

May 2016

## Scenario

The Mortgage Backed Security (MBS) market is one of the largest credit facilitating markets in the world with an estimated outstanding value of over \$7 tr. USD. The market however has suffered fluctuations due to the financial crisis and is now second in size to Government Treasuries.

The key drivers behind this are:

1. The perception of risk in the MBS product due to poor quality assets being placed on the market prior to 2009
2. Tightening regulation including a stronger move to agency MBS
3. Perceived lack of transparency on the recovery rates of the underlying assets (i.e. mortgage repayments)
4. The flight to higher quality mortgage underlyings which are more limited in quantity
5. A desire for additional guarantees for the secondary market
6. The reduction in QE which will continue

Although the market continues to grow, these factors serve as a restraint and threat to that growth in the coming years.

However new technology can help overcome not only several of these restraints but also provide additional savings on current technology stacks and greater security

## The Principles Behind Blockchain

Much noise has been created in the market regarding Blockchain and its potential to create new market models. Whilst CPQi is not given to hype, we do feel that the correct application of this technology, in a finite market can improve trading conditions and transparency substantially.

In summary Blockchain is a ledger in the same way as an accounting ledger keeps a record of transactions. However instead of that ledger being kept in a book, or a computer database, it is kept on a network and managed with Blocks.

A Genesis Block (first block) is the initiating block of any chain. It is a file that exists on the network containing a hash code, a set of variables and a message in code. It CANNOT be changed and all other blocks in a chain can be traced back to it.

Simply put a block simply is a file which has a code linking it to previous block through a hash code. It then states how many transactions are recorded in the block and finally provides information on those transactions.

Transactions are created by users of the Blockchain network using special software. The software then turns these transactions into Blocks which link to other Blocks on the same Blockchain, right back to the Genesis Block.

The Blocks are broadcast to the network as a file and nodes (computers) on the network can pick up the Blocks and keep a copy, so there can be several copies of the same Block but they all refer to the same previous Block so there is no confusion.

Special Software can also be used to create a 'Map' of all the blocks in a chain right back to the Genesis block and therefore decompose all the transactions that exist on a Blockchain network providing full transparency.

Because of the way that Blockchain is developed, the following statements are true:

1. Transactions do not need to be validated or cleared as the creation of a Block is only possible if the transaction is valid
2. Users of a Blockchain network can recreate the previous transactions providing full transparency on history and risk
3. It is all but impossible to create invalid transactions, or fraudulent transactions on a Blockchain network
4. There is no need for a structured database on a Blockchain network

## Application to the MBS Market (Limited Initial Scope)

Both the originating and secondary markets for mortgage can be linked through a Blockchain network providing full transparency, reduced risk and guaranteed transactions. Figure 1 illustrates how an initial pilot would work.

## Advantages to Early Adopters and the Market

1. First mover advantage with this new technology
2. Saves considerable costs of enterprise database licenses
3. Captures the broker origination market on a proprietary platform
4. Does not need confirmations and reconciliations
5. Provides full transparency across both origination and secondary market reducing the need for guarantees
6. Regulator can have a full view of the market risk at will
7. Addresses the perceptions of risk

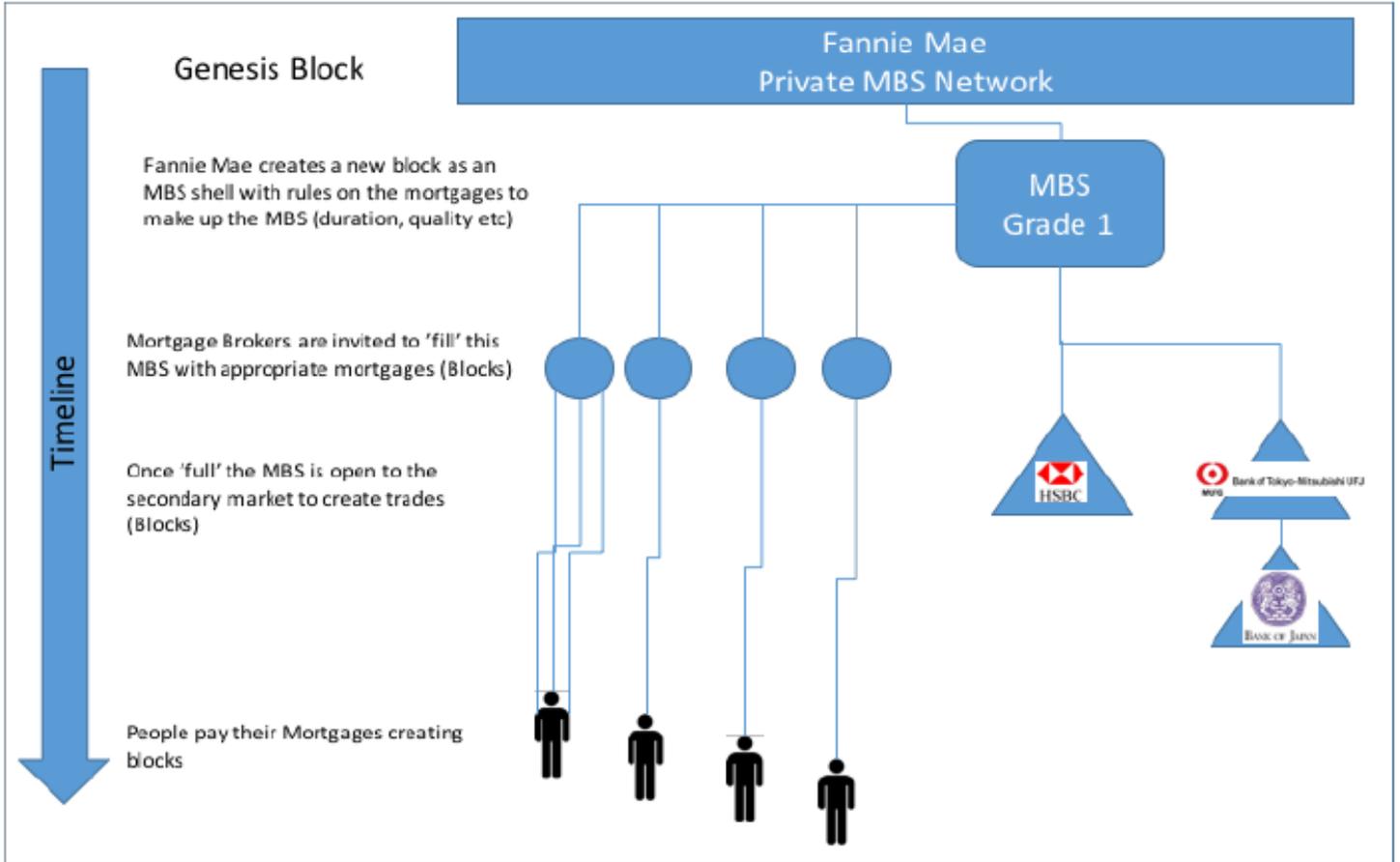


Figure 1

