

Emissions Credits Trading:

The Credit Risk Management Aspects Explained

Ron Wells



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Executive Summary

The emission reduction credits market is a new and rapidly growing commodity market that traded 4.9 GtCO₂-eq in 2008, is expected to reach 5.9 GtCO₂-eq in 2009, and to exceed 9 GtCO₂-eq within a few years. The market is complex and remains fragmented with the potential for unusually high unit margins and profits. Most global banks have emissions trading desks. In addition to trading on the secondary markets, popular strategies include the development of emission reduction projects as a principal and/or commitment to purchase credits to be produced by such projects prior to construction.

China and India are the largest sources of primary units; others are countries that were members of the Soviet Union and those in Latin America. European industrial firms are the largest buyers of credits. Significant changes are expected in the market in coming years including the growing role of Russia as supplier of credits, and of the USA as a buyer. The market has been hitherto dominated by trading among governments and among corporations, but now the nascent retail and voluntary markets represent huge new areas for emission trading and associated financial products.

This document seeks to provide a brief introduction to the widely traded commodity types and the products available in this market.

Some Acronyms

Jl projects are Joint Implementation projects,
CDM means Clean Development Mechanism (both created by the Kyoto Accord),
ERUs are Emission Reduction Units,
CERs are Certified Emission Reduction credits,
EU ETS is the European Union Emissions Trading Scheme,
EUAs are European Union Allowances,
AAUs are Assigned Amount Units allocated to nation states,
tCO₂e is a metric tonne (1,000 kilos) of Carbon Dioxide emissions,
GtCO₂-eq is a giga tonne (one million metric tonnes) of Carbon Dioxide equivalent, and an
ERPA is an Emissions Reduction Purchase Agreement.

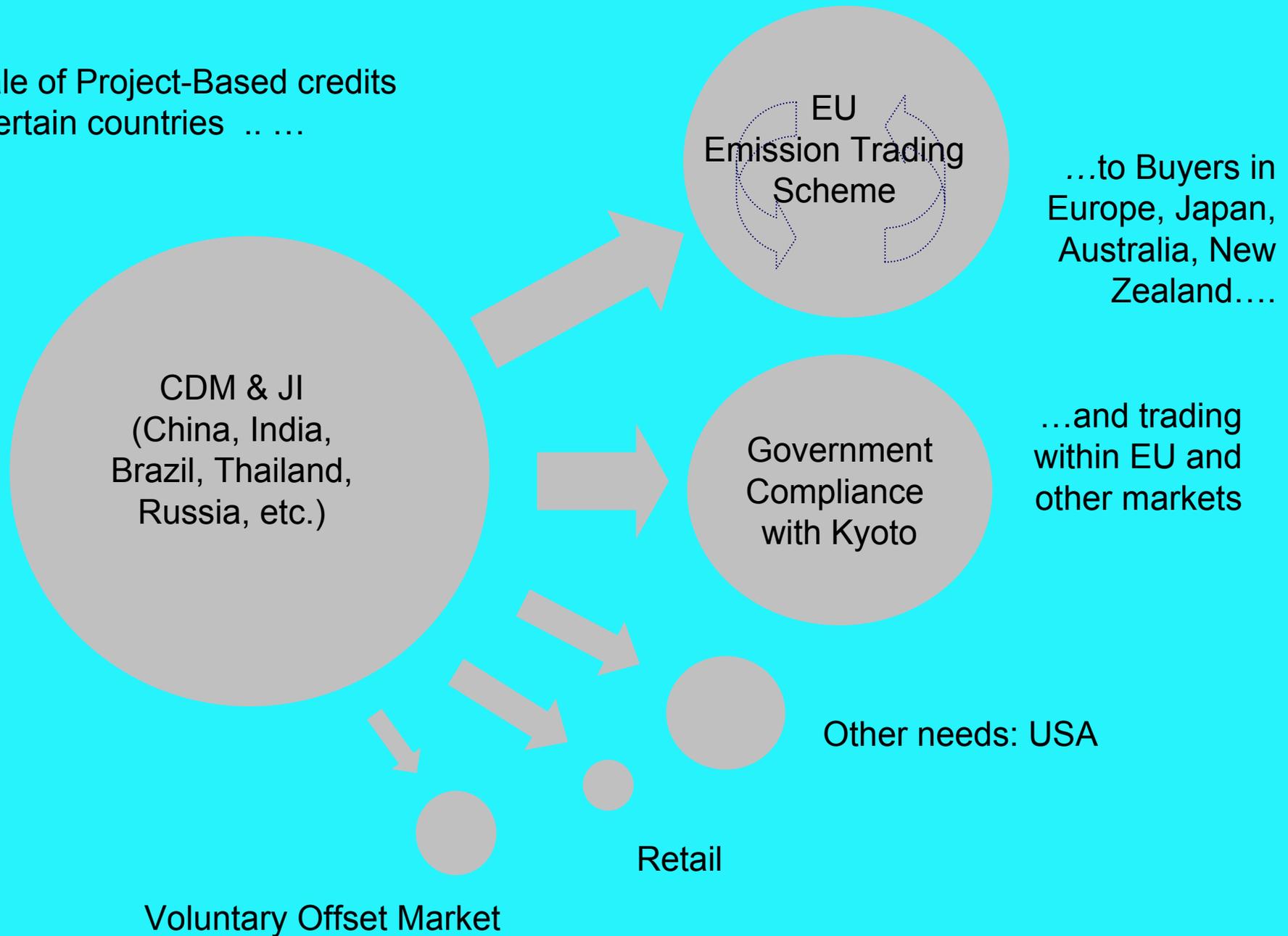
Kyoto Mechanisms

The Kyoto Protocol allows for emissions reduction projects to be carried out in other (foreign) countries and for project owners to receive credits for the corresponding emissions reductions or limitations achieved. These Kyoto project mechanisms rely on the fact that emissions of greenhouse gases contribute equally to global warming wherever they are emitted, meaning that companies can choose to reduce emissions wherever to do so is least expensive.

When projects are carried out in countries without a Kyoto target (non-Annex I Parties, i.e. developing countries) projects operate under the 'Clean Development Mechanism'. When they are carried out in countries with a target (Annex I Parties) they operate under a process known as 'Joint Implementation'.

The Emissions Markets

The sale of Project-Based credits from certain countries



The Instruments

- Emission rights / quotas allocated under cap-and-trade
 - **AAUs**: Certain countries have taken on quantified emission targets in the Kyoto Protocol, and are Assigned a specific Amount of Units that equal their cap., one AAU equals one tCO₂e
 - **EUAs**: EU governments devolving emission rights to companies and emitting facilities. Right to emit CO₂ for facilities in the EU Emissions Trading Scheme

- Emission reduction rights created under project transactions
 - **CERs**: emission reductions from projects in non-Annex I countries, using baseline methodologies certified by the UN according to established criteria, Certified Emission Reductions
 - **ERUs**: emission reductions from projects in Annex I countries, using baseline methodologies certified by the UN or the host countries. Emission Reduction Units
 - **VERs**: non-compliant emission reduction units calculated according to varying standards. Verified Emission Reductions.

- **CDM** – the Clean Development Mechanism, creates **CERs**
 - Article 12 of Kyoto Protocol (KP) allows countries with targets to assist countries without targets to reduce GHG emissions via registered projects. The reductions created (CERs) can be used for Kyoto compliance by the country with the target

- **JI** – Joint Implementation, creates **ERUs**
 - Article 6 of Kyoto Protocol (KP) allows countries with targets to implement projects that reduce GHG (Greenhouse Gas) emissions in other countries with targets. The reductions created (ERUs) can be used for Kyoto compliance elsewhere.

The Suppliers

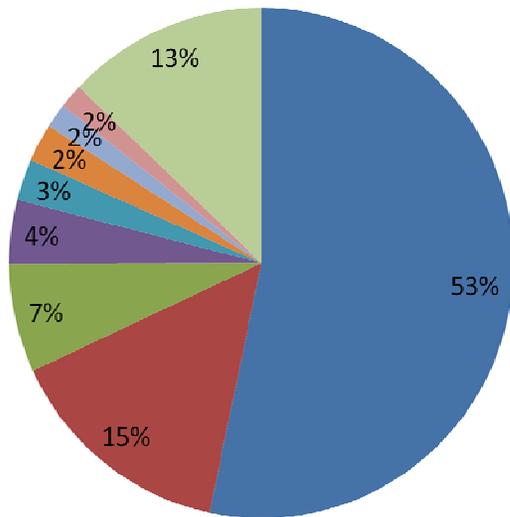
(Total until 2012, mt CO₂e)

Registered and Potential CERs (CDM)

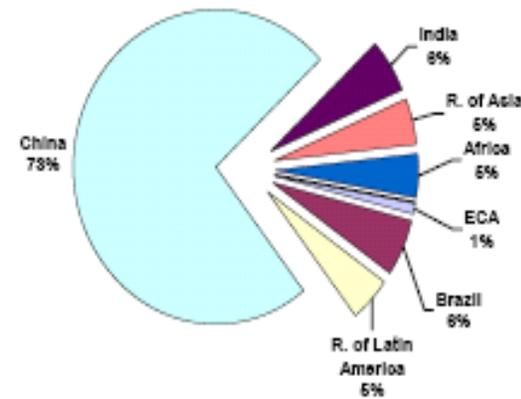
sum = 2 500 mn t (est € 25 bn)

CERs sold during 2007 (CDM)

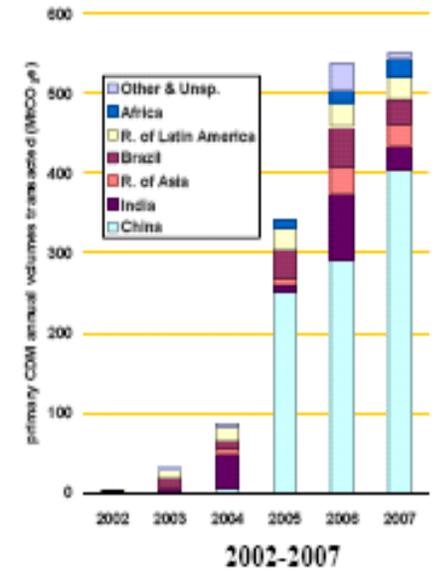
sum = 550 mn t (est € 5 bn)



■ China ■ India ■ Brazil ■ South Korea ■ Mexico
■ Malaysia ■ Chile ■ Indonesia ■ Others



2007
(As a share of volumes supplied)⁴⁵

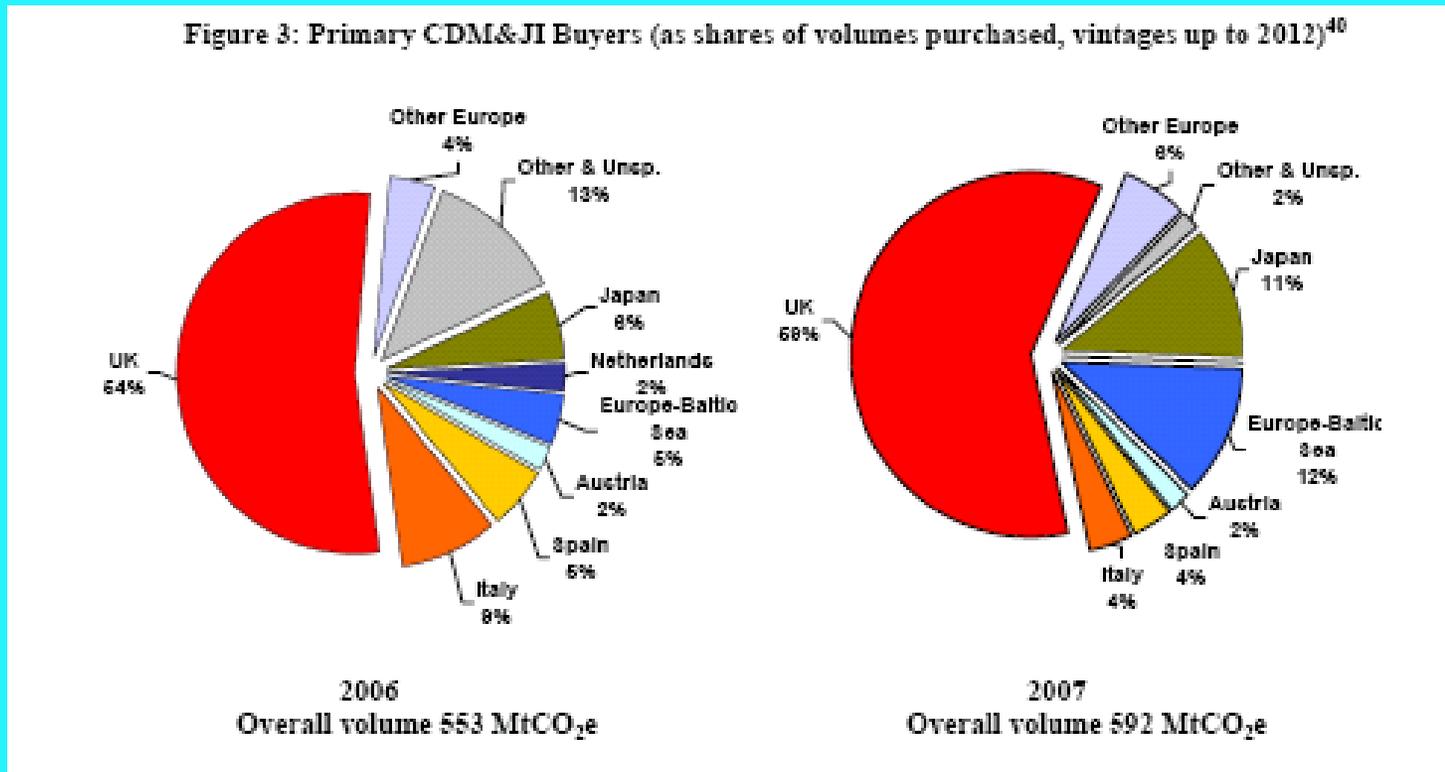


Source: UNEP

The Buyers

(Total until 2012, mt CO₂e)

London is the centre of most buyers and investors



Source: UNEP

Size of the Markets

- The markets are growing:
 - Trading in carbon was worth approximately € 45 billion in 2007, with 2.7 billion tonnes CO₂e traded
 - EUA prices € 15 - € 30 and CER prices € 8 - € 17
- This is just the beginning:
 - \$500 billion is the estimated annual market for low-carbon energy products by 2050 (Stern Review)
 - \$20 trillion in global energy sector investments between 2005 and 2030, projected by IEA. Global power sector will need to be at least 60% and perhaps as much as 75% de-carbonised by 2050.
 - \$630 billion is the estimated upper boundary of annual spending needed by 2050 to achieve stable greenhouse gas emissions at a widely acceptable level (1% of global GDP) (Stern Review)
 - €100 billion invested globally in sustainable energy in 2006 (NEF)

Certified Emission Reduction Credits (CERs)

General Comments on Purchase of CERs from Early Stage Projects I

Origination activity in the emissions business mainly involves purchasing CERs directly from projects; often the purchase commitment is made at an early stage in a project's development and in the Kyoto approval process.

Contracts to buy CERs at such an early stage have a number of features that distinguish them from other traded commodities and warrant different consideration:

- Non-guaranteed delivery: damages are only payable if the seller and/or project owner fails to act as a Responsible and Prudent Operator, or intentionally breaches the contract or acts with gross negligence or wilfully defaults

- Often payment is only made on delivery of the CERs (although not exclusively)

- CER deliveries are contingent on operation of the power generation unit or the underlying process whose control may or may not be in the hands of the seller:

 - The most common types of projects are wind farms and non-reservoir hydroelectric plants. In other cases, for example in the chemical and cement industries or with regard to the avoided methane release in coal mines, economics in the underlying business will drive CER generation.

General Comments on Purchase of CERs from Early Stage Projects II

In many cases the facility is under construction or in pre-construction planning and development. This is particularly true with renewable energy and coal mine methane projects.

The buyer will be contracting for the forward purchase of CERs from projects that are early in the Kyoto approval process. The following slides describe this process, but in summary, projects need to be approved by the host country, they must be validated by a certified third party, and they need to be registered with the Executive Board (EB) of the UNFCCC (United Nations Framework Convention on Climate Change), the body which governs and implements the Kyoto Protocol.

Such projects need to demonstrate they are properly implementing specified methodologies

Reductions achieved need to be regularly verified by a certified third party and certified by the same EB before CERs can be issued.

Additionally, different types of projects have different values based on the buyers' perceptions of the sustainability benefits

General Comments on Purchase of CERs from Early Stage Projects III

Furthermore, different types of projects have different levels of acceptability:

The EU ETS (Emissions Trading System) for example will not accept CERs created by forestry projects; the exchanges will not currently accept CERs created by hydro plants >20 MW (although these can be traded OTC); and Japan has issued no quality criteria, nor have EU governments.

In view of the completion and approval risks and delivery delays likely to be encountered, forward CER contracts trade at a steep discount to the often-quoted secondary CER price – which is the price paid for CERs delivered under standardised contracts containing the normal provisions expected in financial commodity markets. The magnitude of this discount will vary depending on the perceived completion and approval risks.

Given the many risks inherent in these purchases and the cheap pricing, buyers usually only hedge (sell forward to third parties) none or a very small proportion of the CERs purchased forward from Early Stage Projects.

European Union Emissions Trading Scheme

European Union - Emissions Trading Scheme

In terms of the European Union Emissions Trading Scheme (EU ETS), installations across the EU; including the power and heat, cement, steel and non-ferrous metal, pulp and paper, oil and gas sectors, are allocated European Union Allowances (EUAs) to match their regulatory allowed emission requirements. These allocations will be reduced over time thus forcing the emitters to either deploy resources towards reducing current emission levels or to continue to purchase additional credits in order to be able to surrender the required number of credits annually.

Emissions credits are issued by National Governments annually on February 28, and must be surrendered on April 30 the following year. Based on the timing of the issuance and surrender, companies are able to borrow from future years to meet current year requirements. This provides an opportunity to realize cash flow today, that can be paid back later, with potentially little cost.

The EU Scheme also permits a certain percentage of EUAs to be substituted with Certified Emission Reductions (CERs), which currently trade at a significant discount to EUAs.

EUA Spot Sale Forward Purchase Example

A customer seeks to sell 5 million EUAs in December 2009, and will utilise its annual allocations, received in each of February 2010, 2011, and 2012, to meet the prior year's requirement due in April each year. In December 2012, the customer will buy 2.75 million EUAs and 2.25 million CERs, which it will use to meet the emissions requirement due in April 2013.

Once the December 2009 delivery occurs and the buyer pays for the purchase, the buyer is effectively short December 2012 emissions credits; since it is not likely to hold in inventory the amount it must deliver on the forward date. The buyer will however enter a forward purchase agreement with a third-party to hedge its risk; therefore the buyer will be subject to mark-to-market exposure against its customer until December 2012.

This example would generate significant mark-to-market exposure in the books of the buyer; based on the risk that the seller (its customer) may fail to perform its contract obligations to buy and pay for the EUAs purchased forward, in December 2012.

ERPA¹ v ISDA²

Emissions Reduction Purchase Agreement (ERPA)

One of the essential legal documents required in Clean Development Mechanism (CDM) transactions

Records agreement of Certified Emission Reduction (CER) purchases, classifies rights & responsibilities, states CER issuance process, identifies transfer of title of CERs and the passing of risk

A tool to aid CDM project risks management. Manages credit risk and distributes risk; a critical factor in establishing price and 'bankability' of a project if seeking to raise further debt/equity/finance

Mitigates risk

Key differences between ERPA and ISDA → Effect from credit stance

CREDIT SUPPORT:

1. Credit Support provisions are included within main body of ERPA under 'Events of Default' as opposed to provisions found in the ISDA Credit Support Annex (CSA) → No need for optional CSA, no opt out for counterparties → Better protection
2. Material Adverse Change (MAC) clause included in ERPA → No opt out for counterparties → Safeguards interests
3. Regarding the risks involved in the verification/registration/certification of the Emissions Reduction (ER) to CER conversion process: ERPA provisions give ability to manage approval process & use expertise & relationships to reduce risk the buyer takes³ → Particularly useful as lender's are unwilling to accept risks beyond their control → This is central to the attractiveness of the role ERPA has in financing transactions
4. Contains more provisions for Delivery Failure as Events of Default under Termination clause than ISDA → Ample delivery assurance

TERMINATION:

5. Force Majeure events are listed as Termination Events → Reminiscent of ISDA 2002
6. Unlike ISDA no option of 'Additional Event of Default' is included; for example, a provision that failure to provide performance assurance may lead to a request for additional support (i.e. collateral) cannot be added → Less protection
7. Narrower 'Events of Default' than ISDA → Less protection

GENERAL:

8. Comprehensible, concise → Reduces confusion between provisions of agreement
9. Other changes reflect changes in law, market practice and regulatory developments → Ensures swift transactions and efficiency within the system. E.g. use of terms such as 'Transfer and Assignment' and 'Insolvency' and 'Bankruptcy'
10. Standardisation → Circumvents counterparties having to renegotiate common provisions
11. Flexible → Counterparties may integrate sections of code according to the type of the commercial agreement
12. Multifunctional → Counterparties may amend for use with project financing arrangements
13. Compatibility → Designed with aim of compatibility with the IETA Emissions Trading Master Agreement⁴

¹ International Emissions Trading Association (IETA) Emissions Reduction Purchase Agreement (ERPA) for the Clean Development Programme (CDM)

² International Swap Dealers Association (ISDA) Master Agreement version 1992, 2002 version occasionally used in practice

³ Merzbach Group LLC, Enhancing ERPAs to Obtain Third Party Financing, January 5th 2004

⁴ ERPA- Factors to Consider in Negotiation, P. Zaman, Clifford Chance, 1 February 2006

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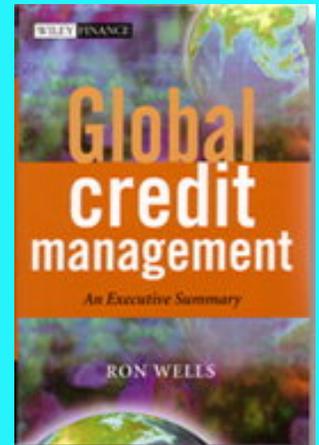
Ron Wells is the author of *Global Credit Management, an Executive Summary* published by John Wiley & Sons. This concise work demonstrates the vital importance of effective credit management, which too often is a passive and reactive discipline within a company.

The Simplified Chinese version of *Global Credit Management* was published in July 2007, titled Huan Xin Ping Heng Biao Shang De Shui Shi - Awaken the Sleeping Lion on the Balance Sheet.

Ron maintains a free access, credit management resources web site at: www.BarrettWells.co.uk.

Ron is a Certified Credit Executive (CCE), a Chartered Management Accountant (ACMA), a qualified International Banker (ACIB) and a Chartered Corporate Secretary (FCIS). He participated in the NACM Graduate School for Credit and Financial Management in 1996/97, passed with distinction and was elected Best Student.

Ron joined a globally active commodity trading house in London, as Vice President - Credit Risk Management, in October 2007. Previously Credit Manager for Global Supply & Trading with Chevron Corporation for 16 years; before Chevron, Ron worked for various companies and commercial banks becoming a specialist in financial analysis, corporate credit management, trade operations management and trade finance-related marketing.



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