INTEROFFICE MEMORANDUM

TO: PIM VAN SCHIE, NEUBERGER BERMAN
FROM: JOHN MCCARTHY
SUBJECT: TWENTY GOOD QUESTIONS
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1. You are trained in petroleum engineering. How did you get into finance?

After graduating I spent four years working for a company that designs, builds, and installs offshore oil platforms. The idea of designing these structures was exciting and adventurous to me, and it certainly took me to some interesting places. I found after a few years, however, that the senior engineers who had been there for twenty-plus years were still doing mostly the same work I was doing. At the time I religiously read a number of economic and financial weekly magazines and I realized innovation moved much faster in the field of finance than it did in structural engineering. I applied to the MBA program at NYU Stern in the heart of New York City. I would like to tell you I immediately focused on a career in CLOs but that would be taking too much credit. Upon arrival at Stern, we were told we needed to focus on one of three options: investment banking, sales & trading, or research. Structured finance, and much less CLOs, really never came up in any meaningful way in any of the finance classes. Upon graduation from NYU I went to work for BNP Paribas in their Securitization Group just as the CLO market was in its early stages of development. From there I moved to the CLO desk at Morgan Stanley and ultimately switched to the buyside and joined Neuberger Berman in 2015.

2. What are some common traits of good credit pickers?

I think that good credit investors need to have a natural "glass half-empty" bias. In other words, good credit investors are always looking for what can go wrong, as opposed to what is the upside potential. This makes sense of course since the payoff profile for credit investors, or at least investors in performing credit, is very asymmetric. Loan investors get paid a single-digit interest rate per year and receive our principal back at maturity if all goes well. However, if things go poorly, we could lose our entire investment.

I think the best credit analysts have an ability to constantly challenge their own assumptions. In addition, it is very important for credit investors to be able to admit when they got something wrong and to not be afraid to sell out of a credit at a smaller loss in order to prevent a potential much larger downside. This may seem obvious, however I think it is one of the key components of credit investing.

3. You have described CLOs as "little banks". Can you expand on what you mean?

At their core, you can think of CLOs as similar to banks in that CLOs invest in a diversified portfolio of corporate loans, and finance themselves by issuing debt and equity. And just like a bank, the entire purpose of the CLO is to capture a spread between the interest earned on the loan portfolio and the interest paid on the CLO's debt. This spread, or excess interest, is sometimes referred to as CLO arbitrage. All the excess interest, net of fees and expenses, is paid to the equity investors in the CLO. Thus at its core, you can view investing in CLO equity as conceptually not dissimilar from investing in the shares of a bank. However, I think the CLO structure can be superior to a typical bank because a CLO is designed not to experience a run on the bank for two key reasons: (i) the maturity of the CLO debt can be matched with the maturity of the CLO's loan portfolio, and (ii) the CLO debt does not have any margin triggers associated with it. In other words, a CLO should never be forced to sell assets into a bad market because it needs to pay down its debt (or return deposits to depositors). Contrary to what is sometimes posed in the financial press, CLOs should not be forced sellers of loans. As a result, the return for CLO equity investors is ultimately driven entirely by the credit performance of the CLO's loan portfolio. Additionally, CLO investors enjoy an extreme level of transparency into the underlying loan portfolios and other assets. Investors receive monthly trustee reports which contain a large amount of data and metrics on each underlying loan in the portfolio.

4. Why don't banks keep more loans that they originate? What caused banks (and when) to begin selling more loans?

Until the early 2000s, banks were making loans to non-investment grade-rated companies and holding those loans on balance sheet. This was very capital-inefficient given the regulatory capital charges on lower rated credit. With the expansion of the CLO market, the CLO structure became a much more efficient way for non-investment grade-rated companies to finance themselves as the risk in the loans could be tranched out to a number of different investors with different risk/return appetites. Today, the banks still originate the loans, but can then syndicate them to a large number of institutional investors while the banks themselves typically do not retain any of the loans on their own balance sheets.

Interestingly and importantly, banks are still the largest investors in CLO AAA debt, which in turn constitutes the majority of the funding for CLOs. As a result, banks still provide the majority of the capital that funds non-investment grade corporate loans. They simply do it indirectly, in a much more capital-efficient way.

5. Alternative credit providers, often called "the shadow banking system" or "non-bank banks", have grown steadily for many years. Is this generally a good thing for companies, and for investors?

I believe it is absolutely a good thing for companies and investors, since it can allow for a more efficient allocation of risk across the financial system. In theory at least, risk ends up with the "highest bidder", which means companies can finance themselves as efficiently as possible. Of course, the health and stability of the "shadow banking system" depends very much on proper structuring and the oversight of rating agencies and regulators. Ultimately, the biggest potential issue in my mind would be a misunderstanding on the part of investors

of the risk profile of their investment, whatever that may be. That is one reason I think it is a positive that there are effectively no retail investors in the CLO market. While I have described above that CLOs at their core can be viewed as similar to "mini-banks", it is of course important for investors to have the right level of financial sophistication to understand the structures they are investing in.

6. Can anyone/any entity purchase a loan originated by a bank?

The loans CLOs invest in are typically known as "broadly syndicated loans", or simply "bank loans". As the name indicates, these loans are typically originated by a bank or a group of banks and syndicated to a broad group of non-investment grade debt institutional investors, including CLOs. Today, CLOs constitute approximately 70% of demand for broadly syndicated loans in the market. The balance is made up primarily by bank loan mutual funds and ETFs, and institutional investors. Bank loans are actively traded in the secondary market. Bank loans trade over the counter, as opposed to on an exchange. Bank loans can typically only be purchased directly by large institutional investors. That being said, retail investor can get exposure to bank loans through bank loan mutual funds and ETFs.

7. Banks seek a Net Interest Margin. Do CLOs seek the same?

Absolutely: generating Net Interest Margin, also known as "excess spread" or "arbitrage", is a key objective of the CLO. CLOs look to enable investors to capture this arbitrage in a true match-funded, non-mark-to-market structure. Hence again, CLOs can be considered similar to "mini-banks" that in my view are structurally superior because a CLO can never experience a "run on the bank".

8. Are the assets and liabilities of a CLO fixed once the CLO is funded?

Both the CLO's assets and the liabilities are typically floating rate, benchmarked to LIBOR historically, and to SOFR more recently. As a result, the CLO is largely internally hedged against changes in the benchmark interest rate. For the CLO's liabilities, the spread to the benchmark rate is fixed at the time of issuance. This spread remains fixed over the life of the CLO unless the liabilities are refinanced or repriced at some point after their non-call period, which is usually two years. For the CLO's assets, i.e. the loan portfolio, the spread to the benchmark is dependent on the prevailing market at the time. While the spreads will be fixed for the loans in the initial portfolio, bank loans are typically freely prepayable at par without prepayment penalty. In a tightening spread environment, loan issuers are likely to prepay higher spread loans and issue new, lower spread loans. As a result, in a tightening spread environment, the spread on the CLO's assets is likely to decrease over time. This would have a negative effect on the excess spread, which may be offset by the CLOs ability to refinance its debt. In a widening spread environment, loan issuers are unlikely to prepay their loans, and therefore the spread on the CLO's assets is likely to stay relatively stable over time.

9. Once a CLO is constructed, how does the manager add value?

The loan portfolio in a CLO is actively managed by a CLO manager. The role of the CLO manager is to construct the initial loan portfolio, and to manage that portfolio over the life of the CLO. Active management includes relative value trading and potentially rotating

across credit tiers and industry sectors, as well as managing credit risk (which can include working to sell positions that may experience credit deterioration) in the portfolio. For additional protection of CLO investors, CLOs are governed by a large set of concentration limits, trading restrictions, and portfolio quality tests that a CLO manager is required to comply with.

10. Given banks have deposit bases, is it difficult for CLOs to compete with banks for funding?

While the cost of funding for banks may be cheaper than the cost of funding for CLOs, the regulatory capital charges for banks to hold broadly syndicated loans directly on their balance sheet can be prohibitive. Given the ratings on CLO debt tranches, it can be more efficient for banks to indirectly lend to the same companies via the CLO structure by investing in CLO AAA or other debt. As a result, CLOs generally don't compete with banks for loans and, in fact, bank funding is part of the CLO funding mix.

11. How do you find investors for the debt tranches (the CLO liabilities)?

There is a wide range of institutional investor globally who invest in CLO debt across the capital structure. The CLO AAA debt tranche is typically 60% of the total liabilities. The investor base for CLO AAA debt consists primarily of large global banks and insurance companies, as well as some pensions. US banks own approximately 40% of all outstanding CLO AAA debt, with JP Morgan, Wells Fargo, and Citibank holding approximately 75% of that according to a recent LCDNews article. Japanese banks own just over 20% of all outstanding CLO AAA debt. The balance is made up by global insurance companies and pensions. Insurance companies are also the primary investors in CLO AA through BBB debt tranches. Much like banks, insurance companies are looking to achieve an attractive return on regulatory capital by investing in rated CLO debt.

12. Are there any regulatory initiatives you think would help or hurt CLOs?

The CLO market is currently focused on a proposal from NAIC for potential changes in the regulatory capital charges for insurance companies holding CLO debt (and CLO equity). These changes may result in higher insurance capital charges for the lower rated debt tranches and the CLO equity. This in turn could potentially increase the cost of debt for CLOs. I believe the impact is likely to be relatively limited since most insurance companies only invest in higher rated CLO debt.

13. How do you build and manage your pipeline of potential investments?

The pipeline of potential loan investments for CLO portfolios can be sourced from both the primary and the secondary loan markets. Bank loans are actively traded and large investment banks have dedicated loan trading desks that make markets in bank loans. The primary sources of supply in the primary loan market are LBO and M&A activity, and loan refinancings.

With respect to the pipeline of CLO equity investments, timing is very much dependent on the CLO arbitrage environment at any point of time. We discussed earlier that a key purpose

of the CLO is to capture a spread between the interest earned on the loan portfolio and the interest paid on the CLO's debt. Since the spread on offer in the loan market and the spread required by CLO debt investors can move independent of each other, the CLO arbitrage can increase and decrease with markets. It is important for CLO equity investors to find attractive arbitrage environments in order to maximize returns on the CLO equity.

14. Do you use check lists when building CLOs?

Yes absolutely, our team makes extensive use of check lists. One of the cornerstones of our credit analysis process is our "credit best practices checklist". The credit best practices checklist is an extensive list identifying specific areas that a credit research analyst must cover when carrying out research on any potential bank loan investment. The credit best practices checklist was developed over twenty years ago and is a dynamic tool that is continuously adjusted for changes in the market.

15. Are there any advantages to being one of the larger CLO managers?

I think there are multiple advantages to being one of the larger CLO managers. First, having more CLO debt outstanding typically makes a CLO manager's debt tranches more liquid in the secondary CLO market, which in turn may result in tighter debt pricing for that manager's CLOs as debt investors are willing to pay up for liquidity. Second, a CLO manager's size can be an advantage in obtaining favorable allocations in a primary loan issuance since larger CLO managers tend to be more important counterparties to the syndicating banks.

16. As you have raised capital in closed end funds over the years, what type of traits do you seek in fund investors or limited partners?

First and foremost, I think it is very important that potential investors and limited partners fully understand the product and the strategy. I spend a large amount of time educating investors on CLOs as a product and on the specifics of closed-end CLO fund strategies. This is important because while CLO funds may structurally be very similar to typical private-equity style funds and may target a similar return profile, they may behave very different than private equity or other private credit or alternative investments in different market environments. One of the key characteristics of closed-end CLO equity funds is that they are designed to be cash flowing early in the life of the investment, as CLOs typically make quarterly distributions. Much of the target return comes from projected high current income over the life of the fund. This could provide implicit liquidity to fund investors since I would typically expect investors to be fully paid back on their initial investment faster than an investment in a private equity fund. At the same time, unlike in private equity or most other alternative or private credit strategies, CLO equity trades in the secondary market and therefore can exhibit more mark-to-market volatility than private fund investors are typically used to seeing.

In terms of the type of investors, I have found that the makeup of the investor base in closed-end CLO funds tends to look very similar to the typical investor base in any private equity fund: institutions, public and corporate pensions, endowments, family offices, some insurance companies and some high net worth investors.

17. The "leveraged loan market" may have a few different meanings. How do you define it? Is this market growing?

Typically, when people refer to the "leveraged loan market", this refers to the broadly syndicated loan market, or simply the "loan market". The loan market has seen tremendous growth, more than doubling in size over the past seven years to approximately $1.5 trillion today. Depending on how wide a net one casts, there are approximately 1200 companies that borrow in the loan market. The makeup of the issuer base in the loan market is approximately one third public companies, and two thirds private (including sponsor-owned) companies. These companies are all rated non-investment grade, or BB or below. Companies borrowing in the loan market would typically have at least $300 million of debt outstanding and at least $75 million EBITDA. Any company much smaller than that would access the lightly syndicated or bilateral middle market loan market.

The loan market competes with the high yield market as a provider of capital to non-investment grade companies. Over the past seven years, we have generally seen a strong preference from many companies to issue in the loan market. Issuers could pick the loan market over the high yield bond market for various reasons: for example, issuing a loan may be cheaper since the loans are typically first line and senior secured and therefore loan investors may accept a lower interest rate. Bank loans are not securities and therefore also have less regulatory, disclosure and reporting requirements associated with them than high yield bonds.

18. Can public market investors invest in CLOs?

The investor base in CLOs is almost entirely institutional, and importantly sophisticated. There is no meaningful amount of retail capital in the CLO market. The vast majority of CLO investors gains access to CLO debt or CLO equity investments in the following ways:

(i) Direct investment in CLO debt or CLO equity bonds at a cusip level. CLO bonds are 144A or Reg. S private placement bonds and subject to certain suitability requirements. For example, investors investing directly in CLO debt bonds need to be Qualified Institutional Buyers. Typically, only investors who have sufficient resources and expertise would opt to invest directly in the cusip bonds.

(ii) Investments in private funds, typically private equity-style drawdown funds.

(iii) Investments through institutional separate accounts.

There are a few publicly traded CLO funds that could theoretically be accessed by retail investors or other public market investors; however these funds constitute a small sliver of the total size of the market for the simple reason that investing via these publicly listed funds tends to be much less fee-efficient.

19. You have been a lender to both service and manufacturing companies. Do you have the same basic credit approach, or scoring method, for both?

We utilize the aforementioned credit best practices checklist as a base guide for the credit analysis of any company, regardless of industry. Of course, for every industry there are industry-specific considerations that need to be incorporated in the credit analysis.

20. Given the long, secular bull market in bonds, how has investing in corporate credit changed over your career?

In a way, investing in corporate credit has now come full circle over the course of my career so far. I think one of the largest changes is represented by the market environment we currently find ourselves in, with the rapid increase in interest rates over the past year. Over the last fifteen years, investors have become accustomed to a "new normal" of low interest rates and cheap and ample funding. Cheap funding has long papered over many cracks in corporate balance sheets and allowed for a prolonged period of high leverage in non-investment grade credit markets. We have now come full circle in the sense that credit investors, and equity investors for that matter, need to be more careful in their assumptions around the availability and affordability of credit going forward.

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