The MF Global Debacle: What were the Red Flags?

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As summarised by Heckinger in Till et al. (2018), "on October 31, 2011, the broker–dealer (B/D) and futures commission merchant (FCM) firm of the MF Global Group (i.e., MFG, the group, and all its parts) collapsed, causing substantial financial distress to its customers, many of whom were small investors or hedgers such as farmers, ranchers or commodity merchants such as grain elevator operators. About $1.6 billion of customers' funds were not immediately available for liquidation proceedings due to the apparent misallocation of customer funds, which were not segregated from firm accounts, and the use of the funds to fund proprietary trading, which resulted in the encumbrance of such funds."

Four years later, "recovery and distribution actions of the respective bankruptcy trustees and administrators appointed to liquidate the firm made all customers whole, depending on the jurisdiction and particular MFG business entity. Other creditors such as vendors or suppliers of services to MFG received around 95 per cent of the value of their claims," wrote Heckinger in Till et al. (2018).

But back in the Fall of 2011, futures market participants were caught off-guard when MF Global filed for bankruptcy. Essentially, this episode educated industry participants that customer protections in the U.S. commodity futures markets had been more ambiguous than expected. That said, there are a number of reforms that have been undertaken to help prevent future MF Globals.

This article takes the position that a number of red flags existed as far back as 2007, regarding the firm's financial weakness, which could have served as a warning to those investors relying on MF Global as a fiduciary. In discussing the MF Global debacle, this article will cover the following seven areas: (1) a brief background on the firm will be outlined; (2) warning signs will be identified; (3) the firm's final week will be recalled; (4) the response of regulators and bankruptcy trustees will be noted; (5) the shortfall in customer segregated funds will be described; (6) the CFTC's charges and settlement will be mentioned; and (7) later reforms will be summarised.

Background

Before its bankruptcy filing, MF Global Holdings Ltd. provided execution and clearing services for (a) exchange-traded and OTC derivatives products, (b) non-derivative foreign exchange products, and (c) securities in the cash market. Please see Figure 1.

Figure 1: MF Global's Lines of Businesses

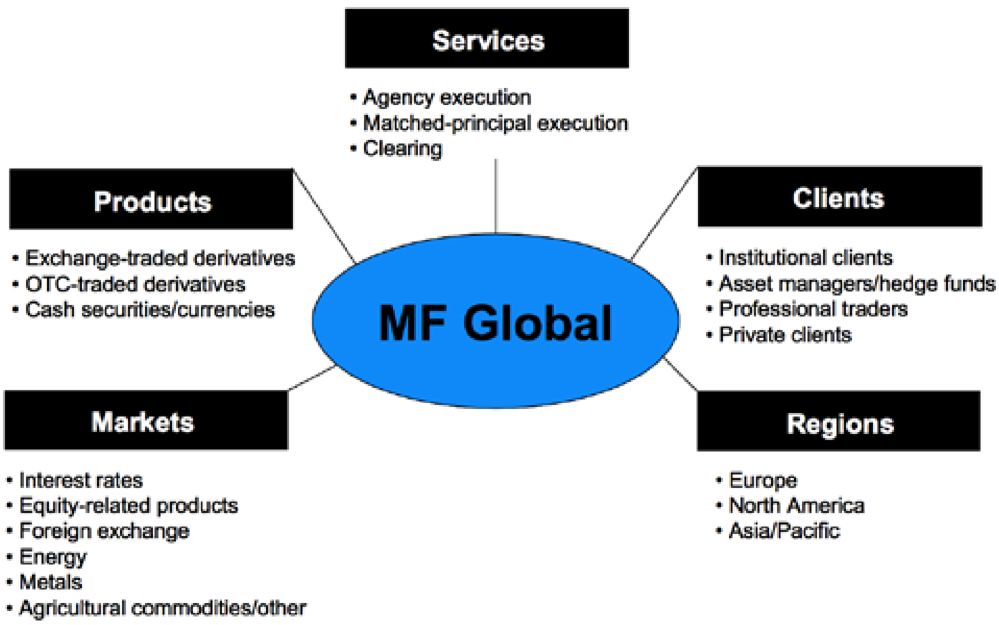

Diagram based on figure in MF Global (2007), page 33.

The firm had a worldwide client base of 130,000 accounts and operated in 12 countries on more than 70 exchanges. "Although a niche player on Wall Street, MF Global was a force on the Chicago Mercantile Exchange (CME). It had 3 million futures and options positions with a notional value of more than $100 billion. Its customers made up 28 per cent of the trading volume on the CME," noted Gapper and Kaminska (2011).

Warning Signs

Prior to the firm's spin-out from its parent company in 2007, MF Global's business could be characterised as "dull normal". During the spin-out of MF Global, parent company Man Group burdened MF Global with (arguably) an enormous short-term debt load, relative to the firm's profitability. We can see how large this debt load was from one of the company's publicly available financial statements. Please see Figure 2.

Figure 2: Excerpt from MF Global Ltd. Form 10-Q as of December 31, 2007

MF GLOBAL LTD.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)
(Dollars in thousands, except share data)

Short-term borrowings consist of the following:

	December 31, 2007	March 31, 2007
364-Day Bridge Facility	$ 1,400,000	$ -
Other short-term borrowings	$ 400,000	
Bank overdrafts	73,672	25,453
Current portion of long-term borrowings		56,552
Total	$ 1,873,672	$ 82,005

The spin-out occurred just before the onset of the global financial crisis, making it uncertain throughout 2008 how the firm would be able to refinance its short-term debt. Also because of a rogue trader incident, the firm was in a precarious capital situation. That said, MFG was eventually successful in refinancing its short-term debt by the end of 2008. We can see how weak the firm was relative to other FCM's from examining data available on the CFTC's website. From CFTC data, one can examine each FCM's excess net capital, divided by customer funds. Using this metric, MF Global was the 6th weakest Futures Commission Merchant amongst the 151 competing firms of the time. Please see Figure 3.

Figure 3: Net Excess Regulatory Capital

MF Global Inc. (Formerly Man Financial Inc.)

A/O Date	Adjusted Net Capital	Net Capital Requirement	Excess Net Capital	Customers' Required Segregated Funds*	Excess Net Capital / Customer Funds	
05/31/2007	$ 581,103,464	$ 402,913,253	$ 178,190,211	$ 8,384,461,426	2.1%	
06/30/2007	$ 605,217,511	$ 364,381,766	$ 240,835,745	$ 8,235,595,803	2.9%	
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10/31/2007	$ 535,142,778	$ 427,261,012	$ 107,881,766	$ 9,929,407,496	1.1%	
11/30/2007	$ 645,473,966	$ 414,600,708	$ 230,873,258	$ 9,889,773,129	2.3%	
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02/29/2008	$ 640,913,963	$ 509,842,535	$ 131,071,428	$ 13,007,347,859	1.0%	<-- 6th Lowest Ratio Amongst 151 FCMs
03/31/2008	$ 771,268,907	$ 417,502,089	$ 353,766,818	$ 9,684,866,771	3.7%	<-- 26% Drop in Customer Segregated Funds
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05/31/2008	$ 782,299,749	$ 443,840,666	$ 338,459,083	$ 9,664,731,983	3.5%	
06/30/2008	$ 608,963,888	$ 456,329,713	$ 152,634,175	$ 10,566,911,049	1.4%	<-- On 6/13/08, company announces** plan to refinance $1.4 billion bridge loan. This includes using "excess funds."
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08/31/2011	$ 495,665,616	$ 328,485,043	$ 167,179,673	$ 7,270,301,248	2.3%	

Data Source: The Commodity Futures Trading Commission (CFTC) monthly reports on "Financial Data for FCMs," which are accessible at: http://www.cftc.gov/MarketReports/financialfcmdata/index.htm.
** These figures only include funds "required" to cover margins. As of February 2012, the CFTC now also releases the total assets in customer accounts, according to Prezioso (2012).*

MF Global's business model became in particular jeopardy, starting in 2008, during the compression of yields available in fixed-income investments. Note the table in Figure 4, which is excerpted from another publicly available MF Global financial statement.

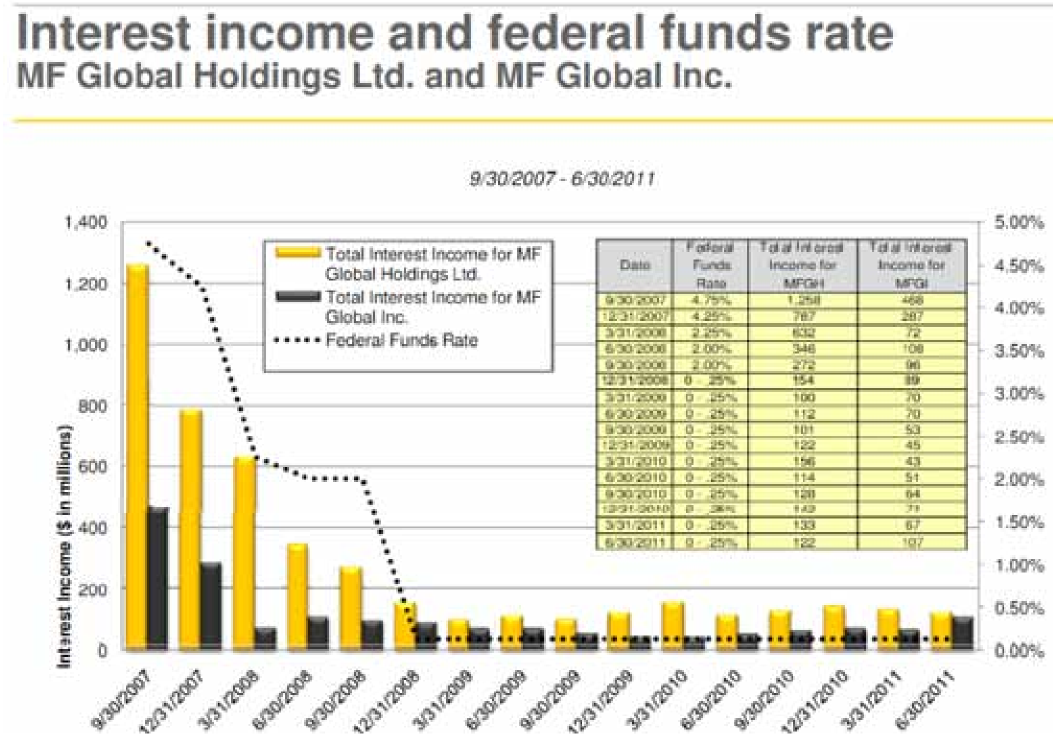
Figure 4: An Illustration of MF Global's Problematic Business Model

	YEAR ENDED MARCH 31,				
(Dollars in millions)	2011	2010	2009	2008	2007
Net (loss)/ income attributable to MF Global Holdings Ltd.	$ (81.20)	$ (137.00)	$ (49.10)	$ (69.50)	$ 188.00

Source: MF Global (2011), p.36.

As a futures commission merchant, the firm had strongly relied on income from the investment of customer collateral for its profitability. An FCM is allowed to credit back to customers only a fraction of the income the FCM earns on customer collateral. The firm was profitable in 2007, but then lost money for the following 4 years. As covered in Till (2013), we can see also how dire the trend was for MF Global's profitability from the June 4th, 2012 MF Global Inc.s bankruptcy trustee report. Figure 5 on the next page shows how dramatic the drop-off in interest income for MF Global was as short-term interest rates were set to near zero in the aftermath of the global financial crisis. This chart covers the period from September 2007 through June 2011.

Figure 5: Drop-Off in Interest Income after the Global Financial Crisis



Source: Hughes Hubbard & Reed LLP, Attorneys for James W. Giddens, Trustee for the SIPA Liquidation of MF Global Inc. (2012b), Annex A.

In 2010, MF Global hired Jon Corzine as its CEO. Corzine's background included a stint as the Chief Executive Office of investment banking and securities firm Goldman Sachs, and four years as the governor of New Jersey, as well as a partial term as U.S. Senator. Nonetheless, in Congressional testimony in December 2011, a few weeks after MF Global went bankrupt, Corzine admitted that he had little expertise or experience in the operational aspects of MF Global (Corzine, 2011). The CEO's plan was to eventually convert the futures broker into an investment bank, a near impossibility, especially given the firm's precarious capital situation and troubled business model. Thus, the CEO's task became how to make the firm profitable as soon as possible.

Corzine devised a strategy to enter into a large-scale, leveraged, proprietary trade on "peripheral" European bond markets in an attempt to ensure the firm's profitability in the face of a challenging environment for its business model. MF Global's stated balance sheet exposure to European bond markets became larger than that of the exposure of Goldman Sachs and Morgan Stanley combined, as shown in Figure 6.

Figure 6: Stated Sovereign Exposure

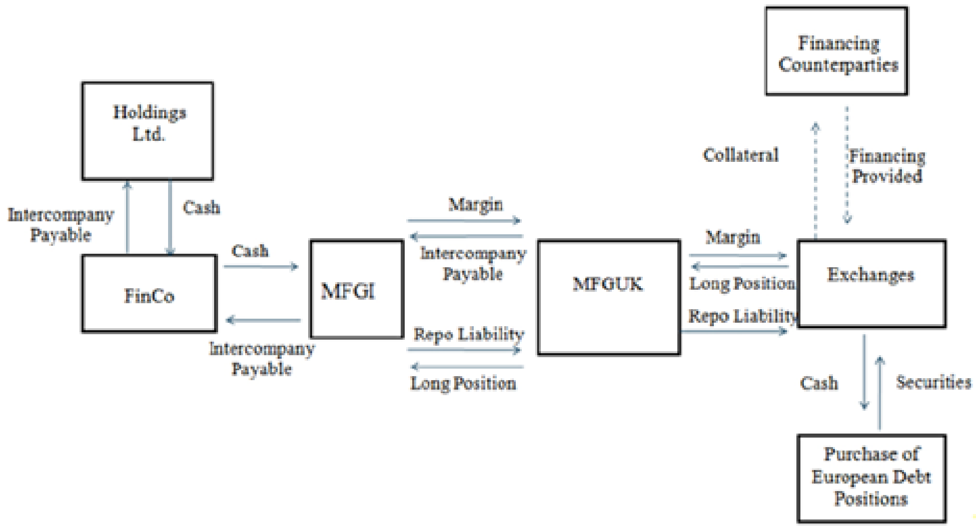
Company	Stated Balance Sheet Exposure*	Exposure as a % of Q End Equity	Exposure as a % of Q End Assets	Quarterly VaR Average	VaR as a % of Q End Equity
MF Global (MF)	**$6.4 B**	**460.6%**	**13.9%**	**$3.0 M**	**0.2%**
Citigroup (C)	$13.5 B	7.7%	0.7%	$184 M	0.1%
Goldman Sachs (GS)	$1.9 B	2.6%	0.2%	$101 M	0.1%
Jefferies (JEF)	N/A	N/A	N/A	$12.7 M	0.4%
JP Morgan (JPM)	$14 B	7.7%	0.6%	$94 M	0.1%
Morgan Stanley (MS)	$2.0 B	3.4%	0.2%	$145 M	0.2%

*as measured under a firm's internal approach

Source: Hughes Hubbard & Reed LLP, Attorneys for James W. Giddens, Trustee for the SIPA Liquidation of MF Global Inc. (2012b), p. 89.

The structure of how MF Global was able to enter into this leveraged trade with such little capital is illustrated in Figure 7, which is drawn from MF Global Holdings Ltd.'s bankruptcy trustee report of April 4, 2013.

Figure 7: End-to-End Structure of MF Global's Euro RTM Transaction
This figure diagrams how MF Global carried out its leveraged European sovereign-debt trades, focusing on the various financing relationships in doing so.



Source: Morrison & Foerster LLP, Attorneys for the Chapter 11 Trustee (2013), p. 33.
Notes: "MFGI" is an abbreviation for MF Global Inc., "an indirect subsidiary of MF Global Holdings Ltd."
MFG UK is an abbreviation for MF Global U.K. Limited, which "was the MF Global entity that was a member of the clearinghouses in Europe."
The "Euro RTMs" were trades in European sovereign debt, which, in turn, were "financed through repurchase to maturity transactions."
"On the dates MFGI entered into the various Euro RTMs, it recognized a gain in the amount of the difference or spread between (1) the effective interest rate received by MF Global on the debt securities and (2) the repurchase rate (or the financing rate) paid by MF Global to the counterparty. MFG UK recognized a gain in the amount of the markup for its role as counterparty to both MFGI and the clearinghouses. The trades were held by MFGI so that it, rather than MFG UK, bore the risk of default or restructuring of the sovereign debt.
On July 1, 2010, MFGI and MFG UK entered into an investment management agreement related to the Euro RTM trades, which provided that MFG UK would identify market opportunities related to the sovereign debt of certain European governments. Pursuant to this agreement, MFG UK received 80% of the consolidated net revenue of such transactions, while MFGI received 20% of the revenue, held the trades, and took the risk that the sovereigns would default or restructure their debt."

The financing for purchasing the bonds was done through MF Global's UK subsidiary. UK law effectively allows more opportunity for leverage by broker-dealers than US law, which is apparently why the transaction was executed in London. The bond trade was also documented in MF Global UK's Special Administrator report (KPMG, 2011). The rationale for executing this trade was that the interest rate offered by the short-term "peripheral" European bonds was much higher than their financing rate; and the bonds seemed to be good risks since they were backstopped by the European Financial Stability Facility, which in turn was financed by members of the eurozone. The problem was that MF Global had very little capital to sustain any meaningful mark-to-market fluctuations.

Before the firm's downward liquidity spiral, the bond trade's mark-to-market materially improved MF Global's profitability, as discussed in the MF Global Inc.'s trustee report of June 4, 2012. But astonishingly, the firm did not have a plan for how to exit these trades if the firm became stressed and would not be able to make margin calls. This particular fact is covered in an MF Global Board of Directors' presentation from the summer of 2011 that is accessible through the New York Times' website.

Final Week

At the end of October 2011, in rapid succession, the firm experienced a credit downgrade and announced worse-than-expected earnings, leading investors, clients, and creditors to doubt the sustainability of the firm's business model. At that point, MF Global rapidly liquidated some of its European bond bet; attempted to meet additional margin calls that resulted from its ratings downgrade; and attempted to meet customer redemptions as clients left the firm en masse.

One interesting question from this case is as follows: how could a seemingly functional firm collapse in a week? This is the type of question that also comes up with the Bear Stearns and Lehman bankruptcies of 2008. Roe (2011) has argued that an aspect of the U.S. Bankruptcy Code provides the explanation. A bank may choose to provide repo financing for a weak counterparty since the bank is allowed to seize collateral quickly if the weak counterparty goes bankrupt, so the bank does not have to worry about the creditworthiness of the counterparty. Normally when a firm is going bankrupt, creditors cannot immediately seize assets because the effort is to protect the company so that it can reorganise successfully. Once banks lose confidence in a weak financial firm and quickly terminate repo financing, the weak firm spirals quickly into bankruptcy.

A second interesting question from this case is as follows: why in late October 2011 did the firm have worse-than-expected earnings? Its $186.6 million loss during the 3rd quarter of 2011 was its worst ever. The explanation here has to do with an aspect of U.S. accounting conventions. According to Worstall (2011) and Weil (2011), most of the loss came from writing down *deferred-tax assets*. "Basically this item represented the money MF [Global] had thought it would save on taxes in the future, assuming it would be profitable," wrote Weil (2011). When a company has losses, one can carry forward those losses, and net them against future profits, thereby paying less taxes in the future. This future ability to pay less taxes is counted as an asset: a deferred-tax asset. By writing off the firm's deferred-tax assets, that is basically admitting that there is no visibility for the firm to become profitable in the foreseeable future. In the earnings announced on Tuesday, October 25th, 2011, MF Global wrote off its deferred-tax assets, which signaled that either the firm or its accountant did not see profitability on the horizon. The company's credit downgrade and worse-than-expected earnings immediately set off a liquidity crisis.

During later hearings before a U.S. Senate committee in April 2012, Chicago Mercantile Exchange Executive Chairman Terrence Duffy pointed out that MF Global's bankruptcy trustee "had said that the company had a liquidity crisis, and their increases went from $200 million to $900 million on their margin calls. That money had to come from somewhere, and if there's a liquidity crisis, where was that money coming from?" On June 4th, 2012, the MF Global Inc. bankruptcy trustee definitely showed that MF Global had dealt with its liquidity crisis through the use of funds from futures customer accounts (Hughes Hubbard & Reed LLP, 2012b). One week after MF Global's liquidity crisis began, during the morning of Monday, October 31st, regulators lost confidence in the firm when it was unable to reconcile its books and satisfactorily explain a significant shortfall that had been discovered in the firm's customer segregated accounts. This shortfall was without precedent in the history of the futures industry (United States House of Representatives 2012). A potential deal for another firm to buy MF Global collapsed, given the shortfall in customer segregated accounts.

The Response of Regulators and Bankruptcy Trustees

On October 31, 2011, MF Global's holding company declared bankruptcy under Chapter 11 of the Bankruptcy Code; and the Broker-Dealer/Futures Commission Merchant subsidiary was put into liquidation in a Securities Investors Protection Act proceeding. The legal procedures, though, which cover the liquidation of securities firms, can potentially be interpreted such that they conflict with the legal procedures that were designed for the bankruptcy of futures firms. Normally, a futures firm is put through another type of bankruptcy process where there are explicit procedures that are customised for futures firms. This was not done for MF Global. Again, the firm was put through a process designed for securities firms. That said, there is a credible body of law that futures customers should have priority over all other claimants (Corcoran (1993) and Melin (2012)). But it did take 5 weeks for the MF Global Inc. trustee to publicly verify this.

An inspector general report on the CFTC's actions was released in May 2013. One gets a sense of the shock that there was actually a shortfall in customer segregated accounts. Accordingly, it was only at about 5am on Monday, October 31, 2011 that a decision was made to put the company in bankruptcy and have a trustee become responsible for the company. Also, given that MF Global was regulated by so many different international regulators, there was an enormous coordination problem amongst regulators during the firm's final weekend.

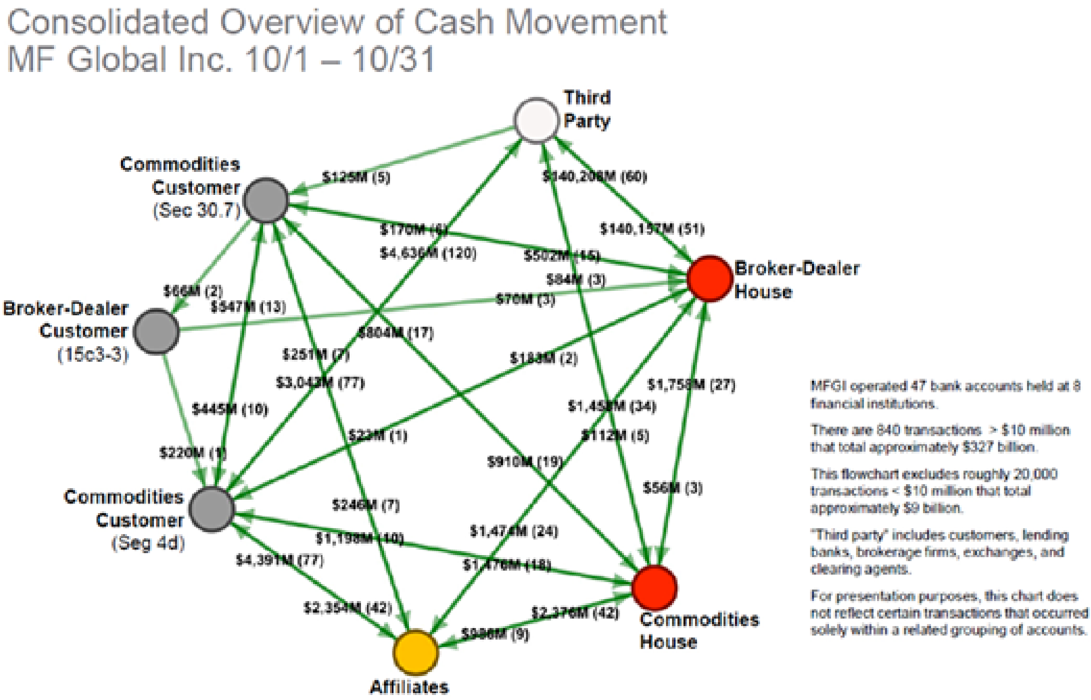
Within the United States, MF Global was regulated by the Securities and Exchange Commission as a broker-dealer and also by the Commodity Futures Trading Commission as a futures commission merchant. According to Collins (2012), the decision to put MF Global through a bankruptcy process that had been designed for securities firms "baffled futures industry participants who felt it would delay customers being made whole." Collins added that, "futures regulators in the past had gone to court to fight for jurisdiction when an asset freeze would be adverse to futures industry customers."

Starting on October 31, 2011, MF Global customers' funds and futures positions were frozen on and off for days. Astonishingly, "[w]hen the MFG bankruptcy was filed, *nobody* appeared in court to represent the interests of customers, or to oppose the claims of creditors whose interests were directly adverse to customers," observed Bry and Jaffarian (2012). Within days of the bankruptcy, the trustee did work with the CME and the CFTC to move customer positions and some of the margin associated with these accounts to other FCMs (Collins, 2012).

The trustee responsible for liquidating MF Global Inc. had to go through "a steep learning curve regarding futures operations," reported Collins (2012). It turns out that protections under the Commodity Exchange Act conflict with the U.S. Bankruptcy Code, so in the past regulators had moved customer positions and margins from weak Futures Commissions Merchants to healthy FCMs before the weak FCM declared bankruptcy. This did not happen in the case of the MF Global bankruptcy, which is a key reason for the chaos surrounding its bankruptcy.

In summary, the firm just did not have enough capital for its various lines of business. As cited in Stewart (2012) during the summer of 2011, the Assistant Treasurer of MF Global Inc. in Chicago "became worried about the firm's growing liquidity needs and where the cash would come from." She wrote in an email in August 2011: "Why is it I need to spend hours every day shuffling cash and loans from entity to entity?", describing the process as a "shell game", Stewart reported (2012). Figure 8 illustrates how money was continuously loaned from entity-to-entity.

Figure 8: Entity-to-Entity Movement of Funds



Source: Hughes Hubbard & Reed LLP, Attorneys for James W. Giddens, Trustee for the SIPA Liquidation of MF Global Inc. (2012a), p. 10.

On June 27th, 2013, the CFTC charged that:
"MF Global [had] unlawfully used nearly one billion dollars of customer segregated funds to support its own proprietary operations and the operations of its affiliates .... [Former MF Global CEO Jon] Corzine bears responsibility for MF Global's unlawful acts. He held and exercised direct or indirect control over MF Global and Holdings and either did not act in good faith or knowingly induced these violations" (CFTC, 2013).

On January 4, 2017, Corzine settled with the CFTC and paid $5 million to settle claims from the case. The regulator also set a lifetime ban on him personally trading other people's money in the futures industry.

Reforms

Regarding reforms, the CFTC "approved new NFA rules that cover foreign accounts; controls on the use of excess segregated funds; and reporting and recordkeeping requirements," according to CFTC (2012). In addition, the NFA (2012) approved a requirement for "each futures commission merchant ... to provide its Designated Self-Regulatory Organization ... with view-only access via the Internet to account information for each of the FCM's customer segregated funds account(s) maintained and held at a bank or trust company."

Conclusion

This article provided examples from publicly available financial reports that demonstrated MF Global's financial weakness, dating back four years before its bankruptcy, which as time went on indicated that the firm's business model was likely not viable. Even so, this observation does not excuse unlawful practices. As noted in Till and Heckinger (2017), "[w]ith MF Global, the FCM unlawfully used customer funds in large-scale proprietary trades that the firm ultimately could not fund," leading to its chaotic bankruptcy.

References

• Bry, D. and E. Jaffarian, 2012, "Memorandum to the National Futures Association Board of Directors Re: MF Global Issues and Proposals," February 13.

• [CFTC] Commodity Futures Trading Commission, 2012, "CFTC Approves New Financial Rules Submitted by the National Futures Association to Strengthen the Protection of Customer Funds Held by Futures Commission Merchants," Press Release: PR6303-12, July 13.

• CFTC, 2013, "Complaint for Injunctive and Other Equitable Relief and Civil Monetary Penalties Under the Commodity Exchange Act," United States District Court for Southern District of New York, U.S. CFTC (Plaintiff) v. MF Global Inc., MF Global Holdings Ltd., Jon S. Corzine, and Edith O'Brien (Defendants), June 27.
Available at:
http://www.cftc.gov/ucm/groups/public/@lrenforcementactions/documents/legalpleading/enfmfglobalcomplaint062713.pdf

• Collins, D., 2012, "MF Global Failure Highlights Cracks in the System," *Futures Magazine*, January, pp. 46-49.

• Corcoran, A., 1993, "Bankruptcy Pitfalls For Dually-Licensed Brokerage Firms," *Futures International Law Letter*, Vol. XII, No. 11, January.

• Corzine, J., 2011, "Statement of Jon S. Corzine Before the United States House of Representatives Committee on Agriculture," December 8.

• Gapper, J. and I. Kaminska, 2011, "Downfall of MF Global," *Financial Times*, November 4

• Hughes Hubbard & Reed LLP, Attorneys for James W. Giddens, Trustee for the SIPA Liquidation of MF Global Inc., 2012a, "Trustee's Preliminary Report on Status of His Investigation and Interim Status Report on Claims Process and Account Transfers," *In re MF Global Inc.*, Debtor, United States Bankruptcy Court for Southern District of New York, Case No. 11-2790 (MG) SIPA, February 6.

• Hughes Hubbard & Reed LLP, Attorneys for James W. Giddens, Trustee for the SIPA Liquidation of MF Global Inc., 2012b, "Report of the Trustee's Investigation and Recommendations," *In re MF Global Inc.*, Debtor, United States Bankruptcy Court for Southern District of New York, Case No. 11-2790 (MG) SIPA, June 4.

• KPMG, 2011, "Joint Special Administrators' Proposals for Achieving the Purpose of the Special Administration, MF Global UK Limited – in Special Administration," December 16.

• Melin, M., 2012, "Architect of Broker Dealer / FCM Liquidation Process Goes on Record Regarding SIPA Liquidation Process," *Opalesque Alternative Marketing Briefing*, January 24.

• MF Global, 2007, MF Global Ltd Form 10Q For the Quarterly Period Ended December 31, 2007.

• MF Global, 2008, "MF Global Secures Bank Commitment of $450 Million [;] Commitment Marks Final Step in Capital Plan [;] Accrues for Potential CFTC Action," MF Global Press Release, June 13.

• MF Global, 2011, MF Global Holdings Ltd Form 10-K For the Fiscal Year Ended March 31, 2011.

• MF Global Holdings Ltd., 2011, "Stress Scenario Analysis – Downgrade[:] Potential Impact on MF Global," Internal Presentation.
Retrieved from:
http://dealbook.nytimes.com/2012/02/02/before-collapse-mf-global-had-emergency-plan/#copy and http://www.scribd.com/doc/80278193/MF-Global-s-break-the-glass-document on July 20, 2017.

• Morrison & Foerster LLP, Attorneys for the Chapter 11 Trustee, 2013, "Report of Investigation of Louis J. Freeh, Chapter 11 Trustee of MF Global Holdings Ltd., et al.," *In re MF Global Holdings Ltd., et al.*, Debtors, United States Bankruptcy Court for the Southern District of New York, Case No. 11-15059 (MG), April 4.

• [NFA] National Futures Association, 2012, "NFA's Board of Directors Approves Rule to Enhance the Customer Segregated Funds Protection Regime," NFA Press Release, August 16.

• Prezioso, J., 2012, "After MF Global, Traders Hold Tight to Excess Collateral," *Reuters*, February 17.

• Roe, M., 2011, "The Derivatives Market's Payment Priorities as Financial Crisis Accelerator," *Stanford Law Review*, Vol. 63, No. 3, p. 539; ECGI - Law Working Paper No. 153/2010; Harvard Public Law Working Paper No. 10-17. Available at SSRN: https://ssrn.com/abstract=1567075.

• Stewart, J., 2012, "Trustee Sees Customers Trampled at MF Global," *New York Times*, June 8.

• Till, H., 2013, "Risk Governance Standards and Lessons from Recent Scandals: The MF Global Case Study," Presentation to the Chicago chapter of the Global Association of Risk Professionals (GARP), DePaul University, May 23.
Available at EDHEC-Risk:
http://www.edhec-risk.com/events/other_events/Event.2013-05-07.3011/attachments/Till_MF_Global_GARP_052313.pdf

• Till, H. and R. Heckinger, 2017, "Famous Debacles in the Commodity Markets: Case Studies on Amaranth and MF Global," *EDHEC-Risk Industry Analysis*, June 22.

• Till, H., Eagleeye, J. and R. Heckinger, 2018, "Commodity Trading Strategies, Common Mistakes, and Catastrophic Blowups," in K. Baker, G. Filbeck and J. Harris (eds) Commodities: Markets, Performance, and Strategies (New York: Oxford University Press), Forthcoming.

• United States House of Representatives, 2012, "Oversight and Investigations Subcommittee Hearing on 'The Collapse of MF Global: Part 3'", Committee on Financial Services, Staff Memorandum to Members, March 23.

• United States Senate Banking, Housing and Urban Affairs Committee, 2012, "The Collapse of MF Global: Lessons Learned and Policy Implications," Federal News Service (FNS) verbatim transcript, which was accessed from The Bloomberg, April 24, 2012.

• Weil, J., 2011, "Here's One Big Thing MF and Jon Corzine Got Right," *Bloomberg View*, December 11.
Retrieved from:
https://www.bloomberg.com/view/articles/2011-12-15/here-s-one-big-thing-mf-and-corzine-got-right-commentary-by-jonathan-weil on July 20, 2017.

• Worstall, T., 2011, "Why MF Global Really Went Bankrupt," *Forbes.com*, December 16. Retrieved from:
https://www.forbes.com/sites/timworstall/2011/12/16/why-mf-global-really-went-bankrupt/#69f921685001 on July 20, 2017.

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