503888122 06/24/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3934771

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	

CONVEYING PARTY DATA

Name	Execution Date
SEO WOOK JANG	06/15/2016
JEON HO CHO	06/15/2016
BO MIAO	06/23/2016
CHAM HONG PO	06/23/2016
PANAGIOTIS XYTHALIS	06/16/2016
MATTHEW MORANO	06/15/2016

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:	15192203

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

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:	4672-16005AUS			
NAME OF SUBMITTER:	KYLE BRYAN			
SIGNATURE:	/Kyle Bryan/			
DATE SIGNED:	06/24/2016			

PATENT 503888122 REEL: 039153 FRAME: 0633

Total Attachments: 30 source=Assignments-1#page1.tif source=Assignments-1#page2.tif source=Assignments-1#page3.tif source=Assignments-1#page4.tif source=Assignments-1#page5.tif source=Assignments-1#page6.tif source=Assignments-1#page7.tif source=Assignments-1#page8.tif source=Assignments-1#page9.tif source=Assignments-1#page10.tif source=Assignments-1#page11.tif source=Assignments-1#page12.tif source=Assignments-1#page13.tif source=Assignments-1#page14.tif source=Assignments-1#page15.tif source=Assignments-1#page16.tif source=Assignments-1#page17.tif source=Assignments-1#page18.tif source=Assignments-1#page19.tif source=Assignments-1#page20.tif source=Assignments-1#page21.tif source=Assignments-1#page22.tif source=Assignments-1#page23.tif source=Assignments-1#page24.tif source=Assignments-1#page25.tif source=Assignments-1#page26.tif source=Assignments-1#page27.tif source=Assignments-1#page28.tif source=Assignments-1#page29.tif source=Assignments-1#page30.tif

ASSIGNMENT

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, 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 Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assigner will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

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.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED:	6.15.2.16	ブーダー ひゃく
		Seo Wook Jang
DATED:	6.18.20/6	Jeon Ho Cho
DATED:		
		Bo Miao
DATED:	~ 	Cham Hong Po
DATED:		
entur.		Yaotian Zhang
DATED:		Part V. M. P. P.
		Panagiotis Xythalis
DATED:		Matthew Morano

∦	
STATE OF NEW YOR)	
1 11 / 1 . \ cc	
COUNTY OF NEW YOR) ""	
i Bratallium , a Noi	tary Public in and for the
County and State aforesaid, do hereby certify that Seo Wook	. 🐔
me to be the same person whose name is subscribed to t	the foregoing instrument,
appeared before me this day in person and acknowledged that	T. N. S.
delivered the said instrument as his/her free and voluntar	ry act for the uses and
purposes therein set forth. IN WITNESS WHEREOF I have hereunto set my har	nd and Notarial Seal, this
IN WITNESS WHEREOF, I have hereunto set my har day of June 2016.	in arra received court arra
	\mathcal{A} :
Notary Public	
My Commission Expires: Normber 420 No	BRIDGET SULLIVAN
NC	OTARY PUBLIC-STATE OF NEW YORK NO. 01506030405
STATE OF NEWYORK)	Gualified in New York County
	Commission Expires November 04, 2017
COUNTY OF NEW JOKE SS.	
	tary Public in and for the
County and State aforesaid, do hereby certify that Jeon Ho	
me to be the same person whose name is subscribed to appeared before me this day in person and acknowledged that	
delivered the said instrument as his/her free and voluntar	
purposes therein set forth.	
IN WITNESS WHEREOF, I have hereunto set my har day of 100 cm., 2016.	nd and Notarial Seal, this
	statement of the statem
14.	
Notary Public Notary	
My Commission Expires: North 42010	BRIDGET SULLIVAN
My Commission Expires: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IOTARY PUBLIC STATE OF NEW YORK
	No. 01 -030405 Qualified in New York County y Commission Expires Alvember 04, 2017
	NO. 015UL2030405 /

STATE OF)	cc	
COUNTY OF)	SS.	
be the same person whose na before me this day in person a the said instrument as his/her set forth.	ame nd free DF,	is su ackno and I have	, a Notary Public in and for the certify that Bo Miao, personally known to me to abscribed 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, 2016.
My Commission Expires:			Notary Public
STATE OF)		
COUNTY OF)	SS.	
me to be the same person vappeared before me this day in delivered the said instrument purposes therein set forth.	vho n pe t a DF,	se na erson a s his/l I have	, a Notary Public in and for the certify that Cham Hong Po, personally known to me is subscribed to the foregoing instrument, and acknowledged that (s)he signed, sealed and her free and voluntary act for the uses and hereunto set my hand and Notarial Seal, this _, 2016.
			Notary Public
My Commission Expires:			

STATE OF	SS.
COUNTY OF	<i>33.</i>
me to be the same person who appeared before me this day in p delivered the said instrument a purposes therein set forth.	, a Notary Public in and for the nereby certify that Yaotian Zhang, personally known to ose name is subscribed to the foregoing instrument, erson and acknowledged that (s)he signed, sealed and as his/her free and voluntary act for the uses and I have hereunto set my hand and Notarial Seal, this, 2016.
	Notary Public
My Commission Expires:	
STATE OF) COUNTY OF)	SS.
known to me to be the same instrument, appeared before me to sealed and delivered the said instand purposes therein set forth.	, a Notary Public in and for the hereby certify that Panagiotis Xythalis, personally person whose name is subscribed to the foregoing this day in person and acknowledged that (s)he signed, strument as his/her free and voluntary act for the uses I have hereunto set my hand and Notarial Seal, this, 2016.
	Notary Public
My Commission Expires:	

STATE OF	
COUNTY OF) ss.
COUNTY OF)
County and State aforesaid, do to me to be the same person appeared before me this day in delivered the said instrument purposes therein set forth.	, a Notary Public in and for the hereby certify that Matthew Morano, personally known 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 F, I have hereunto set my hand and Notarial Seal, this, 2016.
	Notary Public
My Commission Expires:	Clothary Cabino

<u>ASSIGNMENT</u>

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, 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 Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

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.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED:		
		Seo Wook Jang
DATED:		
		Jeon Ho Cho
DATED:	6/23/2010	20 /lino
		Bo Miao
DATED:		
		Cham Hong Po
DATED:		
		Yaotian Zhang
DATED:		
WRITE.		Panagiotis Xythalis
DATED:		N. 256 XX
		Matthew Morano

STATE OF)		
COUNTY OF)	SS.	
me to be the same person vappeared before me this day in delivered the said instrument purposes therein set forth.	vho n pe t a DF,	se na erson s hisa I hav	, a Notary Public in and for the certify that Seo Wook Jang, 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 re hereunto set my hand and Notarial Seal, this, 2016.
			Notary Public
My Commission Expires:		***************************************	
STATE OF)	SS.	
me to be the same person vappeared before me this day in delivered the said instrument purposes therein set forth.	vho n pe t a DF,	se na erson s hisa I hav	, a Notary Public in and for the y certify that Jeon Ho Cho, 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 re hereunto set my hand and Notarial Seal, this, 2016.
			Notary Public
My Commission Expires:			•

STATE OF Il Mois
COUNTY OF COOK SS.
County and State aforesaid, do hereby certify that Bo Miao, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth. IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of
Notary Public
My Commission Expires: 12 20 2018 OFFICIAL SEAL ERIK SANDOVAL Notary Public - State of Illinois My Commission Expires Dec 20, 2018
STATE OF
) ss.
COUNTY OF)
County and State aforesaid, do hereby certify that Cham Hong Po, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that (s)he signed, sealed and delivered the said instrument as his/her free and voluntary act for the uses and purposes therein set forth. IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this day of, 2016.
Notary Public
My Commission Expires:

STATE OF)	
COUNTY OF) ss.)	
me to be the same person wappeared before me this day in delivered the said instrument purposes therein set forth.	hose na person as hisa F, I hav	, a Notary Public in and for the certify that Yaotian Zhang, 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 /e hereunto set my hand and Notarial Seal, this, 2016.
My Commission Expires:		Notary Public
STATE OF COUNTY OF)) ss.	
known to me to be the same instrument, appeared before me sealed and delivered the said if and purposes therein set forth.	e persor e this da instrume F, I hav	, a Notary Public in and for the aby certify that Panagiotis Xythalis, personally in whose name is subscribed to the foregoing by in person and acknowledged that (s)he signed, and as his/her free and voluntary act for the uses be hereunto set my hand and Notarial Seal, this, 2016.
		Notary Public
My Commission Expires:		

STATE OF	
COUNTY OF) ss.
COUNTY OF)
County and State aforesaid, do to me to be the same person appeared before me this day in delivered the said instrument purposes therein set forth.	, a Notary Public in and for the hereby certify that Matthew Morano, personally known 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 F, I have hereunto set my hand and Notarial Seal, this, 2016.
	Notary Public
My Commission Expires:	Clothary Cabino

<u>ASSIGNMENT</u>

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, 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 Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assigner will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

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.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED:			
		Seo Wook Jang	
DATED:		Jeon Ho Cho	
DATED:		Bo Miao	
DATED:	06/23/2016.	Cham Hong Po	
DATED:		Yaotian Zhang	
DATED:		Panagiotis Xythalis	
DATED		Matthew Morano	

STATE OF)		
COUNTY OF)	SS.	
me to be the same person wappeared before me this day in delivered the said instrument purposes therein set forth.	/ho i pe : a:)F,	se nan rson ar s his/h	, a Notary Public in and for the ertify that Seo Wook Jang, personally known to ne is subscribed to the foregoing instrument, and acknowledged that (s)he signed, sealed and er free and voluntary act for the uses and hereunto set my hand and Notarial Seal, this , 2016.
			Notary Public
My Commission Expires:		***************************************	
STATE OF)	SS.	
me to be the same person wappeared before me this day in delivered the said instrument purposes therein set forth.	vho i pe : a:)F,	se nan rson ar s his/h I have	, a Notary Public in and for the certify that Jeon Ho Cho, personally known to ne is subscribed to the foregoing instrument, and acknowledged that (s)he signed, sealed and er free and voluntary act for the uses and hereunto set my hand and Notarial Seal, this , 2016.
			Notary Public
My Commission Expires:			,

STATE OF)) s s.
COUNTY OF	
be the same person wh before me this day in pe the said instrument as h set forth. IN WITNESS WI	, a Notary Public in and for the said, do hereby certify that Bo Miao, personally known to me to ose name is subscribed to the foregoing instrument, appeared rson and acknowledged that (s)he signed, sealed and delivered is/her free and voluntary act for the uses and purposes therein HEREOF, I have hereunto set my hand and Notarial Seal, this, 2016.
	Notary Public
My Commission Expires	¥:
me to be the same p appeared before me thi delivered the said ins purposes therein set fo IN WITNESS W 23day of	erson whose name is subscribed to the foregoing instrument, is day in person and acknowledged that (s)he signed, sealed and strument as his/her free and voluntary act for the uses and rth. /HEREOF, I have hereunto set my hand and Notarial Seal, this

My Commission Expires November 94, 2017

STATE OF)	SS.
COUNTY OF)	33.
me to be the same person vappeared before me this day in delivered the said instrument purposes therein set forth.	vhos per t as)F, I	, a Notary Public in and for the reby certify that Yaotian Zhang, personally known to see name is subscribed to the foregoing instrument, son and acknowledged that (s)he signed, sealed and his/her free and voluntary act for the uses and have hereunto set my hand and Notarial Seal, this, 2016.
N.C. Commission (Tuning)		Notary Public
My Commission Expires:		
STATE OF)	
COUNTY OF)	SS.
known to me to be the sam instrument, appeared before m sealed and delivered the said and purposes therein set forth.	e pe e thi instr)F, I	, a Notary Public in and for the hereby certify that Panagiotis Xythalis, personally erson whose name is subscribed to the foregoing is day in person and acknowledged that (s)he signed, rument as his/her free and voluntary act for the uses have hereunto set my hand and Notarial Seal, this, 2016.
		Notary Public
My Commission Expires:		•

STATE OF)
COUNTY OF) SS.
-	,
County and State aforesaid, do to me to be the same person wappeared before me this day in publicered the said instrument purposes therein set forth.	, a Notary Public in and for the hereby certify that Matthew Morano, personally known 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 for the uses and the sealed and sea
My Commission Expires:	Notary Public

<u>ASSIGNMENT</u>

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, 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 Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assigner will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

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.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED:		
		Seo Wook Jang
DATED:		
		Jeon Ho Cho
DATED:		Bo Miao
		DO MINO
DATED:		Cham Hong Po
		•
DATED:		Yaotian Zhang
DATED:	06 16 2016	P. Xalber
	\$ 8	Panagiotis Xythalis
DATED:		W # (1)
		Matthew Morano

STATE OF)		
COUNTY OF)	SS.	
me to be the same person vappeared before me this day in delivered the said instrument purposes therein set forth.	vho n pe t a DF,	se na erson s hisa I hav	, a Notary Public in and for the certify that Seo Wook Jang, 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 re hereunto set my hand and Notarial Seal, this, 2016.
			Notary Public
My Commission Expires:		***************************************	
STATE OF)	SS.	
me to be the same person vappeared before me this day in delivered the said instrument purposes therein set forth.	vho n pe t a DF,	se na erson s hisa I hav	, a Notary Public in and for the y certify that Jeon Ho Cho, 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 re hereunto set my hand and Notarial Seal, this, 2016.
			Notary Public
My Commission Expires:			•

STATE OF)	cc	
COUNTY OF)	SS.	
be the same person whose r before me this day in person the said instrument as his/he set forth.	name and r fre	e is : ackr e an I ha	, a Notary Public in and for the y certify that Bo Miao, personally known to me to subscribed to the foregoing instrument, appeared nowledged that (s)he signed, sealed and delivered d voluntary act for the uses and purposes therein ve hereunto set my hand and Notarial Seal, this, 2016.
			Notary Public
My Commission Expires:			
STATE OF)	SS.	
COUNTY OF)		
me to be the same person appeared before me this day delivered the said instrume purposes therein set forth.	who in po nt a OF,	se r ersor s hi	, a Notary Public in and for the y certify that Cham Hong Po, personally known to name is subscribed to the foregoing instrument, and acknowledged that (s)he signed, sealed and s/her free and voluntary act for the uses and ve hereunto set my hand and Notarial Seal, this, 2016.
			Notary Public
My Commission Expires:			

STATE OF)) ss.
COUNTY OF	
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 phereby certify that Yaotian Zhang, personally known to whose name is subscribed to the foregoing instrument, a person and acknowledged that (s)he signed, sealed and as his/her free and voluntary act for the uses and DF, I have hereunto set my hand and Notarial Seal, this, 2016.
	Notary Public
My Commission Expires:	
STATE OF NEW YORK) ss.)
County and State aforesaid, known to me to be the sam instrument, appeared before mealed and delivered the said and purposes therein set forth.	, a Notary Public in and for the do hereby certify that Panagiotis Xythalis, personally be person whose name is subscribed to the foregoing be this day in person and acknowledged that (s)he signed, instrument as his/her free and voluntary act for the uses DF, I have hereunto set my hand and Notarial Seal, this, 2016.
	Notary Public
My Commission Expires: 4/2	
	Jason seth silverstein Notary public-state of New York

SIAIEOF)
COUNTY OF) ss.
COUNTY OF)
County and State aforesaid, do to me to be the same person appeared before me this day in delivered the said instrument purposes therein set forth.	, a Notary Public in and for the hereby certify that Matthew Morano, personally known 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 F, I have hereunto set my hand and Notarial Seal, this, 2016.
	Notary Public
My Commission Expires:	crockly c word

<u>ASSIGNMENT</u>

WHEREAS, Seo Wook Jang, Jeon Ho Cho, Bo Miao, Cham Hong Po, Yaotian Zhang, Panagiotis Xythalis, and Matthew Morano, and, hereinafter called the "Assignors", have made the invention described in the United States patent application entitled DYNAMIC VALUATION SYSTEM USING OBJECT RELATIONSHIPS AND COMPOSITE OBJECT DATA, 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 Assignors hereby covenant and agree, for both the Assignors and the Assignors' legal representatives, that the Assignors will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assigner will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

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.

IN TESTIMONY WHEREOF, the Assignors have executed this agreement.

DATED:		
		Seo Wook Jang
DATED:		la and the Other
		Jeon Ho Cho
DATED:		
		Bo Miao
DATED:		
DATED:		Cham Hong Po
DATED:		Marking Theorem
		Yaotian Zhang
DATED:		
	And the second s	Panagiotis Xythalis
DATED:	6/15/2016	Watthen Morano
		Matthew Morano

STATE OF)	
COUNTY OF)	SS.
me to be the same person w appeared before me this day in delivered the said instrument purposes therein set forth.	ho: pe as F,	, a Notary Public in and for the ereby certify that Seo Wook Jang, personally known to se 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, 2016.
		Notary Public
My Commission Expires:		
STATE OF COUNTY OF)	SS.
me to be the same person w appeared before me this day in delivered the said instrument purposes therein set forth.	ho: pe as F,	, a Notary Public in and for the nereby certify that Jeon Ho Cho, personally known to se 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, 2016.
		Notary Public
My Commission Expires:		·

STATE OF)
COUNTY OF) ss.
I,
Notary Public My Commission Expires:
STATE OF)) ss. COUNTY OF)
I,
Notary Public My Commission Expires:

STATE OF)	
COUNTY OF)	SS.
me to be the same person wappeared 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 reby certify that Yaotian Zhang, personally known to e name is subscribed to the foregoing instrument, son and acknowledged that (s)he signed, sealed and his/her free and voluntary act for the uses and have hereunto set my hand and Notarial Seal, this, 2016.
My Commission Expires:	***************************************	Notary Public
STATE OF COUNTY OF)) s	SS.
known to me to be the same instrument, appeared before me sealed and delivered the said if and purposes therein set forth.	e pe e this instru F, I	, a Notary Public in and for the hereby certify that Panagiotis Xythalis, personally erson whose name is subscribed to the foregoing s day in person and acknowledged that (s)he signed, ument as his/her free and voluntary act for the uses have hereunto set my hand and Notarial Seal, this, 2016.
		Notary Public
My Commission Expires:		

STATE OF NEWYORK)	
STATE OF NEWYORK) COUNTY OF NEWYORK) 1. Dridget Sullivan	
1. Bridget Sullivan	, a Notary Public in and for the
County and State atoresaid, do nereby certify the	at mattnew morano, personally known
to me to be the same person whose name is s	• • • • • • • • • • • • • • • • • • •
appeared before me this day in person and acknowledged the said instrument as his/her free	
purposes therein set forth.	and volumenty act for the does and
IN WITNESS WHEREOF, I have hereund day of June, 2016.	o set my hand and Notarial Seal, this
/> day of <u>\(\lambda\) /\(\lambda\)</u> , 2016,	
	- / - X
N N	otary Public
My Commission Expires: // 4/20/7	

BRIDGET SULLIVAN
NOTARY PUBLIC-STATE OF NEW YORK
NO. 015U6030405
Qualified in New York County
My Commission Expires November 64, 2017