

# ERM for Small Businesses: An initiative by The Goldenson Center for Actuarial Research

December 2011

## *An interview with Jay Vadiveloo*

The Goldenson Center for Actuarial Research at the University of Connecticut is undertaking an innovative project that seeks to bring ERM analysis to small businesses in the community while training actuarial students in ERM and project management. Through this program, actuarial students meet with small business owners, collect quantitative and qualitative information on the business and analyze weaknesses, strengths and developmental opportunities to come up with a plan of action. The project is led by Professor Jay Vadiveloo who is Director of the Goldenson Center and Senior Consultant at Towers Watson's RCS segment in Hartford, Connecticut. In this interview *Innovation Talk* discusses the ERM for Small Businesses initiative with Jay Vadiveloo. We talk about its development, how the program has grown and the repercussions it has generated. We also look at what an ERM analysis implies for a small business and how Professor Vadiveloo sees this program moving forward and generating synergies with Towers Watson.

**The Goldenson Center for Actuarial Research at the University of Connecticut which you lead has developed an interesting approach that helps small**



Jay Vadiveloo

**businesses assess risk and actuarial students develop their skills – both technical and soft management skills. Could you tell us about how the idea came up and how many businesses you offer this service to?**

The idea was more driven by the fact that no one was doing any work in this area because small businesses

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**Jay Vadiveloo, PhD, FSA, MAAA, CFA:** Jay is Senior Consultant at Towers Watson's Hartford office and has over 25 years of experience with the life insurance industry. He is also the Towers Watson Professor at the University of Connecticut where he manages the newly endowed Janet & Mark L. Goldenson Center for Actuarial Research. As Professor and Director of the UConn Center for Actuarial Research, Jay has supervised several PhD students in a variety of topics including integrated retirement financial planning, measuring and analyzing the volatility risk for individual Disability Income, and portfolio management and valuation of life settlement assets. Jay has published several articles in the actuarial literature, is a frequent speaker at actuarial conferences and seminars, and has managed several major mortality and morbidity experience studies projects for the Society of Actuaries. Besides being a featured speaker at webinars and symposiums, Jay has several major life settlement clients who consult with him on cutting edge issues facing the industry including dynamic reinsurance techniques to hedge the longevity risk, the “unlocking” of mortality assumptions in portfolio valuations, and the determination of the appropriate mortality slope for pricing life settlement policies.



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are not prepared to pay for this analysis. Since I have a small budget from the Goldenson Center, I could afford to do this work for free for the small businesses and pay students a stipend for doing the work. What I did not anticipate was the value students got from this exercise, the value that the small business owners received, and all the publicity that the Center got from this.

I never thought when I started the ERM program for small businesses that it would kick-off the way it did. Most of my ideas come from talking to people and the interesting thing about this program is that you can actually talk about it at home or with people in the street and everyone could relate to it. This does not happen often with actuarial work. That is why this project has easily drawn attention and people want to hear about it.

**Could you comment on the type of risk assessment that students do, and at the same time, which is the most important aspect they learn from this experience?**

An ERM analysis for small businesses covers both risk analysis as well as growth strategies. The types

of risk vary by the specific small business, but common ones include ‘key man’ risk, operational inefficiencies, concentration risk, liquidity risk and failing to stay competitive and cutting-edge. Depending on the nature of the risk and the information available, students have done basic cash flow analysis to determine revenue generating items and improve tracking of growth and profitability, or developed qualitative suggestions on how the business could appeal to a broader clientele.

The final report in this type of ERM analysis does not only include your usual risk assessment evaluations as you would expect for large corporations, but also discusses strategy, promotional ideas and suggestions for business development. At the end of the day, one wants small business owners to come out of this exercise with something they can use, not something that they are just impressed about.

The biggest benefit for students is the ability to do non-traditional actuarial analysis which forces them to think creatively and strategically. Plus, it is very gratifying to do a project from start to finish and actually provide tangible value to the client.

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**Editors: Lucía Carrera, Matías De Vecchi and Federico Venturini**  
**Reviewers: Antonia Feldman, Steven Nyce and Mike Orszag**

**One interesting aspect is that the project focuses on already established businesses looking to grow or to deal better with the crisis, but you do not work with start-ups. Why is this?**

For now, we are working with existing businesses which have been around for at least five years. There are practical reasons for this. We have some history of how the business has performed to allow for some quantitative analysis and it allows for a more objective analysis of the business.

Start-ups may fail simply because the product or service they are offering may not take off and this could have nothing to do with poor risk management. You might do everything right but still fail if the idea has no market appeal. If you apply ERM for to small businesses that have been around for a while you know that the business has a track record and has been tested. But down the road, we may include start-ups as well.

**Could you comment on the feedback you are receiving from students participating in the program and from the small businesses you are helping?**

That has possibly been the most gratifying aspect of this initiative. The younger generation of actuarial students is far more willing do these non-traditional actuarial projects with minimal guidance from me than most actuaries who have been working for a while in the industry. The students get to select the business they want to work with; they do the initial interview of the business owners on their own, directly communicate with the owners via e-mail or phone throughout the project, prepare the final report and do a formal presentation to the owners at the end.

Aside from preparing a cover letter for students to share with the business owners participating in the program, I do not get involved in the actual communication and analysis right until the presentation of the final results. I do meet with students during the semester to discuss how the project is progressing, but I want them to experience on their own the feeling of having full control of a “consulting” project.

The only rule they have to adhere to is that at the end of the project, they have to provide a formal report and any software tools they developed during the process to the client. Most importantly, they must leave the client with at least four to five real and tangible value-added suggestions. Even though there is no charge to the small business owner, it should not be a waste of their time.

The business owners are of course thrilled with the quality of the work they are getting at no cost to them and have been willing to appear with the students

whenever I do a presentation of this work at conferences or meetings. One comment I have received that possibly is a good summary of the value to the small business owner, is that none of the suggestions come as a surprise to the owner, but they have never been able to put it all together like this. So it's not so much that the results and suggestions we present are totally unfamiliar to them. They do know what is going on, but by looking at the issues from an objective perspective, we can help them put all the pieces together.

Professional organizations have also shown interest in the project. The Society of Actuaries (SOA) has totally embraced the ERM for Small Business project, and actually I can see why. The SOA wants to become the leader in Risk Management and this is an untapped area. I have been given the title of ERM spokesperson for the SOA and as a result, I have written articles for newspapers and magazines on behalf of the SOA which is great publicity for the initiative and the Goldenson Center

Our ERM initiative has already drawn the attention of an association called the International Association of Black Actuaries (IABA) that tries to increase minority participation in the actuarial profession. My students and I presented this ERM for Small Business analysis at their Annual Meeting and they liked the idea so much, that they asked us to prepare an ERM analysis for the IABA. Besides trying to grow the membership and increase the number of African-American Certified Actuaries, we have suggested that in order to gain more exposure and impact communities, the IABA should sponsor this ERM for Small Business initiative for businesses owned by minorities in the US. Currently, I am working with several of my students to help the IABA develop this suggestion.

**And, do all students like this type of work, out of the box if you will, or how do you go around selecting the best people for this activity?**

Part of my job as professor at UConn is to screen students. Although I teach a graduate course in actuarial science, I could bring people in from other departments at UConn as well to work on these projects, for instance graduate, or even undergraduate students from finance, statistics, mathematics and related disciplines. I do tend to work with students in the graduate actuarial program because they are the ones I am most in contact with. But, of course not every student is appropriate for this type of work. For starters, you need someone who likes thinking outside the box and is open to new concepts. A good way of balancing students' aptitudes is to have them work in groups so that they can complement each other.

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## What Students say

### Jackie Bogensberger



This project proved to me that being an actuary and more importantly thinking like an actuary, allows you to understand risk in many circumstances and gives you the ability to really make a difference. I felt that through this project we really were able to help a small business see some things that they may not realize on a day to day basis and possibly prevent them from going belly up. To hear from them that they enjoyed our report, appreciated the risk management suggestions that we had, and plan to implement many of those strategies was one of the most rewarding things of my short actuarial career. I can't thank Professor Vadiveloo enough for this experience!

I am currently in my final semester of graduate school at UConn studying Actuarial Science. Prior to my experiences here I got my masters in secondary education where I taught Mathematics for a year and decided to change careers and become an actuary. What I like about Actuarial Science comparative to teaching or any other profession is the real challenges that are faced everyday.

### Lu Ma



During my time at Uconn, I had the fortunate opportunity to work for the Goldenson Center for Actuarial Research with Prof Jay Vadiveloo on the ERM for Small Businesses project. It was not a traditional actuarial project, but it allowed me to think creatively and I gained a lot of very useful skills outside what we learn in the classrooms. It was an extremely rewarding experience because I got to work in a team environment, carry out a project from the beginning to the end and apply my actuarial knowledge in a very real way to help a local small business manage their risks better to ultimately improve their business. The smiles on the owners' faces when they received our suggestions, final report and the easy tool we built them was simply priceless. I think ERM for small business and many other projects that the Goldenson center is undertaking are invaluable opportunities for students like me to learn about the field of Actuarial Science from many different perspectives early on in our careers.

I'm currently pursuing a Masters in Actuarial Science at University of Connecticut, graduating this December. I have a Bachelor's degree in engineering from Uconn, and worked for a hedge fund firm for two years prior to coming into the field of Actuarial Science.

**We had discussed in previous interviews how the fact that you have a double position as Senior Consultant at Towers Watson and Professor at the Goldenson Center helps you identify the best talent that eventually can join Towers Watson. Now, the typical clients of ours are generally large corporations. From a risk assessment perspective, how do they differ and what aspects do they have in common, compared with the small enterprises we are discussing now?**

There are several differences between doing an ERM analysis for a small business versus a large corporation. The basic approach is the same: identifying and prioritizing the risks, modeling and quantifying the risks and creating risk-mitigation strategies. But ERM for small businesses has its own unique principles – incorporating both risk analysis and growth strategies, and focusing on reasonably likely events with serious consequences versus the usual low frequency high severity events that large corporations

focus on. Also, qualitative risks could be very significant for small businesses and they need to be identified and mitigated. In general, while it is easier to assess the risks facing a small business that a large corporation, the consequences of a risk shock are far greater for a small business than a large corporation. There may be no second chance for a small business when something goes wrong.

**In a way, focusing on aspects that can be quantified helps in interpretation, comparison and, to a certain extent, helps avoid differences of opinion (at least in the results, if not in the methodology). When you need to incorporate risks that you cannot put a number to, how do you integrate these into an ERM strategy?**

Instead of answering your question directly, the more relevant question is what should an ERM report include to provide the greatest value to the small

business owner? Quantitative risks are a natural area to gravitate to for the reasons you mentioned, but what if a small business is not growing because the store image does not attract a younger clientele? Lack of growth could destroy such a small business which may have mitigated all its quantifiable risks. If the risk mitigation strategy of revamping the store image is a potential solution, then it doesn't really matter that it cannot be quantified objectively. I believe that in an ERM analysis of small businesses, the risks that one should focus on should not be based on whether they can be quantified or not, but on how important it is for the continued growth and survival of the small business. Clearly this is a subjective exercise, but this is true even for quantifiable risks in the assumptions we have to make to come up with a number.

I don't see a problem in mixing quantitative and qualitative stuff. I always like to think of projects in terms of *what the client needs*. That is one of the big differences between ERM for large corporations and small corporations. What happens often in ERM is that you can build very complicated models to quantify different aspects of an organization and that is fine for large corporations because they have more complicated structures.

For a small business, if you always try to quantify the effect that certain actions might have, you are kidding yourself to think that the assumptions you are making to develop a quantitative model are better than making a qualitative assumption regarding the effect of the action. Plus if you are doing an ERM analysis for a small business, the results of your analysis may not be applicable for a long period of time. If there is one thing I learned by talking to small business owners, it is that they have to constantly adapt to new changes. You can have a well developed strategy and everything planned, and a sudden change in the environment like new competition may require you to change your risk management strategy overnight.

**In this line of thinking, could you comment on any project you have done or are planning where you apply ERM from a small business perspective?**

We have a funded engagement with a large wholesale brokerage, Insurance Designers of America (IDA), which has met with us to do an ERM analysis for their organization. This will then provide us the leverage to offer this service to other major insurance companies and enable us to become the ERM experts for distribution channels. IDA has about a dozen or more large insurance companies that are its partners and they have about 60 insurance agencies (accounting for about 60,000 agents) across the country. Their partners—large insurance companies— pay a fair amount of annual dues to IDA for the privilege of using these

nationwide agencies as a distribution channel for their products. Now IDA has come to us for an ERM analysis. In spite of its connection to all these agencies, IDA is in itself a small organization, so an ERM analysis for them would have to take the form of an ERM for Small Businesses analysis.

Their vision for the next ten years is to become the number one independent marketing organization and to have the major insurance carriers wanting to become partners with IDA and be willing to pay more to become a partner. Where is the problem, then? Well, on the one hand, IDA has been around for about 25 years and they face competition from other wholesale brokerages.. As for the large insurance companies that are partners and use IDA's services, they need to be given good service for the dues they pay and have the independent agencies under IDA place more of their business. On the other end of the chain, while agencies benefit from the pooling structure of IDA so they would not decide to leave, there is a fear that poor succession planning and difficulties in attracting young people to this profession might affect their sustainability in the long run. So the real questions are: How do you keep these independent agencies thriving and growing and how do you provide value added services for your partners?

The project plan has three phases. In phase one, we develop the strategic plan which is a Vision and Mission statement for IDA describing how they would like to position themselves in the marketplace in the future and the steps needed to achieve this goal . In phase two, we want to create stronger reasons for their partner companies like Prudential, AXA and so on to stay with IDA. The fact is that, beyond the services IDA provides, it has accumulated an enormous amount of intellectual capital coming from the huge amount of market information that is generated by the 60 agencies as well as the individual insurance company partners. If they put this altogether, they get an invaluable database on market intelligence. In turn, this can be transformed into market reports that could help the partnering companies increase their market share and would allow IDA to increase its dues easily. Helping the partnering companies place more of their products with IDA's distribution channels would definitely be a value-added service that IDA could provide.

In Phase 3, we analyze the individual agencies, looking at issues around succession planning, how they can grow and what marketing strategy they need to develop for the coming years to make this happen. And as we have 60 of them, they can actually learn from each other.

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**In an article published by UConn you are quoted saying that you tell your students “the fact that they’ve quantified something doesn’t make it right, and the fact they can’t quantify it doesn’t make the risk go away.” This is certainly a very interesting approach. In this framework and looking at actuarial science development, what part of the message that your teachers transmitted to you as a student you pass on to new generations and what part has changed?**

I think the common element across generations for actuaries is the disciplined approach to problem solving. You could term this as critical thinking skills or the ability to formulate and solve a problem with limited and imperfect information. I think this is what actuaries have always had in common over the years and differentiates them compared to other professionals.

The part that has changed is the replacement of previously key actuarial functions by computers and commercial actuarial software. So now actuaries have to channel and broaden that same disciplined thinking into non-traditional areas where their actuarial skills have to be augmented by business and strategic thinking skills. This ERM for small businesses initiative is

definitely a non-traditional area of actuarial thinking and from the limited experience I have had with my students, I think the profession can certainly play a leadership role in this area.

**In the same article mentioned before, you comment on future prospects for the project, including the fact that you would like to see it expand globally, and an interesting financing approach where large corporations or financial institutions that use small business as suppliers would finance this service. In practice, how do you see this evolving and what are the different steps that the program would need to go through to expand to a nationwide or global scale?**

In fact, we have already been getting interest from large corporations with all the publicity this initiative has been receiving. The focus so far has been to do an ERM analysis for the various distribution channels of insurance companies – general agencies, brokerages and others. While the insurance company is a large corporation, the individual distribution channels constitute small businesses by themselves, and since our ERM philosophy covers both risk and growth strategies, it is very relevant for the insurance company.

ERM for Small Businesses Projects by the Goldenson Actuarial Research Center at UConn

Some of the projects undertaken during 2010-2011

**Four Corners**

Real Estate Company in Storrs, CT  
Our first ERM project for an independent realtor in the Storrs region  
Student involved – *Sumaali Chheda*  
Supervised by Professors Jay Vadiveloo and Charles Vinsonhaler

**Between Rounds Bagels**

Small bagel chain in the eastern CT  
Students involved – *Lu Ma, Jaclyn Bogensberger, Eric Anderson and Maura Bey*  
Supervised by Professor Jay Vadiveloo

**Superior Energy LLC**

Independent propane gas company in CT  
Students involved – *Lu Ma, Jaclyn Bogensberger, Eric Anderson and Maura Bey*  
Supervised by Professor Jay Vadiveloo

**Willimantic Brewing Company**

Independent micro brewery in eastern CT  
Students involved – *Jai Gangwani and Bernardo Marquez*  
Supervised by Professor Jay Vadiveloo

**International Association of Black Actuaries (IABA)**

Professional actuarial organization to grow and develop black actuaries in the US and internationally  
Students involved – *Robert Feingold, Stephanie Sollars, David Avery and Tiffany Daley*  
Supervised by Professor Jay Vadiveloo

**Insurance Designers of America (IDA)**

Wholesale life insurance brokerage  
First funded ERM projects  
Students involved – *Lu Ma, Jaclyn Bogensberger, Jai Gangwani and Amelia Thacher*  
Supervised by Professor Jay Vadiveloo

However, any large scale expansion of this initiative will have to involve Towers Watson. I know what I can do and I know what I cannot do. I can do what I am doing now in terms of an ERM analysis for a few small businesses, but if it was to become a large initiative, the good thing about having Towers Watson behind it is that we know how to do things on a large scale in a professional manner, make the output consistent and set standards. My hope is that we can get the best of both worlds - the structure, support and global reach of Towers Watson, and the freedom and fresh thinking of academia. This is precisely what I have been trying to accomplish at the Goldenson Center.

In fact, we have structured the engagement with IDA as a Towers Watson engagement which utilizes actuarial students through the Goldenson Center. If this idea really takes off, Towers Watson will have to play a critical role of putting together a template on how such an ERM analysis should be conducted, provide

oversight to students doing the work to ensure consistency of quality without stifling student creativity, and doing ongoing tracking of the effectiveness of these ERM projects. The Goldenson Center will also play a critical role in not just selecting students from UConn, but students from universities all over the country which have actuarial programs and related disciplines.

This idea can be extended globally as well since Towers Watson is a global organization and universities exist all over the world. The role of both Towers Watson and the Goldenson Center will have to evolve into more of coordinating and facilitating the process and will not be as hands-on as now. However, these larger scale projects will typically involve similar small businesses all from a single line of business (e.g. insurance brokerages, drug stores, fast food franchises, etc) which would make it easier to manage the process and enable more consistency in the analysis.

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## **Innovation Talk Newsletter: Communicating thought leadership globally**

Innovation Talk is a publication that highlights Towers Watson's research and innovation, featuring interviews and articles with the people that make it happen. With Innovation Talk we seek to go beyond the mere presentation of research results, and look at peoples' accomplishments, outlooks and how marketing and innovation come together to build a strong image as thought leaders.

Towers Watson is a leading global professional services company that helps organizations improve performance through effective people, financial and risk management. With 14,000 associates around the world, we offer solutions in the areas of employee benefit programs, talent and reward programs, and risk and capital management