Illinois' Chinese Revenue Hedge:
The Backstory of the University of Illinois's Successful Insurance Program

Prof. Jeff Brown, Prof. Morton Lane, and Andrew Martin

In 2017 the Gies College of Business and the Grainger College of Engineering at the University of Illinois at Urbana-Champaign purchased an insurance policy from Lloyd's of London protecting them against a sudden drop in student enrollment from China. The proximate cause of such a drop had to be the actions of either the American or Chinese government restricting the flow of Chinese Students to the US or a WHO-declared Pandemic which inhibited such movement. The cover was in place for the next three academic years.

Two and a half years later, in late 2019, the Corona virus descended on the world and on March 11, 2020, the WHO declared a global pandemic. Due to restrictions on travel, many Chinese students in the US could not go home and ones that were accepted into programs that started in 2020 or early 2021 were not able to travel to the US. International enrollments plummeted and universities suffered a severe cash crunch in the academic year 2020/2021. The Colleges of Business and Engineering made a successful claim against the policy and recovered most of the financial losses suffered.

The purpose of this paper is to tell the story of how this innovative placement came into being, the obstacles encountered in bringing it to fruition, and to take note of the many individuals who made it possible. It is intended as part case study and part record of the deal.

Preliminaries and Key individuals

The three co-authors of this piece were instrumental in putting the policy in place and moving it from an idea to placement and their biographies/pertinent credentials are footnoted. A fourth collaborator, Prof. Tim Johnson, tragically passed away in December 2023 at the age of 62. Tim was the first person to float the idea of an insurance policy. Tim was self-effacing enough to not want to have this case written up – he was not sure who the audience might be. But losing Tim has motivated us to do otherwise.

There were other more complicated reasons why the story of the placement has not previously been recorded. The underwriters included Non-Disclosure and Confidentiality clauses in the policy documents. Even after the policy was settled and closed, there was residual uncertainty about whether such clauses would be enforced. Now that sufficient time has passed, we believe it is time to document the history of this interesting transaction.

Section 1 – Beginnings (September-December 2015)

Jeff Brown[1] was appointed as Dean of the College of Business, of the University of Illinois at Urbana-Champaign [UIUC] in August of 2015. At Dean Brown's first fall faculty meeting in early

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[1] Jeff is now the Larry Gies Family Chair in Business and a Professor of Finance in the Gies College of Business at the University of Illinois. From 2015-2024, Jeff served as the Josef and Margot Lakonishok Professor and Dean of the Gies College of Business. He earned his Ph.D. in economics from MIT and before joining the Illinois finance department as an assistant professor in 2002, he had served as a Senior Economist at the White House Council of Economic Advisers and as an assistant professor at Harvard's Kennedy School.

September, he highlighted the opportunities and risks that faced the College. Leading the list of risks was what he then characterized as over-exposure to tuition from China and Hong Kong. The College of Business had several highly successful specialized master's programs that generated substantial revenue for the College. Three of these programs – the Master of Science in Accountancy (MSA), the Master of Science in Finance (MSF), and the Master of Science in Financial Engineering (MSFE) [2] – had student populations that were 70 – 90 percent from China and Hong Kong. This fact, combined with the peculiar and idiosyncratic ways in which the University' flowed different sources of revenue through to Colleges, meant that tuition from China and Hong Kong accounted for over 20 percent of the College of Business' annual budget. Dean Brown outlined various strategies for manage these this, including efforts to build cash reserves, diversify the student population within the MSA, MSF, and MSFE programs, and investing in the introduction and growth of new programs that would be less reliant on demand from Asia, including the soon-to-be-launched online iMBA.

At the end of the faculty meeting, Prof. Johnson approached Dean Brown with a simple question. "Have you ever thought about hedging the China risk?" Dean Brown, a financial economist with a research background in insurance, replied "I would love to, but the market does not exist." Prof. Johnson, whose prior work experience included many years working in the swaps and derivatives department of a major hedge fund indicated that it might be possible to convince a firm to create a bespoke policy. Dean Brown immediately agreed that it would be worth looking into and asked Prof. Johnson if he could lead the effort.

Armed with that response, Johnson fired off an e-mail to Morton Lane, Director of the MSFE Program, "Are you available for lunch in the next week or two? I have an idea that I want to run by you." Johnson was one of the Professors who provided instruction for the MSFE, in addition to other duties in the Finance Department. The concentration of revenue from one source, China, in the MSFE program did not have to be explained to Lane – he got Johnson's point immediately. He also did not have to be coaxed towards the idea of hedging such a risk.

Johnson and Lane had similar backgrounds[3]. Both had spent time in parts of the finance industry as well as Academe. They were familiar with the theory and the practice of finance. The conversation quickly moved to solution prospects. Which market would likely lead to an implementable hedge? Indeed, with such a novel cover (student revenues from China!), which market would even spend time to investigate?

The futures and options market dominated by the exchanges in Chicago did not seem to be the right place to go. They delt in standardized, but risky, high-volume contracts that were liquid and large. While new contracts were always encouraged and considered by the exchanges - they had to have the prospect of becoming liquid and large. Student revenues did not seem to fit the bill. Instead, their conversation focused on the more "bespoke" markets. Johnson leaned towards the swap market; Lane leaned towards the insurance market. Both thought their best shot would be some kind of Index rather than the exact losses that UIUC would suffer. Besides, how do you even measure potential lost income, if not against some benchmark? Finally, it was decided that Lane would try to get a feel of the market

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[2] In 2010 after being appointed Director of the MSFE Prof. Lane did a tour of competitive programs in the US to gather intelligence about MSFE programs. At UC Berkley, where he met with a former colleague, he observed that from the web site it looked as if the MSFE student body appeared to be about 70% Chinese. The response he got shocked him, "Oh no, that can't be correct, ... it's probably over 90% by now".

[3] Johnson worked in a hedge fund prior to getting his Ph D degree from the University of Chicago. Lane had managed money for the World Bank, run a derivatives brokerage company in Chicago and participated in the foundations of the Insurance Linked Securities market. His Ph D was from Texas. Both and Johnson had spent time in the early part of their careers, albeit in different decades, lecturing at London Business School.

from the insurance side. In his mind that meant London – not necessarily Lloyd's of London, but the financial ecosystem that surrounds it in the City of London. While the swap market could certainly wrap a total return swap around any series of cash flows, it was mostly done in the interest rate markets. Insurance was more eclectic in its coverage – famously from Betty Grable's legs to meteor shower damage to orbiting satellites.

The other question they realized they needed a quick answer to was – how much it was likely to cost. Too big a cost and it would be a non-starter for a public institution like the University of Illinois.

Getting a Sighting Shot (September – December 2015)

Lane called a former colleague, Andrew Martin[4], a broker in the Optex Division of Besso, a Lloyd's Broker, and explained the situation. Martin saw the nature of the problem, thought it was quite interesting and said he would get some soundings. Just as Johnson and Lane were confronted with which potential part of the finance industry to approach, Martin was now confronted with which "market[5]" to approach within the insurance market in general. Martin discussed the matter with one of his internal colleagues, Michael Bainbridge, who thought that the whole problem sounded closest to a "political risk" cover. But it could just as easily be thought of as a "business interruption" risk. They approached a Lloyds syndicate, Marine and Enterprise division, underwriter for his initial thoughts. Although that syndicate ultimately decided to limit its participation, their initial questions provided a wonderful sample of questions that would need to be answered if the hedge idea was to make any progress.

Among them were,

- Who was the legal entity, and did they have the authority to acquire protection?
- What were their financials? And how much coverage were they seeking?
- Which risks were they looking to protect against in a commercial context? Embargo? Loss of Profits? Pandemic? Adverse Publicity? Government Mandates? Visa Blockages? By implications the underwriters were unlikely to give an "all risks" policy of both known and unknown risks.
- Which countries to be covered? Just China?
- What are the contractual obligations between Students and the University, including Force Majeure clauses, etc.
- Attendance requirements and fee payment schedules.

In short, the underwriter took the request seriously and began to ask for more information. In response, and still thinking along Index lines and to provide more context for the potential insurers, Johnson forwarded along two links, one to an Institute for International Education [IIE] and another to a

[4] Lane and Martin had collaborated on several previous innovative insurance deals. While at Sedgwick-Lane, a joint venture Broker Dealer, in the mid 1990's, they had originated four of the first half a dozen experimental Cat Bond deals ever done, on behalf of Reliance National. In 2006 following the devastation of Hurricane Katrina, they had brokered a large deal between Talbot and the multi-strategy hedge fund, D.E. Shaw, to provide parametric protection to oil rigs in the Gulf of Mexico.

[5] Within the insurance and reinsurance market, and especially among insurance brokers, the term "market" refers to the entity who will eventually bear (assume) the risk. Since different "markets" are only comfortable with certain risks, a broker's skill is bound up in understanding various risk appetites among many different "markets". The derivatives market uses "counterparties" in similar contexts, although that term does not distinguish between who is ceding or assuming the risk.

UNESCO site that dealt with international student flows. Lane and Johnson also began to refocus their attention on how to advise Brown's answers to the other queries on the underwriter's list.

There was one other critical item that the underwriter or his senior provided - a price indication. They ventured, but did not commit, that the cover might cost around 1% (100 basis points) annually, if it ultimately took a form not too different from other political risk covers that they were familiar with.

The response was communicated to Dean Brown, and he was very encouraged. He formally directed Johnson and Lane to come up with the answers to the underwriter's questions. But, first, and most important, was the "authority" question. Did the College of Business have the authority to pursue such a hedge?

Brown set up a meeting with the VP, CFO and Comptroller of the University of Illinois system, Walter Knorr, to address the authority question. That formal meeting did not take place until November. So, the working party did not get a formal green light until then, but until then they worked under the direction of Dean Brown. Johnson and Lane suggested that the College would get better pricing if we had a larger entity to insure. Brown approached the Dean of Engineering and Johnson and Lane spoke to colleagues there. Engineering expressed immediate interest, as they also had substantial exposure to this risk. In order to move forward with such a novel idea and not get slowed down by involving too many additional parties, Dean Brown secured agreement from UIUC leadership to treat this policy for the two Colleges, Business and Engineering, as a pilot project, with the idea that other units – or even the rest of the Campus – could be added at some future date. The UI System Office of Business and Financial Services identified Peter Newman as its representative to the working group. The University's Insurance Risk Manager, P. J. Kale, was also added. When Knorr, the CFO, confirmed that the hedging project had the authority to proceed, he added that it would have to be done appropriately via the university's formal procurement process.

Meanwhile, in London, things went temporally into reverse. Recall that only one syndicate had provided the initial response and price indication. They were, however, still preoccupied with being acquired by a huge Japanese insurer and they informed Martin that their appetite for such a risk would be limited to $25 Mn and that they would not be able to "lead"[6] the slip. This put Martin and Bainbridge in a bit of a pickle – without a lead underwriter the project was dead. Martin and Bainbridge had to scramble to find another lead. Among others, Martin approached Mark van Zanden who in turn directed them to an underwriter at a different syndicate who was establishing a Crises Management business that might consider such a risk. That underwriter was receptive and prepared to lead the slip. The project was back on track.

The Working Party responded to the question of the desired size of the transaction that the answer depended on whether the cover would be the whole University or just the Colleges of Business and Engineering. The required limit could be as much as $100 Mn or as low as $40 Mn. It was decided that we would proceed with the idea of $100 Mn which could be scaled up or down at close. This meant that the brokers had to find other "markets" to support the cover. And, at this point, the interjection of a competitive procurement process meant they were not even officially appointed as the "broker of record".

Another complication arose when Michael Bainbridge at Besso received another, different enquiry about Illinois wanting such a cover. This matter concerned broker etiquette and commercial practice as much as anything else. The second enquiry came to Besso via a Surplus Lines broker called R-T Specialty LLC, operating out of Dallas, Texas. It appears that during the attempts to set up the Working Party meeting with the Risk Office during October and November, someone along the line decided to separately enquire, via R-T Specialty, whether such a cover could be possible and what it would cost.

[6] A "lead" underwriter at Lloyd's formally negotiates the terms and condition of a cover. Other syndicates who's capital fills out the remainder of a risk are said to "follow."

Luckily it arrived at Besso Liability who thought they were trying to get an alternative quote but thought it odd to receive two different enquiries from the same client – Illinois. It was forwarded internally to Bainbridge and Martin. They referred it back to Lane and Johnson who were unaware of any separate enquiry.

While the episode was somewhat embarrassing and potentially awkward if it had been presented to a different market, it served to highlight what would be needed to fully implement the deal, if consummated, to Lloyd's of London syndicates. Lloyd's and Illinois would need their respective brokers, but they would need to be linked via a licensed Surplus Lines broker in the US. The job of the Surplus Lines broker was to verify that the required cover was unavailing in the US and therefore it should look for opportunities outside of the US. Although Illinois did not have a relationship with R-T Specialty, Besso did, and Martin and Bainbridge were happy to slot them into the required chain of brokerage entities if communications were thereafter confined to the Working Party.

Still, at this point the exact nature of the cover had not been defined and Besso's appointment had to be ratified by a public, competitive, procurement process. Two tracks emerged from this process – the external one by Besso to find other supporting markets and the internal one to ratify by public RFP and the University procurement process, that Besso was the best bid to help the University acquire protection. A unifying thread was that in both tracks the exact nature of the coverage had yet to be negotiated and nailed down. The next several months were consumed by trying to answer that question alongside the procurement process.

Section 2 – The Phony Period or Shaping the Cover (January – April 2016)

In 1939, after the German invasion of Poland triggered the mutual defense pact between Poland, France, and the United Kingdom, and war was declared on Germany on September 3rd, 1939, there was a period in France and the UK that was known as "the phony war". Neither France nor the UK were exactly ready for war and German expansion was facing east not west where France and the UK lay. More prosaically perhaps, to the average Brit September 4th, 1939, was much like September 2nd ,1939 and that was the case for many months to come.

That was, for the next several months, the story of the Illinois Revenue Hedge [IRH] although it would turn out these were critical preparatory months for understanding the issues.

From the underwriting side the question was, is the required protection more like a Political Risk cover or a Business Interruption cover. Bainbridge and Martin sent examples of term sheets for both. Political Risk concerns itself mostly with expropriation of assets by hostile governments and delineates the forms that such governmental actions could take, specifically Confiscation, Expropriation, Nationalization and Deprivation. These hardly seemed to be appropriate in the context of student fees from international students. And yet Government action that stops travel by mandate, edict, or legislation (which could occur from either side) certainly would precipitate a cessation or reduction of student flows to the US and a subsequent loss of student revenues to Illinois. But student flows could also be disrupted by a pandemic, cyber breach, reputational harm, terrorism, or economic collapse. Were these the things that the University desired protection from – all of them or just a few?

Equally the most common form of Business Interruption Insurance concerns itself with loss of profits from various specified causes. But "profit" in the commercial sense was not talked about in Educational Institutions, least of all in Land-Grant colleges like the University of Illinois. They would be the first to recognize that cross subsidization occurred across departments, but the objective was not profit. Instead, the mission of the university is "to improve lives and serve society by creating knowledge, educating, and applying that knowledge on a large scale." Profit was uncomfortable to talk about, revenue was less so.

At the same time questions about the finances of colleges were something underwriters of the risk would have to understand. They asked, were the fees paid by the governments, and is that how they could cut them off or refuse to pay? In reality, most international students were financed by their parents just as with domestic students. At the same time was there a contract between the student and the university? Were all the fees paid up front? What if a student went home mid-way through his degree and could not get back, did he or she owe the balance to the university? Conversely, if a student paid in advance and could not reenter the US, did the university have to reimburse the student?

If international students were not able to come, did the university have any mitigation strategies? Would they be able to lower admission standards of applicants for example? This was a touchy subject to address. First, no university would want to admit to lowering standards, but secondly the appearance of foreign students on campuses around the country had provoked the question of whether domestic students were being denied admission to programs because of foreigners. Were their places being taken away? This was not a new debate – before the surge in international students started, it applied to in-state vs. out-of-state students on popular campuses. Out-of-state students paid more, and revenue seeking Universities might want more of them, but did it follow that in-state students were denied potential places? The argument that this was a beneficial cross subsidization of different parts of the University did not always sit well with those who thought they were denied places, especially when applied to foreign students.

There was one mitigation strategy that was not considered at the time, but which became critical several years later – could the student receive their education remotely? We will return to this in Section Seven.

On the University side, the questions for the Working Party (now, Kale, Johnson, Pitts[7], and Lane) who were still considering a cover in derivative (swap) terms as much as insurance terms was, how to structure their preferred form of cover. Should it be an annual cover or multi-year? Should it be a parametric cover or an indemnity cover? In other words, whose numbers should determine the amount of a claim and whose numbers should determine the trigger (or threshold) that initiates a claim? The numbers of the International Institute for Education numbers that Johnson and Lane had sent to Martin now formed the basis for the discussion.

Johnson initially thought in terms of an index from which to design a swap contract; Lane was equally biased in favor of an Insurance Linked Security [ILS] structure[8]. Both were multi-year

[7] Kevin Pitts, Associate Dean, College of Engineering replaced Peter Newman.

[8] This debate was eventually tabled in favor the insurance approach but is interesting to record because simultaneously, and unbeknownst to either Johnson or Lane, in 2015/6, the World Bank [IBRD] was having a similar debate, and their resolution was to do both. See Epilogue for a comparison of the IRH hedge vs The IBRD Pandemic Bond.

structures, unlike the single year annual coverage of the, say, political insurance market. In the end the most agreed upon form was a multi-year cover with a single aggregate limit which could be claimed in whole or in part in any one year. The loss in any one year would be decided by a drop in the IIE[9] index of a certain percentage, say 15%, from one year to the next. Obviously, a complete stop in new international students would be a 100% loss of revenues.

These ideas for different term sheets were tossed back and forth during the early months of 2016 but none were too specific, and nothing could be finalized before an official appointment of the broker was ratified via the State of Illinois' procurement process. The addition of PJ Kale, a seasoned University of Illinois Insurance Risk officer, to the group Working Party facilitated the process. In short order she notified the group that Wells Fargo Insurance was the university's current insurance broker, and that the Urbana campus procurement officer was (the soon to retire) Daniel Lienard and that they should be brought into the process. Recall that the chain of brokers necessary to affect the cover was going to be University broker – Wells Fargo, Surplus Lines broker - RT Specialty, Lloyd's broker – Besso, with the University as client and Lloyd's of London as market. Before they could be anointed a competitive process had to be entered into to ensure the State was getting the best, most cost-effective possible advice.

Section 3 – The Procurement Process.

"*The University of Illinois at Urbana-Champaign (UIUC), a land-grant university, is a public research university situated in east central Illinois. Founded in 1876 and comprised of sixteen colleges that offer more than 150 programs of study, UIUC is a community of students, scholars and alumni that tackles global problems and expands human experience.*

Students come to UIUC from all fifty states and over 119 different countries. Recently UIUC had the distinction of ranking #1 of the nations "Top 20 Research Institutions" in number of international students. Fall 2015 international enrollment is broken down as follows: 5,511 undergraduate students; 4,819 graduate students; and 51 professional students for a total of 10,381. These figures represent roughly 17% of the total undergraduate population, roughly 47% of the total graduate population and roughly 5% of the professional student population. Base tuition for international undergraduate students for the 2015-2016 academic year is $28,026. Base tuition for graduate and professional students for the 2015-2016 academic year is $26,058. However, there are certain graduate programs where the academic year tuition averages close to $40,000.

The purpose of this solicitation is for the University of Illinois [UI], inclusive of all its campuses to request proposals for a licensed insurance brokerage firm/intermediary (hereafter called a "broker" of "proposer") that will handle the placement and servicing of an insurance product, or hedge, to insure against political, economic and /or credit risk to the University's streams. The broker would be appointed for no less than a three-year-period and no more than a nine-year period, subject to satisfactory performance review."

Thus began the first draft of Kale's (with some guidance from Daniel Lienard) description of who the University was, what its student's composition was, and why it was placing a Request for Proposal [RFP] seeking help for hedging some of its economic risks. It was drafted in early March of

[9] Also referred to as Open Door Data.

2016. And it and other answers were slotted into appropriate positioning in the standard procurement form – a form designed for approving services for products that many providers would have expertise in. It was not a form that easily accommodated unusual or innovative products that were not known in the marketplace. The Working Party anticipated that the process would take six weeks to complete – three for public posting and three for evaluation and decision by early June. That would leave a month for finalizing terms and going on-risk in July 2016 to cover the academic year 2016-2017. It was not to be.

The draft had to be approved by the University of Illinois System State Purchasing Officer, Stephen Rotello, who was also a member of the Illinois Ethics Commission. Unlike Kale and Lienard, Rotello had not been briefed by the Working Party of what the possibilities were, what the remaining questions were, and he was unprepared for the lack of specificity of the RFP. In response to Kale, Rotello wrote several dozen clarifications, amendments, questions, and improvements to the full Draft starting with - why we were talking about hedging when we are looking for insurance? Of course, in the Working Party's mind, that question was not fully settled, and they thought that brokers who could respond to the RFP demonstrating they could think in both derivative and/or insurance space would be a distinct plus in making the broker selection.

Rotello also thought that the criteria that would be used in making a final selection should have more attention paid to it. In a typical document that criteria were spelled out with a scoring system. Thus, the document contained the following table.

Responsive Elements	Possible Points as Recommended by Working Group	Possible Points as Recommended by Rotello
1. *Vendor Qualifications knowledge, experience.* • *A statement providing a brief history of the Proposer's organization and how it will utilize its resources to provide the required services.* • *Information that identifies the Proposers particular expertise and experience in providing similar insurance broker services as those in the RFP*	*300*	*175*
2. *Vendor Staffing qualifications.* • *Technical training and education* • *General Experience* • *Specific Experience in providing requested services.* • *Qualifications and abilities of personnel assigned to perform the services*	*275*	*175*

3. *Demonstrated ability for performing the required services and proven by:* • *A detailed Proven Plan that identifies how the proposer will access the proposed insurance markets: includes on how Proposer will identify insurers; includers the proposer's strategy on how to secure competitive insurance quotes with broad coverages terms and conditions.*	*225*	*375*
4. *Phase II evaluation consisting of an interview to further demonstrate Proposers ability for performing the required services.*	*100*	*175*

The left-hand cells should inform the proposer what qualities we are looking for: the right-hand column the weight in points that will be given to each element of the proposer's response. The first number in the right-hand column represents what weight the working party thought each factor should have in Kale's first draft. The second number was Rotello's suggestion. Note that both columns add to 900, the maximum any proposer could receive, and that score would be a method of ranking the responses. Clearly the initial views were somewhat at odds with each other.

Elsewhere the document stated that the "… *proposer may not approach any insurers on UI's behalf and proposers are not to respond to this RFP by providing insurance quotations.*" The Working Party was trying to elicit responses which were conceptual in nature, demonstrating a knowledge or appreciation of the University's need. Standard approaches would not solve the problem. And yet the procurement problem itself was designed for competitive responses among existing products.

Additionally, it was awkward that one market had been approached some months ago and its Proposer would have the benefit of some deeper insight into the University's need. The Besso/R-T Specialty/Wells Fargo proposal obviously had an edge. That bell could not be unrung. However, it was important to Rotello that the selection of potential other candidates not be disadvantaged. The whole purpose of the Procurement Procedure was to get the best deal possible for the University. His vigorous attention to the RFP ensured that that would be the case. However, it was a slow process to get it just right. The timetable was slipping.

One other feature that was problematic was "Confidentiality". The draft policy forms that the Working Party had received early on of a typical Political Risk cover contained a specific clause on confidentiality – of non-disclosure of terms. This may have been for commercial protection but equally it could be for moral hazard reasons. For example, non-disclosure of the existence of a policy, let alone its terms was a strict feature of Kidnap and Ransom policies. Why give kidnappers the knowledge that they could more easily get paid if there was a known policy in place? That exact rationale might not be in place with a revenue hedge, but it could nevertheless be embarrassing if it was known that it was directed at one country – China. And, we have already seen that the university had its own reasons for not disclosing the hedge – that it may create the impression of favoring foreign students over domestic ones when it comes to admissions. At the same time, the university is subject to state and federal law and to the Freedom of information Act [FOIA] just like other public bodies. Even if signed in good faith a non-disclosure agreement could be overruled by a FOIA request.

The US political calendar gave one other reason for wanting discretion about the Revenue Hedge. The year was 2016, a US election year, and on June 16, 2016, Donald J Trump rode down the escalator at Trump Tower announcing his candidacy for the Republican Party's Presidential nomination. As a very controversial candidate with an anti-immigrant policy the last thing the university wanted was to be seen taking sides, politically, by hedging against China. Clearly the prior nine months of effort demonstrated that the university's economic concerns preceded Trumps candidacy, but disclosure of the contract after Trump entered the fray and went on to win the Presidency in November could have led some to that improper conclusion.

So, notwithstanding these various cross winds, the Procurement process went quietly forward with attention paid to almost every detail. When the RFP period was concluded very few submissions attended the close and the Besso/R-T Specialty/Wells Fargo consortium stood out as the best considered submission. Wells Fargo Insurance had been an insurance broker for the University for a long time and provided a comprehensive 60-page submission by Tony Ackerman, the local Wells Fargo representative, together with an 8-page addendum outlining the nature of the risk as viewed by the Optex division of Besso. A meeting was called for the Working Party on July 18 by Daniel Leinard to opine on whether the pricing for services was fair and reasonable. Wells had offered two methods of pricing – a fixed annual fee or low fixed fee with a variable fee, equal to a fixed proportion of the total premium. Both seemed fair but the variable schedule was better for the University, especially if only the College of Business signed on. Still optimistic that more colleges would want the protection, the fixed fee was the one chosen.

In a last effort to comply with university wishes the consortium was directed to include, under the university's Business Economic Policy [BEP] favoring female and minority owned enterprises in service contracts at the university, a minority broker (The Lambert Agency) in addition to Wells Fargo. Wells had asked for a good faith waiver of the BEP requirement, given the unusual nature of the risk. The minority broker would share part of Wells' service fee. The fee for finding and putting in place the cover was modest (when divided among each participant in the chain) especially if the policy was put in place just one time. It was typical to allow up to two renewals by the same broker without resubmission to the competitive process. Of course, if there were claims then a lot of work had to be done. If the policy ran loss-free the fee would be viewed as good compensation.

By mid-July it was apparent that the Procurement process was done – Besso/R-T Specialty/ Wells Fargo/Lambert Agency – were approved as brokers. On July 19th, Jeff Brown asked Tim Johnson to summarize the sort of cover the Working Group was now contemplating. His response, in abbreviated form, was as follows.

1. *Losses - from (a) current students or (b) expected students who do not materialize, attaching a dollar value per head. Presumably with some*

deductible. It would be mostly Chinese exposure, but other source countries could be included.

2. *Triggers – specific events including (a) political acts explicitly restricting student travel, (b) pandemics and (c) reputational impairment of the college. We do not know if economic conditions could be covered.*

Policy underwritten by Lloyd's of London, an AA credit.

Cost of Coverage – expected to be in the range of 1% -1.5% of coverage depending on choices of parameters. Thus $50 Mn of cover would cost $500,000 - $750,000 per year for a policy period of 3 years. Need to investigate observable indices which could reduce costs by 25-50 bps.

Finally, if successful there was the possibility of some sort of IP reward. If we could jointly market to other institutions.

This was about as good a summary as any. Many ideas had been batted back and forth between the brokers and the Working Party through the Phony and the Procurement periods, but none was final, and none had the blessing of the higher ups in the Colleges' or University's hierarchy. All that had to be done if the cover was to be in-place by Jan 1, 2017, seemingly the next best date to initiate a cover.

Section 4 – Finalizing the Cover, Sept – December 2016.

The brokers had to find other markets to support the syndicate lead. The initial syndicate had expressed interest up to $25 Mn, but only if the terms were similar to political risk cover they were familiar with. But even with that, if total coverage could be as much as $100 Mn, a lot more following markets would be needed. $100 Mn was used to illustrate the mechanics of the cover, while $50 Mn was the likely final limit if only two colleges (Business and Engineering) were participating. The brokers would have to search aggressively to obtain additional supporting limits. The task was divided up between Martin, to explore third party markets, Lane, to explore possible ILS markets, and Bainbridge to explore Lloyd's markets.

There was some initial tension about this between Tony Ackerman, of Wells Fargo and the London brokers. Ackerman and Lambert were the appointed domestic brokers, but it had already been pretty much established that the US domestic market would be unlikely to yield a market for this novel coverage, hence the need for a surplus lines broker. Further, the surplus lines commission fee would normally have come out of the domestic service brokers' share of fees[10], as would the minority broker's share. Wells did not accept this and so it was swallowed by Besso. However, Besso was aggrieved that they had done the work necessary to get to the RFP and now also needed to find the markets and yet their fees were smaller and contingent, i.e., they would be received, if and only if, there was a successful placement. Wells meanwhile was already engaged by the University. This was eventually smoothed out and Ackerman, to perhaps demonstrate his enthusiasm and contribution to the project as well as to demonstrate his insight into the market,

[10] It is important to point out that none of the members of the U of I's staff or faculty on the Working Party received any compensation from this transaction. Neither did they participate in, or get involved in, any broker-to-broker fees discussions.

wrote a long piece in September 2016 listing the issues he thought needed to be resolved. They were discussed in the meeting of the Working Party to which he was now an observing participant.

One notable feature of Ackerman's piece was his highlighting of the coverage problems with using an Index for the trigger mechanism, such as the IIE one mooted earlier in the year and still part of the discussion. Ackerman wrote on Sept 18th, 2016, that,

... do we look at an index published by an agreed upon source that measures the gross number of students by country and apply that reduction to the U of I with the limitation that the maximum recovery is the actual loss to the U of I subject to the index number reduction. This seems to have the advantage of adding exclusions to the policy as opposed to adding coverages. For example, the index shows a 5% reduction, and the U of I suffers a 15% reduction then the maximum recovery by the U of I is 5%. Another option is that the Index shows a reduction of 15% and the u of I shows a reduction of 5% then the maximum recovery is 5%.

Although somewhat muddled this is exactly what the Working Party was wrestling with. They wanted to get a good index, independently calculated, and therefore perhaps cheaper in its premium, but otherwise a reasonably good fit, that would reimburse close to what U of I suffered by way of a loss. This is the essence of "Basis Risk" when designing indexed hedge products.

Ackerman also anticipated an issue that would be of great internal import later in the process. It is worth noting here.

... does a reduction in the freshmen class that causes a loss carry forward to the subsequent years classes, Sophomore, Junior, and Senior Classes impact the 1st year loss limit or is it part of the losses that occurs during the policy period when the triggering event occurs.

Parallel with these discussions the London brokers efforts proceeded to get market support for the IRH concept. After consulting with the lead underwriter, Martin approached Tom Bolt [11], Berkshire Hathaway, Liberty International, Allianz Risk Transfer (ART), and Swiss Re. Lane and Martin contemplated approaching D. E. Shaw and Co who had supported their prior Gulf of Mexico cover in 2006. However, the response from Bolt, and Berkshire was that it was interesting but that it was either too small or it was likely to be too finely priced for them. That was likely also to be the response from D E Shaw, and they were not subsequently approached. Those markets were known to be innovative and accepted new risks, but they also preferred situations of distress when high premiums were likely available. The university was not in that situation.

The response from Swiss Re was also interesting, although it occurred later in the timetable. Swiss Re New York had passed on the idea and forwarded it to their colleague, Bob Nusslein, in Zurich. He initially liked the idea and analogized it with a policy they had written for a hotel chain, where an occupancy index had been used for trigger and payout purposes. From that point of view, they were interested. However, when they discovered that the client was a public institution their interest dimmed. Apparently, the track record of public institutional clients in

[11] Tom Bolt was a colleague of Martin and Lane. At the time he was President of Berkshire Hathaway Specialty Insurance, where he was President and CEO. He had previously served as Performance Manager at Lloyds of London and had once addressed Lane's MSFE students on the topic of "Risk Managing the Risk Managers" (at Lloyd's). He is currently President and CIU of AIG.

following through on enquiries once confronted with appropriate premiums, was poor. The rap was that they caused a lot of work but no likely revenue for the underwriter. Of course, on a different day Swiss Re's response may have been quite different, but on this occasion, it ranked low on their prospect listing, and they could not hold capacity for a December close.

The response from the other names Martin approached was also muted – a wait-and-see-final-terms attitude. These included Munich Re, Chubb and the Bermuda markets Endurance, Axis, Markel etc.

Lane[12] approached the ILS market via the Elementum Re Ltd hedge fund. The CEO, Tony Rettino, was curious and interested but noted that the rules and regulations of his hedge fund required that all investments made had to be independently measured and contain a risk analysis by a third-party risk modeler. The U of I at this point was not contemplating going to a modeler. Martin elicited a similar response from Nephila Re Ltd, another of the four largest ILS funds.

Bainbridge and Martin, feeling out other syndicates at Lloyds, were received more openly. Each, like the initial enquiry earlier in the year, had a list of questions and tried to figure out whether this was a political risk or a business interruption risk. It was these discussions that eventually bore fruit. But the going was somewhat slow. At each step the Working Party had to guess which of the proffered ideas would appeal to the university higher-ups and which would not. Which were in the best interests of the university, which were not. In the end, the group reverted to memos to higher-ups together with questions that needed answering, the alternative answers, and the Working Party's recommendations. Before turning to examples of those, it is worth noting two or three events which kept the wind in the sails.

In mid-September 2016 the IIE's Inside Higher ED newsletter released an article titled "Will China's Slowdown Stall Growth in International Students?" It was not predicting a slowdown in students (although growth rates did peak in 2017) but it served as a reminder that a lot of things could interrupt the USA's increasingly large flow of student revenues from international students. Too much reliance on that revenue stream could be dangerous. This was exactly as Brown had suggested in August the previous year. Yes, there was a risk, and the College of Business wanted to mitigate it. The IIE article served notice that others were beginning to come to the same conclusion.

The second article that came to everyone in Illinois's attention in September 2016 was an assessment of the University credit rating by Moody's, the rating agency. It was a good report ranking the U of I as Aa3, well above the State of Illinois, its primary funder, at Baa2. It was able to do this because of its strong diversified sources of funding, mitigating reliance on the State and its accumulation of strong liquidity balances (186 days) comparable to its Big Ten peers. That was well and good, but Moody's also chose to note the other side of the coin. They wrote,

… the University of Illinois enrolls the most international students of any university in the US. This leaves the university vulnerable to shifts in international student demand and any potential changes in government policies affecting international student enrollment.

The vulnerability could affect ratings and credit costs. If the university could proactively further mitigate the vulnerability by the IRH then perhaps the university could get an even stronger

[12] Lane served on Elementum' s Advisory Board at the time.

rating. That by itself could perhaps repay the cost of the premium, or such were thoughts of the Working Party once the Moody's report was brought to their attention.

As a final reminder of events putting wind in their sails, and no doubt behind Moody's reference to government actions, was the rhetoric hostile to China emanating from the now Republican Party nominee, Donald J Trump. By November, he was the President-elect. The coverage sought by Illinois may not have been motivated by such a possibility, but after its occurrence it certainly lent urgency to the task.

All the work to this point by the brokers and the Working Party (which now included Eileen Ryan, deputizing for the soon-to-retire P. J. Kale, with Tony Ackerman and Manny Ribot in attendance) was honing in on narrowing the eventual coverage, but none of it was exactly moving swiftly to resolution. Until, that is, Bainbridge and Martin got together with the lead underwriter. He reiterated that they could lead the slip and taking on board the dilemmas of the university, they decided to proactively provide their own suggested resolutions.

A breakthrough concerned the Index question. Remember it was thought that using an Index would be slightly cheaper premium-wise and could well pick up economic coverages as well as governmental or pandemic loss situations. On the other hand, there was a basis risk, which could be considerable. The university preferred a near perfect hedge where the claim would indeed equate with their loss – indemnity cover. The compromise that the underwriter struck was to say that they could, indeed would prefer, to use the drop in U of I's actual student count from one year to the next multiplied by a fixed fee – say $30,000 – to be the trigger and measure of claim payout. Student count was auditable and seemed impossible to be manipulated – always a concern of an underwriter, or any risk taker.

In another important, but subtle change, when the Working Party received the draft slip, expecting to see the "number of students x fee rate percentage change formula", it had been changed to simple "revenue percentage change". Effectively this also changed the onus of "proving a loss" from the client to the underwriter. The underwriter would have to disprove it to deny a claim.

Yes, that would definitely work, and in retrospect was so simple. It gave refreshing breakthrough momentum to several other issues as the calendar moved towards the end of 2016. Unfortunately, it was not enough momentum to close by January 2017. That objective was moved to July 2017 and put the coverage coincident with the academic fiscal year, rather than the calendar year. This was a plus as far as the university was concerned – they counted their costs and revenues in fiscal years.

As of December 2016, there was also general agreement on one aspect of the desired coverage that Johnson and Lane wanted initially – that the coverage be multi-year (three year) with a single aggregate limit that could be claimed in whole or in part in any year of coverage. This followed the ILS model. Now there was agreement that the trigger for a claim would be a % drop in international student revenue at U of I and that any payout would be that percentage times the fixed aggregate limit. The limit of coverage was defined as the prior year's international student revenues.

The technical issues that were not defined were,

a) What was the exact triggering percentage?
b) Whether there was a "deductible" or a "franchise deductible"?
c) Whether there had to be a "defined event" as well as a percentage trigger?
d) Whether there was a reinstatement provision?
e) Whether the coverage was to be on a "losses occurring" or "claims made" basis?

And to determine size,

f) Which student's countries were covered, and which departments or colleges would be included in the cover?

It is worth addressing each of these in turn. We do so in reverse order. The Working Party had concluded that the coverage should just be focused on China, even though the underwriters were prepared to consider including India and South Korea or any other countries if desired. This, and the other recommendations, were communicated by Lane in a memo to Dean Brown in early December.

On the question of "losses occurring" or "claims made" basis, the coverage was "losses occurring." There was no practical way that the effects of a loss-causing event occurring during the policy period could be calculated and paid within that same period given the payment schedules of students. Losses could only be calculated in the following fiscal year, and that might lie beyond the policy period.

The inclusion of a reinstatement[13] provision would protect the pricing for the university for renewal immediately following a loss. If a loss occurred, the policy could be reinstated for the amount of the loss for the remaining term of the policy. Its inclusion was recommended so that coverage would be renewed on the same terms, after a loss.

The subject of the loss-causing event was important, but like everything else in the proposal options offered by the lead underwriter, each choice might come at a different cost. At this stage it was recommended the university follow this choice of events, i.e., of i) Terrorism, ii) Political Violence, iii) War, iv) Visa Restrictions, v) Comprehensive sanctions. Excluded were i) Nuclear, Chemical, Biological or Radiological events, ii) Asbestos, and iii) Cyber, iv) Suspension, deletion, and prohibition of courses, and v) Pandemic. To be clear this list would not be finalized until closing, but the recommendation was to accept as presented.

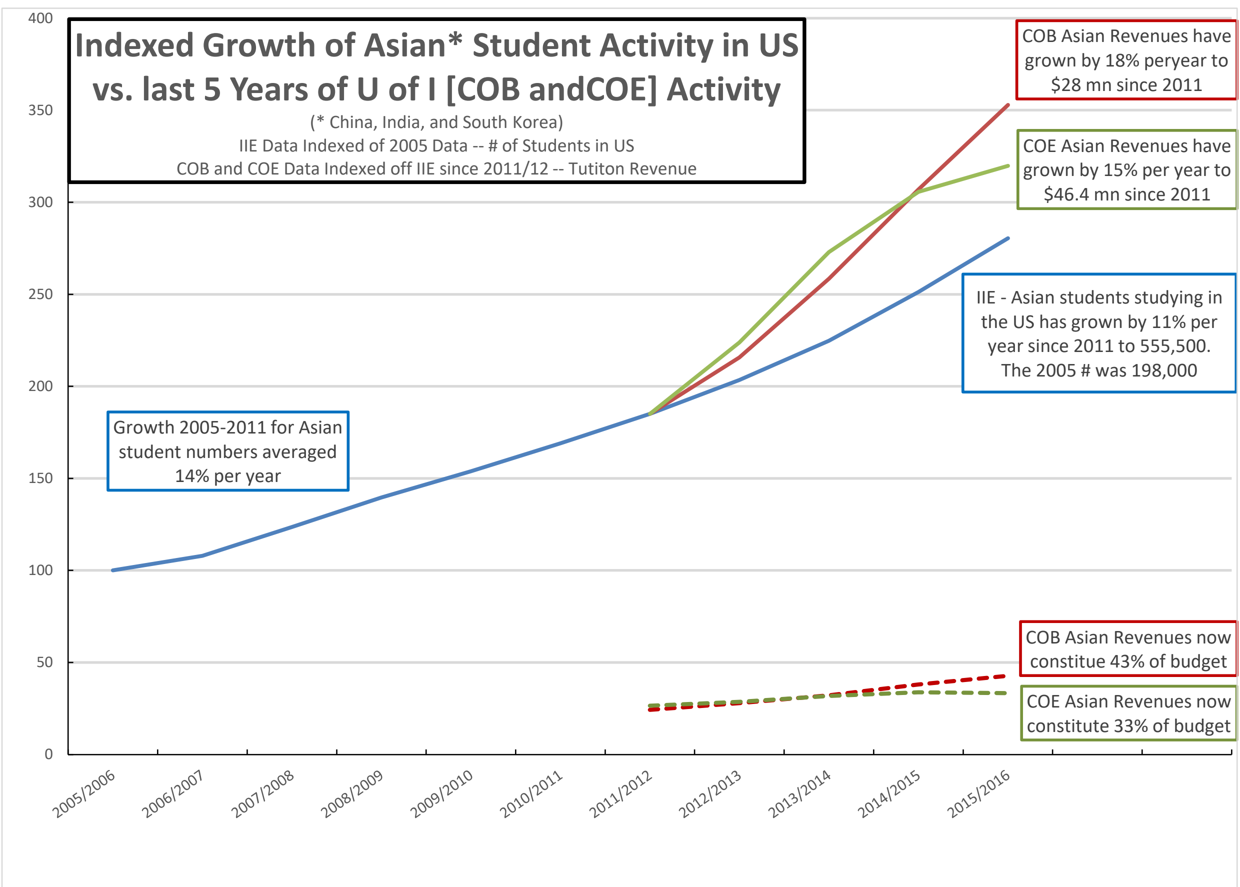
This specification of an event combined with the numeric trigger meant that the coverage had two triggers – a) the percentage revenue loss and b) the occurrence of a recognized cause of loss. Having two triggers is a device that is often used by the ILS and the alternative market. Given

[13] *Reinstatement: Excess of Loss reinsurance contracts pay up to the nominal limit. When this is eroded by losses, the contract may require the parties to reinstate while the contract remains in force. The protection seller may agree to a limited number of reinstatements – typically "one full reinstatement at 100% of original premium". This may be prorated as to time and amount.* .. In Andrew Martin's Chapter "Insurance as a Second Language" in Alternative Reinsurance Strategies, Ed. M. N. Lane, Risk Books, London 2012.

the choices that were recommended meant that the university would not recover loss due to economic slowdown or currency collapse, nor from reputational impairment or pandemic.

The question of the deductible or a franchise deductible was similarly esoteric but especially important. Under a deductible arrangement the insured is responsible for losses up to the deductible and the insurer is liable thereafter. Under a franchise[14] arrangement the insurer is liable after the franchise deductible is triggered but is liable for the total loss ground-up from the first dollar. In early deliberations the university thought of a 5% or 10% deductible. Lane recommended that the offered franchise deductible at a 20% trigger was a better deal. This recommendation locked in the trigger and the form. Lane also suggested that it might be possible to horse-trade the reinstatement for other provisions such as getting a lower trigger.

Suddenly in the process of this engagement the momentum shifted. After the lead's choices were presented by the brokers the ball was tossed - from the underwriters to the university – from the market to the client. The University needed to ramp up its decision making. It needed to fill or kill as Chicagoans like to say. A meeting was convened for Johnson and Lane to present the case to representatives of the Board of Trustees in mid-December – Paul Ellinger VP and Chief Financial Officer, Interim Provost Edward Feser, together with Dean of the Grainger College of Engineering, Andreas Cangellaris, and Jeff Brown, Dean of the Gies College of Business. These



[14] Martin also defines a Franchise as *Where a loss can become a payable under the contract only if it exceeds the franchise amount. If it does, the loss is paid in full; if it does not, no loss is payable.*

were the people with the highest budget responsibilities within the university. Cangellaris and Brown were both colleagues and close friends and Brown was intimately familiar with the status of the deal. It was his initiative. On the other hand, Ellinger needed to be reminded of the original rationale for the transaction as well as its current status. Lane and Johnson presented the case in Power Point in the following manner.

Risks to International Revenue Streams at UIUC
Exposure Depiction and Discussion on Mitigation Strategy
College of Business and College of Engineering
December 2016

Exposure to, or Threats to, a vital source of Revenue

Policy actions by US or by Countries of Origin inhibiting international study. These can be explicit or implicit and can include,

Trade wars; visa restrictions; comprehensive sanctions; withdrawal of state approval/student loan programs support for, or resistance from, home competitor institutions.

But also includes,

Economic deterioration of home country economies (including currency weakness) Reputational impairment of UIUC (or political disfavor); War; Terrorism; Pandemic

Motivations for Risk Mitigation

Prevent disruption to critical revenue stream at a time of State stringency and heightened political uncertainty. Potentially lower university funding costs (c.f. Moody's report 9/21/2016 specifically cited foreign dependence). Enable continued and uninterrupted expansion of mission for growing the market for our educational products.

Defensive Strategies

Improve geographical diversification (domestic and non-Asian students)

- Being actively pursued; slow; limited potential; competitive

Transfer Risk to Others

- Hedge or insure against disruption

Both need to be Aggressively Pursued

Risk Transfer Product -- Status Report

At the direction of Deans of COB and COE, a working group was formed late in 2015 to explore availability of insurance-type strategies to compensate units for potential loss of international student revenue.

Under guidance from the University's Office of Risk Management, a formal procurement process was undertaken to hire a broker to canvass alternative markets. Wells Fargo Insurance Brokers together with Besso/Optex were selected.

There have been active discussions with many of the largest re/insurers on possible product designs since the summer of 2016.

It should be stressed no such product presently exists. This is a new and novel concept for the market.

NOTE

All parties must treat discussions as confidential. It is possible that the U of Illinois will get a potential first-mover advantage (pricing, IP)

Risk Transfer Product currently under Review -- How would it work?

Example policy:

Term of Protection – 3 years; Limit of Cover - $100 Mn in the Aggregate

Trigger event and Coverage: loss of revenue by more than 20% y/o/y and the occurrence of one or more of the covered perils. (Note the covered perils does not include all threats cited on slide 3 but *a significant subset e.g. sanctions/visa restrictions/withdrawal of approvals/political violence). Economic risks not presently covered.*

Coverage is on a "franchise" basis, i.e., once a trigger is activated the claim is from 1st $ loss. Indicative pricing: 60 basis points per $100 Mn of limit, i.e., $600,000 per year for three years. Prorated on lower purchased limit e.g. $150,000 for $25 Mn. Policy non-cancelable by provider; becomes void if insured fails to pay premium.

Recommendation

It is our recommendation that the current proposals largely address the risk facing the University and that it would be prudent to enter into such a policy.

Numerical Payout examples (assume base year revenue = $80mn)

Illustrating how the Cover would Pay-off		REVENUE $ millions			Down Year Drops in Revenue (shaded shows drops greater than 20%)			Recoveries from Policy			Total Recovery over 3 yrs
	2016 current	2017	2018	2019	2017	2018	2019	2017	2018	2019	
Scenario 1	80	90	100	75	0	0	25	0	0	25	25
Scenario 2	80	60	45	40	20	15	5	20	15	0	35
Scenario 3	80	20	80	20	60	0	60	60	0	40	100
Scenario 4	80	70	60	50	10	10	10	0	0	0	0

Note Purchased Limit should be related to exposure and likelihood of invidividual scenarios
Above it would seem 1, 2 are more likely than 3. And while scenario 4 shows a slow decline it is probaly manageable
Given just these 4 sceanrios one might conclude that onlty a $40 mn limit is necessary

Executive Decision Issues - Points

A. Proceed/Discontinue. Decision imminent if cover to be put in place starting 7/1/2017.

B. If proceed, authorize the working party to negotiate terms to be put in place for FY 2017/18

C. Direct working party on essential deviations required from current proposals.

D. Direct working party to premium allocations and claim procedures such that paying entities receive recoveries directly.

The committee thanked the presenters and were left to caucus among themselves concerning the guidance that the Working Party was seeking on A, B, C, and D. Similarly, the Working Party just before Christmas, met to review their own views on current status. December had been quite a rush of activity with the new proposals from the underwriters. It was not clear that they had reconciled themselves to the sudden rush of potential decisions provoked by the proposed slip. On reflection, it turned out they were not. We review these discussions in the next Section.

Section 5 – Coming to the Close (January- July 2017)

It is fair to say that the next several months of discussion were internal to the university as much as negotiating final details with the lead underwriters. Although, as Martin advised in early 2017 there was a certain "deal fatigue' setting in among the broking and underwriting side of the equation. This was dangerous to completion of the slip in the required amounts. Bob Nusslein of the previously mentioned Swiss Re voiced the opinion that he was surprised that the proposal was not immediately taken up. It also reminded us of his previous cautions that public entities did not often follow through. Martin himself thought there were too many decision makers, especially now at the Board of Trustee level. These concerns were legitimate, but the objections had to be suffered through to complete the transaction.

First up, it is worth noting that Brown and Cangellaris in the VP presentation were anxious to get clarity about Decision point D – where does any claims money go? Even though the insured might legally be the university they wanted clarity that if premium was paid by their College, then any appropriate claim would also go directly to that College. In their terms - *paying entities received recoveries directly.* Ellinger was subsequently able to provide that assurance.

A second concern was expressed by Johnson. He was reluctant to give up the Index idea entirely because he saw that it alone was a way of achieving protection against economic disasters - a crash in China or the US which would give students a reason not to come to the US. He mooted the idea of going to a swaps broker to see if they could find a way of incorporating protection against that risk. The suggestion rattled some cages but on reflecting how painful the approval had been for Besso/R-T Specialty/Wells Fargo he withdrew that idea and reluctantly came to decide that apart from the economic case, the policy proposal was a good deal.

He also joined with P.J. Kale and the rest of the Working Party; in stating a third objection - that pandemic coverage was necessary and essential for the university. Brown also underscored that Pandemic coverage was essential. The syndicate consulted with their Pandemic underwriter and subsequently acceded to this request and Pandemic was removed from the Exclusion list and added to the Covered Event list in the slip. But it was not without cost. The pandemic exposure was sub-limited to a little over 50% of the Aggregate coverage because not all syndicates wanted to participate in the Pandemic cover. As we now know this was the most significant addition to the slip in its final months and the one that ultimately counted.

A fourth, and protracted internal objection, was raised by Kevin Pitts on behalf of the Engineering College concerning the different risks faced by the two Colleges – Engineering and Business. These two Colleges were the only ones to step up to the opportunity, although the underwriters were open to adding other colleges or departments later if they so desired. Pitts thought that the risks born by the Colleges were not equal – in several interesting ways. Recall that the Asia student component of the Business College's budget was 43%. For Engineering the comparable figure was 33%, although his was the bigger student population. But that was not the major difference that concerned him.

Beneath the surface of the Engineering revenues, Asia revenues came principally from undergraduates – who paid less per year and stayed longer at the university. In the Business College the bulk of Asia revenues came from graduate students. The College of Business would have a lot more to lose if the students did not keep coming. A drop in enrollment among undergraduates it was thought would have a longer lasting (potentially four-year) impact on the bulk of Engineering revenues. In contrast the bulk of Business's revenue were graduate programs which were of shorter duration - about one and a half years. There was something of mismatch then in the character of each College's risk that might have motivated a change premium allocation between the two. In contrast, Brown's concern was that the College of Business was much more likely to experience a loss, and that it was possible that Grainger's undergraduate population might already be resident in the U.S. if a pandemic or other triggering event were to occur. As such, his concern was that Business could experience a substantial loss, but that the combined losses of Business and Engineering would not be sufficient to trigger the policy. However, it was too late to change the year-over-prior-year losses construction of the program. The placement was in the home straight.

Another issue Pitts wrestled with came about because of the different business model the two colleges employed. In the College of Engineering most of their graduate students were employed in research activity – getting their Ph D – and their fees were often waived if they simultaneously became research assistants or teaching assistants to the existing faculty. Engineering waived 26% of their Asian revenues; Business only waived 3%. The question for Pitts was, should they get protection for the gross revenue loss, or for the net revenue loss, i.e. net of waivers? The final confounding element was that the central administration of the university charged a tax on revenues of the Engineering College. If the College paid for the protection of gross revenues, shouldn't the administration of the university share in the premium costs, as they surely would want in on any recoveries?

The Working Party was mostly agnostic about these issues and in the end the premium division was settled by the Deans - Cangellaris and Brown - by more of a handshake than a formal process. After VP Ellinger confirmed that the Provost had signed on to the concept that any recoveries would inure directly to the paying Colleges, it was time for the Working Party to communicate the latest tweaks that the university required of the insurers and instruct the brokers, Wells Fargo et. al, to ask for a quote on its revised terms.

The responding revision and quote were received on April 10th, 2017, making several changes - importantly including pandemic as a covered event loss, but questioning a few others, such as the discomfort with some supporting underwriters concerning the reinstatement provision. The April 10th offer required a response from the university within 14 days to secure the proffered terms. The underwriters had done their own homework on the requirements of the two Colleges based on public records and assumed an Aggregate limit of $61 Mn. They also needed confirmation of that number. Now the university had to provide its own estimate to confirm the number and that meant engaging the Administrative Officers for the two Colleges and the university. The Working Party grew to include Mike Devocelle for Engineering, Susan Elliot from the Board of Trustees followed thereafter by Shelley Campbell from Business, Tessa Hile from Engineering Treasury and Daniel Green also from Engineering Treasury. A new round of rapid education on the project objectives and status was required.

However, in a reasonably short order, the following was achieved - the reinstatement after a loss requirement, but not at term, was affirmed; the pandemic was included as a covered loss although sub-limited to $36 Mn; the Aggregate limit of $61 Mn was confirmed[15], and, importantly, the language in the covered event section was changed so that if the underwriters disagreed with an event designation being covered, the onus was on them to prove it rather than on the insured.

[15] The actual number generated by the staff was $58,218,823. Notwithstanding, the limit stayed at $61 Mn.

And, gratifyingly, the Trigger A requirement was dropped, perhaps as a goodwill gesture, from 20% to 18.75%.

Once agreed upon, the contract needed to be approved by the University Board of Trustees. Brown, Cangellaris, Ellinger and others spent a substantial amount of time behind the scenes parrying a final round of questions from various parts of university system leadership about whether this policy was really a good idea. In the end, however, the Board approved the policy as proposed.

A summary of the signed slip can now be listed in the following table. The coverage became binding on the payment of initial premium. The slip was bound by five Lloyd's of London syndicates together with a London Market company. Each subscriber differed in its share of the main insured events and on the Pandemic event – hence the sub-limit for Pandemic.

Highlights* of the Signed Coverage
Insured – The Board of Trustees of the University of Illinois (on behalf of Grainger College of Engineering and Gies College of Business). **Type** - Specific Loss of Tuition Fee Revenue Coverage. **Interest** – Tuition Fee Revenue for students from Selected Countries. **Policy Period** – 36 months commencing on 1st May 2017 ending 1st May 2020. **Sum Insured** - $61 Mn. any one Insured Event or series of Insured Events and in the aggregate for the policy period. Sub-limited to $36 Mn. for the Pandemic Insured Event. **Situation** – USA, China, Hong Kong, and Taiwan. **Francise Deductible** – Reimbursement of the whole loss suffered from one year to the next if, and only if, Trigger A and Trigger B are both satisfied. **Premium** – Quoted as a % of Limit, payable in equal installments over three years, plus additional % in payable similarly in respect of sub-limited Pandemic Insured Event.
Operative Clauses
Dual Triggers **Trigger A**: loss in revenue in excess of 18.75% drop in subject revenues from prior year. **Trigger B**: Caused by one or more of the Insured Events. **Insured Events:** **Verified Travel Warning or Alert** caused by Terrorism, Political Violence, War, Pandemic. **Visa Restrictions** by US or China governments **Comprehensive Sanctions** by US or China governments **Exclusions** Events caused by Nuclear, Chemical, Biological or Radiological activity. Asbestos. Suspension deletion or prohibitions of specific courses. Cyber.
Indemnity period – the period beginning with the date of an Insured Event and ending no later than 12 months since the Event during which the results of the business shall be affected. **Indemnity amount** – Loss of Tuition Fee Revenue sustained during the indemnity period, subject to activation of Triggers A and B, i.e. all such losses subject to limit.
Notifications Subject student revenue annually for the prior financial year Claims notification within 60 days of Insured Event that will cause loss.

Section 6 – “On-Risk” (May 2017 – May 2020)

The coverage that had been so hard to put in place was now “on-risk”, as portfolio managers are wont to say. The coverage was now in the hands of the responsible officers of the university. Their duty during the next few years would be to a) pay the premium on time, b) report the annual student fees each year and, c) notify the underwriter of any Insured Events in an appropriate and timely manner, and finally, d) if there is a Loss Event, to calculate the size of the loss.

The working Party as such was disbanded. Johnson, Pitts, and Lane returned full time to their Professorial duties which, of course, they had also conducted alongside the Working Party project. Kale retired, to be replaced as University Risk Officer by her deputy Eileen Ryan. The brokers in the US and the UK could return to their other clients and projects. Also, now that the Illinois Revenue Hedge [IRH] was concluded, they were free to explore using the concepts embedded in the IRH to prospective new clients. They were not of course at liberty to disclose the details of the IRH, but they could explore the concepts with other institutions. Martin and Ackerman, jointly and separately, did so with some enthusiasm.

During the negotiation period although secrecy had been at a maximum, rumors of the university activities had inevitably leaked out. And enquiries were received from other institutions. Lane had received a query from a small institution in Philadelphia which he passed along to the brokers. Ackerman had received a query from a Texas institution. Martin received a strong interest from the University of Birmingham in England as well as one from Florida. Dean Brown also received about a half dozen enquiries from other academic institutions, including some very large State systems like California. None of these, or any others as far as we know reached fruition, but each contained an interesting wrinkle.

The Philadelphia enquiry was from a private, rather than public college. It had a large international student population, not just from China. The Texas query came from an institution with many students of Petroleum Engineering that came from Saudi Arabia and the Middle East. The Florida query was from a school that trained international students how to pilot aircraft particularly those made in the USA. The Birmingham enquiry served notice that the exposure was not just a US problem. The UK and other countries had also grown their own institutions in response to incoming international students. Education, to put it succinctly, was a major export for the west. Based on these prospects alone underwriters could well build a well-diversified book of business.

Ackerman was energetic in pursuit of new business, as was the minority broker Manny Ribot. The concept was, after all, a simple one once you made the leap to the extent of the exposure. However, his efforts were interrupted by the decision by Wells Fargo to exit the insurance business. Ackerman and the IRH business migrated to USO Insurance who acquired the Wells Fargo business. Ribot’s efforts were smaller in scope and did not lead to any engagements. As earlier noted, at one time the working party toyed with the idea of gleaning some Intellectual Property rewards from their idea, but as with many a financial idea it was impossible to patent and protect once the basic notions became known.

Confidentiality

Exactly how these other institutions got to hear of the coverage (outside of the efforts of the brokers, post close) is something of a mystery. The university made strenuous efforts to abide by the relevant confidentiality clause in the contract. They had negotiated a change in the original wording to exempt them from the confidentiality clause in the event of legal or regulatory requirement. And that included the possibility of the press using the Freedom of Information Act [FOIA] to enforce disclosure from a public body.

In case that happened, the press officer Robin Kaler at the university circulated a description of the project and some accurate but discrete responses that might be given in the event of hostile questioning. The members of the Working Party were armed in case they needed to respond to - Why China was isolated? Wouldn't the premium be better spent on recruiting elsewhere in the world? How many domestic students could replace the Chinese? etc. etc. It was a remarkably prudent step to take.

During 2018, one year after the cover went on-risk the first articles about the Illinois Revenue Hedge began to appear. Most featured Dean Jeff Brown who invariably referred to the work of Johnson and Lane. They also were interviewed, and Lane appeared on PBS later that year in a feature by Robert Frank of CNBC. All told in the three years of the cover about 20 articles were written, published mostly in trade journals, some of which were quite derivative of others, about the cover or the context for the cover. The first major press piece came out in the Wall Street Journal in early 2018, but since the working party participants who were contacted were unforthcoming as to detail, the article only described the generalities of the international student issue and did not refer to the Illinois cover.

Remarkably, in retrospect, almost no articles appeared after the Pandemic hit and the university made a successful claim that certainly ameliorated the financial pain that the university suffered after the world went into lock down. Indeed, one of the only articles on the subject[16] said very little about the successful claim made by the University and how the policy had succeeded in protecting these two Colleges against an otherwise substantial financial loss. Instead, to the considerable frustration of Dean Brown, the article focused on the difficulty in renewing the coverage once the pandemic hit. We return to that episode shortly but two other things that took place during the on-risk period are worthy of note ahead of the claim.

Dividing Costs and Benefits - again

The first involved an echo of the discomfort that Pitts had felt about the division of the premium and how any claims would be divided between the Colleges. Mike Devocelle who had succeeded Pitts for Engineering's administration of the policy wrote to Lane in early 2018. He pointed out that in the discussions in and around the close, Paul Ellinger had strongly recommended that a Memorandum of Understanding [MoU] between the two Colleges be entered

[16] https://www.reuters.com/article/world/us-university-insured-chinese-student-tuition-against-virus-then-covid-19-hit-idUSKCN25D15O/ . This a very revealing article since Reuters had based it on results from a FOIA request. It disclosed names and figures hitherto nondisclosed by the University per the Confidentiality clause.

into to memorialize the agreement. It had not been concluded and he wanted to reopen the subject.

Devocelle wanted to know if Lane could suggest how the premium and/or claim division might be handled. Accordingly, Lane drew up a draft document that defined the division under various scenarios. He tried to correct any premium misbalance that perhaps should have been made more precise in the original agreement between Brown and Cangellaris. The distinction that Pitts and Devocelle were trying to get at was that even if the tuition totals were equal, that did not necessarily mean that the risk was equal - given the composition of the two student bodies. It was a theoretically legitimate point. Academics (and Actuaries) spend a lot of time thinking about appropriate allocation methodologies in risk premium situations[17]. Lane's suggested approach was sent back to Devocelle who forwarded it to Brown. Almost immediately Brown responded that such a complicated arrangement was unnecessary that he and Cangellaris (who was shortly to be promoted to Provost of the university) had and would sit down and work out the fair proportions, if and, when it was necessary. It certainly did not warrant retrospectively adjusting the premiums paid. Further it was important to preserve the amity between the Colleges and to proceed in a collegial manner.

When the time came to address the claim, Brown, implicitly acknowledging prior discussion, proposed a procedure that was accepted by both parties. Premiums would be reimbursed first, and the remaining claims proceeds would be divided proportionately to actual losses.

Failure to Renew

The other event that absorbed time and effort during the on-risk period concerned potential renewal of the policy. This took place in the fall of 2019. In late November/early December, Andrew Martin was traveling in the US and decided to come to Champaign in Illinois to meet the people from UIUC who were involved in the IRH. Lane was out of town and Martin met Dean Brown and later with the new Director of Insurance at U of I, Tina Harlan. His first meeting with Brown went very well, and Martin raised the question of renewal of the IRH, which was only six months away from the end of policy coverage, (May 2020). Jeff Brown had responded that he wanted to renew the coverage. The meeting with Harlan was not so successful, from Martin's point of view.

Harlan had been hired to replace Eileen Ryan, who had left the university after succeeding Kale. As such she was new to the IRH and wanted to make sure she handled it correctly. Her reading of the Procurement documents was that for the usual insurance contracts, the appointed broker could expect to be renewed annually, with each annual policy renewal for an additional two renewals, before it would be again subject to competitive bidding. However, the IRH was different, it was a three-year policy, and in the minds of the Working Party the expectation was that the original broker appointment could be renewed twice, i.e. each three-year period, if the policy was renewed. The IRH was a multi-year insurance policy; the common insurance policy was single year. Her predecessor in the Director of Insurance role, Kale, had made the each-three-year assumption

[17] Perhaps unknowingly this discussion tapped into a subject of "Risk Sharing" which has since become a focus of Actuarial discussion of major proportions. That discussion revolves around both the objectives and outcomes that might accrue to different "Risk Sharing" schemes. It is now a subject of study in its own right.

as she demonstrated in the Procurement draft of hers quoted earlier (see earlier on page 7, third paragraph). Adding fuel to Martin's arguments was the fact that the contract called for a single premium payment, payable over three annual installments. It was not three annual premiums.

Harlan, however, begged to differ. She could not be persuaded that it meant three renewals, rather than three years, and told Martin that, his time was up, effectively firing him, Ackerman, and Ribot after three years, and that a new broker would be appointed. Martin's entreaties to Brown and others were unavailing. A new RFP process was not necessary in Harlan's view, and she appointed Marsh and McLennan Co. Inc., to begin the renewal negotiations early in 2020.

This outcome was regrettable on many levels, not least in terms of timing and certainly in terms of adverse consequences. Martin had visited the lead underwriter, prior to his visit to Champaign and had secured an indication that the policy could be renewed as is, but could be enhanced, with an increase in the Pandemic sub-limit. This offer and conversation took place almost simultaneously with little known events in China.

The first case of a death from the Coronavirus (later known as Covid19) was reported in Wuhan China in December 2019. Five or six weeks later, on 1/25/2020, the China death toll from Covid19 rose to 20. A month later Iran also reported 20 deaths and so the epidemic had become international. In a couple more weeks, March 11,the World Health Organization [WHO] declared a Global Pandemic leading to global shut down of international commerce on March 15, 2020. The WHO declaration was a recognized loss event under the existing policy. It may be that any renewal negotiations started after Martin visited would have been adversely impacted by these news events, but it is equally likely that the parties could have bound a renewal quickly in January. That would have inured to the benefit of U of I. In the event, since Harlan had taken Martin, Ackerman et. al. off the case, renewal could not be concluded quickly.

Marsh and McLennan Co. Inc., the Harlan appointed broker replacement, designated Frank Cella and Tarique Nageer to begin renewal negotiations with the lead syndicate[18] on January 28 2020. Discussions with Brown, Devocelle and Harlan about what was wanted in the new cover took place in January and February. The early indications were that Coronavirus itself would not be a covered peril going forward. Instead, it would be replaced by coverage against "communicable diseases", but coronavirus was excluded. The exact wording took up sometime to hammer out.

The Marsh brokers contacted Lane directly in March to discuss structure. The Lloyds side had indicated that they would prefer to do a single year cover. Lane indicated they preferred three years once again. But he also opened up a discussion about whether the limit of coverage must be equal to the recorded revenue, or could it represent only part of the revenue? For example, if the revenue were $61 Mn. could they just buy a limit of $40 Mn? He had asked similar questions of Martin back in 2016 and was told no. Would Marsh come up with a different answer? His reasoning was that they were seldom ever going to see a complete closure of student flows in a single year – a

[18] A European insurance giant had purchased the company which owned the Lloyds syndicate. The division was rebranded and fortunately the same underwriter was still in place. However, as was custom in Lloyd's, he was not able to conduct discussion about renewal of an existing cover until he received a new "Broker of Record" letter documenting the change from Besso to Marsh.

100% drop - why pay for covering that outcome? Marsh's answer was that they saw no reason why not. An answer that he thought was too quick and caused him to question whether they knew the existing deal's details well enough. He fired off a question about their understanding of the franchise deductible and the losses occurring features of the new proposal. He also wanted to test it out and asked them for several cash flow scenarios illustrating how the new cover would respond. It was not a fruitful enquiry.

Notwithstanding, Cella and Nageer came back on March 27, 2020, with alternatives from the underwriters offering both single year and three-year structures. The price had changed radically. Lane laid out the alternatives and compared them to the current plan. The premium (cash outlay) was up 60% from 2017. The trigger dropped from 18.75% to 22.5%. The sub-limit for the Pandemic coverage was watered down by excluding Coronavirus and the sub-limit was dropped to $20 Mn. Finally, there was no reinstatement provision. The university was discouraged, it was paying more and getting less. They chose to say that they would like to proceed but with a smaller total limit.

Having said it was an available cover and quoted it, they (Cella and Nageer) now came back and said that even that could not be filled. Some at the University breathed a sigh of relief; they were not convinced that the chosen product represented good value. For others there was disappointment. But for no one was the no-can-do answer greeted with glee. Much work had been done to set the university on a prudent course, now, for whatever reason, it was quashed. The Besso/R-T Specialty/USO brokers were sent to the sidelines and from their perspective, the replacements, a bigger and more well-known entity, had shown that bigger is not always better. To the brokers who were displaced it looked like a classic chapter that ought to be part of any reissue of the 1997 book "The Innovator's Dilemma" by Clayton Christensen. You never get in trouble buying IBM. Really?

That sentiment is probably too harsh, the truth would be a little more forgiving. For anyone, big or small, even had the existing brokers been quick off the renewal mark, it is likely that they too would have been brought to a halt, reconsiderations or less good terms, by the Pandemic.

Section 7 – The Claim (March 2020 – March 2021)

The bright side of the Pandemic for U of I (if anything can be said to be a bright side) was the Pandemic happened while the existing policy was still in force. The actual Pandemic caused by Covid19 was a covered peril under the existing cover and the university made a large and successful claim under the policy. Even that process had some hiccups and has some lessons to be learned.

In short order in early 2020, WHO issued a statement (March 11) that the spread of Covid19 constituted a Global Emergency, a Pandemic; the CDC in the US began (March 15) a formal shutdown of parts of the US economy, and a Presidential Proclamation (April 22) began a series of US entry visa restrictions. The world economy was in shock from the spread and lethality of Covid19. The stuff of science fiction was upon us.

The immediate impact at U of I, as with other universities during that spring semester, was that classes were cancelled, and remote instruction began. Fortunately, the university had put an emphasis on on-line learning in recent years, not least by Dean Brown who had pioneered an on-line MBA for the College of Business. In 2016, the College of Business launched a fully online MBA program, known as the iMBA, and had followed it up with the introduction of an online Master of Accounting Science in 2018. By the time the pandemic hit, Gies College of Business (as it was renamed in 2017) had four years of providing high quality education to thousands of remote students using Zoom and other related tools. Almost immediately after the shutdown, for other on-campus students, the most popular class on campus was a) on-line and b) how to use Zoom.

The administration, staff, faculty, and students were consumed with the adjustments necessary to life under Covid and being able to complete the 2020 spring semester. Meanwhile, for the Insurance Director Harlan, the renewal negotiations described in the preceding section were underway at exactly the same time as those major pronouncements. In retrospect it is not surprising that the underwriters became cautious, and that the university was not able to close a renewal. It is also worthy of note that suddenly the university community somehow became aware[19] that the university had some insurance protection against pandemic and wanted to know if it was going to be renewed. In one interview Brown gave an exasperated response that he was pressing the staff to complete the renewal on an almost daily basis.

In the rush of those days, it was easy to forget that under the terms of the policy the underwriters' required notification of any likely Insured Event within a specific time period. Clearly the declaration of a Global Pandemic by WHO was an eligible Insured Event and in good order the university sent the appropriate notification. Travel Restrictions may also have been registered but they were subsumed within the pandemic notifications.

It is at this point that the significance of policies which are described as losses occurring are different from those described as claims-made becomes clear. In a claims-made policy any event causing a loss and the claim made for that loss must be within the indemnity period. However, in a losses-occurring policy the Insured Event must be within the indemnity period, but later, beyond the risk period, the claim itself must be made in the agreed upon time in the contract. In the case of the IRH, the agreed upon time would be in the fiscal year following the event. Thus, the loss would be the percentage drop in revenue from the academic (or fiscal) twelve months (May 2019-May 2020), the year of the event, to the academic twelve months following (May 2020- May 2021). Provided that the percentage drop was greater than 18.75% then the full loss would be payable. It would take at least until May 2021 to calculate the loss and complete the claim.

However, once the Insured Event notification was filed, the Claims process was started immediately by Marsh[20]. John Pollock of Bowring Marsh UK was appointed Claims Leader, and he appointed a forensic accountant to verify the claim. Despite not being able to complete the claim for some time, they wanted to get an early estimate of the range of possible claims they would have to pay. And, of course, they were anxious to control the process of what went into the calculation of

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[19] On Feb 20, 2020, Nicole Freidman published an article in the WSJ under the title "Coronavirus Tests Pandemic Insurance". Its focus was exclusively on the World Bank Bonds (see a comparison in Section 8) but it served to remind many on campus that Illinois had similar coverage.

[20] Another adverse outcome of the Harlan decision was that the university had to pay for the Claims Leader. Since the event took place under the existing policy it would have been customary for Besso to conduct the claim, without any additional cost.

DRAFT: FOR DISCUSSION PURPOSES ONLY

Range of Claim Values per Insured

Name of Insured: Board of Trustees of the University of Illinois, Illinois, United States

Base Year	Net Tuition	Current Year	HIGH ESTIMATE Net Tuition	HIGH ESTIMATE Decrease	LOW ESTIMATE Net Tuition	LOW ESTIMATE Decrease
	USD		USD	USD	USD	USD
2020 Based on ACTUAL						
Summer 2019	3,298,686	Summer 2020	2,250,400	1,048,286	2,250,400	1,048,286
Fall 2019	35,522,845	Fall 2020:24th Aug to 18th Dec-20 (Note C)	23,261,275	12,261,570	23,261,275	12,261,570
Total	**38,821,531**		**25,511,675**	**13,309,856**	**25,511,675**	**13,309,856**
2020 Based on ESTIMATES						
Spring 2020	30,127,364	Spring 2021:18th Jan to 15th May 2021 (Note B)	20,691,172	9,436,192	24,564,162	5,563,202
Total for Year	**68,948,895**		**46,202,847**	**22,746,048**	**50,075,837**	**18,873,058**
Less 18.75% of Total Tuition Fees in Prior Year (Note A)				(12,927,918)		(12,927,918)
Potential Claim				9,818,130		5,945,140

Notes:

(A) Based on USD 68,948,895 for 2019

(B) Spring 2021 actual numbers will not be known until mid-March 2021

(C) End of 10th day of instruction is date upon which final enrollment numbers are based. For Autumn, 10th day is 4th Sept-20

the claim. Claimants will be biased to interpret every ambiguity in their favor; claim adjusters will perhaps equally take advantage of ambiguity to reduce their liability. The forensic accountant's series of question were sent to Harlan, who shared them with Devocelle and Brown.

Some of the questions were straight forward enough, others betrayed some misunderstandings or biases. The first thing that needed to be cleared up was the question of the deductible. There was none, there was a franchise and, once triggered, losses were to be paid in full. In the inset table one can see the accountant's misinterpretation in some of their early estimates showing a deducted 18.75% mid-page to gage potential claim.

The second misunderstanding was more subtle and threatening. It looked as if the accountant was seeking to interpret the contract language about the "… loss in the twelve months following an insured event …" as meaning the twelve calendar months, rather than the following twelve fiscal months. The difference if accepted could be consequential since it would involve the partial end of one semester, the summer months when the university was at its lowest fee generating activity. The calendar month interpretation was also going to be pro-rated as to time at the end of the twelve calendar months (February 2021), thereby lopping off higher pro-rated earning months of March, April and May. Done on a cash flow basis this would not make a huge difference in calculations, fees arrived at the beginning of each semester. However, if the fees were pro-rated, or amortized, over the semesters it could destabilize the intent of the calculation to the disadvantage of the U of I.

Presented with the pro-rata proposal Devocelle quipped the forensic accountant's interpretation was like providing insurance for an afternoon airplane trip and asking passengers to step out, mid-flight, because the insurance had run out at 3:00 pm. Or, as he put it one other time - this was not like business interruption for an airline – our flight for the spring semester took off in January, there are no mid semester flights.

In late 2020, Brown called Lane for his interpretation of the language and Devocelle convened a meeting of Johnson, Harlan, Lane, and others for the 27th of October. Lane had separately conferred with Martin beforehand. The meaning and intent of the language was clear. Revenue data had been collected and reported to the underwriters consistently since inception in 2016 on a fiscal basis and that was the intent of the trigger mechanism and the loss calculation method.

In the end, this introspective moment of panic – that an assumption had been made that was inconsistent with a reading of the specific language - dissipated. U of I was confident of its position and forcibly convinced the accountant of their misinterpretation. The point was conceded, and the discussion moved on to make sure that, as required, the university had responded to the event conscientiously and had tried to mitigate the loss. They certainly had.

In addition to immediately going to remote instruction they modified course entry times. In the College of Business, the MSF was changed to allow Spring entry, when it was hoped that the effects of Covid19 and its travel restrictions would have been played out. The MSFE program, jointly owned by both Colleges, arranged for Chinese students unable to come to the US to attend from a campus in China and receive remote instruction there. Illinois partnered with a Chinese university to allow incoming freshmen an option to begin studies in China. Deposits to secure places at the university, usually forfeited when students do not arrive on campus, were deemed good for the following year. Indeed, the massive changes enacted by the university were a huge burden on students, staff, faculty, and the administration of the university, but were all intended primarily to assist students and secondarily to mitigate financial losses. Submitting an insurance claim was minor in comparison.

There were also many communications and negotiations related to precise definitions of revenue, even including how to treat equipment fees for particular engineering courses. It is fair to say that the two sides never fully agreed on each point, but in the end, the insurer made an offer for settlement to the University of Illinois that all sides deemed reasonable and fair. After some internal deliberation on whether it was worth the time and effort to negotiate for a slightly higher payout, the university ultimately agreed that the best course of action was to accept the final proposed amount and forego any formal appeal or eventual litigation. On August 10, 2021, Harlan was able to report to Jeff Brown,

We have received the $10 Mn advanced partial payment for the tuition loss claim.

The balance of the claim was received shortly thereafter, for a total, a few dollars shy of $24 Mn.

Before closing out this account of the IRH it is worth recording one incident of interest. It involves FOIA. The university was compelled to keep its activities around the IRH confidential. They were required to do so. What they feared most was a FOIA request from one of the major newspapers – the WSJ, the NYT, or the FT. They had received one from Reuters in 2020, and it had been satisfied. It resulted in the aforementioned article released in August that year.

A second request from an unrecognized name was received in September 2020, right in the teeth of all the changes to instruction the university was facing. It was detailed and more specific in the correspondence it wished to have copies of. It promised a lot of work to comply with. On further inspection it turned out that the requestor was none other than a student journalist for the Daily Illini, the on-campus student newspaper. He did not pursue the request, presumably being swamped by the start of classes, but that young man probably has a bright future ahead of him.

The main effort of the Working Party and all other staff was fulfilled – the university was financially protected against a major downdraft in its revenues. After receiving Harlan's note on August 10, 2020, Brown wrote to Johnson and Lane.

Tim and Morton, *It has been a long road, but we just received our first payment on the insurance policy, ... even this payment means that $5 Mn in cash will be coming to Gies*[21]*. This is fantastic!! We expect the final payment will more than double this amount*. ... *Thanks for your huge role in all of this*.

Lane responded,

Great news. *I think this and the coverage the World Bank purchased* ... *are the poster children for prudent protection*.

Johnson responded,

It's great to be able to show that financial engineering can work in practice.

Amen.

CONCLUDING COMMENTS

The $24 Mn. the university received from their claim filled the gap in the Gies College of Business's and the Grainger College of Engineering's budget for fiscal year 2020/21, immediately following the Global Pandemic. It did not compensate for lost growth but effectively maintained the prior year's revenue. This was a very satisfactory outcome, when compared to the fortunes of their peers who did not have such coverage. Another way to view this (assuming for simplicity an average fee of $30,000 per year for a mix of graduate and undergraduates) is to say that the two Colleges received the tuition fees of 800 phantom Chinese students who did not arrive on campus that year. In order to get that coverage, they had used the fees of 15 students each year to pay premium for that protection. The benefits would have been even higher if the municipal bond market had knocked a couple basis points off Illinois's borrowing costs because of its prudence in purchasing such a cover. On the whole, it was a reasonable bargain. Certainly, the two Colleges thought so.

On the "lessons learned" side of the equation it is worth recording that attention to detail and continuity of personnel is key to avoiding mistakes. This is especially true when new innovative initiatives are enacted. During the years from 2015 at inception of the idea, and 2021 at the settlement of claim, the Engineering representatives on the working party changed three times. Similarly, the University's Risk Officer changed three times. Nor was this confined to the university.

[21] The College of Business was rebranded, The Gies College of Business in 2017. The $5 Mn represents half of the first partial payment of loss. An equal amount was paid to the Grainger College of Engineering.

The lead underwriter changed twice and the business affiliation or ownership of the second underwriter changed as well. Now, change is inevitable and cannot be avoided, people get promoted, move on or have accidents. The important point to be made is that it is vital to make sure the new person is thoroughly briefed on projects for which they assume responsibility.

It is equally true that as a project progresses from concept to conclusion new people will be brought into the team working on the project and its operation. They too may need to be schooled in the subtleties of the new idea or project. And lines of authority need to be clearly drawn to avoid there being too many cooks in the kitchen. There is a fine line between soliciting everyone's opinion and deciding.

A final thought is to reiterate Tim Johnson's response to Dean Brown's congratulatory note – "*It's great to be able to show that financial engineering can work in practice.*" It does work, but it involves much hard effort that is not recorded in the textbooks nor in the Journals. Hopefully this retelling of the [IRH] story somewhat corrects that balance.

Afterword:

Reflections and comparisons of the IRH with the World Bank Pandemic Bond.

On or about the same time as Brown, Johnson and Lane were first gathering their thoughts concerning the concentration of revenues from international students in the U of I College of Business (the fall of 2015), Michael Bennet and his staff at the International Bank for Reconstruction and Development [IBRD], aka the World Bank, were beginning to consider issuing a Pandemic bond, an Insurance-Linked Security [ILS], to cover an outbreak of communicable diseases that could devastate many of its client country borrowers. At that time, neither group was aware of the other's existence or endeavors with regard to pandemic coverage. That changed five years later, in 2020, when both the U of I and the World Bank made a claim against loss resulting from the Covid19 Global Pandemic.

In this afterword, we compare and contrast the two approaches of obtaining protection and characterizations of the risks being hedged. We do not mean to suggest that these two were the only successful claimants who received pandemic payouts, but with this paper's disclosure of the details of the Illinois Revenue Hedge and the more public knowledge concerning the World Bank it affords a unique opportunity for comparison. Most claims against the pandemic were privately made and not disclosed. One other example that emerged in the press is the English Lawn Tennis Association (the group responsible for Wimbledon) made a successful claim of $141 Mn. after paying an annual premium of $2 Mn., as it had without recovery over the preceding 17 years. Little other detail is available.

The World Bank had issued, or facilitated, ILS before 2015. It started in 2009 with issue of a catastrophe bond on behalf of the Government of Mexico, called Multi-Cat Mexico, covering risks of hurricane and earthquake[22]. Succeeding issues also covered natural catastrophes for other regions of the developing world. The Bretton Woods formation of World Bank had not contemplated the subject of insurance, and the Bank was constituted to do its funding by the issuance of bonds in the international bond markets. But many reconstruction and development loans were occasioned by natural catastrophe and the birth of the ILS market gave the Bank the opportunity to fund those loans contingently through the bond market. The Pandemic Bond they issued in 2017 was the first non- natural catastrophe bond the Bank had issued. It was a breakthrough and not without its critics.

The comparison proceeds on an item-by-item basis. (We should note that this exercise is intended to be helpful in bridging the gap between Insurance-English and Investor-English, two languages which often sound similar but often have subtle differences in exact meaning.)

[22] Lane, a former employee of the World Bank in the 1970's, had provided consulting assistance to the Bank in gaging how the Bank's risk could be structured and be priced in the catastrophe ILS market (see e.g. IBRD Policy Research Working Paper # 4765, "Catastrophe Risk Pricing -an empirical analysis"). He and his colleague, Roger Beckwith, also aided the Treasury of the State of Mexico in facilitating their second Bank/ Mexico ILS issue in 2012.

Insured

The Board of Trustees of the University of Illinois for the IRH and the, IBRD, respectively

Type or Form

The IRH coverage was indemnity, paying actual losses. It was a traditional market cover via Lloyd's of London. The IBRD bond was a parametric or indexed cover embedded in a private placement, SEC Regulation 144A, fixed income security. The IBRD also issued a swap contract whose details have not been released but is thought to be a total return swap mimicking the B Tranche.

Insurable Interest

For the IRH the interest was the potential loss of Chinese student fee revenues from attendance at two colleges at the U of I. The loss had to be occasioned by eligible Insured Events – including Travel restrictions from Pandemic as well Visa and/or Comprehensive Sanctions by either government . The IBRD bond was issued in two tranches A and B. The A Tranche covered perils were Influenza and Coronavirus. The B Tranche covered perils were Coronavirus, Filovirus, CCHF(Ebola), Rift Valley Fever and Lassa Fever.

Issue Date, and Term or Policy period.

The IRH cover was on-risk as of May 1st , 2017, coming off-risk on May 1st, 2020. The IBRD bond was issued July 1st, 2017, maturing July 1st , 2020. Both had a term of three years.

Sum Insured, or Limit

The IRH cover was $61 Mn. The IBRD bond Tranche A had a limit of $225 Mn. and a sub-limit on Coronavirus of $37.5 Mn. The B Tranche had a limit of $95 Mn. on all covered perils.

Situation

For IRH the subject areas are the US and China. The coverage for IBRD was worldwide as represented by members of WHO.

Deductibles

There was no deductible for IRH. It was a franchise, a first dollar loss cover. There was no specific single deductible for the IBRD but a series of trigger thresholds that had to be exceeded. Below certain of these thresholds, none or minimal recoveries were available. For example, if WHO reported less than 20 deaths attributable to a covered disease, no recovery was available. At other threshold death levels, the payout would depend on the disease causing the fatalities and if it was of a Regional or Global Character.

Premium (Annual)

The Reuters-revealed premium for the IRH was an annual $424,000 which amounted to 69 bps on the aggregate limit of the insurance. This was for the quasi-political coverage (government action) plus $36 Mn. sub-limited of the Pandemic coverage[23].

The IBRD premiums were considerably higher. The A tranche paid 690 bps and the B Tranche paid 1150 bps. The information to the investor contained a risk analysis that showed the annual expected loss for the A Tranche at 357 bps and the B Tranche at 774 bps. No risk analysis was provided to Lloyd's underwriters, they did their own. Johnson and Lane, as financial engineers, considered doing their own as well, but found it unnecessary. Had they gone to the ILS market or the swap market that would have been necessary, but it would have needed to be done by an independent third party. The ratio of premium to expected loss that IBRD paid was consistent with what they had found in the ILS market for natural catastrophe coverage. The bonds were marked at par in the secondary market during all of 2017 and early 2018. No investor thought them a bargain despite the high premium. Finally, it is interesting to note that the IRH cover refers to the premium over the three years and considers the annual payments as "installments". The Bond form automatically assumes premium is paid in annual or quarterly coupon payments.

Triggers

The IRH cover required both Trigger A (a year-over-year loss greater than 18.75%) and Trigger B (the occurrence of an Insured Event) to be enacted before any payment obligation was recognized.

In the IBRD bond, the Trigger mechanism was considerably more complicated. The IBRD did not have a measurable loss from a disease outbreak. Instead, they used death count as a proxy. They also anticipated that they would need immediate funds for relief and/or loan purposes, even for small outbreaks. The sub-title of the department in the bank issuing the bond was the Pandemic Emergency Fund [PEF]. They would need money even in small outbreaks and would need a lot if the Pandemic grew. Using the death count as their index meant they could trigger payments quickly. At the same time the investors in the bonds were not a bank – they were used to insuring against events of low frequency and high severity. Balancing those objectives led to a complicated set of triggers. Small payments (17.5% of limit) were made if WHO-reported death counts were between 250 and 750 deaths, rising to 100% (or in some cases only 50%) above 2,500 deaths. Furthermore, the disease outbreak had to show that it was sustained in duration – showing rising death totals for more than 84 days, and two-week rolling average were used to make that determination. Finally, these triggers had to be established before the bond matured[24]. In that sense it behaved a little like a "claims made" policy. Typical ILS indemnity bonds responded to events before maturity but allowed for post maturity time for the losses to develop.

Swaps : In an extraordinary echo of the first discussions between Johnson and Lane in 2015, the World Bank chose to get coverage from BOTH the insurance ILS market and the swap market. As

[23] It is interesting to reverse engineer, if the press reports about the English Lawn Tennis Association cover are accurate, that the premium was 142 bps (=$2/$141) for their coverage. This assumes $141 Mn. was the full limit.

[24] Specific details about the IBRD bond can be found in the essay "World Bank Pandemic Bond Redux" in 2020 annual report from Lane Financial LLC www.lanefinancialllc.com

noted we believe the swap was essentially a Total Return wrap of the B Tranche, but further disclosure has not been forthcoming. Nor do we know the credit and /or collateral requirements the Bank placed on the Swap counterparties.

Dramatis Personae	Title and/or Affiliation
(In approximate order of appearance. University personnel and their direct agents)	(At the approximate time of citation)
Jeff Brown	Dean, Gies College of Business
Tim Johnson	Prof. of Finance
Morton Lane	Director, MSFE, Clinical Prof. of Finance
Andrew Martin	Broker, Optex-Besso
Michael Bainbridge	Broker, Besso
Peter Newman	AVP Treasury Operations, University of Illinois System
Walter Knorr	VP, CFO, Comptroller, University Illinois System
P.J. Kale	Insurance and Risk Manager UIUC.
Daniel Lienard	Procurement UIUC
Stephen Rotello	State Purchasing Officer, Illinois Ethics Commission
Eileen Ryan	Risk Officer
Kevin Pitts	Grainger College of Engineering
Tony Ackerman	Wells Fargo Insurance
Manny Ribot	Lambert Agency
Paul Ellinger	CFO Board of Trustees
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Appendix: Publish News Articles and Additional Notes

General Links

1. UNESCO data link:
   http://www.uis.unesco.org/Education/Pages/international-student-flow-viz.asp

2. IIE [The Institute for International Education] data that comes from the US State Department.
   http://www.iie.org/en/Research-and-Publications/Open-Doors

Beginnings

3. Will China Slowdown Stall Growth in International Students? Inside Higher ED, 9/13/2015

4. China's Exodus of Capital, Karl Russel and Keith Bradsher, NYT, Jan 16, 2016.

5. Colleges need international students in part for the tuition revenues, but language and cultural barriers make assimilation a struggle, Douglas Belkin and Miriam Jordan, WSJ, Mar 17, 2016.

On-Risk

6. Fewer International Students Heading for the US, Michelle Hackman and Douglas Belkin, WSJ, Nov 13, 2018.

7. Insuring against a drop in Chinese Students, Ellie Bothwell, Times Higher Educational Supplement, Nov 28, 2018.

8. University of Illinois insures itself against a drop in Chinese student enrollment, Jillian Berman, Market Watch/WSJ, Dec 3, 2018.

9. University secures first-of-a-kind Insurance, Lyle Adriano. Insurance News, Dec 3, 2018.

10. The University of Illinois Insures Itself Against a Drop in Enrollment of Students from China, Richard Vedder, Dec 13, 2018.

11. Why U of I is insuring itself – literally- against a drop in Chinese Students. Lynne Marek, Crain's Chicago Business, Jan 11, 2019.

12. Why the University is insuring itself against a Drop in Chinese Students, Paul Caron, Tax Prof. Blog, Jan 17, 2019.

13. How the U. of Illinois is Bracing for the Shock of a drop in Chinese Students, Stephen Johnson, The Chronicle of Higher Education, June 4, 2019.

14. University discovers a solution to possible drop in Chinese students: Insurance. Robert Frank, CNBC Politics Newsletter, Sep 6, 2019.

15. Robert Frank also interviewed Morton Lane on PBS in 2019 and a copy of that broad cast is available on You-Tube.

16. UIUC hedges its bets against a decline in Chinese students with $60 m Policy, Charles West, The PIE News, Sep 26, 2019.

Covid 19 and Claim

17. Coronavirus Tests Pandemic Insurance, Nicole Freidman, WSJ, Feb 20, 2020.

18. The University of Illinois made a prophetic insurance bet in 2017, A. Swaminathan, Yahoo Finance May 3, 2020.

19. How this broker helped a university get pandemic Cover, Lyle Adriano, Insurance News, May 4, 2020

Failed Renewal

20. Insight- US university insured Chinese student tuition against virus. Then COVID -19 Hit, Susanne Barlyn, Reuters, Yahoo Finance, Aug 17, 2020.