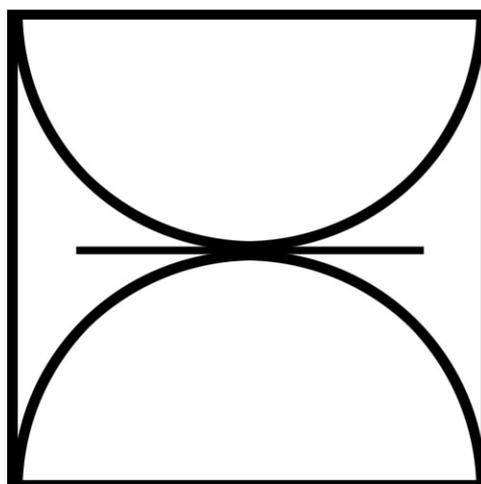


Society of Mathematics-Economics



Study Trip to New York 2007

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Introduction

Every year the Society of Mathematics-Economics at Aarhus University in Denmark arranges a study trip for its members. The aim of this trip is to help students utilize their education and introduce them to possible future employers. Previous destinations include Bangkok, Frankfurt, London, Brussels, Milan, Berlin, Amsterdam and Copenhagen.

This year the trip went to New York, USA, which we visited last time in 1996.

We would like to thank all the companies and institutions visited for taking time and effort to see us.

Also we would like to thank our sponsors for financial aid. This year our sponsors were:

- DJØF
- Department of Mathematical Science, Aarhus University
- Julius Strikkes Stiftelse
- Simcorp
- Tuborgfondet

On behalf of the Society of Mathematics-Economics Students: Anette Svejsø, Irene Lisby, Rasmus Flytkjær, Charlotte Duus, Jeanne Aslak Andersen, Tine Eriksen-Jensen, Lise Lystlund, Signe Lycke, Nanna Christensen and Tue Christensen.

The Federal Reserve Bank

Visit to the Federal Reserve Bank, 24th of September 2007

At the Federal Reserve Bank of New York we met with Mr. Howard Howe from International Affairs. He told us about the Federal Reserve System, about the responsibilities, the objects, and the structure of the bank and last but not least, about the different monetary policy instruments the bank can make use of. The bank is one of twelve regional Reserve Banks in the US, which together with The Board of Governors in Washington D.C. make up the Federal Reserve System. Together they set the monetary policy. The Federal Reserve Bank was founded by Congress in 1913, to serve as the Central Bank of the United States.

Its responsibilities, besides setting the U.S. monetary policy, is to supervise and regulate banks (in Denmark we have unitary supervision) to provide an elastic currency and to provide payment services to The U.S. Government and financial institutions.

In addition the bank protects the consumers' rights in their dealing with banks.

In terms of monetary policy, their goal is to create sustainable growth and price stability (The U.S. has no target for inflation, like we have in Denmark). In the short run these goals create a lot of conflicts.

The bank can use three different instruments to control the monetary policy:

1. Open Market Operations (to sell and buy U.S. treasury securities)

This is done by The Federal open market committee, FOMC.

The Federal open market committee consists of seven governors and five Reserve Bank presidents, who meet eight times a year. They set the target for the federal funds rate; this is the rate that banks lend each other money to. Four of the five reserve Banks are voted in every year, but N.Y. is always in the comity.

2. The discount rate (the rate at which banks borrow money from the central bank).

3. The reserve requirements.

This is the amount of money that commercial banks have in stock in the Central Bank.

This has been set to 10% in 1992 and has not been changed since, because of the costs and effort involved.

In addition to all of these responsibilities The Federal Reserve Bank stores monetary gold (gold owned by authorities) for foreign central banks, governments and international agencies. This has been done since 1924. At the moment the gold vault stores approximately \$110 billion of monetary gold. Each piece is worth \$517. This is one quarter of the world's official gold supply. In other words, this is the largest concentration of monetary gold in the world.

The bank has supervisory jurisdiction over the second Federal Reserve District, which is New York State, the 12 northern counties of New Jersey, Fairfield County in Connecticut, Puerto Rico and the U.S. Virgin Islands. It is the largest Reserve bank in terms of assets and volume of activity.

After our meeting with Mr. Howard Howe we had a guided tour, where the obvious highlight was to see the gold vault.

We would like to thank The Federal Reserve Bank for an exciting visit, where we, among other things, learned about the differences between the banking systems in the USA and in Denmark.

University Transportation Research Center 2

Visit to the University Transportation Research Center 2, 24th of September

New York is the largest city in the U.S. with around 8.2 million citizens creating a demand for intricate traffic planning systems. Furthermore, the island of Manhattan is limited from a traffic oriented point of view due to the lack of a freight transporting railroad system.

To deal with such problems the UTRC2 was founded in 1987 to monitor traffic in general. This was done when the American government split the U.S. into ten regions each having a University Transportation Research Center doing teaching and research within the area of 'traffic science'. The motivation behind the founding was also that no federation existed between various transport agencies, emergency, towing, trucking, port etc. The director of UTRC2 Dr. Robert E. Paaswell welcomed us, 17 young mathematics-economics students, at the City College of New York.

Among other things we were given a lecture by Dr. Fan Yang on the topic of using tolls including figuring out optimal prices leading to a 'traffic-equilibrium' in the sense of reducing traffic jams. An interesting fact mentioned is that one third of all traffic toll collected in the U.S. is from New York. Furthermore, as a comparison to our own assignments at the University of Aarhus, he explained that the objective functions in these tasks aren't well behaved ones. The result is of course that there is no easy way to calculate the optimal values of these functions. A fundamental problem is also that it can be very difficult to determine the utility functions of individuals, that is, to predict the reactions to a change in the toll amount.

Another lecture was given by Dr. Ellen Thorson on the topic of delivering freight while minimizing costs. I.e. a truck needs to pick up freight at certain locations in the city and deliver it to some other predetermined locations. To solve such a task she gave us a brief view on some of the algorithms she uses including the Tabu search method. Shortly described, this is a mathematical optimization method belonging to the class of local search techniques. Tabu search enhances the performance of a local search method by using memory structures; once a move is performed it is marked as "taboo" for a number of iterations so that the algorithm does not end up in the same local optimum all the time.

We also received a formulation of the problems from an economical point of view. This regarded how to determine if a project was "worth the trouble", using methods like cost-benefit analysis. An example could be to decide whether to build a new highway. Benefits include the obvious improvement of the infrastructure, reduction of traffic density and so on. On the negative side there could be speculations regarding pollution, higher risk of traffic accidents occurring and so on. The performed cost-benefit analysis is very thorough. When speaking of the traffic density, one could go into further details regarding social costs of wasted labor time and lack of accessibility for emergency vehicles due to congestion. To add even more complexity one could consider the possibility of others benefiting from congestion if two highways were to intersect at a latter point.

New York is facing some major challenges the following years such as population growth and environmental issues such as climate changes, hurricanes and higher sea level. These are all topics that the UTRC must be aware of when planning transportation in the future.

We would like to thank the UTRC and Mr. Robert Paaswell for this very interesting visit and lunch.

Carnegie, Inc.

15 students visited the Nordic investment bank Carnegie, Monday the 24th of September 2007.

Carnegie is the largest Nordic investment bank quoted on the stock exchange. Carnegie has 1100 employees in 8 countries of which the New York department employs 17. The main areas for Carnegie are securities broking, investment banking, asset management, private banking and pension advice.

The Dane Peter Bækgård (president of the New York department) welcomed us to Carnegie and told us about Carnegie in Europe as well as the New York department. Peter Bækgård received his Cand. Oecon. from the University of Aarhus. After a couple of years working in the accounting department of diabetes and healthcare division of Novo Nordisk, he wanted to see the world and travelled to New York, where Carnegie hired him as stockbroker.

At Carnegie he and his colleagues are analysing a lot of Nordic stocks. These analyses are used to advice customers about which stocks to buy and which to sell. Additionally Carnegie uses these analyses to make their own investments.

Peter Bækgård told that a typical day at Carnegie begins at 2 am, where news from the Nordic markets starts pouring in and the sales traders turn up for work. One hour later the Nordic markets open and at 5 am the stockbrokers arrive. The days' schedule is discussed and at 7 am the stockbrokers start receiving calls from customers who want advice. Besides the customer care, analyses of companies and stocks are performed to find new companies to invest in, as well as to find new customers. In the afternoon the Nordic markets closes and new ideas and analyses are performed before the brokers are leaving late in the afternoon.

Before a round trip Peter Bækgård told us about the possibilities to get a job at Carnegie and about their training program. Flair for numbers and customer care are top priorities when hiring new employees, as well as interest to the financial sector is required. He thought that studying mathematics-economics would give some important abilities towards getting a job as stockbroker or analyst in Carnegie.

We would like to thank Carnegie and Peter Bækgård for letting us visit them.

World Bank

A visit to the World Bank in Washington D.C., Tuesday the 25th of September

Arriving at the World Bank we were welcomed by Angelica Silvero. Accompanied by Steen and Michael, both Cand.Oecon from Aarhus University, we watched a movie about the work that the bank is doing around the world, its visions and goals.

The Bank fights against poverty and tries to decrease the number of people around the world that has to live of less than one dollar a day. They do this by helping children all around the world getting access to free education.

Another approach is to help countries improve their electricity and water networks. In many countries there is large number of citizens that do not have access to electricity and clean water. This is especially a problem in West Africa. Furthermore the World Bank makes a great effort to fight AIDS and to help improving the global environment.

Afterwards we were presented a slideshow on the Bank's history and organization.

The World Bank is "owned" by 185 countries, i.e. 185 countries each appoint a governor to the Board of governors. Neither of the countries "owns" more than 50% of the Bank. The United States is, with its 16%, the country with the greatest voting power.

The International Bank for Reconstruction and Development (IBRD) was established in July 1944. The mission was to rebuild Europe and Japan after World War II. The first borrower of the bank was France, which borrowed \$250 millions to finance their post-war reconstruction, this was in 1946. The greatest borrowers today include India, Argentina, Indonesia, Nigeria, Vietnam, Uganda, Bangladesh, and the Democratic Republic of Congo. Many countries who once were borrowers are donors today. One of these countries is Denmark.

The money that the World Bank spends comes from donors that give money to IDA (International Development Association) for the world's poorest countries, with additional money coming from repayments and from the Bank's earnings.

IDA started in 1960 and today consists of 165 member countries, 82 of these are recipients. 50% of the money that IDA lends goes to Africa. The World Bank works with a wide range of partners including the United Nations, the International Monetary Fund and partners in the Private Sector and the Civil Society as well.

In fiscal year 2007 the bank provides \$34.3 billion in loans, grants, equity investments and guarantees to over 100 developing countries

The World Bank has 8 official goals:

- Wipe out extreme poverty and hunger
- Get all children a primary school education
- Help women get equal rights and empower them
- Reduce death rate of young children
- Improve the health of mothers
- Battle HIV/AIDS, malaria, and other diseases
- Help countries protect their environments
- Promote a global partnership for development

Some of the goals are reached in some of the parts of the world. In Asia the number of poor people is the highest in the world, however these countries are the ones which show the most progress. Africa, however, is not bettering at all. The goal of the World Bank was to reach a level of people living in poverty in Sub-Saharan Africa of 30%. However the level today is, as in 1990, just below 50%.

The total number of staff members is about 10,000, 7,000 at Head Quarter in Washington and 3,000 in the field. They represent 170 nationalities and developing country nationals represent 55% of total staff. 1,500 of the staff members have a Ph.D.

The World Bank only grants a loan to a country if it is profitable at an interest rate of 0.75% which is for the administration charge and almost all the money are paid back. When a country is using the money they have “borrowed” in the right way, they sometimes get the opportunity to borrow more money, which they can use as they like.

After the slideshow we talked to Steen and Michael about their daily work.

Michael is analyzing data from Brazil, where they have recession. Steen is manager in Social Development; where he coordinates the collaboration of 6 sub departments. His job is to motivate his employees, make sure that they consider the people they are “working” for in the countries and see to that the money the Bank is providing is used the right way.

Moreover they told us about the Young Professionals Program, which has up to 1,000 applicants and only take in a few a year. This is a very good way to get into the Bank and get a good job. Today there are about 40 Danes in the Bank not including consultants. Most employees in the World Bank speak at least three languages; German, however, is not as useful as, say French or Spanish, but it is possible to learn more languages when you are in the Bank.

There are a lot of different types of people in the Bank, but most economists. Michael and Steen told us that it is an amazing place to work because you have the possibility of moving around in the Bank and out in “the field” and you feel that you are a part of making the world better. You don’t have an alarming amount of hours, but it is what you make of it and everybody thinks they work too much. You have 5 weeks vacation, which is pretty much in America, but if you are sick they take it from your 5 weeks. You do, however, get a higher wage compared to Denmark. The place where we can differentiate us from the economists is mostly in the research department.

We would like to thank the World Bank for an interesting day.

Metropolitan Transportation Authority

Tuesday the 25th of September, several students visited the Metropolitan Transportation Authority

The Metropolitan Transportation Authority, also called the MTA is a public benefit corporation responsible for public transportation in the U.S. state of New York.

When we came to MTA Alex Berrin, who is an analyst, came out and welcomed us. He shortly told us, that most of the employees work at the office that we were visiting and then he introduced Jim and Jeff, who are both managers in Transit Network Analysis. They talked about a model that they have made, "Demand Modeling" which is being used to plan the transportation. At the MTA they have another model to control the traffic-lights. They have a system called the GIS (Geographic Information System) that is being used to find out how far there is between two places and how you can get from one place to another, using public transportation.

The system has 3 parts. The first part is the supply service which includes all stops in the city, both stops for the subway and for the buses, and all routes between the stops. It also looks at the walk distance from where you are now to a bus/subway stop or from a bus/subway stop to the next or to the end destination. It calculates the time a given route will take. The second part is the demand trips which analyses the use of the different stations. There are 7 million trips per day, 469 metro stations and 14,000 bus stops in New York City. When the Metro Cards are being used they can see which station you went into but not where you got off and they don't know who owns the different cards, so it's only a half system at the moment. The buses will soon get a system to count how many passengers are traveling with the different buses as well. The last part is the shortest path which is the part that makes the current trips. It looks at the waiting time for the buses, subways and if you have to walk a distance. To check the model they are making tests between 8 and 9 am, because that is the busiest time of day, but they will soon begin to control the model at other times as well. The system can find the shortest way from one place to another and tell where you have to change bus/subway if needed. They are estimating to add 300 new buses over the next years to get the traffic to flow better.

At this time two other employees came in. They are the people who analyze all the information that comes in about the transportation. They give out questionnaires to people on the streets and on the stations to find out how to improve public transportation.

The last person who came in was Manager Bob Menhard and he talked about a program called HASTUS. It is a scheduling program that they only have used for the buses until now, but they are spending 2 million dollars to get the program ready for the subway system.

We thank you for a good and informative visit.

New York Stock Exchange

On Tuesday the 25th of September students visited the New York Stock Exchange

After a security check, we were introduced to our host Mr. Murray.

After some small talk about New York City Mr. Murray told us some facts about NYSE:

- 2700 companies are listed from 40 different countries – out of these 426 non-US.
- In August 2007 there was 4.3 billion shares traded per day. That is an enormous amount compared to any other month.
- At NYSE there is an Auction Market, where each broker specializes in a certain number of stocks. The broker has computers and an assistant to help him. In January 2007, the NYSE became an example of a Hybrid Market. The Hybrid markets give brokers a choice between participating in the exchange through the traditional floor broker system, or the faster automated electronic exchange system.
- 4 years ago NYSE got a new boss, who introduced the electronic trading system, and now 70% of the trades are made automatically and only 30% are auctions.
- The stocks are not season influenced, but depend very much on the World situation. For example in August 2007 a lot of positive economic announcements made the interest rate go up.
- In the future there will probably only be 3–4 Stock Exchanges world wide.
- India, Brazil and Japan are countries you should keep an eye on, because in the future they are going to have a big influence on the world economy.

Mr. Murray gave us some advice about what to do if you are going to invest. Forget about the short run assets and keep attention to the long run assets. Take a look at the Mc-Donald's assets: if you bought 100 shares in 1952, you would have been a millionaire today!!

We also talked a bit about job possibilities for young people like us. There is not a job to get at NYSE, but you could get a job on the trading floor, if you were lucky enough to get in on a trainee program at a brokers firm. It is really hard to get, but it helps if you know Japanese or Chinese. At the end of our visit Mr. Murray gave us some good advice: Do not forget to watch CNN, and more importantly read international and Wall Street papers.

NYC Department of Transportation - Traffic Management Center

On Wednesday 26th of September 2007 students visited the Traffic Management Center situated in Long Island City in Queens

The visit offered an informal introduction by Mohammad Talas, TMC's operations manager, after which we got a tour in their relatively small premises. The lack of space is being taken care of as they are in the process of building a new, larger office.

About TMC

TMC is 35 years old and monitors the traffic and the traffic signals. Furthermore they handle informing the citizens and media about the traffic situation. All cities with more than a million citizens have a TMC.

The center daily monitors 5 mil. commuters of which the main part uses the subway and about one million motor vehicles in Manhattan.

In the early seventies the traffic pattern changed, which required better control and thus TMC was established.

Some key stats for TMC:

- Every day at least 1 mil. people travel to and from Manhattan.
- They have got 5-600 vehicles pr. lane pr. hour.
- There are 16 bridges to Manhattan, which make it extra challenging to control the traffic.
- New York has about 12,000 traffic signals, of which 6,000 is controlled from the center. That is one of their most important tasks.
- One computer controls 700 traffic signals.
- They have 49 small and 6 big screens at their disposal.
- They have more than 25,000 employees.

TMC's goal is to reduce travel time and achieve the best possible traffic flow with the least possible delay. One of the challenges consists of taking into account planned events, which require redirections of traffic and altered traffic signals. Another problem for New York is the lack of space for new road constructions, therefore traffic control and best possible utilization of the existing road network is very important.

Cooperation and coordination

TMC is federally funded, and they make reports every year to the government about ongoing projects and operations. They cooperate with a big number of agencies and departments, i.e. the Police, the Fire Department, the Port Authorities, authorities controlling the bridges and the airports and sanitation. Thus, they direct much attention to coordination between the different departments. There are 4,000 police officers set aside only dealing with the traffic and TMC has its own police department as neighbors.

In addition to coordination with other agencies and authorities they also inform the citizens and media about the traffic conditions. The center delivers real time information concerning the traffic

to the citizens to their mobile phones or GPS and they have a web page where the media (and the citizens) can trace the traffic development.

In case of large accidents the government has a central unified command to control all agencies most efficiently.

Technology

TMC started surveillance ten years ago with ten cameras and today this number has grown to three hundred cameras. In five years they are expecting to reach a thousand cameras.

With the cameras they can analyze the pixels on the screens to estimate the volume of traffic and speed of vehicles automatically. The center uses fiber optic cameras to give the best performance. Furthermore they have got sensors around the city to measure the volume of traffic, the speed and the occupancy of the road network. This enables them to alarm the citizens and media when the traffic demand reaches its maximum and the center is able to provide precise and real time information to the citizens. The sensors use microwave-, GPS- and laser technology. Around the city are also placed dynamic message signs that are controlled from the center to be able to quickly redirect the traffic.

To spread the information they use TV channels, radio and as mentioned before, their website. Currently the city, including TMC, is working on a big \$35 mil. Project concerning a citywide wireless network to transmit all information instantly between fire departments, police departments and several other agencies.

On behalf of the participants we would like to thank the TMC for a very interesting visit.

AQR

Wednesday the 26th of September we visited AQR

Wednesday we visited one of the top 10 hedge funds in America, AQR. This was a trip for the students interested in studying finance in their master. We were welcomed by Lars Nielsen, a Cand. Polit. from the University of Copenhagen, who told us about how AQR operates. They estimate 1 trillion dollars alone in America is allocated in hedge funds.

Since a hedge fund invests other people's money, their clients are, in a sense, partners of the firm. AQR has 2 methods of investing, the discretionary and the quantitative method. The discretionary method is less technical where you use more fundamental analysis. With the quantitative method, on the other hand, you build a computer system, where your inputs are historical data. AQR has their own computer programmers who design the programs they use for trading. AQR normally do not change their models more than once every second month.

A typical day for an employee at AQR could start by analyzing stock data and news from all over the world. Then analyzing the portfolio, making small changes if needed, and then trading. A normal day at work would be about 10-12 hours, starting very early in the morning.

A lot of statistics, programming, economics and mathematics are used at AQR, making it a relevant place for mathematic-economics students looking for a job. Knowing at least one programming language, such as java, and one statistic program, such as sas, is very important. Being able to speak several languages such as Spanish, French or Chinese, also helps a lot.

We would like to thank AQR for having us.

Accenture

On Thursday the 27th of September several students visited consulting business, Accenture

Introduction

After we went through the security and up the elevator, we heard a short introduction of what Accenture is and does. Accenture's primary areas are Management Consulting, Systems Integration & Technology and Outsourcing, but they also take assignments by request from customers. Examples of departments in Management Consulting are Finance & Performance Management, Human Performance and Supply Chain Management. In Systems Integration & Technology the departments are for example Delivery Center Network and Global Business Solution. Accenture has offices all over the world. A few examples are India, China, England and Denmark. In New York there are about 3,200 employees; in total there are 160,000 employees.

Panel Session

A panel of 7-8 young people was introduced to us. Their background was BA, BS and masters. The panel members talked about themselves and what they do in Accenture. The word "variation" was used many times because the employees in Accenture have many possibilities. Examples are traveling, change of departments, more responsibilities and getting on to other firms. In Accenture you get a gentle start with a training program. The panel thought in general that the employees were taken very good care of and that Accenture has a great work environment.

The big global network makes it possible for the employees to travel and see many parts of the world. Even though there is a lot of work to be done, there is also time for being a tourist and see other countries.

They work about 45-60 hours per week, some weeks more than others. Much of the work is in groups, so it is not that bad to have overtime, because they never sit alone in their offices. The work in groups gives a great relationship between the employees. They all praised their jobs.

Informal Networking

Lastly we could walk around, get some fruit and ask questions to the panel. Apart from asking questions about shopping possibilities in New York, there were questions about family life, about how they could manage to have both family and job to look after. The answer was that many did not have a family yet, but it was possible to go down in hours later.

It was an educational and pleasant visit with hospitable people, thanks to everyone at Accenture.

Platinum Grove Asset Management

On the 27th of September we visited Platinum Grove Asset Management (PGAM)

We were welcomed by Charlotte Strunk Hansen, who accompanied us during the entire visit. Charlotte graduated with a Cand.Scient.Oecon and received a PhD from the University of Aarhus.

The program of the day was presented and Charlotte told us about her daily work in the research department. She does not participate in the trading but tests new programs on the market. For example, programs which should be able to forecast volatility. She uses programs such as Eviews and Matlab.

After the welcome Barbara took over. She told us about PGAM and hedge funds in general. PGAM was founded in 1999 and is first and foremost a fixed income arbitrage fund but they do work with multiple strategies. Hedge funds differ from mutual funds in a variety of ways: in general the risk and the return are larger, they charge a performance fee, and they are not open for private investors unless they have an unusually big income and amount of capital. In addition they are allowed to go short and use this to make a market neutral strategy.

Barbara mentioned that PGAM typically has a return between 10 and 15% a year and the volatility is quite low.

After the presentation South African Nevina told us more about the work in the research department where her focus is on interest rate modelling.

Then Charlotte showed us around at PGAM including the trading floor and the programmers' workplace.

After this, we met Lars, who has been the risk manager in PGAM for more than 3 years. Lars graduated with a Cand.Polit. from the University of Copenhagen, has a PhD from USA, and he has been working as a professor at the University of Copenhagen, as head of the PhD program on a French university and at Morgan Stanley. Lars recommended that we too should take a supplementary education at a good American university if we want to work in USA. After he had told us about the chances of getting a job in USA, he told us about the risk management department's work.

Because of PGAM's many different strategies, they have to relate to almost all thinkable risks. They define the concept stress loss for the individual trader as the maximum amount of money he can lose in a two week period with his present assets if any two week scenario from the last 5 years or 1998 repeats itself. 1998 is included because it was an unusually bad year. PGAM's accumulated stress loss is equal to sum of the individual trader's stress loss.

Every trader is only allowed to trade in a specific frame which means that the traders aren't competitors. Further more they must stay under a certain risk level.

After Lars had told us about risk management, Belgian Bjorn told us about his job as a trader. Bjorn told us that when he arrives in the morning many trades are already planned from the day before. If they still make sense he starts his day by realising these trades.

After this he explained the difference between relative value and macro strategies for finding optimal trades. In macro strategies you try to find the actual values in the market (for example of the interest rate). In relative value strategy you are only interested in the relative value between assets.

He went through a one factor model where you hedged against a change in the interest rate. Included in this was how to go short and long in different assets.

Finally Italian Marco told us about a program he and another employee at PGAM had made. With the help of 10,000 time series it could 3 times a day give a value of the positive or negative surprise of the market in a given country. It is still not in use, but it was an existing example of some of the research that is made in PGAM.

We would like to thank you all at PGAM for an every interesting day.

Columbia University - Department of Industrial Engineering and Operations Research

**On September the 28th a large group of the students visited the IEOR Department at
Columbia University**

We were welcomed by Jenny Mak, Director of Academic and Professional Development, who gave us a departmental overview of the Department of Industrial Engineering and Operations Research, which is the home of four different disciplines: Industrial Engineering, Operations Research, Engineering Management Systems and Financial Engineering, of which Financial Engineering and Operations Research have the majority of students. In these years the department is going through a massive growing phase.

Traci Pickerell, Student Affairs Officer, introduced the admissions procedure for a master's program normally lasting one year.

There are a number of requirements: in addition to the admissions fee, you must have one official transcript from every post-secondary institution attended, three letters of recommendation, and a personal statement and of course you're CV. You also have to pass the official Graduate Record Examination and if your undergraduate degree was received in a country in which English is not the official spoken language, it is required to take the TOEFL (an English test).

Besides a normal one-year program it is possible to combine your master's program with an MBA and finish in two years to end up in a strong position prepared for a wide variety of jobs.

A master's degree from the IEOR department gives access to a broad range of career opportunities, as a great deal of their graduates receives employment in the largest banks and worldwide consulting firms.

We would like to thank you Jenny and Traci for a pleasant and interesting day.

Columbia University - Department of Economics

On the 28th of September a little group of students, interested in national economic, who visited the economics department at Columbia University.

Our objective was to learn a bit about what kind of possibilities we as mathematic–economics students from Aarhus have at CU.

When we came to CU we were guided into a conference room, where our hosts had put out cake which we enjoyed while waiting for the lecture.

Among the people who were present at the lecture was the head of the department Janet Currie, Padma Desai (from the admissions committee) and a number of students (one from Denmark).

The main topic of the lecture was the 5 year PhD Program at CU, but some more practical issues involving life as a student in New York were also covered.

The first year of the program is basically a combination of three main courses macro, micro, econometrics and then some math as a necessary tool. At the end of each year they have examinations. In the following years the program becomes gradually more focused on independent projects. For a precise description of the five year PhD Program we recommend you to look at:

<http://www.columbia.edu/cu/economics/graduate/index.html>

At this link you will find all the necessary information.

Not everyone can participate in the program. The economic department at CU is the 11th best in the US, so it is rather hard to get accepted. Padma Desai told us about the admission procedure.

First of all they want you to note which university and country you are from. They also want to know what kind of education you have. They have some demands on macro, micro, matrix algebra, calculus and so on. Of course it is also important that your English skills are good. As a general rule no grade below B is accepted. Recommendations are also an important factor. If you want to apply for the program you have to take different tests. One is to test your math skills; another is to test your English skills. Every year many people apply for this program, and only a few get accepted. Not even half of the accepted applications are American. All applications are viewed and judged equally. That is why CU is an international University, with a multicultural milieu.

You can get accepted at CU with funding which will help cover your expenses on accommodations etc. If you get accepted with funding you will have to “work” for it, most likely as a TA (Teachers Assistant).

Another thing we asked about was if it was possible to visit the university as a PhD student from Aarhus. This is only possible if a professor from CU recommends you and allows you to work for him.

At the end of the lecture two of the students: Alex McQuoid and Asunima Sinha gave us a tour around campus.

A big thanks to everyone at the CU for having us.