# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5188650

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
PANAGIOTIS XYTHALIS	10/05/2015
JAY ZHU	11/02/2015
FATEEN SHARABY	10/07/2015
DHIRAJ BAWADHANKAR	10/07/2015
MOLANG DONG	10/05/2015

#### RECEIVING PARTY DATA

Name:	CHICAGO MERCANTILE EXCHANGE INC.
Street Address:	20 SOUTH WACKER DRIVE
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60606

## **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	16160360

### **CORRESPONDENCE DATA**

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

**Phone:** 312-291-0860

Email: docket-us@lsk-iplaw.com, michelle.marsh@cmegroup.com

Correspondent Name: LEMPIA SUMMERFIELD KATZ LLC/CME

Address Line 1: 20 SOUTH CLARK STREET

Address Line 2: SUITE 600

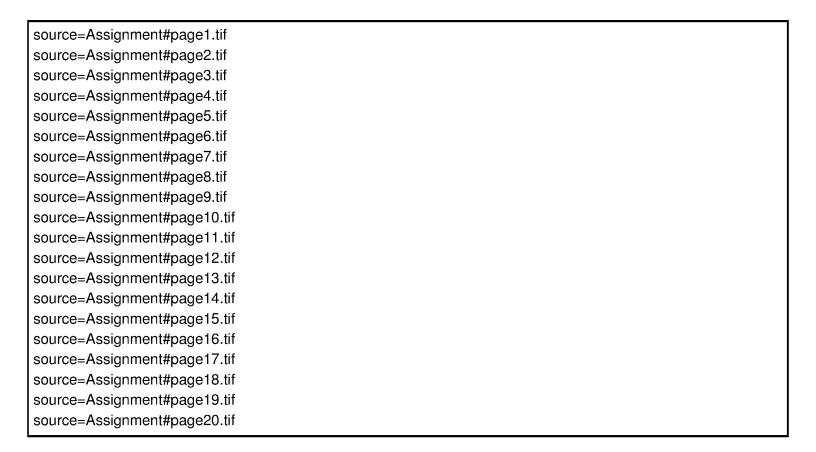
Address Line 4: CHICAGO, ILLINOIS 60603

ATTORNEY DOCKET NUMBER:	4672-14017DUS
NAME OF SUBMITTER:	JAMES L. KATZ
SIGNATURE:	/James L. Katz/
DATE SIGNED:	10/15/2018

**Total Attachments: 20** 

PATENT REEL: 047167 FRAME: 0680

505141885



## **ASSIGNMENT**

WHEREAS, Panagiotis Xythalis, Jay Zhu, Fateen Sharaby, Dhiraj Bawadhankar, Molang Dong, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled TRANSACTION PROCESSOR FOR CLEARING INTEREST RATE SWAPS WITH IMPROVED EFFICIENCY, executed by Assignors on the same date as, or on a date prior to, this Assignment;

WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for all such patents.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

DATED:	10/05/2015	P. X. D. Panágiotis Xythalis
DATED:		Jay Zhu
DATED:		Fateen Sharaby
DATED:		Dhiraj Bawadhankar
DATED:	·	Molang Dong

STATE OF New Jork ) ss.  COUNTY OF Surface State of Surface State affers aid, do hereby certify that Panagic me to be the same person whose name is subscribed appeared before me this day in person and acknowledged delivered the said instrument as his/her free and vol	to the foregoing instrument, that (s)he signed, sealed and
purposes therein set forth. IN WITNESS WHEREOF, I have hereunto set my day of	Showles
My Commission Expires: 1000 STATE OF ) ss.	BRIDGET SULLIVAN  NOTARY PUBLIC-STATE OF NEW YORK  No. 015U6030405  Qualified in New York County  My Commission Expires Navember 04, 2017
COUNTY OF  I,  County and State aforesaid, do hereby certify that Jay Z be the same person whose name is subscribed to the f before me this day in person and acknowledged that (s)h the said instrument as his/her free and voluntary act for set forth.  IN WITNESS WHEREOF, I have hereunto set m day of, 2015.	a Notary Public in and for the hu, personally known to me to oregoing instrument, appeared e signed, sealed and delivered the uses and purposes therein
Notary Pu	ıblic
My Commission Expires:	

STATE OF	88
COUNTY OF	SS.
me to be the same person who appeared before me this day in pedelivered the said instrument a purposes therein set forth.	, a Notary Public in and for the ereby certify that Fateen Sharaby, personally known to use name is subscribed to the foregoing instrument, erson and acknowledged that (s)he signed, sealed and s his/her free and voluntary act for the uses and I have hereunto set my hand and Notarial Seal, this, 2015.
	Notary Public
My Commission Expires:	
STATE OF	SS.
COUNTY OF	33.
known to me to be the same propertions instrument, appeared before me the said instruction and delivered the said instruction and purposes therein set forth.	, a Notary Public in and for the hereby certify that Dhiraj Bawadhankar, personally person whose name is subscribed to the foregoing his day in person and acknowledged that (s)he signed, trument as his/her free and voluntary act for the uses I have hereunto set my hand and Notarial Seal, this, 2015.
	Notary Public
My Commission Expires:	

STATE OF	
COUNTY OF	) ss. )
me to be the same person whappeared before me this day in purposes therein set forth.	, a Notary Public in and for the hereby certify that Molang Dong, personally known to nose name is subscribed to the foregoing instrument, person and acknowledged that (s)he signed, sealed and as his/her free and voluntary act for the uses and F, I have hereunto set my hand and Notarial Seal, this, 2015.
	Notary Public
My Commission Expires:	

# <u>ASSIGNMENT</u>

WHEREAS, Panagiotis Xythalis, Jay Zhu, Fateen Sharaby, Dhiraj Bawadhankar, Molang Dong, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled TRANSACTION PROCESSOR FOR CLEARING INTEREST RATE SWAPS WITH IMPROVED EFFICIENCY, executed by Assignors on the same date as, or on a date prior to, this Assignment;

WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for all such patents.

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

DATED:		Panagiotis Xythalis
DATED:		Jay Zhu
DATED:	10/2/2015	Fateor Sharaby
DATED:	10/7/2015	Dhiraj Bawadhankar
DATED:		Molang Dong

STATE OF	) ) ss.	
COUNTY OF	) 55.	
me to be the same pers appeared before me this of delivered the said instru purposes therein set forth	son whose na day in person a ument as his/l i. EREOF, I have	, a Notary Public in and for the certify that Panagiotis Xythalis, personally known to me is subscribed to the foregoing instrument, and acknowledged that (s)he signed, sealed and ner free and voluntary act for the uses and hereunto set my hand and Notarial Seal, this, 2015.
		Notary Public
My Commission Expires:	<u> </u>	
STATE OF	) ) ss.	
be the same person who before me this day in pers the said instrument as his set forth.	ise name is su son and acknow s/her free and EREOF, I have	, a Notary Public in and for the certify that Jay Zhu, personally known to me to bscribed to the foregoing instrument, appeared wledged that (s)he signed, sealed and delivered voluntary act for the uses and purposes therein hereunto set my hand and Notarial Seal, this _, 2015.
		Notary Public
My Commission Expires:		

STATE OF NEW YORK )	
) ss. COUNTY OF 冬分~ Youkk )	
I, SASA SILVERSTEIN  County and State aforesaid, do hereby certify that Fate me to be the same person whose name is subscrippeared before me this day in person and acknowled delivered the said instrument as his/her free and purposes therein set forth.  IN WITNESS WHEREOF, I have hereunto set day of October 100.	een Sharaby, personally known to bed to the foregoing instrument, lged that (s)he signed, sealed and voluntary act for the uses and
Notary	Public
My Commission Expires: <u>AP&amp;k 22, 2०/</u> ७	JASON SETH SILVERSTEIN NOTARY PUBLIC-STATE OF NEW YORK No. 02516280218 Qualified in New York County
STATE OF NEW YORK )	My Commission Expires April 22, 20/
STATE OF AGW YORK )  SS.  COUNTY OF AGW YORK )	
I, JAGO SILVERSTON  County and State aforesaid, do hereby certify that known to me to be the same person whose name instrument, appeared before me this day in person and sealed and delivered the said instrument as his/her frand purposes therein set forth.  IN WITNESS WHEREOF, I have hereunto set day of Och ber 1, 2015.	e is subscribed to the foregoing dacknowledged that (s)he signed, ree and voluntary act for the uses
Notary	Public Public
My Commission Expires: <u>April 22, 2017</u>	JASON SETH SILVERSTEIN  NOTARY PUBLIC-STATE OF NEW YORK  No. 02S16280218  Gualified in New York County  My Commission Expires April 22, 2017

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STATE OF	)
COUNTY OF	) ss. )
me to be the same person whappeared before me this day in period delivered the said instrument purposes therein set forth.	, a Notary Public in and for the hereby certify that Molang Dong, personally known to nose name is subscribed to the foregoing instrument, person and acknowledged that (s)he signed, sealed and as his/her free and voluntary act for the uses and for the uses and have hereunto set my hand and Notarial Seal, this, 2015.
	Notary Public
My Commission Expires:	

## **ASSIGNMENT**

WHEREAS, Panos Xythalis, Jay Zhu, Fateen Sharaby, Dhiraj Bawadhankar, and Molang Dong, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled TRANSACTION PROCESSOR FOR CLEARING INTEREST RATE SWAPS WITH IMPROVED EFFICIENCY, executed by Assignors on the same date as, or on a date prior to, this Assignment;

WHEREAS, CHICAGO MERCANTILE EXCHANGE INC., a corporation organized and existing under the laws of the State of Illinois, having a place of business at 20 South Wacker Drive, Chicago, IL 60606, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00), and other valuable and legally sufficient consideration, the receipt of which by the Assignors from the Assignee is hereby acknowledged, the Assignors have sold, assigned and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents issuing therefrom in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest in and to all continuations, divisions, renewals and extensions of any of the patent applications and patents defined above; together with the right to recover all damages, including, but not limited to, a reasonable royalty, by reason of past, present, or future infringement or any other violation of patent or patent application rights; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for all such patents.

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DATED:		
		Panagiotis Xythalis
DATED:		
		Jay Zhu
DATED:		
		Fateen Sharaby
DATED:		
		Dhiraj Bawadhankar
DATED:	10   05   2015	Molano 200
		Molang Dong

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COUNTY OF	)	SS.	
me to be the same person wappeared before me this day in delivered the said instrument purposes therein set forth.	/ho n pe : a: )F,	se na erson s his I hav	, a Notary Public in and for the certify that Panos Xythalis, personally known to ame is subscribed to the foregoing instrument, and acknowledged that (s)he signed, sealed and /her free and voluntary act for the uses and ve hereunto set my hand and Notarial Seal, this, 2015.
			Notary Public
My Commission Expires:			
STATE OF COUNTY OF	)	SS.	
be the same person whose na before me this day in person at the said instrument as his/her set forth.	ame nd free DF,	e is s ackno e and I hav	, a Notary Public in and for the certify that Jay Zhu, personally known to me to ubscribed to the foregoing instrument, appeared owledged that (s)he signed, sealed and delivered voluntary act for the uses and purposes therein the hereunto set my hand and Notarial Seal, this, 2015.
			Notary Public
My Commission Expires			<b>,</b>

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COUNTY OF	) ;	SS.
me to be the same person w appeared before me this day in delivered the said instrument purposes therein set forth.	hose pers as F, I	, a Notary Public in and for the creby certify that Fateen Sharaby, personally known to see name is subscribed to the foregoing instrument, crson and acknowledged that (s)he signed, sealed and is his/her free and voluntary act for the uses and I have hereunto set my hand and Notarial Seal, this, 2015.
		Notary Public
My Commission Expires:		
STATE OF COUNTY OF	) ) :	SS.
known to me to be the same instrument, appeared before me sealed and delivered the said in and purposes therein set forth.	e pe e thi nstr F, I	, a Notary Public in and for the hereby certify that Dhiraj Bawadhankar, personally person whose name is subscribed to the foregoing his day in person and acknowledged that (s)he signed, trument as his/her free and voluntary act for the uses I have hereunto set my hand and Notarial Seal, this, 2015.
		Notary Public
My Commission Expires:		

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STATE OF NEW YORK)	
STATE OF NEW YORK) COUNTY OF NEW YORK, Ss.	
1, Bridget Sullivar , a Notary Public	in and for the
County and State afóresaid, do hereby certify that Molang Dong, persone to be the same person whose name is subscribed to the forego	anally known to
appeared before me this day in person and acknowledged that (s)he sign delivered the said instrument as his/her free and voluntary act for	ned, sealed and
purposes therein set forth.	
S IN WITNESS WHEREOF, I have hereunto set my hand and No day of, 2015.	tarial Seal, this
	1 ///
Notary Public Notary Public	J. C. Lander
My Commission Expires: November 4501	
	oget sullivan IC-state of New York
, , , , , , , , , , , , , , , , , , , ,	01506030405

Qualified in New York County
My Cemmission Expires November 04, 2017

# **ASSIGNMENT**

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- 1 -

The Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment.

DATED:		Panagiotis Xythalis	
DATED:	Nov 2, 2015	Jay Zhu	
DATED:	<del></del>	Fateen Sharaby	
DATED:		Dhiraj Bawadhankar	
DATED:		Molang Dong	

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COUNTY OF	)	SS.	
me to be the same person appeared before me this day delivered the said instrume purposes therein set forth.	whos in per ent as EOF, I	, a Notary Puereby certify that Panagiotis Xythalis, pose name is subscribed to the forerson and acknowledged that (s)hes his/her free and voluntary act have hereunto set my hand and, 2015.	egoing instrument, signed, sealed and for the uses and
		Notary Public	
My Commission Expires:			
be the same person whose the before me this day in person the said instrument as his/he	/ do he name and a	ss.	trument, appeared aled and delivered
set forth. IN WITNESS WHERE <u>2<sup>ND</sup> day of <u>November</u></u>	OF, I	I have hereunto set my hand and, 2015.	Notarial Seal, this
		Notary Public	<del>'</del>
My Commission Expires: <u>M</u>	ae č	VINC Not State o	ENT MOODY ary Public If New Jersey Expires Mar 23, 2020

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me to be the same person vappeared before me this day in delivered the said instrument purposes therein set forth.	whon petal	ose name is sub person and ackno as his/her free a , I have hereunto	, a Notary Public in and for the Fateen Sharaby, personally known to escribed to the foregoing instrument, wledged that (s)he signed, sealed and and voluntary act for the uses and each seal seal, this
		No	tary Public
My Commission Expires:		<u></u>	
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known to me to be the sam instrument, appeared before m sealed and delivered the said and purposes therein set forth.	e pie the inst	person whose n this day in person strument as his/h , I have hereunto	, a Notary Public in and for the that Dhiraj Bawadhankar, personally name is subscribed to the foregoing and acknowledged that (s)he signed, er free and voluntary act for the uses a set my hand and Notarial Seal, this
		No	tary Public
My Commission Expires:			

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me to be the same person wappeared before me this day in delivered the said instrument purposes therein set forth.	, a Notary Public in and for the o hereby certify that Molang Dong, personally known to whose name is subscribed to the foregoing instrument, person and acknowledged that (s)he signed, sealed and as his/her free and voluntary act for the uses and eF, I have hereunto set my hand and Notarial Seal, this, 2015.
	Notary Public
My Commission Expires:	