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PATENT APPLICATIONS AND THE PEFORMANCE OF THE U.S. PATENT AND TRADEMARK OFFICE

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Christopher A. Cotropia,[*] Cecil D. Quillen, Jr.,[**] and Ogden H. Webster[***]

Sitting at the heart of the United States patent system is the United States Patent and Trademark Office ("USPTO"). Accordingly, how well the USPTO does its job greatly impacts the health of the patent system. To measure this impact, many focus on the USPTO's performance in two areas: (a) issuing "quality" patents—patents whose claims meet the standards for patent protection and (b) issuing these quality patents in a timely and efficient manner.

This paper reports data and analyses to facilitate answering these questions. The reported data were obtained from two sources. The first is the Workload Tables from the USPTO annual reports, called the "USPTO Performance and Accountability Reports," provided to the President, Congress, and public. The second is data received from the USPTO in response to Freedom of Information Act ("FOIA") requests. From these two data sources, information such as the number of applications filed per year, the type of applications being filed and prosecuted, the pendency of these applications, and their disposition, including the number of them issued as patents, was obtained or determined. This paper is a continuation of the work of two of the authors (Cecil Quillen and Ogden Webster) reporting on earlier versions of this data set and published in four previous articles in the *Federal Circuit Bar Journal* in 2001, 2002, 2006, and 2009.

This paper presents data and analyses for the period from 1996 to 2012 in three parts—the number, types and disposition of patent applications being examined by the USPTO (the USPTO's "input"); the number of applications allowed and patents issued by the USPTO (the USPTO's "output"); and the number of pending applications and the average pendency for an application (the "difference" or commonly referred to as the USPTO's "backlog"). Corresponding data and analyses for earlier periods can be found in the previously mentioned *Federal Circuit Bar Journal* articles.

I. USPTO's Input – Applications Being Filed

Figure 1 reports the number of utility, plant, and reissue ("UPR") patent applications filed for each year from 1996 to 2012. These data are calculated from the Summary of Patent Examining Activities from the Workload Tables of the

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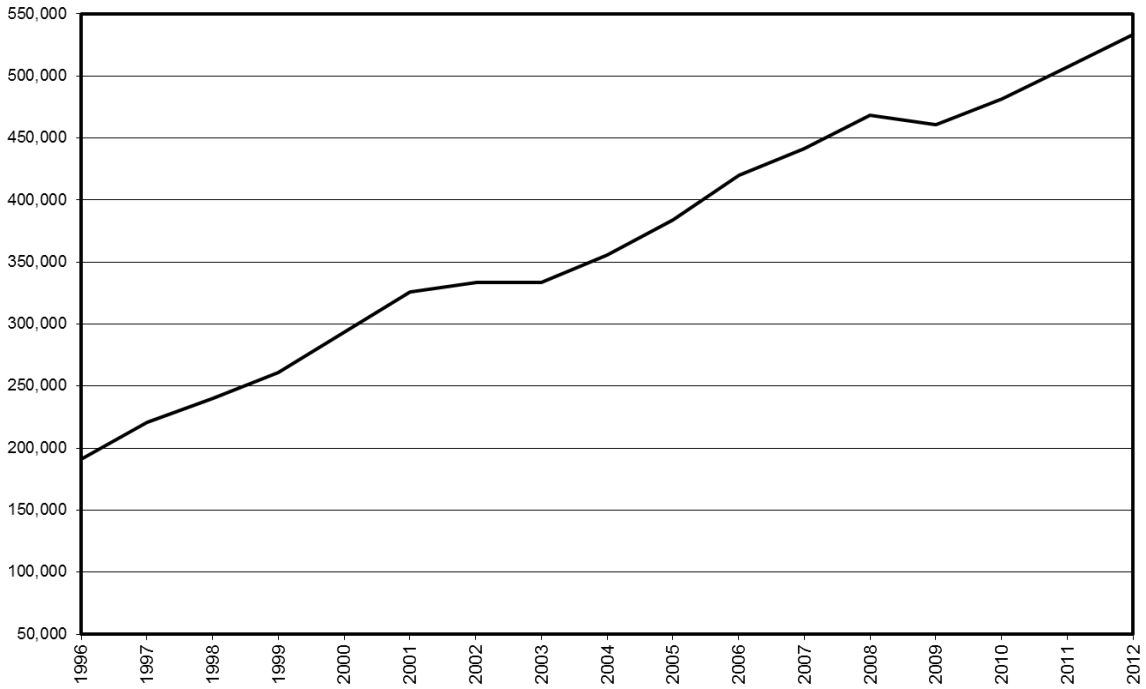
Performance and Accountability Reports for 2012 and earlier years. Nearly identical values are reported in the FOIA Responses.

Fig. 1 - UPR Patent Applications Filed (1996-2012)



The number of applications filed increased by 179% from 1996 to 2012 (from 191,016 to 533,390 applications). Since 1996, the number of applications filed has decreased in only two years—from 2002 to 2003 (a negligible decrease from 333,688 to 333,452 applications) and 2008 to 2009 (a similarly negligible decrease from 468,669 to 460,924 applications).

Figure 2, below, shows the number of applications filed for a given year in three categories, Original Applications and Divisionals, Refiled Continuing Applications, and Total Applications filed.. The FOIA information obtained from the USPTO enables the determination of whether the reported filed application is an Original Application—an application being filed with the USPTO for the first time. An application can also be identified as a divisional of a previously filed application. An application can also be what we define as a "Refiled Continuing Application" in that the filing is continuing from a previously filed application. These definitions are employed in the earlier studies published in the Federal Circuit Bar Journal. Refiled Continuing Applications include Continuations, File Wrapper Continuations ("FWCs"), Continued Prosecution Applications ("CPAs"), Requests for Contined Examination ("RCEs"), and Continuation-In-Part Applications ("CIPs"). Rule 129 filings are included in the count of Continuation applications.

Fig. 2 - UPR Patent Applications
(1996 - 2012)

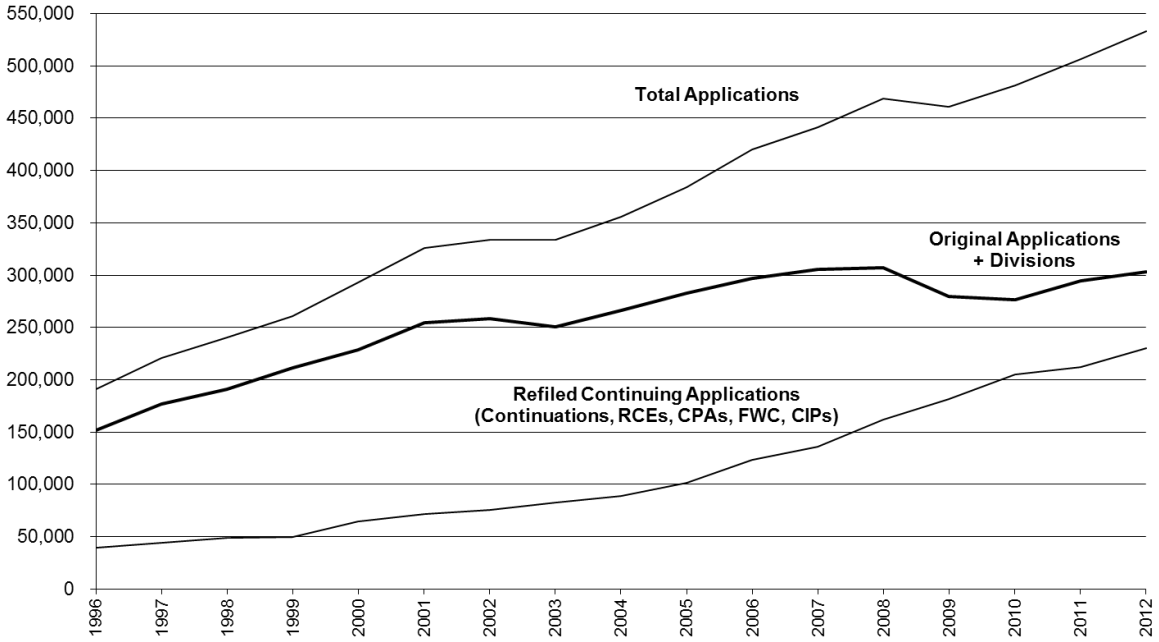
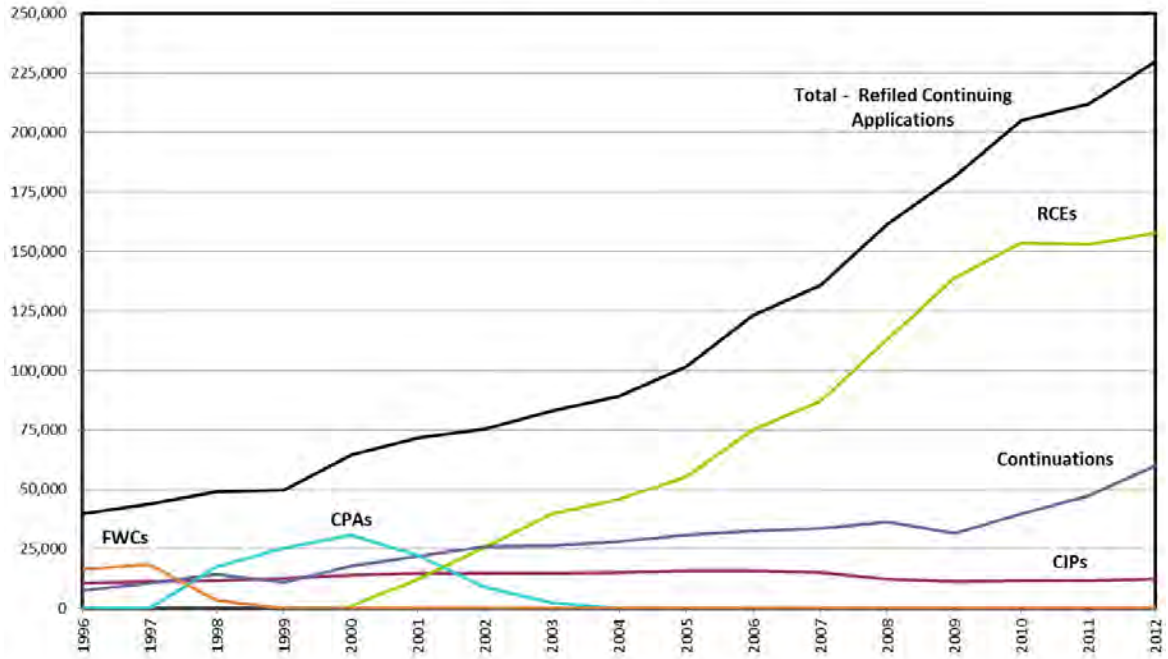


Figure 2 provides a more complete picture of the contiuing rise of applications. The number of Original and Divisionals Applications filed, a little over 300,000 in 2007, has remained essentially steady ever since. In contrast, the number of Refiled Continuing Applications filed per year has risen dramatically, jumping from 135,796 in 2007 to 229,998 in 2012, a 69% increase, and 480% from 1996 to 2012 (from 39,646 to 229,998).

The Refiled Continuing Applications line in Figure 2 is further broken down in Figure 3 below which reports the number of Continuations, RCEs, FWCs, CPAs, and CIPs in a given year from 1996 to 2012, as well as the total number of Refiled Continuing Applications for those years.

Fig. 3 - Refiled Continuing Applications (Continuations, RCEs, CPAs, FWCs, CIPs) (1996-2012)



Looking more closely at the data in Figure 3, almost all of the increase in Refiled Continuing Applications until 2010 is attributable to RCEs, which first became available in 2000. Continuations increased from 7,570 to 59,819 over the seventeen-year period shown. CIPs increased from 10,633 to 12,260 over this period. In contrast, RCEs (and their predecessor CPAs and FWCs) have increased from 16,427 FWCs in 1996 to 157,908 RCEs in 2012 (an increase of 861%). RCEs were essentially level after 2010, but the total number of Refiled Continuing Applications continued to grow because of the growth of Continuation Applications after 2009. For 2012, RCEs made up 69% of all Refiled Continuing Applications and 30% of all applications filed. Refiled Continuing Applications comprised 43% of all filed applications in 2012.

Another interesting comparison is of the ratio of FWCs or CPAs to all filed applications for a given year compared to the ratio of RCEs (the successor to CPAs and FWCs) to all filed applications for a given year. The result shows that RCEs make up a much larger percentage of applications filed than CPAs or FWCs ever did. For example, FWCs made up 9% of all applications filed in 1998 and CPAs made up 10% of all applications filed in 1999. In contrast, RCEs made up 30% of all applications filed in 2012. Even adding other continuing applications filed in 1999 to CPAs, such as Continuations and CIPs, they still made up a smaller percentage of all applications (19%) than compared to RCEs in recent years.

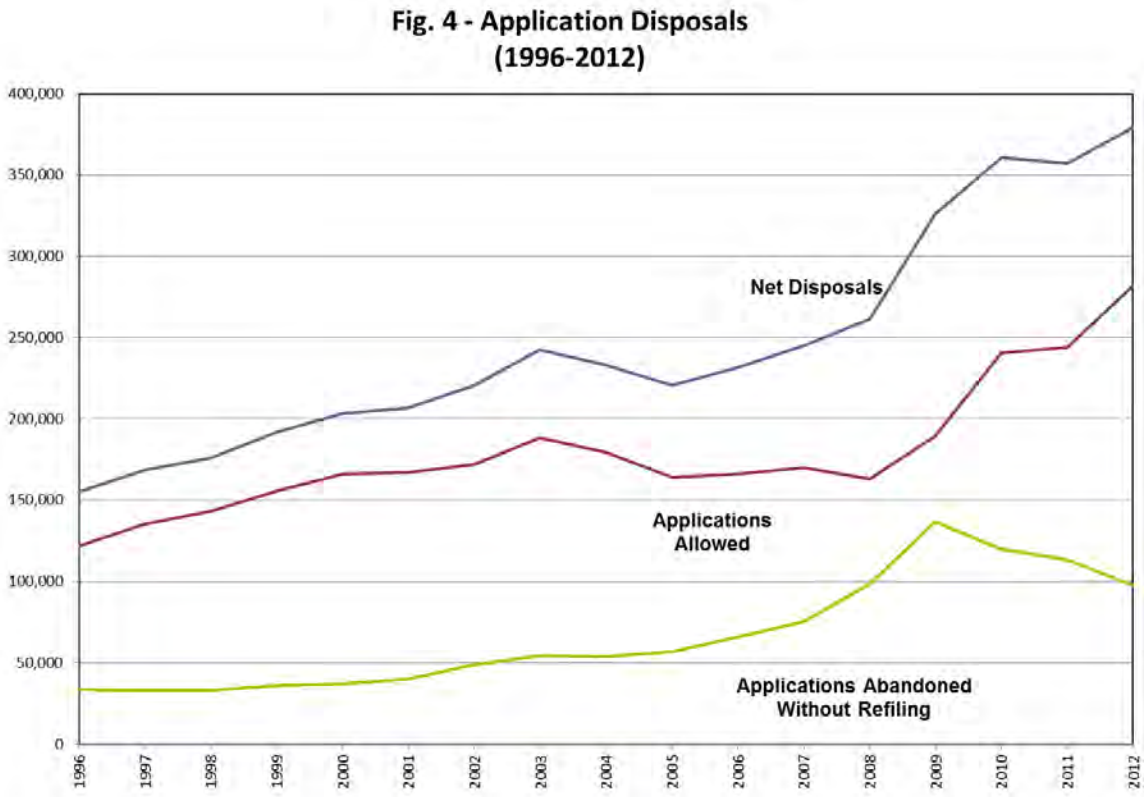
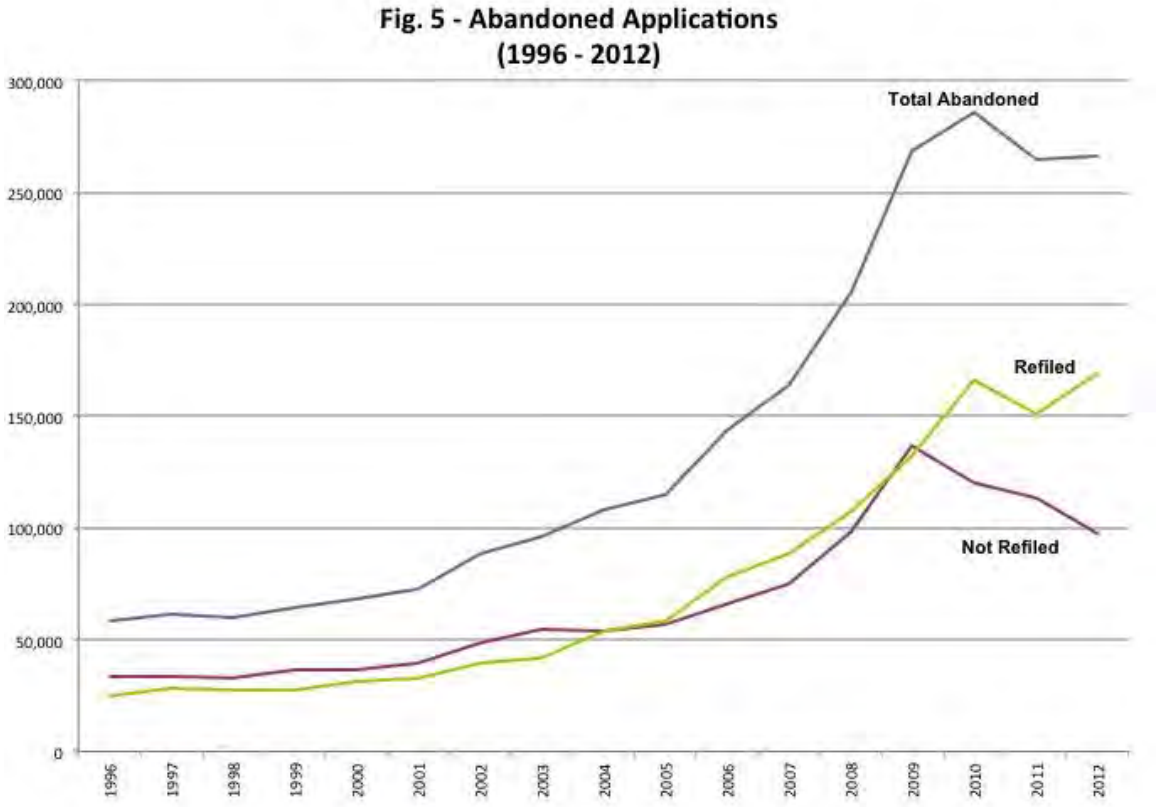


Figure 4 shows the composition of Application Disposals for 1996 - 2012. They have consistently grown since 1996, except for the 2003-2005 period, reaching 379,051 in 2012. However the growth in Application Disposals since 2009 has been entirely caused by Application Allowances that grew from 189,120 in 2009 to 281,609 in 2012, while Applications Abandoned Without Refiling fell from 136,542 in 2009 to 97,442 in 2012.

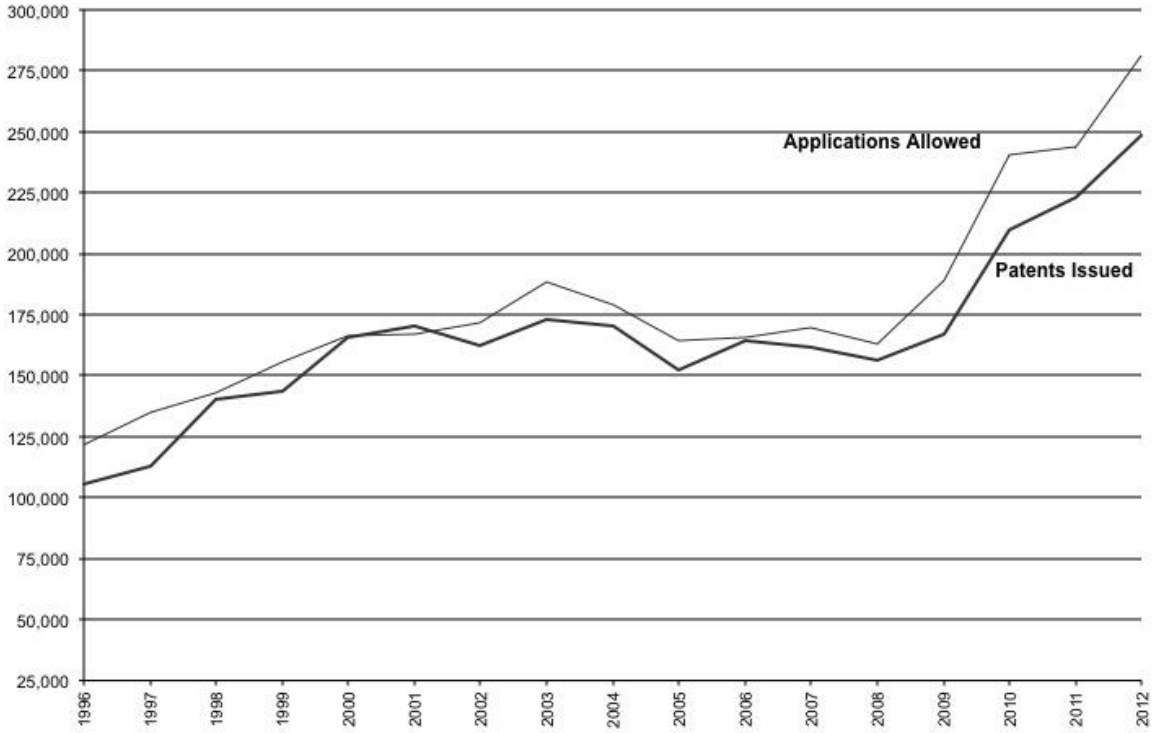
Figure 5, below, shows the disposition of Abandoned Applications. The total number of Abandoned Applications peaked in 2010 and then declined slightly in 2011 and 2012. From 1966 to 2009 the number of Abandoned Applications that were Refiled and those that were Not Refiled closely tracked each other. But after 2009 the number Refiled applications continued to grow to above 150,000 in 2012 while the number that were Not Refiled declined to fewer than 100,000.



II. USPTO Output – Applications Being Allowed and Patents Being Issued

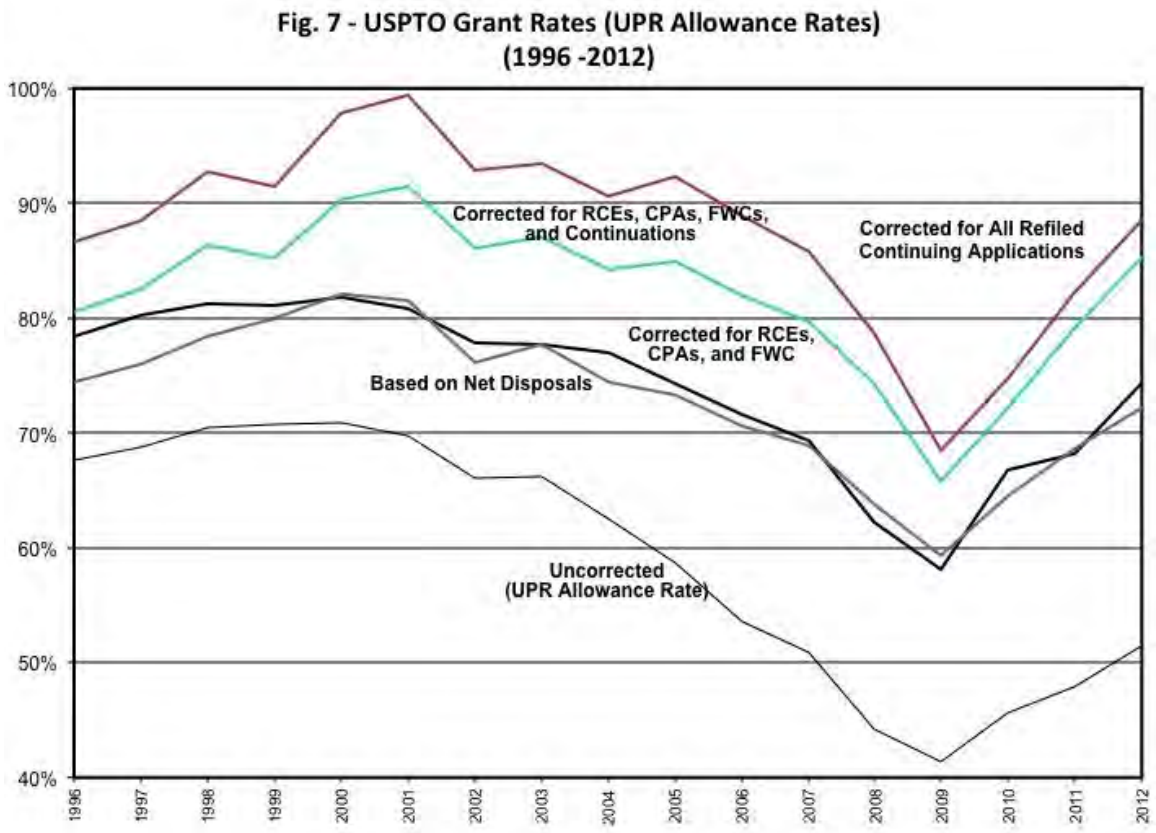
Data regarding Application Allowances and Patent Issuance was obtained from the Workload Tables from USPTO's Annual Performance Reports. Figure 6, below, reports these data indicating both the number of applications allowed in a given year and the number of patents issued in a given year.

Fig. 6 - UPR Applications Allowed (1996 - 2012)
UPR Patents Issued (1996 - 2012)



Since 1996, there have been two periods of notable increase in the number of patent applications allowed and patents issued. From 1996 through 2001, the number of patents issued increased 62% (from 105,529 to 170,638 issued patents). And from 2008 to 2012, the number of patents issued increased 59% (from 156,540 to 248,305 issued patents). In contrast, from 2001 to 2008, the number of patents issued actually decreased by 8% (from 170,638 to 156,540 issued patents), and the number of applications allowed decreased from 166,868 to 162,872.

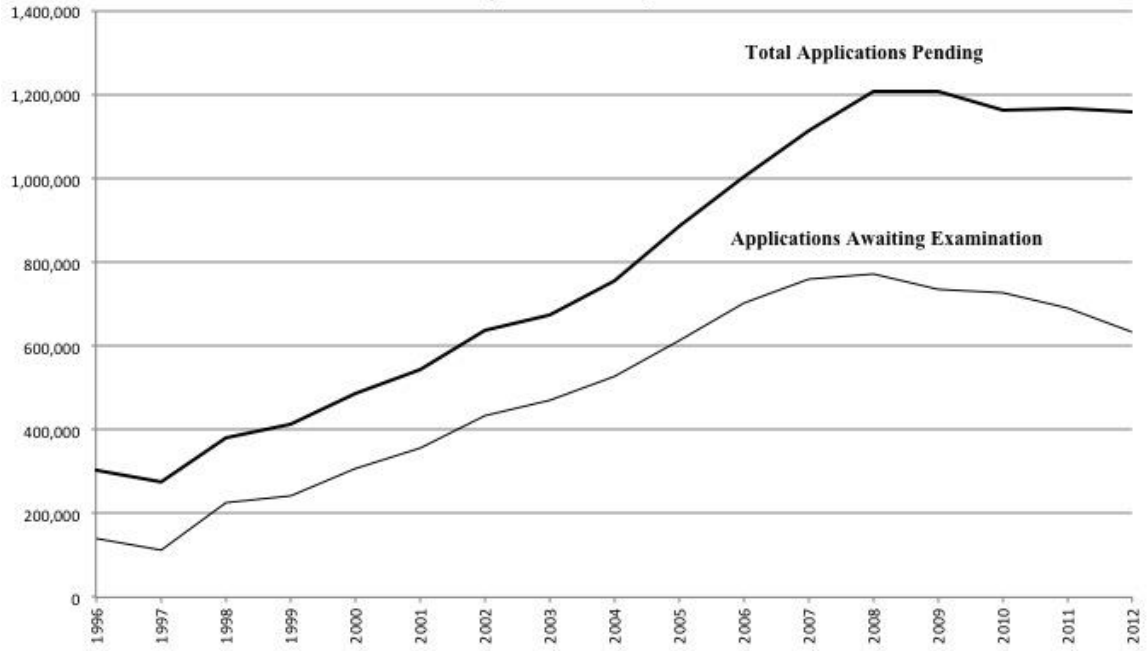
Figure 7, below, reports Application Allowance Rates under various circumstances from 1996 to 2012. The Uncorrected UPR Allowance Rate and the UPR Allowance Rate Corrected for RCEs, CPAs, and FWCs correspond to Monthly Allowance Rates reported on the USPTO's Data Visualization Center on the USPTO's website. The Uncorrected UPR Allowance Rate also closely corresponds to the Grant Rate reported by the USPTO on the Five IP Offices website and the Trilateral Co-operation Website. The Allowance Rate Based on Net Disposals is calculated using data from the FOIA Response and represents the lower bound for USPTO Allowance Rates. The other two lines report UPR Allowance Rates corrected for RCEs, CPAs, FWCs, and Continuations, and for all Refiled Continuing Applications (including CIPs). Allowance Rates peaked in 2000, declined until 2009, and then turned up sharply, reaching 89% in 2012 when corrected for all Refiled Continuing Application.



III. The Difference – the Backlog

Data from the USPTO's annual reports and the FOIA requests provided insight into the difference between the input and output of the USPTO over time—otherwise referred to as the backlog. Figure 8 reports the number of applications pending in a given year and the number of those applications awaiting an action by the examiner as reported in the Workload Tables from the USPTO Performance and Accountability Reports.

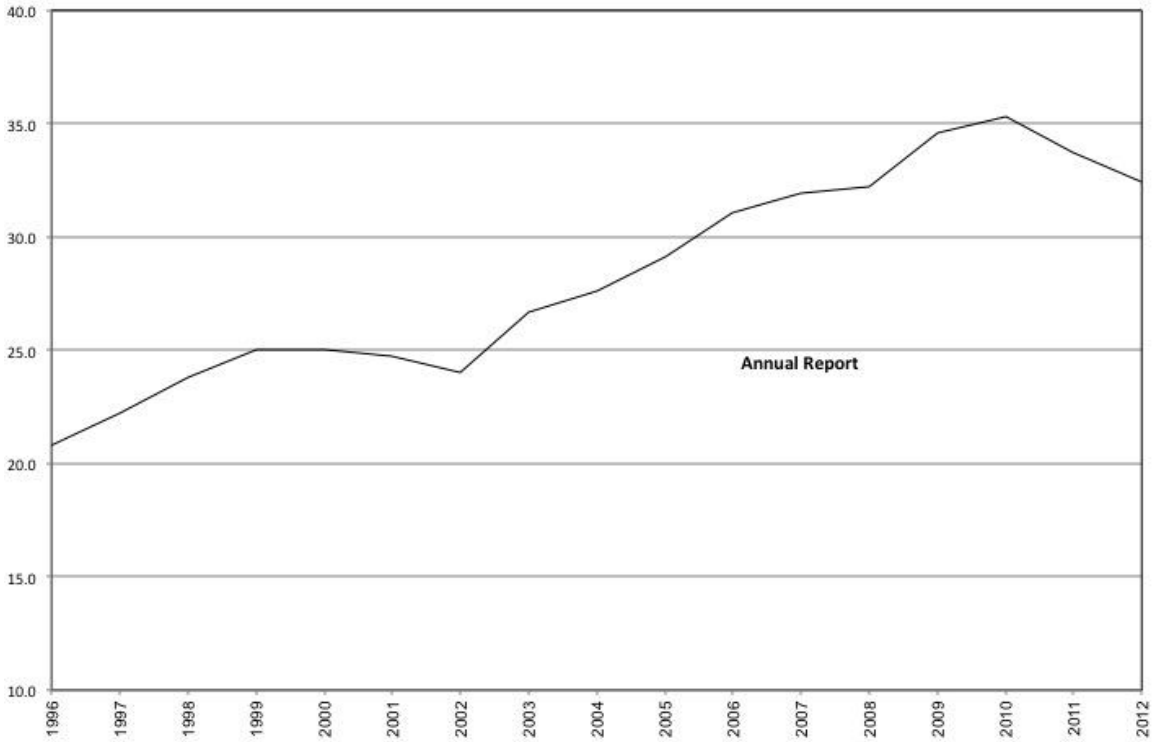
Fig. 8 - Application Backlog
(1996 - 2012)



Starting in 1997, the Total Applications Backlog begins to increase, with the percentage increase from 1997 to 2008 being 339% (from 275,295 to 1,208,076 applications). Since 2008 the backlog has remained essentially level, decreasing by about 4% (from 1,208,076 to 1,157,147 applications). The Backlog of Applications Awaiting an examiner action has dropped by 18% since 2008 (from 771,529 to 633,812).

The average length of pendency per application from the USPTO Workload Tables is reported in Figure 9. The average number of months per application as reported in the USPTO's annual report is shown.

Fig. 9 - Backlog Pendency - Months
(1996-2012)



The average pendency has increased from just over 20 months in 1996 to just over 35 months in 2010. Pendency, although, has recently started to go, with an average pendency of 32.4 months for 2012. Other pendency data are reported on the USPTO's Data Visualization Center.

Conclusion

The data and analyses show a couple of things. The Total Backlog has remained essentially level since 2008 and the backlog of Applications Awaiting Examination has declined even though applications are increasing. However, a growing percentage of these "applications" are Refiled Continuing Applications taking another turn in examination in the USPTO. RCEs make up the greatest portion of these Refiled Continuing Applications, with Continuations appearing to tick up only recently, perhaps to fill the void left by the leveling off of RCE filings, shown in Figure 3. Finally, we are experiencing a return to rising allowance rates of the late 1990s, which presumably is facilitating the drop in backlog at the USPTO.

The data above is provided for the reader to make his or her own conclusions as to the current state of USPTO performance as it affects the U.S. patent system. Our modest hope is that this information will bring awareness to the current state of play at the USPTO and in the U.S. patent system in general and help answer,

empirically, questions surrounding the health of the U.S. patent system and the performance of the USPTO.

APPENDIX A

TABLE 1 - USPTO ANNUAL REPORT DATA																	
	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
UPR Applications Filed*	191,116	220,773	240,090	261,041	293,244	326,081	333,688	333,452	355,527	384,228	419,760	441,637	468,669	460,924	481,483	506,924	533,308
UPR Applications Allowed	121,694	135,240	143,045	155,380	166,200	166,868	171,814	188,283	179,349	164,093	165,872	169,783	162,872	189,120	240,438	243,897	281,609
UPR Applications Abandoned	58,358	61,367	60,102	64,062	68,056	72,566	88,417	96,176	107,824	115,232	143,787	164,029	205,674	268,767	286,318	264,652	266,442
Nominal UPR Application Disposals (Allowed + Abandoned) (Calcula	180,052	196,607	203,147	219,442	234,256	239,434	260,231	284,459	287,173	279,325	309,659	333,812	368,546	457,887	526,756	508,549	548,051
UPR Patents Issued	105,529	112,645	140,158	143,681	165,500	170,638	162,216	173,065	170,636	152,088	164,115	161,833	156,540	166,707	209,754	223,135	248,305
Applications Published						25,359	169,729	243,007	248,561	291,221	291,259	302,678	309,194	325,988	338,452	321,115	328,620
Total Applications Pending	303,720	275,295	379,484	414,837	485,129	542,007	636,530	674,691	756,604	885,002	1,003,884	1,112,517	1,208,076	1,207,794	1,163,751	1,168,928	1,157,147
Backlog Growth (Calculated)	5,198	-28,425	104,189	35,353	70,292	56,878	94,523	38,161	81,913	128,398	118,882	108,633	95,559	-282	-44,043	5,177	-11,781
Total Average Pendency (Annual Report - Months)	20.8	22.2	23.8	25.0	25.0	24.7	24.0	26.7	27.6	29.1	31.1	31.9	32.2	34.6	35.3	33.7	32.4
Net Average Backlog (Calculated-Months) (Total Apps Pending/Net Di	23.5	19.6	25.9	26.0	28.7	31.5	34.6	33.4	38.9	48.1	52.0	54.5	55.4	44.5	38.8	39.3	36.6

APPENDIX B

Table 2 - USPTO FOIA DATA																	
	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
UPR Applications Filed	191016	220773	240090	261041	293244	326081	333688	333452	355527	384228	419760	441637	468669	460924	481483	506334	533390
Continuation Applications																	
Continuations	7570	10434	14311	10961	17942	21781	25861	26199	27960	30774	32394	33685	36307	31338	39629	47369	59819
Continued Prosecution Applications (CPAs)	0	0	17462	25258	30888	22407	8982	2335	1	0	0	1	0	0	0	0	0
File Wrapper Continuations (FWCs)	16427	18585	3350	23	15	4	2	3	0	0	0	0	0	0	0	0	0
Rule 129 Continuations	5016	3737	2356	949	444	206	118	88	42	10	25	8	10	0	1	0	11
Continuation Applications (Excluding RCEs)	29013	32756	37479	37191	49289	44398	34963	28625	28003	30784	32419	33694	36317	31338	39630	47369	59830
Requests for Continued Examination (RCEs)					1035	12443	25686	39594	46080	55279	74920	87154	113115	139044	153766	152973	157908
Subtotal - Continuations + RCEs)	29013	32756	37479	37191	50324	56841	60649	68219	74083	86063	107339	120848	149432	170382	193396	200342	217738
Continuation-in-Part Applications (CIPs)	10633	11093	11458	12465	13956	14700	14617	14755	15061	15607	15774	14948	12141	11220	11696	11597	12260
Refiled Continung Applications (Calculated - Continuations + RCEs + CPAs + FWCs + CIPs)	39646	43849	48937	49656	64280	71541	75266	82974	89144	101670	123113	135796	161573	181602	205092	211939	229998
Divisional Applications																	
Divisionals	9867	12590	11919	13627	15760	17966	18138	19702	19376	19067	20450	21224	20102	19837	21036	21927	22161
Divisional CPAs			396	314	260	140	171	36	0	0	0	0	0	0	0	0	0
Total Divisional Applications (Calculated)	9867	12590	12315	13941	16020	18106	18309	19738	19376	19067	20450	21224	20102	19837	21036	21927	22161
Total Continuing Applications (Calculated)	49513	56439	61252	63597	80300	89647	93575	102712	108520	120737	143563	157020	181675	201439	226128	233866	252159
Applications Abandoned Without Refiling	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Original Applications Abandoned Without Refiling	27961	27912	27651	30402	31884	34075	42358	46074	46189	47996	54256	60462	79390	105916	93089	89992	77219
Continuing Applications Abandoned Without Refiling	5648	5362	5242	5854	4938	5700	6389	8165	7593	8668	11471	14867	19202	30626	26819	23446	20223
Total - Applications Abandoned Without Refiling	33609	33274	32893	36256	36822	39775	48747	54239	53782	56664	65727	75329	98592	136542	119908	113438	97442
Abandoned Applications That Were Refiled (Calculated)	24749	28093	27209	27806	31234	32791	39670	41937	54042	58568	78060	88700	107082	132225	166410	151214	169000
Abandoned Applications That Were Refiled as % of Abandoned Applications	42%	46%	45%	43%	46%	45%	45%	44%	50%	51%	54%	54%	52%	49%	58%	57%	63%
Requests for Continued Examination (RCEs) as % of Total Abandoned (Calculated)					2%	17%	29%	41%	43%	48%	52%	53%	55%	52%	54%	58%	59%
Refiled Continuing Applications as % of Total Abandoned (Calculated)	68%	71%	81%	78%	94%	99%	85%	86%	83%	88%	86%	83%	79%	68%	72%	80%	86%
Patents	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
UPR Patent Count (Total Issued)	105529	112641	140156	143682	165498	170637	162216	173065	170637	152087	164115	161835	156540	166707	209754	223135	248305
Patents Wherein Parent Patent Was Granted	15591	18686	20456	21184	24954	26997	27653	29272	27987	26332	30906	30855	30663	32436	39787	48427	51835
"Original" UPR Patents	89938	93955	119700	122498	140544	143640	134563	143793	142650	125755	133209	130980	125877	134271	169967	174708	196470
Percent Where Parent Was Patented (Calculated)	15%	17%	15%	15%	15%	16%	17%	17%	16%	17%	19%	19%	20%	19%	19%	22%	21%

APPENDIX C

TABLE 3 - CALCULATIONS																	
USPTO UPR Applications	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Original Applications (FOIA UPR Applications less FOIA Total Continuing Applications)	141,503	164,334	178,838	197,444	212,944	236,434	240,113	230,740	247,007	263,491	276,197	284,617	286,994	259,485	255,355	272,468	281,231
Original Applications + Divisionals	151,370	176,924	191,153	211,385	228,964	254,540	258,422	250,478	266,383	282,558	296,647	305,841	307,096	279,322	276,391	294,395	303,392
Requests for Continued Examination (RCEs)+CPAs+FWCs	16,427	18,585	20,812	25,281	31,938	34,854	34,670	41,932	46,081	55,279	74,920	87,155	113,115	139,044	153,766	152,973	157,908
Refiled Continuing Applications (Continuations + RCEs CPAs + FWCs + CIPs)	39,646	43,849	48,937	49,656	64,280	71,541	75,266	82,974	89,144	101,670	123,113	135,796	161,573	181,602	205,092	211,939	229,998
Original Applications as % of Total Applications	74%	74%	74%	76%	73%	73%	72%	69%	69%	69%	66%	64%	61%	56%	53%	54%	53%
Original Applications + Divisionals as % of Total Applications	79%	80%	80%	81%	78%	78%	77%	75%	75%	74%	71%	69%	66%	61%	57%	58%	57%
Requests for Continued Examination (RCEs) as % of Total Applications					0%	4%	8%	12%	13%	14%	18%	20%	24%	30%	32%	30%	30%
Refiled Continung Applications as % of Total Applications	21%	20%	20%	19%	22%	22%	23%	25%	25%	26%	29%	31%	34%	39%	43%	42%	43%
Divisional Applications as % of Total Applications	5%	6%	5%	5%	5%	6%	5%	6%	5%	5%	5%	5%	4%	4%	4%	4%	4%
Total Continuing Applications as % of Total Applications	26%	26%	26%	24%	27%	27%	28%	31%	31%	31%	34%	36%	39%	44%	47%	46%	47%
Indexed Application Growth 1980-2012 (Calculated: 1983 = Base Year)	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2,012**
Total Applications	2.0	2.3	2.5	2.7	3.0	3.3	3.4	3.4	3.6	3.9	4.3	4.5	4.8	4.7	4.9	5.2	5.5
Original Applications	1.7	2.0	2.2	2.4	2.6	2.9	2.9	2.8	3.0	3.2	3.4	3.5	3.5	3.2	3.1	3.3	3.4
Original Applications + Divisions	1.8	2.1	2.2	2.5	2.7	3.0	3.0	2.9	3.1	3.3	3.5	3.6	3.6	3.3	3.2	3.4	3.5
Refiled Continuing Applications	3.3	3.7	4.1	4.2	5.4	6.0	6.3	7.0	7.5	8.5	10.3	11.4	13.6	15.3	17.2	17.8	19.3
UPR Application Disposals (Calculated)	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2,012**
Nominal UPR Application Disposals (Applications Allowed + Applications Abandoned)	180,052	196,607	203,147	219,442	234,256	239,434	260,231	284,459	287,173	279,325	309,659	333,812	368,546	457,887	526,756	508,549	548,051
Net UPR Application Disposals (Applications Allowed + Applications Abandoned Without Refiling)	155,303	168,514	175,938	191,636	203,022	206,643	220,561	242,522	233,131	220,757	231,599	245,112	261,464	325,662	360,346	357,335	379,051
Disposals Corrected for RCEs, CPAs, and FWCs	163,625	178,022	182,335	194,161	202,318	204,580	225,561	242,527	241,092	224,046	234,739	246,657	255,431	318,843	372,990	355,576	390,143
Disposals Corrected for RCEs + CPAs, + FWC+ Continuations	151,039	163,851	165,668	182,251	183,932	182,593	199,582	216,240	213,090	193,262	202,320	212,964	219,114	287,505	333,360	308,207	330,313
Disposals Corrected for Refiled Continuing Applications	140,406	152,758	154,210	169,786	169,976	167,893	184,965	201,485	198,029	177,655	186,546	198,016	206,973	276,285	321,664	296,610	318,053
Disposals Corrected for All Continuing Applications	130,539	140,168	141,895	155,845	153,956	149,787	166,656	181,747	178,653	158,588	166,096	176,792	186,871	256,448	300,628	274,683	295,892
USPTO Application Allowance Rates (Grant Rates)	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Uncorrected Grant Rate (Application Allowance Rate)	68%	69%	70%	71%	71%	70%	66%	66%	62%	59%	54%	51%	44%	41%	46%	48%	51%
Grant Rate Reported on Trilateral Website	67%	69%	70%	70%	71%	70%	65%	64%	65%	59%	53%	49%	44%	42%	46%	46%	
Grant Rate (Patent Application Allowance Rate) based on Net Disposals	78%	80%	81%	81%	82%	81%	78%	78%	77%	74%	72%	69%	62%	58%	67%	68%	74%
Grant Rate (Patent Application Allowance Rate) - Corrected For RCEs, CPAs, and FWCs	74%	76%	78%	80%	82%	82%	76%	78%	74%	73%	71%	69%	64%	59%	64%	69%	72%
Grant Rate (Patent Application Allowance Rate) - Corrected For RCEs and Continuations	81%	83%	86%	85%	90%	91%	86%	87%	84%	85%	82%	80%	74%	66%	72%	79%	85%
Grant Rate (Patent Application Allowance Rate) - Corrected For Refiled Continuing Applications	87%	89%	93%	92%	98%	99%	93%	93%	91%	92%	89%	86%	79%	68%	75%	82%	89%