

nekst

Volume 20, first edition, November 2011

Last Year's Favorite Lecturer
Prof.dr. P.E.M. Borm wins it all

Dealing with Locks and Laundry
Three freshmen living together

ASSET



Econometrics

<On the pursuit of professionalism>



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Preface

COLOPHON

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Last Touches



Having left this piece of text as my last touch to our first edition of Nekst, due to continuous postponement of me having to face the preface, I came to the conclusion it was time for me to man up and write it. What could be so hard, as I guess writing articles and handing them in in time got me on this page in the first place?

Well, you will have to talk to Fang Qi – last year's Editor-in-chief - about the handing in part, but apparently there must have been other things to last year's board liking. This 'old' board has its last outing as it reflects upon last year close to the midpage, a page on which this year's newly installed Asset | Econometrics board is presented. Much like our new chairwoman of the board concerning 'Dear Members,' I too started wondering what all those ex-Editors-in-Chief wrote about during their stint on this page. As this only made me wander off into articles where Ruud Hendricxs is featured as 'The Teacher Living in Lodges,' mathematical fairytales such as the 'Strong Law of Small Numbers' are discussed or where activities are described which I would have taken part in were it not that I was in high school at the time, I eventually stopped looking at these old prefaces as well.

In any case, besides a new face on this page, you should check out the ten new faces on page 6 where my supporting cast present themselves. They have provided me, amongst for example their valuable opinions and corrections, articles about DJ's, award winning lecturers and investigations where econometricians reside. The latter always turns out handy when curious how students manage to completely ruin their washing machines. If you are beyond comparable issues, you might be interested in reading the practical report on momentum written by Jeroen van Zundert during his time at Robeco or any of the two scientific articles.

Of course we were not so boneheaded as to completely remove the popular quatsch section, in case you skipped to the last page and felt betrayed, questioning where quatsch went. We moved this section a mere three pages to ensure that you are not reading about our activities in the second edition of Nekst, but are participating in them (or even better, writing about them). Something such as the Healthcare Symposium might be something for you to look into. Speaking of activities, if you happen to be one of the few students in Tilburg that did not go to the LEVT or are coincidentally wondering what fistball might be, then the article 'All That is LEVT' is also advisable.

Aside from activities organized by Asset | Econometrics, Tobias Klein invites us all to attend seminars of a group that was formed within the Econometrics and Operations Research Department. I for one am going to make sure I attend one of their meetings when I get the chance. I think I am going to test Littlewood's law as described by Jan Magnus regarding the preface for the second edition of Nekst, although that might yet again make this piece of text one of the last things I do before the deadline forces me to hand in the next edition. Until then, enjoy all that we have dished up for your reading pleasure in this edition.

Corné Ruwaard

Editor-in-chief

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Dear Members,

FROM THE BOARD

After a few weeks of being a board member, I am now writing my first 'Dear Members'.

To be honest, writing this article is not my favorite part of being the chairman of this study association, and that is why I first read the articles of my predecessors to see some examples.

While I was reading the first 'Dear Members' of last year, I remembered where I was at that time and what I was expecting from the upcoming year. Last year, my board members and I were just ordinary econometricians that were active in several committees. We were young and enthusiastic, but had no idea that we would be one of the board members next year. Naturally, we did not know who would become our fellow board members at that time.

At the beginning of my second year as a student in Econometrics and Operations Research, I learned a lot about risk. I also followed the news about the Dutch government and their budget problems, and during last year it turned out that there will be some cuts for students. One of them is known as "de langstudeerboete", a penalty for every student who studies more than one year longer than 'necessary'. Of course, this measure could give some problems for board members of study associations.

So if I compared this information about cuts and my knowledge about risk, it was definitely not rational to apply for a board function in April. Certainly not, because I can now tell you that applying for a board function is the same as jumping into the deep, together with four unknown people. Although I thought I was really well prepared and I knew my fellow board members well, some better than others, being a board member is an experience you cannot describe in words. You can imagine how it will be, but you only know how it feels when you have been there yourself.

Besides the fact that applying for a board is like jumping into the deep, I can also tell you that all these risks and problems are nil, when you compare them with all the wonderful experiences. Although I have only been the chairman for only a few weeks, we already organized some great activities.

One of them is, of course, the National Econometrician Football Tournament, which was organized by Tilburg this year. Despite the difficulties of the Dutch public transport system and the fact that this tournament had the most participants in the history of all National Econometricians Football Tournaments, the committee solved all problems and organized a wonderful day which ended with a nice barbecue.

Only a few days later we had another sportive activity, we participated in the 'Hart van Brabantloop'. I am very proud to tell you that we finished as 44th, which is a big improvement compared to the previous years.

I mentioned both activities because of the team spirit I experienced these days. It is nice to see that econometricians work together very well. There are a lot of people who can take an example to this co-operation. I am very proud to be the chairman of an association which has so many enthusiastic members, and I hope that in the future we will have as many possibilities as now.

This year we will lead the association, but in the future you could be one of the board members and expand these possibilities. You do not even have to know yet that you are interested in one of these positions. But first I will wish you good luck with your studies and I hope I will see you at one of our activities!

On behalf of the
Asset | Econometrics board,

Janneke van Schijndel
Chairman



An Introduction

Ashley Beringer

With her seventeen years of age, Ashley Beringer is the youngest member of the Nekst committee. Despite her age, she is a strong woman with a clear vision of life; Look at life at the bright side, do not deny your problems but solve them to make life better. Miss Beringer has got a hairy English

Cocker Spaniel dog named Doerak, and loves to walk and play with him. Special about Ashley is the fact that she can sing along with the intro tune of her favorite TV show, The Big Bang Theory. Do not let her notice she sings a bit off key, Ashley is a trained kick boxer and will kick your buttocks!



Bart de Backer

Bart de Backer is a 21 year old editor for Nekst and is a first year econometrician. This football-addicted clodhopper from Bergeijk has a lot of hobbies, especially football, going out and sleeping. Almost as important as football is watching his cherished sitcoms. According to Bart, the best is 'How I met your Mother'. No wonder his favorite quote belongs to the main character Neil Patrick Harris,

also known as Barney Stinson; "Whenever I start feeling sick, I just stop being sick and be awesome instead. True story." Bart thinks it is best not to complain. Maybe that is why he always says yes when somebody suggests something. All of the above takes so much time that he has not gotten the chance to decorate his room in Tilburg yet.

Dieuwertje Verdouw

Dieuwertje Verdouw is, thanks to her 24 years of age, the undisputed grandmother of the Nekst committee. Like any other grandmother, Dieuwertje is reliable, sensitive and helpful. But, she is also very busy. It might be because of her addiction to everything containing sugar such as

icecream, chocolate and pies. Her stressing causes her to look like Rabbit, the bunny from Winnie the Pooh. This girl with a creative mind loves kids, she wants to have a lot of them, and likes gardening as well. Her next birthday will already be her fifth personal lustrum. Please give her jigsaws.



Floris van Loo

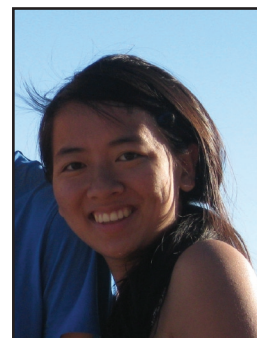
First year econometrics student Floris van Loo is a nineteen year old editor in the Nekst committee. This atheist likes reading and running, and – like Roland Daamen – he plays table tennis. Basta is his favorite TV show, because they manage to embarrass large companies. The favorite quote

of Floris is the Quote 500. The walls in his room are filled with a calendar and a broken doorbell. Probably a suggestion for a new favorite quote would be Samson en Gert's "I had to knock because the doorbell is not working" (Dutch: "Ik moest kloppen want de bel doet het niet").

Fang Qi Wu

The coordinator of the Nekst committee is Fang Qi Wu. This eloquent lady has got a special bond with music; she plays violin and piano, and even in the absence of alcohol she enjoys dancing. To quote Fang Qi in her vision on life: "I suppose life is all about enjoying yourself, as I believe you have only

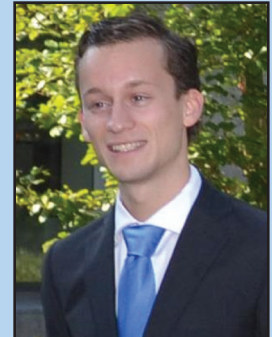
one chance to do so. Put lamely: live life to the fullest!" This twenty year old is always cheerful, has got nothing on her bedroom wall but a clock, idolizes her parents, likes reading, and is addicted to mangas (Japanese comics).



Jasper Koops

Jasper Koops, editor of the Nekst committee and treasurer of Asset | Econometrics, is a self-disciplined and helpful guy. In his daily life he enjoys cycling, running and fitness. His favorite TV show is Top Gear, because of the interesting mix between nice cars and British humor. If he had to

compare himself to a cartoon character, it would be Scrooge McDuck, because of his position of treasurer of Asset | Econometrics. Jasper's vision of life is clear: To make each day better than the day before.



Marlies Veenes

Marlies Veenes, born more than twenty years ago, is already a third year student in Tilburg. This lady without stress loves to spend her spare time doing sports, reading, or by just sitting on the couch watching her beloved series with or without her friends. By doing this, Mrs Veenes (yes, she has got

a very sweet boyfriend for over three and a half years now) hopes to live life to the fullest. Marlies is retired from collecting coasters. Nowadays, the only thing present on the walls of her bedroom is a sweet, self-painted butterfly made out of glass.

Roland Daamen

Roland Daamen is a twenty year old, third year econometrics student at Tilburg University. The best assets of this editor within the Nekst committee are his perseverance and his drive. It is questionable whether this guy will or will not get on the right track. His favorite TV shows are crime

programs such as NCIS and Criminal Minds, and perhaps even more alarming, Benidorm Bastards. If anyone wants to prevent him from becoming a mafia-mastermind, try to convince Roland during a game of chess or during a game of table tennis.



Sander Vromen

Sander Vromen, responsible for the lay-out within the Nekst committee, is a third year student Econometrics. The bedroom of this piano player is decorated with pictures taken in The Big Apple (New York City). Sander loves to spend his mornings here, with his eyes shut of course. This twenty year old boy loves bad humor. You will get this confirmed when you hear his favorite TV quote:

"Computer says no... *cough*" from the Little Britain show. Sander dreams about participating in the program Wipeout. Let us hope they will not tickle him over there, this tennis player is a very sensitive boy and resisting tickling is not his best feature.

Suzanne Vissers

Nineteen years old, first year econometrics and Yoga, these three features belong to Suzanne Vissers. This nosy girl has got a lot in common with Dora the Explorer. Beside the esthetical similarities, Dora and Suzanne both like to get involved with adventures on a daily basis. Suzanne is the perfect

woman for a lot of men in this world. Why? She loves to cook and is interested in doing the dishes. Think she is a sweet lady? No! This spicy chick can eat a raw red pepper with a single bite. Want to get in touch with Suzie? Challenge her to play a game of Pokémon on the Gameboy Color!



Text by: Bart de Backer

Econometrics, Economic Theory and Reduced Forms



Name:
Tobias Klein

Position:
Assistant
Professor

Here I find myself, writing the first column for Asset | Econometrics — a reason for me to reflect a little bit on what we are actually doing, namely econometrics. Wikipedia says that it is the discipline that “aim(s) to give empirical content to economic relations”, citing the New Palgrave dictionary in economics. A sub-discipline of it is theoretical econometrics, which is concerned with statistical properties of econometric procedures, among other things. When people say econometrics in the Netherlands, this is what they mean. But actually, econometrics is much broader. The most prestigious journal of our field is *Econometrica*, and when you visit the website looking for the “aims and scope” of it, you will find that it “promotes studies that aim at the unification of the theoretical-quantitative and the empirical-quantitative approach to economic problems and that are penetrated by constructive and rigorous thinking” (emphasis added; you find a similar statement for the *Journal of Econometrics*). Interestingly, the ultimate goal is given here, namely to study economic problems. Studying statistical properties of estimators is part of it, but ultimately we want to answer questions that are interesting in the eyes of economists.

the mechanism is through which something has an effect on something else. But they then move on and interpret their findings, having particular mechanisms or a class of models in mind. For example, when interpreting findings on unemployment duration, they will interpret their findings against the background of job search theory. Traditionally, there is a heated debate between followers of this approach, and followers of the so-called structural approach to econometrics. The structural approach is to spell out an economic model, and to estimate parameters of that model. Having the estimated parameters in hand, one can simulate how people would react to a policy change such as a tax reform that has not taken place. In a recent issue of the *Journal of Econometrics*, Michael Keane propagates the latter, in a somewhat provocative article.

What may seem confusing in this context is that every structural model has so-called “reduced forms”, which one gets by solving the model and expressing some of the variables as functions of the other variables. Under the right assumptions, this yields an equation that is linear in parameters, and that can also be estimated. Then, one estimates structural parameters from a reduced form equation. But these are often not the same reduced forms people have in mind when they read the

“Tilburg does not take sides”

This brings me to the general approach in economics. Most economists study economic problems by means of models. An economic model is an abstraction of the world, which is made to focus on just a few aspects of human behavior and interaction. It is phrased in terms of assumptions, and one can think of it as a tale. We tell a story, and thereby hopefully learn about the big picture. Econometrics is of course concerned with the empirical side to this.

When you read an applied article in the *Quarterly Journal of Economics*, you will often see that people exploit, in one way or another, exogenous variation to learn something about the average causal effect this variation has on some outcome. They then call this a reduced form approach, because they do not estimate what

Quarterly Journal of Economics. So, one way to confuse them is to ask what the equation they are looking at is a reduced form of (but many of the authors will actually have a good answer to this question). In any case, Tilburg does not take sides in this debate. There are people who pursue the reduced-form approach, and people who pursue the structural approach, also within our department. The latter have recently formed a group, and you can check their website in case you are curious. In our seminar series, you can see the whole variety of things econometrics has to offer, and you are of course welcome to attend.

Reference:

Keane, Michael (2010): “Structural vs. Atheoretic Approaches to Econometrics,” *Journal of Econometrics*, 156, 1, pp. 3-20.

Bertrand Russell – the British philosopher, mathematician and Nobel laureate – once said about English mathematics: “We have only three really great English mathematicians: Hardy, Littlewood, and Hardy-Littlewood.” This refers to the incredible partnership of Hardy and Littlewood which lasted 35 years until about 1970. The partnership was based on four unlikely premises: (1) it does not matter whether what one says or writes to the other is right or wrong; (2) there is no obligation to read what the other writes; (3) it does matter whether they work on the same problem or not; and (4) it does not matter whether one contributes much or little or indeed nothing to a joint project.

“We need data, some knowledge of statistics and common sense”

Littlewood (1885-1977) maintained that it was necessary to have three weeks of holiday, exactly 21 days. Once he had a 19-day holiday and, indeed, he was not fully refreshed. He coined “Littlewood’s law” which states that individuals can expect miracles to happen to them, at the rate of about one per month. He also maintained that you should stop working in the middle of a problem, preferably in the middle of a sentence, and not try and work at night until a problem is fully solved. The reason for this is that if you stop in the middle you need less time on the next day to warm up and get back into it. What Littlewood did not know is that the Russian psychologist Bluma Zeigarnik had published on this theme in 1927. She found that waiters remembered orders only as long as the order was in the process of being served. The so-called Zeigarnik effect states that unfinished jobs are better remembered than finished jobs. This is an attractive hypothesis, but unfortunately later research showed that it is not true. There are many other attractive hypotheses, for example that eating vegetables damages your intelligence; or that you can feel whether or not someone is staring at you from behind; or that serving first in a tennis set provides an advantage.

These things could be true, which would be interesting, but unfortunately most of such statements are not true. In order to find out whether statements are true or not we need data, some knowledge of statistics and common sense. If you look at many different events, there will be some that affirm your hypothesis. If you throw all other events away, then the remaining events thus “prove” your theory. One could even go one step further, and fabricate one’s data, as apparently our colleague Diederik S. has done. This is quite extreme and it is not encouraged by the scientific community.

While this fraud is an extreme, the whole question of honest reporting is not a question of yes or no; it is a gradual process. If one data point messes up your theory, then one

could perhaps argue that this point is poorly measured and should be deleted; then your hypothesis is true. Typically econometricians estimate many models, not just one model, and then choose the one which they like best, in other words the model which corresponds best to their hypothesis. These procedures are not considered fraudulent, but they do bend the data into the direction required by the analyst.

In a survey conducted at our own faculty, I interviewed a random selection of professors. It turns out that 83.76% of them (p -value = 0.03) engage in such dubious activities, tenured faculty slightly (but significantly) less than untenured faculty. While this proves my point, Science inexplicably has rejected my contribution.

PS by the editor: It has come to our attention that Professor Magnus has not actually conducted the above survey at all. He regrets any confusion that might have been caused, and has agreed to restrict his contributions to Nekst to four and to vacate his chair at Tilburg University in June 2013.



Name:
Jan Magnus

Position:
Full Professor

Last Year's Favorite Lecturer

Nekst proudly presents an exclusive interview with Peter Borm, winner of not one, but two Lecturer of the Year Awards. He won the awards for Best Bachelor teacher and Best Master teacher. If you have never attended any of his lectures yet, you might know him as the man who smokes cigars in front of the Koopmans building.



Name:
Peter Borm

Position:
Professor

When we enter his room, we cannot overlook his awards. On top of a big cupboard there are three certificates, two bottles of wine and a cup. He tells us that he also won the Lecturer of the Year Award in 2005-2006 and the Best Course Award in 2004 (for the course Game Theory).

When we ask him whether other teachers can learn something from him, he says they cannot. He likes the different styles teachers have and thinks that it is the responsibility of the students to learn something from the lectures. When he was a student, he saw many bad teachers, but he always managed to learn something from them and liked their different styles. Therefore, Peter Borm prefers that the teachers keep their own unique style.

He also emphasizes that being nominated meant a lot to him, as it means, obviously,

in the laboratory. Every week, he had 20 hours of theory and 20 hours of experiments. He eventually decided to switch and chose to study mathematics. He obtained both his bachelor and masters degree cum laude in four years. During this period, he lost his heart to game theory. He promoted in 1990 on game theoretic models and solution concepts. His research and most of his lectures have to do with game theory as well.

After his promotion in Nijmegen he got a job in Tilburg. Even though he has been a professor in Tilburg for 21 years, he still lives in Nijmegen. He prefers to live in a different environment than the one he works in. "I do not mind the travelling as it gives me some rest, and I can also utilize the time in the train to read the paper or to finish preparing lectures. I do not really like travelling by car, because you have to focus on driving."

"Doing research and education has merits for both"

that students like his lectures. He also finds this during the lectures, because he regularly gets nice reactions from students. Winning another award is not a target for him; he will just continue lecturing as he did before.

Youth

Peter Borm grew up in Zeeuws-Vlaanderen and went to high school in Hulst. In the last year of elementary school, he wanted to be an archaeologist or an architect. During high school he realized that he found the sciences most interesting, though he did not really want to do something technical.

After finishing high school, Peter Borm went to Nijmegen to study chemistry. However, he wanted more theory and fewer experiments

Professor

As a professor, Peter Borm does research and gives lectures, but he cannot choose amongst them: "I really like the combination, doing both research and education has merits for both. When you are teaching, it is nice to be able to tell your students about the latest developments in research. As a researcher you have to present your results to your colleagues. To do that you need presentation skills and giving lectures is a great way to improve these skills."

But there is more he does as a professor. At the moment, Peter Borm is busy writing a book which he is probably going to use for his lectures. Supervising PhD-students and



students who are writing their bachelor thesis is another task.

At the moment he is supervising Roy Lindelauf who promotes on research about terrorist networks (covered networks). How do you organize such a network and how do you dismantle it? He used a lot of game theory and tried to model and analyze these networks.

Company or University

"Do you think it is attractive for an econometrician to work for the university?" "There are quite a few econometricians who want to get their PhD (the only way to become a professor), but there are also a lot of students who decide quite early that they want to work for a company. I think you really should not make your choice too early. Until your bachelor thesis, a lot of knowledge is given to you, but you never really have to come up with things on your own. When you are writing your bachelor thesis, you are doing research, so that is the moment when you will find out whether you like it or not. Econometrics is a great study, broad and deep, with many future possibilities, so do not fix your vision too much on one particular job.

Head of Department

Peter Borm was the head of the department of Econometrics and Operations Research for almost six years. "As the head of department I had to lead 100 men. It was very different from teaching and doing research because it had more to do with managing, but I liked it. The job was really intense, though that is something you only realize when you stop being the head of department. During this job you have a lot of responsibility and you get to know many people."

"Who is your successor and what do you think of him?" "My successor, Bas Werker, has a different style; he is more businesslike. I think he matches the current dean and board better,

because they are also more businesslike than in my time.

Personal Life

Peter Borm was married and has 3 children between 12 and 16, one boy and two girls. Unlike other mathematicians/econometricians who play chess or checkers, he likes to play bridge: "It is a very interesting game; it is not only game theory, but also psychology. Experience is important, especially experience in playing with your partner, because you have to collaborate." Other hobbies of his are cycling and walking. "I like to take at least one long walk a month." Last but not least, he spends a lot of time with his children.

As was mentioned in the introduction, Peter Borm likes to smoke cigars. *"Why cigars and not cigarettes as a lot of people do these days?"* "When I smoke, I do not actually inhale the smoke. If you try that with cigarettes, they are tasteless. So I never had any reason to smoke cigarettes instead of cigars. When I started smoking, I smoked a pipe. However, when smoking a pipe you have to keep it on. Because cigars are easier, I smoke cigars now."

Do you read the Nekst, and is it better than Univers? "Yes, I read some articles that look interesting, but not everything. I think it is very nice for students that Nekst exists. Univers has become a kind of magazine, I prefer Nekst."

Which advice, following your own experiences, would you give to the econometrics students in Tilburg? "Enjoy your studies. Do not see it as an end, but as a beginning. Realize how broad your study is and enjoy your freedom."

Text by: Floris van Loo

Peter Borm's choices:

Bert or Ernie?
Bert

Wine or Beer?
Beer

Mathematics or Econometrics?
Mathematics

Stress or Boredom?
Stress

Sinterklaas or Santa Claus?
Santa Claus

Tilburg or Nijmegen?
Nijmegen

No day is the same



Name:
Roeland Pot

Age:
28

Function:
Trader

For this business interview, two Nekst editors went to Amsterdam, the financial heart of the Netherlands. One company that cannot be missed over there is Flow Traders. After a short walk around the building they are situated in, we could finally visit this interesting company.

During the tour through the company we were amazed by all the screens on the working floor. It looked like there were more than ten screens per trader. These were not screens with just some simple things, like solitaire. They were filled with graphs, numbers, excel sheets, more graphs and even more numbers. So, one thing you have to be good with, as a trader, are for sure: numbers.

The Company

Flow Traders was founded in 2004. They do not exist for that long, but are very good at what they do. They are already an international leader in electronic arbitrage trading and market making. The company has 150 employees nowadays and there are offices in Singapore and New York as well. So the trading can go on for 24 hours a day. The company has grown very fast and is still growing. Because of this short existence, the employees are also very young. The oldest is around his forties and the youngest employees just graduated from university. Another funny fact: there are no female traders working at Flow Traders. So there are surely a lot of opportunities for the female econometrics students!

Flow Traders does a lot of things. They monitor international stock markets, identify fleeting price differences between related financial products and seize upon those opportunities through intelligent electronic arbitrage processes, quickly, efficiently and almost without risk.

The Trader

The person in the chair in front of us is Roeland Pot. He is only 28 years young and has worked for Flow Traders for two years now. He started and completed his bachelor International Business and a master's in Strategy & Organisation in Maastricht. After this, he followed a master's in Finance in Rotterdam. Next to his studies in Rotterdam he worked as a broker. Roeland is very sportive, with his specialty being the four hundred meters hurdle race. He also likes kite surfing, a very challenging sport. When Roeland visited an in-house day of Flow Traders, he immediately got a good feeling about the company. "The ambition and the atmosphere of the company appealed to me." Directly after graduating in Rotterdam he started working at Flow Traders, and, if it is his call, he will continue working here for a few more years.

Foreign Colleagues

The offices in Singapore and New York were set up not too long ago. New York has existed for almost eighteen months and the office in Singapore was founded two years ago. All the local employees first get a training in Amsterdam before they start working at the respective local office abroad. The employees in Amsterdam are all Dutch, but because of these trainees you will also find foreign colleagues over there. At the overseas offices there are not only local traders, some traders from the Netherlands are also needed. So there are opportunities to work overseas within the





company. You do not have to worry that you do not leave the country when you only work in Amsterdam either. On weekdays the traders cannot be missed, as the stock exchange will not wait. So each year Flow Traders organizes an amazing weekend trip. "Last June we went to Ibiza and I have also been to Iceland once. We did pretty rough stuff there, such as riding squads."

are when the European stock exchange opens and when it closes. Then you really have to pay attention." When all the work is done for the day it is not time to go home, but the traders go to the lunch room. There they can release the pressure of the day by playing FIFA on the Xbox or playing Pacman on a special Pacman table. A poker tournament is even set up within the

Then the chance of making mistakes will probably go down.

Good Working Atmosphere

Flow Traders has several desks, all with their own specialization. At every desk there are at least two traders. "Two traders know more than one. When you see an opportunity in the market, you have to decide in a very short period

"You do not know what is going to happen when you arrive at work"

A Normal Day at Work

One of the things Roeland really likes about his job is that no working day is the same. "You do not know what is going to happen when you arrive at work in the morning. It could be quiet, but it could also happen that the world will turn upside down." The European stock exchange opens at nine in the morning. As a trader you have to be prepared, so traders usually arrive at their desks around eight in the morning. They look at the products they have in stock, make prices for the products and follow the news about the companies and other stock exchanges. When the stock exchange opens, the trading begins. When it is not that busy at the stock exchange, traders can work on the development of their strategies or on the development of the software they are using. When it is very hectic at the stock exchange, it is also very hectic at the workplace of Flow Traders. Then there is no time to do things other than trading. Around half past five the European stock exchange closes and the traders start with the last tasks of the day. "The busiest parts of the day

company, of which the winner can go to the Master Classics of poker.

Learning from Mistakes

When you start at Flow Traders, you become a junior trader. There is an in-house training which takes about two months. During this training you will build up your knowledge from scratch. "You learn much more when you have to do it by yourself, than when someone is just telling you it."

In the beginning, when you are not that specialized, but also at any other time, it could happen that you make mistakes. It happens in every company, but we can understand that making a mistake could have big consequences at Flow Traders. "Making a mistake is not that bad. The important thing is that you will learn from your mistakes. Do not make them twice. You can analyze them, so you know how to prevent it the next time. By working very precisely and by being concentrated you can minimize making mistakes." By working at a specific desk for a longer time, you will specialize in some area or strategy.

of time. It is nice to have a colleague trader who thinks with you then." As we all know, it could be very hectic on the stock exchange. "When there are only seconds to decide, there is no time for a normal talk." Each trader has five weeks of vacation a year, but a desk cannot be left alone, because then the trading would stop. If this happens you know almost for sure that you are not making money, in fact, you are probably losing lots of money. So, in good consultation with the colleague at your desk, you can plan your vacation!

The Advice

At the end of the interview, we got some advice from Roeland for all students, especially econometricians. "Finish your studies as well as possible, with good results. Properly orientate yourself and find out exactly why you want to apply for a job. Flow Traders has an in-house day once a month. When you are interested, make sure to participate sometime!"

Text by: Marlies Veenes

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TIK-week: Tons of fun?

OPINION POLL

Additional to the article on the TIK-week on page 44, we can also review the introduction week from another perspective. Is there anyone who would be better at judging the differences between this year and the previous ones than a TIK-mentor? Having been in the position of both child and parent, they know all the ins and outs.

Ilse van Loon (Fourth year student)

One of the things I missed most compared to my own year was the program at De Voltage. This made the Study Introduction Days very serious, and there were no opportunities for physical action which was regrettable. Nevertheless, this negative change in the schedule got completely compensated for by scheduling the beer cantus on Friday evening. This was a very good idea, because all groups were really close by then and Friday morning everyone was looking forward to officially end

the introduction week by singing and drinking together for two hours. It became a huge party for our group after hearing that we actually had become Mentor group of the Year! We all went insane and celebrated this achievement during the rest of the night. One of the things I enjoyed most as a mentor was trying to bring people closer together and to see that they still hang out with each other a lot. Even though the Study Introduction Days were not that much fun, there is no doubt about it that I want to be a mentor during the next TIK-week!



Erwin van Oosten (Second year student)

Pieter-Jan and I had an extremely good time during the TIK-week. The Study Introduction Days were surprisingly fun, and the way I see it, the flirt workshop was one of our greatest moments of the whole week. Our TIK-sons have already proven they learned a lot during that workshop... Of course we missed the MAK introduction camp. If you already know each other before the TIK-week, you can have a nice pre-party. Luckily, without the pre-party we exploded as well. I believe that it was

no problem that we had some international students. In my opinion it fits the ideology of Tilburg University. I think they blended perfectly and I am glad I met them. I really want to thank my fellow-dad Pieter-Jan, my 14 nice, enthusiastic and social TIK-kids and Yannick Mariman for the wonderful week we had. Who of us would have thought on Monday August 22, that later that week, Saturday eight o'clock, at the riverside of T.S.R. Vidar, with the morning sun on our faces, we would drink a Jillz before having to return home.



Nienke Marcus (Second year student)

I had the honor of being the mother of group Yellow 44, meaning that all of a sudden I had 10 sons and three daughters, together with father Thijs. Each and every one of them contributed to a great week. There was a good balance between fun and serious activities with all the parties and the two Study Introduction Days. However, these days contained a lot of useless and time consuming activities. In my opinion it would be better if there were just one Study Information Day with only informative

activities, as was the case in previous years. Because we had to go to some silly quiz, we missed the Hypnosis Show, one of my personal highlights from last year. The one thing me and my group really looked forward to was the Heineken Beer Cantus on Friday, which was a great success. I think a party in the evening would have been a better ending though. Despite the fact that I think the program was better last year, I really enjoyed showing these first year students what Tilburg has to offer.



A New Quality Indicator for Survey Response

From left to right:

Name:
Barry Schouten

Name:
Jelke Bethlehem

Name:
Fannie Cobben

Position:
Survey
methodologists
at the
Department of
Methodology
and Quality

Non-response in sample surveys is the phenomenon that elements (e.g. businesses, persons, or households) selected in the sample do not provide the requested information, or that the provided information is useless. In this article we focus on the analysis of unit non-response and its impact on the quality of survey statistics.

We speak of unit non-response when all requested information on an element is missing (the questionnaire remains empty). When only answers on some questions are missing, this is referred to as item non-response. Due to non-response, the sample size is smaller than expected. This leads to less accurate, but still valid estimates of population characteristics. This problem can be solved by increasing the initial sample size in order to meet precision levels or power analyses. A far more serious problem that may be caused by non-response is that estimates of population characteristics are biased. This situation occurs if, due to non-response, some groups in the population are over- or underrepresented, and these groups behave differently with respect to the topics of the survey. Consequently, this will lead to wrong conclusions.

by Schouten, Cobben and Bethlehem (2009). We also show how the indicator can be applied to practical survey situations.

The R-indicator

The R-indicator is computed as a transformation of the variance of estimated response probabilities to the [0,1] interval. A value equal to 1 implies representative response. A value equal to 0 implies a maximal deviation from representative response.

Suppose the estimated response probabilities for the n elements in the sample are denoted by $\rho_1, \rho_2, \dots, \rho_n$ and the sample design inclusion weights are denoted by d_i . The design weights are the inverse of the probabilities that a population unit is contained in the survey sample. Then the R-indicator is computed as

$$R = 1 - 2S(\rho) = 1 - 2\sqrt{\frac{1}{1-N} \sum_{i=1}^n d_i(\rho_i - \bar{\rho})^2},$$

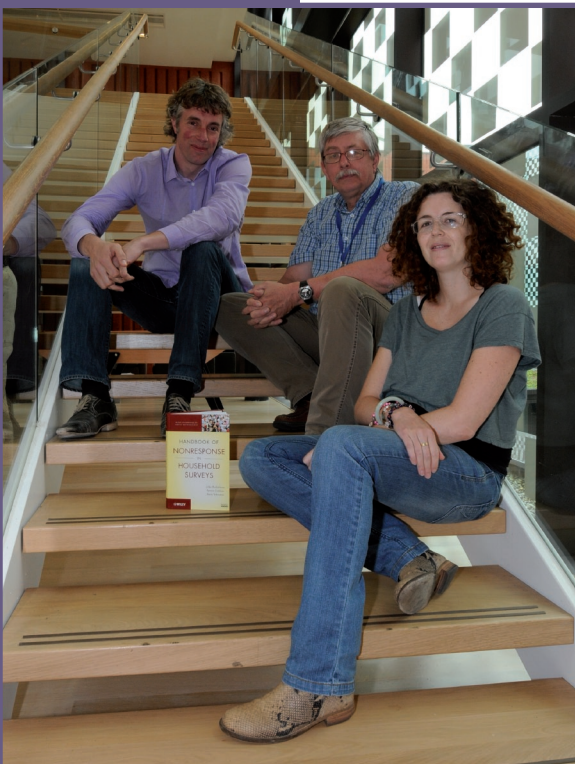
with $\bar{\rho} = \frac{1}{N} \sum_{i=1}^n d_i \rho_i$ the weighted sample mean

of the estimated response probabilities and N the size of the population.

The R-indicator thus reflects the overall variation of individual probabilities to respond to a survey. It is also possible to break down this variation into components that are attributable to different characteristics of the sample elements. Such indicators are called partial R-indicators; see Bethlehem and Schouten (2011). There are two types of partial R-indicators: the unconditional partial R-indicator and the conditional partial R-indicator.

The unconditional partial R-indicator measures how large the variation of the response probabilities is between the categories of a variable. The larger the between-category

In this article, we give an introduction to indicators that can be used to assess and evaluate the impact of non-response, so-called R-indicators. The 'R' stands for 'representativity'. The R-indicator measures whether or not the survey response is representative. If the indicator shows a deviation from representativity, there is a serious risk of biased estimates. If it indicates that the survey response is representative, estimates have a smaller risk of being biased. The R-indicator was originally proposed



Time	Retail	Manufacturing
15 days	49.5%	48.8%
25 days	71.4%	73.1%
26 days	72.9%	74.4%
27 days	74.5%	75.8%
28 days	75.7%	76.9%
29 days	76.9%	77.9%
30 days	78.0%	78.7%
45 days	85.8%	85.7%
60 days	88.2%	88.3%

Table 1 - Summary of response rates in the Short Term Statistics business survey

Table 3 - Unconditional and conditional partial R-indicators economic activity.

Days	Retail		Manufacturing	
	Unconditional	Conditional	Unconditional	Conditional
15	0.017	0.016	0.047	0.043
25	0.013	0.014	0.037	0.033
26	0.013	0.013	0.035	0.031
27	0.014	0.012	0.033	0.029
28	0.014	0.012	0.032	0.028
29	0.013	0.012	0.031	0.027
30	0.013	0.012	0.029	0.025
45	0.014	0.011	0.017	0.015
60	0.013	0.011	0.015	0.013

variation is, the stronger the relationship with the response behavior.

Conditional partial R-indicators can only be computed for variables that are included in the response model. The conditional partial R-indicator measures the importance of variables in explaining the lack of representativity, taking into account the other variables. Two variables may be important for explaining response behavior, but if they measure the same aspect of response behavior, just one variable is sufficient for explaining response and the other variable can be ignored. In other words: conditional partial R-indicators only measure 'pure' effects of variables. These are effects that are not accounted for by other variables.

Applications of the R-indicator

The R-indicator and the partial R-indicators are based on response probabilities. These are unknown and need to be estimated using a pre-defined set of auxiliary variables. The indicators therefore depend on the auxiliary variables.

The indicators introduced in this article may serve a number of purposes:

1. To compare the quality of the response to different surveys that share the same target population;
2. To compare the quality of the response to a survey longitudinally, e.g. monthly, quarterly or annually;
3. To monitor the quality of the response to a survey during data collection, e.g. after various days, weeks or months of fieldwork;
4. To improve the quality of the response by targeting groups that cause deviations from representative response and by tailoring survey designs.

The selection of auxiliary variables depends on the intended use of the R-indicator and, obviously, on the availability of auxiliary variables.

In this paragraph, two purposes are described based on applications within

Statistics Netherlands: Monitoring the quality of the response during fieldwork for the Short Term Statistics business survey and a comparison of the quality of the response in time for the Labor Force Survey.

Quality of the Response During Fieldwork: A Business Survey

The monthly Short Term Statistics (STS) survey was conducted by Statistics Netherlands in 2007. Data are considered on sampled businesses in two major categories of economic activity of interest: the Retail industry (sample size = 93,799) and Manufacturing industry (sample size = 64,413). Despite being a mandatory survey, non-response occurs, with possible reasons including lack of awareness of the mandatory nature of the survey and forgetting or refusing to respond. More importantly, response to the STS may be too late to be included in STS statistics. Estimates from the STS survey are needed 30 days after the end of the reference month, and between three and five days is needed to process, edit, impute and aggregate survey data. For the accuracy of STS statistics it is imperative to assess the impact of non-response after different periods of data collection, especially between 25 and 30 days of data collection. The question that we would like to answer: Is response sufficiently representative after 25 days?

A summary of response rates after varying periods is presented in Table 1, from which we can conclude that between 25 and 30 days the response rates go up by approximately 6%.

In order to investigate the impact of the length of fieldwork, the R-indicators and partial R-indicators were calculated

after different time periods. Auxiliary variables used to define the indicators were: type of economic activity, business size in terms of numbers of employees and total revenue reported to Tax Office in previous year.

Table 2 contains estimated R-indicators. The two sectors show different patterns of the R-indicators over time. While the R-indicator for Manufacturing grows steadily over time from 0.878 to 0.931, the R-indicator for Retail is very stable.

Table 3 contains the unconditional and conditional partial R-indicators for type of economic activity after different periods of time. Three observations can be made. First, the difference between the unconditional and conditional indicators is small. Thus, the impact of business type is not removed by controlling for business size and revenue. Second, the values of the indicators for Manufacturing are considerably larger. Given that the R-indicators are similar in size, and, hence, the variation in response probabilities is also similar, this means that economic activity has a stronger impact on representativeness for Manufacturing than for Retail. This impact gradually diminishes with time. After 45 days of data collection the partial indicators for Retail and Manufacturing are comparable in size. Third, the impact of business type is stable over time for Retail. When extra response comes in, there is no change in representativeness with respect to business type.

From these observations we conclude that there is the potential to improve representativeness for Manufacturing by speeding up response for some types of economic activity.

	15d	25d	26d	27d	28d	29d	30d	45d	60d
Retail	0.890	0.887	0.886	0.884	0.883	0.882	0.881	0.887	0.893
Manufacturing	0.878	0.891	0.894	0.891	0.897	0.901	0.903	0.928	0.931

Table 2 - R-indicators and maximal bias for Retail after different data collection periods.

Wie brengt Nederland cijfermatig in kaart?



In 2010 was de totale belastingopbrengst 145,9 miljard euro. Per inwoner betaalden we 8800 euro.



Het leven wordt ten opzichte van 10 jaar geleden als gelukkiger beoordeeld.



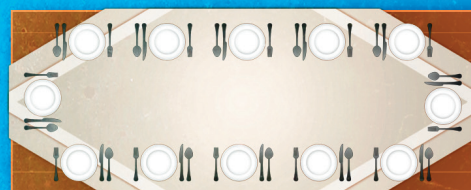
202

Dagelijks worden er gemiddeld 202 huwelijken gesloten.

Elke dag worden er 505 kinderen geboren en overlijden er 370 mensen.



Nederland telt 256 gezinnen met 10 of meer kinderen.

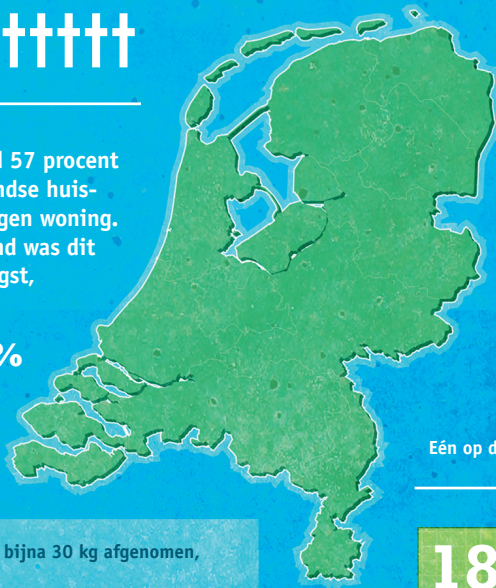


Vandaag vindt 25 procent van de bevallingen thuis plaats. In 1950 was dat nog 80 procent.



Begin 2010 had 57 procent van de Nederlandse huishoudens een eigen woning. In Noord-Holland was dit aandeel het laagst, 41 procent.

57%



Eén op de 10 bruiden is 40+



Eén op de 10 vrouwen die voor het eerst in het huwelijk treden, is 40+.

Het huishoudelijk afval per inwoner is in 10 jaar tijd met bijna 30 kg afgenomen, van 566 kg in 2000 naar 538 kg in 2010.



186
DRENTHÉ
per km²

1256
Z-HOLLAND
per km²

In Drenthe delen 186 mensen één vierkante kilometer, in Zuid-Holland 1256.



De politie lost 1 op de 50 gevallen van zakkenrollerij op en 1 op de 25 fietsdiefstallen.

Volgens de CBS-prognose is dit het aantal inwoners dat Nederland in 2040 telt

17.800.000

Duitsland is met een aandeel van 40 procent de belangrijkste afnemer van rozen.



5,4%

Het aantal werklozen is in augustus 2011 opgelopen tot 421.000. Vandaag zit 5,4 procent van de beroepsbevolking zonder werk.

100

Vandaag zijn 1804 mensen 100 jaar of ouder.

Kijk voor al onze cijfers op www.cbs.nl



Centraal Bureau voor de Statistiek

www.cbs.nl

The representativity of the Labor Force Survey in time

The first round of the Dutch Labor Force Survey (LFS) was redesigned from a single mode survey to a mixed-mode survey. Until 2009 the first round of the LFS was a Computer Assisted Personal Interview (CAPI) survey. In 2010 the first round of the LFS became a mix of CAPI and Computer Assisted Telephone Interview (CATI). Households with a registered telephone were approached by CATI and all other households were approached by CAPI. This paragraph presents the R-indicators for the first round of the LFS for the years 2006, 2008, 2009 and 2010. For 2010 both the R-indicators for the old and the new survey design are shown. Table 4 presents response rates and R-indicators for the LFS in the various years. The model used to estimate individual response probabilities was the same for all years. The auxiliary variables used in the model are: degree of urbanization, age, type of household, paid job, house value, and ethnicity.

From Table 4 it can be concluded that response rate dropped gradually over the years. However, the R-indicator remained stable. The R-indicator had the highest value for 2008. This value is significantly higher than that of all other years, except for the new design in 2010. The redesign of the LFS did not affect the representativity of the response with respect to the six auxiliary variables, despite of the low response rate in the new design. To obtain more insight into the differences over the years, the R-indicator and partial R-indicators were computed for making contact and for overall response. A reduced set of auxiliary variables was used: age, house value, and paid job. Table 5 presents the indicators for 2006 and 2008.

It can be concluded from Table 5 that with respect to making contact, 2006 and 2008 were very similar, considering the contact rate, the R-indicator for

contact and the partial R-indicator for contact. For overall response however, the values for the partial R-indicators changed. The impact of age became much smaller in 2008, while the impact of house value increased. The values of the conditional partial R-indicators for age, house value, and paid job suggest that these three variables are unrelated to contact and overall response.

	2006	2008	2009	2010 (old)	2010 (new)
Response rate	63.1%	62.1%	61.9%	59.5%	53.9%
R-indicator	0.840	0.863	0.845	0.849	0.852
C.I.	0.835-0.845	0.858-0.868	0.840-0.851	0.841-0.856	0.845-0.860

Table 4 - Response rates and R-indicators for the LFS in the period 2006 – 2010.

		Contact		Response	
		2006	2008	2006	2008
Response rate		94.1%	94.9%	63.1%	62.1%
R-indicator		0.943	0.940	0.889	0.884
P_U	Age	0.021	0.021	0.033	0.013
	House value	0.021	0.021	0.043	0.052
	Paid job	0.002	0.002	0.019	0.021
P_C	Age	0.019	0.019	0.031	0.017
	House value	0.021	0.021	0.036	0.050
	Paid job	0.002	0.002	0.024	0.023

Table 5 - Contact and overall response rates, R-indicators and partial R-indicators (P_U = unconditional and P_C = conditional) for the first round of the LFS in 2006 and 2008.

Prof. dr. Jelke Bethlehem, dr. Fannie Cobben and dr. ir. Barry Schouten have been working on nonresponse related research issues for several years, and recently published the Handbook on Nonresponse in Household Surveys at Wiley, NY.

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Momentum: What goes up, must go up?



Name:
Jeroen van
Zundert

Age:
22

Begin Studies:
2007

After an interview and an introductory meeting, I started my internship in April at the Quantitative Strategies department of Robeco Asset Management. As the office is located on the 15th floor in the heart of Rotterdam, next to the crossing of Coolingsingel and Blaak (known from Monopoly), the view at work is definitely breathtaking.

However, I did not come for the view, so instead of observing the large cruise ships and the Erasmus Bridge, I was working with MATLAB and Excel. For an econometrician, this is probably the second best way of spending time in such a place, especially if you want to write a master thesis.

The topic of my thesis is called momentum. Momentum is the tendency of rising asset prices to rise further, and of falling asset prices to fall further. This empirical observation received a lot of attention in academia after a paper by Jegadeesh and Titman (1993) in the Journal of Finance because it challenges the efficient-market hypothesis developed by Eugene Fama in the 1960's. In a nutshell, this hypothesis states that asset prices reflect all past publicly available information. Hence, if an asset (a stock, bond, commodity, real estate, etcetera) has shown positive returns in the recent past, this should not tell you anything about what is going to happen with the asset price in the future. Clearly, if the momentum effect is present, this is not the case, as you could buy stocks with positive returns in the recent past and earn a higher return than the market return on average.

Although not the topic of my thesis, it might be useful to know some of the explanations of the momentum effect proposed in the literature. Most explanations come from behavioral finance. Some of the more popular explanations: under reaction due to conservatism bias (investors do not treat new information like old information), the information diffusion hypothesis (information is not immediately available to all investors, but takes time to travel) and herding behavior (investors tend to follow other investors, hence invest in assets that have shown positive returns).

Jegadeesh and Titman tested the momentum effect in equities (stocks) using so-called top-bottom portfolios, which are sometimes also called winner-loser portfolios. After ranking the stocks on their past x -month return, five portfolios are constructed. The x is called the formation period length, and is usually expressed in numbers of months. The first portfolio contains the top 20% of the ranking, the second portfolio the top 20 to 40% and so forth. Therefore, the first portfolio contains the stocks that have shown the best returns and thus outperformed the market (hence the name winners) during the formation period. By going long in the top portfolio and going short in the bottom portfolio, a zero net investment portfolio is created. If the momentum effect is present, one would expect that the top portfolio outperforms the bottom portfolio, and thus the top-bottom portfolio should show positive returns. To illustrate the momentum effect in equities, the top and bottom portfolio returns are shown in figure 1.

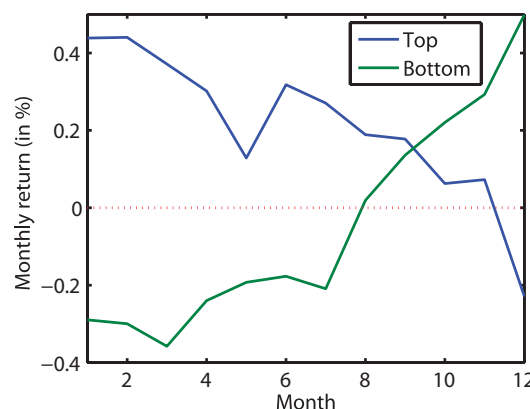
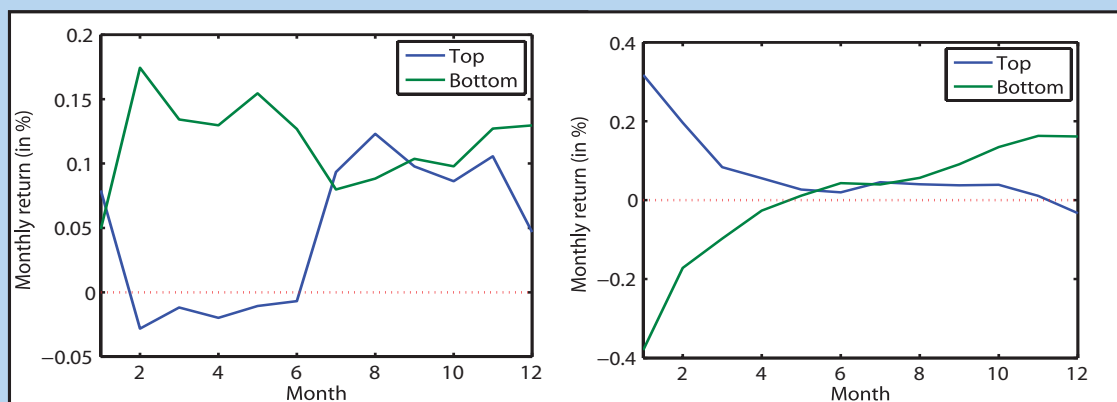


Figure 1 - Equity momentum in equities

This figure shows the returns of the top and bottom portfolios. The stocks are ranked on past 6-month returns, where month 0 is the current month. Thus the returns of the top portfolio are very high during month -5 to 0, while those of the bottom portfolio are very low (not shown in the figure). Clearly, the



Left:
Figure 2 - Bond
momentum in bonds

Right:
Figure 3 - Equity
momentum in bonds

returns of the top portfolio are higher in the subsequent months than those of the bottom portfolio, although that information was not available in month 0, illustrating the momentum effect.

At Robeco, I have been working on the credit selection model. With credits, corporate bonds are meant. This model creates rankings of corporate bonds based on a number of indicators. These rankings are then used by the portfolio managers to actually buy and sell bonds if possible, as corporate bond markets are not as liquid as the equity markets, especially not in these times of economic uncertainty. One of the indicators proposed in the literature is the equity momentum score. For each bond, the associated equity return over the past x months is calculated and used to rank the bonds. One might wonder, given the existence of the momentum effect in equities, why there is no bond momentum score being used. My supervisors were already aware of the weak predictive power of bond momentum, but, as a first step, I have investigated this issue in greater detail. Figure 2 shows the returns using the past 6 months of bond returns to rank the bonds, and figure 3 shows the returns using the past 6 month equity returns.

It can easily be observed that the equity momentum strategy earns much higher returns. Note that for bond momentum, one would actually want to play reversal, the opposite of

momentum, as the bottom portfolio shows higher returns than the top portfolio.

The returns of the top-bottom portfolios depend on the length of the holding period. The holding period indicates how long a bond should be kept in the portfolio. From figure 3, it is clear that one should replace the full portfolio each month, as the return in month 1 is the highest of all. However, this results in severe transaction costs. Hence a typical length is 9 or 12 months. This leads to lowered gross outperformance, but the net outperformance (after transaction costs) becomes higher. The formation period length can also be varied: the shorter the better in general. However, this also results in higher transaction costs, as rankings based on a short formation period tend to be less stable. Every month a new ranking is made, and the longer the formation period, the higher the similarity of the returns with those in the previous month.

The performance of the strategies can be measured in many different ways, and a particularly popular approach is to calculate the alpha. The return of the top-bottom strategy is regressed on a constant (the alpha) and several risk factors. In my thesis, I use five risk factors following Fama and French (1993): the market factor (RMRF), the size factor (SMB), the value factor (HML), the term structure factor (TERM) and the default factor (DEF). Every

factor represents the return of a zero net investment portfolio. The following time series regression results:

$$r_t^{\text{strategy}} = \alpha + \sum_j \beta_j \cdot F_t^{(j)} + \varepsilon_t$$

where r_t^{strategy} represents the top-bottom portfolio return and $F_t^{(j)}$ the return of factor portfolio j .

In general, it appears that the alpha is close to the mean return. However, in the equity selection literature it became apparent that the equity momentum strategy does not only have constant exposures to risk factors, but also time-varying exposures. Time-varying exposures indicate that the strategy is betting on the persistence of these factors, resulting in large losses if the factor returns turn. Especially in the financial crisis, equity momentum strategies lose more than the market, due to the fast turnaround of the market. To estimate these exposures, a new variable $F_{UP_t}^{(j)}$ is created, which is zero if factor j has shown a negative return during the formation period, and is $F_t^{(j)}$ if we have a positive return.

$$r_t^{\text{strategy}} = \alpha + \sum_j \beta_j \cdot F_t^{(j)} + \sum_j \beta_{UP_j} \cdot F_{UP_t}^{(j)} + \varepsilon_t$$

To test whether the exposures vary over time is equivalent to testing whether the coefficients belonging to the "UP"-variables are unequal to zero. It appears that the equity momentum strategy has strong dynamic exposures,



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especially to the market, value and default factor.

The next step is to prevent these exposures, as this is likely to reduce the losses when risk factors turn. To reduce these exposures, it is vital to understand the cause. An equity momentum strategy selects bonds for which the stock has been doing well. Suppose economic conditions are fine and the market is growing (positive return on market factor). In this case, equities with a highly positive exposure to the market factor (so-called high beta names, firms that depend heavily on the economic conditions) have an advantage: they gain additional return due to the economic conditions. Therefore, the momentum strategy "bets" in the sense that it selects bonds which do well in the current conditions, hoping the economic conditions do not change in the near future. When the economy is slowing down (negative return on market factor), the portfolio is hammered: the bet is in precisely the wrong direction. Therefore, we would like to not use the equity return, but a return corrected for these exposures. In this way, we hope to capture the firm specific information, and not the influences of the various factors. The following moving window regression, taken from Blitz et al. (2011) who applied this to equity selection strategies, is used on each point in time for each firm:

$$r_{i,t}^{\text{equity}} - r_{f,t} = \alpha_i + \beta_{RMRF,i} \cdot RMRF_t + \beta_{SMB,i} \cdot SMB_t + \beta_{HML,i} \cdot HML_t + \varepsilon_{i,t}$$

where $r_{f,t}$ stands for the risk-free rate. The residual represents the return after correction for the exposures, and can thus be used to construct a ranking. The residual is usually being referred to as the idiosyncratic component in the return, in contrast to the systemic component, which is caused by the risk factors.

Figure 4 shows the performance statistics of equity momentum and

residual equity momentum. On the left, the statistics for the investment-grade universe (higher rated bonds); on the right high-yield (lower rated bonds, risky).

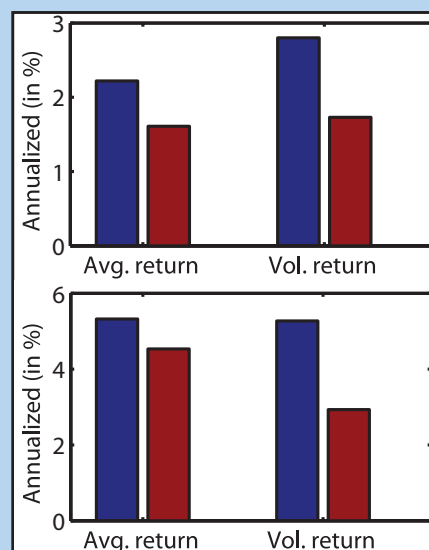


Figure 4 - Equity momentum versus residual equity momentum; on the left investment-grade, on the right high-yield

Indeed, the volatility is significantly lowered, as expected. This finding is in line with the 45% volatility reduction observed for equity selection strategies (Blitz et al, 2011). However, the mean return is also reduced, suggesting that investors receive a premium for taking on dynamic exposures. Overall, an investor is likely to prefer the residual equity momentum strategy, as the reduction in mean return is offset by the much larger reduction in volatility.

Although writing a thesis is in itself a nice experience, doing an internship at a company really adds a lot to this experience in my opinion. Not only do you get to know lots of new people, you also get a taste of what it is like to work for a company. For me, it also included living in Rotterdam for four months, which I could recommend to everybody.

Board to Board

Two months after the General Members' Meeting, the former board has slipped back in their roles of being students and they can regularly be found in the lecture rooms again. However, they were once again united as a board for an evening, when the current board met up with them to discover the ins and outs of their board year. Read on to find out what board year 2010-2011 was all about.

So, after a full year of guiding Asset | Econometrics, what was the thing our former board members are most proud of? Ad is proud he has arranged Van Lanschot Bankiers to participate in the

committee has its own characteristics. Bart K. really enjoyed organizing the Active Members Weekend, since it was his only informal activity as a coordinator. Claudia decides, after a lot

the announcement drink was the best drink of last year. Claudia did not enjoy shaking hands all night long that much but instead found it nicer to dress up for the Après Ski Drink.

	Ad	Claudia	Bart van S.	Elske	Bart K.
First at the Astrics room or last to leave?	First to arrive	First to arrive	First to arrive	Last to leave	Last to leave
Tea or coffee?	Coffee	Tea	Espresso	Tea	Tea
Meeting or lecture?	Meeting	Meeting	Meeting	Meeting	Meeting
E109, E110 or E123?	E110	E110	E110	E110	E110
Send emails or make calls?	Make calls	Send emails	Send emails	Send emails	Send emails

“Are you aware of the fact that a treasurer should be able to count the cash register?”

Euro symposium, former chairman Bart is quite proud of the relationships he established with the different Asset and LOES associations, and Bart the treasurer regards the interview with professor Merton as a personal achievement. Elske mentions the Finance Expedition and Claudia reminisces the Orientation and Information Day she organized with her committee last year. What they are most proud of as a board is the fact that Asset | Econometrics has become a professional partner to work with.

Committees & Activities

Speaking of committees, which one was their favorite? Ad and Elske find this hard to decide on, because every

of thinking, that she liked organizing the ECT the most, as it was a new activity. When asked which committee they would have liked to do, the females say LED (National Econometricians Day), Bart K. and Ad go for the Finance Expedition and Bart van S. would have liked to organize a study tour.

The answers are different when asking about the activity they liked best: Elske and Claudia choose the ECT, Ad chooses the OID, Bart van S. mentions the Euro symposium, and Bart K. thinks the Study Tour to Moscow was the best.

With regard to the drinks, they are more uniform: four out of five think

Looking Back

Now that they are students again, what do they miss about being a board member? Claudia replies quickly: “I miss the intensive cooperation among the board members.” The former chairman: “I miss having the power to make a difference for the students. As a board member you have a certain status, because you have something to offer other organizations, whereas you are usually the buyer as a student.” Bart K. misses being part of a small ‘company’, so to speak. Ad: “I miss the drive of wanting to find companies to sponsor us.” Elske’s life has become quieter, as she misses the variation in daily activities.



From left to right: Ad van Herpen, Elske Leenaars, Bart van Schuppen, Bart Kruize, Claudia Rommens

Were there things they had not expected when becoming the board? Claudia was surprised by the fact that you get to know each other that well in a very short period of time. Ad and Bart van S. were surprised by the political aspect in working together with the different Asset associations. Elske comes with something different: "I found it weird to discover you spend most of your time helping the active members, and spend less time, relatively, doing your own jobs." Bart K. did not expect that you would have such a large variety of things to do.

When looking back, there are also some things they would have done differently. For example, Bart van S., Bart K. and Ad would have spent more money on the members of our association and would have opted for a higher financial compensation for the board as well, as they had

the opportunity to do so. Our former treasurer would also have had a better look at what to spend our money on, as they still had some to spend at the end of their board year. Elske would have chosen for a less stressful way of working, as she attached too much importance to certain things which were, in the end, not that important. Claudia: "I would not have bought the board suits the day after a tough evening, especially not with Ad as the driver."

Finally, what "Are you aware of the fact that...?" would they ask themselves? We find all five of them in deep thought, but with a little help from each other, we get the following results: Bart K. would ask himself the following question, since he miscounted the amount of money in the cash register weeks before the General Members' Meeting: "Are you aware of the fact that

a treasurer should be able to count the cash register?" Ad: "Are you aware of the fact that a kapaoke (kapaoke is Russian for karaoke) bar is not a karaoke bar?" Elske: "Are you aware of the fact that having your keys in your pocket is not the same as having lost them?" Claudia: "Are you aware of the fact that the constitution drink takes place after the General Members' Meeting?" Bart van S.: "Are you aware of the fact that it is not the optimal strategy to place a voice recorder next to the telephone when you want to find out what we will do during the active members weekend?" After these 'wise' words, we wish the former board the best of luck for the rest of their study career and, personally, we cannot help but wonder what we as current board will say about these topics next year.

Text by: Fang Qi Wu

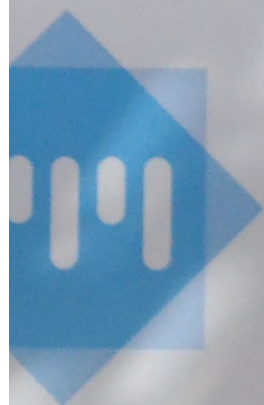
	Ad	Claudia	Bart van S.	Elske	Bart K.
Describe your neighbor in a few words	works hard, fun to hang out with, curious	ambitious, curious	accurate, resolute	patient, capable, funny	talks a lot, has his own style, sensitive to atmosphere
What do you like best about your neighbor?	Claudia does what she wants	Bart is very ambitious and this shows in his manners	The way Elske laughs when she has drunk alcohol	Bart is always himself	The way Ad acts when he is indignant
What will your neighbor be doing in a few years?	Claudia will be a risk manager at Robeco, her boyfriend will be a houseman	Bart will have a very good job at Goldman Sachs and he will work a lot	Elske will be working at a bank and will be living together with her boyfriend	Bart will be working in the actuarial field in a smaller company, while having a lot of responsibility	Ad will be a consultant and have a spontaneous girlfriend

Board 2011-2012



ASSET





Econometrics



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GMM

On the 29th of August, the first General Members Meeting (GMM) of this Academic Year was held at The Gallery. At this gathering, the members of Asset | Econometrics were informed about the activities of the association over the past year and the new board for the current year was installed.

Already around a quarter to seven, fifteen minutes before the GMM would start, I was present at The Gallery. To my excitement I noted that I was the first member to have arrived, besides the board members of course. Unfortunately not everyone was that punctual, so the first scheduled meeting had to be cancelled because the quorum was not reached. Luckily the next meeting was planned only fifteen minutes later, and the quorum was not relevant anymore.

The meeting was led by (then still) Chairman Bart van Schuppen. First up on the agenda were the minutes of the last GMM in January. Those were quickly put past us, after which it was time for discussing the activities of the committees over the past year. It turned out, not surprisingly, that every committee had done an excellent job. Subsequently, Treasurer Bart Kruize presented the financial results of Asset | Econometrics. At this point some questions were asked by the members, but Bart easily countered these small critics. Afterwards it was time for a break, which I frankly very much needed.

For people who have never been at a GMM: the break is actually one of the highlights. The catering at The Gallery is excellent and especially the so-called 'kersenflappen' are

a treat for every member. Inside they are like a cherry pie, but the outside is like a (to the Dutch people well-known) 'appelflap'. Delicious! Furthermore there is already some time to catch up with your fellow members, which is especially nice after the summer holiday, and maybe even drink your first beer of the evening. Of course the GMM was not yet finished, so after fifteen minutes or so everyone returned to their seats for the remainder of the meeting.

This marked the point at which the board of 2010-2011 would be replaced by the new board. Chairman Bart thanked his fellow board members Elske, Bart, Claudia and Ad, who all had done a great job. After this, the Chairman was praised by his colleagues and their time as a board member was basically over. Thanks guys! Now it was time for the new board to be installed. First up was Wilbert, who took over Ad's job. When Wilbert had comfortably taken his seat, his fellows Jasper, Robbert, Fang Qi en Janneke were installed as well. Good luck to all of you!

Now the GMM was led by Janneke, the new Chairman, who not at all seemed to be nervous. She presented the outlines of Asset | Econometrics' policy for the upcoming year, and after some small questions all members were satisfied. Then it was Treasurer Jasper who discussed the budget for next year. Also here some questions were asked by inspired members. Jasper however was not intimidated and calmly explained his ideas.

After the presentation of the budget the GMM was virtually over, probably to the delight of some of us. After an incredible three and a half hours, Janneke closed the meeting. Happy about the things we had heard, we left The Gallery and headed to Café Van Horen Zeggen, where we enjoyed our very first drink of the year.



Name:
Menno van Wijk

Age:
21

Begin Studies:
2008



Inventory Management Models for a Retailer



Name:
Peter Stoeltie

Position:
Intern

During the last years, many traditional retailers have added an online sales channel to their supply chain. As a consequence, firms must develop supply chain strategies that integrate their standard retail in-store channel with this relatively new online channel. To deal with these developments, we present three potential models.

With the introduction of an online sales channel, synergies may arise in the physical distribution network. In particular, retailers have the opportunity to realize benefits by combining, or pooling, inventory set aside for retail sales with inventory for online sales. Inventory pooling has the effect of increasing service level and/or decreasing total operating cost.

Districon Management Consultants supported different companies in defining their optimal Inventory Management strategy. In this article we discuss the business case of a large electronic retailer with one warehouse, fifty physical stores and a web shop. Such a system is called a two-echelon dual-channel distribution system. Demand from customers at the physical stores is met with the on-hand inventory from the bottom echelon while orders placed through the Internet channel are satisfied directly with the on-hand inventory from the top echelon. A graphical representation of this situation is given in Figure 1.

The primary interest of this research is whether online and in-store fulfillment should be handled by one central stock, two dedicated stocks, or a mixture. Note that by the term 'stock', a set of inventories is meant, not necessarily a physical warehouse. We model the web shop as a separate location in the bottom echelon. In practice, the 'web shop' is located in the warehouse.

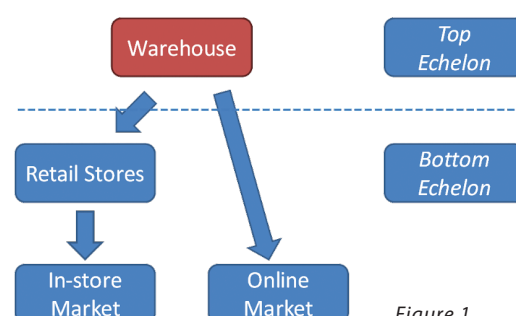


Figure 1

Inventory Management Structures

Multiple Inventory Management structures are developed. In Figure 2, three structures are shown. Concerning the central stock, we assume that replenishing the retail stores has priority over fulfilling online demand, because the replenishment of the retail stores takes place in the morning and the online orders arrive during the day.

First, each structure is explained and their advantages and drawbacks are discussed. Then, the mathematical model is presented.

Figure 2(a) – Complete pooling model

All products are placed into one central stock. Least inventory is needed to fulfill demand in this structure. However, in practice, the complete pooling model may cause delivery problems. Consider the situation in which the warehouse delivers products to physical stores in the morning, without keeping a safety stock for online sales. Then the web shop is not able to deliver products, while these products are available in retail stores. On the other hand, if online demand is relatively large during a day, the next day problems may arise by delivering the retail stores. A main advantage of this model is the simplicity of IT-related issues.

Figure 2(b) – No pooling model

Stock is dedicated either for delivering retail stores or fulfilling online demand. A main drawback of this model is that when a product is sold out in the web shop, a customer cannot order this product, while the product may have been available in the stock for delivering retail stores. The result is missed sales, which might have been avoided. In cases where the pick-and-pack process for an online order differs a lot from the process of replenishing the stores, this model could be suitable. This is particularly the case when two dedicated stocks could be located into two different buildings.

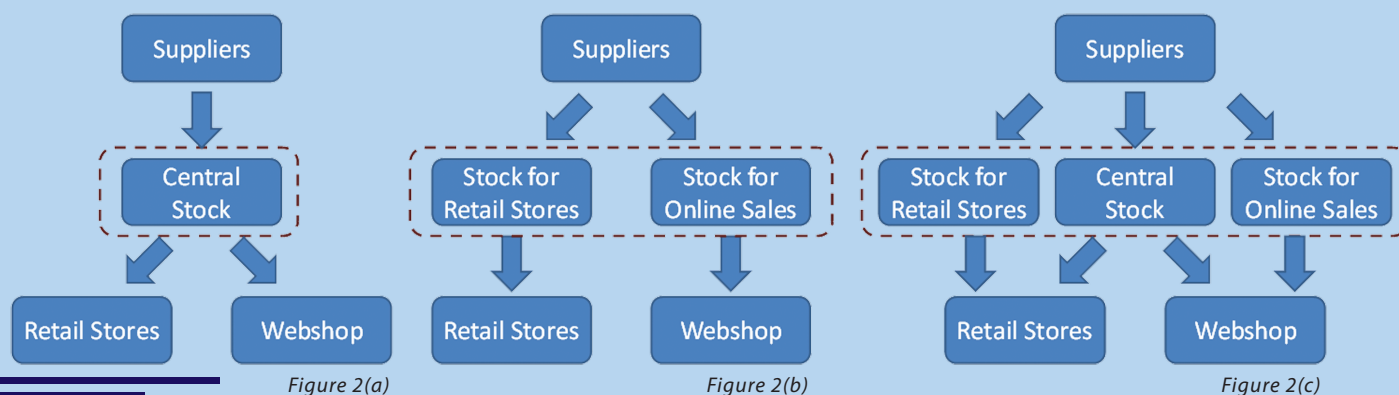


Figure 2(c) – Partial pooling model

Products are placed into a stock for delivering retail stores, online customers, or both. This model solves the previous mentioned problems. In the no pooling model, it is not possible to ship products from the stock for retail stores to online customers if necessary. In this model, if a product is not available in the web shop, but is available in the central stock, a customer can order the product and missed sales are prevented. Moreover, the two mentioned problems in the complete pooling model cannot occur, because the two dedicated stocks have a reserve stock (the central stock) for delivering retail stores or fulfilling online demand. Drawbacks of this model are the complexity of the administrative processes and the requirement of different types of stocks and processes into one building.

Description of Mathematical Model

Each structure is translated into a mathematical model. It is set up to calculate the differences for the three structures in multiple scenarios. Costs are not included in the model; the focus is on the service levels. A service level is calculated by dividing 'demand fulfilled' by total demand.

The input of the mathematical model:

- **Locations.** There are three different types: Stocks, Web shop, Retail stores. The flow of products from suppliers to the warehouse is assumed to be fixed, so the set of suppliers is not included in the model. We include a set of three stocks:

1. A stock to replenish the retail stores;
2. A stock to fulfill online demand;
3. A stock to replenish retail stores and fulfill online demand (central stock).

- **Products.** Thousands of products are included. Every product is categorized by a product type.

- **Supply from suppliers.** The retailer receives products of a certain product type at a particular day at the warehouse.

- **Online demand.** The retail stores and

the web shop are faced with daily demand for a certain type of product. The online demand is a fraction of the firms' total demand.

- **Delivery of retail stores.** The flow of a certain product type to retail stores depends on the magnitude of total demand at the retail stores.

The objective of the mathematical model is to maximize the total service level of the warehouse. The total service level is decomposed into two components. We distinguish between the web shop and the retail stores. The total service level of the warehouse is a weighted average of these two service levels.

The quantity of a product type shipped from the suppliers to each type of stock at a particular day is determined by decision variables. In the model with complete pooling, we just need one decision variable. In the no pooling model, we need two decision variables and in the partial pooling model, we need three decision variables. The quantities of other flows of products are determined by functions of the decision variables.

Besides the objective of maximizing total service level, we take into account four constraints concerning individual service levels:

- Minimum web shop overall level;
- Minimum web shop level per product type;
- Minimum in-store overall level;
- Minimum in-store level per product type.

Working of Mathematical Model

The calculation of demand fulfilled is, mathematically speaking, the most interesting part of the mathematical model. At different moments of a day, decisions have to be made about shipping products. At the beginning of a day, the allocation decision of the supply into the warehouse has to be made. This depends on the various stock levels and the expected demand from

the retail stores and expected online demand. Then, the quantity of products shipped to the retail stores has to be decided. This quantity is the minimum of demand from the retail stores and the summed inventory levels of stock for retail stores (0 in case of complete pooling) and central stock (0 in case of no pooling). After this operation, the number of products shipped to the web shop has to be decided. This quantity is the minimum of online demand and the summed inventory levels of stock for online demand (0 in case of complete pooling) and central stock (0 in case of no pooling). This daily process is depicted in Figure 3. Note that the central stock level could change three times a day and the other stock levels two times a day.

The total quantity of products shipped to the retail stores is the amount demand fulfilled for retail stores. The amount of online demand fulfilled is the total quantity of products shipped to the web shop. By summing these two quantities, total demand fulfilled is obtained. Dividing this number over total demand gives the total service level of the warehouse.

The model contains multiple logical forms, which would result in a MINLP model. By introducing binary variables and help variables, we are able to formulate the problem as a desired MIP model. This final model helps to quantitatively analyze the three structures for different data sets and parameters.

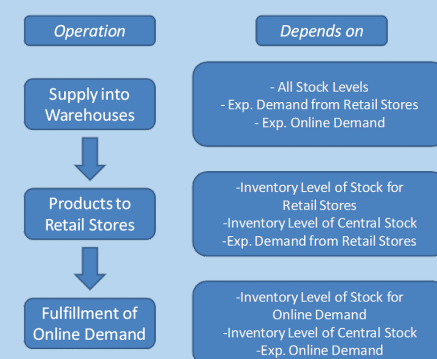


Figure 3

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28 Econometricians Run Through Brabant

HART VAN
BRABANTLOOP

On the 24th of September, through combined efforts, an Asset | Econometrics team managed to end in 44th place in this year's Hart van Brabantloop. Here to tell you all about it are Myrthe and Oliver. Asset | Econometrics will also take part in the Batavierenrace in April 2012, for which you can subscribe until November 28th.

Just half a year ago, the Rabobank Hart van Brabantloop was an unknown sports event for me. It did not take much time to make the decision if I would want to become the new technical commissioner of volunteers however. As a new student in the big city Tilburg, I wanted to meet new people. On top of that, as a person from above the rivers, I had to get to know Brabant. Why would I not do that with a relay race of 100 kilometers and 1500 participants?

My task was to arrange 150 volunteers (for example motorcyclists, masseurs, first-aiders and match coordinators) in a half year time. I stalked a lot of people with all my mails and calls, but it was wonderful to see all those



When students assemble in front of the library at 7 a.m. on a Saturday, something extraordinary has to be going on. Just like all the other students and older runners around, we had gotten up early to run the Hart van Brabantloop. Although I had expected more of a beer race – after TIK week I doubted that any event here could not involve drinking – our motivation could not be curbed by the sight of some uniformly dressed running teams or their GPS-equipped support bikes. As one might have guessed from our team name “Dus dit is géén Nordic walking?” (English: “So this is not Nordic Walking?”), we were not quite as professional.

volunteers on the 24th of September, the day of the event. So definitely, I have met new people and am not a stranger to Brabant anymore. During the months before the race, the whole committee had to cycle the entire route of the race. A hundred kilometers on a student bicycle is not that pretty, but at least I do now know how to cycle from Tilburg to every nearby village.

At the day of the event I was the passenger of a motorcycle. At the start of the day, I was a little bit frightened, but after we had raced on the motorway with 120 kilometers per hour, I could just enjoy watching the race. At each stage, I saw a lot of familiar faces, but that was not very strange with two Econometrics teams participating. The sunny weather, along with a lot of sports-loving people, made the 28th edition of the Rabobank Hart van Brabantloop an unforgettable experience.

The first stage led us out of town, along the canal, with the rising sun already raising hopes for a beautiful day of racing. But at the end of the second stage, the good mood temporarily subsided; after the final sprint there was no one to take over the jersey. So we stood and watched the runners behind us pass, while desperately trying to find out the whereabouts of our teammates. Of course they finally did arrive, and the race continued!

In the afternoon I ran a women's stage, which, in spite of the comments of the understandably indignant genuine women, went even better than the one in the morning. Unfortunately the next runners were absent again, inducing my heroic bike support to go for a second trip, unprepared.

But these minor logistical problems could not ruin a great day and both Econometrics teams made it to the finish line!



Name:
Myrthe Dekker

Age:
19

Begin Studies:
2010



Name:
Oliver Wichert

Age:
19

Begin Studies:
2011

High-security Locks, Rambling Laundry Machines and Bobobo



Name:
Robbert van
Gaal

Age:
18

Begin Studies:
2011

Address:
Paterstraat 48

Room Surface:
21 m²

Monthly Rent:
€375

On a Thursday evening, Jasper Kooops and I were on our way to the Paterstraat 48, a house we could recognize by the lack of a house number. We were quite sure that we had found the right house and we were just about to ring the door, when suddenly Robbert was waving at us from the other side of the street.

Moving In

So, surprisingly enough, it seems that Robbert's house is not the only one in the Paterstraat with a missing house number. We were warmly received by Robbert, Stefan and Coen, their housemate. While dinner was served, I took a small glance into the living room, the kitchen and the toilet. It all made a nice first impression, since everything seemed clean and quite modern. During dinner, Robbert explained that last August his parents, in accordance with Coen's parents, bought the house. The reason for this was that after Coen and Robbert, two good old friends from high school, were both sure they wanted to study in Tilburg, they opted to buy the house, for it would be cheaper than renting one. In the

clothes in the washing machine. Sadly, they forgot to take the pins out of the washing machine that kept the washing machine drum in its place. The result was that after turning it on, they suddenly heard a strange noise coming from the laundry room. It will be no surprise that this noise was being caused by the washing machine drum that was stuck in the washing machine. Another weird fact about their house is that the locks which were installed turned out to be too safe. The locks are in fact developed for government buildings, so they are not intended for private persons. Unfortunately for the boys, the locks will soon be replaced with less-safe locks, meant for "civilians".

"The locks that were installed turned out to be too safe"

first case, the idea was that they would go live together with four friends. Unfortunately, two of them dropped out, so Robbert and Coen remained. It did not take long before they found two new roommates. After a few weeks, Stefan was asked to go live with them and soon Rutger Engbers, a freshman econometrician as well, would join them too.

When the boys were given the keys of their new house, there was not much to be done in the house. Only the floor and the stairs had to be renewed and a little bit of painting had to be done before they could move in. Still, there were a few little problems while moving in. For example, Robbert forgot to bring the keys of the back door with him when they wanted to move in all the furniture. The solution was that everything had to be moved in through the windows. When the boys were finally installed in their new place, they wanted to clean their

The House

After hearing all these amusing stories, Jasper and I became curious of what the rest of the house looked like, so we kindly asked for a tour of the whole house. First, we went outside to take a look at the shed with a surface of about 10 square meters. There was nothing special in there, only a few crates of beer and a deep-frying pan that seemed to be used a lot since the last couple of weeks. When we went back inside, we took a better look at the kitchen. It was an extremely clean kitchen, considering it to be a student house, provided with a nice electric hot plate. The boys cook and eat together regularly with other econometricians. After the kitchen, we were headed for the living room. It looked typically boyish; simple and modern. With a big smile on their faces, Coen and Robbert were explaining to me and Jasper that when the battery of the remote control was empty, they took another non-fitting



battery and made their own electric circuit by means of a few screwdrivers. The only thing that was a bit disappointing to me and Jasper was the houseplant. The poor thing looked like it did not get any water for weeks. In fact, this turned out to be true. Since the boys moved in their house, they did not water the plant. At least our visit brought one advantage with it: we saved a plant's life by saying it really needs water every now and then.

After we inspected the ground level completely, it was time for us to continue our tour upstairs. Before we were allowed to enter Stefan's room, he quickly sneaked inside to hide the dirty clothes on the floor. At last we were finally invited to take a look at his room. It was quite a small room, but big enough for a bed, a closet and a writing desk. Despite the small surface of his room, Stefan is considering to change his single bed for a double bed. Being that Stefan is also a successful hockey player who plays at Shot 1, he wants to move more sports equipment into his room. Robbert's room on the second floor is twice as large compared to Stefan's. The object that immediately drew our attention was the big bed in Robbert's room, which looked like it was meant for a princess due to the pillars and the kitschy gold accents. Robbert told us that the walls of his room used to be bright green, and that on some places on the wall one can still see this through the white paint. Coen actually alerted us that this could also be fungus. Suddenly, we found out that Robbert participated in a television program called "Genante verhalen" (English: Embarrassing Stories). Because Jasper and I were getting extremely curious, we were given

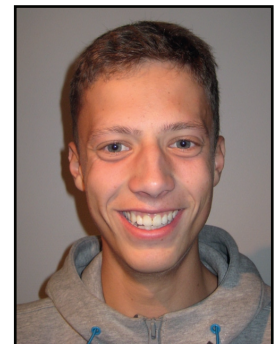
the opportunity to see the film material of his television debut. In primary school the four year old Robbert receives a love letter from a girl named Krista. But because of his dyslexia, he asks his friend to read the letter out loud, resulting in the entire classroom laughing at the poor girl. We hope that sooner or later Robbert wants to share his film material with Asset | Econometrics, so you can all see him shining in his own television program.

Living Together

Of course, we were curious how the roommates experienced living with each other. Apparently there is always a good atmosphere in the house. Upon asking whether the first quarrel has already taken place, they reply no. But obviously, minor irritations occur. For example, when Coen is listening to his metal music and the whole house is forced to 'enjoy' his music as well, or when he wants to see his favourite television program called Bobobo (real name Bobobo-bo Bo-bobo). The Japanese television program, of which no one actually knows what it is about, seems to annoy the other housemates. Jasper and I can understand why, after having seen a little bit of Bobobo.

Still, both Robbert and Stefan are enjoying living on their own. Having seen the house and having felt the atmosphere, Jasper and I know quite sure that Rutger Engbers will also have the time of his life in this student house. We would like to thank the guys for the interesting interview and the nice dinner.

Text by: Suzanne Vissers



Name:
Stefan Franssen

Age:
19

Begin Studies:
2011

Address:
Paterstraat 48

Room Surface:
10 m²

Monthly Rent:
€285

"The poor thing looked like it did not get any water for weeks"

House Music is our Future



Name:
Joost Katoen

Age:
18

Begin Studies:
2011

Vato Gonzalez, DJ Chuckie, Armin van Buuren, everyone could name some more.

Since the beginning of the year we have an actual DJ at Econometrics. So this time we have an interview with the person who likes to set the roof on fire and organize parties in Maastricht, Joost Katoen.

Joost Katoen started with music a long time ago as a drummer, when he was only six years old. As a drummer he performed at several stages in Enschede. Together with 'slagwerkgroep van Kampen' he even drummed at a festival. When Joost was twelve years of age, he moved to Maastricht. In Maastricht he came in contact with house music, thanks to all the school parties. Joost got interested and started to collect house music. He bought CDs and started following the music industry. When Joost had collected enough music, somebody explained him how to spin records. With knowledge of the basic principles, Joost started practicing at the 'Muziekgieterij'. You could find him there at least once a week for a half year. At the pop stage 'Muziekgieterij' he was able to rent a record player and the sound equipment he needed to improve himself. Around 9th grade (Dutch: "Derde klas"), Joost started practicing his current passion for the first time, namely being a DJ.

perform at a party. By expanding his network, he became a part of the DJ scene in Maastricht. It means he became known in Maastricht. It is very difficult to become a well known DJ. The connections are not easy to make and it takes a lot of time. Every DJ has a DJ name, so does Joost. In the world of house music, Joost is also known as DJ WNIQ. Since the pronunciation is a bit confusing, he helps us out a bit; it is pronounced as DJ double-U-niq.

Along the way, Joost began to develop his own style. Joost has always played house-music, but when he started, he just played the popular songs. These days he also uses tracks made by his friends who are also DJs, but not that well known in the rest of the world. Because of his own style, Joost prefers to perform alone. He sometimes spins together though, because practicing alone is a bit boring. On some occasions, Joost plays with the DJ of the house or other performing DJs. This way

"It is amazing when you see people partying at a party you organized yourself"

Being a DJ is not just playing at a party. According to Joost, learning how to play and mix recorded music is not even the hardest part. The most time consuming part of the job is collecting the music. That is why he had to buy a lot of CDs when he started. As a disc jockey, Joost has to be up to date with all new tracks. Thanks to social media, where he is connected to the most popular DJs, he is able to have the music in his collection as soon as it is published. Becoming a known DJ also relies on the connections with other DJs. Joost had to find out who decides which DJ can

Joost managed to get in touch with some of the big names such as Hardwell, and managed to perform with Vato Gonzalez.

It is hard to say if a DJ is good or not. "I know a lot of DJs, and a lot of DJs know me, but I do not know if that is a proper indication. You can be good at it but rather unknown at the same time. It can also happen the other way around, such as with singer Rinus; everybody knows him but you cannot say he is a good singer," says Joost when we ask how good he is. There are competitions for disc-jockeys



and Joost decided to participate in a few of them in the past. The number of DJs varied from 4 to 20. More DJs means everybody has less time to spin. So the participants have to convince the judges with just a few tracks. The judges look at the crowd to see which DJ makes the floor go wild the most. Though Joost has not won yet, he is happy with all the connections he has made. He learned a lot from the jury's commentary and the experiences as well. There is one competition of which he regrets he did not win. With a difference of 7 votes (both had a score near 500 votes), he ended second. Too bad he did not win, as the winner had the chance to spin on the same party as Vato Gonzalez, Hardwell & Nikky Romero and Quintino. This would be a performance for over 1500 people. Until now, the maximum was about 400/500. That could have been an impulse for his career as a DJ.

When spinning records is your passion, you do not have a lot of time left for other things. But Joost still manages to be a youth ambassador for CODE 043. People from the area of Maastricht might have heard of this organization. CODE 043 gives subsidies to people who organize events for people from 15 up to 25 years old. As a youth ambassador, Joost is responsible for

choosing which project deserves subsidies. Joost gives classes in disc-jockeying on behalf of CODE 043. He also was, in a team of three, responsible for organizing an event named MADE, standing for Maastricht's Dance Event. This was a house party, and Joost helped with arranging a location, the security, sponsors, DJs and of course the promotion. Joost is very proud of this event, "It is amazing when you see people partying at a party you organized yourself". Because it was such a success, they are planning to organize this event every two months. The next one is already scheduled in January. Joost works together with just one other person to organize the whole thing, so it takes some more time, but for sure it is going to be great!

Besides all the things described above, Joost is still a first year econometrician. Of course, this gives some complications. Sometimes, Joost is not available when he gets asked to spin, because of exams or other things he has to do for his study. It also costs a lot of energy to travel to Maastricht and come back to Tilburg the next morning when your lectures start at a quarter to nine. Joost is already experimenting with programs to write his own tracks. These programs are difficult to handle and learning how to work with them

takes a lot of time. On top off that Joost is busy downloading music for about two hours a day, meaning there is less time for homework. The profits and costs of being a DJ are approximately equal. To be able to drink some beer on a night off, Joost works every Saturday at the Albert Heijn in Maastricht. It is not weird that there is not a lot of time left for his favorite sport, cycling.

In the future, Joost would like to be part of the DJ scene in Tilburg as well. It would be great if he could perform on stage or if he could organize events in Tilburg, so he does not have to travel so much. For this reason Joost became a member of the student association Plato and he joined the 'draaierscommissie'. This committee puts on the music every night at Plato. By doing this, Joost hopes to meet other DJs and to find out who are the leading figures in the Tilburg DJ scene. Joost definitely wants to be a part of the DJ world for as long as he has got time for it. Even when it does not work out as a DJ, he would like to organize more events. Joost hopes he can fulfill his passion during his studies and beyond. Joost's personal website is currently under construction, but you can visit him soon at www.DJWNIQ.com.

Text by: Ashley Beringer

ASSET



Econometrics

Healthcare Symposium



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Operations Research in Healthcare

COMMITTEE PROFILE

On the 23rd of November, the symposium committee will organize a nice symposium. The topic of this day is 'Operations Research in Healthcare'. During this day, participants can experience how Econometrics can be applied to healthcare, and to orientate themselves on their future career.

This topic is currently high on the political agenda, as there is a lot to gain from improving healthcare and making it more efficient. During the day, we will uncover techniques for solving operational problems in order to increase the efficiency and hence restrict the rising costs of the healthcare sector. Everybody is in contact with healthcare at least once in their life, so it is clear that we need healthcare and healthcare needs operations research.

The chairman of the day will be prof.dr. R.J. Boucherie. He is a full professor at the University of Twente and is cofounder of CHOIR (Center of Healthcare Operations Improvement & Research).

During the day there will be three plenary readings, which will be provided by dr. G. Kazemier, dr.ir. E. Hans and dr. Erik-Jan Vlieger. These three speakers will approach the topic from different points of view. Dr. G. Kazemier is transplantation surgeon at the Erasmus Medical Center and is also cofounder of

Erasmus Health Care Logistics. He will tell us from a medical point of view how important operations research is for healthcare. Furthermore, dr.ir. E. Hans will also tell us how we can use operations research in healthcare. He is an associate professor at the University of Twente and is, just like prof.dr. R.J. Boucherie, cofounder of CHOIR. Lastly, Dr. E. Vlieger will give a reading. He is a partner of Plexus and currently focuses on hospitals and mental healthcare facilities.

There are four companies participating on this day. Gupta Strategists and ValueCare will provide an interesting workshop in which students can participate in groups of 25. Furthermore, MapiValues and CC Zorgadviseurs both will provide a reading. Participants can subscribe for one of the workshops or for a presentation on the website.

To conclude, this day will be very interesting and you have to be there. OR, do you know a better way to improve healthcare?



Name:
Marleen
Veldhuijzen

Age:
20

Begin Studies:
2009

Position:
Secretary
Symposium
Committee
2011



Dr. G. Kazemier



Dr. E. Vlieger



Prof.dr. R.J. Boucherie

Visiting a Warm Family in Kerkdriel

Because Daniëlle was so kind to pick us up from the train station of Zaltbommel, we only had to travel 35 minutes to reach their home in Kerkdriel where she lives with her little brother Emiel and both her parents. When we arrived, there was a nice smell of food coming out of her house, which was built by her parents 23 years ago.



Name:
Bert van Dalen

Residence:
Kerkdriel

Tip:
Stay yourself!

Bert's Life Story

Bert, the father of Daniëlle, was born in 1961 in Kerkdriel, a small village inhabited by 7000 people. He has only one brother, who is 6 years older than himself. He still meets his brother every week at his mother's retirement home in Kerkdriel. His relationship with both his mother and brother is very good. He visits his mother more than twice a week, and Daniëlle visits her 92 year old grandmother often as well. Every Saturday, Daniëlle plays Rummikub with her Grandmother, although she arrives a little bit later than she used to when she was a little girl. That is because she also has to work on Saturdays nowadays.

25 years ago, Bert married Annemiek, the mother of Daniëlle. Accordingly, they had a big party last weekend. He met Annemiek at a disco when he was eighteen years old; Annemiek was only fifteen years old at the time. Just one week after they met, he already got invited to her parents' party because they were married for twenty years. After that they got to know each other better and better and married seven years later; a point in time where they also started living together. They started out by renting a house for two years, but soon after they had the house built in which they still live in today.

The greatest hobby of Bert is sport; especially badminton. He has been playing badminton since he was ten years old. He still plays at the same club as he did when he was ten. The local club where he plays is not that big, nevertheless they did play on a high level. He won a lot of prizes, and even won from people who later competed at the Olympic Games. He did play in the national team of his work and went to matches in foreign countries. At the moment, he is not that fanatical anymore and plays just for fun. He thinks you learn a lot from playing a sport like that as he learned to be persevering and how to deal with developments.

Besides playing sports, he likes watching sports as well. He likes to watch the soccer matches of his son, but also likes watching sports on the television such as cycling, racing and soccer, especially on Sunday evenings. Another hobby of his is listening music. His favorite music is symphonic rock music; bands such as Pink Floyd, Coldplay and U2.

When Bert finished his HAVO, he continued studying and went to the MEAO (Dutch: 'Middelbaar Economisch Administratief Onderwijs'). After that he had to join the military for more than one year. Such as with badminton, he learned a lot in the military; especially how to interact with different kinds of people. He still benefits of what he learned in his life and job. In 1982, Bert joined the police where he started in administration. Because you are so close to reality, it is the nicest function he ever had. When the head of finances left the police for a while, there was a need for a temporary replacement. Bert had an economical background, so he was able to take over that function. He is still part of the police, but has had different financial functions since.





Daniëlle's Youth

Since there are a lot of nice people with the name Daniëlle (such as Daniëlle Overgaag), Daniëlle's name was on the upper part of her parents list of names. When she was born, her mother was working part time. Her father's workdays stayed the same, and he only made use of parental leave. As a baby, Daniëlle was very easy; you could easily leave her at someone other people's house. She was very shy and always saw which way the cat jumps. Going to daycare was a disaster however. One day the teacher called Daniëlle's mother to ask her to come and pick up Daniëlle, because it was not going very well. Later, when she was a little older, the same happened with swimming lessons. She hated it to go to the lessons. She felt sick and had a stomach ache an hour before the lessons started. Later it became worse and she even started feeling sick the day before, and even later the sickness already begun on Monday. It runs in the family, since her father disliked swimming lessons a well.

The group of which Daniëlle took part during her primary school was very social, just like Daniëlle herself. Even the weaker kids were protected. She had a lot of friends and could get along with everyone. Daniëlle and her brother did not have many fights either. At times they played together, but not that often because of their differences. The big difference was not just a girl or a boy thing, Daniëlle is more into music and Emiel more into sports.

At the question whether Daniëlle was a difficult adolescent, they respond that she was not that difficult; she was just like all other adolescents around her. There was one

instance though, where at an age of fourteen, Daniëlle said that she would leave her parents home immediately upon becoming eighteen. On the eve of her 18th birthday, her mother had asked Daniëlle if she already had packed her suitcases; Daniëlle did not appreciate that very much. Eventually she left her parents' house after she had studied for one year. Her parents had no problems with her moving out, because you learn a lot when you are living on your own. It was also more comfortable: no more traveling, either by herself on a scooter, or by being brought around by her parents.

Features

Daniëlle looks more like her father; especially when it comes to the drive to do something right. Perfectionism is also a feature she has from her father. Besides the looks, she also has a few features from her mother, such as her sense of humor and her passion for music. The differences are that she is more dissatisfied than her father. She also is less tidy. Another big difference is their level of math. She did not inherit her skills in mathematics from her parents. Although her father did not start the MEAO because of his math grade, he is interested in math. He has strong analytical skills and works with figures a lot.

Besides a few disadvantages, such as that children cost a lot of money and time, Bert thinks there are a lot of advantages to having children. It enriches your life a lot; you meet other parents at school, sports or music clubs, so your social environment is much bigger than those of people without children. Moreover, the development of your children is a beautiful thing to pass through; it is a challenge to put your kids into society in a good way.

On asking whether Daniëlle will be the perfect daughter in law, Bert replies that he thinks she is not right now, but she will be in the future. Nowadays, she puts too much time into school. But because she loves life, makes music and moves easily among people, he thinks she eventually will be the perfect daughter in law. In the future, he thinks that Daniëlle will have an advisory function and he likes the idea of grandchildren. For himself he hopes he will keep a nice job and that he can still enjoy life.

Text by: Dieuwertje Verdouw



Name:
Daniëlle van Dalen

Age:
20

Begin Studies:
2009

And the winner is...

When I saw the flyer of the activities on Tuesday the 4th of October, I expected a really great afternoon and evening again and so it was! The afternoon started with a 'formal' activity, the Lecturer of the Year, and ended with a drink at Café Van Horen Zeggen. Between these two activities the game afternoon took place.



Name:
Anouk Claassen

Age:
18

Begin Studies:
2011

Lecturer of the year award

The lecturer of the year award was organized by the education committee and took place at Tilbury's. We were welcomed with a cup of coffee or tea and a slice of cake. Before the winners were announced, there was a lecture about pension deals by Bas Werker. It was a subject in which everybody was interested, so a really good choice. After that, the moment was there for the announcement of the winners. The first category, the Best Bachelor Lecturer, was won by Prof.dr. P.E.M. Borm, who also won the award for the Best Master Lecturer. Marleen Balvert won the award for Best Student Assistant, because according to the students she is "very, very patient". There were also two new categories this year: the Best Dressed Lecturer and the Best English Speaking Lecturer which were won by Dr. R.J. Mahieu and Prof.dr. J.H.J. Einmahl respectively. Unfortunately, Prof.dr. J.H.J. Einmahl was not able to attend the Lecturer of the Year Award, so the Award was brought to his room afterwards.

Game Afternoon

After the 'formal' activity of the afternoon, the game afternoon took place in the Warande Building. The Drinks and Activity Committee arranged music, drinks, nuts and crisps and there were a lot of games which you could play, from 'Stef Stuntpiloot' to 'Boonanza', and from 'Halli Galli' to games on the Nintendo Wii. So everything needed to make for a good Game Afternoon was in stock. While playing lots of different games, time flies. After a while everybody got hungry, and fortunately the pizzas arrived soon. The pizzas were eaten while everybody continued playing all kinds of games, which was a really nice combination. A game which drew much participation during the entire evening was "Weervolgen of Wakkerdam". It was played in a dark lecture



room, which should make the game more real and exciting. As I already said: time flies when you are having fun, so the Game Afternoon came to its end.

Drink

To finish the evening even better, there was a drink in Café Van Horen Zeggen. Most people went home after the Game Afternoon, so it was between half past ten and eleven o'clock that most people arrived at Café Van Horen Zeggen and the drink could start. It became a bit busy, but not less fun. During the drink, people talked about the games which were played at the Game Afternoon, the lecturers who won or were nominated for the Lecture of the Year Award and a lot of other things. For me as freshman, it was a nice opportunity to meet other econometricians. It was a really great evening as I had already expected, with the free barrels of beer making the evening even better (for a poor student) than it already was.

I would like to thank the Education committee and the Drinks and Activity committee for the nice day full of Asset | Econometrics activities.

All That Is LEVT

NATIONAL ECONOMETRICIANS FOOTBALL TOURNAMENT

I had already made sure I had something to protect my shins, but my motives for doing so turned out to be false. One might expect that a soccer tournament with econometricians (out of all people) will see more injuries than goals, but as soon as I nearly got a 'panna' from a girl, I knew I was wrong.

Yes, contrary to what the introductory paragraph might have made you believe, you are reading an article about the LEVT, a soccer tournament which was hosted by Tilburg this year with a record amount of over 200 participants. It seemed as if half of the participants were from Tilburg, so Asset | Econometrics was sure to win this year, right? I will return to that later.

For all of you that do not know, LEVT stands for National Econometricians V... Tournament, where the space left out can be filled up by any sport starting with a V in Dutch. As I was interested in what tournament we might have next year, I looked up a list of sports starting with a V in Dutch. Besides fishing, combat sports, cyclo-cross, via ferrata, equestrian vaulting, free-diving, the long jump and a bunch of other things, I ran into fistball. As much as I would love watching econometricians performing a long jump or do acrobatics on a horse, I was intrigued by fistball as a number of questions popped up in mind. What is fistball? Do you need a helmet for fistball? Do we have a national fistball team? In what kind of country would fistball be a popular sport? Are econometricians likely to be good at fistball? In any case, it turns out I am more familiar with fistball than I thought, as I have been 'fistballing' ever since I had to play volleyball during P.E. class. I am not sure whether econometricians would be good 'fistballers' or not, but I am sure having a National Econometricians Fistball Tournament would be the best way of finding out (or a volleyball tournament for that matter).

As I was busy mesmerizing about fistball, you might have been wondering if this article is still about the LEVT. I could have, after all, been writing about my team's run to the final, a goal by our top scorer Dimphy or any organizational

mishaps. Well, to tell you the truth, I did not come by any organizational displeasures, and I am confident Ruud Hendrickx did a good job of lighting up the barbecue. I did not check if he was worthy of a TEV Barbecue Masters spot however, as I was not able to stay. Our team's run to the final came to a brutal end in the group stages, so we have been demoted to the Monday night competition at the sports center. With a team partly consisting of Teun Franssen, Pascal Heuijers and the van Heijst brothers, the LEVT committee - rightly so - put us against the eventual winning finalist from the University of Amsterdam in our first game, making all other games redundant. I hate to say we lost that game, but at least with less a difference than the actual final. Does this make us second? Does putting Barcelona, Man U, Real Madrid and Bayern München together in the group stage of the Champions League make any sense? I think I have proved my point. As far as next year's edition of the LEVT is concerned, I will be ready for anything, be it fistball, acrobatics on a horse or something else.

Text by: Corné Ruwaard



An unforgettable week in Tilburg

TIK-Week 2011 took part from the 22nd until the 26th of August. This week is for all students who start studying at Tilburg University, Avans or Fontys. It is a great opportunity to get many useful introductions for the upcoming life as student and to get to know lots of nice people and parties. I really highly recommend it!



Name:
Tim Sergio
Wolter

Age:
17

Begin Studies:
2011

Day one – Monday

Since I am German, Tilburg and Tilburg University were completely new things to me. I had just finished school in Germany and now I was a foreign student at a university in a different country with a different language! After successfully completing the arrival days on the previous Friday, I went home to get to know my five international housemates.

After I got to know my two helpful mentors and the other 15 group members in the morning, we went to the city center where the well organized TIK-festival with entertaining music was already waiting for the thousands of new students participating in the TIK-week 2011. We got lots of information about different student associations and I directly registered for Asset and IESN. I

proceeded with a campus tour, but of course we did not manage to see every building on the campus in detail. We also went to Asset | Econometrics, where you can get a 20% book discount amongst other things. In the evening, we went to one of the student associations called Plato, but we left after a few hours to finish the day with a nice pub crawl with our group.

Day three – Wednesday

After two consecutive long nights, we finally had the opportunity to sleep a little longer this morning. Wednesday was Games Day! It was probably the greatest day in TIK-week; we spent the whole morning and noon at the Leijpark which was transformed into a games paradise with many different games, especially

“We even sang a German song called ‘Trink Brüderlein, trink,’ a well known song for all Dutch”

was actually the only non-Dutch member of our group, but that was no problem since everybody was very kind. In the evening, after having had a great BBQ with all the groups, TIK-week officially started and we took part in an interactive dance show in an enormous marquee. Further on and after a couple of beers, we went to the most popular huge club in Tilburg, 013, where we partied all night long...

Day two – Tuesday

On the next day in the early morning, everybody was still not completely recovered, but enthusiastic about the day ahead of them nonetheless. We started the day with a presentation of the IT-facilities who invited us to find out more about our study and the different courses. After that we

water games. Everybody had lots of fun, even though it started raining a bit later on. In the afternoon we went home to relax before preparing again for another great evening. We met at the Heuvel, a well known place in the city center with many different bars and pubs, amongst others the ‘Philip.’ This is a big pub which is always crowded, equipped with a DJ and dance floor which we visited twice that week. From there we went to Olof, another student association where we spent our third evening.

Day four – Thursday

On Thursday we had our second Study Introduction Day, where we heard another presentation of one of our Professors in the

upcoming courses after our breakfast. We were introduced to things such as what we have to expect in the next week or where to be on Monday. We also learned how to use Blackboard and computer systems of the University.

In the afternoon we went to Vidar, a student association which focuses on rowing. Our group also had the opportunity to row by ourselves in boats of four persons each; everybody had lots of fun and I guess it was a new experience for all of us. We stayed there the whole evening because it was relatively far away by bike from Tilburg University, but we had some nice drinks, much fun and we could listen to a live band. We also were invited to the huge Afterparty taking place at the end of the next day.

Day five – Friday

When I woke up this day, I unfortunately realized that it was already the last day of this unforgettable TIK-week... I could not participate at the morning program because I had troubles with my student number and access on Blackboard so I had to go to the

student desk that helped me out, but I could rejoin my TIK-group in the afternoon to have a nice swim together.

In the evening we had the highlight of the week: The so-called TIK-cantus! It took part at the same location as on Monday; in the huge Marquee. We had lots of fun and beer and sang many songs together, even a German song called “Trink Brüderlein, trink”, which is a well known song for every Dutch person.

But then it was time to say goodbye. Most students of our group were going home over the weekend, because they either did not have a room in Tilburg or wanted to see their families and friends again, but I stayed in Tilburg that weekend with three other guys and we went to the Vidar after party and had some more entertainment there.

Looking back at this week, I have had a great time and it was a great experience! I would certainly recommend participating in the TIK-week to everybody, as you get to know your fellow students and many more much better.



Games and Spaghetti

After a long week of studying, we finally had some distraction. A day full of joy and happiness: the Asset | Econometrics introduction day. The participating students gathered in a room where they had lunch and got divided into groups. We had a six man group and a guide.



Name:
Jeroen Pars

Age:
19

Begin Studies:
2011

During the first part of the day, we played games such as Charades (Dutch: Hints), a Dutch game called '*Je zult het maar hebben*', a Radio-controlled car racing game and a picture hunt. These were four games we, despite a lot of effort, lost. After these games we had a well-deserved break with some drinks.

With only two games left, we did our best to win the next one: the quiz. This however was one big disaster. Not because we were too dumb (no definitely not), the questions were just impossible. After losing the quiz as well, we were determined to win the last round, the tasting contest. There were three different cups containing coke, and three different cups containing beers, with our job being: telling which drink belongs to which brand. The coke tasting was a piece of cake, leaving us only the beers. First of all, it was canned beer and it was warm, so our drinking experience advantage was useless. Still we tried our bests to get these right as well. We stood with the beer in our hands and we tasted and tasted and tasted again. After a lot of tasting and a little discussion, we thought we had the answer. With the answer written down we were hoping

for the best. Unfortunately, we made an error as we had mistaken Heineken for euro-shopper beer. The four correct answers we gave should have surprisingly been enough to win this round were it not that the biggest challenge had yet to come. This was not so much a tasting contest but more like a 'just swallow it' contest. Everyone got a plate with pink, cold, nasty looking spaghetti dipped in the worst chocolate sauce ever made. And as you may have guessed, we had to eat it without a fork. Disgusting spaghetti after disgusting spaghetti we swallowed. Ignoring the man inside my head screaming no more, I finished my plate just like the rest of my group. And so we won a game!

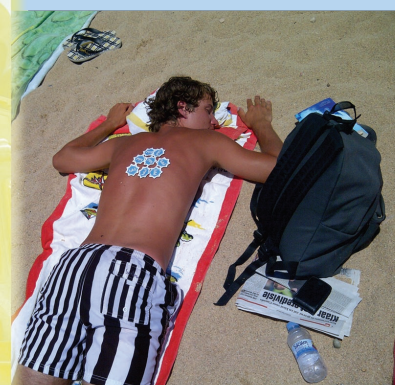
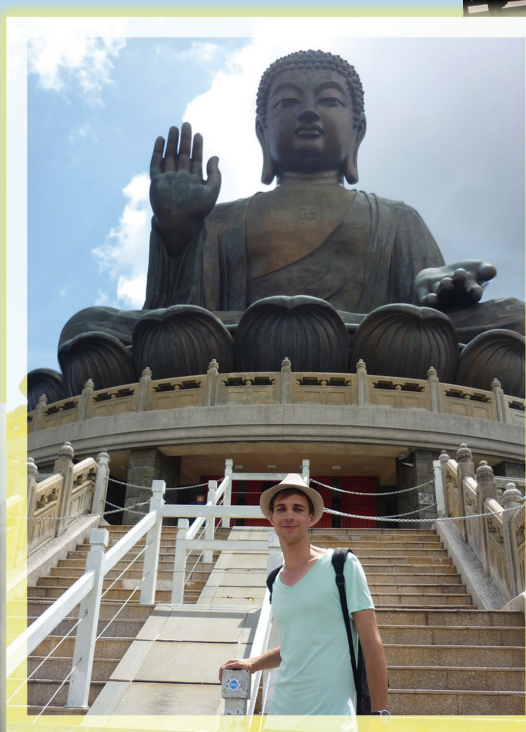
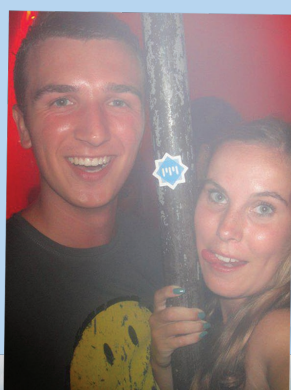
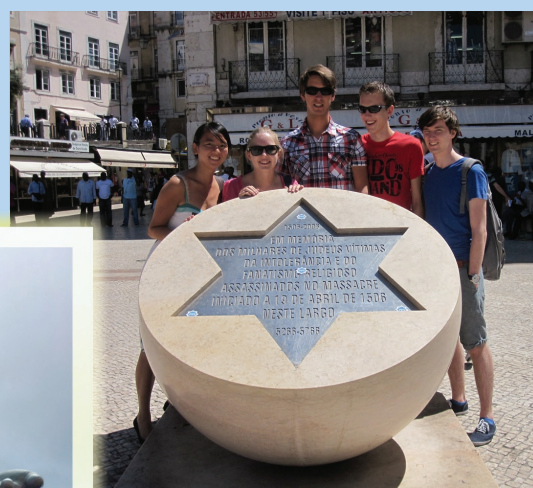
This was the end of the first part of the day. The second part also included some small games. The big difference was that now we could see all the other groups. So you could see the other groups performing better than your own group. And as this was a knock out race, losing a game meant you were out of the contest. The games however turned out to be way too easy. All the groups passed until the final game. This was putting an exact amount of water in a bottle. Because you had to do math for this, we screwed up. And so did almost everyone else, but for one group.

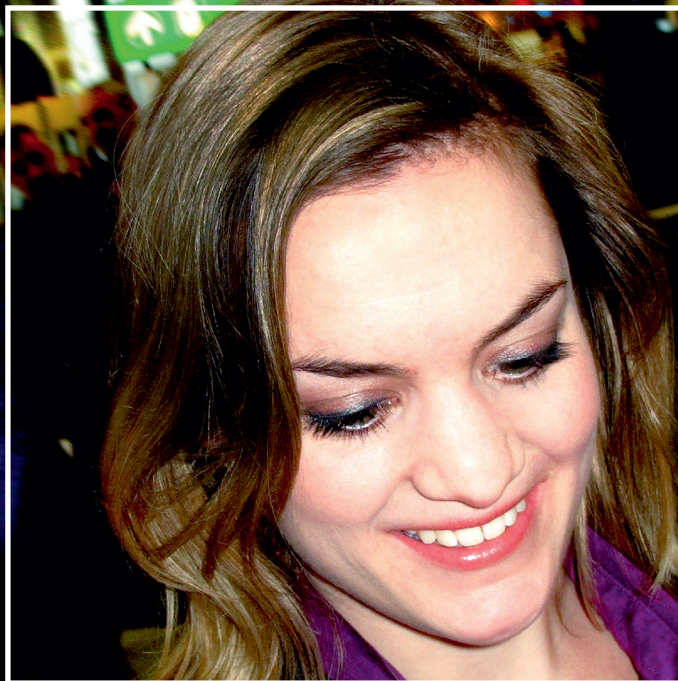
Since it had already become evening, the barbecue was about to start. I had a nice meal with my fellow students. Soon after the big after-TIK party begun. Every freshman of the whole university had been invited for the after-TIK at 013. Here we partied like crazy with the big Jeronimo, of course singing: "I am no superman!" Our favorite song with our favorite dance was the end of a great day.



SUMMER PHOTO CONTEST

Together with last year's Editor-in-Chief, it was decided that **Jeroen Dalderop** (starring the picture in the middle) is the well deserved winner for the second year in a row. Congratulations Jeroen, we invite you to come over and claim what is yours, a pie or a crate of beer!





Marleen van Dijsseldonk, 25 jaar
Junior adviseur KPMG Advisory



*"Onderweg naar een opdracht bij een klant
in #Barcelona. Weekendje shoppen eraan
vastgeplakt met vriendin daar."*



Over the past few months, the editorial staff of *Nekst* received many quotes that relate to the study of Econometrics and to the activities organized by Asset | Econometrics. Therefore, we present to you a well-filled page with some striking and funny quotes! Please mail all remarkable quotes you have heard to Nekst@Asset-Econometrics.nl

English quotes

Juan Vera during a lecture of Nonlinear and Robust Optimization: "Have you ever been..? No, I am not giving you this example. Well, it is something about men, women and parties!"

John Einmahl during a lecture of Statistics for Econometrics: "Sometimes you have to do something smart."

Dutch quotes

Robbert van Oosten over een kok die een barbecue draagt: "Die man heeft vingervaste handen."

Joep Hendriks tijdens de symposiumvergadering: "Hoeveel mappen hebben we nodig voor het symposium?" Has van Vlokhoven: "We bestellen er 150." Joep: "Zoveel?! Ik denk dat 100 mappen begroten een beetje krap is, maar met 110 hebben we er zeker wel genoeg!"

Ad van Herpen: "Praatte ze makkelijk of lulde ze gewoon veel?"

Senna Jansing over het printen van flyers: "Dat gaan wij straks met de hand doen."

Daniëlle van Dalen: "Goh Janneke, wat moet er ook alweer in die aardappelschotel met spekjes, ui en broccoli?" Janneke van Schijndel: "Spekjes, ui en broccoli."

Marleen Veldhuijzen wanneer iemand het juiste antwoord raadt: "That was a good gok."

Frans Fonville: "Maar er zit geen 'i' in symposium."

Cas Luijten: "Is min drie ook een wortel van negen?"

Janneke van Schijndel over een afspraak maken met Geert Alkema: "Moet ik Geert mailen dat ik hem gereserveerd heb?"

Robbert van Oosten: "Bestel anders flesopeners." Jasper Koops: "Een kurkentrekker dus."

Daniëlle van Dalen: "Amsterdam ligt toch links van Utrecht?" Marleen Veldhuijzen: "Meen je dat?" Daniëlle: "Ligt Utrecht dan links van Amsterdam?"

Rick van de Meulenhof: "Ik wil niet iedereen over een schaaпscheren, maar..."

Claudia Rommens over de advertentie van APG: "Als ze al een standaard zwart-wit logo in kleur hebben, dan mogen ze dat ook opsturen."

Daniëlle van Dalen: "Ga je morgen ook mee naar de kliniek?" Jorrit ten Brinke: "Welke kliniek?" Daniëlle: "Die van tennis?"

Harold van Heijst over de Tour de France: "De avondetappe begint zo." Stéphanie van Breda: "Ik snap het niet. Dan hebben ze de hele dag gewielrend en dan moeten ze 's avonds nog een keer?"

Robbert van Oosten: "Wil je Fang Qi soms donker voeren?"

Janneke van Schijndel, Marleen Balvert en Fang Qi Wu over slimme vrouwen: "Jasper, zou jij vallen op iemand die slimmer is dan jij?" Jasper Koops: "Bij voorkeur niet." Janneke van Schijndel: "Nou, dan vallen wij al af."

Daniëlle van Dalen: "Waarom praat hij tegen mij? Ik ken hem niet." Senna Jansing: "Misschien dacht hij wel dat je iemand was!"

Robbert van Oosten over algemene kosten op een begroting: "Dat valt dan onder overheat kosten."

Sander Vromen op het strand: "Tijd voor een schoonheidsslaapje." Rutger van Alphen: "Misschien word je dan bruin wakker."

Janneke van Schijndel: "Een collega bij mijn moeder op het werk heet Doppie." Marleen Veldhuijzen: "Zo wil ik later ook heten."

Ad van Herpen is vulploegleider bij de C1000. Ad: "Dus ik ben een VPL." Janneke van Schijndel: "Ik ben hoofdcaissière." Sanne van Helvert: "Jij bent dus een HK." Janneke: "Nou, dan ben ik nog altijd HC."

"Marleen Veldhuijzen: "Van Pfeiffer worden je ogen een beetje geel." Daniëlle van Dalen: "Oh, ik dacht dat dat blauwe van je ogen dan geel werd!"

Asset | Econometrics congratulates...

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Supervisors: Dr.ir. J. Ashayeri, Dr. J.P.C. Blanc

...on obtaining their Master's degree.

Maxim Kontsevich and Don Zagier

PUZZLE

In this first edition of *Nekst*, we present to you a puzzle made by well known mathematicians Don Zagier and Maxim Kontsevich.

For every $\alpha, \beta \in \mathbb{R}$ we define

$$R_{\alpha, \beta} = R = \{x_i \mid i \in \mathbb{Z}_{>0}\}$$

by:

$$x_1 = \alpha, \quad x_2 = \beta, \quad x_i = |x_{i-1}| - x_{i-2} \quad \forall i > 2.$$

Find $N \in \mathbb{Z}_{>0}$ such that for all $\alpha, \beta \in \mathbb{R}$ and all i we have that $x_i = x_{i+N}$. Prove that this is indeed the case.

Please send your solution to Nekst@Asset-Econometrics.nl before the 5th of December, 2011.

A crate of beer or a pie, whichever the winner prefers, will be waiting for whoever has the best (partial) solution! As no one was able to solve the previous puzzle, we provide the solution below.

Nekst 4 2010-2011

Of $a, b, c \in \mathbb{R}$, it is known that

$$a + b + c = 3$$

$$a^2 + b^2 + c^2 = 9$$

$$a^3 + b^3 + c^3 = 24$$

Calculate $a^4 + b^4 + c^4$

$$(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2ac + 2bc$$

$$\Leftrightarrow 9 = 9 + 2ab + 2ac + 2bc$$

$$\Leftrightarrow ab + ac + bc = 0$$

$$(a + b + c)^3 = a^3 + b^3 + c^3 + 3a^2b + 3ab^2 + 3a^2c + 3ac^2 + 3b^2c + 3bc^2 +$$

$$\Leftrightarrow 27 = 24 + 6abc + 3a(b^2 + c^2) + 3b(a^2 + c^2) + 3c(a^2 + b^2)$$

$$\Leftrightarrow 1 = 2abc + a(9 - a^2) + b(9 - b^2) + c(9 - c^2)$$

$$\Leftrightarrow 1 = 2abc + 9(a + b + c) - (a^3 + b^3 + c^3)$$

$$\Leftrightarrow 1 = 2abc + 27 - 24$$

$$\Leftrightarrow abc = -1$$

$$\begin{aligned} (a^3 + b^3 + c^3)(a + b + c) &= a^4 + b^4 + c^4 + a^3b + ab^3 + a^3c + ac^3 + b^3c + bc^3 \\ &= a^4 + b^4 + c^4 + ab(a^2 + b^2) + ac(a^2 + c^2) + bc(b^2 + c^2) \\ &= a^4 + b^4 + c^4 + ab(9 - c^2) + ac(9 - b^2) + bc(9 - a^2) \\ &= a^4 + b^4 + c^4 + 9(ab + ac + bc) - abc(a + b + c) \end{aligned}$$

$$\begin{aligned} a^4 + b^4 + c^4 &= (a^3 + b^3 + c^3)(a + b + c) - 9(ab + ac + bc) + abc(a + b + c) \\ &= 243 - 90 + -13 \\ &= 69 \end{aligned}$$

Agenda

Tuesday 8 November

Activity & Lecture Drink

The Drinks & Activities committee will organize a cycling dinner as their second activity. Cycling from one student's home to another, you will have a three-course dinner at three different places, prepared by your fellow students. Afterwards, a company will provide a lecture drink at our favorite pub "Van Horen Zeggen".

Friday 11 November

Parents Evening

The parents of the active members are invited to visit our university and receive information about what our study association exactly does. Next to this, they will also attend an interactive session about the study Econometrics & Operations Research and visit our rooms in the Esplanade building.

Wednesday 16 November up to and including Friday 18 November

Finance Expedition

During this week a selected group of students will visit four financial companies in the Randstad area. The participants will take on cases at the offices of these companies and there will also be lunch and dinners with the recruiters of the respective companies.

Wednesday 23 November

Healthcare Symposium & Drink

Healthcare can be costly. During the symposium on this day, several speakers will show how Operations Research techniques can be used to optimize healthcare. Next to this, four companies will provide lectures and workshops on the topic of the day.

Friday 25 November

Active Members Day

This day is organized to thank our active members for their contributions to the association. The program of this day will be kept secret for all active members except for, of course, the organizing committee, but it is sure to be a very fun activity.

Tuesday 6 December

Active Members Meeting

As our active members put a lot of effort in the association, they have the opportunity to voice their opinions and provide some tips, with regard to the association, on a selected number of topics during this active members meeting.



Uw geld helpt kinderen van de straat.



Een jeugd die verloren dreigt te gaan

In Latijns-Amerika leven heel veel kinderen op en van de straat. Onder erbarmelijke omstandigheden, zonder enig vooruitzicht. Juconi helpt deze kinderen. Met liefdevolle begeleiding, voeding, kleding, medische en psychologische hulp, alles in eigen tehuizen. Met scholing worden ze voorbereid volwaardig in de maatschappij mee te kunnen gaan doen.

Geroemde methode

Unesco noemt de Juconi-methode één van de meest veelbelovende methodes om het probleem van de straat- en zwerfkinderen in

de wereld aan te pakken. De naam van onze stichting geeft aan hoe wij werken. Juconi staat immers voor Junto con los Niños, ofwel: Samen met de kinderen.

Uw hulp welbested

Steun Juconi en schenk onze straat- en zwerfkinderen hoop.

Wilt u meer weten over het werk van Juconi voor de straat- en zwerfkinderen in Mexico, Colombia en Ecuador? Kijkt u dan voor succesvol afgeronde projecten en plannen die op stapel staan op www.Juconi.nl.





make yourmark

Welkom in de advieswereld

Jij bent een consultant in hart en nieren. Je wilt iets doen met je wiskundige achtergrond. En je vindt het interessant contact te hebben met klanten en met collega's over de hele wereld. Dan ben je bij Towers Watson op de juiste plek!

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