps, differences exist between title transfer and pledge agreements (although in theory collateral should be available without recourse to the counterparty).

economic role of collateral rather than making distinctions among the different structures of ETFs. In addition, transparency should not be restricted to the problems posed by counterparty risk and its mitigation, but should include disclosure of the revenues and costs from ancillary activities such as securities lending.

How do European ETFs compare to other products?

UCITS ETFs versus other exchange-traded products (ETPs)

In addition to counterparty risk and liquidity risk, issues also arise with the confusion between ETFs and other ETPs. ETP is a generic term designating a wide array of products that are covered by different regulations and have little in common except that they are listed on exchanges. The catch-all ETP acronym refers to ETFs, exchange-traded notes (ETNs) and other exchange-traded vehicles (ETVs). Within ETPs, only ETFs are regulated by the UCITS Directive while other ETPs are not and are distributed in Europe via the much lighter regulatory regime of the Prospectus Directive.

Other ETPs, such as ETNs, are by nature senior unsecured debt obligations, designed to track an asset, portfolio or index. Since ETNs are not funds but notes, their investment policies need not comply with the asset eligibility and diversification rules specified in UCITS and comparable

legislation in other jurisdictions. Therefore, an ETN could be exposed to a single commodity or a single currency. Although the counterparty risk exposure of UCITS ETFs is limited to 20%, ETN investors are exposed to the full credit risk of the ETN issuer; while collateralisation arrangements can be made, this is at the discretion of the issuer and there is no standardisation. The value of an ETN on the secondary market may be adversely impacted by negative changes in the perception of the issuer's creditworthiness and cause the ETN to trade at a discount to its redemption value. While the primary risk factors of an ETF are market risk and, where relevant, tracking error risk, the primary risk factors of an ETN are market risk and credit risk.

Table 2 summarises the differences between ETFs and ETNs. We can see from the table that ETFs and ETNs are separated by more than just a letter, although they have sometimes been marketed as one and the same thing. When ETFs are used as UCITS wrappers, investors enjoy high standards of protection in terms of governance, custody of assets, investment and risk management policies, and disclosure. Other ETPs such as ETNs cannot be UCITS and do not provide investors with the protections of UCITS. The grouping of ETFs with other ETPs, intended or not, is problematic and action needs to be taken to correct the perception that all ETPs available in Europe enjoy the protections of UCITS. Distinctions need to be clearly drawn between

2. Differences between ETFs (UCITS-compliant) and ETNs

Differences	UCITS exchange-trade funds	Exchange-traded notes
Structure	<ul style="list-style-type: none"> Open-ended funds 	<ul style="list-style-type: none"> Debt instruments
UCITS compliant	<ul style="list-style-type: none"> Yes 	<ul style="list-style-type: none"> No
Diversification rules	<ul style="list-style-type: none"> Strict diversification requirements under UCITS 	<ul style="list-style-type: none"> No diversification requirement Product could be exposed to a single asset or currency
Counterparty risk	<ul style="list-style-type: none"> Counterparty risk arising from OTC derivatives transactions is limited by UCITS to 10% of the NAV of the fund Counterparty risk arising from securities lending must be considered from the point of view of issuer concentration limit, which is 20% of the NAV 	<ul style="list-style-type: none"> Not regulated Investor is exposed to the credit risk of the issuer Secondary market price could be affected by perceptions about the credit quality of the issuer
Collateral rules	<ul style="list-style-type: none"> All assets must respect UCITS eligibility rules Collateral for OTC derivatives transactions needs to comply with CESR guidelines 	<ul style="list-style-type: none"> Counterparty risk need not be mitigated Terms of collateralisation arrangements, if any, are at the issuer's discretion

◀ UCITS and non-UCITS products. We believe that, in view of the growth of the non-UCITS ETP market and its retail investor appeal, making sure that clear distinctions are made between products that do not enjoy the same level of protection should be a priority for financial regulators and international organisations concerned by the promotion of high levels of investor protection and a level-playing field across the investment industry.

UCITS ETFs vs other UCITS

European ETFs, except those listed in Switzerland, are structured as UCITS. Recent discussions on the potential risks have focused on ETFs alone, but ETFs are not special entities distinct from other UCITS; they are wrappers for UCITS funds that need to comply with additional listing rules set by exchanges. When UCITS regulated funds (including ETFs) use derivatives, they do so within a precise regulatory framework and comply with clear rules which have been approved by market regulators. While securities lending operations do not enjoy the same level of scrutiny, this is not specific to UCITS.

Furthermore, ETFs are exchange-traded and regulated markets in Europe need to comply with the provisions of MiFID; funds seeking an exchange listing need to comply with the rules

“It is surprising to see so much regulatory interest being concentrated on a segment of the European investment management industry that is not only very narrow but also already the most highly regulated”

set by the exchange, which can go beyond the minimum requirements of UCITS and MiFD (eg, to comply with additional member state-level rules). For instance, the leading venue for listing ETFs, NYSE Euronext, requires that at least one liquidity provision agreement exists. The liquidity provider undertakes to quote two-way bid and offer prices with a minimum volume size or capital amount and within a minimum price range or spread. The ETF issuer is also required to calculate and disseminate to global data vendors the indicative NAV of each of its ETFs.

Therefore, we can conclude that the rules applied to UCITS ETFs are at least as stringent as those applied to other UCITS.

ETFs are only a sliver of the fund management industry. Retail investor access to the financial markets in Europe takes place mostly through Packaged Retail Investment Products (PRIPs), which represent a market the European Commission has estimated to be about 40 times larger than the overall size of the, mostly institutional, ETF market.

It is thus surprising to see so much regulatory interest being concentrated on a segment of the European investment management industry that is not only very narrow but also already the most highly regulated. We feel that the overarching objectives of the European regulator – ie, to achieve a level playing field and a high level of retail investor protection across the industry, would be better served by staying on its initially charted course of harmonising regulation to generalise the high standards of

protection afforded by UCITS and the Markets in Financial Instruments Directive (MiFID) to all PRIPs and the institutions and individuals involved in their distribution.

We also feel that the vertical approach adopted by the European Securities and Markets Authority which focuses on UCITS products listed on regulated exchanges, runs contrary to the promotion of a horizontal approach to regulation calling for a coherent treatment of economically equivalent products irrespective of their legal form or channel of distribution.

The current patchwork of regulation in the European retail investment market already offers rich pickings for regulatory arbitrage; using a silo approach to tighten product rules in the most regulated segment of the industry is likely to add further incentives to this practice.

Conclusion

In any competitive field, it is fair practice to try and convince clients of the superiority of one's products. As far as savings and investment products go, superiority cannot be assessed solely by considering raw performance, as risk must be taken into account. Since 2007, investors have become increasingly sensitive to risk considerations when making investment decisions. Today's perception of fund risks goes beyond the purely financial risk-return aspects and encompasses operational issues in a broad sense, notably the risk of default by a counterparty relied upon to implement the fund's policy and generate its risk/return profile.

As far as counterparty risk is concerned, it makes little sense to oppose physical replication and synthetic replication products on the one hand, or draw a fine line between unfunded and funded swaps on the other. Both distinctions are largely irrelevant in practice and convey a false sense of 'comparative' safety. First, any UCITS can take on more unmitigated counterparty risk through securities lending than via OTC derivatives and physical replication ETFs, unlike their synthetic counterparts, routinely engage in securities lending. Second, UCITS limit counterparty risk from all OTC derivatives transactions; the distinction between funded and unfunded swaps does not exist in the UCITS Directives but arises from the interpretation of CESR guidelines. Since those require transposition by each individual country, distinctions between funded and unfunded swaps need to be based on a country-by-country analysis.

These false distinctions may lead investors to pay less attention to first order issues that determine the effective mitigation of counterparty risk: the quality of the assets performing the economic role of collateral and the ability of the fund to enforce its rights against collateral in the case of default by the counterparty.

Interestingly, on these two counts, there is little in the way of European guidelines governing the taking of collateral to mitigate the risk from securities lending and specialists recommend the use of robust standard master agreements to deal with the legal risks arising from the activity.

On the basis of the above, we consider that the massive marketing and media relations campaigns implemented by some ETF providers in an effort to promote counterparty-risk based distinctions between physical and synthetic replication ETFs are misleading.

A large body of academic literature has underlined the importance of taking the right regulatory approach to minimise the risk of adverse selection, and more broadly of free-rider problems, which lead investors to

place under trust in rules that falsely appear to protect them.

We consider that to optimise its intervention, the regulator should ensure that the rules it sets are parsimonious and effective.

With respect to parsimony, it is key that the regulator avoids creating categories or condoning communication that would be based on portfolio management techniques rather than economic differences; such distinctions would promote a false sense of protection.

With respect to effectiveness, we consider it central that the issue of transparency be addressed through clear guidelines on counterparty risk mitigation up to the quality, marketability and diversification assets performing the economic role of collateral and that these apply irrespective of the manner in which counterparty risk is assumed.

For the sake of avoiding ambiguity and erroneous risk assessments, such transparency rules should apply horizontally, that is, to all investment products, whether UCITS or not, marketed in Europe, rather than to UCITS ETFs alone.

Last but not least, the regulator should be aware that its publicised concerns, information requests, and consultations are also a message sent to investors. By directing their thoughts and attention to the regulatory improvement of

“It is startling to realise that while index funds have grown on the back of passive management, there is no standardised measure or mandated disclosure of the quality of index replication at the European level”

counterparty risk mitigation in ETFs or the possible systemic implications of the OTC derivatives and securities lending transactions of ETFs, we believe regulators have overlooked a first-order issue – ie, the comparability of performance amongst ETFs. First, we consider it key that investors be provided with information on the total return generated through the risks assumed on their behalf by funds, including the monetary benefits of securities lending operations. Second, we regard as essential that indexing vehicles be required to disclose tracking error targets and results. It is indeed startling to realise that while index funds have grown on the back of passive management, there is no standardised measure or mandated disclosure of the quality of index replication at the European level.

In the same spirit, we consider that it is critical that regulators give a legal definition of what constitutes an index and decide on the transparency and auditability requirements of indexes.. which after all remain the main drivers of the financial risks assumed by ETFs.

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Thank You

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Accounting and sponsor risks in European pension plans

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The research done as part of the research chair on regulation and institutional investment – a chair endowed by AXA Investment Managers – has attempted to deal with most fundamental aspects of practical risk management for pension funds; it looks at the regulations faced by pension funds and at the means of taking these regulations into account in these institutions’ asset/liability management programmes. The trend towards greater accounting transparency can be expected to give sponsors incentives to manage the risk from their pension plans better; the recent crisis has underscored the importance of sponsor risk.

We took a survey of chief financial officers (CFOs) of sponsors of pension funds, complemented with phone interviews, to better understand the management practices of accounting risks, or the reasons for the failure to manage them. Likewise, we surveyed plan trustees to understand how they manage the risk posed by their own sponsors.

The survey elicited 100 responses. The assets under management (AUM) of the pension funds with which the respondents are associated amount to more than €730bn (the mean is €8.8bn and the median €1.2bn). Sponsoring companies have a total balance sheet size greater than €5.5trn (the mean is €20bn and the median €2.4bn). The size of the pension fund is, on average, half that of the sponsoring company, and the median is 25%.

Respondents come from the UK (36% of respondents), continental Europe (41% of respondents) and non-European countries (21% of respondents, most from the United States).

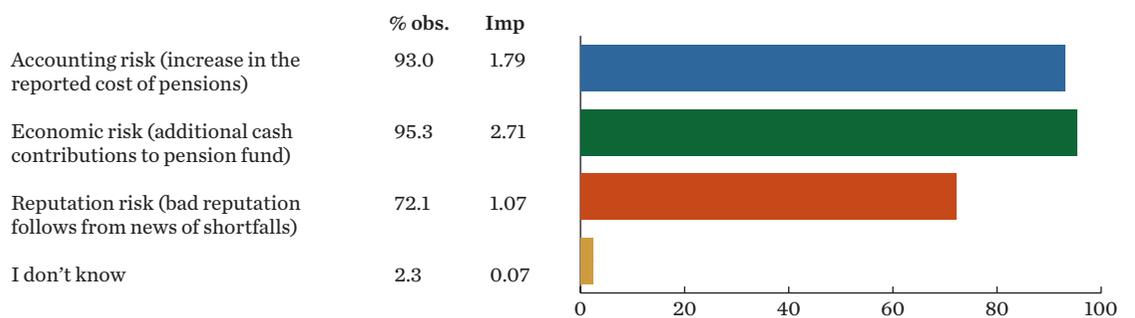
Seventy-five percent of the respondents have a traditional defined-benefit pension fund, and 15% a hybrid pension fund with conditional indexation. Even in continental or northern Europe, most respondents are from traditional defined-benefit schemes, a bias that is explained by the theme of our survey.

Fifty-four percent of plans are open and 46% are closed; in the UK, 68% are closed, and in northern Europe, 64% of the plans are open. Forty-three percent of respondents are employed by the sponsor (or are consultants to the sponsor) and 57% by the pension fund.

Pension funds can be defined as a pool of assets ring-fenced from the sponsor, with the overarching purpose of protecting the pension rights of employees from the possible failure of the sponsor. The survey suggests that sponsors bear great risk when they provide defined-benefit plans to their employees. Sponsors of pension funds are concerned primarily about the economic risk of facing higher than expected pension costs – 95% mention this risk. Ninety-three percent of respondents mention accounting risk, the reported cost of pensions in the sponsors’ books as opposed to the true cost of providing pensions, and the balance sheet volatility it causes. Reputation risk comes third.

Accounting rules have a great influence on

1. As a sponsor (or consultant), please rank the main risks posed by the pension fund



Importance (Imp) is the product of the percentage of respondents that ticked that box and of the importance given to that risk. The first risk mentioned gets a 3, the second a 2 and the third a 1.

a sponsor’s funding policy: they stipulate the calculation of the normal cost of providing additional pension benefits, and how shortfalls and deficits must be amortised in the accounts of the sponsors. Accounting requires discounting expected cash flows at an AA credit yield, and amortising surpluses and deficits beyond the 90–110% corridor over the remaining expected working lives of active members.

Thus, for the sponsoring company, the main risk factors are interest rate risk and credit spread risk (both part of the accounting discount rate), plus the risks associated with the investment strategy followed by pension funds as well as biometric risks (these are the risks that can cause the pension fund to breach the 90–110% threshold).

Risk-controlled investing, paying particular attention to the credit exposure necessary to replicate the accounting liability, can, surprisingly enough, keep these risks under control, but they are usually not managed by the sponsors of pension funds (more than 50% either fail to answer this question or report that they are not hedged).

On the whole, the discount rate, when hedged, is hedged only very partially, although respondents tend to agree that the risk-free component of the discount rate should be hedged, first because the accounting and prudential measures of the pension liability usually differ, and second because pension funds

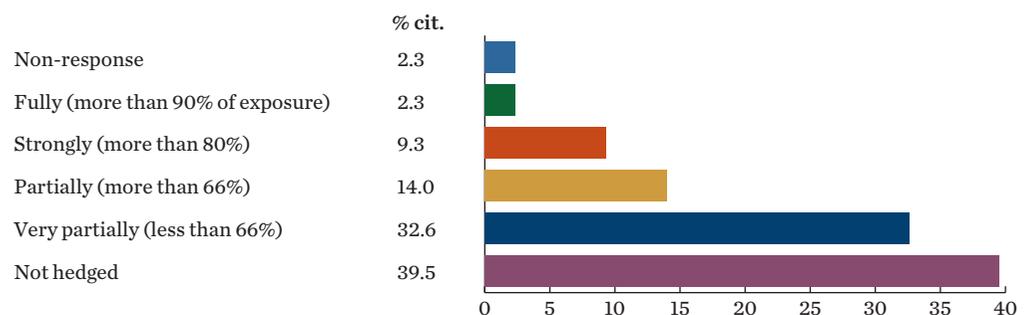
usually have a large interest rate risk that the sponsor may not wish to take on fully.

That the sensitivity of the liability reported in the accounts of the sponsor (the unconditional projected liability) usually differs from that reported in the accounts of the pension funds (the conditional accrued liability) makes a risk factor as simple as interest rates difficult to manage.

Accounting rules require spreading – ie, discounting liabilities at a credit yield which involves a spread risk on top of interest rate risk. So, sponsors should invest in credit-yielding instruments to offset accounting risks when the pension fund does not invest adequately in such instruments. This is technically not trivial, first, because good replicating instruments such as forward credit yield instruments are usually not liquid, and, second, because sponsors often lack the necessary cash reserves to invest in highly rated corporate bonds in lieu of pension funds.

Accounting risk would be best managed at the pension fund, first because the pension fund is where both pension assets and pension liabilities are segregated; the sponsor’s financial reserves, by contrast, are not usually planned to manage the financial risk in pension plans and would not be sufficient to do so. For a cash-poor sponsor, borrowing cash to hedge long-term pension liabilities involves a risk linked to the slope of the yield curve (or of the

2. Is the discounting rate fully or partially hedged?



rate at which money is borrowed), which may ultimately draw cash out of its balance sheet. In addition, information systems do not always allow the sponsor to have a very accurate understanding of the interest rate risk in pension funds.

Respondents comment that implementing a risk-controlled strategy in the account of the sponsor in lieu of the pension fund would entail very strong basis risk since the evolution of the funding ratio of the pension fund cannot be entirely replicated with available instruments in the sponsor's account.

This explains why the risk of the defined benefit obligation's breaching the 90-110% threshold is hedged by a quarter of respondents. In continental Europe, the board of the pension fund usually includes the sponsor, so it is easier to define a strategy of common interest, even if the trustees of pension funds are usually responsible for acting in the sole interest of members.

As it happens, accounting risk is usually hedged by requiring that pension funds use an RCI strategy – this type of strategy has the benefit of hedging partially the risk of higher contributions from the sponsor and of sponsor risk for the pension fund. In the UK there are no clear regulatory incentives to implement RCI strategies as there often are in continental Europe, and pension fund trustees (the duties are similar in Switzerland) not only must specifically act in the sole interest of the members but also are functionally fully independent of the sponsor. So British (and Swiss) sponsors will find it more difficult to have an RCI strategy implemented in order to limit accounting risk than those in continental Europe. Respondents from the UK are statistically more inclined to answer that the mandatory independence of trustees is an impediment

to managing accounting risks where they would be best managed, at the pension fund.

On the whole, the governance rules of pension plans should allow sponsors of traditional defined-benefit plans to have a better grasp of the ALM policy of their pension plans; when they draft the pension contract, sponsors should help define appropriate asset allocation rules so as to limit risks in the sponsor's account. The extreme separation of trustees' duties from sponsors' interest may be counter-productive. For pension funds (especially for traditional defined benefit ones), the main risk is sponsor default and reduced pensions or curtailment (the failure to achieve the indexation target is perceived as the primary risk for hybrid funds, because a very large fraction of the expected value of the pension benefit is conditional). So, theoretically, the primary if not the sole duty of trustees of traditional DB plans should be to manage sponsor risk. Respondents rank sponsor risk as the greatest risk in pension funds (77% mention this risk, usually with the greatest intensity).

The recognition of the importance of sponsor risk can be explained by numerous bankruptcies that involved great reductions in pension rights. In 2002, United Airlines filed for bankruptcy protection with arguably the sole purpose of shedding its defined benefit pension obligation and transferring it to the Pension Benefit Guaranty Corporation (PBGC), the US pension insurance scheme. Since pension funds were set up with the primary purpose of protecting pension rights from sponsor failure, pension fund trustees should manage sponsor risk: a respondent mentioned that "in the UK sponsor insolvency is the primary risk, as it is the only way that scheme members can have their benefits voluntarily reduced".

The term 'pension put' was coined by

Sharpe (1976) to refer to the option that the sponsor has to walk away from an underfunded defined benefit pension plan. Treynor (1977), Marcus (1985), and Pennacchi and Lewis (1994) have provided tools to model the sponsor put, usually for the pension insurance company to price the protection it offers from sponsors that default on their obligations. These techniques can also be used to price and hedge the risk of a defaulting sponsor to the pension fund. In a nutshell, this risk can be modelled and hedged as a bivariate put option, with a strike that depends on the asset and debt values of the sponsor, and an (expected) amount to be paid that depends on the (expected) deficit in the pension fund at the time of restructuring or bankruptcy. The pension could rely on credit default swaps (CDSs), especially binary CDSs where the recovery rate is known, for clear protection from the risk of default of the sponsor.

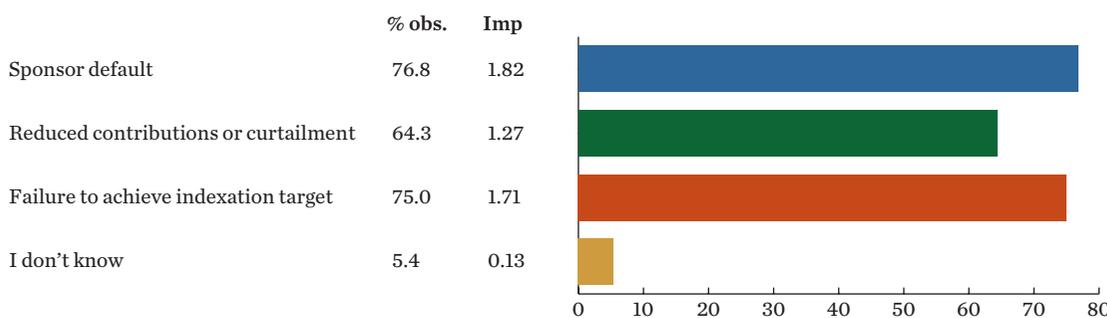
However, 84% of pension funds fail to manage sponsor risk. The primary reason in Europe for not managing sponsor risk is the presence of pension fund insurance (46% of respondents). After all, even if the pension fund insurance provides only very partial protection against sponsor risk, the charge for this insurance is usually not entirely risk-based. Thus, a pension fund that hedges its sponsor risk would actually pay twice for such protection, once to the pension insurance scheme, and another time in the market. That the pension insurance is not risk-based prevents pension funds from managing sponsor risk themselves. In 'other reasons', 15% of respondents argue that the pension fund's sponsor is a government or quasi-government entity, and 4% of respondents have purchased protection from sponsor insolvency.

Outside the UK, the primary reason for not hedging sponsor risk is that pension funds and sponsors have agreed to use an RCI strategy at the pension fund. After all, many continental European prudential regulations require that economic capital (a set of strategies similar to RCI) be used to keep the risk of underfunding under control; the Netherlands, an important country for pension funds, has no pension insurance. It is no surprise, then, that responses from continental Europe and from the UK differ. We argue, however, that since economic capital strategies implemented in Northern European countries do not prevent underfunding, the hedging of sponsor risk should be considered until pension funds are clearly able to prevent underfunding.

Another reason for not hedging risks is that it would be perceived as a hostile move towards the sponsor, and in some cases a negative signal towards the market (if one interprets the purchase of protection by the pension fund as an insider signal rather than as a hedge). In some cases, however, imperfect protection, with an out-of-the-money put option on the shares of the sponsor, for instance, could alleviate the burden for both parties (the sponsor could see its capital injections limited when its share price plunges, and the pension fund would have partial protection from sponsor risk), so we argue that the purchase of some form of protection can be presented as a favourable, not aggressive, move towards the sponsor.

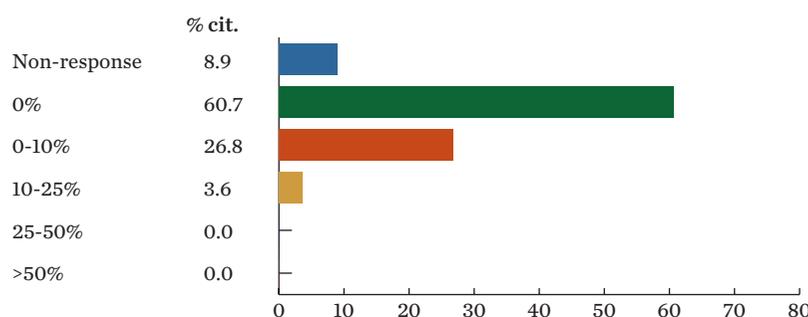
On the whole, best practices at pension funds are to have a policy that strictly restricts the investments that can be made in the sponsor's instruments: only 25% do not have such limitations, and only 4% have more than 10% of the pension fund's assets invested in

3. As a trustee (or adviser to a pension fund), please rank the main risk to the pension fund and to its participants

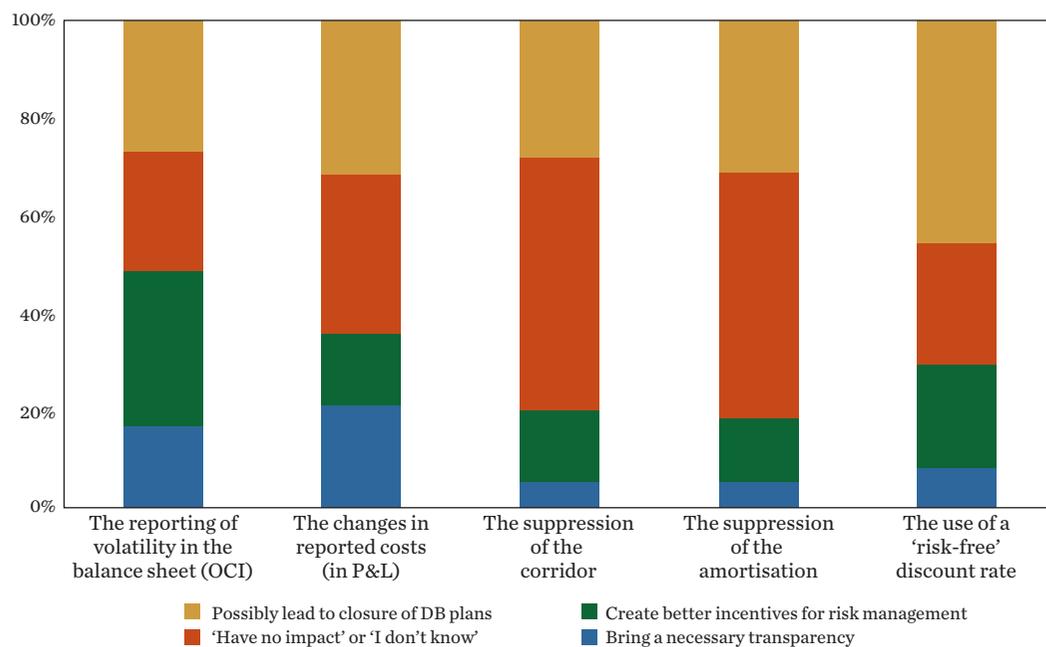


Importance (Imp) is the product of the percentage of respondents that ticked that box and of the importance given to that risk. The first risk mentioned gets a 3, the second a 2 and the third a 1.

4. What is your overall exposure to the sponsor's instruments?



5. Opinions of possible changes to IAS 19



the sponsor's instruments. This is a great improvement on the practices of the 1990s, but falls short of proper management of sponsor risk.

Last, respondents fear regulatory changes because such changes cannot be hedged. The main worry of sponsors is those that lead to an increase in the cost of providing pensions. The possible use of a risk-free discount rate to discount liabilities would imply an automatic increase in the pension liability and in reported shortfalls. The 10-year credit spread is now greater than 2%, so a 10-year bullet liability would automatically increase by 20%, and a 20-year one by 40%. For 56% of respondents (excluding 'I don't know'), the use of a risk-free discount rate would "possibly lead to the closure of pension funds", usually because the higher discounted value of new pension rights would increase pension costs. Closed pension

funds that are seeking buy-outs are those that favour the use of a risk-free rate to discount liabilities (they already rely on this rate).

Respondents, however, favour transparency: 49% (54% in the UK) think that reporting the market value of the pension liability in the balance sheet, even if it leads to increased volatility in the balance sheet (other comprehensive income or OCI), leads to improvements, as it provides "better incentives to manage risk" or "adds necessary transparency". This discrepancy shows that sponsors are willing to offer more transparency but fear costly regulatory changes, especially since regulatory changes cannot be hedged at all. And 40% of respondents report that the best response to tightening accounting standards is simply to close their defined benefit pension funds.

On the whole, regulations have a great

"40% of respondents report that the best response to tightening accounting standards is simply to close their defined benefit pension funds"

influence on the risk management practices of pension plans and their sponsors, but the institutional setup does not provide adequate incentives. The inability to manage accounting risks and regulatory uncertainties about the cost of providing pensions is causing sponsors to stop providing defined-benefit schemes, and at the same time, the inability to manage the largest risks in pension funds is leading to sub-optimal outcomes for plan members. Better risk management, as well as adequate financial instruments, is needed. But adequate pension plan contracts and governance are needed, too, as the extreme independence of trustees is not always optimal, so sponsors, employee representatives and their advisers should investigate hybrid funds.

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