

nekst

Volume 21, second edition, December 2012

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Preface

COLOPHON

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Apocalypse now?



At the moment of writing this preface, we are living in the first week of December. I certainly hope that the prediction of the Mayans, who predicted the world would end on December 21, will turn out to be false, since otherwise, this piece of work would be quite a waste of effort.

This prediction could be particularly worrying to those of you who believe in these kinds of things, as some people seem to interpret it as a day of big changes. According to some voices, "it will be a day of cosmic changes in which we will reach a period of peace and harmony." As a sober-minded econometrician though, I must confess I cannot bring myself to believe in the Mayan prediction. With that being said, I hope that 2013 will bring everyone lots of positive changes and opportunities.

Yet, I think we should certainly not complain about the successes achieved this year by all econometricians, as can be read in this edition of Nekst. For example, you can read everything about the International Business Tour to Dubai in which 24 econometricians participated, which was an absolute success. Moreover, the Finance Expedition which was organized last November was definitely worth all the effort. Next to all these formal activities, there were also a lot of informal activities organized. If you missed any of them, you will turn green from jealousy when reading about the experiences of for instance the Active Members' Day, the Saint Nicholas Drink and the Asset Gala.

Although last calendar year was a big success, the board and all (active) members will again put a lot of effort in making the activities in 2013 as successful as the ones in 2012. As an example, our association will organize the National Econometricians' Day (LED) 2013. In this edition of Nekst, you can get to know everything about this largest annual career event for econometricians in the Netherlands. Furthermore, also a lot of effort will be put in Nekst Online, the online version of Nekst, about which you can read in the back of this magazine.

With 2013 promising such great happenings, it would be an awful shame if some meteor crash, alien invasion, exploding sun or a rapture of any sort would mess things up for us hard working econometricians. But do not fear: recently researchers announced that an arithmetical error was made and that the prediction of the Mayans will actually take place in 2208. So if the apocalypse is set to happen, let us assume that we do not have to worry for at least another 196 years and that this edition of Nekst will not be the last one. So please settle in the most comfortable chair available, grab yourself a blanket and a cup of tea, overcome this cold winter and take your time enjoying this new edition of Nekst, it is not as if the world is going to end soon.

Suzanne Vissers

Editor-in-chief

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Asset | Econometrics, Asset | Accounting & Finance and Asset | FIRST International organized the Finance Expedition. Out of 120 subscriptions, 24 participants were chosen to join this interesting career event.

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Last October, 24 econometricians went to Dubai to discover its (business) culture. In this four pages long report, Jeroen Moonen shares his experiences, ranging from visiting a mosque to racing through the desert.

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Some of us already know what they want to become since they had just learned to walk, but most of us are not yet sure. In this special we have listed all possible econometric master's programs.

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Last November, Saint Nicholas visited 'Café Van Horen Zeggen' and invited some econometricians to sit on his lap. In this edition of Nekst, you can read the exclusive poem that Saint Nicholas left us!

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A man in green and black patterned swim trunks stands in a modern office lobby, talking on a mobile phone. He is being sprayed with water from an invisible source, and water is dripping down his torso and legs. He is holding a black briefcase in his left hand. In the background, a woman in a pink dress is walking down a staircase with a wooden handrail. The lobby has a wooden panelled wall and a polished floor.

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Dear Members,

FROM THE
BOARD

At the time of writing, the first snowflakes have fallen, Saint Nicholas has left the country to make room for Santa Claus and 'oliebollen' have replaced my beloved 'pepernoten'. Winter is here, but that does not mean everything has come to a standstill.

On the contrary, we are already looking forward to what the next semester will bring us, and there is a lot to be excited about. The semester will kick off with the National Econometricians' Day (LED) on February 5, a must attend for any econometrician in his master or in the final stages of the bachelor phase. Asset | Econometrics has the honor to organize this big national event, and it already promises to be bigger and better than previous editions you might have attended. Make sure you subscribe now to claim your spot in the 'Beatrix Theater' in Utrecht upcoming February. For the freshmen and second year students eager to join as well, there is the possibility to volunteer during this unique event.

Obviously the LED is not the only event that should be on your agenda. If you like dining and a taste of Quantitative Finance and Actuarial Sciences, the Econometric Business Dinner held in the beginning of March might be something for you. The Econometric Business Dinner will be held for the first time this year and will provide you the opportunity to switch tables and dine with various companies active in this field. For those who would like to have a drink before dining, two weeks before the dinner there is the opportunity to visit a Business Café with Duisenberg School of Finance. To cater those interested in Operations Research and Management Science, the Operations Research Activity will be held in March as well filled with cases and interesting speakers. As if this were not enough, on March 1 you will have the opportunity to have lunch with the President of De Nederlandsche Bank (DNB, Dutch Central Bank), Klaas Knot, following his interview with Food for Thought. If your interest is broader than just econometrics, also keep the Economic Business weeks Tilburg in mind, which will be held in April.

Of course not all we organize is formal or career related. The freshmen do not have to

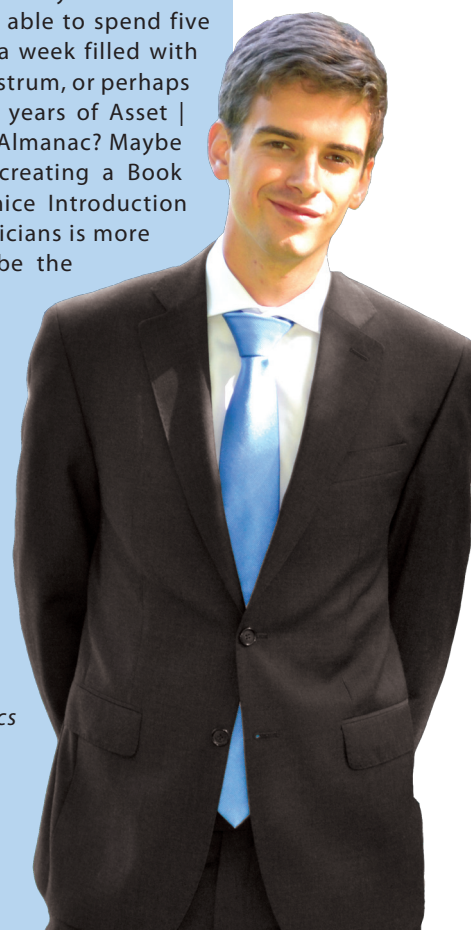
feel left out with a second Freshmen Activity coming up in February, as a follow up of the first successful version earlier this year. The second year students are invited as well this time around, however, the activity remains secret for now. In appreciation of our members we also have the annual Members' Day in March. Moreover, our active members will have the opportunity to voice their opinions about a selected number of topics during the Active Members' Meeting. Lastly, an informal activity which always sits well with members is the infamous Centraal Overleg der Economen (COdE) Beercantus.

If the above sound like activities you would like to organize yourself, do not hesitate. This January, Asset | Econometrics will start with filling committees for activities held during the second part of 2013. Would you like to be part of a committee that is able to spend five years worth of savings for a week filled with activities in honor of our Lustrum, or perhaps one which documents five years of Asset | Econometrics history in an Almanac? Maybe organizing a Symposium, creating a Book of Faces or organizing a nice Introduction Activity for new econometricians is more to your liking? Whatever be the case, let us know.

Besides looking forward, the holiday season is also a time of reflection. I recommend this edition of *Nekst* to sit back and find out what has been going on at our association during the past two months.

On behalf of the board,

Corné Ruwaard
*Chairman Asset | Econometrics
2012-2013*



PwC: Asking Advisors for Advice

On a cloudy Monday afternoon, Daniëlle and I travelled to the office of PwC in Amsterdam to interview not one, but two employees. We would soon find out the slightly long travel was definitely worth the effort, for we would hear a lot of interesting stories for econometricians.



Name:
Gerben den Heijer

Position:
Assistant
Manager



Name:
Lau Akkermans

Position:
Analyst

The Employees

The two employees we are meeting were Lau Akkermans and Gerben den Heijer. Both of them have studied econometrics; Gerben studied in Tilburg, while Lau studied in Rotterdam. Their motivation to study econometrics is also quite alike; they liked mathematics but considered a mathematics study to be too theoretical. Since they liked the idea of applying mathematics in an economic setting they enrolled in the study program econometrics. After completing their bachelor in econometrics both followed a Quantitative Finance master's program, although in Tilburg Actuarial Science is added to this. As a matter of fact, both guys are still studying. Gerben is now studying to become a certified actuary (in Dutch: AAG), while Lau is studying to receive the Financial Risk Manager (FRM) certification.

attended most of the activities organized by our study association.

A Regular Day

Gerben works in the HRS (Human Resource Services) division and Lau works in the Advisory division of PwC. Gerben works at the PAIS department, which stands for Pensions, Actuarial & Insurance Services. This means that he advises companies about pension matters and specifically advises insurers. Many people at this department are either studying to become a certified actuary, just like Gerben, or are already certified. Although this is the case, Gerben notes that it is not obligatory. However, other colleagues are studying to become Chartered Financial Analyst (CFA) or chartered Financial Risk Manager (FRM), which are relevant choices as well.

'The strength is in the combination of practice and theory'

Whereas Gerben and Lau are of nearly the same age (26 and 27 years old, respectively), Lau has been working at PwC since September 2011 and Gerben has already worked there for four years. Lau studied for seven years since he deployed a lot of activities besides his study program. For example he has been vice president of the committee of commercial affairs at his student association Laurentius. Besides that he has been a board member of both the student tennis association and of Integrand, an association that mediates between students and companies for internships and business courses. Gerben on the other hand studied for four years. This seems to imply that he was not very active besides his studies, but the opposite is true. For example he has taught several tutorials at Tilburg University, including the econometric first year courses Microeconomics and ICT, and

According to Gerben it is not possible to describe a regular day since almost every day is different due to the variety in activities and types of work. On some days he works the whole day on the same project but it is also possible to work on several projects a day if they are somewhat smaller. Activities include advising companies on their pension plans and pension strategy, due diligence (mergers and acquisition) activities together with the Financial Services teams related to pensions (for all companies) and insurers as well as consulting to insurers regarding for instance Solvency II, product development and strategic advice. During the week, Gerben spends some days in the office, most of the time in Utrecht and sometimes in Amsterdam, or he is visiting his clients. The variety of what he does every day is actually one of the things he really likes about his current job.



Lau works in the Quantitative Analysis (QA) team, part of the Risk Consulting department. This means he, as the name already implies, is involved in projects to analyze and solve quantitative issues. Amongst others, these projects involve modeling (financial) risks, modeling to support executive decisions, data analysis and process improvement. In line with the PAIS department there are several study options when working in the Quantitative Analysis department. You can also follow courses in programming and follow Lean Six Sigma process improvement training. For Lau there is a lot of variety in his working days as well. It happens quite often he does not know what he will do all day in the morning since tasks will pop up he is not able to predict. For example he will run several simulations and process the outcomes, but he also has to stay in touch with the client.

In both the departments there are quite a few econometricians. In the PAIS department they are especially looking for econometricians with an interest in pensions and insurance willing to work in multidisciplinary teams. At the QA department the main focus is on modeling risks, modeling to support executive decisions, data analysis and process improvement. Therefore, QA hires employees with a mathematical background. This means there are, besides econometricians, also mathematicians and even some physicists working there. Lau mentions that being able to think in sets of numbers and other things instead of viewing them individually is something that is really useful. This is also something you definitely learn when studying econometrics. The above

illustrates that the study econometrics is very useful on a regular working day at PwC in PAIS or QA and a prerequisite to start a career in one of those teams.

Working at PwC

According to both, PwC has a flat and open structure. Lunch is something you do all together, no matter what function you are in. Next to that, doors are always open, except when in a conference call, so everyone can always walk in and ask a question. Lau mentions that he was positively surprised by how helpful people were when he started working at PwC. A lot of questions he had about how things worked were already answered before he could think to ask them.

We are also interested in why they decided to apply for a job at PwC and whether they had ever considered to start their own company. Gerben has thought briefly about this but not seriously considered it. He concluded quickly there is too much risk involved in the current economy. Besides that, he thought he could still learn a lot by first working at a company like PwC. Lau would actually like it a lot to have his own company and earn his own money. The one prerequisite for him is doing something he is really good at. Taking this into consideration he thinks it might be a good idea for the distant future, since at the moment he can still learn a lot from working at PwC.

Both Gerben and Lau wanted to help and consult companies, in other words to become a distinctive advisor. This is one of the reasons they applied for PwC. They chose to work at PwC because of the broad spectrum of work they are

able to do. This turned out to be very nice in practice as well, since Lau and Gerben, whereas they work in different divisions of PwC, have worked together on several projects now, which confirms the multidisciplinary approach of the firm in their assignments.

Theory and Practice

We were also interested in their views on practice and theory. Lau especially likes to develop models for which there is a clear practical application. However, he appreciates the theory behind it. Gerben thinks 'the strength is in the combination of the two', while working practical solutions should be your main goal to solve real world client problems, but theoretical knowledge helps to strengthen and broaden your view, and hence the quality of your advice.

As advice for students they told us to look around very carefully and start thinking early about your career opportunities and preferences. Think beyond your possible traineeship as well. According to Lau, econometricians often underestimate all their possibilities. If you apply at a company you should have asked yourself what you want to learn there, how the company will help in your development and why you have chosen to apply, which will also help you in your application procedure.

We would like to thank Gerben and Lau for a wonderful interview and a good impression of working at PwC.

Text by: Ernst Roos

Over-The-Counter Trades in Longevity Risk

There is an increasing need for hedging non-marketed risk. Markets serve as mechanism to reallocate risk among firms. For longevity risk, however, there does not exist a well-functioning market. As an alternative, firms could benefit from risk sharing by trading Over-The-Counter. I examine the question how to design such a contract.



Name:
Tim Boonen

Position:
Ph.D. Candidate

Pension funds and insurance companies hold risky portfolios. These firms face a variety of risks such as inflation, interest and longevity risk. Generally, firms decide to hedge their risk in the market. For instance, for inflation and interest, there exists a well-functioning market so that prices exist. In this way, firms optimally compose their portfolio of financial assets in such a way that the exposure to these risks is acceptable. In this essay, I focus on longevity risk. For longevity risk, there exists no well-functioning market. Therefore, market prices hardly exist and classical asset pricing theory cannot be applied. This essay is based on Boonen et al. (2012) and Boonen (2012).

Longevity risk is the risk that people in the population live longer or shorter than expected. I focus on the trend of mortality fluctuations over time. If people live longer than expected, a pension fund has to pay the promised pension benefits for a longer period of time. The liabilities, which are given by the value of the current pension promises, are therefore increasing if people live longer than expected. Longevity risk affects the liabilities of life insurers in a different manner. Life insurance is often obligatory if individuals buy a mortgage. Moreover, mortgages are often repaid at the retirement age (via tax incentives) and, so, life insurance contracts terminate at this age as well. Therefore, life insurers mainly face the risk of early death of their policy holders. Hence, a life insurer faces the risk that people live shorter than expected.

Exposure to longevity risk can be rather substantial for pension funds, as shown by, e.g., Hári et al. (2008). Lack of consensus regarding accurate pricing hampers trade. As a consequence, longevity-linked contracts are mainly traded Over-The-Counter (OTC). This

implies that two firms trade directly without any supervision of an exchange. In the recent history, there only have been a few Over-The-Counter trades in this risk. As pointed out by Dowd et al. (2006), the market for Over-The-Counter longevity contracts is expected to grow fast. Firms can naturally hedge longevity risk by combining pension policies and life insurance policies, but there is little capacity in the market to do so. The conflicting exposure to longevity risk for pension funds and life insurers creates incentives for both firms to trade. I analyze the opportunities for a pension fund and a life insurer to benefit from bilateral risk redistribution via Over-The-Counter trade. Specifically, Over-The-Counter contracts describe a specific risk redistribution, i.e., in every possible scenario it is described a priori how much a firm pays or receives from the other firm. This implies that prices are determined implicitly.

I consider the case where a pension fund and a life insurer redistribute risk in order to reduce the volatility of their Net Asset Value (NAV) at a prespecified future date T . The Net Asset Value is defined as the difference between the value of the assets and the value of the liabilities, i.e.,

$$X_i(T) = A_i(T) - L_i(T), \quad (1)$$

where firm i is either a pension fund or a life insurer, $A_i(T)$ denotes the (market) value of the assets at time T and $L_i(T)$ denotes the date- T value of the liabilities.

In order to focus on longevity risk, I assume a deterministic return on assets r . The asset value on date T then follows from

$$A_i(t) = (1 + r) \cdot A_i(t-1) - \tilde{L}_{i,t}, \quad (2)$$

for all $t = 1, \dots, T$, where $\tilde{L}_{i,t}$ denotes the (stochastic) liability payment of firm i at date

t . The exact structure of the risky payment $\tilde{L}_{i,t}$ depends on the type of firm (pension fund or life insurance) and the policies themselves. Combining (1) and (2) yields

$$X_i(T) = [A_i(0) - CL_i(T)] \cdot (1+r)^T, \quad (3)$$

where

$$CL_i(T) = \sum_{\tau=1}^T \frac{\tilde{L}_{i,\tau}}{(1+r)^\tau} + \frac{L_i(T)}{(1+r)^T}. \quad (4)$$

Thus, firm i 's Net Asset Value equals the initial asset value $A_i(0)$ increased by the return on assets, and reduced by the random variable $CL_i(T) \cdot (1+r)^T$, where $CL_i(T)$ represents the sum of the present value of liability payments up to year T , and the present value of the date- T liability value of all payments beyond date T .

It now remains to specify how the date- T liability value $L_i(T)$ is determined. Because there is (not yet) a liquid market for longevity-linked products, pension funds and life insurers cannot value their liabilities using market prices. Instead, I consider the case where the pension fund and the life insurer value their liabilities at the *best estimate value*. The best estimate value of the liabilities is defined as the discounted expected value of all future claims, i.e.,

$$L_i(T) = E \left[\sum_{\tau \geq 1} \frac{\tilde{L}_{i,T+\tau}}{(1+r)^\tau} \middle| \mathcal{F}_T \right], \quad (5)$$

for all $i \in \{1, 2\}$ and $T \geq 0$, where \mathcal{F}_T denotes the information available on date T (i.e., information regarding mortality rates). On date zero, the risk $X_i(T)$ is uncertain due to uncertainty in the liability payments $\tilde{L}_{i,\tau}$, for $\tau = 1, \dots, T$, as well as due to uncertainty in the value of the remaining liabilities on date T , $L_i(T)$.

Next, I discuss the preferences of the firms. A firm aims at a portfolio after redistribution with a high expected value and low risk. If both criteria conflict, the firm optimizes an appropriate trade-off. Risk is generally measured using a risk measure. I let this risk measure be Expected Shortfall. This risk measure focusses on worst-case possible realizations and is given by:

$$\rho_i(X) = E[X | X \leq q_{\alpha_i}(X)], \quad (6)$$

where $q_{\alpha_i}(X)$ is the α_i -quantile of risk X . The introduction of the Basel II regulation and the Swiss Solvency Test (SST) has increased the use of Expected Shortfall to evaluate financial or insurance risk. Expected Shortfall attempts to reflect business practices as it has been gaining practitioner interest. This leads to the following preference function for firm i :

$$V_i(X) = E[X] - \beta_i \cdot \rho_i(X), \quad (7)$$

where $\beta_i \geq 0$ represents the relative weight to the risk instead of the expected value. Firm i prefers risk X over risk Y if and only if $V_i(X) \geq V_i(Y)$. I allow that firms use heterogeneous α_i and β_i .

I consider optimal bilateral risk sharing of longevity risk between a pension fund (denoted as Firm 1) and a life insurer (denoted as Firm 2). The firms hold risk $X_1(T)$ and $X_2(T)$ respectively, which is specified in (1). Via an Over-The-Counter contract, both firms want to arrive at a risk redistribution $(X_1^{\text{post}}(T), X_2^{\text{post}}(T))$ such that they both benefit weakly, i.e.,

$$V_i(X_i^{\text{post}}(T)) \geq V_i(X_i(T)), \text{ for all } i = 1, 2, \quad (8)$$

and all risk is redistributed, i.e.,

$$X_1^{\text{post}}(T) + X_2^{\text{post}}(T) = X_1(T) + X_2(T). \quad (9)$$

The risk redistribution takes place at date T ; the date at which the realization of $X_i(T)$ is known.

A very intuitive criterion for a risk redistribution is Pareto optimality. Pareto optimal risk redistributions are defined as the ones such that there does not exist another risk redistribution that is weakly better for all firms and strictly better for at least one firm. Generally, there are still infinitely many Pareto optimal risk redistributions satisfying (8). It holds that $(X_1^{\text{post}}(T), X_2^{\text{post}}(T))$ is Pareto optimal if and only if $(X_1^{\text{post}}(T) + c, X_2^{\text{post}}(T) - c)$ with $c \in \mathbb{R}$ is Pareto optimal. Therefore, I first determine a Pareto optimal risk redistribution $(X_1^{\text{post}}(T), X_2^{\text{post}}(T))$ and, thereafter, a corresponding "side-payment" c .

In two special cases, I obtain the following Pareto optimal risk redistributions:

1. if $\alpha_1 = \alpha_2$, a Pareto optimal solution is to shift all risk to the firm with the smallest β_i ;
2. if $\beta_1 = \beta_2$, a Pareto optimal solution is to shift all risk to the firm with the largest α_i .

Particularly, 1. implies that if the risk measure is set by a (common) regulator, it is likely that there exists a firm that will be overexposed to longevity risk. Note that I provide a (non-unique) Pareto optimal risk redistribution. If there are variable parameters α_i and β_i , there always exists a Pareto optimal risk redistribution that is given by a stop-loss contract on the aggregate risk with a given threshold. So, there exists a firm $i \in \{1, 2\}$ that buys deductible insurance, i.e.,

$$X_i^{\text{post}}(T) = \max\{X_1(T) + X_2(T) - d, 0\}. \quad (10)$$

for some threshold d . The other firm (not i) buys the rest of the aggregate risk, i.e.,

$$X_{-i}^{\text{post}}(T) = \min\{X_1(T) + X_2(T), d\}, \quad (11)$$



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Particularly for insurance risk, stop-loss contracts are often observed in Over-The-Counter trades.

A Pareto optimal risk redistribution is provided in (10) and (11). This risk redistribution does not need to be beneficial for both firms. Therefore, one firm might require a side-payment on top of this risk redistribution, which is a risk-free payment. There is a non-empty interval of possible prices satisfying also (8). A question left to determine is the size of this side-payment in this interval that is perceived as “fair” by both firms. I propose to use a cooperative game-theoretic characterization of this side-payment.

Next, I work out an example. I simulate the liabilities of both the pension fund and the life insurer using a realistic composition of the policy holders and a realistic underlying longevity distribution. The return on assets equals $r = 3\%$. I here set $T = 1$, and show that the benefits from redistribution are significant even when the horizon is relatively short. Because firms are reluctant to engage in contracts with a long horizon, a one-year horizon is appealing. Moreover, in the future, firms are willing to hedge their longevity risk in the new policies again. It is sufficient to consider only the liabilities of both firms. The objective function of the pension fund is given by (7) with $\alpha_1 = 50\%$ and $\beta_1 = 3$. The pension fund sets an ambition level, which is the expected value. Moreover, the risk measure is the expected value of all outcomes given that it is below the ambition level. The objective function of the life insurer is given by (7) with $\alpha_2 = 1\%$ and $\beta_2 = 1$. This exactly meets the Swiss Solvency Test (SST) regulation for insurance companies. I display the prior and posterior date-1 value of the current liabilities in Figure 1. This figure displays that the risk reduction is significant. The life insurer has relatively volatile liabilities before redistribution, which is mitigated thereafter. The tail-risk of the aggregate liabilities is borne by the pension fund.

Finally, I calculate the welfare gains from this risk redistribution. This is the relative price that firms would be willing to pay for the risk redistribution compared with the price of the prior liabilities. This is given by

$$\frac{V_i(X_i^{\text{post}}(1)) - V_i(X_i(1))}{V_i(X_i(1))} = \begin{cases} 0.6\% & \text{if } i = 1, \\ 6.2\% & \text{if } i = 2. \end{cases} \quad (12)$$

The pension fund (resp. life insurer) is willing to pay 0.6% (resp. 6.2%) of its current liabilities for the risk redistribution. As there are no prices involved in the risk redistribution, these percentages indicate the welfare gains. The life insurer gets larger welfare gains due to his relative volatile prior liabilities and due that the aggregate risk $X_1(1) + X_2(1)$ is small in states where the prior risk $X_2(1)$ is large and vice versa. The percentages in (12) indicate that the potential for OTC trades

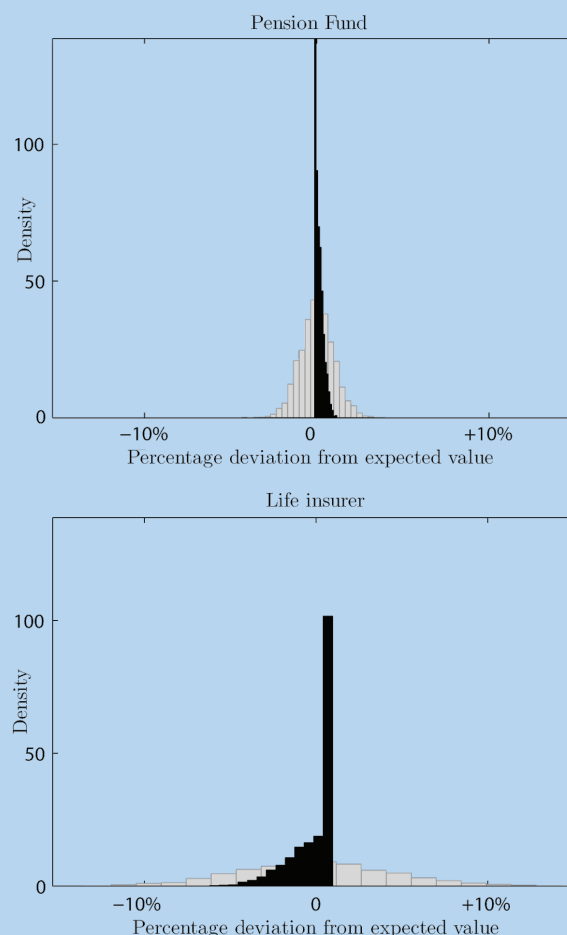


Figure 1: Prior (gray histogram) and posterior (black histogram) date-1 value of the current liabilities of the pension fund (upper figure) and the life insurer (lower figure). Note that liabilities are interpreted as losses instead of gains.

is substantial and, therefore, I expect the market for longevity risk to grow quickly.

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Mathematical Views on Econometrics

from the Czech Republic

If you have any questions about statistics, playing badminton or the Czech Republic, room K.616 is where you need to go. Pavel Čížek not only teaches econometrics courses, he also supervises many Ph.D. students. If you want to know what it is like to grow up in the Czech Republic, then read on.



Name:
Pavel Čížek

Position:
Associate
Professor

Since this was my first interview with a teacher, I felt a bit nervous beforehand. I did not really know what to expect from an interview with a teacher. However, I did have an idea about what his room would look like: lots of books, a computer and a desk full of papers. When Robbert and I arrived at the room of Pavel Čížek, I noticed that the room looked just as expected, except for one thing that immediately drew my attention: a coffee mug with a penguin on it. This instantly gave the room a holiday feeling. After we had entered the room, we introduced ourselves and started off the interview.

Life in the Czech Republic

Pavel Čížek was born in the Czech Republic in 1973, in a large city with an unwritable name (my Czech writing skills are not very good), about 100 kilometers east of Prague. He studied mathematics at the Czech Technical University and later also at Charles University (both situated in Prague). When Pavel Čížek began his story, he stated that there are a lot of differences between his study time in Prague and Tilburg. Unlike Tilburg, the universities in Prague are not part of a campus. Another big difference between the two universities is the fact that the universities in Prague did not have any organized study associations at that time. This is because the university did not stimulate the existence of student associations, which is actually not that strange if you think about it, since it was just a few years after the fall of communism in the Czech Republic. Because the communists did not really like group building, especially not from students, there was also no such tradition at the university. Therefore, in the years after the fall of communism, there still was no stimulation from the university to form student or sports associations whatsoever.

However, this did not mean that Pavel Čížek's study time was boring, on the contrary, he enjoyed this time a lot. Prague is a beautiful city, with lots of places for students to go out

with each other. So although the school did not stimulate associations on a formal level, informally the students still formed groups. Especially in the later years when he was at university, the students with whom he studied were very close with each other. When this is the case you automatically start doing things outside school too. For example, they went out in Prague on a regular basis, they visited theater plays and some students made art or music together. His main aim during his study time was to finish his study program and therefore he did not have much time left for part-time jobs. However, he started tutoring: teaching other students different subjects and a variety of other small school-related things. From his second year on, he also worked as a research assistant at the university. Once every two weeks, he spent the weekends at home to see his family.

Pavel Čížek has liked mathematics for as long as he could remember, but this was not the case with statistics and econometrics. When he was 15-16 years old, he had his first encounter with statistics at high school and he did not like it at all. While he was studying at the university, his professors introduced him again to statistics and econometrics, and this time he liked it much better. The reason for this is that now Pavel Čížek could see statistics as a form of applied mathematics. In fact, he chose to specialize in this area. Pavel Čížek stated that the decisions you make in your life are greatly influenced by the people you meet, and this is certainly a perfect example. He was stimulated by his teachers to study statistics. If this was not the case he would have never chosen it, due to his negative experience with statistics in high school.

After he finished his master's program at the University of Prague, Pavel Čížek followed his teachers' advice to do his Ph.D. at the Humboldt University in Berlin. He mentions that Prague



and Berlin look much like each other from students' life point of view. For example, the Humboldt University also does not have a campus, so there was again a lot of travelling time. He really enjoyed this period, and he has learned a lot during this time.

Life in the Netherlands

Having finished his Ph.D. in Berlin, Pavel Čížek started working at Tilburg University. He did not know what to expect from the Netherlands, since his job at Tilburg University was his first regular job. The one thing he found the most difficult in the beginning, was how to fill in his research time. Everyone expects results from you, but no one tells you where to start or

this period he still coordinates Ph.D. students, which is the aspect of his job Pavel Čížek likes the most. This is because he enjoys the one-to-one contact you have with these students; you create a bond if you work together so much. Moreover, he likes the idea that he teaches them how to conduct research the way they will do the rest of their lives; he helps them with the setup of their career. Over the years, working at Tilburg University stays interesting as well, since the subjects of the Ph.D. students' researches are very different and some subjects are relatively new to Pavel Čížek. Therefore, it remains interesting to work here in Tilburg and it is very rewarding to coordinate these students with their research.

‘Decisions you make in your life are greatly influenced by the people you meet’

what to do to get those results. Suddenly, you are all by yourself. Luckily, Pavel Čížek was not frightened by this large amount of freedom and he has built up a wonderful career here in the Netherlands. His wife, who he met during his study in mathematics, also lives with him here in Tilburg. They have three children together, who were all born in the Netherlands. His hobbies besides mathematics are playing badminton, cycling, reading books, computer programming and building model trains.

When we asked Pavel Čížek what a normal week looks like for him, he answers that it depends on the time of the year. During spring time he spends most of his time teaching, preparing classes and coordinating Ph.D. students. Around fall he does not give many courses, so that is when he conducts research. During

After these words about Ph.D. students, Robbert and I asked Pavel Čížek a few Bert or Ernie questions. After that we took a picture and then it was time for us to leave. In my opinion, this was a successful interview. I would like to thank Pavel Čížek for his time and for his very interesting stories about his study time in Prague.

Text by: Tim Gijsbers

Pavel Čížek's choices:

Bert or Ernie?
Bert

Tilburg or Prague?
Tilburg

Mathematics or Econometrics?
Econometrics

Company or University?
University

Computer or Pen & Paper?
Computer

Theory or Practice?
Theory

Mensa or Cooking dinner?
Cooking dinner

National Econometricians' Day

Our study association has the honor of organizing the LED 2013, an annual career event for all econometricians in the Netherlands, which will take place on February 5. Every year the organization is in the hands of one of the six econometric study associations in the Netherlands and this year it is up to Asset | Econometrics.



Name:
Ad van Herpen

Age:
22

Begin Studies:
2008

Position:
Chairman LED
2013

Let me first give you a brief introduction about the National Econometricians' Day (Dutch: Landelijke Econometristendag, LED). At the LED around 30 companies, all active in the field of econometrics, will present themselves by means of cases and a dinner. Also during the business lunch and drink, econometricians have the possibility to get in touch with several companies. Besides the interesting companies, the LED 2013 will be opened with a debate between famous professors and closed by Wiebe Draijer (Chairman SER). Furthermore, after this busy and energetic day, we will have a great party with all participants. Therefore, this is certainly a great event to prepare yourself for your future career and to get connected with other econometricians from the Netherlands.

cases and a large room for having the opening and closing of the day with all the 380 participants. Moreover, the location needs to be attractive for the public transport because all participants will travel to the LED by train. Another important aspect is the possibility to stay over, because it would be great if all party people can sleep in the neighborhood of the party location. Of course, it would be nice if the LED 2013 takes place in Tilburg but unfortunately, we could not find a location in Tilburg that met our requirements. Fortunately, thanks to my committee members, we have found a location which satisfies all mentioned properties, namely the Beatrix Theater in Utrecht! It was a long journey to come to this decision with some nice meetings in, for

'LED it be your day!'

Just after the LED 2012 was finished, the LED 2013 committee started organizing the edition of 2013. Our committee consists of, besides myself, Özgür Abaci (Treasurer), Floris van Loo (Secretary), Marlies Veenes (External Affairs), Joep Olde Junick (External Affairs) and two board members, namely Marleen Veldhuijzen and Cas Luijten. With seven committee members, we are a large committee, but we really need this amount of people. Many people wonder why it takes a whole year for seven students to organize the LED. Of course, I can name thousands of things to deal with, but you should think of things like finding a location, arranging almost 30 companies to participate in the LED, finding interesting speakers and designing a profiler which has even more pages than Nekst. These are some large projects of the LED 2013 apart from all the details which pop up during the organization.

One of the challenges was finding a location, which should have 20 small rooms for the

example, Den Bosch (more information can be asked from the former board members Wilbert Kistemaker and Jasper Koops) and funny moments with the committee members.

I hope to welcome you all at the LED 2013. We offer you a great program with almost 30 interesting companies, famous speakers and professors, a business lunch, a drink and dinner and the day will be closed with a great party. For more information on the program and participating companies, please visit www.leditbeyourday.nl. Subscriptions are already open and if you have any questions, we would gladly like to help you. See you at February 5 and LED it be your day!

Monitoring, we do it all the time. We are constantly observing the world around us and we make sure that we interpret these observations using our own framework of standards and values. The Webster dictionary gives the following description for the word 'monitor': 'one that warns and instructs'. Funnily, another description is 'a student appointed to assist a teacher'. One of the better movies I have seen in the cinema also dealt with monitoring. The name of that film is *Enemy of the State* (1998), with Gene Hackman ('Brill') and Will Smith ('Dean'). The film deals with the ever increasing urge of our societies to monitor: organizations, companies, governments and also individuals are monitored and scrutinized ever more. At the end of the movie Dean and

for example on indexation, investment and contribution policies, need to be approved by a governance board that consists mainly of representative delegations from the employers and the employees. This board of trustees typically meets at very low frequencies, which does not give them time to oversee all the technical details that underlie much of these policy decisions. For example, investment strategies are typically designed by experts (often econometricians!) who work day jobs at the fund.

So, how to resolve the problem of ascertaining whether the monitor is doing a good job? Or the problem of the monitor of the monitors (ad infinitum)? Luckily, two academics, Alchian and Demsetz, have identified this problem already way back in 1972 in an article in the *American Economic Review*. This article

'Who is going to monitor the monitors of the monitor?'

his wife are watching a discussion on television, when a Congressman is saying: "[...] We knew that we had to monitor our enemies. We have also come to realize that we need to monitor the people who are monitoring them..." Dean's wife, Carla, then replies: "Well, who is going to monitor the monitors of the monitors?"

And that is a crucial and important point to make. When are we assured that the system of monitors and monitoring procedures is providing us the right warnings and instructions? How much monitoring is optimal? The practical issues are paramount. Just take a look at our financial system. Banks are typically monitored by a country's central bank, which is again monitored by for example organizations like the ECB, the IMF, and all kinds of other organizations that think they have something to say about banking.

A few weeks ago I was attending an inaugural lecture in Tilburg where monitoring was discussed in the context of pension funds. In the Netherlands pension funds are monitored by the Dutch Central Bank. The decisions that are being made within pension funds,

focused on determining the remuneration of monitors. Quite recently David Rahman ("But who will monitor the monitor?", 2012, *American Economic Review*, 102(6): 2767-2797.) has followed up on this discussion and suggested a new kind of contract for monitors. The key, as in many economic decisions, is to provide the right incentives for the monitors. Rahman shows that the optimal contract should contain a clause that the monitor gets paid only if he detects deliberate mistakes. For example, pension fund operatives could include some bogus information in the reports they send to a board of trustees. If the board detects the mistake, the board of trustees can stay on; if not, it is time to look for another board. Of course, it is important that the deliberate mistakes have no serious consequences for the operations of the fund. In banking we do not want traders to make deliberate mistakes, and thereby risking burning down the house. Given the fact that this is what has actually happened recently (Lehmann, AIG, UBS, Madoff et cetera), maybe the time has come to fire some monitors?!



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Improving a New Production Process

In the previous Nekst, we have already seen the implementation of operations research in the HagaZiekenhuis. However, operations research can be used for many cases and problems. Therefore, I will shortly explain my methods when optimizing the new ACV production line during my internship at Bosal Netherlands B.V. in Vianen.



Name:
Benito van
Breugel

Age:
22

Begin Studies:
2008

Introduction

Bosal Netherlands (BNL) is plant 8 of the Bosal group founded in 1923. Bosal is one of the world's leading manufacturers of on- and non-road exhaust systems and it also produces precision tubes, storage racks and tow bar systems. The research focused on the ACV production plant within BNL. This line produces different kinds of heat exchangers, and it started at the end of 2011. The production process can be seen as an Operator-Paced Job-Shop production line, since many operators are working within the line. However, only based on the effective machine assignments it can be seen as a Job-Shop.

Since the production of these heat exchangers has different problems with high scrap rates, low output, high reworking rates and high inventory levels, this research has been conducted. On the basis of experiences within the company, talking with employees and own data measurements, a research question has been proposed that covers these problems. To define the approach steps and project plan, literature is studied within different areas.

Approach

Eventually, a three step approach is developed, called planning, controlling and simulation. First the simulation part means a machine study in a static and dynamic approach. The static approach is an Excel study on the basis of statistical calculation. This has been done to check the output of the machines and utilizations of both operators and machines. The dynamic approach is actually a simulation model and it represents the total flow of the process. Besides the fact that it could gain insight in the behavior of the process, it could find out what the actual bottleneck is. The controlling part covers the determination of the carrying rate, the upstream supply chain and inventory investigations. The planning part covers two mathematical models that

determine a new plan, sequence and product mix for the total production line.

The Production Process

Before explaining the ideas and results, I will shortly explain the production process. As said, the research was done for the ACV plant within BNL and it produces heat-exchangers for the European and American market. I divided the production process in three different stages to simplify and define the research area. The first stage is the supply chain inventory part and the second and third part cover the total production line within BNL. To understand the process, each stage should be investigated extensively. For example, one should talk with employees and operators within the production process, to understand what is going on and what the experiences are. It is important to check opinions on different levels. The division is made on the basis of characteristics within the production. In stage two, every product is processed on its own machine, which means they have a fixed machine assignment. However, in stage three each product is produced on each machine. To model the production process, certain assumptions have to be made. For example, we assume that setup restrictions and operations restrictions do not restrict the production output. Other assumptions are related to data discovered or measured.

Discovering Data

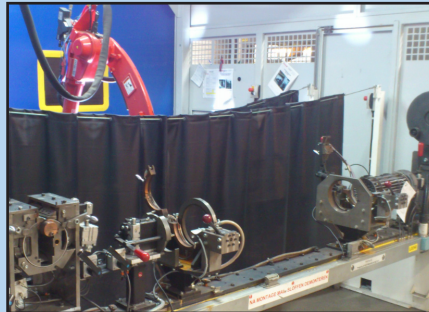
In most companies, and especially for new production processes, it is extremely difficult to discover appropriate data, which can be used for research. Since most of the data was unavailable at the beginning of the research project, time measurements were needed within the actual production process. Moreover it is, as already said, necessary to talk with employees and ask for as much information as possible. Since each employee keeps track of data within separate Excel files, it is important

to understand how to work with Excel and to combine different information resources to get your own accurate data. Transforming the data in one's own preferences is favorable to get familiar with them and be able to use it in your way for the research. The time measurements were especially needed to discover clear production, rework and set up times. These measured times are the main input of the research. It is important to note that one cannot rely on the data available in a company, since they may not be true. Discovering the right and needed data can be time consuming, but it is necessary for every research.

Machine Study

With the discovered data, first a static approach has been developed. This has been done in order to gain insight in the capabilities of the ACV production plant, especially the machines' and operators' utilization, and output. Again to simplify the production, extra assumptions are needed to model each machine separately in Excel. Since each operator spends some time on small things like writing, talking, searching for tools or going to the toilet, it is assumed that utilization rate of 100% within the models is impossible, but 80% is acceptable. However, because some operators' utilizations were extremely low, extra combinations are experienced. These new combinations already present new ideas for implementing within the production process. Besides, some problems within the process were noted.

After gaining insight in the machines and operators, a dynamic simulation model was developed. This model was developed to represent the flow within the process and understand the behavior of the system. From this, one can find the bottleneck station of the process and experiment certain cases within an optimization. First, a simulation model is developed that represents the current production the best. Then, the model is optimized



regarding maximizing the output of the total production. This is done for a monthly period and scheduling two production shifts per day. The decision variables of the model are the starting planned production values and the reworking times of the operators. This, since these quantities are unstable and can differ between each operator. The operators' utilizations define the constraints of the optimization. This is to make sure each operator works efficiently for at least a certain percentage of his time. Within the optimization, the effects of assigning more activities or freedom to the operators are tested. Also we want to know what the influence is of lowering the production times of the machines regarding the output.

Controlling

The second part of the research covers controlling stage one of the process. Since inventory levels are measured by hand, first it is checked if the current levels are too high. To relate these levels to cost factors, the carrying rate is determined for BNL. The 'Cost of Carry' (Carrying Costs) is the total cost of storage, insurance and financing costs that a seller of a futures contract must bear while waiting to deliver the asset that the buyer has purchased from the seller. According to the inventory levels counted by hand, one can conclude that they are too high. For some raw material parts, there is inventory for more than 40 weeks. In comparison with a four weeks ordering cycle and the lead times, this is too much. Moreover, the carrying costs are determined at almost 40%.

With the determined carrying rate it is possible to calculate lot sizing policies, like the EOQ and Silver-Meal approach. However resulting solutions present very low ordering amounts, which are not practical. Implementing these can result in a huge bullwhip effect. Therefore, other policies are developed on the basis of the lead times and a four weeks ordering cycle. Besides the most important upstream, supply chain is investigated in detail. Because of quality issues, it is very irregular and has extremely high scrap percentages.

Mathematical Planning

After controlling the first stage of the process, it is a logical step to control the main production line, stage two and three of the process. This planning part covers an optimization within the package AIMMS. Two mathematical models are developed on the basis of two literature papers. They are labeled as a planning and sequence model. These models are implemented and used together via a two step approach. First, the planning model is solved regarding minimizing the release, holding and back order costs. The resulting production plan is used as input for the sequence model. This model shows whether the total planned production can be made within the time restrictions. Besides it results in Gantt charts that show the product sequence that has to be scheduled.

Both models are mixed integer linear programming models and can be adapted to other production processes. Operators are not included because within the ideal situation, the machine production times are restricting the output, instead of the operators itself. Therefore, the models are very general, easy to implement and also extremely effective. Again to represent the production process in a mathematical way, some assumptions have to be listed. One can think of the machine assignments or capacities restrictions. Also within this part, some cases are experimented. These are related to

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the inclusion of scrap percentages, idle percentages, beginning inventory levels or introducing longer shift lengths.

Results

From the different research parts, different results can be noted. In total they can be placed in two groups: internal and external implication. A very intuitive internal result is that it is extremely important to keep producing on the machines continuously to maximize the output. Besides it is found out that lowering the processing times is profitable for the output. Moreover, it is important to note that planned demand can be met according to the production times. According to the planning models we found cyclic plans for two and three weeks with an output of more than 450 per week, which was originally planned by BNL. The best result found has an average output of almost 500 products, which is a huge improvement. Besides for a one shift production per week, the three weeks cyclic planning is the best one found. This one increases the output to almost 270 products, instead of 250. Another result is that it can be profitable to produce the large products at the small side of the machine in stage three,



while this is originally not possible. This idea is advisable when there is no demand of the small products, and more demand of the medium and high products.

Also it is found that a combination of activities is advisable to investigate or introduce within the process. Ideas for this are encouraged by management and will be investigated in the future. For example, combining operators' activities or assigning small operations within the process to different operators. According to the dynamic simulation model, we found that stage two is the bottleneck of the total production process, instead of the bottleneck assumed by the company. Next to that, also reworking times are restricting the production output of stage three. However, it must be noted that the model does not represent the real production for 100%. Because real operators never do certain actions via a fixed schedule and none of them work at the same speed, it is difficult to model operators in a program. However, it is found that in the dynamic model, one operator less can result in almost the same production output.

Considering the external result, it is found that current inventory levels are too high and can be improved, efficiently. The carrying rate of ACV within BNL is determined, and shows the importance of a good inventory control. Therefore, new ordering policies are determined based on a four weeks cycle. Besides a SAP or barcode system can be implemented or introduced, since the control activities of the inventories and upstream supply chains are not fully integrated.

Recommendations

On the basis of the results found by the different methods, we can point out a few recommendations. First of all, since both the static and dynamic approach point out different combinations of activities, it is advised to investigate more in such combinations within

the production process. Second, it is recommended to improve the production times of the machine, especially for the machines in stage two. Another option to investigate is to not consider fixed machine assignments for the products, but introduce flexibility to produce multiple different products on different machines.

Besides operational recommendations, there are also external and software recommendations listed. Since products from the longest supply chain have a very high scrap percentage and also restrict the production, it is advised to improve the stability and increase the buffers at each station within this chain. To better keep track of the inventory level, it is advised to improve data availability via a certain new system. At least introduce for every employee a fixed layout within Excel to work with. The last advice proposed is to implement the MRP-II concept within the company to improve data availability and information streams.

Conclusion

This research shows how operations research models and techniques can help to improve new production processes. Currently BNL and ACV have implemented some points noted in the research. The output is improved, but still quality issues play a huge role in the limitations of the production. Besides that, inventory problems have been noted in order to control them better, especially since inventory costs play a big role within this plant. Therefore, improvement possibilities always have to be investigated and the role of operations research does certainly not stop after this research.

Experiencing Where the Financial Magic Happens

After much adjusting and adding things, I finally sent my resume to the Finance Expedition committee. ABN AMRO, NIBC, Zanders and Optiver were the companies that would be visited during this event. My interest was in all companies, but I had sent my CV especially for the three nice days in Amsterdam that this event offers.



Name:
Rens Ramaekers

Age:
20

Begin Studies:
2010

October 29

Would I have a chance to be selected? I had no clue. Are they selecting on master/bachelor? On age? On active membership? On October 29, finally the mail arrived! And this was a positive mail, since I was selected for the Finance Expedition!

November 14

During the evening of November 14, the information session of the Finance Expedition took place. We were told everything about the program of the Finance Expedition and all participants introduced themselves. At first glance, they seemed like a nice group of people with whom I would be able to have a good time in Amsterdam. To get in the mood for the Finance Expedition we played a trading game. The group was divided into four small groups, each with a certain number of action cards. With those action cards you could influence prices of the shares. It was a really fun game and especially because my team won! This certainly was a good beginning of the Finance Expedition. After the game, we had some drinks and we got even more delighted for the upcoming week.

November 21

On November 21, the Finance Expedition 2012 finally kicked off! At 8:50 in the morning, we were with a group of 24 people, all suited up and ready to go. First, we went to our hotel in Amsterdam, the WestCord Fashion Hotel, which was located near the station Amsterdam Lelylaan. The reviews of this hotel were really good. It was a 4-star hotel with a pool, a sky bar and much more. When we arrived at the hotel, it did not look very beautiful from the outside, but all doubts instantly vanished when we got inside. There was a beautiful marble floor on the ground and every detail was thought of. The room division was made beforehand and everyone took about 15 minutes to get installed in his or her room. My roommate

Diederik (which coincidentally is also my roommate in Tilburg) and I walked through the hallways and arrived in our room, which was beautiful. We unpacked our suitcases and walked downstairs. The schedule was tight these days so we needed to hurry, because ABN AMRO was waiting for us. We took the subway to the 'Zuidas' and immediately we saw where the financial magic happens. Looking at the crowds, the buildings and the brands we knew that the financial center of the Netherlands was right here.

At ABN AMRO, we were greeted friendly. We walked along the trading floor, and I must admit it was pretty impressive. We started with an introduction talk about ABN AMRO. It was interesting to hear what the days look like when working as a beginning trainee. A trainee works until 23:00 hours on average, which surprised me anyway. I knew it was hard work in the financial world, but I did not know that it was that tough. I have to make a side-note here, since this is the schedule of a trainee at the M&A (Merger & Acquisitions) department. The case was about a German beer brewer, B&B, who was looking for a takeover partner. We were divided into groups and we had to represent ABN AMRO. Some groups had to play the advisor of the buying party, while other groups had to play the advisor of the selling party. This was all new to me, since I never had done anything with M&A and business valuation. After a couple of questions, I understood everything and could add something in the discussions within my group as well. The ultimate goal was to persuade the company to choose you as an advisor. This pitching was also new to me, and you could clearly see that some people were very convincing with their pitch. Unfortunately, my group did not win. We took a drink at a bar, but we had to go back to our hotel soon as we started getting hungry.



After having freshened up at the hotel, we went towards the center where we had a dinner at Humphrey's in a wonderful atmosphere. After dinner we split up, since one part of the group wanted to go out and the other part wanted to go back to the hotel, to consume some beverages at the SKYY bar. Diederik and I finally crawled into our beds, knowing that the next day the wake-up call would be at 6:15 in the morning.

November 22

On the very early morning of November 22, the wake-up call awakened us. After a quick shower, we went downstairs where a delicious breakfast buffet was served. The breakfast included pancakes, fried eggs, yoghurt, fruit drinks, and much more. After the breakfast we took the subway again towards The Hague, where a visit to NIBC was waiting for us. They also started with a nice talk about their daily business and what they could offer us. Again we got an M&A case, and fortunately I knew a bit more about that than the day before. This time we did not have to do a pitch, but instead we had to negotiate for the correct price and conditions for a company to buy or sell. There were six teams and each team had to negotiate with another team. This was a very nice setup since you could compare your team very easily with another team. After the case we had a delicious lunch and some people started 'networking'.

After lunch we left for the afternoon program. This time there was no company visit planned, but instead we visited the Duisenberg School of Finance. Although I was a little bit

skeptical about this school in the beginning, I was much more positive about it afterwards. After a short introduction, we got a small lecture, which was very exciting. We had a drink afterwards and some students of the school joined us.

After the afternoon program, there was some time to relax. Some went to sleep, but Diederik and I went to the pool at the hotel, which was really refreshing! In the evening we dined in the city again. Everyone was tired and knew that the day after we would be awakened very early in the morning.

November 23

Because we had to leave very early on Friday November 23, the buffet was not open yet. Fortunately, we received a nice breakfast from the hotel to take with us. We headed to Zanders, a treasury and risk consultant, which is located in Bussum (near Utrecht). The company is located in a villa and immediately there was a pleasant atmosphere. After the introduction talk about the company, we started with the case. We were pitching for a company that wanted to improve the identification of risks. I knew more about this topic, hence it was a very interesting case for me. I was lucky that one of my group members was a very good performer and I thought we would win. But despite my hope, another group took away the prize. However, the sorrow of the loss quickly disappeared at the moment I saw the delicious sandwiches we were having for lunch!

After we had visited Zanders we went to our last company, Optiver. This is a

trading company that is a market maker. I was very interested in this field, so I was very curious about this company. As some people had predicted, we got a mathematical test to test whether you could handle being a trader. Everyone had eight minutes to answer 80 'easy' mathematical questions. Each correct answer yielded 1 point and each incorrect answer resulted in 2 penalty points. The goal was to gain 54 points since then you would go to the second round of the application procedure at Optiver. Anyone who exceeded this limit had been listed. The winner with 69 points won a nice prize. After the test the talk about the company started. Also we got to see the trading floor of Optiver. All the traders were in front of six screens, calling, screaming, buying, selling and so on. We played a fun game where we had to make markets by ourselves, which was very confusing in the beginning. This game gave a better insight in the business on the floor. At the end we ate pizza together with some traders in the canteen where some people played a game of pool. After the pizza we went back to our hotel to pack our bags. Everyone thanked the committee for the good organization, and then walked back to the train to go home again. Although everyone was happy that they could go back home, it was still regrettable that this nice week had come to an end.

Dubai 2012: The Story

Welcome to a magical trip through sand, a big desert, tall buildings, fountains, ultimate shopping (for the ladies of course) and last but not least, a place to relax, go out, have a cocktail and enjoy amazing views you will never forget: Dubai, the largest city of the United Arab Emirates.



Name:
Jeroen Moonen

Age:
22

Begin Studies:
2008

Heading towards Dubai

The International Business Tour 2012 started at the parking place behind Tilburg University's Goossens building. At 4:00, we were expected to be present with all of our luggage and a good mood to kickoff this far and exotic business tour. While waiting for Timo (chairman of the committee), the bus arrived around 4:30 and we departed for Schiphol airport. At that time I did not know many of my colleagues, but one bus trip of nearly two hours and an additional day of traveling and flying would soon change this. By the time we had all woken up and had gathered in front of departure hall 2, we had to wait for one more person to join our group consisting of 24 econometricians in total. Besides worries about a ticket with an incorrect name on it, some luggage, passports and pumpkin seed checks at customs (you are not allowed to bring pumpkin seeds with you) and my final cappuccino at the Heineken bar with Paul, we could start traveling to Dubai. Our first flight was from Amsterdam (10:15) to Zurich (11:30). After an intermediate hour (12:45), we could again board for a luxurious flight from Zurich to Dubai. During the flight, good (food) accommodations and up-to-date cinema movies were available in our Swiss airliner. After having watched Spiderman 3 and having done some naps, we flew above Dubai around 20:15 local time. From the sky this metropolis looked streamlined with its orange streets. Besides the city lights, the sand and water looked stunning in the darkness.

After having arrived at Dubai airport, we collected our luggage, withdrew the first few hundred Dirhams (exchange at 4.7 AED = 1 EUR) and headed towards the sole youth hostel in Dubai. During the week, I had to sleep in a large room with six fellow students, sharing one toilet and one shower. Other formats were the same number of toilets and showers with two, four or six beds and a combination of five beds with two showers and a toilet.

Despite these worrying numbers for some of us, the accommodation was certainly good for a short night and refresh in the morning or evening. Albeit our strict schedule in the morning (leaving at 8:00 or 9:00 each day), everything went streamlined. Also notice our huge swimming pool which was... yes, under construction! The youth hostel was a perfect place to stay and definitely served its purpose.

Sightseeing Dubai

Tuesday being our first day to explore Dubai, the committee arranged a guided bus trip to all the beautiful sightseeing locations Dubai has to offer. Being wakened by the early birds of our group, I prepared myself for the first breakfast at the hostel. This breakfast, taking





place at another accommodation outside the hostel, consisted of instant coffee, tea, cornflakes with (I guess camel) milk and Arabic bread similar to what we call 'wraps'. Moreover, cheese and butter were included. I soon found out that white sugar (meant for tea or coffee), combined with some butter and a wrap could serve as a perfect breakfast together with some cornflakes. After breakfast with the group, we met our personal bus driver Mr. Khazim and Hetty Post, who was our tourguide for the week. We headed towards a place called Mawaheb, while driving along the Creek (the main river through Dubai) and listening to interesting stories and comments on the skyline, buildings and highlights by Hetty. Mawaheb is a project financed by the second wife of Sheik Mohammed bin Rashid Al Maktoum (ruler of Dubai), where disabled individuals can work and express their artistic qualities in the form of paintings and mosaics. The project was guided by a friend of Hetty. At this place various artistic individuals worked on their projects, including a deaf person who made great paintings of himself and of artists like Beyoncé. After a compliment on his paintings and some attempts of Hetty's friend to sell the painting to me, we continued to the Dubai museum, where the origins and artifacts of the ancient Dubai were revealed. At that time we first felt the real warmth, as it was mid-day and the temperature was at least 40 degrees in the sun. After a partly guided tour through the museum which revealed the early business of pearl diving in Dubai, we continued to the 'Souk'. The Souk is a spice market in the old part of Dubai on the other side of the Creek. We passed over the

Creek by means of a water taxi and found narrow alleys full of small shops offering spices, traditional clothes and precious metals like gold and silver. As Hetty told us, the working class do not put their earned money on a bank account but rather invest it in 22 karats gold and silver (Dubai is one of the few places on the globe offering this) and put it in their safe at home. During the mid-day we also heard our first public praying for Allah as we stood near one of the mosques. Hearing this prayer in the middle of a typical Arab alley was certainly a mystic scene.

For lunch we went to the only restaurant offering traditional Arabic snacks at waterside view over the Creek. After a cosy lunch and some free time we departed towards the Burj Al Arab, one of the famous towers located at shore side which has the form of a sail. All being impressed by the beautiful view on the world's most luxurious hotel which has only 27 floors (and rooms) and is said to have been so expensive to build it will never generate profit ever again, we headed towards the palm shaped region. Here we got into a shopping mall near one of Palm Island's top hotels, The Atlantic Hotel, for a short break and a drink at Starbucks!

In the afternoon we continued our bus trip to see buildings like the Infinity Tower (a 90 degrees twisted tower which is still under construction) and the Burj Khalifa (the world's famous and tallest building). After this, some free time was available to go to the old part near the Creek. In the evening we dined at a rather luxurious hotel serving Arabic chicken related dinners. We continued our relaxing evening

with the entire group at the hotels' terrace. At the pleasure of a cocktail or soft drink we discussed our impressive day and enjoyed the evening.

Recreation and Adventure

On Wednesday I headed with a part of the group towards the Dubai aquatic park, which included loads of adrenaline pumping slides. While having fun at the kamikaze (where at the numbers "3...2...1" a shelf would be withdrawn while you were standing vertically on it in some sort of coffin) and at a whirlpool multi-person slide, the others were relaxing at the beach and saving their strengths for the upcoming desert tour scheduled at 16:00.

The desert tour guides were three locals from the safari tour organization who guided us during a trip from 16:30 to 18:30 through the roads out of Dubai and into the desert. During the desert tour our driver drove as a madman in his Toyota V6 towards the top of a 30 meters high sand mountain and slipped at 8,000 rpm back downwards, until we reached a camp in the middle of the desert. Also the possibility to see the sunset in the middle of a real desert was certainly impressive. At the camp we had a relaxing evening including a belly dancer show and a show from Captain Honey; a guy in a dress full of Christmas lighting, who could spin on one spot for more than 15 minutes. Also Jasper and Rutger gave an impressive show to everyone. Having had the pleasure of a barbecue and the possibility to go on a classical camel ride, go sand surfing and buy souvenirs at the local shop, we headed back towards our trucks in the darkness

of the desert. The trip led back towards our youth hostel, where we thanked our amazing driver for his inspiring and strong stories. In the evening some relaxing time was scheduled, but after a trip to the local McDonalds at 22:30, I headed to bed as I had to get up early the next morning.

Student Life in Dubai

On Thursday we got up at 7:30 to prepare ourselves for the business part of this trip: a tour to Sharjah (one of the seven emirates) where the University of Sharjah is located. At this university, we got a guided tour from several students. They told us everything about the university, their student lives and showed the available buildings, classrooms and canteen areas (including up to seven fast-food and local food stalls, bowling clubs and a relax and pool area!). The approximately 5,500 students are definitely taken good care of. They also showed us their Olympic qualified sports center and their own residences. For sure it was an inspiring day with lots of information, a lunch with the student exchange office and several other students, good impressions and an interesting class on price elasticity. Finishing with a Starbucks coffee we headed back towards Dubai and our

youth hostel to prepare for a great evening out.

In the evening we took the metro towards the Creek region and entered a buffet on the water, called a 'Dhow Cruise'. The boats on which the buffet was organized were all shoddy lighted. On the boat we could order our first Heineken beer (as alcohol is prohibited in the commercial Dubai except for licensed places) and we enjoyed what I would call a great buffet including chicken tikka masala, fish and meat meals and numerous vegetables and green dishes. The boat tour of nearly 2.5 hours ended on the top deck with a great cup of coffee and a beautiful view over the Creek. After the boat tour we headed towards Level 43 by taxi. Since taxis are very cheap in Dubai, traveling by taxi is quite common there. At the 43rd floor of the hotel we could enjoy the view of Dubai by night at the taste of a nice cocktail, beer or soda. The views were amazing and we definitely all enjoyed the remaining evening while having a good chat with each other. By the time the clock ticked two, the group was falling apart and some were heading back towards the hostel for a short nap. I fell asleep with these beautiful views in my slightly dizzy head caused by the Level 43 cocktail.

Accompanied by Pirates

On Friday morning, we got some free time. I spent this time at an idyllic shopping mall having a view over crystal blue water near the Burj Al Arab. The idea came from several ladies in the group and besides myself, Rutger, Vincent and Maarten were the only guys who joined this specific trip. Other options were to get some extra rest or go shopping at another location in Dubai. After shopping for some souvenirs and a nice lunch near the water with 11 of us, we went to our rendezvous point for the kickoff of our boat tour besides the skyline and coast of Dubai. After surviving for an hour in the harbor of Dubai we entered our catamaran (sailing) boat.

On the boat all of our 24 group members arrived and we joined a group of 8 to 10 pirates (which later seemed to be pilots flying for Emirates Airlines). The boat tour took us from the harbor (which is by the way quite impressive by itself) towards the coastline of the new part of Dubai and Palm Island, sailing besides the collection of islands known as "The World" towards a sandbank at which we would anchor in order to swim and start the barbecue. From the upper deck of the catamaran we could jump into the salty water of the Persian Gulf (sea surrounding Dubai's coast) and after some refreshing moments we could start the barbecue consisting of nice salads and large hamburgers. We had a great and relaxing time together with some crazy pirates on this boat. After anchoring for nearly an hour we headed back to the harbor. With up to four free consumptions (including alcoholic ones), a full stomach and some evening sun we could enjoy the remaining trip moving besides the Burj Al Arab, the Atlantic Hotel (at seaside of the Palm Islands), while looking at an amazing sunset and partying on the boat. Entering the harbor near the coast of new Dubai seemed like an LA helicopter view you only see on television. The boat trip was just awesome, especially with our great



group. After entering the harbor and still being amazed by the spectacular views, I took a taxi to go shopping the 'so far not found' souvenirs near the Souk on the other side of the Creek. After some hours of shopping (and using loads of bargaining techniques, thank you Game Theory), having bought my upcoming carnival outfit (the original Emirati white suit), we took a taxi back to the harbor and headed for the well-known Barasti bar. With all my souvenirs I managed to enter the Barasti bar and we enjoyed a great night out on the beach with a good DJ. Spending more than ever (just in Dirhams of course) on alcoholic drinks and mojito's, we all enjoyed our evening out under the Dubai skyline by night, as that view is truly impressive as well as the party with our group at the Barasti bar.

Religious and Commercial Dubai

After a very short night we had to get out early and prepare for our final guided tour (with Hetty and Mr. Khazim) to Abu Dhabi and its highlights. Leaving the



the originals, the Emirati people. After a short stop at this museum we headed towards Ferrari World, where we could shop at the original souvenir shop. After some comments by Hetty on the formula 1 circuit in Abu Dhabi we went back to Dubai. For dinner, I went to an old Pakistani restaurant with several others, where I sweat out every last drop of moisture left in my body. After a hot

some spare time, enjoy the shops and above all gather some energy for the afternoon program. In the afternoon we went halfway the Burj Khalifa (world's largest tower of 828 meters) on the 124th floor. A lift trip of nearly half a minute, only feeling some pressure on one's ears confirmed the tower is state-of-the-art. Spending nearly two hours on the panorama 124th floor and

'The sunset in the middle of a real desert was certainly impressive'

sandy Dubai and entering the green and aggregated Abu Dhabi, we first went to the second most impressive mosque of the world (the most impressive must be the one in Mecca). This mosque is almost entirely covered by pearl and gold foil on its highest tops. This impressive mosque entails many towers, world's largest woven carpet (woven by 12,000 Iranians) and the world's largest Swarovski candlesticks. After knowing the total capacity of 50,000+ worshippers, we went on towards a futuristic museum revealing Abu Dhabi's future plans and Sheik Mohammed bin Zayed Al Nahyan's historic achievements. These sheiks (both Rashid of Dubai and Zayed of Abu Dhabi) really did bring great welfare to

dinner we went on to Dubai's famous and the world's largest shopping mall, to see the largest fountain show of the world in front of the world's tallest building, the Burj Khalifa. Indeed this impressive water show (presented every half an hour) including Michael Jackson's song Thriller and many others, transformed the evening into a success. As a finishing touch we enjoyed the remaining part of the evening at a rather quiet Barasti bar, after which I fell in a vast sleep.

Concluding an Amazing Trip

On Sunday, our final day in Dubai, we had one more goal. Early in the morning we headed towards the Dubai shopping mall, this time to have

enjoying the sunset and one fountain show from above by light, we headed downwards, got ourselves a good snack to replace dinner, as we already were required to head back to the youth hostel to catch our luggage and depart to Dubai Airport.

After gathering and catching several metro's, passports and custom checks could start again. While waiting for our travel back, we all sat in the local food court with a big smile on our faces. Both Ilse and I agreed on the fact that one week longer in this place would definitely not do any harm. This trip was an experience I will never ever forget: let the boarding and cinema movies begin once more!



THE AMERICAN UNIVERSITY OF SH

Study Tour I

ASSET





Dubai 2012

Econometrics

Struggling through the EOR bachelor's program, and then?



Name:
Edwin van Dam

Position:
Full Professor

The Econometrics and Operations Research (EOR) bachelor's program, and especially its first year, contains many theoretical courses that seem to be far away from any practical applications. Professor Van Dam explains us why such a fundamental basis is needed, and informs us about future possibilities for econometricians.

Why this special?

Studying is generally considered as investing in your future, but who knows what that future is going to look like exactly? Though some students do already know what they want to become since they were just a child, most of us are not that sure. We thought it was about time to inform our readers thoroughly about master's programs offered especially for econometricians at Tilburg University and corresponding career opportunities. For this purpose, Professor Van Dam, education manager of the QFAS and ORMS master, and teacher of the course Linear Algebra, was interviewed because of his close connection to the master's programs.

Professor Van Dam

Every econometrics student knows Mr. Van Dam from the Linear Algebra course, offered in the first block of the EOR propaedeutics. Besides teaching us elementary theory in matrix algebra, students may also encounter him in a later phase of their studies. This is when the bachelor's program has been completed and it is time to choose a master's program. As education manager of two of the four masters offered, he is closely related to many master students.

Like many professors at the EOR department, Mr. Van Dam has not studied econometrics himself, but in fact he has studied mathematics. He studied technical mathematics at the Technical University of Eindhoven. Still today, Mr. Van Dam spends most of his research in the field of mathematics, rather than the economic appliances of econometrics. This

Number of Students in Master's Programs

QFAS	29
ORMS	32
EME	15

Division Master Students 2012-2013

does not mean he is not at his place at Tilburg University since, as we all know, a substantial part of econometrics consists of mathematics, and if it is not pure mathematics which is taught, it is often the case that mathematics returns in economic appliances.

A nice fact to report, as a student Professor Van Dam has been very active at his study association as well, so he admits the value of being committed to an association such as Asset | Econometrics.

Different Master's Programs and their Future Prospects

At Tilburg University the continuation of the econometrics bachelor's program consists of four master's programs, each specializing on certain aspects that have already been covered partly in the bachelor phase. The four directions from which one can choose are:

- QFAS: Quantitative Finance and Actuarial Science
- ORMS: Operations Research and Management Science
- EME: Econometrics and Mathematical Economics
- Marketing Research - Quantitative Track: a combination of marketing and quantitative methods

In general the master phase consists of four core-courses and three elective courses. Therefore, also within the master's program there is opportunity to deviate into specific fields of interest.

Although there is a certain overlap between these programs, each of them specializes into a unique discipline developing the student in specific qualities. This is how Tilburg University can prepare students optimally for making a career after having completed their studies. As econometrics is applied in a very wide range of branches, students can choose to work in a



lot of different companies. From banks to transporting companies and from market research institutes to the CBS (Statistics Netherlands). Because of the high quality of the program, Mr. Van Dam states that econometricians are very attractive to employ for companies. Especially during the crisis more and more emphasis was put on a thorough approach on all kinds of problems, often demanding a quantitative look on these cases. This is when the qualities of EOR students appear and companies will observe how valuable quantitative oriented students can be.

ORMS

Operations Research and Management Science is often associated with courses like Linear Optimization (first year), Stochastic Operations Research Models (second year) and Combinatorial Optimization (third year). It combines the field of economics, mathematics and statistics to develop students' specialized skills needed to solve management problems concerning production systems, supply chains and IT. The program teaches how to represent and solve practical managerial problems

world economic and business issues such as the labor market, capital investment and strategic behavior of firms or individual decision making by consumers. Perhaps it makes the most sense for first or second year students to associate EME with bachelor courses as Microeconomics (first year) or Introduction to Mathematical Economics (second year). Finishing this track assures you of a successful career in governmental institutions, such as the CBS (Statistics Netherlands), consultancy firms, or a scientific career in economics or business research.

‘Especially during the financial crisis, more emphasis was put on solving problems in a quantitative way’

QFAS

The master's program Quantitative Finance and Actuarial Science specializes in financial mathematics. As the name already suggests, it prepares the students especially for a job in finance, like risk manager, and for actuarial jobs, such as working for an insurance company. It is as well a foundation from which you can advance to the status of Actuary AG, a fully certified actuary who is a member of the 'Actuariële Genootschap'. During the bachelor's program, already some courses have been taught within this discipline, such as Introduction to Mathematical Finance and Insurance (second year), and some third year courses like Life Insurance, Risk Theory and Asset Liability Management, which prepares students optimally for a career in the financial world.

from a quantitative perspective. Included are analytical methods, mathematical models and insights from operations research, management science, quantitative logistics, and optimization in order to optimize all kinds of problems companies have to deal with. Students who finished the ORMS track are capable of solving the most demanding quantitative problems managers face, and are likely to find a job in consultancy, software engineering and large companies with major logistical problems, such as NS Groep (Dutch Railways) and PostNL (Dutch Postal Service).

EME

Econometrics and Mathematical Economics focuses on mathematical and quantitative analysis of economic problems, in order to understand real-

Pension, Aging and Retirement Track

This brand new track is custom-made for a major problem that society deals with these days and can be chosen when doing the QFAS or EME master's program. Because of the high rate of aging more and more people will leave the labor market soon. On top of this, investment results of pension investors are under pressure because of the economic crosswind in many developed countries, resulting in difficulties when pension institutions want to satisfy the financial needs of the retired. This track brings students a scientific understanding of the various aspects of aging and retirement. You will learn how economic theories and models can be applied to create solutions for financial institutions and government policies.



Marketing Research - Quantitative Track

Finally, econometrics bachelor students can choose for the Marketing Research master's program. Professor Van Dam says this is the result of interdisciplinary relations between the Marketing department and the Econometrics Department at Tilburg University. Because of the overflow of data available (for example of cookies on websites et cetera), quantitative analysis is becoming more and more important in all kinds of businesses. This led to the foundation of the Marketing Research master's program, in which quantitative methods, a typical econometrics topic, are combined with marketing knowledge. Students acquire the ability to use state-of-the-art research methodology to collect, analyze and disseminate quantitative information in a systematic and objective way to improve marketing decision-making. In this way students are optimally prepared for a job in market analysis companies, consultancy firms, or to follow a Ph.D.-track.

From Bachelor to Master

We also wanted to know from Professor Van Dam what his vision is on the

transition from bachelor to master. In the first year, students mainly follow fundamental courses in mathematics and statistics. Although there are some applied courses, the emphasis is on mathematics. During the three years of the bachelor's program these applied courses become more and more important and the pure mathematical courses disappear to the background, though the quantitative methods return in practically every course. In the third year students are able to take electives, so they can already start selecting courses of their interest, looking ahead to the master's program of their interest. Also, in the third bachelor year students write a bachelor thesis. The subject of the thesis can also be chosen in a way that it matches with the master's program of interest.

Why choose for Econometrics in Tilburg?

On the question why prospective students who consider studying Econometrics should subscribe at Tilburg University, Professor Van Dam answers that during the bachelor's program a strong general (mathematical) basis is built,

from which many applications are developed. This makes EOR students from Tilburg widely employable, with specific knowledge in certain economic disciplines. Besides, the number of students is relatively small, resulting in a close connection to fellow students and personal contact with professors. Mr. Van Dam tells that he knows most of the students, at least by face, and that the doors of the econometrics department are usually all open. In this way professors are easily approachable, and often available for advice or to answer questions.

We hope that that we have informed you well about the master phase succeeding the EOR bachelor's program at Tilburg University and about the study program in general.

Text by: Michiel van Erp

The future is bright with Business Analytics

Despite the financial crisis, there is still much need for people that are trained in quantitative methods. The expectation is that this demand will even increase a lot in the near future. The reasons for this can be explained by what is now called 'Business Analytics'. INFORMS, the worldwide society for Operations Research and Management Science, gives the following definition: 'Business Analytics - the scientific process of transforming data into insight for making better decisions.'

In the book 'Competing on analytics, the new science of winning' (Harvard Business School Press 2007, written by Thomas H. Davenport and Jeanne G. Harris), several reasons are discussed why analytics is important for companies nowadays. First of all, companies often offer similar products and use similar technology. Second, many previous bases for competition (e.g. geographical advantages or protective regulation) have been eroded by globalization. Third, proprietary technologies are rapidly copied. Finally, breakthrough innovation in products and services seems increasingly difficult to achieve. They then conclude: 'What is left as a basis for competition is to execute your business with maximum efficiency and effectiveness, and to make the smartest business decisions possible.'

Hence, analytics is often the only way to get competitive advantage. Many leading companies are building their competitive strategies around data-driven insights by using analytical techniques and tools. On the website of IBM it is mentioned that 'recent studies show, that organizations that apply analytics outperform their peers. Just look at their financial results: up to 1.6x revenue growth, 2x EBITDA growth and 2.5x stock price appreciation'.

For an important part, this development is made possible by the improvements in ICT. In the past the lack of data was a big problem for many companies, but due to the ICT developments nowadays often huge amounts of data are available. Many companies now face the following problem: we have big data, but how can we extract useful information from

this data, and how can we use this information to get better decisions? The answer is: use analytics!

In the above mentioned book, four different levels of degree of intelligence and competitive advantage are distinguished in analytics:

1. Optimization – what is the best that can happen?
2. Predictive modeling – what will happen next?
3. Forecasting and extrapolation – what if these trends continue?
4. Statistical analysis – why is this happening?

All of these four categories are important parts of both our econometrics bachelor and master programs. You can imagine that, since I am a researcher in Optimization, I am proud that the authors put Optimization at the highest level of intelligence and at the highest level of competitive advantage for companies.

My advice to the econometrics students is to read more on Business Analytics and to follow the developments in this area. Besides the above mentioned book, the same authors together with Robbert Morison, also wrote a second book that is very interesting to read: 'Analytics at work, smarter decisions, better results' (Harvard Business School Press 2007). Moreover, the above mentioned INFORMS society also publishes a very interesting electronic journal on this topic. This journal can be read from the webpage: <http://www.analytics-magazine.org/>.

I would like to finish with two remarks. The first is that the name 'Business Analytics' is maybe too restrictive. One might think that analytics is only useful for companies. However, analytics is also used a lot in other sectors, e.g. by governments or in medical areas. My second remark is on the slogan of Tilburg University. As you all know this slogan is: 'Understanding Society'. However, with analytics taught at the Econometrics and Operations Research department one can go further: 'Improving Society'!



Name:
Dick den
Hertog

Position:
Full Professor

Always Trying to Make the Best Choice

After seeing Saint Nicholas on television a couple of times that day, Ernst and I headed to Herkenbosch, a place near Roermond where on that day Saint Nicholas arrived. Also Willem and his sisters went to Roermond to welcome the good old man. Fortunately, he was back home on time to answer our questions with his mother.



Name:
Ine-Mieke
Jongen-van den
Camp

Residence:
Herkenbosch

Breaking the Ice

We arrived in a nice house which still showed some signs of a party that had been thrown a while ago. The toilet still had a sheet with the word 'toilet' on it, which came in handy for us since we did not know our way around the house at all. Unfortunately, we did not see the rest of the house, but our first impression was that they lived in a nice house. What we did see immediately was the Limburg pie standing on the middle of the table. Luckily for us, Willem offered us a delicious piece.

Attached to the house there is the dental office of Willem's dad. Due to this, Willem's father was able to have lunch with his children quite often when they were still in elementary school. Ine-Mieke was not that lucky, since she works at the local government as a secretary and therefore could not have lunch with her children every day. She started working there after Willem's youngest sister turned ten. Before that, she stopped working for a while to spend more time with her children during their childhood. Now that she is working again, she considers it a disadvantage that she cannot give all her children the same amount of attention as before.



We were not only welcomed by Willem, but also by his sisters. He has two sisters, one who is now in her second year of the study program fiscal economics at Tilburg University and the other one is in the fourth year of high school. During the interview with Willem's mother, none of the other family members wanted to miss the slightest detail of what Ine-Mieke was telling us. This gave us a good feeling, since it implies that there are no secrets in the family. When Willem and his sisters went to the Olympics last summer, Ine-Mieke experienced it was not very pleasant that her children went away for some time. On the other hand, she wished them good luck and a lot of fun.

A vacation with the family Jongen is relaxing but not too much, because they also want to see the surroundings to really know where they have been. This is also what Ine-Mieke experienced in her youth and therefore she passed this on to her children. They still try to go on vacation together, but the time they are spending away from home has shortened in the last few years. That is why Ine-Mieke tries to do something fun with her children individually once in a while, like going to the theatre, visit a museum or go to the cinema.

Childhood

Willem has always been a clever boy. Most of the time he refused to sit up straight in the car, because he wanted to see all the brands of the cars they passed. He did not only want to see them, but he also reported to his parents what kind of car had just passed by. There was another thing which implied cleverness during his childhood. When he was asked to give all the red balls that were lying on a table between some white balls, Willem noticed that there were just a few white balls on the table. Instead of picking all the red balls out, he took all the white balls, put them apart, grabbed all red balls and gave them to the person who had asked the question.



The carnaval spirit is definitely present in Willem's family. Willem's father was Prince Carnaval in his birthplace. Therefore, the children were somewhat forced to go back to Egelshoven to celebrate carnaval there. When the children got older, the desire to celebrate carnaval in Roermond became stronger and stronger over the years, since all their friends went out in Roermond and they wanted to join them.

Sports and Games

Every member of Willem's family likes to practice a sport and to watch sports on the television. Ine-Mieke experienced that the sports Willem likes to watch are Formula 1 and cycling. First, she did not watch these kinds of sport games on the television, but nowadays she likes to join Willem when he is watching. In general, the family Jongen likes to watch television together in the evening. Of course, a compromise, about what channel is on, should be made. Since two of the three children are living in lodges during the week, Ine-Mieke has more free time left. Therefore, she has to find new things to do when being at home. For that reason, she restarted playing the piano and other hobbies from her youth.

Willem is very active in sports, he likes to swim and according to his parents he does so quite well. His mother was his companion during all his training sessions and matches, because she had to take Willem there 90% of the time. She was very proud to see the name Willem Jongen on the big screen in the Pieter van den Hoogenband swimming pool in Eindhoven. At the moment Willem manages to swim two or three limits, but before he started living in lodges, he could swim six or seven limits, which are needed to participate in some matches on national and regional level. This is mostly due to the fact that Willem now participates in the adult category, in which the limits are much harder to swim.

Most econometricians like to play games, but at the family Jongen a game is not just a game. All the rules which you have made at the beginning are strictly followed up to the end. Otherwise, Willem will stop playing, an attitude he inherited from his father. Every player is determined to win at all costs, which implies some rivalry. They even invent games to make it more strategic than the original game. For example, Willem and his sister took a Sudoku board and transformed it with a timing device and a round table to make the Sudoku on time with an opponent.

Future

According to Ine-Mieke, Willem will be in a big company when he has finished his study, where he can discover or invent new things. He knows what he wants and is determined to finish what he started. He thinks it is harder to choose between two things than between multiple choices. Willem thinks when you have more choices there are always some choices that are better compared to the rest. The biggest example is that Willem still thinks that he might have made a wrong choice by studying Econometrics and Operations Research instead of medicine. Fortunately, he does really like the mathematical computations he now has to make.

Ine-Mieke hopes that Willem and his sisters will stay in Limburg/Brabant, so she can easily visit them and her future grandchildren or just to say hello. However, she does not want to live next to them, because they also deserve some privacy.

We would like to thank Ine-Mieke, Willem and the rest of the family for their hospitality and their openness during the interview.

Text by: Robbert van Gaal



Name:
Willem Jongen

Age:
21

Begin Studies:
2010

Best Bowling Night Ever

Many students signed up for the first freshmen activity of the academic year. We were offered two hours of bowling with unlimited drinks, who does not want that? Bowling on its own may sound a bit boring, but when you occupy a bowling centre with a lot of students while offering them free drinks, a fun evening is guaranteed.



Name:
Tom Abbink

Age:
20

Begin Studies:
2012

When Tim and I arrived at Tilburg Central Station, we had to take the bus to the bowling centre, since it was situated in the north of Tilburg. However, that did not go exactly as planned beforehand. After being screamed at a few times by the bus driver, for she thought that we were in the wrong bus, we decided to listen to her and pick another bus. She was right that the other bus stopped closer to the bowling centre (a difference of about 2 minutes of walking). Only now we had to take a bus which would depart 30 minutes later, because in the meantime the first bus had left. It was a blessing in disguise that we met some other freshmen, who were also waiting for the bus.

When we finally arrived at the bowling centre, it was already surprisingly crowded. First we signed in at the organization desk of the event and we dropped off our coats. Then we put on those incredibly 'comfortable' bowling shoes, and finally we were ready to play some bowling. The organization had divided all freshmen students into smaller groups, each with its own bowling alley. Every group, consisting of about six or seven fellow econometricians, was chosen at random, to support getting to know people you did not know before.

Although we were a bit delayed, I arrived just in time to do my first bowling attempt. In the

beginning, I was doing rather well with a score of about 140 points, of which I was quite proud. However, as time passed, so did the beers, which caused my scores to drop dramatically. At the second round, I had a score of about 100 points, and during the third round I scored even less points. Fortunately, I was not the only one whose results started to drop, so it still was an exciting game.

After the first game of bowling, most people started to walk around to other bowling lanes to talk to other students. The focus during the second and the third game was not really on the game itself anymore, since talking with fellow econometricians became the primary activity. Of course, this was certainly not a problem because it was a lot of fun.

Around 21:30, I wanted to catch the bus back to the train station, because I had to travel quite a long time before I would be home again. Unfortunately the bus drove away just in front of me, so I had to wait half an hour until the next bus would arrive. Instead of waiting outside in the cold, I decided to get a last drink at the bowling centre and just before 22:00 I left again to return my way home. To conclude: it was a great evening and I had a lot of fun, which made it an absolute successful freshmen activity!



Dinner by Bike

CYCLING DINNER & DRINK

A cycling dinner; before it started I did not know what to expect, but it was a great experience to cycle from one address to the other, from one dish to the next. Without navigation we would never have arrived in time for the meals. After this great dinner, there was a drink at 'Café Van Horen Zeggen'.

At the freshmen activity, I was persuaded to participate in the cycling dinner on November 6, something which I had never done before. Since I thought it would be nice to meet other people and to try the food of my fellow students, Esmee and I decided to sign up for this new experience without any doubts. This year, a special twist was given to the cycling dinner, namely an international theme. Each couple had to make a foreign meal. Your assignment could be to create an Italian starter or maybe a Chinese main course. A couple of days before the cycling dinner took place, a schedule was sent to all participants. In this schedule you could not only find the times and locations, but also what kind of dish every couple had to prepare and with whom you would be eating the starter, the main course and the dessert. At every meal, you were eating with a different group of econometricians. Being a freshman at Tilburg University, this is a great way to get to know your fellow students.

Our first stop was at Mirjam's place, where we would start with a Spanish appetizer. Since Esmee and I are both newcomers in Tilburg, we needed our phone and Google maps to navigate through the city. Unfortunately, her place was not nearby, so we had to cycle for half an hour before we arrived at Mirjam's. Luckily, the other students with whom we would eat the starter were also parking their bikes when we arrived and therefore we knew that we had found the right place. Mirjam and Eline made some delicious tapas for us, consisting of shrimps in garlic oil, tortillas with potatoes and baguette with tapenade. After this delicious starter, we cycled to get to our main dish. It started raining a little bit, but luckily we had no trouble finding the right place. On the menu was an Egyptian main course served by Cleo and Michiel. They made a dish with lamb and couscous, which was in fact quite spicy but very tasty. After the main dish, we got on our bikes and hurried home to

serve our guests a Turkish dessert at Esmee's place. First, we had trouble finding an original Turkish dish, but after some considerations we came up with the following idea: a dessert with ice-cream, raspberries, marzipan and whipped cream.

With well-filled stomachs, we all gathered at 'Café Van Horen Zeggen' for the drink. Here you could hand in a picture of your homemade dish. The couple with the best or most original dish was rewarded with a prize. Robbert van Gaal and Annick van Ool were the winners and both received a pair of oven gloves and wooden spoons. They had prepared a Chinese dessert with homemade fortune cookies, filled with their own prophecies.

While sharing our cooking experiences with the other participants, we had a pleasant time at 'Café Van Horen Zeggen'. It was nice to meet a lot of new econometricians. The evening was definitely successful with delicious food, drinks and a lot of fun!



Name:
Rowie van
Dartel

Age:
18

Begin Studies:
2012



In the Land of PSY

While Gangnam Style was taking over Europe, I travelled in the opposite direction. It feels like yesterday, but as I am writing this, I sadly come to the conclusion that my foreign exchange will be over in exactly one month. Let me tell you about the wonders of Seoul, South Korea.



Name:
Sander Vromen

Age:
21

Begin Studies:
2009

Through the power of Facebook I met up with four other people who were about to start the same journey as me at Schiphol Airport, on August 26, 2012. We got off quite well and the eleven hour flight passed by quickly. After being dropped off at our dorms, we quickly decided to find ourselves something to eat and asked another exchange student to show us around. I remember walking through the neighborhood and being amazed by the atmosphere. Even though it was about 19:00, there were students everywhere, shops were playing music, and there were more restaurants, bars and coffeehouses than you could count. Now it is simply the neighborhood I live in and where I feel right at home, Hyeohwa. After having dinner, we went to a bar to meet up with a large number of other exchange students, and a couple of hours later I found myself in a cab heading to a club in the party district. Quite intense for the first day you might think, but that is just how it is. It set the standard for many exciting days to come.

Seoul

We had a week left before our classes would start, which was obviously the perfect opportunity to get to know the city. Seoul is one of the largest cities in the world with over ten million citizens, and as a result, there is always something happening in the many areas that often serve a specific goal. Whether it is the 24-7 market in Namdaemun, the international melting pot Itaweon, the party district Hongdae, the fancy and rich Gangnam, the shopping areas Myeondong and Dongdaemun, or the traditionally Korean Insadong, it is always crowded, and the list goes on. Luckily, the subway system is one of the best of the world, and will take you anywhere for about 70 eurocents. It has not always been like that though. South Korea has been at war for an extremely long time with many enemies, and it technically still is at war with North Korea, even though it is unnoticeable in daily

Korean life and there is nothing to be afraid of. Anyway, before its economic growth started in 1960 it was one of the poorest countries in the world, which is unimaginable, considering the fact that it is ranked 15th nowadays based on nominal GDP (The Netherlands are ranked 16th). South Korea is one of the 'Asian Tigers', with Seoul, in which one out of 5 Koreans live, as its heart.

Sungkyunkwan University

Of course, it is not all about the good life. Studying has to be done, and I chose to do so at Sungkyunkwan University: fourth ranked in Korea, and apparently educating many of 'the rich kids'. At first sight, studying abroad might seem a waste of time for econometricians, as the courses often do not relate to the program and cannot substitute for the courses in Tilburg. I disagree however, as I am gaining a





lot of invaluable knowledge that is not taught in the Econometrics program, but which I think will be very useful in a future career. Instead of the required five courses, I am taking six (even I do not know why exactly): International Finance, Understanding Asian Culture, Marketing Management & Strategy, Internet Business Model, International Logistics, and Money & Banking. Even though the level might not be as high as at Tilburg University, I spend a reasonable amount of time studying since five of my courses include team assignments. The most intense one is a consultancy project with a real Korean company in a team with five Koreans. Korean students work quite hard, because grades are very important to get a job in the highly competitive labor market, but for them it is not that bad considering how they used

be cultural, party, go around town, and whatnot. However, during weekdays (Monday to Thursday, Fridays are off!) my schedule is pretty much set. Every day I have about 2 classes and the rest of the day is spent on studying or working on assignments (which I often do in a coffee house; a very popular concept in Korea), having lunch and dinner with friends (I mean it when I say that I have not cooked even once during my stay here, even though we have a kitchen), strolling through unexplored parts of the city, having a drink somewhere or simply being lazy at home with the three Dutch guys I share an apartment with. I also decided to join the Taekwondo club and train with them twice a week. Taekwondo is the traditional national sport, but nowadays baseball and soccer are more popular. By the way, Koreans adore

about 30% alcohol. Drinking shots of soju is quite normal when having dinner, but we usually skip that part (to prevent 'bad things' from happening as is not uncommon for Koreans). Korean beer tastes good enough, but is just not that strong. Therefore, you can simply add a shot of soju to spice it up. We have also experimented a bit ourselves and discovered that it can pretty much be mixed with anything. Next stop on the program is going to a Noraebang, the Korean equivalent of a karaoke bar. However, unlike Koreans who can sing well without exception, us foreigners do not mind leaving the Noraebang part out, and going straight to the club. There are clubs all over Seoul, but there are three main areas: Itaewon, which is crowded with American soldiers, Gangnam, where the bigger, more stylish and expensive

'Koreans adore Guus Hiddink, as he led them to their highest rank ever in the 2012 world cup'

to work day and night during high school to get into university. There are plenty of courses to choose from if you want to take it easier though, as many exchange students do. However, I really enjoy working together with Koreans and experiencing their student life, as they are generally very welcoming to, and interested in foreign students.


The Exchange Life

Even though studying takes up some time, there is more than enough time to

Guus Hiddink, as he led them to their highest rank ever in the 2002 world championship: fourth place.

The weekend can begin as soon as my Thursday evening taekwondo practice is over and usually it does so with partying. It often starts soon after dinner, with drinking and chatting at one of the countless bars. A very important element here is soju: a Korean drink comparable in taste to vodka and on average containing

clubs are located, and Hongdae, where it is crowded with partying youths. We usually go to Hongdae, which is always alive, and where the clubs are crowded every day of the week. Naturally, there is more to weekends than partying. Seoul is full of places to see and visit, such as old palaces, many markets, traditional village parts and the mountains that surround the city. Festivals are everywhere and it is great to enjoy the atmosphere of the bustling city. However, the weekends are also perfect



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Werken aan vertrouwen. De Nederlandsche Bank



for longer trips and we have made quite some. We have been to the city Busan, went to the 'Korean Hawaii' Jeju Island, and climbed the highest mountain in Korea. I participated in the National Taekwondo Championship (where I, as one of the few foreigners, was sadly killed off within mere seconds by some

though not everyone speaks English, language is rarely a problem, and already being able to greet in Korean is highly appreciated, (high school students visiting from around the country tend to stare in awe). Society is all about respect for one another: from professors to shopkeepers, and

Seoul is a wonderful city that has not only made me, but every single exchange student, feel right at home. There is something about this east-meets-west, never sleeping metropolis, that makes it feel cosy instead of massive. It has been (and luckily will be for a while longer) an amazing

'I will not mourn about the loss of Kimchi: living octopus'

head kicks from a very experienced Korean) in the south of the country, and went paintballing at a US military base. I paid the extremely tense and guarded demilitarized zone (border with North Korea) a visit, and stayed and prayed with some Buddhist monks in the oldest temple of Korea. Soon a trip to Tokyo, Japan will be added to that list. There is so much left to do, but sadly there is so little time.

Experiencing Korea

Having been here for a couple of months now, I can tell you that Korea is an awesome country to live in. Whether it is the people from the smaller towns, or the westernized people from Seoul, everyone is very welcoming to exchange students. Even

from elderly in the subway to the guards at the university, everyone highly regards each other. It is in these details that you will find the difference between Koreans and Europeans: the always giggling girls, the smartphone addiction in the subways, the drinking business men, and the identically outfitted couples. Another important aspect is food. People eat all the time, and I happily join them: the often spicy Korean cuisine is quite good, but there is a lot of western food available as well. There are many things I will miss when I am back home in Holland, such as the barbecue restaurants, the vast amount of street snacks and noodle places, although I will not mourn about the loss of Kimchi, or one of the delicacies: living octopus.

experience. So everyone, take your chance and go! I am sure you will have a great time anywhere in the world, but I can assure you that you will have a blast in Seoul, the soul of Asia.



A busy life, but it is worth it



Name:
Bas
Dietzenbacher

Age:
20

Begin Studies:
2010

Most people know Bas as a calm guy, who helped some of us pass the course Introduction Econometrics and who studies a lot. However, after a long talk Michiel and I discovered that there is a lot more to him. We found out more about his biggest passion for which he practices every spare moment: playing the saxophone.

The Discovery of the Saxophone

Approximately ten years ago, little Bas managed to get his AMV certificate (general music education certificate). He immediately admitted that this was not much of an accomplishment, since it was mandatory to get this certificate at his primary school. Nevertheless, he decided it would be a waste of time if he would not put his certificate to good use. The only remaining question was which instrument to choose. He did not consider playing the piano or the guitar, because he did not want to play a mainstream instrument. Soon he concluded that a woodwind instrument might be interesting for him. This turned out to be correct, since he now plays the saxophone for more than nine years and he still enjoys playing it every day of the week. Unfortunately for him, the saxophone is considered to be the most popular instrument of the woodwind family, so technically he still plays a mainstream instrument. Luckily this does not bother him anymore.

Trying to Find the Right Balance

Right now Bas is living an extremely busy life combining study, his job, a social life and playing the saxophone. Usually, he studies during the day and plays the saxophone in the evening, living two completely different lives. Bas is a member of the Philips Symphonic Band and the 'Brabants Fanfare Orkest', and is a substitute for a few other orchestras as well. As a consequence, he has to rehearse four to five times a week with different orchestras and when he is not busy doing that he has to practice for himself, that is if he does not have to perform at a concert. Upon being asked if there is something that he really wants to do, but cannot do due to his busy schedule, he has to think for a moment. The one thing he regrets is missing out on being a real student. He cannot go out every week and he does not have as much time as he would like to have to make new friends in Tilburg. Nevertheless,

this has been a deliberate decision, because he feels much more at ease when he is around other musicians.

A Future in the Army

After having heard Bas passionately talking about his saxophone for a while, I began to wonder why he started studying econometrics instead of going to conservatory. Bas liked the question and he told us that if there would have been any opportunity for him to make a living out of playing the saxophone, he would have taken it. Unfortunately, it is very hard to reach the top in the music business in the direction he prefers. He does not want to be a soloist; instead he wants to play in a professional orchestra, because the thing he really enjoys about making music is when all kinds of different sounds come together in a beautiful mixture called classical music. However, his





affection for playing in an orchestra is the one thing that is holding him back from getting a musical career. Apparently, symphony orchestras hardly ever need a saxophonist and when they do need one, they ask a famous soloist to step in for a guest appearance. This leaves a saxophonist who does not want to be a soloist two choices: being a teacher or joining

funny example of his experiences so far has to do with the famous Dutch singer Guus Meeuwis. Together with his orchestra, Bas got the chance to perform the song 'Brabant' while Guus was watching them from a front row seat. Although this was an amazing event, his most precious memory is of playing in 'Het Zomerorkest Nederland 2012'. After having applied and being

men would be programmed to like higher sounds better than low sounds, (in general women have high voices so that could have something to do with it). The disadvantage of playing a soprano saxophone is that most musical compositions are not written for sopranos. Alto is the most common category. Therefore, very often Bas cannot play on his favorite saxophone

'I am studying to live; I am not living to study!'

an army orchestra. The latter one was still a good option for Bas, but the cuts in military budgets will affect the orchestras a lot, so this did not seem like a great career either. This leaves him with only one option: becoming a teacher. If it comes down to teaching, Bas prefers teaching mathematics over teaching how to play the saxophone. This is why he decided not to chase his musical dreams, but to become an econometrician instead.

Places to Go, Things to See

Since Bas has been playing the saxophone for a long time and in a lot of different orchestras, bands and fanfares he has had a lot of amazing experiences both in the Netherlands and abroad. He mentioned a trip to Austria with the Philips Symphonic Band, which he compared to the trips abroad that you make during secondary school. Together with a group of people who share the same interests, you can spend the entire week doing the one thing you enjoy the most. A

selected for this orchestra, consisting of around 50 musicians between 16 and 23 years old, he got the chance to perform 12 times during the summer. Every performance was in a different city and there were even days on which they had to perform twice!

An Unlucky Choice

When Bas started playing the saxophone he got himself a relatively cheap model. At the time it suited him well and when he started to gain more experience, he wanted a better model and got himself a second one. He outgrew this one too and that was when he started to 'specialize' himself. In the world of saxophones you have different categories comparable to the vocal ranges of a singing voice: alto, soprano, tenor et cetera. Every musician has his own preferences regarding the different categories. Bas' favorite one is a soprano, which is why his third saxophone is a soprano one. According to him this has something to do with biological reasons, since

during concerts. This does not bother him much since he enjoys playing every saxophone and is good in every category.

Inspirational Discipline

Before I realized it, we had been talking for over an hour and I still felt there is a lot more to know about Bas that we have not yet discussed. What I do know now is that Bas is a very talented and especially disciplined guy who works hard during the day to be able to do what he wants in the evening. Just before me and Michiel left, he gave us an inspirational quote to clear the air around his, what he called, dull image: "I am studying to live; I am not living to study!"

Text by: Vera van der Lelij

Fun with Knowledge



Name:
Ashley Beringer

Age:
19

Begin Studies:
2011

Barely recovered from our drink the night before, it was time to participate in the Asset Pub Quiz at 'Café de Boekanier'. Every year, Asset organizes a pub quiz and this time Asset | Econometrics was represented by three enthusiastic teams, which all made an attempt to win.

When I arrived, Thijs Verhaegh, Joep Thijssen and Martijn Heinen were already sitting at the bar while enjoying a drink. We decided to move to the table on the stage; the place where winners belong. Fortunately, we had arrived there early enough in order to have a vacant table. The quiz would start off at 21:00. We had only one problem: Özgür Abaci, our fifth team member, was not there yet. However, the Events Committee was kind enough to wait for an extra five minutes. Then, finally Özgür arrived which made our team complete. Let the game begin!

First we got a picture for which we had to come up with a funny subtitle. Our picture showed a baby in a diaper standing before a line of soldiers. We could not think of something very funny yet, so we decided to save it for later. Coming up with a team name took us less time; Joep came up with the name 'Viking', not pronounced as the English word viking, neither as the Dutch word viking, but as vik-king.

The organization announced the first round: general questions. We had to dig in our minds to our youth memories when we were asked a Pokémon question, at which you had to recognize a Pokémon by its shadow. We quickly determined it must be Psyduck. After six general questions we continued with sports questions. I barely knew anything about sports, but luckily the four guys did. Martijn's knowledge about professional cycling became useful when we had to write down a list of cyclers who became second behind Lance Armstrong at his seven victories of the Tour de France. Özgür proved himself by recognizing the sport 'Extreme Ironing' on a picture where a man is windsurfing while he is also ironing, and Thijs easily summed up some soccer matches of the Champions League that evening. After the sports questions, we had a small break and handed in our answer sheets and we were told the answers of the previous questions.

When the break was over, it was time for the topical questions. Here we were supposed to know what caused the baby boom in the United Kingdom, which by the way is the publication of the novel 'Fifty Shades of Grey'. The fourth round was a music round. We had to recognize intros of music songs by writing down the artist and the title of the song. The third song had the title 'Some Nights', but I got frustrated when I could not recall the name of the artist. Finally, a few songs later, I suddenly remembered the name was Fun. Luckily the fifth round, which is a geographical one, started with some easy questions. One of the questions was to write down to which country the displayed flag belonged. It turned out to be the flag of Nepal, which was probably guessed right by every group because of the Nepal Experiences organized by Asset last summer. After three more questions we had a break again. This was also the moment at which we came up with a nice subtitle for the bonus picture: 'America sees new threat'.

We went on with the sixth round, which had the theme 'remarkable'. In fact, this question round did justice to its name, since it contained questions about bizarre happenings in the news. We were asked why a Chinese man sued his wife a few days ago. Apparently, their baby was very ugly, while the woman was not, since she has had a lot of plastic surgery, of which the man was not aware. The following round was a history round, covering topics varying from Madurodam to the French Revolution. We got the feeling we did quite well and continued with full confidence to the next and last question round: entertainment. The first two questions were about James Bond: 'How much did Skyfall cost?' and 'Which actor played James Bond the most?' While I let you think of the answers of these questions, I want to conclude that it was a very amusing pub quiz, despite the fact we had not won. Moreover, the drink afterwards was just as fun.

High up in the Trees

ACTIVE
MEMBERS' DAY

On Friday November 16, it was time for the annual Active Members' Day. The program of the day had been kept secret until we arrived at the location. Although it was quite cold outside, we were going to do an outdoor activity: we were going to a tree climbing park.

At 13:00, a group of about thirty curious econometricians gathered at the central station of Tilburg. Many speculations were going on about what we were going to do and where we would go to. For example, a few people were really convinced that we would go to Landgraaf. I was not really looking forward to spend a lot of time in the train, so I was quite relieved when I heard that we would go to Veldhoven. After a short train trip to Eindhoven, we took the bus to Veldhoven which brought us to 'Klimrijk Brabant'.

We were divided into two groups. After a short instruction movie we had to put on a harness with a karabiner in order to be well-secured when climbing in the trees. After that, we were ready to go! We had the opportunity to survival high up in the trees for two and a half hours. There were four different routes differing in height and level of difficulty. You had to climb in the trees across ropes, bridges and narrow beams. Some parts were easy but other parts were quite difficult since you had to make big steps or little jumps. After a while, you were feeling like a monkey climbing from tree to tree! Because I had been to such an outdoor climbing park a few times before, it was not very new for me, but I still really enjoyed it. Especially the zip-lines in the tracks were really nice. In the beginning it was very cold, but after a couple of minutes you did not feel the cold anymore, since you were being active all the time. After a while, some people went inside to grab themselves a hot chocolate, others were really enthusiastic and did the routes several times. After I had done all tracks once, I was quite tired and I also went inside to warm myself up.

At around 17:00, everybody was ready for dinner, so we went back to the bus stop. Fortunately, everybody survived the adventure and nobody was injured. We took the bus back to the center of Veldhoven where we would

have dinner. The bus driver did not look really pleased when he stopped at the bus stop to pick up a whole group of thirty enthusiastic econometricians. We went to a nice Italian restaurant where we had pizza. Everybody was quite hungry after climbing in the trees the whole afternoon, so we were pleased that we did not have to wait long for our delicious pizzas. We discussed the adventures of the afternoon and after a couple of drinks it was time to go home to enjoy the weekend.



Name:
Annick van Ool

Age:
19

Begin Studies:
2011



From Mexico City to Tilburg

It is a cold and dark Monday evening and winter is already coming. My fellow editor Vera and I cycled to the student flats at the Professor Verbernelaan. On the third floor, first year econometrician Pablo opened the door for us and we were welcomed into his house.



Name:
Pablo Flores

Age:
19

Begin Studies:
2012

Address:
Professor
Verbernelaan
32

Room Surface:
12 m²

Monthly Rent:
€370

Pablo's Room

Pablo lives in a corridor with eight other students. There is room for 18 students, but it is no problem for Pablo that some rooms are empty. Unfortunately, all the doors of these rooms are closed by the housekeeper, otherwise Pablo and his housemates would have had their own relaxing rooms. We followed Pablo to the kitchen and the living room. In the kitchen, there are several electric hobs and a big table. On one of these electric hobs, there was a big pan with a Mexican meal in it prepared by Pablo. He prepared meat balls with Mexican style chili sauce and some rice. In the living room we found two sofas, a very big speaker and something to hang a television on, but without the television itself. Pablo told us that the television was stolen the second day he lived in this room and he does not know who did it. We also took a look in his room, where we found one of his guitars. Playing guitar is one of Pablo's biggest hobbies; he has been doing this for ten years now and he especially likes to play classic rock and periodically he

likes playing hard metal. Moreover, we found a poster of the Phantom of the Opera, which is his favorite movie, favorite book and favorite play. When he went to New York, he got this poster and it was signed there by the entire original cast.

Netherlands versus Mexico

Pablo has not lived in the Netherlands his entire life. He is half French and half Mexican and he grew up in Mexico. Before he came to the Netherlands, he lived in Mexico City with his parents. Three years ago he moved to Den Haag, where he went to an international school. The life in Mexico City differs a lot from the life here. There is really a lot going on in that city, which is different from here. He describes the Netherlands as quiet and small in comparison to Mexico City. Besides that, in Mexico it is not as safe as in the Netherlands. In Mexico, there is a lot of violence; you do not even know whether you can trust the police there. Most of the policemen are corrupt and if someone breaks into your house, you should solve the problem yourself, since it could be possible that the policemen see some nice stuff and will break into your house themselves next time. According to Pablo it is nice to visit the city on a holiday, but you should not want to live in Mexico City.

He likes the Netherlands as a country and besides that the people are nice and decent, according to Pablo. For example, he was surprised about a garbage man singing while collecting trash. When this garbage man could be this happy, Pablo thought it would not be hard for him to be happy as well. In the three years he has been living here, he visited a lot of cities in the Netherlands, from Maastricht to Utrecht. Pablo's favorite Dutch city is Alkmaar, he describes the city as very tiny and beautiful. He likes the cheese market and the church, where often music is played. Texel and Schiermonnikoog do not belong to Pablo's





favorites. He had to stay there for a weekend with school. In his opinion this was terrible, since the distance between yourself and a cow is very small.

Living Together with his Housemates

Pablo has nice housemates, and apart from one Dutch student, all of them are international students. They have very different, but strong personalities. Sometimes they eat together, but not on a regular basis. In the time interval ranging from 19:30 to 22:00 most people have dinner, so then there is always someone to talk to in the kitchen. Approximately once a week, he goes out with his housemates. There are no nasty fights or anything like that, but once in a while there is a clash about cleaning or parties that are too extreme. In the three months Pablo lives here he had three parties. The first two were really amusing. The third one was a kind of surprise party for the student flat. None of his housemates knew who organized this party. People started arriving and when Pablo came out of his room, the shared rooms looked like a war zone. The next morning Pablo and his housemates decided to clean the mess by themselves and to surprise another floor of the student flat with another party.

Also when there are no parties, sometimes a house needs to be cleaned up. In his student flat, there does not exist a cleaning schedule. Once in a while, someone thinks it is necessary to clean up and starts doing this. Also a maid is coming two times a week, but Pablo does not think she does a very good job. He describes her as some kind of ghost; she does something, but

you do not know what she does.

Going Out and Studying

Pablo tells us something more about (I guess) his favorite hobby: going out. He goes out around four days a week with his Dutch or German friends, sometimes in Tilburg and sometimes in Den Haag. He tells us the parties in Mexico are very different from here. First of all, everything is a lot more expensive. When Pablo went to a club in Mexico, he usually spent 250 euros a night! Drinks cost a lot there; it is possible to spend twenty euros on one drink. On the dance floor you can see a lot of different dance styles; people use their hips and have fun. Also the kind of people in the Mexican nightlife differs a lot from the clubbers in the Netherlands. Pablo tells us that there are often people who he names 'Cockers'; they are arrogant people that think they are very classy. There are often fights at the parties, and for some people the evening ends with a broken nose. When the 'Cockers' have a discussion, they call other people to help them in the fight. Pablo compares these fights with fights in movies like Troy, Alexander or Lord of the Rings. Fortunately the clubs have great security guards. It is a big mystery to Pablo, but they always manage to break the fighting people apart.

A Mexican party that might be somewhat strange for the Dutch people is the 'Day of the Death', which is celebrated on the first of November. On this day they celebrate all people that have died in your family. It is a very colorful day with nice food and drinks. Mexicans believe death is just a part of life, so they make jokes about death.

They also write poems for each other, which are about your personality and how you are going to die because of it. Unfortunately he could not celebrate it this year.

With all the partying we asked ourselves how Pablo can keep up with his study program. He told us that three weeks before the exams start, he cancels all parties. In these kind of periods, he studies long days in the library to be able to pass the exams. After finishing his bachelor's program in Tilburg, Pablo would like to follow a master's program in the United States of America or in the United Kingdom, preferably at the London School of Economics. Eventually he will look for a job in an English speaking country.

After dinner we closed the interview and we could look back to a nice evening. We would like to thank Pablo for his hospitality and his nice stories.

Text by: Chris Pustjens

Saint Nicholas opens his book

As every year, Saint Nicholas visits the drink which is especially dedicated to this good old man. A couple of econometricians were invited to sit on his lap and to listen to a poem especially written for them. In the following poem, you can read a summary of the successful drink, which was organized by the Drinks & Activities committee.



Name:
Saint Nicholas

Residence:
Spain

Dear Econometricians,

The most admirable privilege of being Saint is, I think,
that you can go to Asset | Econometrics' Saint Nicholas drink.
You econometricians do not even need to ask,
I always feel honored to carry out this task.

Several econometricians shared the fear,
of having to sit on Saint's lap this year.
Even though the sitting was not always addressed to be nice,
the victims of my poems always received a nice surprise.

Our first victim received a funnel such that even in the dark,
he could surprise an innocent pony with a well-aimed urine arc.
Laurens Janssen, even though he thought it was a bit weird,
grasped his comb and combed my beard!
Then came Fang Qi, it was also her birthday,
so, despite some paper-berserker stories I had only nice things to say.
Lauran who always had his fears safely concealed,
was not pleased when his moss phobia was revealed.

Janinke was the next to sit on the holy man's knees,
hopefully with her baking set she will grant the Van Oostens some peace.
Özgür and Masum, who both were saddled with only one knee,
each received a nice pendant to attach to their key.
Corné Ruwaard, the man who the chairman role fulfils,
received a fictitious phone, to practice his smart phone skills.
Denise who was the last to sit on the lap of the old man,
has learned to never oversleep during exams again.

The atmosphere at 'Café Van Horen Zeggen' was excessively pleasant,
therefore, my black companions and I decided to stay present.
While we were standing there we even got a glance,
of the D&A committee performing their 'Gangnam style' dance!
As the party continued I was not the first,
who was overwhelmed by an extreme thirst.
Luckily there was Sandra who took away our fear,
and spoiled us with a delicious barrel of beer!
Thanks for the evening D&A, your efforts were not in vain,
unfortunately now I am obliged to return to Spain.
Next year I will certainly return from the sun,
to drink at my favorite study association and continue the fun!

Best regards,
Saint

A Memorable Evening

ASSET GALA

November 29 promised to be a memorable evening: the Asset gala was organized in 'Villa de Vier Jaargetijden'. As we all know, having to pay just 25 euros for this gala is nothing in comparison to the unlimited drinks that were available. Therefore, missing this event was certainly not an option for me.

What I consider to be the nicest aspect of a gala, is the fact that everybody puts a lot of effort in preparing themselves in order to look absolutely stunning for one night, and especially for that one night in the year during which we can drink as much as we want and all of our good behavior disappears. I have always thought that men in suit were attractive, but after this gala, I was not so convinced about this anymore.

The gala started at 21:00, but the real party had to wait for my attendance, because 'Expeditie Robinson' was more important for me than the free drinks, knowing that the party would last until 2:00. Besides that, I would not be able to stand on my high heels for the entire night. I still do not understand why we have to wear these things; they kill your feet and dancing is a lot harder with high heels than with flat shoes. But that is part of the Dutch expression: 'Wie mooi wil zijn moet pijn leiden.' (English: 'You have to suffer if you want to look beautiful.')

Let us go back to the gala. The entrance of the villa was decorated with fire pits. It was a warm welcome on a cold evening. Obviously, we had to make a professional picture once we were inside. It was nice to see that everybody was trying to keep their hair in shape, because they had put a lot of effort in it. However, after a

few drinks and a couple of hours of dancing, we did not care that much any longer about what we looked like. Therefore, it was a good idea to make a picture of us upon arrival.

The evening started slowly. The DJ was spinning the tables, everybody was just chatting a bit and was trying to get some drinks at the bar. This was quite a hard task, because you were lucky if you got your drinks within ten minutes. However, this was the only downside of the location, since 'Villa de Vier Jaargetijden' is a very nice location for a gala. Luckily the DJ was replaced by a band soon after we came in. The band came from Limburg, so I was glad they were not singing in Dutch (my sincere apologies to all people from Limburg who read this magazine). The band managed to get more people on the dance floor and the party was really starting. Maybe this was also caused by the large amounts of Coebergh, wine, Apfeln, Schrobbeleer and beer we were drinking, but of course we do not need all those drinks to have a nice evening. Besides the drinks we were also offered a lot of delicious snacks, so we did not have to get hungry and we could continue dancing all night long.

And just as every other party, this gala also came to an end. Bad enough, the gala already ended at 2:00. Strangely enough, I did not feel tired at all at the end of the evening, despite my hurting feet. I think this could be explained by the large amounts of soda with caffeine mixed with the liquor. The positive thing about this is that it prevented me from having a hangover the next day. The evening was totally worth my 25 euros. It really was an unforgettable evening, because for the first time I could remember the whole evening the day after the gala. I want to thank everybody for this wonderful evening. It was great and I am looking forward to seeing the pictures!



Name:
Judith van
Heteren

Age:
20

Begin Studies:
2010



Membership Student Association: Necessary?

In this new opinion poll we are going to discuss the following statement: "Is it necessary to be a member of a student association for a nice study time?" Everyone agrees it is good for people to socially develop themselves, but does this mean that it is necessary to join a student association? Here are the opinions of three econometricians.



Jochem van Vuren (second year student)

I have been studying Econometrics & OR for two years now and during this time I have been a member of T.S.V. Plato as well. I can definitely say that I am having a very nice study time. Student associations have the greatest parties and you make friends for the rest of your life. Apart from this, student associations give you much more than this. Student associations can provide you with an extensive network, give you an advantage in rhetoric, introduce you to leadership and could give you experience in

committees. Being a member could offer you a good start for the rest of your life. I would advise every freshman to join an association. Whether it is necessary to join an association for a nice study time? That is a statement I do not support. I know many students are having the time of their lives who never joined an association. Members of an association are, in general, more 'active' in their study time, but many others have a nice study time as well.



Vincent van den Bogaart (fifth year student)

When I started studying I did not move to Tilburg to enjoy my study time. Now and then I go out in Tilburg and stay over with friends. I do not think it is necessary to join a student association. In my hometown I have a busy social life and try to undertake enough fun things to enjoy my study years. At home, I play soccer and I really like to participate in the so called 'third half' of a soccer match. I think that having a nice student time mostly depends on how you fill your time. This can be by joining

a student association, which helps you with finding a nice new social environment. But you can also spend your time by organizing things yourself, in Tilburg as well as in your (former) hometown.



Leon de Wit (fifth year student)

I moved to Tilburg in my second study year so this is my fourth year living in Tilburg. I did not join a student association but I did become an active member of Asset | Econometrics. Currently, I am a member of the committee that organizes the OR-activity. Because I became active, I got the opportunity to meet many people in Tilburg and especially from the study Econometrics & OR. I am having a great time without joining a student association, so I think it is not necessary to join a student association.

On the other hand, I can recommend everyone to join an association when you move to Tilburg; whether this is a student, study or sport association you can decide on your own. This way you get to know more people and get the chance to socially develop yourself!

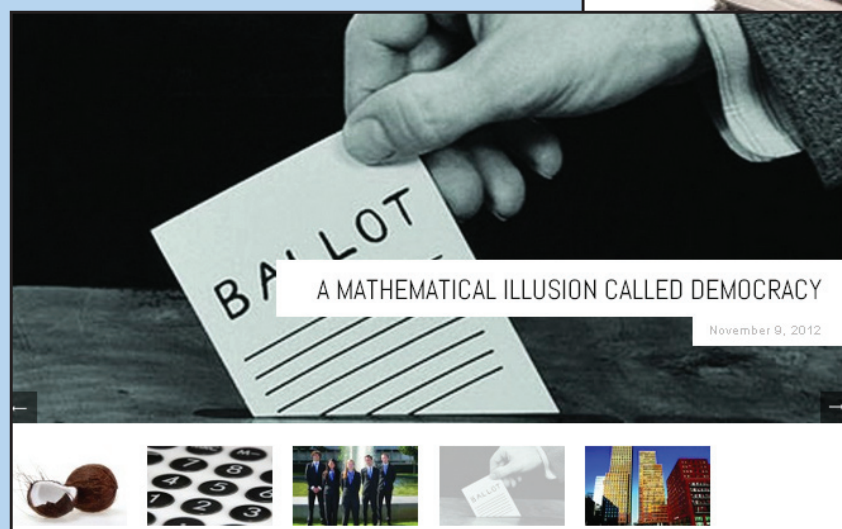
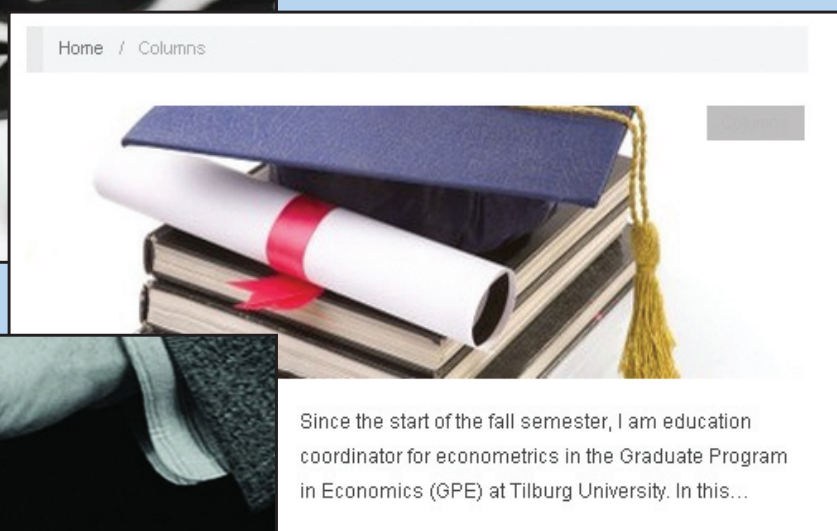
Nekst goes modern!

NEKST-ONLINE

As the world around us becomes technologically more advanced and we are sharing everything with everyone on the Internet, Asset | Econometrics decided it was also time for Nekst to move on with the times and to get modern. Therefore, recently an online and interactive version of Nekst has been released, which can be found on www.Nekst-Online.nl.

On www.Nekst-Online.nl a broad selection of Nekst's articles will be shown. Moreover, there is the opportunity to place comments and discuss about the articles. All business interviews, scientific articles, columns and specials can be viewed at Nekst-Online. Moreover, we have also thought about the puzzle fanatics amongst us since all puzzles of Nekst will also be placed on the website. Of course, we

hope you will keep on reading the paper version of Nekst, but we consider the online version as a modern addition. In the pictures below, you can find some impressions of Nekst-Online. We hope that Nekst-Online will be a success and that you will soon take a look at this brand new website!



PUZZLE

Opportunity to Strike Gold

Over the past few months, we received a large number of contributions for the coconometrics puzzle. In this new edition, we provide you with another puzzle which is about money this time. If you are in for a challenge, then grab some paper and a pencil and rack your brain! Who knows whether you will strike gold and win a delicious pie or a crate of beer.

The smallest unit of currency in country X is the ducat. The minister of finance gave his officers the following command: "I want six types of bank notes, each worth an integer number of ducats. These six values should be such that there exists a number N with the following property:

Each sum of ducats n (with n positive and integer) where $n \leq N$, can be determined in such a way that from any kind of banknote at most two units are used either to pay or to return money. I wish those six values also in a way that N is as large as possible. Determine which six values should be given to the banknotes and provide a proof that all conditions are fulfilled." Solve the problem of the officials.

Please send your solution to Nekst@Asset-Econometrics.nl before March 1, 2013. A crate of beer or a delicious pie, whichever the winner prefers, will be waiting for whoever has the best (partial) solution! Good luck!

Floris van Loo was the winner of the previous puzzle. The best strategy for minimizing the maximum amount of steps gives a maximum amount of 8 steps. As he reward, he can come and pick up a crate of beer or a pie at room E1.10.



GRADUATES

Asset | Econometrics congratulates...

Name: Hans Konings
Title: IBNR Methods: Predicting Health Care Costs by Micro-Level Data
Supervisors: Dr. R. van den Akker, Prof.dr. J.H.J. Einmahl

Name: Claudia Rommens
Title: An Alternative Soft Pension System with a Collar Approach
Supervisors: Prof.dr. B.J.M. Werker, Prof.dr. J.M. Schumacher

Name: Chantal van der Helm
Title: Disability Insurance: Modeling the Transition Probabilities
Supervisors: Dr. R. van den Akker, Dr. F.C. Drost

Name: Christian Sommeregger
Title: Referee Report: Asset Pricing with Garbage
Supervisors: Prof.dr. E. Gijsbrechts, Prof.dr. B. Melenberg

Name: Benito van Breugel
Title: Planning, Controlling and Simulating the ACV Production Process: the BNL Plant 8 Case
Supervisors: Dr.ir. J. Ashayeri, Dr. R.C.M. Brekelmans

Name: Robin Swinkels
Title: A Robust Approach to Meta-EMS
Supervisors: Prof.dr.ir. D. den Hartog, Dr.ir. J. Ashayeri

...on obtaining their Master's degree.

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!

Tijdens de Nekstvergadering wordt gevraagd wanneer de eerste Freshmen Activity precies is. Tim Gijsbers: "We gaan vanavond bowlen, ik weet niet of dat het is?"

Suzanne Vissers: "Wat is die Tall men community precies? Is dat een commissie voor lange mannen die fan zijn van Talman?"

Frans Fonville over een wedstrijd basketbal: "Hoeveel helften hebben ze eigenlijk?"

Tijdens de Asset Pubquiz wordt gevraagd wat het dichtbevolkste land ter wereld is. Klaarblijkelijk is Floris van Loo vrij zeker van zijn antwoord Singapore: "Dit antwoord is sowieso goed, maar er zijn er misschien één of twee beter."

Wilbert Kistemaker en Robbert van Oosten praten over winkeldiefstal. Wilbert: "Vroeger werd je nog neergeschoten als je tandpasta stool." Robbert van Oosten: "Toen was stelen ook nog een supersterk werkwoord."

Vera van der Lelij over een post op Facebook: "O die heb ik helemaal niet gezien!" Floris van Loo: "Maar je hebt er op gereageerd!"

Dieuwertje Verdouw: "Wat komt de koningin eigenlijk doen?" Daniëlle van Dalen: "Een beeld onthullen, dat stond ook in het mailtje dat ik had gestuurd." Dieuwertje: "Oh, dus dat betekent 'reveal a bust'!"

Marleen Veldhuijzen: "Er moet een foto gemaakt worden met de luxaflexcamera."

De IBT-commissie heeft het over locaties voor de IBT. Willem Jongen: "Denk er maar over na als je op het toilet zit."

Jasper Rouschop: "Ik verleid je wel uit je lossen."

Marleen Veldhuijzen: "Zijn dat twee dezelfde mensen?"

Cas Luijten over zijn bestuursjaars: "Ik voel me het vierde wiel aan de wagen."

Dolf Talman om 19:30u: "Ik ben nog niet helemaal wakker... Het is half 8 en nog donker."

Moslims hebben aangeleerd dat varkensvlees onrein en vies is. Jeroen Moonen tijdens de IBT: "Nou, dan moeten wij ze misschien maar aanleren dat met satésaus alles lekker is."

Marleen Veldhuijzen: "Wie heeft dit leuke ding meegenomen?" Daniëlle van Dalen: "Ja ik, die heb je mij voor mijn verjaardag gegeven."

Thijs Verhaegh na de borrel: "Wie gaat er mee naar de Bolle?" Cas Luijten: "Ik niet... Ben al bol genoeg van mezelf."

Mitchell Dingemans: "Hoeveel is 4 adjes bier?"

Masum is al vanaf 8:45u tot 19:30u op de universiteit, heeft nog niet gegeten en is dus een beetje gammel. Myrthe Dekker: "Je trekt nog niet wit weg gelukkig."

Joep Thijssen: "Wat voor dag is het donderdag?"

Bart Heuvels (Asset): "Namens het goede eten wil ik jullie bedanken."

Er is een discussie over 'TEV=VET'. Corné Ruwaard: "Ja, maar 'ASSET=TESSA' slaat ook nergens op."

Senna Jansing tijdens het poolen: "Wat zijn de officiële spelregels?" Floris van Loo: "Iedereen heeft zijn eigen officiële spelregels."

De avond waarop het oud-bestuur voor de Freshmen commissie van afgelopen jaar kookt, wordt er gevraagd waar Erwin van Oosten is. Robbert van Oosten: "Die is aan zijn deadline aan het werken."

Upcoming Events

Tuesday January 22

General Members' Meeting & Drink

Because the first semester of this academic year has passed, it is time for the General Members' Meeting. During this meeting, we will look back to the first semester of the academic year 2012-2013. Each board member will talk about the committees that he or she coordinates. After the meeting our New Year's Drink will take place at our favorite pub 'Café Van Horen Zeggen'.

Monday January 28

Active Members' Meeting

During the Active Members' Meeting, active members will have the opportunity to voice their opinions about a selected number of topics and to provide the association with some tips.

Tuesday February 5

National Econometricians' Day

On Tuesday February 5, 2013, the National Econometricians' Day (LED) will take place. This is the largest career event for econometric students in the Netherlands. This year it will be organized by Asset | Econometrics and the event takes place in the Beatrix Theater in Utrecht. During the day students get the opportunity to get in contact with all kinds of companies through cases and a business dinner. There will be some interesting speakers as well. At the end of the day there will be a magnificent party in Utrecht.

Tuesday February 19

Freshmen (First and Second Year) Activity

The second freshmen activity will be organized for second year students as well. During this activity you can get to know your fellow freshmen, as well as the second year students. So make sure you will be there!

Wednesday February 20

Business Café Duisenberg School of Finance

On February 20, 2013, a business café with Duisenberg School of Finance will take place. Duisenberg School of Finance is a private institute within the finance sector, which offers five different master's programs. If you want to know more about Duisenberg School of Finance and if you want to get in touch with them, then come to the business café with Duisenberg School of Finance on February 20. This business cafe takes place from 19.30 – 21.30 hours at Café Karel. The dress code is business casual. You can subscribe via www.Asset-Econometrics.nl.

Wednesday February 27

Après Ski Drink

On Wednesday February 27, our well-known Après Ski Drink will take place. So look for your best Après Ski outfit and enjoy some drinks in the beer mugs that Asset | Econometrics will sell during the evening.

Wednesday March 6

Econometric Business Dinner

This year, the Econometric Business Dinner (EBD) will be organized for the first time. Four companies from the sectors Quantitative Finance and Actuarial Science get the opportunity to participate in this event. During a luxurious dinner with three courses, you have the unique opportunity to come in contact with these companies in an informal way. Between the courses, students will change tables, so each student will come in contact with three different companies.

Tuesday March 12

Combi Party

On Tuesday March 12, the second edition of the Combi Party will take place. This event will be organized in cooperation with study associations Asset | SBIT, Asset | FIRST International, Asset | Strategy & Logistics, POLIS, INPUT, Complex, Versot and Flow. By that time, the theme of this party will be announced.

Friday March 15

Members' Day

The members' day will be organized on Friday March 15 for all members of our association. So, if you want to have a nice day with your fellow members, save this date!

Tuesday March 19

Operations Research Activity & Drink

This year a new activity will be organized for students interested in or following the master Operations Research and Management Science. During this activity students can come in contact with companies from this sector and get more information about Operations Research related subjects. There will be company cases and some interesting speakers.

Thursday March 21

COdE Beer Cantus

The second edition of the COdE Beer Cantus will take place on Thursday March 21. So wear your Asset | Econometrics polo and come drink a beer with us at this infamous cantus!

**Lezen en schrijven is niet voor iedereen
vanzelfsprekend. Van de Nederlandse beroepsbevolking zijn
ongeveer 1,1 miljoen mensen laaggeletterd.
Zij hebben al moeite met het lezen van deze tekst.**

**Laaggeletterdheid kunnen we samen aanpakken. Voor een
structurele oplossing is brede betrokkenheid en inzet nodig vanuit
de hele samenleving, dus ook van jou! Kijk wat jij en je
studiegenoten kunnen doen om bij te dragen aan de aanpak van
laaggeletterdheid op**

www.lezenenschrijven.nl



LED 2013

Landelijke Econometristendag

ASSET  Econometrics

SCOPE | Vectum

 VESTING

VS  AE

Kraket



February 5

Beatrix Theater
Utrecht

Subscriptions open
December 17

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