

MICHAEL VARGAS, NORTHERN TRUST COMPANY

MEMORANDUM FOR THE RECORD (MFR)

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INTERVIEWER(s): Joel Miller, Researcher, who prepared MFR, Steven Mintz, Staff Writer, and Randall Dodd, Researcher.

LOCATION: Teleconference between FCIC in D.C. and Northern Trust

NON-FCIC PARTICIPANTS: Michael Vargas, Head of Capital Markets, Northern Trust; Caryn Jacobs, Winston & Strawn; Nancy Brown and Jennifer Cottler (in-house counsel at Northern Trust)

The summary below includes summaries that are close to quotes and covers the following subjects: securities lending; cash collateral pools; Lehman bankruptcy's impact on the market; market impairment; illiquidity.

SUMMARY OF INTERVIEW WITH MICHAEL VARGAS:

Graduated Emory University 1982 – Bachelor of Business; began career at Chicago Board Options Exchange '82-'83; August 1983, joined Northern Trust's Treasury Department; obtained Master of Mgt Degree in 1987 from Northwestern; and a CFA in 1993. In 1994 moved to sec-lending bus. – lending of securities and reinvestment of cash collateral, part of Global Risk Management at Northern.

May 2005 – was responsible for quantitative investment business; index bus; quant active bus. Managed \$250 billion. In Fall 2008 – when fin'l crisis peaked with Lehman; became more active with sec-lending. In 2009, took on additional responsibilities for capital mkts – global sec -lending (London); and brokerage business – both report to him. Transition business – buying and selling of securities when they change investment mandates.

Background on Securities Lending Business: Northern Trust is a custodian; engages in sec-lending as agent for custody clients. Organizationally sec-lending both part of Corporate Institutional Business and part of Northern Trust Investments; parent of overall Institutional Products and Services. Up to and including the crisis, sec-lending business worked the way it was supposed to work . Since 1994, safeguards that were in place and procedures worked.

Northern's customers in the sec-lending business: ERISA funds; public funds (e.g., police, teachers); sovereign wealth funds; foundations and endowments; Taft-Hartley union pension plans. In the sec-lending business, Northern acts as agent – they do not take a principal position. They lend client's securities to registered broker/dealers (e.g., Goldman, Morgan Stanley). Client lends securities to B/D and B/D has credit exposure to the client.

Reason why B/Ds borrow securities - he believes – a broker has sold a security to a client and they attempted to buy that security from another counterparty. Failure to deliver. B/D wants to make delivery of the security that they've sold. They come to Northern to borrow security to satisfy

settlement date. More generally, ability to borrow and lend securities broader liquidity and depth to the markets.

During the crisis, the sec-lending system worked. Lehman was a major event that definitely was a deal changer across the board. Bear was not. Post Lehman, there were some issues with cash collateral pools as the value of the pools declined and securities held by the pools became less liquid. Northern offered clients option to take a pro rata share of the securities. Clients also were provided a cash amount that was supposed to be a good will gesture. Send a message that Northern felt their pain. The cash payment, however, did not offset the customer's obligation to pay any differential to the pool in the event they wanted to cash out of their interest.

Specific Qs and As:

Q: What's in it for Northern's customers?

A: In the simplest terms, Northern's customers receive some type of monetary benefit from lending a security. The type of benefit may be incremental income to offset other costs associated with mgt of their pension program; incremental income may enhance their overall return on their investment portfolio.

Q: Quantify how much incremental income pension plan would receive?

A: It will vary based upon client's portfolio. Sovereign debt? Small cap stocks? Different demands for different securities. Also hinges on types of collateral they receive. How they invest collateral will also lead to varying returns. Activity of sec-lending is ancillary; incremental. Sec-lenders do not see it as the driver of returns on their overall portfolio.

Q: How do they obtain the incremental income?

A: Is the security in high demand? E.g., IBM stock – low demand stock. Value of sec-lending program derived from the need by the borrower B/D to borrow the security. The scarcer the security, the more revenue that comes back to lender to lend it. Transaction involves borrower and lender's agent (Northern) negotiating certain aspects of the transaction. 1. Collateral. 2. Rate or fee paid on that collateral – if cash. If it's a T-Bill or other sovereign debt, what fee will you pay to me for lending the security? Cash collateral – borrower arranges for loan of security – negotiated based on current overnight rate. IBM is plentiful in market – therefore "Fed effective rate" minus 5 or 10 bp. Cash plus 2% margin – they (the lender will pay 5 bp for the transaction. They get \$100MM in IBM; client gets \$102MM that is either put in cash collateral pool, or in a customized portfolio for the client. Will earn between fed funds and fed funds plus 5 bp. They are paying 10 bp below Fed funds; reinvesting at 5 bp above Fed funds. Profit of 15 bp. Revenue flows to client. However, there's a fee charged to client for providing service. That's for a cash collateral transaction.

Non cash collateral transaction – instead they receive a US Treas @ \$102MM. Negotiate 15 bp premium fee to be assessed on loan to B/D. Pay the 15 bp to client's account. Every day – marked to market. More or less collateral based upon daily value of asset that's been lent. Mark to market important to

sec lending process. When security is returned; free up cash in underlying cash collateral commingled fund or special account – securities delivered back. 5 bp fee that is paid to borrower – “rebate” in the cash example. Yield obtained by client – will vary based upon agreements with clients.

[Randall Dodd, FCIC Research Team joins us.]

Q: Short rebate – about 5 bp. in today’s environment. Fed funds eff. rate at 15 bp. Lending IBM – vary plentiful security. Sec lending program – key determinants – how precious a stock is. B/D can go anywhere for a common stock. On avg., some sec-lending transactions. You may have to pay rate of interest higher than Fed funds. You might have to pay more than you’re earning on the collateral pool. You may be paying a negative rate of interest

Q: Why would you pay more than the investment earns on pledged lending?

A: Hypothetically – collateral pools will have different returns based on risks in their investments. Either investment fund (1 client) or cash collateral pool (multiple clients). If we get to a quarter end, stress in overnight Fed funds market – securities reprice on a daily basis. But duration on the pool is longer than overnight. Leads to asset liability mismatch. IF interest rate spikes on rebate side, you’ll need to pay higher rebate rate. Alt. – liquidating cash collateral investments to generate liquidity. Mechanical reality of way the sec-lending mkt works. Asset-liability management.

Other scenario – quarter end – spikes. Sec-lending is an investment activity – therefore not risk free. Asset-liability, interest rate mix – when monetary authorities raise overnight interest rates. Mgt of cash collateral has to take into acct that overnight rates will go up 25 to 100 bp. Challenging when managing large pools of liquidity – esp. overnight. There will be times, across the industry – that you MIGHT see rebate rate that is higher than the return on the investment pool.

Q: Suppose collateral is “special?” B/D may accept a negative interest rate (negative short rebate) if security were special enough?

A: Doesn’t happen much with S&P 500 stocks; given current interest rates – does not happen with large cap. Possibly with smaller stocks – Russell 2000 stock.

Q: What have you seen in terms of quant strategies in hedge funds – trying to maintain long short position in market – were they in stocks?

A: Northern’s counterparties are registered B/Ds. They don’t disclose their clients or why they may be borrowing a security at any point in time.

Q: When was the peak of sec-lending business

A: 2007-08 – approached \$280 billion out on loan.

Q: Reinvesting clients’ collateral – some into pools others into stand alone accounts. Who decides how to invest? Why go into a pool.

A: Client decides. Advantage to being in a pool is made by client. Pools vs. custom fund – a lot of commingled funds they've managed had long track records, well established investment profiles. Clients could move into a structure that already existed without preparing own set of guidelines. Still have to do due diligence. On avg., typically smaller client opts for commingled funds. Efficiencies of managing multiple smaller pools of cash.

Q: \$1 NAV as objective? Certain cash collateral pools ran into problems attempting to maintain \$1 NAV.

A: Mark to market assets – close to \$1. Never set out in fund guidelines that \$1 would be an objective of the fund. Fund documents reference fact that they try to keep close to \$1 NAV. Fund objectives focus on maturities, credit quality, etc. Aspects designed to keep value of assets close to amortized cost or par. Don't focus on \$1 NAV or breaking the buck.

Q: 2007-2008: From your perspective in the sec-lending business, what were key events? Bear Stearns? Spring '08? Lehman? September '08?

A: Watershed event was Lehman bankruptcy. World changed after Lehman event. Before Lehman – financial markets were under stress. Challenged from a liquidity perspective. B/Ds had acted as providers of capital to fin'l markets. Global fin'l markets impaired prior to Lehman. Central banks accepted collateral for longer periods – more than just overnight. Gradual oncoming dysfunction – lack of liquidity in the global system.

Q: Pre-Lehman – did you see shifts in terms of types of securities that were lent? Did people want more collateral? What was your sense re the market? Was SEC's rule re naked short selling an issue?

A: Sec-lending is a financing vehicle. Conflicting signals – more liquidity from Fed and ECB. Late '07-early '08. Forceful and unprecedented intervention by monetary authorities that seemed to be focused on ensuring liquidity in the market. Saw a normal operating environment with regard to liquidity – sec-lending specifically. Bear sale to JPM – market view (equities and financing markets) was that Fed engineered this. No melt-down. Monetary authorities have events in hand. Heightened sense of concern – illiquidity.

Q: Post Bear; Pre-Lehman. Did nature of the business change?

A: US Treasuries came into high demand. Counterparties wanted securities with greater safety.

Q: Sec lending vs. repos – negative haircuts. 98% vs. 102%?

A: When they loan \$100MM - \$2MM is margin collateral. Those margins remained unchanged. They were focused on ensuring they had adequate margin; all aspects of program operated as intended.

Q: Settlement failures? SEC reported two billion shares a day failing at settlement.

A: Did not see any unusual fail activity prior to Lehman. Even after Lehman, rate of failures among securities – nothing appreciably different. Northern's custody clients - \$3.5 - \$4 trillion – investment

managers would have been handling securities for their clients. They didn't see it from the custodial and sec-lending side. No substantial failure rate.

Q: Hanging onto securities- cheaper to fail settlements. "To Fail is an Option" – academic paper.

A: If they see increased failure rates – they have processes to get the securities back. The contracts they have with B/Ds are expansive in that they have remedies – they watch fails very closely. They are obligated on behalf of clients to get the securities back. They advise B/Ds that the security must come back – capacity as lending agent is to get the security back. They will do everything they can to get the security back. Not to allow fails to propagate in the market. Fails become very expensive.

Q: Can you force buy-in at DTC? Is understanding that they can force buy securities? In '08, no additional fails?

A: Not aware of a spike. If there were, they would have been engaged and aware of it. With a fail, it's very transparent. Sec-lending program – should not interfere with underlying mgt of investment portfolio. Underlying investment manager – will tell pension plan and Northern and say – I sold the security but the security failed. Why? They are very focused on fails.

Q: Approved list for B/Ds? Client exposure to Bear?

A: Yes and limits as well. Was Bear still on approved list. Clearly they were focused on Bear. Focused on margin they received and types and amounts of transactions they had with Bear. Responsibility to ensure adequate margin; monitoring behavior of Bear and its ability to fulfill obligations. Seamless transition to JPM.

Q: Lehman – did clients receive securities back?

A: No client suffered a loss to Lehman. All securities either returned to their account; small percentage of dollar amount of securities not liquid or not traded. Northern compensated clients for those. In effect, no loss to clients. Collateral – both cash and non-cash used to replace securities in clients' accounts. Within 5 days – 90% of securities that were at Lehman were back in their accounts. Clients suffered no losses.

Q: Weeks leading up to Lehman's failure – were terms changed? More collateral; reducing exposure?

A: They asked for more margin associated with Lehman transactions because they were looking at stress Lehman was under. No indication of a bankruptcy; prudent to ask for more margin. Believe limits were adjusted during that time. Does not recall if they asked for securities back from Lehman at that time. Didn't want to precipitate crisis, but adjusted margins to account for heightened risk.

Q: What happened when Lehman failed?

A: Prior to bankruptcy, Northern took some actions to prepare for potential bankruptcy. Looked at Lehman exposure; made sure they could go out and buy customer securities if necessary. Post bankruptcy, did not buy in Asian markets. Lehman London closed immediately; but NY Lehman

continued to operate. They began to execute on plan to buy in securities on LBIE. Cont. to transact business with Lehman NY. They were returning securities – they were attempting to unwind themselves. That was the lowest cost and lowest risk alternative. They executed buy-ins for securities lent to Lehman Int'l. Once Lehman NY went bankrupt, began to execute buying of securities for customers. Actions they took in the backdrop of Merrill, Goldman, etc = repurchased securities in a measured manner. A success story for sec-lending.

Q: Did you have same contingency plans for Merrill, Morgan, or Goldman as for Lehman?

A: Contractual relationship with borrowers – Northern's relationship with borrowers – the contract – is the key thing. In different time periods, how close are you to implementing some of those remedies referenced in the contract. They had heightened preparedness to act on contractual options in the event of another borrower impairment. Being as prudent as possible.

Q: Contingency plans in event Lehman went bankrupt – were there comparable ones for Merrill?

A: Followed similar processes for other B/Ds as they did for Lehman. Oblig. To client – they have to be ready – they need to take preparations to put them in the position to protect clients' interest. They had similar preparations for other B/Ds. They looked at different scenarios. They prepared – looked at specific securities on loan and what process would be if they had to protect their customers.

Q: Any brokers you cut off? Perhaps a regional B/D?

A: Not to the best of his knowledge. No one completely cut off. They did manage credit relationships; cognizant that counterparties were under stress – esp. in this environment of heightened risk. Typically do not have regional firms as counterparties. They deal with largest B/Ds.

Q: What else did you do post Lehman.

A: The world had changed. Commingled funds – managed on behalf of clients. 3 days notice to get out of certain pools. Clients could exit by taking securities in kind. **But they could not take it all out in cash.** Remaining clients would be disadvantaged. Allow clients to transact business. Didn't want any hardships. They had a Committee – sec lending collateral committee – took on new level of importance – framework they used to administer safeguards on behalf of clients.

Q: What types of securities in the cash collateral pools raised concerns?

A: Market overall was impaired. Assets that were not maturing overnight – whether CDs, AAA rated, or not. They all had discount associated with them if you tried to go out and liquidate it. Esp. fin'l institution assets – extremely illiquid. Any global bank; financial firm; ABS. Global financial situation was impaired. Secondary market in liquidity for fixed income securities of all types. Intermediaries focused on own survival. System ceased to function. Abnormal – all major fin'l institutions at risk of being acquired or being supported by central banks.

Difficult question to define illiquidity based on instrument as compared to financial environment. Illiquidity driven by environment – therefore pricing of partic. Securities driven down by overall market conditions. E.g., 2 week CDs issued by AA financial institutions.; AAA paper could not be sold at a reasonable price (e.g., 15-20% discounts). Severe disruption to orderly financial markets. Liquidity discounts not credit discounts.

Q: Did Northern provide support to cash collateral pools?

A: No. They gave money to their clients directly. Did not per se support the pools. Clients were experiencing duress. They chose to provide cash payments directly to clients. Symbol if alignment with their interests. But no support to cash collateral pools. Business around since 1889. Crisis situation – voluntarily took steps to give cash contribution to client.

Q: If client gets cash – does Northern take pro rate portion of the pool?

A: No. Client received cash – if there were losses in pool it was ultimately client's responsibility.

Q: If client has \$50MM in pool and you give them \$5MM do they still have \$50MM in pool.

A: The client has obligations to return cash collateral. Client needed to return cash – so there could be a lesson. During this period of time assets were impaired across the funds. Recognition by bank that clients were experiencing pain. No agreement with clients that certain amount would go to some clients to ease pain. Clients responsible for any principal losses. Northern did not pay for those losses. At this time, Fall 2008, difficult time – **those were dark days**. Payments viewed this as a small gesture by Northern that they were in this with the clients. Experiencing pain in underlying investment portfolios; in their investments; on all fronts. In no way ameliorated their financial obligations under their obligation to the cash collateral pools. Did not alleviate them from their concerns of the greater financial peril. Not intended to indemnify – more of a gesture.