

## Director's Column

### A Concerted Effort of our RMBI Students

HKUST's Risk Management and Business Intelligence (RMBI) Program launched in September 2009, is the first in Hong Kong to integrate risk management and business intelligence. The aim of the Program is to bring up our students to be risk management and business intelligence professionals. We expect that we can equip them to mitigate risk, manage information and assist organizations to make essential decisions. With such a short period after the Program launch, I am excited that our first batch highflying students can demonstrate the spirits of our Program — effective implementation and market driven.

This inaugural issue of RMBI newsletter is a 100% students' product. I was impressed by their good management skills and sincere attitude. They took the initiatives to form the editorial board, identify the target readers and the contents of the newsletter, control its quality and monitor the progress for publishing the newsletter on time. From what they have delivered, I can discover so many talented reporters in the newsletter.

A number of industry-university collaboration activities have been and will be organized for RMBI students and professionals to understand how risk management and business intelligence can be implemented in the real world. First, we organized a mentorship program for them to learn from experienced industry practitioners in RM/BI. We are glad that more than 15 industry friends have become the mentors. Second, our 2010 RMBI Symposium, with more than 300 delegates, was held in May 2010. Five prominent speakers gave their expert insights to our students and market practitioners in managing risk and making use of business intelligence

in financial and banking industries. Doing academic research with industry data is an enthusiastic experience for those students who are eager to explore new knowledge. We have already started two research projects with an international investment bank. Applying knowledge in real business situations is a vital element to develop professional skills. As such, we are now consolidating companies, who are interested in collaborating with us, with RMBI students' participation, to help solve their research problems in risk management or business intelligence. If you would like to become our corporate partners, please do not hesitate to contact me. We need your support to our Program.

This RMBI newsletter aims to provide a channel to share up-to-date interesting risk management or business intelligence matters. In this inaugural issue, our students have interviewed four industry professionals in RM/BI from three different organizations to understand why RM/BI is important and how RM/BI can be put into practice. What is more, the "Common Terms" column explains some important jargon in RM/BI. The "Digest" about Dubai let us know the importance of an effective risk management system. I hope that you enjoy reading this newsletter.



**Prof. Mike So**  
(immkps@ust.hk)

### 學生的共同努力

香港科技大學風險管理及商業智能學位課程於2009年9月推出，是香港首個涵蓋風險管理和商業智能的課程。此課程旨在培育學生成為風險管理和商業智能的專才，日後能學以致用，消除風險及有效管理數據，為所屬團隊作重大決策。課程成立至今，為時雖短，但我很高興第一批學生能充份展示課程的精神——有效執行和市場導向。

《風險薈訊》創刊號完全是學生的作品。他們在製作過程中表現出良好的管理技巧和真誠的態度，著實令人印象深刻。由成立編輯委員會、確定讀者和新聞報內容、控制稿件質量以至監控進度，都是學生由一手包辦。從這份新聞報中，不難發現很多學生都甚具記者潛質。

我們已經並將會舉行一連串活動，務求讓風險管理及商業智能學學生、學術界和業界人士進一步了解如何在現實中執行風險管理和商業智能。首先，我們邀請經驗豐富的業內人士參與師友計劃，讓學生能有機會向他們學習。目前已有超過十五位業界朋友成為導師。另外，我們於2010年5月舉行了風險管理及商業智能研討會，出席人數逾三百人。五位頂尖講者就風險管理及商業智能在金融業和銀行業的運用發表其精闢見解，我們的學生和與會者均獲益良多。此外，我們亦與國際投資銀行接洽，由我們的學生負責一些研究工作，以擴闊其視野。現在我們有兩個研究項目正在進行中。要發展專業技能，在實際商業環境中實踐課堂所學是不可或缺的。因此，我們希望和業界攜手合作，藉著學生的參與，幫助他們進行風險管理或商業智能的研究工作。若您想成為我們的企業夥伴，歡迎和我們聯絡。這個課程絕對需要您的支持。

《風險薈訊》旨在提供渠道，分享最新風險管理或商業智能的資訊。在此創刊號中，我們的學生採訪了四位來自三個不同組織的專業人士，闡述風險管理和商業智能的重要性，以及兩者如何付諸實行。除此之外，「術語彙編」解釋了一些風險管理與商業智能的重要術語。有關杜拜的「文摘」也揭示有效風險管理系統的必要性。希望您喜歡這份新聞報。

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## Interview with doctors:

# Clinical Risk in Hospital – risk management committee and daily operation processes

Life is full of risks. To prevent incidents or damages, people have been trying to reduce risks in their sectors. Clinical risk, one of the risks, draws our attention especially after a spate of reports about medical accidents in Hong Kong. Patients would now ask more about risks in each operation process, from the safety of food to the chemical name of vaccines. There is no doubt that patients have lost their confidence towards the reliability of hospital equipment and staff. To answer their doubt, it is our honor to invite Dr. Walton Li, Medical Superintendent and Miss Manbo Man, Director of Nursing Services to share with us the success in risk management in Hong Kong Sanatorium & Hospital.

Hong Kong Sanatorium & Hospital (HKSH) is one of the well-recognized private hospitals in Hong Kong. It has received awards and recognition from different organizations. On the fourth of March, 2010, HKSH was awarded the EQUIP Accreditation Certificate by the ACHS. It is the first hospital in Hong Kong for this international recognition, proving again its outstanding services and management.

### Risk Management Committee in HKSH

HKSH has a systematic control system on clinical risk. The risk management committee in HKSH plays a vital role in controlling and minimizing clinical risk and at the same time, communicating with frontline doctors and nurses. As mentioned by Dr. Li, the risk management committee is composed of a coordinator and representatives from each clinical unit. The participation of frontline members from each clinical unit can assure service quality by raising transparency in the hospital and allowing prompt responses and improvements to medical incidents, infection control and occupational care and safety.

Miss Man said colleagues determine risk factors in their clinical unit and report to the risk management committee. After analyzing and examining cases from each unit, the risk management committee will report to the hospital and implement immediate measures depending on the risk level of each case. Representatives from each clinical unit contribute significantly to the suggestion of improvements in this process. As they are frontline workers in their own clinical unit, they are second to none for knowing potential risks and possible improvements that can be made to reduce risk factors.

### Infection control

Employees are the most valuable resources in hospitals, they like the components of a car, only if they work normally and cooperatively, can the car work. So workers' health is an indispensable and fundamental step in controlling infection in hospitals, especially they may easily transmit virus to



▲ Interview with Dr. Walton Li (Left) and Miss Manbo Man (Right).

patients through frequent contacts with different patients.

Miss Man said workers are required to do a body check before being employed. This is to ensure workers have antibodies to certain infectious diseases. After being employed, they have to inject inoculation for further protection. What is more, free medical check is provided for workers regularly, not to mention additional blood test and treatment after being stabbed with syringes accidentally.

Apart from supplementary protection for the most valuable resource in the hospital, Dr Li added that internal culture of HKSH emphasizes the infection control awareness, such as the habits of washing hands.

To prevent cross infection among patients, wall panels are used to separate beds in general ward. Wall panels are convenient for better cleaning, sufficiently reducing the chance of virus transmission.

### Occupational Health and Safety

In order to provide patients with safe services, employees of HKSH are trained with techniques to reduce risks in the workplace. Frontline staff needs to take infection control and occupational safety and health courses. There are also strict requirements for specialists. Take staff in Photo Refractive Keratectomy sector as an example, knowledge of laser safety is required to be mastered well. "Medical personnel ought to learn all knowledge about clinical operations." Man said. "There is staff from each ward studying advanced infection control programs. So their risk awareness and risk management skills can be improved, and are more capable of avoiding risk."

Even supporting departments like engineering have similar guidelines. Technical staff is required to learn the usage of various medical facilities, and how to assess the equipment. For occupational health and safety, the hospital has instructions to help them understand their maximum lifting weight, and correct postures that can reduce back strain.

### Avoiding medical incidents

Dr. Lee pointed out that, to reduce medical incidents, the operating system of HKSH is doing differently from public hospitals. It encourages nurses cultivating friendship with patients and their families. This brings two advantages. Since the nurses know the patients, chances of wrong registration or recording can be reduced. Also, nurses will generally work more carefully to avoid mistakes if they are friends of patients.

Besides, HKSH tries to improve its service by upgrading hospital facilities. For instance, a hospital electronic bar code system is set up to monitor drug delivery. Before giving out the drugs, nurses will scan the barcode on the medication bags and then tags of patients to avoid any delivery error.

All beds in HKSH are now equipped with IE Buddy System. Doctors can view patient information via the system, including drug allergy, physical assessment report and computer scan image reports. IE Buddy provides patients with health care and disease prevention information, reminding patients to pay attention to personal hygiene. This helps prevent the spread of diseases in the hospital.

For Maternity Unit, HKSH has introduced Baby Security System and Mother-baby Matching System. Each newborn baby has tag on their foot. Mother also wears a Kisses tag. When baby is taken out of the nursery without authorization, or mother is brought to the wrong baby, alarm occurs to warn the nurses.



▲ IE-Buddy System in HKSH.



▲ The staff is demonstrating the barcode scanning system.

### Conclusion

Private hospitals can lower clinical risks through many ways, for example, establishing a core value concerning clinical safety, as well as hospital culture of being highly alert and immediate incident reporting. Hospitals can also reengineer the operating system for smoother medical processes. It is possible for hospitals to provide services of higher quality by technology advancing and equipment renewing. Although those technologies involve lots of resources and money, we still hope that private hospitals would focus on patient's interests and try the best to enhance their service.

Reference: <http://www.hksh.org.hk/en/awards.html>



▲ The reporter is listening attentively to Miss Manbo Man's view on clinical risk.

# 認識醫療風險 — 了解醫院風險管治委員會及日常營運

生命充滿風險。為防範意外或免招損失，各方一直努力減低所在範疇的風險。近期本港醫院時常出現醫療事故，市民對醫療風險更表關注。病人現在更加關心醫院運作上各方面的風險，食物安全以至疫苗的化學名稱均會問及，無疑對醫院設備及員工已失去信心。我們有幸邀請養和醫院院長李維達醫生和護士總監文保蓮護士，討論該院風險管理方面的資訊。

養和醫院屢獲殊榮，是香港最著名的私立醫院之一。養和醫院在2010年3月4日榮獲澳洲醫療委員會(ACHS)頒發EQUIP「醫院認證計劃」證書，成為香港首間取得此國際認可之醫院，服務和風險管理質素備受肯定。

## 養和醫院的風險管治委員會

養和醫院臨床管理十分有系統，當中的醫院管治委員會更是其風險管理的中心，在監控及減低臨床風險的同時，與前線醫護人員保持聯繫。李院長表示，此委員會由一個協調員和多個代表組成。代表是由每一個臨床單位派出，務求提高每個單位的透明度和事故處理速度。委員會的工作範圍包括傳染病控制、職業安全和處理醫療事故。

文總監說醫護人員會評估他們各部門的風險，然後上報醫院管治委員會。同時，風險管理委員會因應風險高低，作出相應的建議或立即採取行動。各臨床單位的代表會於過程中不斷提出改善方案。他們是各部門的前線人員，因此他們最清楚了解潛在風險和改善辦法。

## 傳染病控制

員工是醫院最重要的資源，他們就像汽車組件，各組件必須正常運作，汽車才能開動。由於員工經常接觸病人，容易將病菌傳播開去，因此員工健康是醫院控制傳染病不可或缺的基本步驟。

文總監表示，醫護人員入職時會進行身體檢查，確定他們對某些傳染性疾病具備抗體。入職後，醫院會為醫護人員注射防疫針，亦會定期提供免費身體檢查。萬一意外被針筒刺傷，醫院會即時為他們進行檢查和驗血。

李院長更表示除了對醫院最寶貴資源的附加保障外，醫院的內部文化著重防範傳染病，例如養成勤洗手的習慣。

為了減低病人之間的傳染，養和醫院採用可移動屏風分隔病床，方便進行徹底清潔，減少病菌在房間內滋生散播，有效避免交叉感染。

## 職業安全及健康

為向病人提供安全可靠的服務，養和醫院的員工須接受培訓以降低工作風險。醫院的前線員工需要報讀感染控制及職業安全健康課程。專科人員的要求同樣嚴謹。以激光矯視部門為例，他們必須掌握激光安全方面的知識，保證服務質素。文總監表示：「只要是關於臨床運作的，醫務人員便要學習。各病房均有醫護人員修讀進階傳染病課程，提升他們的風險意識及管理技巧，從而更有效避開風險。」

即使是支援部門如工程部，亦有類似指引。工程人員要全面認識各種醫療器材，學會如何評估器材的穩定性。職業安全健康方面，院方有指引協助他們了解自己最大可抬舉的重量，以及一些能減少腰背勞損的正確工作姿勢。

## 減少醫療事故

李院長指出養和醫院在營運系統上有點特別。有別於公立醫院，養和醫院會讓護士認識病人及其家屬。這有兩個好處。一是護士得悉病人的姓名，進行登記或紀錄時便不會弄錯。第二，因為和病人建立了友誼，護士一般會較細心工作。

此外，養和醫院透過改善醫院設施，使病人享有更優質服務。該院的藥物派送由電子條碼系統監控。分配藥物時，護士會先掃描藥物袋上的條碼，再掃描病人手銜作比較，確定派送無誤。

現在養和醫院也在所有病床設置IE Buddy系統。醫生可以從此檢視藥物敏感、身體評估報告和電腦掃描報告等病人資料。系統亦會向病人提供保健及防疫資訊，提醒病人注意個人衛生，有效防止疾病傳播。

婦產科方面，養和醫院設立了嬰兒保安及母嬰配對系統。院方會為每名初生嬰兒配戴腳銜，而母親也會戴上手銜。當嬰兒未經登記被帶出育嬰室，或是母親錯誤地領去別的嬰兒，系統都會發出警示提醒醫護人員。

## 結語

私立醫院能通多個途徑減少醫療風險，例如建立以病人安全為上、時刻警覺及快速通報失誤的核心價值和醫院文化。醫院也可在運作系統上加以改善，令醫療過程更流暢。此外，透過引入新式科技和設備，醫院可提供更佳服務。雖然以上措施牽涉的資源和金錢不少，但希望私院未來能以病人的利益為重，致力為服務帶來革新。



▲ 本報記者與李院長及文總監合照。

## David Millar



Chief Operating Officer  
of PRMIA

Mr. Millar is responsible for the running of PRMIA, focusing on the standards, exams, and development of PRMIA. Previously, Mr. Millar was a consultant, journalist and operational risk manager.

## Careers in Risk Management

Risk management started as a title in the financial area in about 1988. The original risk managers worked mostly in the portfolio risk area. Later, things like operational risk management came in. But essentially, there was no formal education for risk managers. It is now changing.

We are very pleased to interview Mr. David Millar, the chief operating officer of Professional Risk Managers' International Association (PRMIA) on the career field of risk management.

### What is risk management?

Risk management is managing risk within an institution in a structured, understood and measured format with the use of the best available risk management practices.

### What are the daily duties for a market, credit and operational risk manager respectively?

The daily work and schedules of a professional risk manager vary with the working field of risk managers.

A market risk manager needs real time views of the influences and factors - asset prices, interest rates, and foreign exchange so he can constantly monitor the financial situation and the risk distribution across the organization. On a daily basis he will be setting trading limits and overseeing the repricing of portfolios.

A credit risk manager judges the spread, distribution, diversification and external influence factors of an asset portfolio. He again works on a day-by-day basis.

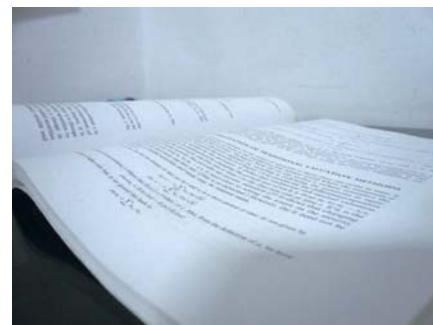
Operational risk managers focus on the strategic and operational risks that occur within an organization: from incidences as simple as power failure to internal fraud, incompetence and insufficient training of management. Their job is to improve the situation and respond to faults or incidents promptly. They work to longer time cycles among the three types of risk, a month probably.

### What do you think are the most preferred personalities and strengths as a risk manager?

The personality preferred depends on the working field. But generally, all risk managers need to pay attention to details and obey strict requirements.

Particularly, a market risk manager requires a lot of analytical and mathematical skills as he is required to deal with different risk

models and handle complex computer systems.



A credit risk manager, who meets clients frequently and works with credit officers, needs strong interactive skills.

An operational risk manager, as he looks for weaknesses in every single process, should be more analytical-minded.

But typically, a market risk manager is generally much younger and more dynamic, while an operational risk manager is older and more experienced in the organization.

### What kinds of academic backgrounds are preferred for becoming a risk manager? Is there any required knowledge or working experience?

As risk management is becoming a profession, some basic academic education including elements of finance, mathematics, and risk management is necessary. Professional examination qualification is also a must. PRMIA has an example, the PRM. Beyond there, we would expect risk managers to have approximately three years of work experience and apprenticeship in risk management related field.

### What role does data mining play in risk management?

Data mining plays a particularly dominant role in market risk management. To store market risk data, one would need a room full of computer storage equipment

## 風險管理專業

as there are thousands of financial transactions to be recorded every day. Market risk management tools are very helpful in extracting data and data-mining from these databases. But these tools cannot replace knowledge and experience.

**After the financial tsunami, people seem to pay more attention to the importance of risk management. Will this create a potential growth in risk management related job opportunities? How large is that?**

The demand on well-equipped risk managers are growing all the time with the increasing awareness of risk management in an organization.

Government and regulators are insisting on formally-appointed and formally-trained risk managers within organizations. All companies, including hedge funds and investment houses, are establishing risk management teams. So, the demand for risk managers is increasing.

How large it will be? It's difficult to tell. For example, in Hong Kong, a fund employing forty to fifty people may need five people on the risk management side. A major bank in Beijing a while ago told me that they have a risk management department of six thousand among their 300,000 employees across China. That is one for every 50 employees. It's probably a fair ratio for a big bank, but it is increasing.



**風**險管理這個行業在1988年才在金融市場出現，最初期的風險管理師集中在理財方面工作，後來他們的工作範圍亦涉及操作風險。同時，市場對於風險管理師的教育水平要求越來越高。

今次非常榮幸能夠邀請到Professional Risk Managers' International Association (PRIMA)營運總監Mr. David Millar談論這個行業的發展。

**什麼是風險管理?**

風險管理指在可行的情況下，以最完善的措施，有結構及容易理解地利用可量度的方法管理風險。

**市場、信用、操作風險管理師的日常工作和責任是什麼?**

不同專業的風險管理師，有不同的責任和工作。

市場風險管理師需不斷監測財政狀況及風險分佈情況，實時分析影響市場的因素，如資產價格、利率、外匯。他需要每日設定交易區間及監察資產組合的價格變化。

而信用風險管理師則需要每天衡量投資組合的價格差異、分佈、分散度和外在影響因素等。

最後，操作風險管理師負責一個組織內的策略風險和操作風險。他的工作是要改善組織在這方面的不足。當風險或錯誤發生，操作風險管理師會迅速作出反應。他們的工作週期可能長達一個月。

**你認為一位風險管理師應具備什麼性格和能力?**

這取決於工作範圍，但一般需要細心觀察及嚴守規定。

市場風險管理師必須具備很強的分析和數學技能。他需要了解各個風險模型和使用複雜的運算系統。

信貸風險管理師需要經常與客戶見面並與信貸人員合作探討一間公司的償還能力。交際能力因而成為一重要條件。

操作風險管理師要了解銀行的運作和其不足。因此，他應具備判斷分析的思維。通常在我的印象中，市場風險管理師較為年輕和有活力。操作風險管理師則較經驗豐富。

**想成為風險管理師，要有什麼樣的學術背景和工作經驗?**

風險管理人員既需要學術背景和也需要經驗。監管機構現時十分強調風險

管理人員的教育水平。因此，要進身風險管理這門專業，接受金融、數學和風險管理的教育是必須的。有了這些教育後，還要參加考試。另外需要三年相關的工作或學徒經驗。

**信息系統或數據挖掘在風險管理中扮演什麼角色?**

數據挖掘在市場風險管理尤其重要。市場風險需處理大量信息。每天有數以千計的金融交易和貿易記錄。對於市場風險的數據，我們需要一間房般大的計算機儲存設備。雖然資訊科技有助你作出判斷，在各種假設情況下進行分析和計算，但仍不能取代知識和經驗。



**金融海嘯後，人們似乎更注重風險管理的重要性。這會否增加對風險管理人才的需求呢?**

政府和監管機構不斷提高對風險管理和風險管理人員技能的要求。有別於以往，除了銀行外，保險公司、對沖基金和投資公司也有風險管理團隊。因此，風險管理的需求正在增加。有多大? 現時難以評論。例如在香港，一個規模達40至50名僱員的基金可能需要5人的風險管理團隊。在大型銀行，合理的比率大概是50:1,但這比例將會越來越大。

## Review on Company Risk Management 公司風險評閱

**Dr. Michael Wong Chak Shum**  
王澤森博士

Founding President of CTRISKS Credit Rating Company  
理信信貸評級公司主要創辦人



Reflecting on the subprime crisis in 2008, I consider accurate credit rating and efficient risk management ability the crucial factors in determining the success of enterprises and financial institutions. Experts in the field of risk management are required to analyze deeply and figure out a way to deal with risks specific to the property of the firm. However, the performance of institutions and enterprises in Hong Kong is not satisfactory in managing risks because most of them lack resources or risk management department.

Before identifying a firm's individual risks, we should categorize the firm based on the industry it belongs to. Financial institutions such as commercial banks are exposed to market risks including floating rate risk, foreign exchange risk, commodity risk and so on. These risks may imply serious influences on a financial institution's profitability. On the other hand, the risks for manufacturing or logistic industry come from operations. Lack of coordination between internal processes and human resources can influence a firm's operational performance. Take Toyota for example, due to its insufficient quality control and the blindness of its management to this problem, large amount of pedal-flawed automobiles had flowed into market which finally resulted in the recall event.

The approaches to manage risks vary substantially across industries. Financial institutions in Hong Kong currently rely on quantitative financial models or risk analysis software. Many risk analysis software can quantify the risk level of a project based on price fluctuation, floating rate and share volatility etc. Such software is widely used in financial industry so as to assess and hedge against risks through different means.

However, when it comes to more complicated and specific situations, a risk management team is indispensable. There are examples showing ways to manage and control risks. In operational management, risk management attaches emphasis to Check & Balance. For example, the person who collects money must be separated from the one who keeps accounts. This can prevent employees from lining their pockets. In process management, many procedures need managers' signatures to ensure work quality being supervised.

The risk from credit business is a major concern in commercial banks. There are credit rating companies to investigate a firm's ability to pay back its outstanding debts and quantify uncertainties of default. To assess the firm's ability to settle its debt, analysts carefully scrutinize its short term cash flow, working capital and operation performance. Therefore, credit rating considers three main factors. First, we look into the market environment. When the overall economic situation is bad, or a country suffered from political unrest or natural disasters, the risk level for a firm in the country will definitely increase regardless of its internal financial condition. Second, we consider the prospect for the industry. If the firm belongs to a contracting industry, its risks would definitely surge regardless of its performance in the past. Third, we investigate the firm's operation performance. This includes its profitability, positioning and the amount of resources it places on risk management. When conducting long term credit analysis, analysts will mainly evaluate a firm's risk management ability, risk management processes and strategies. This is because if the firm is poor at risk management or lacks flexibility against changes, it is vulnerable to market fluctuation and has larger possibility to go bankruptcy. In this case, it is hard for creditors to collect payment. That is why risk management plays a very important role in credit rating.

經過2008年次按危機，在未來商業市場，準確的信貸評級和有效的風險管理都是不可忽視。它們在投資、信貸服務和公司管理範疇提供重要的參考。現階段，香港的上市公司在風險管理方面的表現並不理想。大多數公司都沒有專門的部門來監管風險。

為有效避免風險，我們需要從公司的性質找出潛在風險並加以分析。不同行業、不同性質的公司所面臨的風險都不一樣。金融機構，例如銀行，會涉及很多市場風險，如利率風險，外匯風險，商品風險等。這些風險都可能影響到金融機構的盈虧。另一方面，製造、物流或者零售這些行業的風險主要來自營運風險。內部流程紊亂、人為事故、資訊管理系統出錯等都會影響此類公司的業績。譬如豐田汽車公司，由於它在品質監控上存在漏洞，高層人員又沒有正視問題，所以大量油門踏板有質量問題的汽車流入市面。這樣的疏忽也讓豐田汽車公司最終付出了巨大代價，導致大規模的汽車回收。

風險監控的入手點與分析公司風險的入手點一樣，都是依據公司的性質而採取不同策略。目前香港的金融機構主要借助定量金融模型技術建立風險模型，或者利用風險分析軟件來模擬風險的高低，尋找對沖避險的策略。現時有很多軟件，可以根據市場價格、利率和股票波動而評估量化風險值。這種軟件在金融領域得到廣泛應用，可以有效量度一般的市場風險。但是當涉及複雜的風險評估時，我們需要更多的參考因素，難度較高。此時便需要專業的風險分析團隊來制定具體的處理辦法。

在公司營運方面，風險管理主要依靠互相監察。例如收錢與入帳的人員要分開，避免侵吞的問題。而流程上要求負責人簽署，確保有人監督這個流程和負責。這些都是常見的風險監控措施。

除此之外，以借貸服務為核心業務的商業銀行，信貸風險是其主要風險。衡量信貸風險時，我們會引入信貸評級來考察一間公司的償還能力。要評核一間公司的償還能力，關鍵是要看它短期的現金流量，財政是否充裕，營業狀況如何。因此信貸評級會參考三個重要因素。第一是整個市場的經營環境。假如一間公司所在的市場不景氣，又有自然災害或政治動盪，這間公司的相對風險就會很高，因為它的經營環境不好，很可能交易劇減，現金流量便會很弱。所以在這情況下，即使不考慮公司內部環境，也可判定它的風險水平。第二，要看整個行業的發展情況。如果某行業本身正在收縮，儘管行內公司過去業績可能非常優良，受發展前景不理想影響，它的風險也在上升。第三就是要考查這間公司的經營能力，包括它的盈利能力、定位、風險管理方面所投放的資源等。一間公司的風險管理能力影響其信貸評級。現在進行長期信用分析時主要都會看一間公司的風險管理能力，有沒有相關的風險管理流程、人員和政策。因為若這間公司風險管理不完善，應變能力不足，市場稍有波動它就可能面臨破產，向其發放的信貸將難以收回。因此風險管理在信貸分析中也扮演著重要的角色。

## Business Intelligence News

### 商業智能動態

#### Datameer Analytics Solution (DAS)

DAS is a data analyzing software based on Hadoop, which supports reliable, scalable and distributed computing. The software developer, Datameer, had made an effort on the spreadsheet interface of DAS “to hide all the difficult things”. DAS also provides tools for data extraction from sources like log files, clickstreams and relational databases. It helps report building and data export to third-party business intelligence software packages. The software will be most commonly installed on-premises in companys’ private data centers.



DAS 是一個建基於 Hadoop 工具的數據分析軟件。該軟件的開發商 Datameer 以電子數據表作其控制介面，也致力改善軟件的運

作方便使用家。DAS 還備有數據提取工具從日誌文件、點擊流和相關數據庫吸納資料。此外，DAS 可以協助建立報告和數據導出至第三方商業智能軟件。

#### IBS Distribution Intelligence (IBSDI)

International Business Systems released a package of business intelligence software, named IBS Distribution Intelligence (IBSDI). The package includes:

IBS Planners – this module is used for forecasting, by applying a set of graphical planning tools and advanced statistical modelling algorithms;

IBS Activity Monitor – a real-time visual operation and process control tool. It combines data with those from the Internet and other file objects such as email and HTML;

IBS Alert Manager – triggers an alert via SMS or email if preset events occur;

IBS Performance Manager – collects and organizes data for report building and analysis by making use of pre-defined reports and key performance indicators.

International Business Systems 現推出名為 IBS Distribution Intelligence (IBSDI) 的商業智能軟件套裝。套裝所包含的軟件如下：

IBS Planners – 這個模組使用圖形化的規劃工具和高階的統計模型演算法協助預測數據；

IBS Activity Monitor – 這是一實時操作和流程控制工具。它可以從互聯網及其他電子文檔，如電子郵件和網頁，取得監控活動所需的數據；

IBS Alert Manager – 若發生用戶所預設的事件，此軟件會發送流動電話短信或電子郵件予相關負責人；

IBS Performance Manager – 這軟件內設大量預先定義的報告和關鍵性能指標，能收集及組織數據，並編寫報告。

#### Revolution R Enterprise

Revolution Analytics, formerly known as Revolution Computing, offers a business intelligence (BI) product, Revolution R Enterprise. It runs under the environment of the statistical programming language, R. The company also offers support and training for its BI solution. This year, Revolution Analytics will release a Web-based user interface, large data sets processing technology for the software and assistance helping customers get used to R.



前身為 Revolution Computing 的 Revolution Analytics，以統計程式語言 R 作開發環境，編寫一商業智能產品 — Revolution R Enterprise。Revolution Analytics 會向用戶提供支援和培訓，讓用戶能更快掌握使用技巧。Revolution Analytics 將會在本年餘下時間推出 Revolution R Enterprise 其他套件，如 Web 用戶界面和大型數據集處理技術。

## Dubai, Greece, Spain...Who's Next?

Nearly two years after the world financial crisis, the world economy seems to be recovering. It is said that the worst days have gone. However, the fall of Dubai and the Greek sovereign debt crisis have shown that it may not be wise to be too optimistic now because the effects of the crisis still exist and there are still risks ahead and possibly, bombs are everywhere in our economy.

### Dubai

Dubai was once a miracle and legend in desert. However, the debt of US\$59 billion broke the story on 25 November 2009.

### Why did Dubai fall?

As Dubai's oil industry failed to sustain and its oil reserves were expected to be exhausted in 20 years, other industries such as financial services, property and construction had been developed to secure its future economy. Currently, revenues from oil and natural gas occupy less than 6% of the emirate's total revenues while that from property and construction occupies more than 20%.

However, property and construction were the factors to the fall of the emirate. When the world economy was stable, property developers were very optimistic to keep borrowing and building new properties, eventually created bubbles and risks.

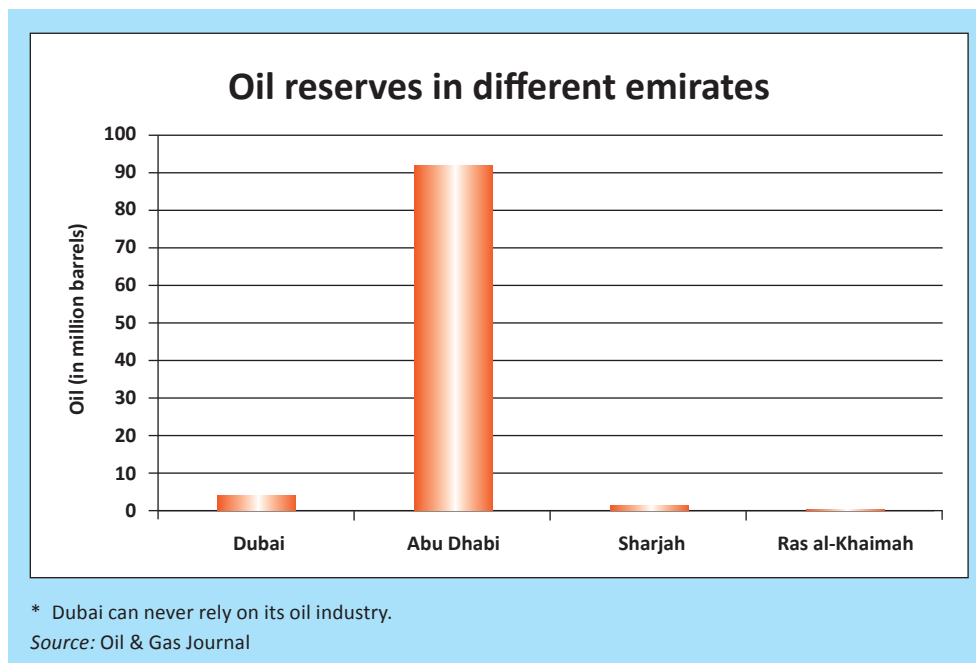
After the financial crisis, property prices in Dubai kept falling since nobody could afford the property there. Employees were laid off and they were unable to pay their mortgage.

Developers ran out of cash but they still had their debts to pay. What they would do next was to seek help from the government.

### Greece

Greece has been an unwise spender and loan borrower. The Greek government has been relying on loans at low interest rate to cover its fiscal deficit. In order to join the EU, the Greek government masked its great national debt with the help of Goldman Sachs by derivatives. The financial situation therefore suddenly became "good" enough to get into the EU.

After joining the EU, the low interest rate allowed Greece to borrow at a lower cost to maintain its economic growth, which was 4% per year between 2003 and 2007.



With the onset of the world financial crisis in 2008, the economy ran into recession in 2009. The tightening of credit allowed the government to borrow nothing. Together with its failure to address the huge budget deficit, the drop in tax revenue and increase in unemployment, Greece, and the whole EU, finally has to face what Greece has done.

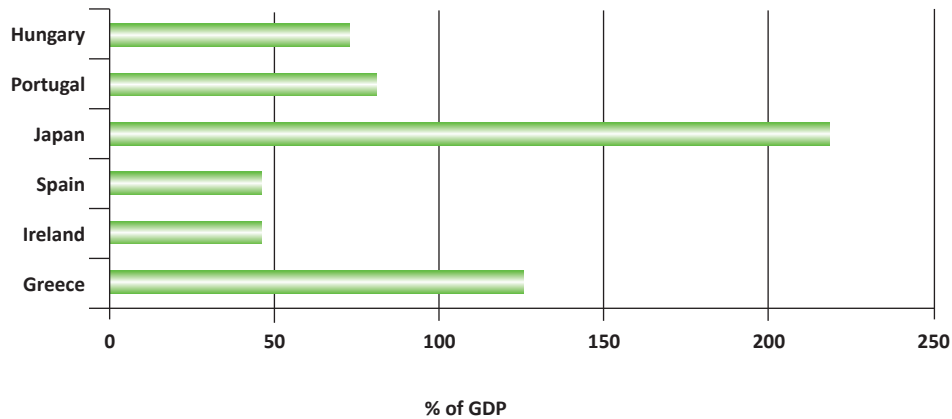
### Spain

New York University Professor Nouriel Roubini said Spain, the fourth largest economy in EU, can be a bigger problem to the union and even the whole world (27 January 2009, Bloomberg).

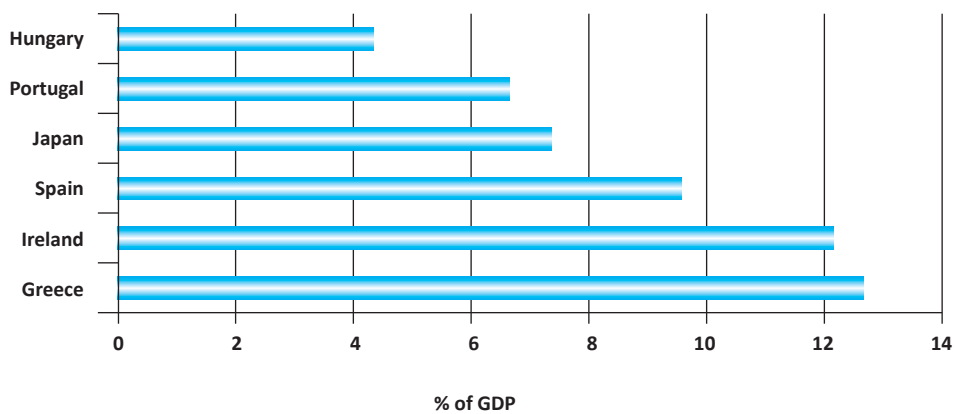
The economy of Spain is worrying. It is one of the EU countries with the most serious unemployment. Spain's unemployment rate rose from a low of 8% in 2007 to more than 19% in December 2009 and keeps rising, nearly two times the average value in the EU. Its fiscal deficit worsened from 3.8% of GDP in 2008 to more than 9% of GDP in 2009, nearly three times the economic and monetary union of the European Union limit.

After the financial crisis, the unpaid debt of Spanish property developers rose from 33.5 billion euro in 2000 to 319 billion euro in 2008. Most banks in Spain are relatively small and thus weaker. They have lent a lot to those property developers and they are now exposed to high risk as the developers may not be able to pay their loans. The banks are now facing bankruptcy. Spain is on the edge.

### Gross government debt as a percentage of GDP in 2009



### Government net borrowing as a percentage of GDP in 2009



\* These countries are probably getting into serious debt trouble.

Source: Organization for Economic Cooperation and Development, International Monetary Fund

### Will the next one be Japan?

If the fall of Spain is a disaster, then the fall of Japan, the second largest economy, will be more than that. For the past few years, the Japanese government has been unable to reduce its budget deficit as well as its debt. Its gross government debt to GDP ratio is more than 200%, which is the highest among developed countries.

Its sovereign credit rating remains high because more than 90% of the Japanese government bonds are purchased by domestic institutions and households while around 70% of the Greek government bonds are held by foreign investors. This avoids capital flight, which happened in Greece.

Nevertheless, the Japanese government cannot keep selling bonds. It is expected that the budget deficit is not going to fall in the coming years. The population is aging quickly and the household saving is decreasing. Keeping to issue new debts will eventually exceed the capability of local investors and turn Japan into Greece.

Naoto Kan, the Prime Minister of Japan, knows how serious this is and has warned the Japanese. It is a challenge to Naoto Kan and his cabinet. How he handles the problem will determine if he can avoid the destiny of Yukio Hatoyama.

### Conclusion

The problem of Dubai can be fixed easily because its debts are not a lot to the whole UAE. However, Greece may not be that lucky and it is possible that someone will be the next. Spain is very close to Greece. Japan needs to do a lot in order to save itself. Hungary, which took an IMF bailout in 2008, announced that it is unable to meet the IMF's target of budget deficit of 3.8% of GDP this year. Portugal is not far behind them. There are still questions on whether their economy can stand their huge debts while hedge funds are still waiting for chances to attack and the road to recovery of the world economy is still murky.

## 杜拜、希臘、西班牙，下一個是誰？

2008年的金融海嘯發生近兩年，全球經濟似乎開始展現出復甦的跡象，有意見認為最艱難的日子已經過去。然而，杜拜、希臘和西班牙等國的債務危機就告訴了投資者，現在似乎不是抱樂觀心態的時候，因為金融海嘯所帶來的影響仍然存在，全球經濟依然危機處處。

### 杜拜的成與敗

杜拜曾經是人們眼中的奇蹟，但隨著杜拜財政部在去年11月25日公佈其主權投資公司杜拜世界要求債權人延長590億美元債務的期限，這沙漠上的奇蹟倒下了。

### 原因

杜拜發展初期主要依賴石油出口，但它的石油蘊藏量不多，預計會在二十年內耗盡。為確保經濟持續繁榮，杜拜大力發展其他產業如地產及金融服務。現時杜拜最大的產業是地產，佔整體經濟20%以上。

金融海嘯前，當地的樓市蒸蒸日上，人口急湧而至。此時當地地產發展商非常樂觀，幾乎沒想到樓市會有下跌的一天。他們大量借貸，大興土木，巨大樓市泡沫因而形成。

金融海嘯後，沒有人有能力購買杜拜的豪宅，樓價亦緊隨大跌。本來遷到杜拜的人在金融海嘯的打擊下失去工作，無法償還房貸等債務。

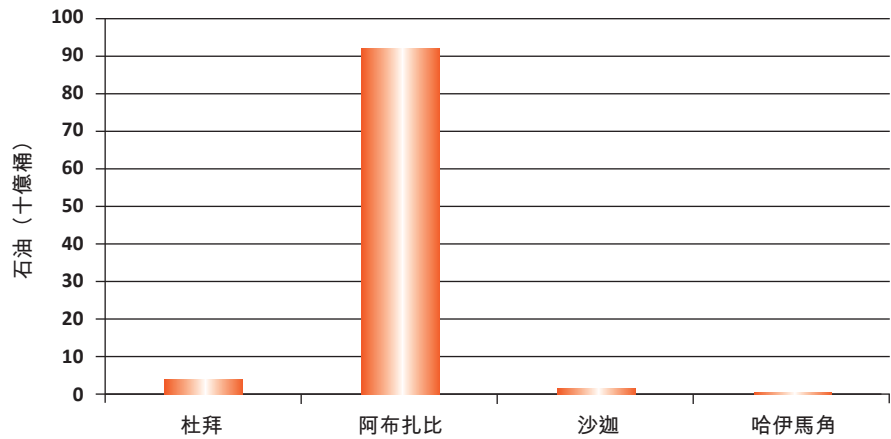
樓市大跌，房子滯銷，地產商無法還債，這杜拜最大的產業唯有向政府求救，債務問題便公諸於世。

### 希臘

長久以來，希臘政府都揮霍無度，依靠舉債支付龐大的財政開支和推動經濟增長。希臘政府為了加入歐盟，藉著投資銀行高盛的協助以貨幣掉期交易掩飾其債務和赤字問題，使其財務狀況忽然改善，而合乎資格加入歐盟。

在成為歐盟成員後，希臘不但沒有改過自新，反而利用自己作為歐盟成員的身份以更低的借貸成本不停借貸來維持經濟增長。而在2003至2007年期間，希臘的經濟增長為每年4%。

阿聯酋酋長國石油蘊藏量



\* 杜拜無法依靠石油來發展經濟。  
資料來源：石油和天然氣雜誌

2008年的金融海嘯大大打擊希臘的經濟，使其在2009年陷入衰退。而由於金融海嘯所帶來的全球信貸緊縮，希臘無法像以往般借入新債，以償還舊有債務。另外，希臘政府無法控制巨大的財政赤字，加上稅收下降、失業率上升，令問題更為嚴重。當舊債到期時，債務危機爆發，禍及整個歐盟。

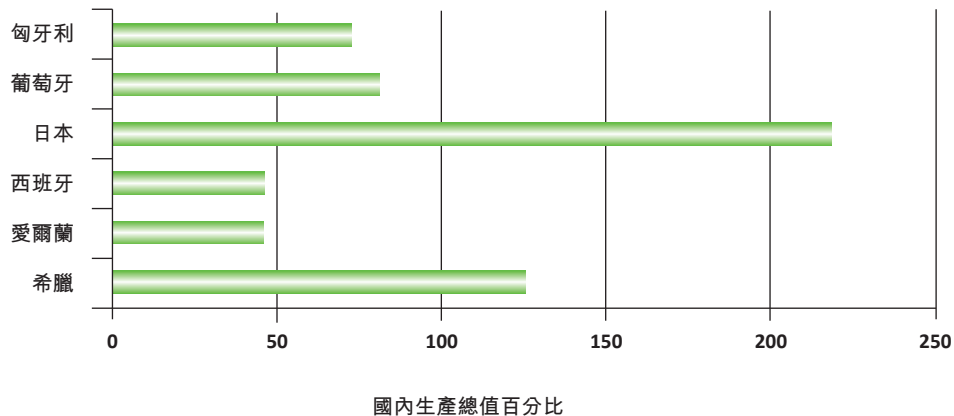
### 西班牙

紐約大學教授布賓尼(Nouriel Roubini)認為西班牙這個歐盟第四大經濟體是區內最大的威脅，甚至可能影響全球經濟。(2009年1月27日, Bloomberg)。

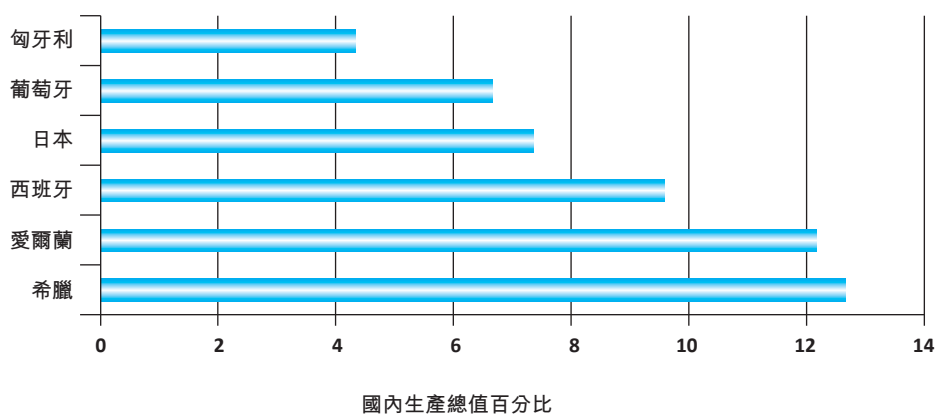
西班牙的經濟狀況令人擔憂，是歐盟其中一個失業問題最嚴重的國家，其失業率由2007年的8%低位大幅上升至2009年12月的19%以上，是歐盟國家平均失業率的兩倍，並且仍在持續上升。而政府的財政赤字佔國內生產總值的百分比則由2008年的3.8%急升至2009年的9%以上，超出歐盟規定上限接近三倍。

西班牙的地產市場跟杜拜相似，在金融海嘯前大升，然後樓市的泡沫在金嘯海嘯中爆破，樓價大跌。當地地產商的未償還債款由2000年的335億歐羅，大升至2008年的3190億歐羅。而且，西班牙大部分銀行規模較小，銀行體系較弱，它們借了很多錢給地產商，現在都擔心能否收回。西班牙現在恐怕跟希臘就只有一步之差。

2009年政府債務總額佔國內生產總值百分比



2009年政府財政借入淨額佔國內生產總值百分比



\* 這些國家都有陷入嚴重債務危機的可能。  
資料來源：經合組織，經濟合作發展組織，國際貨幣基金組織

## 下一個會是日本嗎？

假如日本的公共債務問題爆發，所帶來的影響將會是災難性的，對全球經濟的打擊是上述其他國家無法與之比較的。日本作為世界第二大經濟體，佔整個亞洲國內生產總值的三分之一，卻有陷入債務危機的跡象。近年來，日本政府無法有效削減赤字，被迫發行債券。至今日本政府的累積債務已達到國內生產總值的200%，情況在已發展地區中最高。

日本的信貸評級暫時未被調低，主要因為超過90%的國債都是由國內投資者持有，與有70%國債由國外投資者持有的希臘相比，在希臘發生的債券拋售並沒有在日本重現。

但長遠而言，日本政府將無法依賴發行國債來應付其龐大開支。稅收持續下降意味著未來的財政赤字難以減少。另外日本的人口正迅速老化，國民的積蓄隨之減少，致使國

民對國債的吸納能力持續下降。當日本國民無法再吸納新債務時，日本恐怕會成為另一個希臘。

日本首相菅直人以往曾多次警告問題的嚴重性，而這問題將會是他及他的內閣必須面對的巨大挑戰，也會決定他會否成為另一個鳩山由紀夫。

## 總結

杜拜的問題不難解決，其債務總額對整個阿聯酋而言並不算太多，影響有限。然而，希臘的情況絕不樂觀，而且另有國家可能要步其後塵。西班牙甚為接近希臘，而日本則必須力圖自救。除了上述諸國以外，不少國家如葡萄牙等，亦債台高築，情況令人憂慮。當中，在2008年接受國際貨幣基金會緊急援助的匈牙利表示今年無法達成將財赤維持在3.8%或以下的目標，情況並不樂觀。現時全球經濟仍然危機重重，對沖基金仍在等待謀取暴利的機會，復甦之路似乎還是一片陰霾。

## Glossary 術語彙編

### Futures

Futures is the short form of "futures contract". It is a standardized contract set by exchange. Buyers and sellers of the contract agree and have the responsibility to fulfill the contract according to the terms of settlement agreements with specified assets at a specific time in the future. Futures contract for settlement can be divided into two types, real object or cash. In Hong Kong, Hang Seng Index futures contracts, the most active futures in terms of turnover, are cash settled.

#### Types of futures contracts:

##### Commodity futures:

Agricultural futures, energy futures, metal futures

##### Financial futures:

Currency futures, interest rate futures, stock futures and stock index futures

#### Characteristics of futures contracts

Standardized contracts

Centralized billing

Prices quickly reflect market expectations

Leverage (margin trading)

### 期貨

期貨是期貨合約(futures contract)的簡稱，為交易所訂定的標準化合約，合約買賣雙方同意及有責任於未來特定時間，以訂明數量等條款交收合約指定資產。期貨合約交收可分為實物或現金兩種。而香港成交量最活躍的恒生指數期貨合約則以現金交收。

#### 期貨合約種類：

##### 商品期貨：

農產品期貨、能源期貨、金屬期貨

##### 金融期貨：

外匯期貨、利率期貨、股票期貨及股票指數期貨

#### 期貨合約特點

標準化合約

中央化結算

價格迅速反映市場預期

槓桿效應(保證金交易)

### Forex

Forex (foreign exchange) transaction is the exchange of one currency with another currency. Mainly through the sale of foreign exchange transactions in foreign currency, one can gain profit from the value of the difference between exchange rates. The trading volume of forex is very large. It has a turnover of more than 1.5 trillion U.S. dollars a day.

Different from other financial markets, foreign exchange market is not site-specific. There are no central exchanges but banks, corporations and individuals to trade between the electronic networks. Therefore, forex market operates on a 24-hour basis.

### 外匯

外匯(foreign exchange)交易是以一國貨幣與另一國貨幣進行兌換。外匯每天成交額逾 15000 億美元，交易量十分龐大。

與其它金融市場不同，外匯市場沒有具體地點，也沒有中央交易所，而是通過銀行、企業和個人間的電子網絡進行交易。由於缺少具體的交易所，因此外匯市場能夠 24 小時運作。



外匯交易主要透過買賣外幣，值着不同匯率上的差價而獲利。

### Hot money

Hot money, also known as refugee capital, refers to capitals with high liquidity seeking short-term return. These capitals have a high flowing rate. Once the investors, who are usually institutional investors, discover the short-term investment opportunities, there would be a rapid inflow of hot money. And investors once acquire the expected return or find that the investment opportunities have gone, there would soon be a rapid outflow of hot money.

Thus, when investors in the market find good investment opportunities, a large amount of capital will enter the local market, leading to the formation of hot money. These flows of capital can sometimes be up to tens of billions, which have a significant impact on the market exchange rates and interest rates.

### 熱錢

熱錢(hot money)，又稱流資(refugee capital)，是指尋求短期回報的流動資金。這些資金流動速度極快，一旦投資者，特別是機構投資者發現短線投資機會，熱錢就會湧入，而投資者一旦獲得預期盈利或者發現投資機會已經過去，這些資本又會迅速流走。

當投資者在市場上發現好的投資機會，大量的流動資金就會進入當地市場，形成熱錢。這些流動資本有時可達數百億元，對市場的匯率、利率產生很大影響。

## RMBI Program Development

### RMBI Symposium 2010

RMBI Symposium 2010 held on 15 May 2010 was proved to be a great success and was a milestone on RMBI development. The honorable speakers showed their specialism in risk management or business intelligence. Among them are widely respected Mr Arthur Yuen, Deputy Chief Executive, Hong Kong Monetary Authority; Dr Gongyue Gary Chen, Principal Consultant, Advisory, Fitch Solutions & Algorithmics, Fitch Group; Dr Joshua Huang, Chief Scientist, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences; Dr Qin-chang Cheng, Senior Manager, Independent Model Review and Oversight, Asia Pacific Risk, HSBC; Dr Violet Lo, Executive Director, Insurance, Pensions & Endowments Group, Goldman Sachs. More than 300 audiences attended the symposium and they came from all walks of life, including industry experts, staff and students of HKUST and peer universities and secondary school students. The audience was rewarded with a fruitful journey in the risk management and business intelligence field through insightful speeches.



▲ Guest speakers and organizers in the RMBI Symposium 2010.

### RMBI Students gaining Academic Excellence

Two students from Risk Management and Business Intelligence, Jiang Yue and Liu Zhuozhou, gained top recognitions for undergraduate students in Hong Kong University of Science and Technology –Students' Academic Excellence on 5 May this year. This recognition is given to students who have their Semester Grade Average more than 10 out of 12 for two semesters. Only a small proportion of eligible students can receive this recognition and be praised by the University for their effort on academy. Congratulations to these two students!

### JUPAS Interview Day

On 18 and 19 May this year, there were two JUPAS interview days for Risk Management and Business Intelligence. With more exposure for this program this year, an increased number of form seven students placed RMBI program as their first choice in the JUPAS selection. They were well-prepared and raised questions actively to the program director and founding RMBI class students. We sincerely hope those who are interested in RMBI can get a decent grade in their A-level examination and become one of the RMBI members in September.

## RMBI課程最新發展

### 第二屆風險管理與商業智能座談會

在2010年5月15日舉行的第二屆風險管理與商業智能座談會非常成功，為商界人士、學者和學生提供一個討論問題和交換意見的平台。此次研討會的演講者是風險管理或商業智能業內的佼佼者，當中包括香港金融管理局副總裁阮國恒先生、惠譽國際集團有限公司首席顧問陳公越博士、中國科學院深圳先進技術研究院首席科學家黃哲學博士、滙豐銀行亞太區風險管理部高級經理成勤昌博士，及高盛保險退休金及捐贈集團執行董事盧雪芬博士。前來參加這次座談會的聽眾約300多人。演講者的精彩發言給所有聽眾留下深刻印象，讓他們受益匪淺。



▲ 風險管理及商業智能的江悅獲頒發學習成績優異獎。

### 兩位同學得科大學習殊榮

風險管理及商業智能的兩位同學江悅及劉卓周於今年5月5日獲科技大學頒發學習成績優異獎。同學的學期平均積點在兩個學期都得到十分以上才能得到這個獎項，平均來說，每科的成績需要達甲等或以上，所以獲獎的同學非常少。今次本科有兩位學生得到這項殊榮，實在可喜可賀。在此再次恭喜他們兩位。

### 聯合招生面試日

今年是風險管理及商業智能的第二年招生。在5月18及19日，本科進行了為期兩天的面試。隨著中七學生對本科有更深的認識，今年面試的學生明顯比上一年多。他們都準備充足，亦有部分同學主動向教授及本科生提出關於本科的入學問題。希望他們能在高考取得好成績，在9月成為風險管理及商業智能的一分子。



▲ 風險管理及商業智能座談會2010吸引很多人來參與。

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