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Systemic risk factor	Exposure amount if AIG defaults	Comment	Change in systemic risk since September 16
Market confidence in government support for financial institutions	Impossible to quantify	Most important factor	Increase
CDS on ABS CDOs	$4 billion plus	15 bank counterparties account for 95 percent of trades	Decrease in exposure from $9 billion plus
Regulatory capital arbitrage CDS	Elimination of $11 billion in Basel 1 regulatory capital relief	Main counterparties are French, German, Dutch, Danish and Swedish banks	Notional amount has fallen by 20 percent, European governments have put bank support plans in place
Intracompany exposures to AIGFP	$2 billion of exposure on OTC derivatives	Banque AIG, French bank sub of AIGFP, could fail	No change
Stable value wraps	$1.6 billion (but AIG only pays when fund assets are exhausted by qualified withdrawals)	Notional value of $36 billion	Decline by roughly 10 percent as plan sponsors do not renew
AIGFP's debt liabilities	$37 billion of uncollateralized debt	Structured notes sold to financial institutions and individuals, GICs sold to municipalities and others	Decrease in uncollateralized GICs from $12 billion to $1.7 billion
OTC derivatives	$4.5 billion (to top 50 counterparties only)	Securitization trusts are a large counterparty; OTC derivatives unwind could be messy	No change

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Systemic risk factor	Exposure amount if AIG defaults	Comment	Change in systemic risk since September 16
Commercial paper	$6.9 billion		Decrease from $19.7 billion; Fed's lending facilities are supporting CP and money market funds
Securities lending	$20 billion (collateralized)	No direct exposures, but counterparties face funding risk when cash is not returned	Decrease from $69 billion
Insurance subsidiaries	Not easily quantified	Worry about a run on insurance companies more broadly if one of AIG's insurance subs fails	Decrease because AIG parent holding company has made capital contributions to many subsidiaries
Direct credit exposures on bank facilities	[to be determined]	Mostly with European banks	Exposure was $30 billion on 9/16

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Systemic risks of AIG

This draft: October 24, 2008

Introduction

In this memo, I discuss the possible systemic risks from a failure of AIG. The particular scenario considered is a bankruptcy filing by AIG, Inc., the parent holding company, and AIG Financial Products Corp. (AIGFP), with AIG's insurance subsidiaries entering a rehabilitation process overseen by domestic and foreign regulators. Much of the information used to prepare this memo was provided by management representations at AIG. In many cases, information is incomplete and the memo's conclusions should be viewed as preliminary.

Market confidence

The largest systemic risk at present is the risk to market confidence from a failure of AIG. Market confidence is in a fragile state after the intense financial turmoil of recent weeks. Treasury and the Federal Reserve have taken a range of actions, including the initial decision to lend to AIG. A broadening of government support for financial institutions has appeared to help stop the loss of market confidence in the financial system. A failure of AIG would call into question the ability of that broader government support to be sustained. This risk is impossible to quantify.

Exposures to AIGFP

AIGFP, AIG's capital markets and derivatives subsidiary, contains a number of systemic risks. I describe six of the important risks below. Given the range of risks present within AIGFP, there are undoubtedly some important risks that have been omitted from this list.

1. CDS written on ABS CDOs

AIGFP wrote credit protection on super-senior tranches of ABS CDOs and is exposed to the subprime mortgage-backed securities that the ABS CDOs own. The current notional amount of AIG's positions is $71 billion. AIG has taken $33 billion of writedowns on these positions as of September 30, 2008 and has posted collateral to its counterparties of $33 billion.

If AIG fails, its counterparties would face a loss on whatever uncollateralized exposure exists at that time. Counterparties have marked these positions down by $4 billion since September 30 (for a cumulative mark-to-market of $37 billion) and are currently asking for that amount of additional collateral. AIG is disputing those marks and has not posted the additional collateral. If AIG fails, its counterparties would bear the $4 billion loss.

Many of the counterparties own the underlying CDO securities against which AIG wrote credit protection or have other hedges. They would be left with up to $38 billion of unhedged super-senior ABS CDO risk if AIG failed. Because these positions are extremely sensitive to further house price declines, it would be expensive for AIG's counterparties to replace these positions. This would cause additional losses beyond the $4 billion described above.

At the time of the September 16 loan, the notional value of CDS written on ABS CDOs was $80 billion. AIG had taken $25 billion of writedowns as of June 30 and had posted $16 billion of collateral, leaving AIG's counterparties with an exposure of $9 billion. Systemic risk has fallen since September 16 because AIG has drawn on the Federal Reserve's $85 billion facility to post collateral against this $9 billion.

2. Regulatory capital arbitrage CDS

AIG wrote credit protection on super-senior tranches of corporate loan and prime mortgage exposures held by European banks in order to provide those banks with a regulatory capital reduction under their national implementations of Basel 1 capital standards.[1] AIG's largest counterparties are French, German, Dutch, Danish and Swedish banks. The notional amount outstanding has fallen from $379 billion at year-end 2007 to $240 billion at October 13, 2008. The portfolio is running off quickly because the counterparties have the option to terminate the trades when they go live onto Basel 2. The capital relief for AIG's European bank counterparties is currently estimated at between $2.4 and $11.1 billion, depending on where each bank's transition from Basel 1 to Basel 2 stands.[2] AIG's current mark-to-market loss is only $160 million, reflecting the fact that these trades were structured to transfer no credit risk, merely to provide regulatory capital relief.

If AIG fails, the Basel 1 risk-weighted assets reported by its counterparties would increase, resulting in a regulatory capital hole of up to $11.1 billion. Although the market knows this aggregate amount already from AIG's public disclosures, AIG's failure would reveal to the market which particular banks had shored up their Basel 1 capital ratios in this way.

Compared with the time of the September 16 loan, systemic risk is lower because the notional amount of trades is lower (it was $305 billion on September 16) and because European governments have put measures in place to guarantee bank liabilities and inject capital into banks.

[1] These trades would not have provided capital relief under the U.S. implementation of Basel 1 capital standards.
[2] To avoid shouting "Fire!" in a crowded theater, we have not approached the European regulators to quantify the capital relief more precisely.

3. Intra-company exposures to AIGFP[3]

AIG's other subsidiaries have material exposures to AIGFP on OTC derivatives. The largest exposures are at finance company affiliates ($920 million) and the funds management affiliate ($441 million). Insurance affiliates are owed approximately $475 million. In addition, these affiliates would have to replace these hedges (primarily interest rate and foreign currency derivatives) at a time when markets are volatile.

A default of AIGFP would have a catastrophic impact on Banque AIG, a French bank that is a wholly-owned subsidiary of AIGFP and through which AIGFP executed many of its OTC derivative trades. For example, Banque AIG is the counterparty to the European banks' regulatory capital trades. All the exposures in Banque AIG's trades are hedged with back-to-back trades with AIGFP.

Systemic risk from these intra-company exposures is high. In particular, the failure of Banque AIG (a regulated bank) could have a more damaging effect on market confidence than the failure of AIGFP (an unregulated derivatives product subsidiary). Through the intra-company exposures, the failure of AIGFP would cause significant loss of value at AIG's other subsidiaries, many of which are expected to be sold to repay the Federal Reserve's loan.

4. Stable value wraps

AIGFP has provided stable value wraps, referred to as Benefit Responsive Options (BROs), for 401k plan participants. AIG guarantees that plan participants can receive book value for qualified withdrawals, although AIG is not required to make any payments until after a fund's assets are depleted through qualified withdrawals. AIG had a notional value of $36 billion of BROs at September 30, 2008 with 175 plan counterparties. The aggregate market-to-book ratio was estimated at 95.5 percent at September 30, leaving AIG with an exposure of $1.6 billion.

Systemic risk of these stable value wraps is high. Although the exposure amount is not large and it is unlikely that AIG will have to make any payments, market confidence would be affected if plan sponsors are forced to notify plan participants that their investments in stable value funds are no longer guaranteed (at the same time that turmoil in credit markets is pushing down the market value of the funds' investments). This risk is falling over time, as plan sponsors replace AIG as the stable value wrap counterparty when contracts are renewed. Deals with aggregate book value of $3.3 billion were terminated before September 30.

5. AIGFP's liabilities

Some of AIGFP's liabilities may pose a systemic risk. These include guaranteed investment contracts (GICs) and debt securities. GICs have been issued to a variety of counterparties including municipalities. AIGFP has $11.4 billion of GICs outstanding, of

[3] This section relies on analysis done by John Kambhu.

which $9.7 billion is collateralized. Much of AIGFP's $35 billion outstanding of debt securities was structured to provide a counterparty with a market risk exposure (to interest rate, equity, commodity, or foreign exchange rate risk). Some was sold to banks and institutional investors who passed the market risk through to individual high net worth investors, and some was sold directly to investors who are exposed to an AIG default.[do we know the breakdown?]

Systemic risk on GICs has fallen considerably since September 16, when GICs outstanding were $19 billion, of which about $12 billion was uncollateralized. Only $1.7 billion of uncollateralized exposure on GICs remains. Systemic risk on debt securities is still high, as these have a longer maturity and no collateral requirements. If AIG defaults, AIGFP's counterparties on structured notes – banks and institutional investors – would suffer a direct loss of principal and would also be left with an open risk position vis-à-vis their customers to whom they passed through the market risk exposures. While AIG's counterparties have had ample opportunity to hedge their exposure to an AIG default, we do not know who the counterparties are or whether they have hedged.

6. OTC derivatives

Some of AIGFP's OTC derivatives counterparties have uncollateralized exposures that would result in a loss if AIG defaults. The most recent data available on derivatives payables [9/30 available?] as of September 23 showed the top 50 counterparty exposures summed to $4.5 billion. The largest exposures were to securitization trusts (for interest rate swaps that enable the trust to match the interest rate risk of its assets and liabilities), financial institutions, corporates, and sovereigns.

Systemic risk may be highest for the securitization trusts and financial institutions. Many investors in mortgage-backed securities or asset-backed securities would be surprised to learn that an AIG default could have an impact on their investment, and this could have knock-on effects in broader securitization markets. Financial institutions that reported a material loss to AIG on OTC derivatives could suffer a loss of market confidence. However, most of AIG's counterparties with large OTC derivatives exposures are European banks whose governments have already put in place extraordinary measures to support their national banking systems.

If AIG fails and its OTC derivatives book is unwound, counterparties would be forced to replace their positions with AIG or retain an unhedged risk position. When Lehman Brothers failed, this was a major concern, but rehedging of Lehman's OTC derivatives did not turn out to have systemic effects. Lehman's OTC derivatives book was ten times larger than AIG's (measured by notional amount) which suggests that this risk may not be large.

However, to the extent that AIG's book of OTC derivatives has a different character than Lehman's, there may be additional systemic risk concerns. Some of AIG's OTC derivatives trades are different because they were done solely to exploit AIG's AAA rating. For example, AIG is an intermediary on a set of 30-year natural gas swaps

between Goldman Sachs and the Southern California Public Power Authority (which provides electricity to Los Angeles and other cities in Southern California). Presumably the Power Authority was uncomfortable with Goldman Sachs as counterparty on a 30-year trade and was willing to pay a premium for the comfort of an AAA-rated counterparty. AIG's failure would leave both counterparties with a large open risk position that they would need to rehedge (presumably they could rehedge with each other). In addition, AIGFP also has an exotic derivatives book whose positions could prove difficult for counterparties to replace in current market conditions.

Commercial paper

AIG, AIGFP, and two of AIG's finance subsidiaries have $6.9 billion of commercial paper outstanding as of October 22, 2008. The bankruptcy of Lehman Brothers demonstrated how commercial paper held by money market mutual funds could pose a systemic risk. We do not know who is holding AIG's commercial paper, but presumably this risk is still high.

However, the systemic risk from AIG's commercial paper has diminished since September 16, when AIG had $19.7 billion of CP outstanding. Since then, the Federal Reserve has established three lending facilities (AMLF, CPFF, and MMIFF) to reduce the systemic risk related to commercial paper and money market mutual funds.

Securities lending

AIG still has approximately [$20?] billion of borrowings from banks and broker-dealers remaining in its securities lending program. If AIG fails, the securities lending counterparties would receive ownership of the securities in lieu of receiving their cash. These securities are high-grade corporate bonds and agency MBS, so credit losses are not expected, but this could have a material funding impact on those counterparties.

However, the systemic risk impact of the securities lending program is lower now than it was on September 16, when AIG had approximately $69 billion in liabilities and funding markets were under tremendous strain from the Lehman Brothers bankruptcy. The amount outstanding has fallen as counterparties have refused to roll over their securities lending transactions with AIG. A wider array of Federal Reserve lending facilities to support short-term funding markets is now available to help AIG's counterparties deal with the funding impact of an AIG default.

Insurance subsidiaries

AIG's regulated insurance subsidiaries, both domestic and foreign, would be affected by the default of the AIG parent holding company. State regulators have stated that the insurance companies they regulate are capitalized on a stand-alone basis and can maintain claims-paying ability to benefit policyholders. Conseco filed bankruptcy in 2002 due to losses in its consumer finance subsidiary, but its insurance companies continued to operate. If AIG's insurance subsidiaries are unable to continue operating

following an AIG default, they could be seized by state regulators and put into rehabilitation.

It is possible that the failure of the AIG parent holding company could lead to additional losses at AIG's insurance subsidiaries. The intra-company exposures discussed above are one possible channel for this to occur. If an insurance company is found to be insolvent, its regulator may choose to liquidate it. In that event, a state guaranty fund will pay claims, up to a cap, and may provide for continuing coverage by transferring the policies to another insurance company.

Whether AIG's insurance subsidiaries are put into rehabilitation or whether they are liquidated, a potential systemic risk exists if the public loses confidence in insurance companies more broadly. For example, life insurance companies are vulnerable to a run by policyholders with cash value policies.

Direct credit exposures to AIG

On September 16, AIG reported that banks had $30 billion in exposure to it on various bank loan facilities and lines of credit, of which about $7 billion was to U.S. institutions. Current direct credit exposure is [?].